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## **Appendix A**

### **Count Data and Signal Timing Plans**

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4202-001

Day: Wednesday

City: National City

Date: 8/13/2014

AM

NS/EW Streets:	Tidelands Ave			Tidelands Ave			19th St			19th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 2	WR 0	TOTAL
7:00 AM	4	3	5	1	12	11	2	3	1	1	16	1	60
7:15 AM	6	8	3	1	15	4	6	7	1	0	20	1	72
7:30 AM	6	5	0	0	3	4	9	8	4	3	18	0	60
7:45 AM	1	8	1	0	7	18	4	13	2	1	26	2	83
8:00 AM	0	20	1	2	10	2	1	1	2	1	0	3	43
8:15 AM	0	14	2	0	17	1	2	0	0	2	0	5	43
8:30 AM	0	5	3	4	23	0	1	1	0	2	1	1	41
8:45 AM	0	9	2	2	7	0	0	0	0	2	0	3	25

TOTAL VOLUMES :	NL 17	NT 72	NR 17	SL 10	ST 94	SR 40	EL 25	ET 33	ER 10	WL 12	WT 81	WR 16	TOTAL 427
APPROACH %'s :	16.04%	67.92%	16.04%	6.94%	65.28%	27.78%	36.76%	48.53%	14.71%	11.01%	74.31%	14.68%	

PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	17	24	9	2	37	37	21	31	8	5	80	4	275
PEAK HR FACTOR :	0.735			0.760			0.714			0.767			0.828

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4202-001

Day: Wednesday

City: National City

Date: 8/13/2014

PM													
NS/EW Streets:	Tidelands Ave			Tidelands Ave			19th St			19th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 2	WR 0	TOTAL
4:00 PM	1	3	2	5	10	1	18	35	8	0	2	0	85
4:15 PM	0	6	1	2	4	1	5	9	2	1	0	0	31
4:30 PM	0	2	1	3	3	1	3	4	1	0	0	0	18
4:45 PM	0	4	2	0	7	1	10	8	5	1	0	2	40
5:00 PM	0	3	0	1	4	0	0	0	0	1	0	1	10
5:15 PM	0	1	2	1	3	0	0	0	0	0	0	0	7
5:30 PM	0	2	0	0	5	0	0	0	0	0	0	1	8
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2

TOTAL VOLUMES :	NL 1	NT 22	NR 8	SL 12	ST 37	SR 4	EL 36	ET 56	ER 16	WL 3	WT 2	WR 4	TOTAL 201
APPROACH %'s :	3.23%	70.97%	25.81%	22.64%	69.81%	7.55%	33.33%	51.85%	14.81%	33.33%	22.22%	44.44%	

PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	1	15	6	10	24	4	36	56	16	2	2	2	174
PEAK HR FACTOR :	0.786			0.594			0.443			0.500			0.512

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
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# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

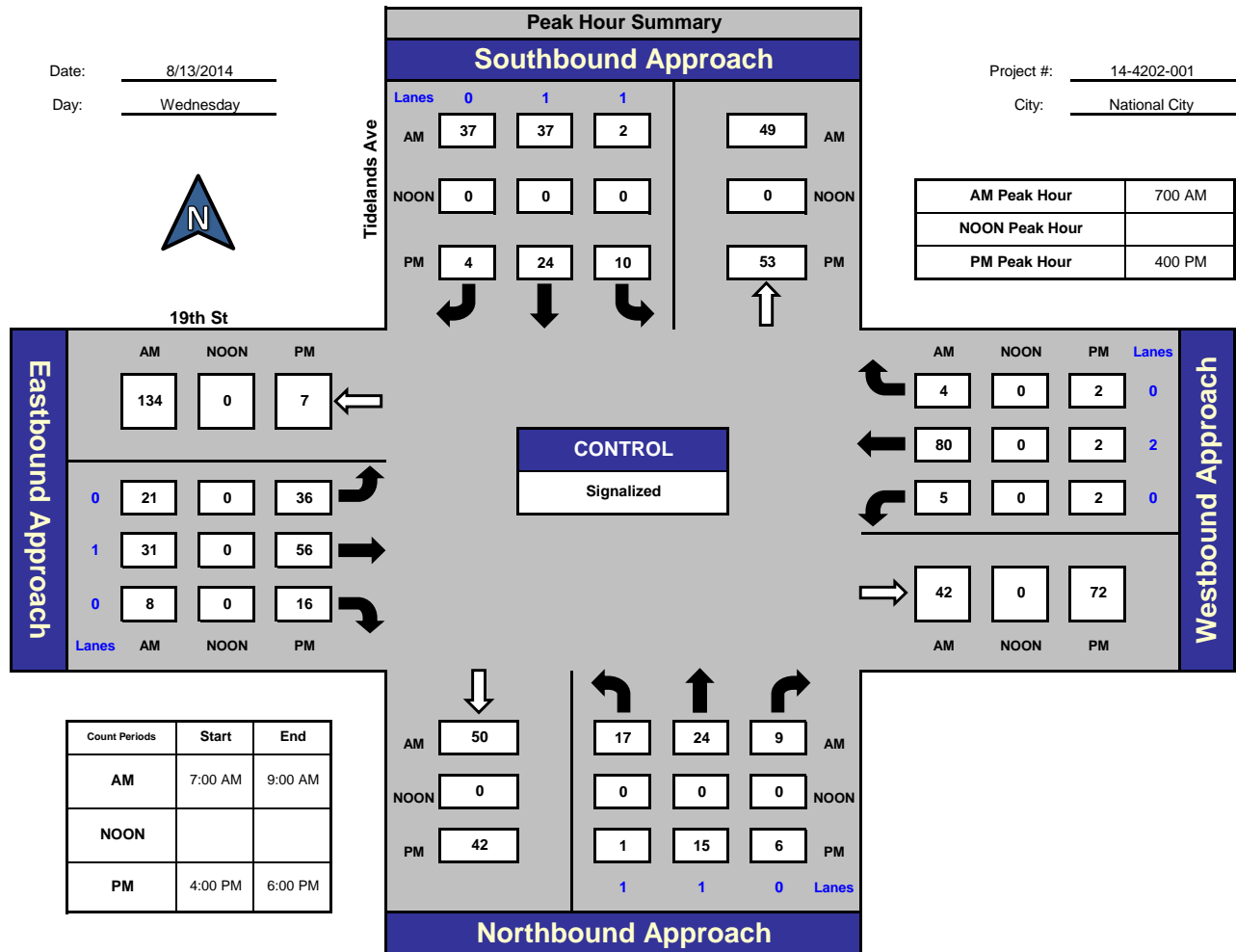
## Tidelands Ave and 19th St., National City

Date: 8/13/2014

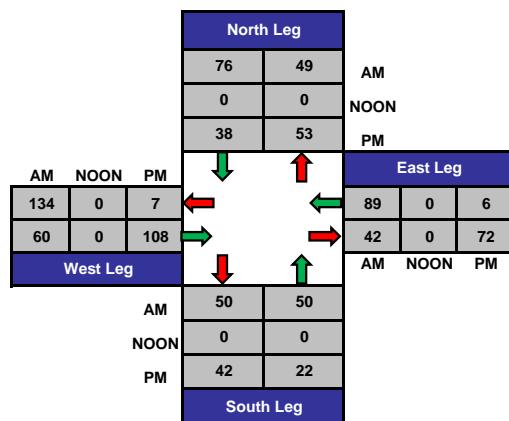
Day: Wednesday

Project #: 14-4202-001

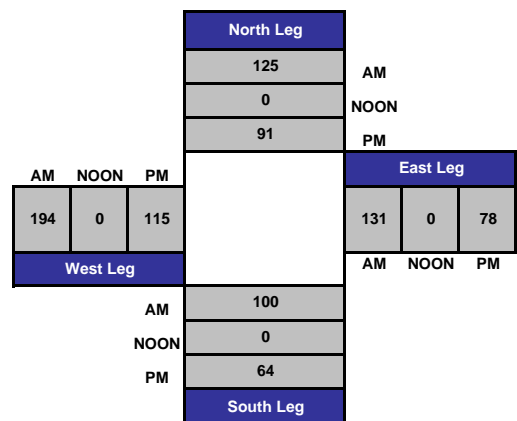
City: National City



### Total Ins & Outs



### Total Volume Per Leg



Prepared by:  
**National Data & Surveying Services**

**Date:** 1/9/2014

WESTBOUND

UTURNS			
NB	SB	EB	WB
			0
			0
			0
			0
			0
			0
			0
			1
			0
			0
			0
			0
			1
			1
			0
			1
			0
			0
			0
			0
			1
			1
			0
			0
			0
			2
			0
			1
			1
			0
NB 0	SB 0	EB 0	WB 12

**CONTROL : 1-Way Stop (NB)**

Prepared by:  
**National Data & Surveying Services**

**Day:** Thursday

**Date:** 1/9/2014

**NS/EW Streets:**

PEAK HR START TIME :	400 PM											TOTAL	
PEAK HR VOL :	6	0	43	25	0	0	1	45	6	13	13	3	155
PEAK HR FACTOR :	0.306			0.694			0.650			0.806			0.546

**CONTROL : 1-Way Stop (NB)**

NB 1	SB 0	EB 0	WB 9
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# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

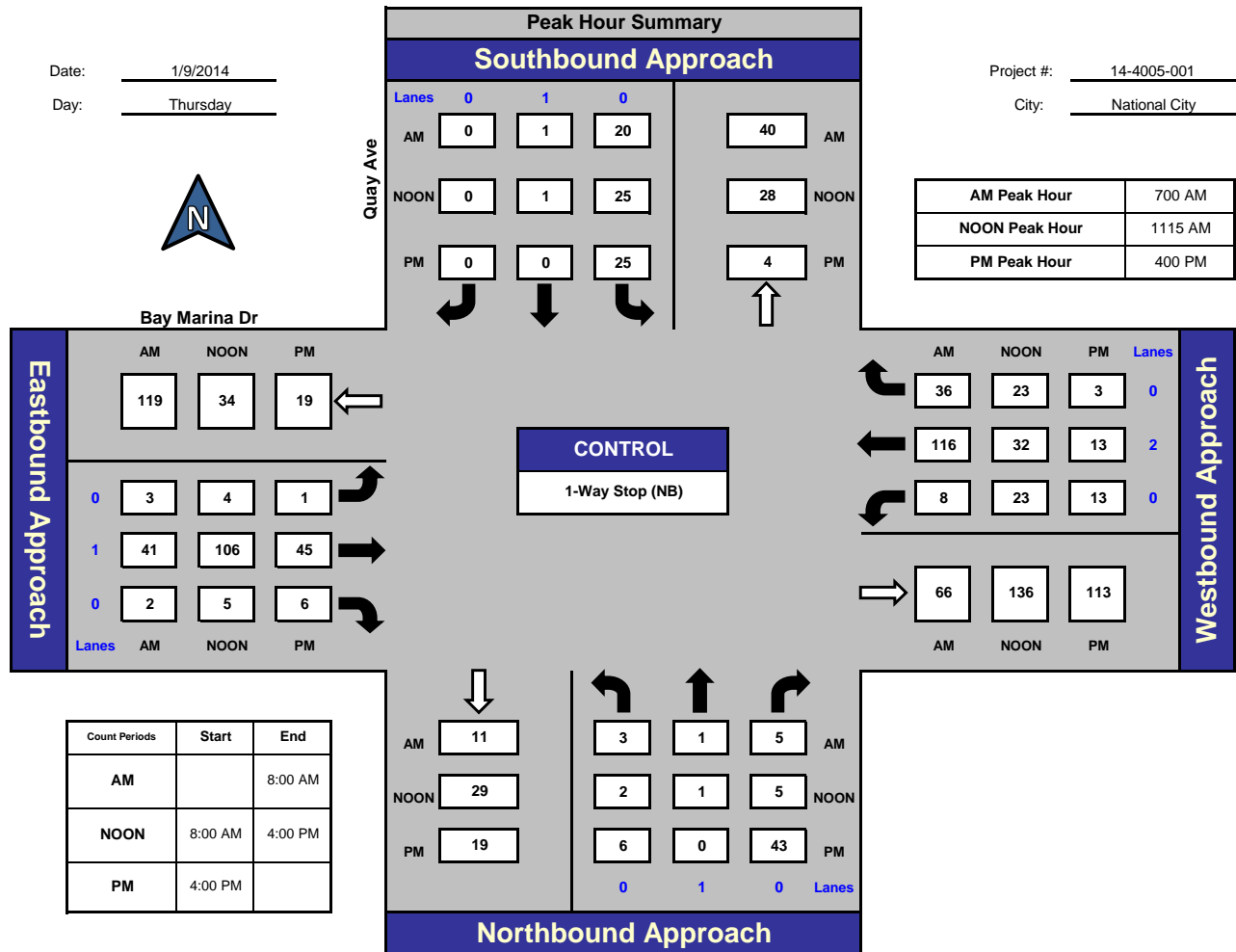
## Quay Ave and Bay Marina Dr , National City

Date: 1/9/2014

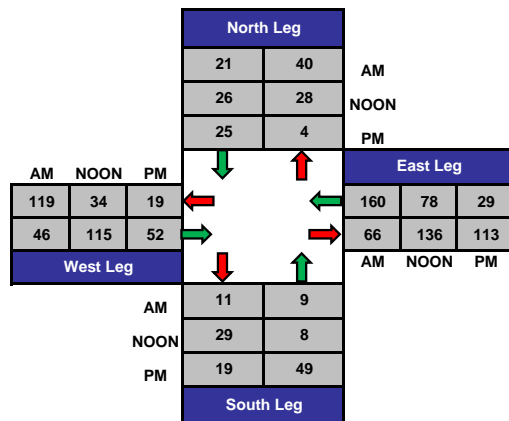
Day: Thursday

Project #: 14-4005-001

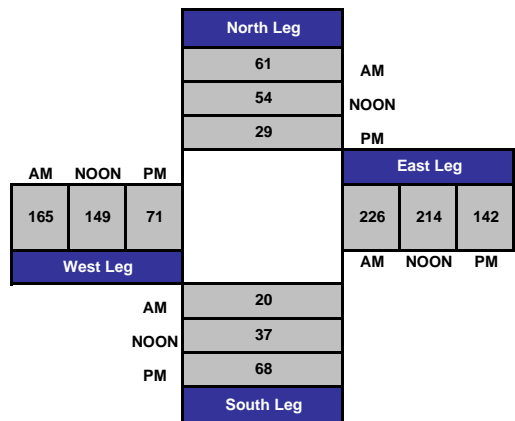
City: National City



## Total Ins & Outs



## Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-001

Day: Wednesday

City: National city

Date: 1/15/2014

AM

NS/EW Streets:		Tidelands Ave			Tidelands Ave			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	
5:00 AM	0	0	1	2	0	0	1	0	0	7	19	41	71	
5:15 AM	0	0	0	4	0	1	1	3	1	18	34	48	110	
5:30 AM	0	2	1	0	1	2	1	10	0	27	55	58	157	
5:45 AM	1	0	1	0	0	1	0	9	0	19	42	46	119	
6:00 AM	0	2	2	4	1	0	1	12	0	6	11	44	83	
6:15 AM	0	0	3	3	2	1	6	13	0	4	12	30	74	
6:30 AM	0	1	9	4	1	1	2	19	0	4	14	31	86	
6:45 AM	0	1	3	0	1	3	1	16	1	7	30	17	80	

TOTAL VOLUMES :	NL 1	NT 6	NR 20	SL 17	ST 6	SR 9	EL 13	ET 82	ER 2	WL 92	WT 217	WR 315	TOTAL 780
APPROACH %'s :	3.70%	22.22%	74.07%	53.13%	18.75%	28.13%	13.40%	84.54%	2.06%	14.74%	34.78%	50.48%	

PEAK HR START TIME :	515 AM												TOTAL
PEAK HR VOL :	1	4	4	8	2	4	3	34	1	70	142	196	469
PEAK HR FACTOR :	0.563			0.700			0.731			0.729			0.747

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-001

Day: Wednesday

City: National city

Date: 1/15/2014

PM

NS/EW Streets:		Tidelands Ave			Tidelands Ave			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
1:30 PM		2	4	9	6	0	4	2	10	0	10	12	6	65
1:45 PM		0	2	8	7	1	4	7	10	1	7	8	1	56
2:00 PM		1	2	14	6	1	1	2	14	1	14	13	10	79
2:15 PM		3	5	14	24	3	2	5	16	2	9	8	12	103
2:30 PM		1	3	9	56	2	1	4	28	3	4	7	10	128
2:45 PM		2	4	13	9	4	7	4	14	1	5	12	9	84
3:00 PM		1	2	14	21	1	3	2	14	0	5	6	6	75
3:15 PM		1	3	6	18	4	3	1	20	0	4	9	7	76
TOTAL VOLUMES :		NL 11	NT 25	NR 87	SL 147	ST 16	SR 25	EL 27	ET 126	ER 8	WL 58	WT 75	WR 61	TOTAL 666
APPROACH %'s :		8.94%	20.33%	70.73%	78.19%	8.51%	13.30%	16.77%	78.26%	4.97%	29.90%	38.66%	31.44%	
PEAK HR START TIME :		200 PM												TOTAL
PEAK HR VOL :		7	14	50	95	10	11	15	72	7	32	40	41	394
PEAK HR FACTOR :		0.807			0.492			0.671			0.764			0.770

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

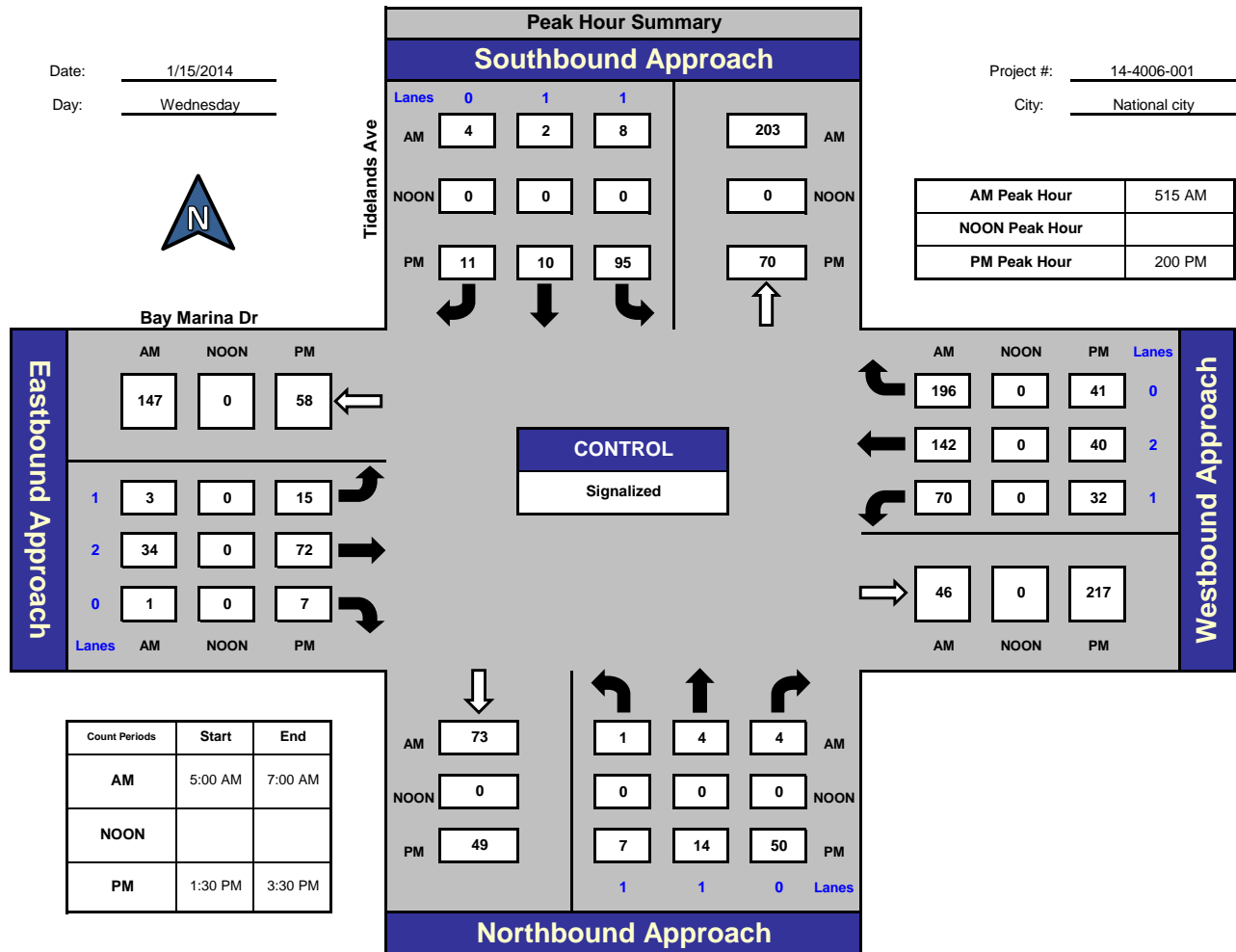
## Tidelands Ave and Bay Marina Dr , National city

Date: 1/15/2014

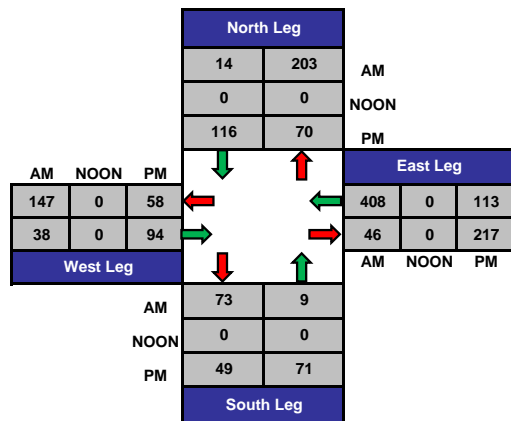
Day: Wednesday

Project #: 14-4006-001

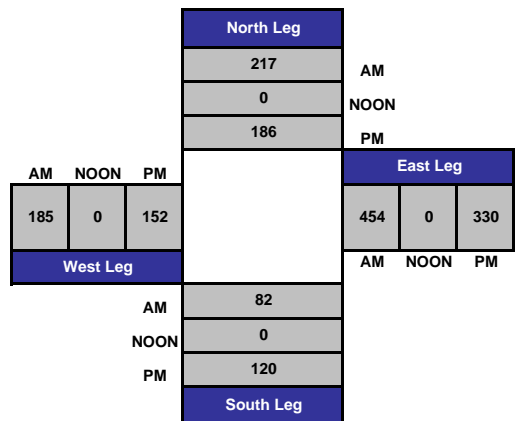
City: National city



### Total Ins & Outs



### Total Volume Per Leg





# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-002

Day: Wednesday

City: National city

Date: 1/15/2014

AM

NS/EW Streets:		Harrison Ave/W 32nd St			Harrison Ave/W 32nd St			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 0	NR 1	SL 0	ST 0	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
5:00 AM		0		1					4	0	1	78		84
5:15 AM		0		0					13	0	3	124		140
5:30 AM		1		1					13	1	2	192		210
5:45 AM		0		3					14	0	1	163		181
6:00 AM		0		2					12	0	1	112		127
6:15 AM		0		1					22	0	2	75		100
6:30 AM		0		6					39	1	0	74		120
6:45 AM		0		2					21	0	10	98		131
TOTAL VOLUMES :		NL 1	NT 0	NR 16	SL 0	ST 0	SR 0	EL 0	ET 138	ER 2	WL 20	WT 916	WR 0	TOTAL 1093
APPROACH %'s :		5.88%	0.00%	94.12%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	98.57%	1.43%	2.14%	97.86%	0.00%	
PEAK HR START TIME :		515 AM												TOTAL
PEAK HR VOL :		1	0	6	0	0	0	0	52	1	7	591	0	658
PEAK HR FACTOR :		0.583			0.000			0.946			0.771			0.783

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-002

Day: Wednesday

City: National city

Date: 1/15/2014

PM

NS/EW Streets:		Harrison Ave/W 32nd St			Harrison Ave/W 32nd St			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 0	NR 1	SL 0	ST 0	SR 0	EL 0	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
1:30 PM		1		15					40	0	10	38		104
1:45 PM		0		13					41	0	7	31		92
2:00 PM		1		8					48	1	6	44		108
2:15 PM		0		13					67	2	13	40		135
2:30 PM		0		15					64	0	6	16		101
2:45 PM		2		14					48	1	11	27		103
3:00 PM		1		15					61	1	10	14		102
3:15 PM		1		18					39	1	12	23		94
TOTAL VOLUMES :		NL 6	NT 0	NR 111	SL 0	ST 0	SR 0	EL 0	ET 408	ER 6	WL 75	WT 233	WR 0	TOTAL 839
APPROACH %'s :		5.13%	0.00%	94.87%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	98.55%	1.45%	24.35%	75.65%	0.00%	
PEAK HR START TIME :		200 PM												TOTAL
PEAK HR VOL :		3	0	50	0	0	0	0	227	4	36	127	0	447
PEAK HR FACTOR :		0.828			0.000			0.837			0.769			0.828

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

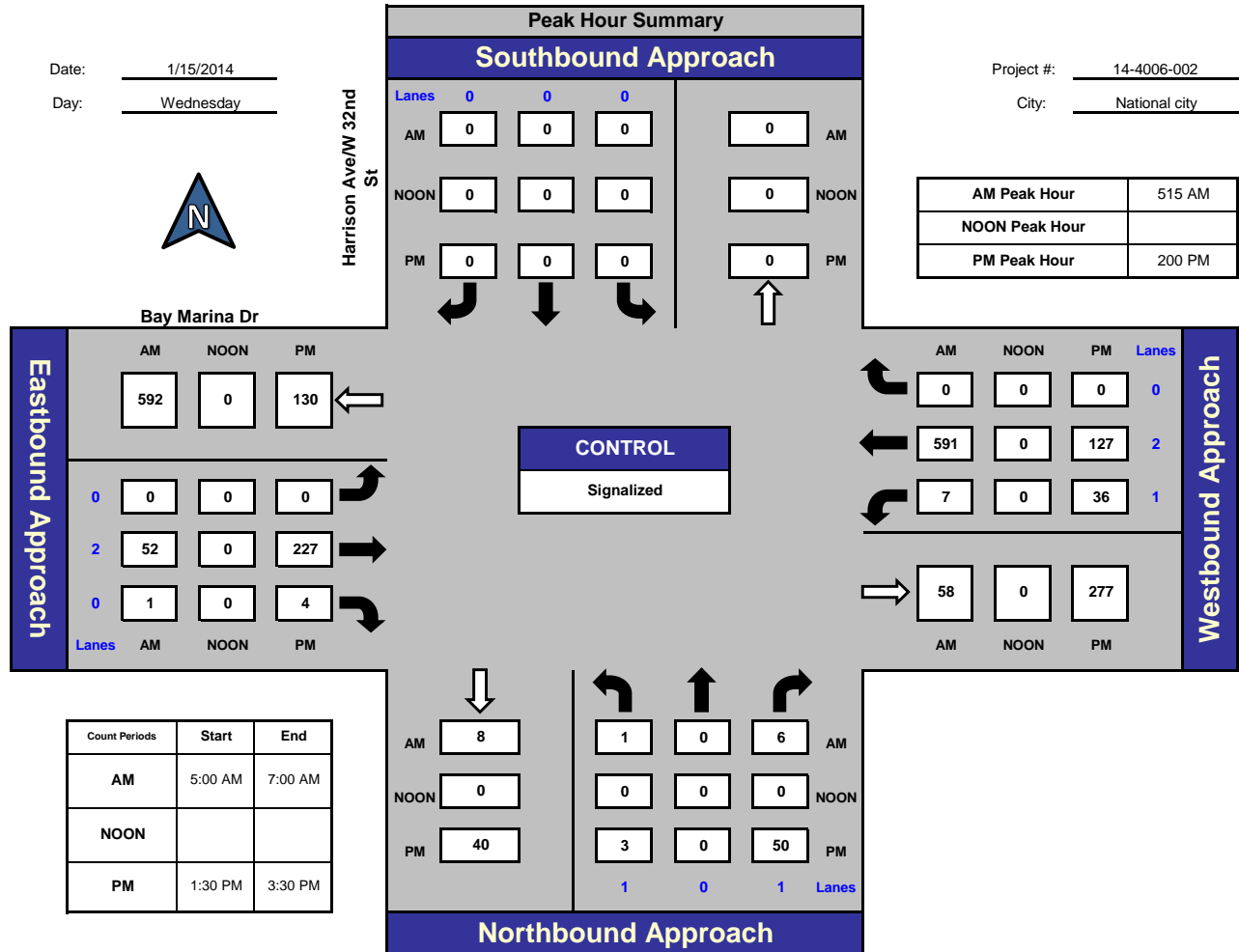
## Harrison Ave/W 32nd St and Bay Marina Dr , National city

Date: 1/15/2014

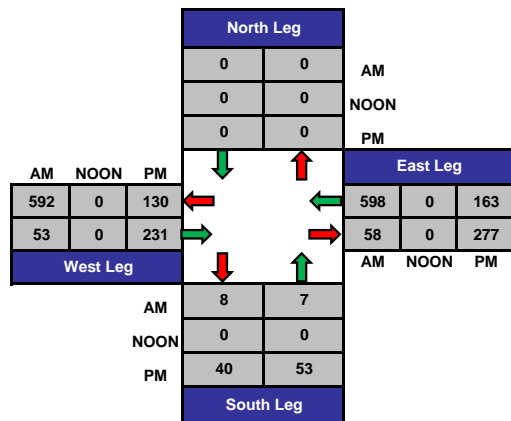
Day: Wednesday

Project #: 14-4006-002

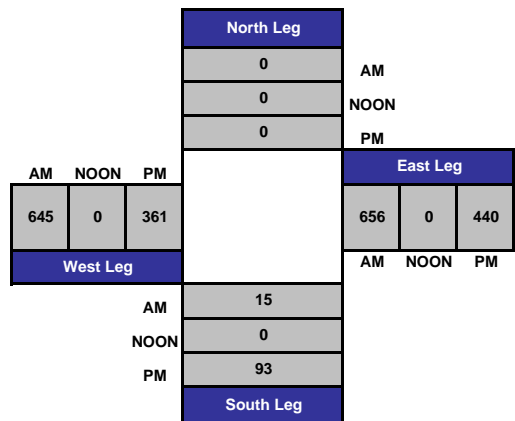
City: National city



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-003

Day: Wednesday

City: National city

Date: 1/15/2014

AM

NS/EW Streets:		Cleveland Ave			Cleveland Ave			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 1	NT 0.5	NR 0.5	SL 1	ST 1.5	SR 0.5	EL 0	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL
5:00 AM		0	0	2	2	0	2	1	4	0	2	76	32	121
5:15 AM		0	0	0	9	0	1	0	12	0	3	127	54	206
5:30 AM		2	0	3	5	0	2	0	16	0	1	196	52	277
5:45 AM		2	0	9	8	1	4	1	16	0	2	152	65	260
6:00 AM		0	0	8	5	0	1	0	13	0	0	113	61	201
6:15 AM		0	2	12	10	1	3	3	21	0	1	71	79	203
6:30 AM		0	2	8	8	0	1	4	40	1	6	73	56	199
6:45 AM		0	3	7	13	0	2	3	18	0	4	105	64	219
TOTAL VOLUMES : APPROACH %'s :		NL 4 6.67%	NT 7 11.67%	NR 49 81.67%	SL 60 76.92%	ST 2 2.56%	SR 16 20.51%	EL 12 7.84%	ET 140 91.50%	ER 1 0.65%	WL 19 1.36%	WT 913 65.45%	WR 463 33.19%	TOTAL 1686
PEAK HR START TIME :		515 AM												TOTAL
PEAK HR VOL :		4	0	20	27	1	8	1	57	0	6	588	232	944
PEAK HR FACTOR :		0.545			0.692			0.853			0.829			0.852

CONTROL : 4-Way Stop

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-003

Day: Wednesday

City: National city

Date: 1/15/2014

PM

NS/EW Streets:		Cleveland Ave			Cleveland Ave			Bay Marina Dr			Bay Marina Dr				
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:		NL 1	NT 0.5	NR 0.5	SL 1	ST 1.5	SR 0.5	EL 0	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL	
1:30 PM		1	1	6	29	0	3	1	53	0	5	41	22	162	
1:45 PM		1	0	1	26	0	3	6	49	1	3	33	20	143	
2:00 PM		0	0	3	46	2	3	2	54	0	9	47	16	182	
2:15 PM		0	0	9	50	2	3	0	71	2	7	50	17	211	
2:30 PM		0	0	3	136	0	4	2	82	1	5	24	32	289	
2:45 PM		0	0	5	63	1	4	2	55	0	10	30	22	192	
3:00 PM		0	0	8	64	2	3	4	73	0	6	26	17	203	
3:15 PM		0	1	3	80	3	6	1	53	1	6	24	16	194	
TOTAL VOLUMES :		NL 2	NT 2	NR 38	SL 494	ST 10	SR 29	EL 18	ET 490	ER 5	WL 51	WT 275	WR 162	TOTAL 1576	
APPROACH %'s :		4.76%	4.76%	90.48%	92.68%	1.88%	5.44%	3.51%	95.52%	0.97%	10.45%	56.35%	33.20%		
PEAK HR START TIME :		215 PM												TOTAL	
PEAK HR VOL :		0	0	25	313	5	14	8	281	3	28	130	88	895	
PEAK HR FACTOR :		0.694			0.593			0.859			0.831			0.774	

CONTROL : 4-Way Stop

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

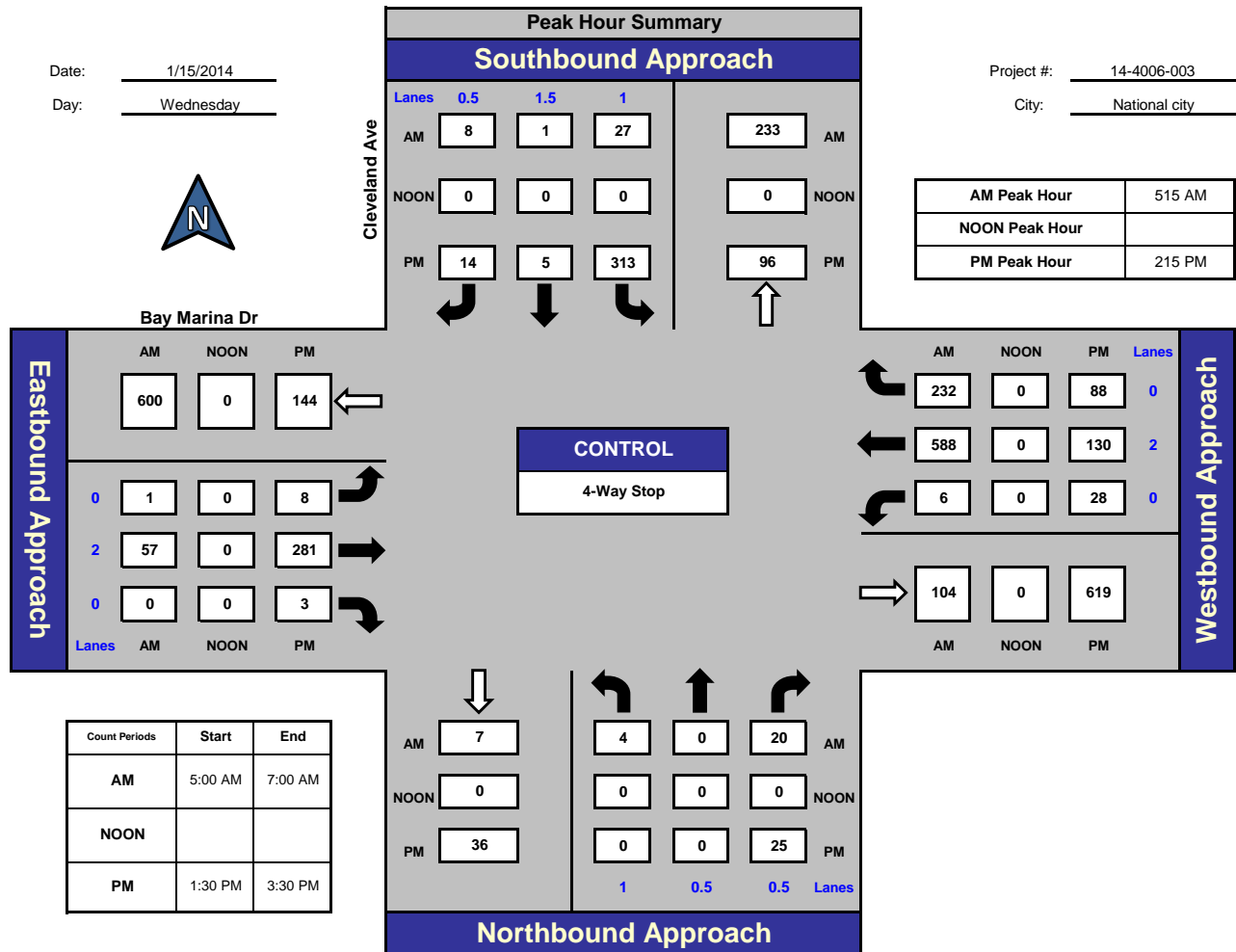
## Cleveland Ave and Bay Marina Dr , National city

Date: 1/15/2014

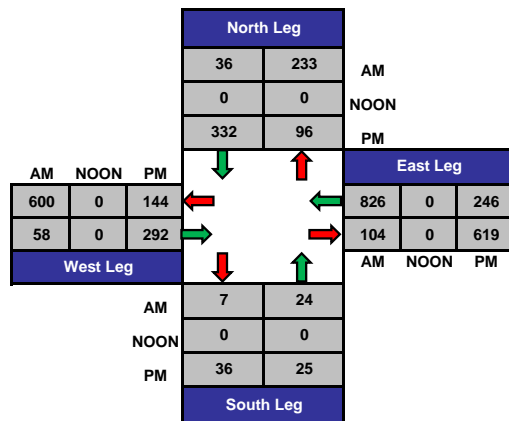
Day: Wednesday

Project #: 14-4006-003

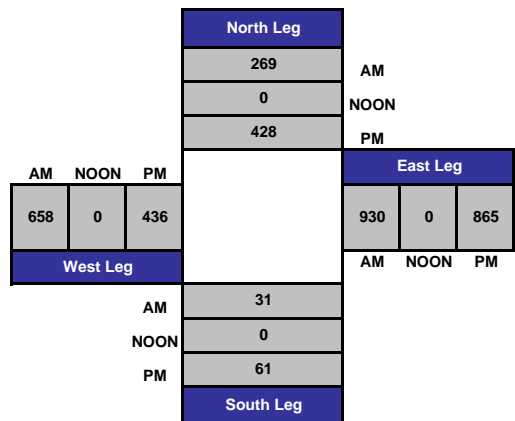
City: National city



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4194-002

Day: Tuesday

City: National City

Date: 7/29/2014

AM

NS/EW Streets:		I-5 SB Off-Ramp			I-5 SB Off-Ramp			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 0	NR 0	SL 1.5	ST 0.5	SR 1	EL 0	ET 2	ER 1	WL 2	WT 2	WR 0	TOTAL
7:00 AM					63	1	30		11	19	27	103		254
7:15 AM					84	0	35		21	24	32	94		290
7:30 AM					72	0	41		19	23	63	84		302
7:45 AM					117	0	36		13	24	39	104		333
8:00 AM					76	0	28		26	18	45	58		251
8:15 AM					71	0	24		31	30	45	74		275
8:30 AM					96	1	34		22	22	62	56		293
8:45 AM					114	1	26		16	26	58	65		306
TOTAL VOLUMES : APPROACH %'s :		NL 0 #DIV/0!	NT 0 #DIV/0!	NR 0 #DIV/0!	SL 693 72.95%	ST 3 0.32%	SR 254 26.74%	EL 0 0.00%	ET 159 46.09%	ER 186 53.91%	WL 371 36.77%	WT 638 63.23%	WR 0 0.00%	TOTAL 2304
PEAK HR START TIME :		7:00 AM												TOTAL
PEAK HR VOL :		0	0	0	336	1	142	0	64	90	161	385	0	1179
PEAK HR FACTOR :		0.000			0.783			0.856			0.929			0.885

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4194-002

Day: Tuesday

City: National City

Date: 7/29/2014

PM

NS/EW Streets:		I-5 SB Off-Ramp			I-5 SB Off-Ramp			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 0	NR 0	SL 1.5	ST 0.5	SR 1	EL 0	ET 2	ER 1	WL 2	WT 2	WR 0	TOTAL
4:00 PM					167	1	14		46	79	82	46		435
4:15 PM					162	1	14		46	88	87	31		429
4:30 PM					172	8	14		56	84	115	26		475
4:45 PM					144	4	8		56	89	84	28		413
5:00 PM					171	6	8		35	61	97	31		409
5:15 PM					150	1	5		28	36	99	23		342
5:30 PM					155	2	7		32	47	97	28		368
5:45 PM					122	1	8		32	33	82	20		298
TOTAL VOLUMES : APPROACH %'s :		NL 0 #DIV/0!	NT 0 #DIV/0!	NR 0 #DIV/0!	SL 1243 92.42%	ST 24 1.78%	SR 78 5.80%	EL 0 0.00%	ET 331 39.03%	ER 517 60.97%	WL 743 76.13%	WT 233 23.87%	WR 0 0.00%	TOTAL 3169
PEAK HR START TIME :		400 PM												TOTAL
PEAK HR VOL :		0	0	0	645	14	50	0	204	340	368	131	0	1752
PEAK HR FACTOR :		0.000			0.914			0.938			0.885			0.922

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0



# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

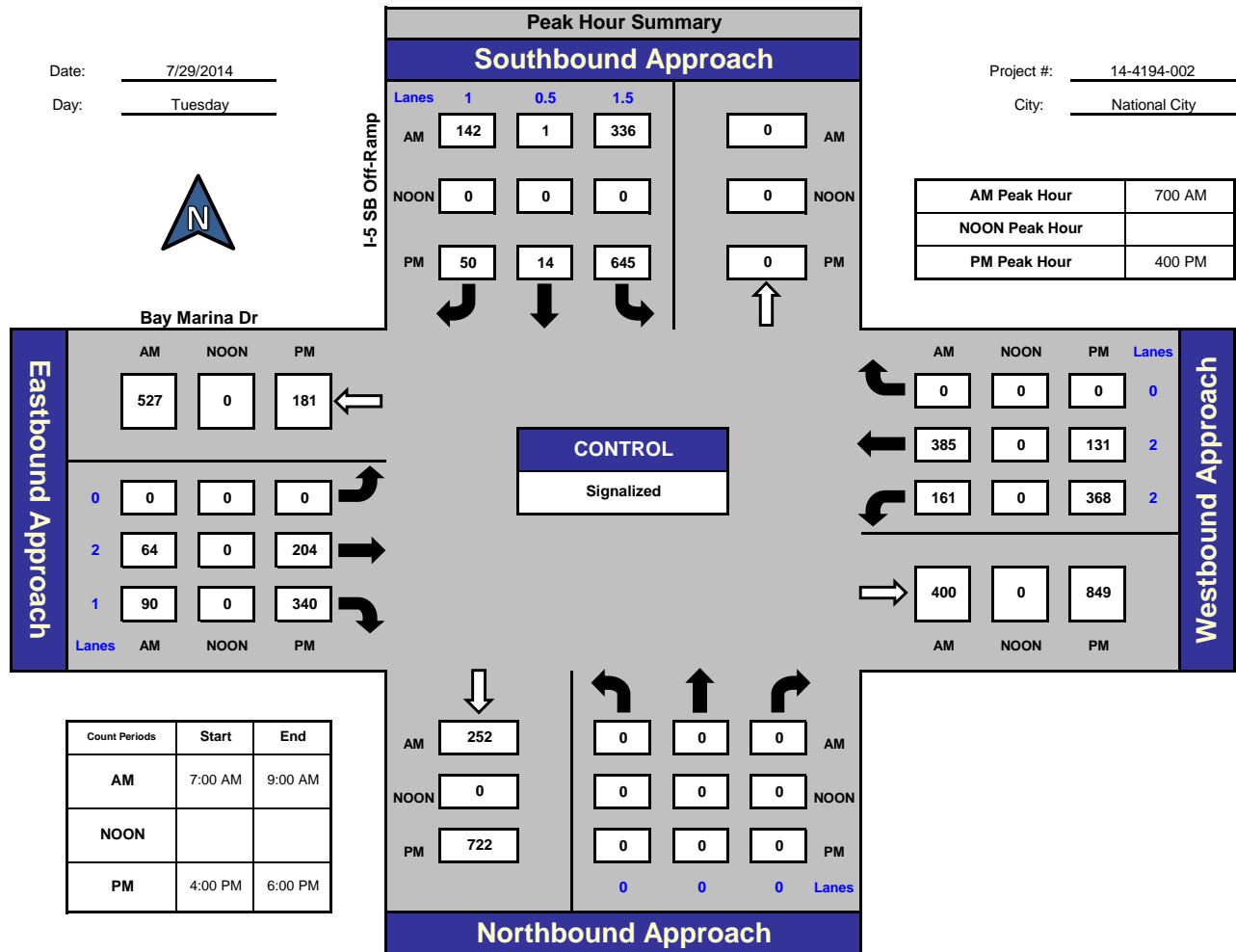
## I-5 SB Off-Ramp and Bay Marina Dr., National City

Date: 7/29/2014

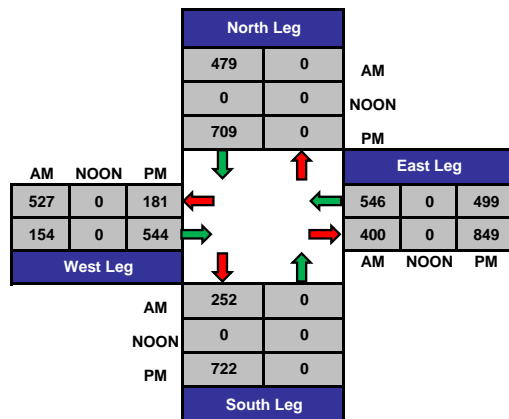
Day: Tuesday

Project #: 14-4194-002

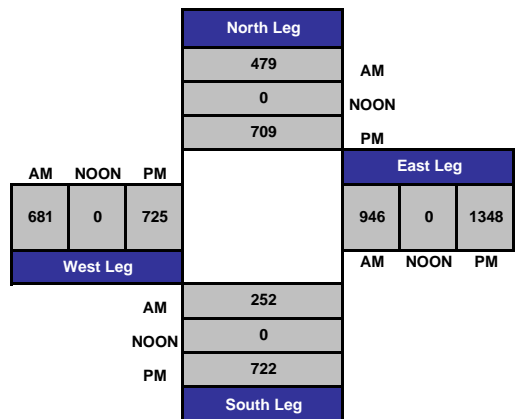
City: National City



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4194-001

Day: Tuesday

City: National City

Date: 7/29/2014

AM

NS/EW Streets:	I-5 NB On-Ramp			I-5 NB On-Ramp			Bay Marina Dr			Bay Marina Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1.3	NT 0.3	NR 1.3	SL 0	ST 0	SR 0	EL 2	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL
7:00 AM	79	55	72				10	65			47	106	434
7:15 AM	87	83	79				18	79			48	123	517
7:30 AM	71	70	118				12	84			73	107	535
7:45 AM	73	48	147				10	115			70	92	555
8:00 AM	49	3	138				12	96			57	106	461
8:15 AM	62	5	112				22	75			53	104	433
8:30 AM	51	13	121				20	104			72	94	475
8:45 AM	48	9	125				9	118			75	84	468

TOTAL VOLUMES :	NL 520	NT 286	NR 912	SL 0	ST 0	SR 0	EL 113	ET 736	ER 0	WL 0	WT 495	WR 816	TOTAL 3878
APPROACH %'s :	30.27%	16.65%	53.08%	#DIV/0!	#DIV/0!	#DIV/0!	13.31%	86.69%	0.00%	0.00%	37.76%	62.24%	

PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	280	204	482	0	0	0	52	374	0	0	248	428	2068
PEAK HR FACTOR :	0.901			0.000			0.852			0.939			0.932

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB 0	SB 0	EB 0	WB 0
---------	---------	---------	---------

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4194-001

Day: Tuesday

City: National City

Date: 7/29/2014

PM

NS/EW Streets:		I-5 NB On-Ramp			I-5 NB On-Ramp			Bay Marina Dr			Bay Marina Dr			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1.3	NT 0.3	NR 1.3	SL 0	ST 0	SR 0	EL 2	ET 2	ER 0	WL 0	WT 2	WR 0	TOTAL	
4:00 PM	31	1	95				37	181			92	113	550	
4:15 PM	23	1	88				33	175			104	107	531	
4:30 PM	20	0	96				42	182			106	96	542	
4:45 PM	18	0	86				28	176			105	114	527	
5:00 PM	14	2	104				30	171			112	122	555	
5:15 PM	7	0	86				24	156			115	107	495	
5:30 PM	21	0	103				17	166			100	94	501	
5:45 PM	17	0	115				15	148			94	93	482	
TOTAL VOLUMES : APPROACH %'s :		NL 151 16.27%	NT 4 0.43%	NR 773 83.30%	SL 0 #DIV/0!	ST 0 #DIV/0!	SR 0 #DIV/0!	EL 226 14.29%	ET 1355 85.71%	ER 0 0.00%	WL 0 0.00%	WT 828 49.46%	WR 846 50.54%	TOTAL 4183
PEAK HR START TIME :		415 PM												TOTAL
PEAK HR VOL :		75	3	374	0	0	0	133	704	0	0	427	439	2155
PEAK HR FACTOR :		0.942			0.000			0.934			0.925			0.971

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

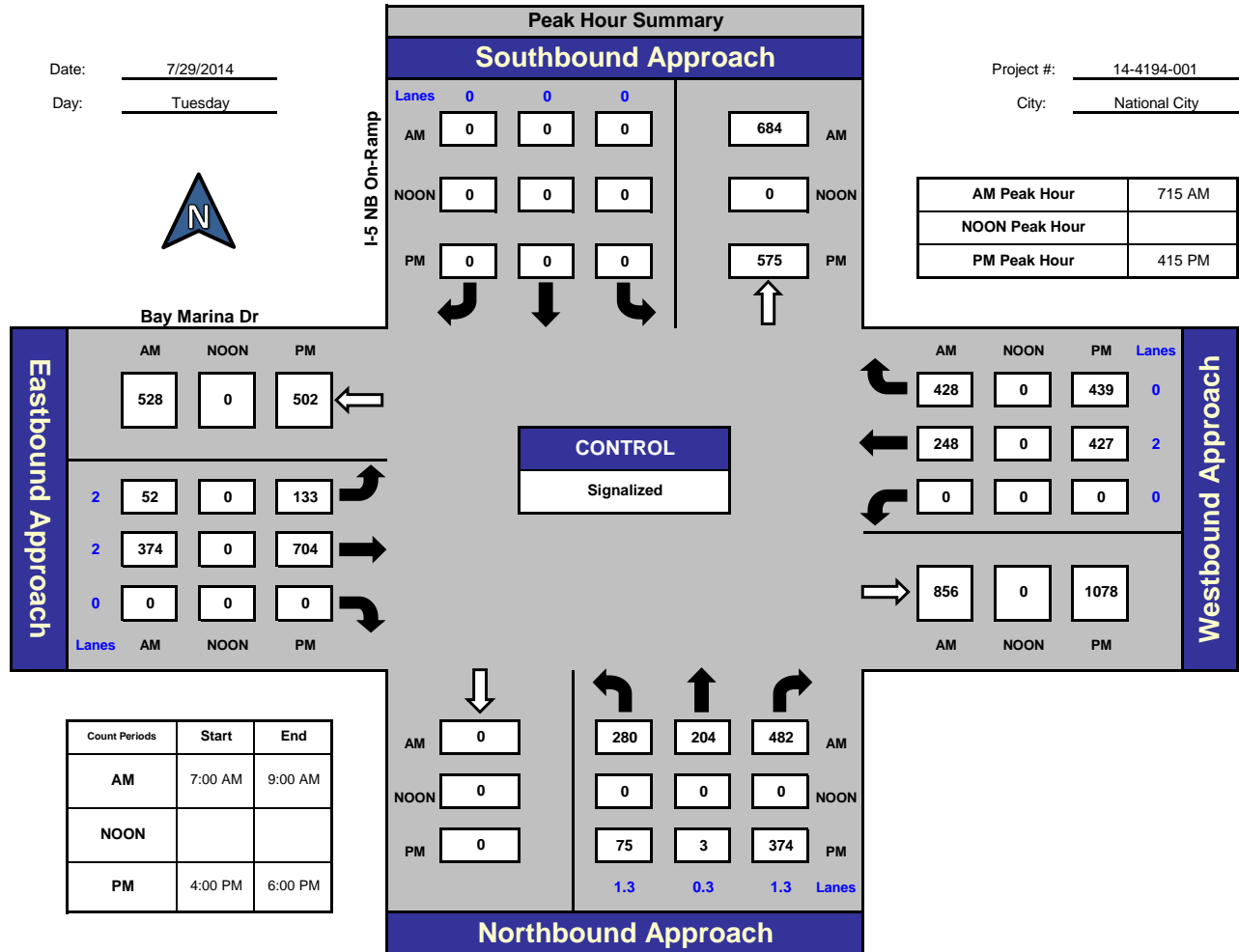
## I-5 NB On-Ramp and Bay Marina Dr., National City

Date: 7/29/2014

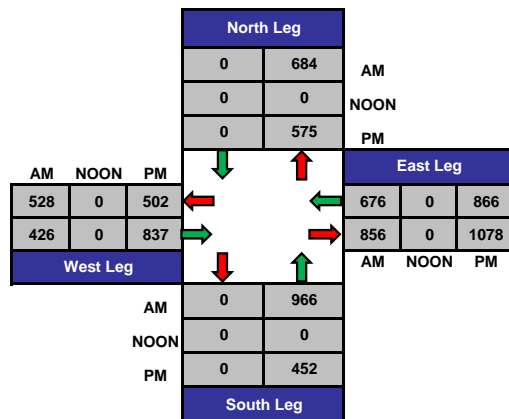
Day: Tuesday

Project #: 14-4194-001

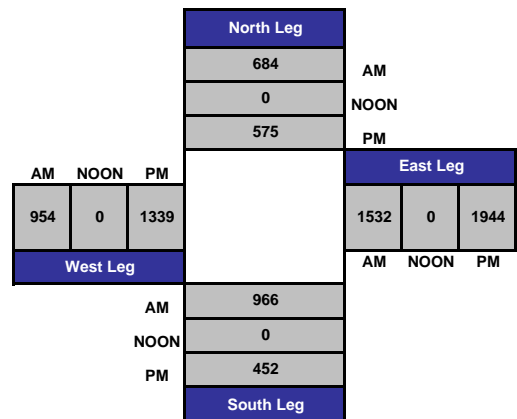
City: National City



### Total Ins & Outs



### Total Volume Per Leg



Prepared by:  
**National Data & Surveying Services**

**Date:** 1/9/2014

**NS/EW Streets:**

[illegible]

NB 0	SB 0	EB 0	WB 3
---------	---------	---------	---------

<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	0.00%	0.00%	100.00%	86.96%	4.35%	8.70%	0.00%	100.00%	0.00%	44.00%	12.00%	44.00%	58

PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	1	6	1	1	0	3	0	4	0	3	19
PEAK HR FACTOR :	0.250			0.400			0.375			0.583			0.528

**CONTROL :** No Control

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4005-003

Day: Thursday

City: National City

Date: 1/9/2014

PM

NS/EW Streets:

Quay Ave

Quay Ave

W 28th St

W 28th St

NORTHBOUND

SOUTHBOUND

EASTBOUND

WESTBOUND

LANES:

NL  
0

NT  
1

NR  
0

SL  
0

ST  
1

SR  
0

EL  
0

ET  
1

ER  
0

WL  
0

WT  
1

WR  
0

TOTAL

4:00 PM	0	0	1	0	0		1	0	0	1	0	3
4:15 PM	1	0	4	1	0		0	0	0	0	1	7
4:30 PM	0	0	1	0	0		0	0	1	0	0	2
4:45 PM	0	0	1	0	0		2	0	1	0	0	4
5:00 PM	2	0	3	1	0		0	0	0	0	0	6
5:15 PM	0	2	1	0	0		0	0	0	0	0	3
5:30 PM	0	0	3	0	0		0	0	0	0	0	3
5:45 PM	0	0	0	0	0		0	0	0	0	0	0
6:00 PM	0	0	0	0	0		0	0	0	0	1	1
6:15 PM	0	1	2	0	0		0	0	1	0	0	4
6:30 PM	0	0	0	0	0		0	0	0	0	0	0
6:45 PM	0	1	1	0	0		0	0	1	0	0	3
7:00 PM	1	0	0	0	0		0	0	0	0	0	1
7:15 PM	0	0	0	0	1		0	0	1	0	0	2
7:30 PM	0	0	0	0	0		1	0	0	0	3	4
7:45 PM	0	0	1	0	1		0	0	0	0	1	3
8:00 PM	0	1	0	0	0		0	0	0	0	0	1
8:15 PM	0	0	0	0	0		1	0	0	0	1	2
8:30 PM	0	0	0	0	0		0	0	0	0	0	0
8:45 PM	0	0	0	0	0		0	0	1	0	0	1
9:00 PM	0	0	0	0	0		0	0	0	0	0	0
9:15 PM	0	0	0	0	0		0	0	0	0	0	0
9:30 PM	0	0	0	0	0		0	0	0	0	1	1
9:45 PM	0	0	0	0	0		0	0	0	0	0	0
10:00 PM	0	0	0	0	1		1	0	0	0	0	2
10:15 PM	0	1	0	0	0		0	0	0	0	0	1
10:30 PM	1	0	0	0	0		0	1	0	1	0	3
10:45 PM	0	0	1	0	0		0	0	0	0	0	1
11:00 PM	0	0	1	0	0		0	0	0	0	0	1
11:15 PM	0	0	0	0	0		0	0	0	0	1	1
11:30 PM	0	0	0	0	0		0	0	0	0	0	0
11:45 PM	0	0	0	0	0		0	0	0	0	0	0

TOTAL VOLUMES :

NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
0	5	6	20	2	3	0	6	1	6	2	9	60

APPROACH %'s :

0.00%	45.45%	54.55%	80.00%	8.00%	12.00%	0.00%	85.71%	14.29%	35.29%	11.76%	52.94%	
-------	--------	--------	--------	-------	--------	-------	--------	--------	--------	--------	--------	--

PEAK HR START TIME :

415 PM

PEAK HR VOL :

0	3	0	9	2	0	0	2	0	2	0	1	19
---	---	---	---	---	---	---	---	---	---	---	---	----

PEAK HR FACTOR :

0.375			0.550			0.250			0.750			0.679
-------	--	--	-------	--	--	-------	--	--	-------	--	--	-------

CONTROL : No Control

UTURNS

NB

SB

EB

WB

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

NB

SB

EB

WB

0

1

0

0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

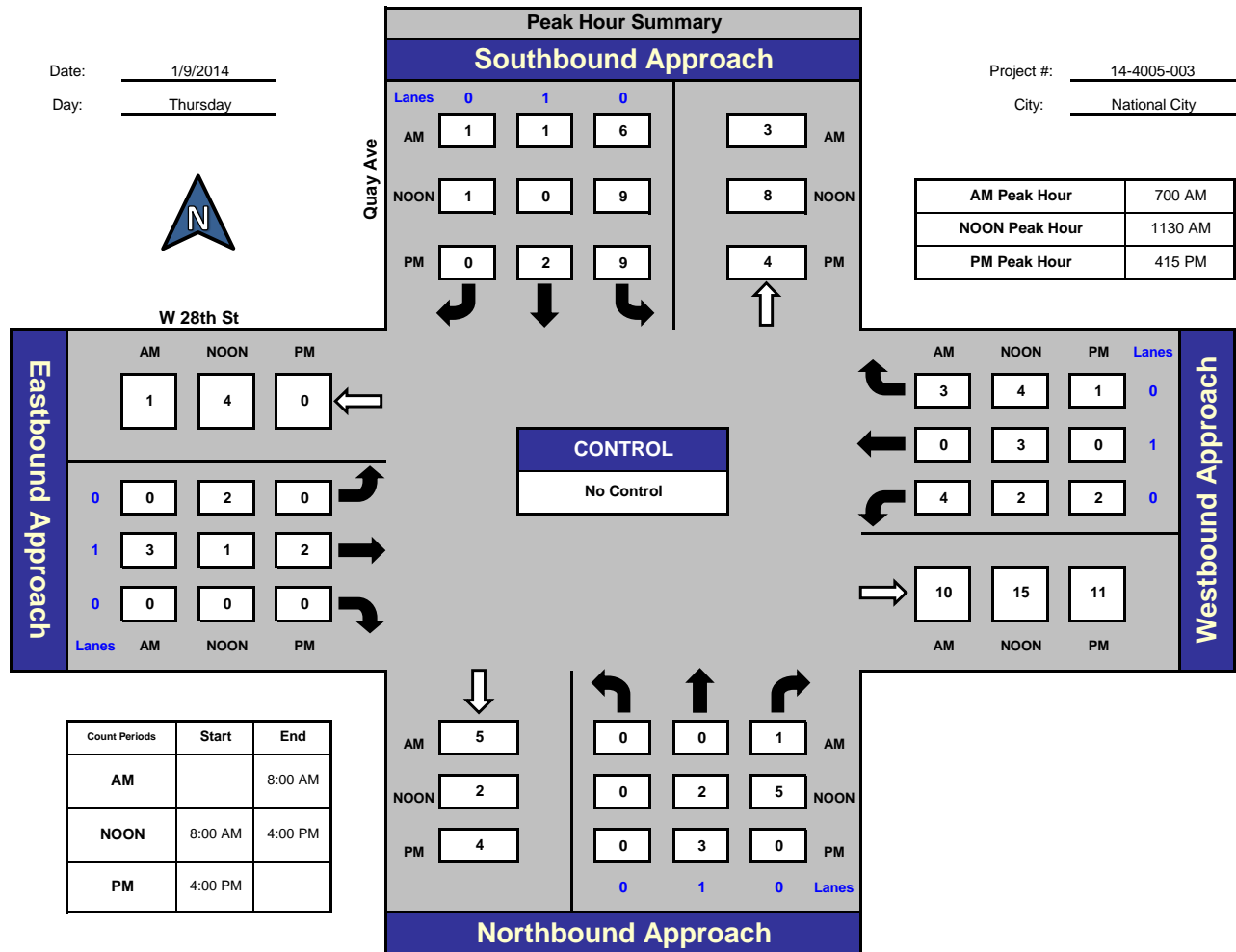
## Quay Ave and W 28th St., National City

Date: 1/9/2014

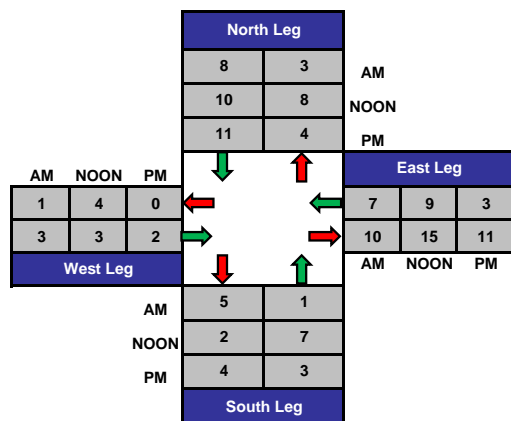
Day: Thursday

Project #: 14-4005-003

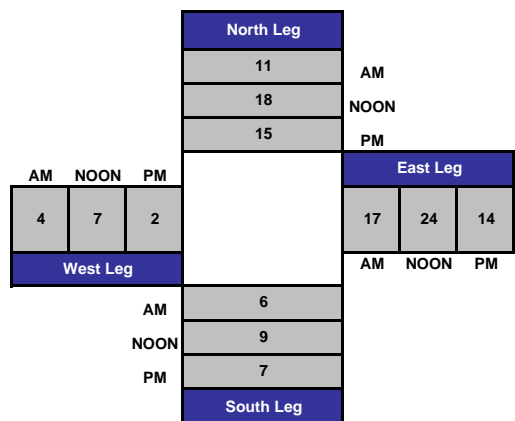
City: National City



### Total Ins & Outs



### Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-004

Day: Wednesday

City: National city

Date: 1/15/2014

AM

NS/EW Streets:		Tidelands Ave			Tidelands Ave			Access Rd			Access Rd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
5:00 AM		0	0		1	3	2	1		0	0			7
5:15 AM		0	0		0	17	2	0		0	0			19
5:30 AM		0	3		0	19	0	0		1	0			23
5:45 AM		0	2		0	6	4	0		0	0			12
6:00 AM		0	3		0	4	2	0		0	0			9
6:15 AM		0	0		0	4	0	2		0	1			7
6:30 AM		1	4		1	3	0	1		1	0			11
6:45 AM		1	2		1	3	3	3		0	0			13
TOTAL VOLUMES :		NL 2	NT 14	NR 0	SL 3	ST 59	SR 13	EL 7	ET 0	ER 2	WL 1	WT 0	WR 0	TOTAL 101
APPROACH %'s :		12.50%	87.50%	0.00%	4.00%	78.67%	17.33%	77.78%	0.00%	22.22%	100.00%	0.00%	0.00%	
PEAK HR START TIME :		515 AM												
PEAK HR VOL :		0	8	0	0	46	8	0	0	1	0	0	0	63
PEAK HR FACTOR :		0.667			0.711			0.250			0.000			0.685

CONTROL : 1-Way Stop (EB)

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4006-004

Day: Wednesday

City: National city

Date: 1/15/2014

PM

NS/EW Streets:		Tidelands Ave			Tidelands Ave			Access Rd			Access Rd			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
1:30 PM		1	13	0	1	5	3	2		1			2	28
1:45 PM		0	6	0	1	8	1	3		0			0	19
2:00 PM		0	9	0	1	12	0	1		1			0	24
2:15 PM		1	13	0	1	9	3	3		4			0	34
2:30 PM		0	9	1	2	7	2	0		2			0	23
2:45 PM		0	13	0	0	9	1	1		1			4	29
3:00 PM		0	4	0	0	4	1	6		0			2	17
3:15 PM		0	5	0	1	4	2	2		1			0	15
TOTAL VOLUMES :		NL 2	NT 72	NR 1	SL 7	ST 58	SR 13	EL 18	ET 0	ER 10	WL 0	WT 0	WR 8	TOTAL 189
APPROACH %'s :		2.67%	96.00%	1.33%	8.97%	74.36%	16.67%	64.29%	0.00%	35.71%	0.00%	0.00%	100.00%	
PEAK HR START TIME :		200 PM												TOTAL
PEAK HR VOL :		1	44	1	4	37	6	5	0	8	0	0	4	110
PEAK HR FACTOR :		0.821			0.904			0.464			0.250			0.809

CONTROL : 1-Way Stop (EB)

UTURNS			
NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

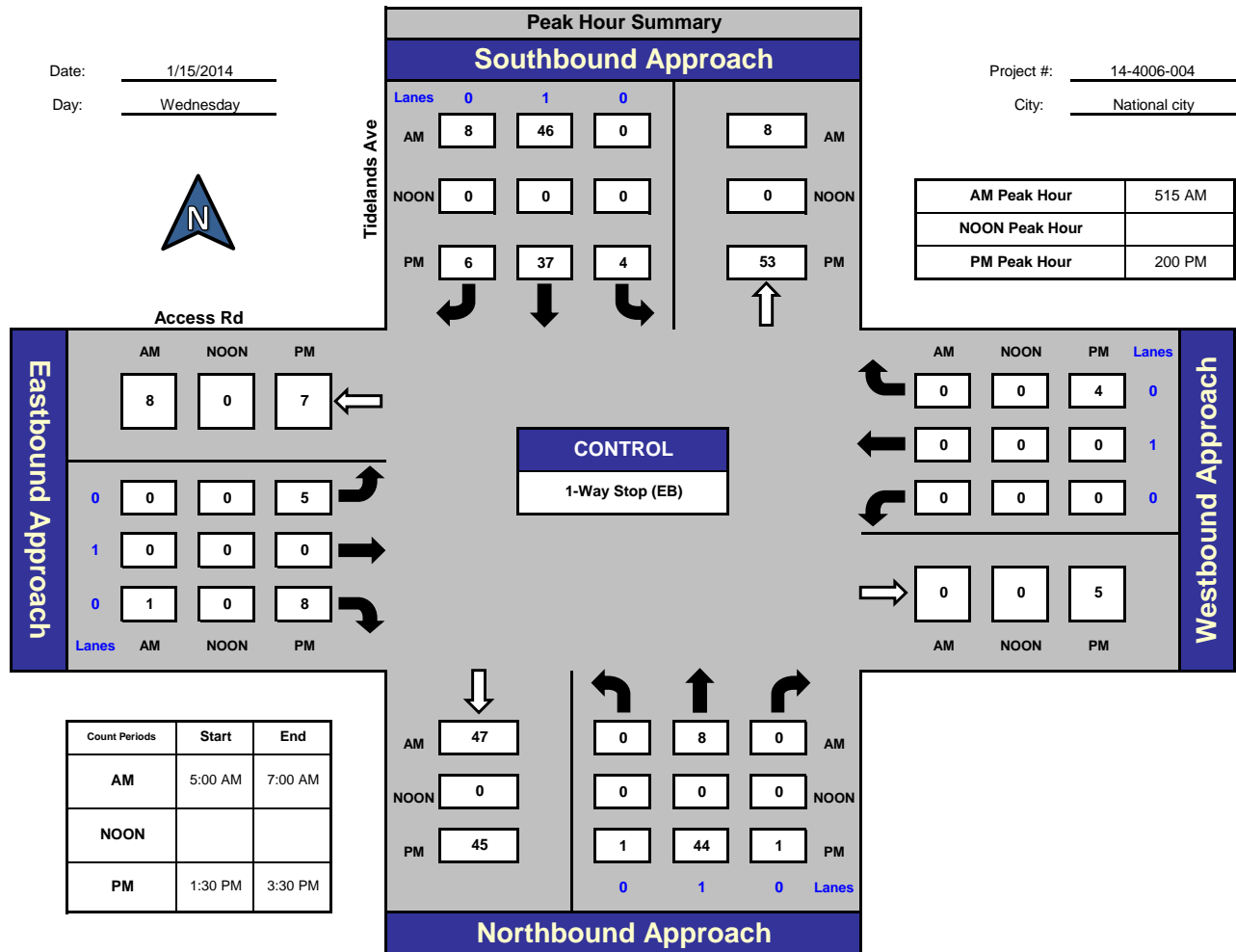
## Tidelands Ave and Access Rd, National city

Date: 1/15/2014

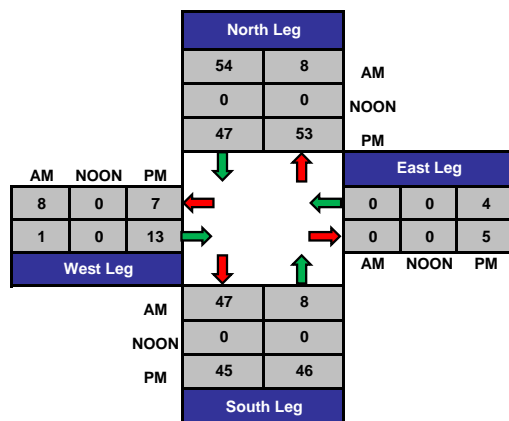
Day: Wednesday

Project #: 14-4006-004

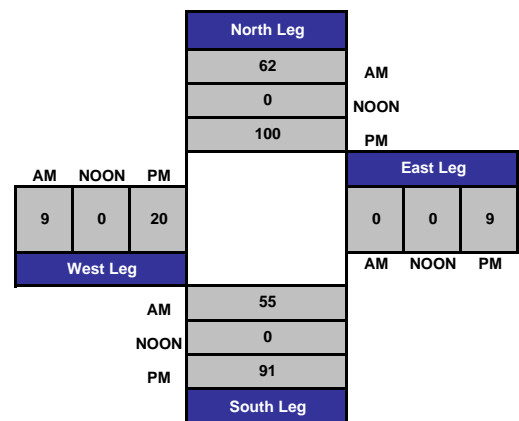
City: National city



## Total Ins & Outs



## Total Volume Per Leg



# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4204-001

Day: Wednesday

City: National City

Date: 8/13/2014

AM

NS/EW Streets:	Tidelands Ave			Tidelands Ave			32nd St			32nd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 2	WR 0	TOTAL
7:00 AM		1		1	1	6	9	11		0	1	0	30
7:15 AM		0		3	0	7	9	22		0	3	1	45
7:30 AM		2		1	1	2	10	9		0	3	2	30
7:45 AM		0		0	2	7	6	1		0	4	0	20
8:00 AM		1		0	1	16	4	0		0	0	0	22
8:15 AM		1		0	1	3	4	0		1	0	0	10
8:30 AM		1		0	1	4	4	0		1	0	1	12
8:45 AM		0		1	2	7	5	0		0	1	0	16

TOTAL VOLUMES :	NL 0	NT 6	NR 0	SL 6	ST 9	SR 52	EL 51	ET 43	ER 0	WL 2	WT 12	WR 4	TOTAL 185
APPROACH %'s :	0.00%	100.00%	0.00%	8.96%	13.43%	77.61%	54.26%	45.74%	0.00%	11.11%	66.67%	22.22%	

PEAK HR START TIME :	7:00 AM												TOTAL
PEAK HR VOL :	0	3	0	5	4	22	34	43	0	0	11	3	125
PEAK HR FACTOR :	0.375			0.775			0.621			0.700			0.694

CONTROL : 4-Way Stop

UTURNS			
NB	SB	EB	WB

	0	0	
	1	0	
	0	1	
	0	0	
	0	0	
	0	0	
	0	1	
	0	1	

NB	SB	EB	WB
0	1	3	0

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-4204-001

Day: Wednesday

City: National City

Date: 8/13/2014

PM

NS/EW Streets:		Tidelands Ave			Tidelands Ave			32nd St			32nd St				
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:		NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 2	WR 0	TOTAL	
4:00 PM			0	0	4	3	2	7	0		0	1	3	20	
4:15 PM			1	1	0	2	4	8	0		1	0	2	19	
4:30 PM			1	0	4	4	1	17	4		2	0	0	33	
4:45 PM			3	1	1	3	2	14	0		3	0	0	27	
5:00 PM			3	1	1	4	2	15	0		0	1	0	27	
5:15 PM			2	0	2	4	1	0	0		0	0	0	9	
5:30 PM			2	3	0	2	0	2	3		0	0	0	12	
5:45 PM			1	0	0	1	2	13	1		0	0	1	19	
TOTAL VOLUMES : APPROACH %'s :		NL 0 0.00%	NT 13 68.42%	NR 6 31.58%	SL 12 24.49%	ST 23 46.94%	SR 14 28.57%	EL 76 90.48%	ET 8 9.52%	ER 0 0.00%	WL 6 42.86%	WT 2 14.29%	WR 6 42.86%	TOTAL 166	
PEAK HR START TIME :		415 PM													TOTAL
PEAK HR VOL :		0	8	3	6	13	9	54	4	0	6	1	2	106	
PEAK HR FACTOR :		0.688			0.778			0.690			0.750			0.803	

CONTROL : 4-Way Stop

UTURNS			
NB	SB	EB	WB
	1	0	0
	0	0	0
	2	0	0
	0	0	2
	0	0	0
	0	0	0
	0	1	0
	0	0	0
NB	0	3	1
SB	3	1	2
EB	1	2	0
WB	2	0	0

# ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

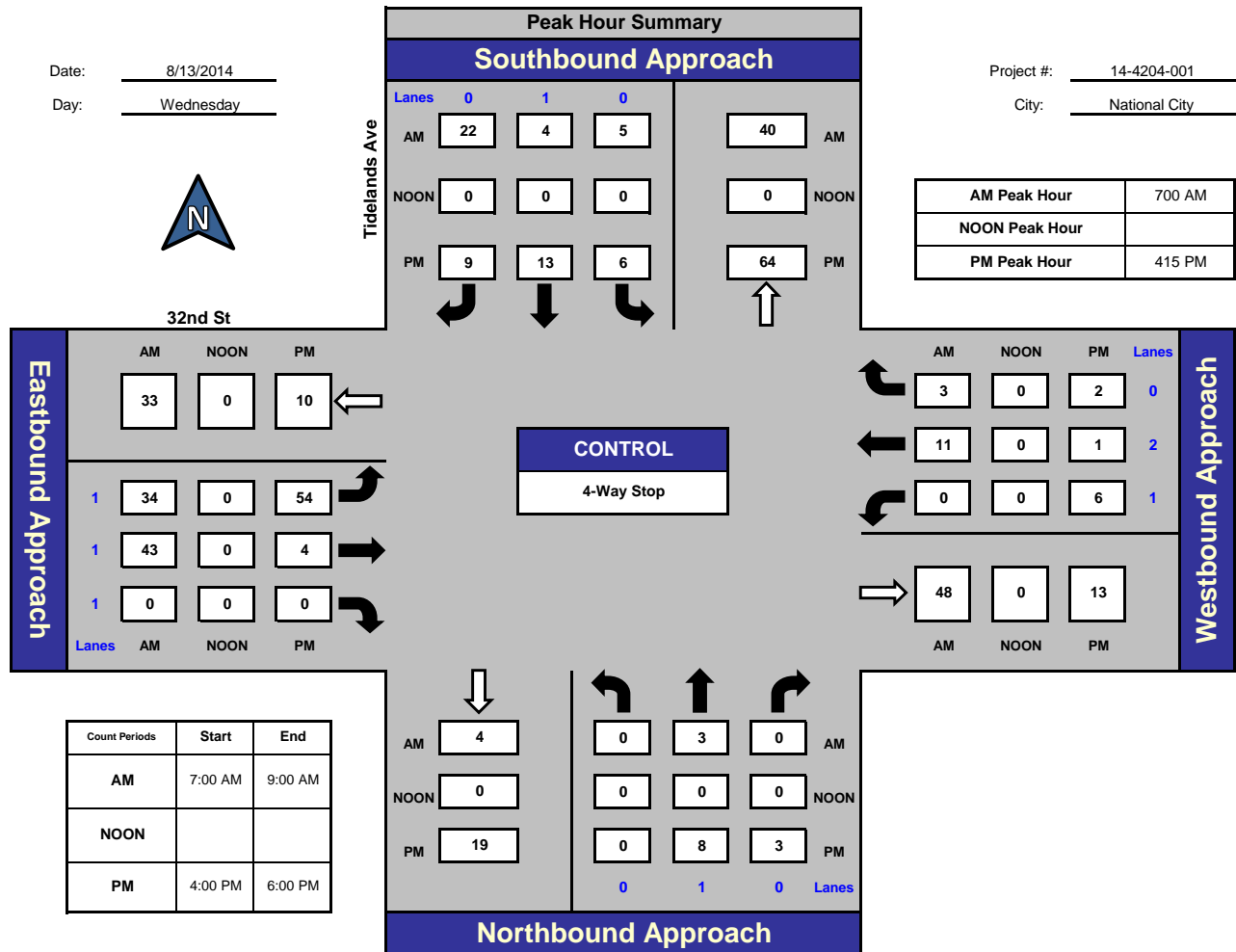
## Tidelands Ave and 32nd St, National City

Date: 8/13/2014

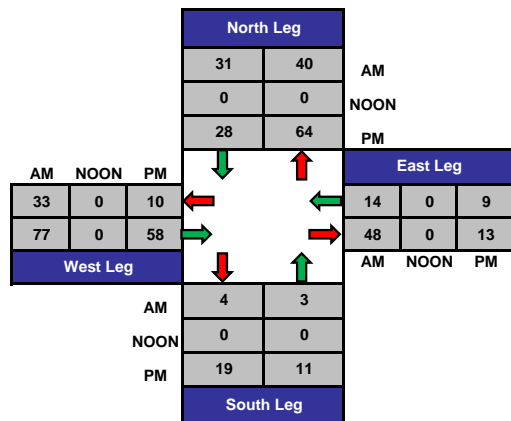
Day: Wednesday

Project #: 14-4204-001

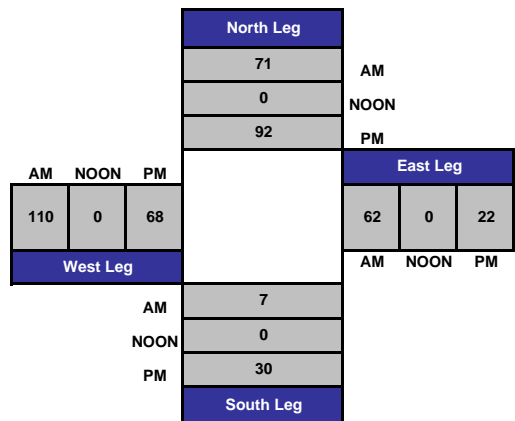
City: National City



### Total Ins & Outs



### Total Volume Per Leg



**VOLUME**

Bay Marina Dr W/o Tidelands Ave

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_001

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						1,300	1,257						2,557
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			0	1	1		12:00			27	25	52							52
00:15			0	0	0		12:15			28	24	52							52
00:30			1	5	6		12:30			26	44	70							70
00:45			0	1	3	9	12:45			31	112	25	118	56	230				
01:00			1	1	2		13:00			26	21	47							47
01:15			0	1	1		13:15			14	25	39							39
01:30			0	0	0		13:30			12	13	25							25
01:45			6	7	2	4	13:45			33	85	50	109	83	194				
02:00			0	0	0		14:00			31	25	56							56
02:15			1	2	3		14:15			27	22	49							49
02:30			1	2	3		14:30			54	28	82							82
02:45			3	5	0	4	14:45			14	126	12	87	26	213				
03:00			1	1	2		15:00			26	13	39							39
03:15			2	5	7		15:15			65	11	76							76
03:30			0	1	1		15:30			41	14	55							55
03:45			5	8	4	11	15:45			29	161	7	45	36	206				
04:00			1	1	2		16:00			27	10	37							37
04:15			0	1	1		16:15			23	15	38							38
04:30			1	6	7		16:30			79	7	86							86
04:45			0	2	9	17	16:45			12	141	5	37	17	178				
05:00			1	14	15		17:00			21	7	28							28
05:15			2	19	21		17:15			6	4	10							10
05:30			2	47	49		17:30			8	3	11							11
05:45			11	16	51	131	17:45			17	52	4	18	21	70				
06:00			9	23	32		18:00			1	2	3							3
06:15			17	16	33		18:15			8	12	20							20
06:30			16	16	32		18:30			10	3	13							13
06:45			14	56	38	93	18:45			7	26	3	20	10	46				
07:00			7	27	34		19:00			7	8	15							15
07:15			14	31	45		19:15			4	7	11							11
07:30			18	76	94		19:30			2	0	2							2
07:45			17	56	42	176	19:45			3	16	8	23	11	39				
08:00			17	33	50		20:00			1	0	1							1
08:15			19	28	47		20:15			1	1	2							2
08:30			27	17	44		20:30			4	3	7							7
08:45			22	85	19	97	20:45			11	17	2	6	13	23				
09:00			11	15	26		21:00			4	4	8							8
09:15			16	17	33		21:15			4	5	9							9
09:30			9	14	23		21:30			3	2	5							5
09:45			15	51	13	59	21:45			4	15	1	12	5	27				
10:00			17	18	35		22:00			1	1	2							2
10:15			11	18	29		22:15			9	0	9							9
10:30			33	24	57		22:30			6	3	9							9
10:45			18	79	28	88	22:45			8	24	1	5	9	29				
11:00			25	16	41		23:00			1	3	4							4
11:15			52	17	69		23:15			5	5	10							10
11:30			41	23	64		23:30			10	3	13							13
11:45			22	140	19	75	23:45			3	19	2	13	5	32				
TOTALS			506	764	1270		TOTALS			794	493	1287							1287
SPLIT %			39.8%	60.2%	49.7%		SPLIT %			61.7%	38.3%	50.3%							50.3%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						1,300	1,257						2,557
AM Peak Hour			11:15	07:15	07:30		PM Peak Hour			15:15	13:45	13:45							
AM Pk Volume			142	182	250		PM Pk Volume			162	125	270							
Pk Hr Factor			0.683	0.599	0.665		Pk Hr Factor			0.623	0.625	0.813							
7 - 9 Volume	0	0	141	273	414		4 - 6 Volume	0	0	193	55	248							
7 - 9 Peak Hour			08:00	07:15	07:30		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	85	182	250		4 - 6 Pk Volume	0	0	141	37	178							
Pk Hr Factor	0.000	0.000	0.787	0.599	0.665		Pk Hr Factor	0.000	0.000	0.446	0.617	0.517							

**VOLUME**

Bay Marina Dr btwn W 32nd St &amp; Tideland Ave

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_002

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						2,049	2,291						4,340
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			2	3	5		12:00			37	40	77							77
00:15			2	2	4		12:15			31	34	65							65
00:30			0	3	3		12:30			44	68	112							112
00:45			0	4	3	11	12:45			39	151	38	180	77	331				
01:00			0	1	1		13:00			39	26	65							65
01:15			1	0	1		13:15			22	33	55							55
01:30			0	0	0		13:30			31	16	47							47
01:45			11	12	3	4	13:45			41	133	51	126	92	259				
02:00			0	6	6		14:00			39	45	84							84
02:15			4	3	7		14:15			53	36	89							89
02:30			2	5	7		14:30			125	37	162							162
02:45			3	9	0	14	14:45			42	259	26	144	68	403				
03:00			12	9	21		15:00			40	25	65							65
03:15			4	8	12		15:15			82	16	98							98
03:30			3	3	6		15:30			39	26	65							65
03:45			2	21	4	24	15:45			57	218	32	99	89	317				
04:00			9	8	17		16:00			59	14	73							73
04:15			2	9	11		16:15			31	21	52							52
04:30			10	32	42		16:30			113	16	129							129
04:45			0	21	29	78	16:45			22	225	14	65	36	290				
05:00			2	52	54		17:00			33	12	45							45
05:15			7	86	93		17:15			36	15	51							51
05:30			9	125	134		17:30			16	5	21							21
05:45			13	31	122	385	17:45			15	100	16	48	31	148				
06:00			9	65	74		18:00			9	9	18							18
06:15			11	60	71		18:15			11	20	31							31
06:30			22	39	61		18:30			28	9	37							37
06:45			17	59	66	213	18:45			9	57	4	42	13	99				
07:00			14	41	55		19:00			20	7	27							27
07:15			24	61	85		19:15			9	7	16							16
07:30			19	109	128		19:30			7	3	10							10
07:45			23	80	66	277	19:45			8	44	7	24	15	68				
08:00			21	47	68		20:00			9	3	12							12
08:15			23	52	75		20:15			16	3	19							19
08:30			21	33	54		20:30			3	2	5							5
08:45			31	96	51	152	20:45			5	33	4	12	9	45				
09:00			18	26	44		21:00			6	3	9							9
09:15			29	34	63		21:15			7	0	7							7
09:30			25	19	44		21:30			3	6	9							9
09:45			31	103	52	203	21:45			4	20	4	13	8	33				
10:00			42	26	68		22:00			2	0	2							2
10:15			38	40	78		22:15			3	4	7							7
10:30			36	42	78		22:30			6	2	8							8
10:45			32	148	71	295	22:45			10	21	1	7	11	28				
11:00			41	37	78		23:00			1	4	5							5
11:15			77	27	104		23:15			2	0	2							2
11:30			42	30	72		23:30			6	2	8							8
11:45			31	191	56	310	23:45			4	13	1	7	5	20				
TOTALS			775	1524	2299		TOTALS			1274	767	2041							
SPLIT %			33.7%	66.3%	53.0%		SPLIT %			62.4%	37.6%	47.0%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						2,049	2,291						4,340
AM Peak Hour			10:45	05:15	05:15		PM Peak Hour			14:30	12:00	13:45							
AM Pk Volume			192	398	436		PM Pk Volume			289	180	427							
Pk Hr Factor			0.623	0.796	0.807		Pk Hr Factor			0.578	0.662	0.659							
7 - 9 Volume	0	0	176	429	605		4 - 6 Volume	0	0	325	113	438							
7 - 9 Peak Hour			08:00	07:15	07:15		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	96	283	370		4 - 6 Pk Volume	0	0	225	65	290							
Pk Hr Factor	0.000	0.000	0.774	0.649	0.723		Pk Hr Factor	0.000	0.000	0.498	0.774	0.562							

**VOLUME**

Bay Marina Dr btwn Cleveland Ave &amp; Harrison Ave

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_003

DAILY TOTALS					NB	SB	EB					WB	Total				
					0	0						3,536					
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL					
00:00			10	5	15		12:00			74	72	146					
00:15			6	6	12		12:15			85	84	169					
00:30			3	4	7		12:30			73	90	163					
00:45			1	20	4	19	12:45			67	299	76	322				
					5	39						143	621				
01:00			2	2	4		13:00			58	37	95					
01:15			2	0	2		13:15			55	67	122					
01:30			5	4	9		13:30			45	56	101					
01:45			16	25	2	8	13:45			61	219	71	231				
					18	33						132	450				
02:00			0	9	9		14:00			55	70	125					
02:15			7	7	14		14:15			100	54	154					
02:30			3	8	11		14:30			172	48	220					
02:45			13	23	5	29	14:45			63	390	46	218				
					18	52						109	608				
03:00			16	14	30		15:00			60	39	99					
03:15			8	10	18		15:15			111	37	148					
03:30			14	10	24		15:30			80	47	127					
03:45			5	43	6	40	15:45			79	330	33	156				
					11	83						112	486				
04:00			12	8	20		16:00			109	43	152					
04:15			4	25	29		16:15			59	32	91					
04:30			11	45	56		16:30			175	21	196					
04:45			5	32	42	120	16:45			57	400	28	124				
					47	152						85	524				
05:00			8	67	75		17:00			71	33	104					
05:15			12	118	130		17:15			53	22	75					
05:30			28	169	197		17:30			53	21	74					
05:45			15	63	180	534	17:45			37	214	42	118				
					195	597						79	332				
06:00			14	94	108		18:00			33	20	53					
06:15			20	83	103		18:15			22	25	47					
06:30			34	89	123		18:30			33	11	44					
06:45			25	93	108	374	18:45			25	113	17	73				
					133	467						42	186				
07:00			27	111	138		19:00			27	11	38					
07:15			44	94	138		19:15			17	14	31					
07:30			49	95	144		19:30			16	7	23					
07:45			33	153	92	392	19:45			14	74	10	42				
					125	545						24	116				
08:00			36	78	114		20:00			14	9	23					
08:15			32	56	88		20:15			20	9	29					
08:30			31	56	87		20:30			6	6	12					
08:45			60	159	60	250	20:45			9	49	4	28				
					120	409						13	77				
09:00			37	43	80		21:00			12	6	18					
09:15			53	40	93		21:15			7	10	17					
09:30			44	52	96		21:30			13	9	22					
09:45			41	175	40	175	21:45			11	43	3	28				
					81	350						14	71				
10:00			75	49	124		22:00			5	2	7					
10:15			54	50	104		22:15			11	13	24					
10:30			63	67	130		22:30			22	7	29					
10:45			48	240	69	235	22:45			19	57	5	27				
					117	475						24	84				
11:00			80	55	135		23:00			7	7	14					
11:15			94	59	153		23:15			1	1	2					
11:30			60	64	124		23:30			16	5	21					
11:45			59	293	70	248	23:45			5	29	1	14				
					129	541						6	43				
TOTALS			1319	2424	3743		TOTALS			2217	1381	3598					
SPLIT %			35.2%	64.8%	51.0%		SPLIT %			61.6%	38.4%	49.0%					

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						3,536	3,805						7,341
AM Peak Hour			11:00	05:15	05:15		PM Peak Hour			15:45	12:00	13:45							
AM Pk Volume			293	561	630		PM Pk Volume			422	322	631							
Pk Hr Factor			0.779	0.779	0.799		Pk Hr Factor			0.603	0.894	0.717							
7 - 9 Volume	0	0	312	642	954		4 - 6 Volume	0	0	614	242	856							
7 - 9 Peak Hour			07:15	07:00	07:00		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	162	392	545		4 - 6 Pk Volume	0	0	400	124	524							
Pk Hr Factor	0.000	0.000	0.827	0.883	0.946		Pk Hr Factor	0.000	0.000	0.571	0.721	0.668							



**VOLUME**

Bay Marina Dr btwn I-5 SB off-ramp and Cleveland Ave

Day: Tuesday  
Date: 7/29/2014City: National city  
Project #: CA14\_4195\_001

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						5,659	5,911						11,570
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			11	7	18		12:00			112	87	199							
00:15			15	3	18		12:15			103	91	194							
00:30			5	3	8		12:30			106	86	192							
00:45			16	47	2	15	12:45			103	424	84	348	187	772				
01:00			5	1	6		13:00			100	81	181							
01:15			5	4	9		13:15			107	95	202							
01:30			6	1	7		13:30			134	77	211							
01:45			7	23	8	14	13:45			100	441	76	329	176	770				
02:00			11	5	16		14:00			80	94	174							
02:15			6	8	14		14:15			154	74	228							
02:30			11	10	21		14:30			177	82	259							
02:45			3	31	12	35	14:45			139	550	73	323	212	873				
03:00			10	7	17		15:00			142	99	241							
03:15			4	13	17		15:15			175	81	256							
03:30			4	29	33		15:30			176	71	247							
03:45			20	38	25	74	15:45			142	635	71	322	213	957				
04:00			6	22	28		16:00			118	64	182							
04:15			12	42	54		16:15			141	40	181							
04:30			9	67	76		16:30			131	43	174							
04:45			18	45	82	213	16:45			149	539	33	180	182	719				
05:00			23	104	127		17:00			90	42	132							
05:15			36	166	202		17:15			72	26	98							
05:30			20	267	287		17:30			74	39	113							
05:45			44	123	210	747	17:45			75	311	25	132	100	443				
06:00			43	155	198		18:00			68	31	99							
06:15			51	180	231		18:15			61	38	99							
06:30			57	163	220		18:30			61	47	108							
06:45			34	185	176	674	18:45			56	246	35	151	91	397				
07:00			44	137	181		19:00			36	32	68							
07:15			39	119	158		19:15			46	31	77							
07:30			50	133	183		19:30			50	22	72							
07:45			30	163	132	521	19:45			43	175	25	110	68	285				
08:00			53	98	151		20:00			47	31	78							
08:15			55	86	141		20:15			48	24	72							
08:30			47	99	146		20:30			36	33	69							
08:45			35	190	84	367	20:45			21	152	32	120	53	272				
09:00			66	72	138		21:00			24	24	48							
09:15			77	77	154		21:15			25	18	43							
09:30			85	79	164		21:30			19	23	42							
09:45			80	308	89	317	21:45			12	80	22	87	34	167				
10:00			87	89	176		22:00			42	10	52							
10:15			88	52	140		22:15			28	26	54							
10:30			84	64	148		22:30			26	11	37							
10:45			77	336	88	293	22:45			43	139	10	57	53	196				
11:00			100	94	194		23:00			25	16	41							
11:15			97	78	175		23:15			15	18	33							
11:30			96	136	232		23:30			18	6	24							
11:45			107	400	125	433	23:45			20	78	9	49	29	127				
TOTALS			1889	3703	5592		TOTALS			3770	2208	5978							
SPLIT %			33.8%	66.2%	48.3%		SPLIT %			63.1%	36.9%	51.7%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						5,659	5,911						11,570
AM Peak Hour			11:45	05:30	05:30		PM Peak Hour			15:00	12:00	14:30							
AM Pk Volume			428	812	970		PM Pk Volume			635	348	968							
Pk Hr Factor			0.955	0.760	0.845		Pk Hr Factor			0.902	0.956	0.934							
7 - 9 Volume	0	0	353	888	1241		4 - 6 Volume	0	0	850	312	1162							
7 - 9 Peak Hour			08:00	07:00	07:00		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	190	521	684		4 - 6 Pk Volume	0	0	539	180	719							
Pk Hr Factor	0.000	0.000	0.864	0.951	0.934		Pk Hr Factor	0.000	0.000	0.904	0.703	0.988							

**VOLUME**

Quay Ave S/o Bay Marina Dr

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_004

DAILY TOTALS					NB	SB						EB	WB						Total
					202	140						0	0						342
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							
00:00	1	0			1		12:00	1	3			4							
00:15	0	0			0		12:15	1	0			1							
00:30	0	0			0		12:30	6	2			8							
00:45	1	2	0		1	2	12:45	3	11	5	10	8	21						
01:00	0	0			0		13:00	3	3			6							
01:15	0	0			0		13:15	1	0			1							
01:30	0	0			0		13:30	0	1			1							
01:45	0	0			0		13:45	4	8	1	5	5	13						
02:00	0	0			0		14:00	6	2			8							
02:15	1	0			1		14:15	6	2			8							
02:30	0	0			0		14:30	3	2			5							
02:45	0	1	1	1	1	2	14:45	1	16	0	6	1	22						
03:00	1	0			1		15:00	7	4			11							
03:15	3	1			4		15:15	2	1			3							
03:30	0	0			0		15:30	2	1			3							
03:45	2	6	1	2	3	8	15:45	3	14	5	11	8	25						
04:00	0	0			0		16:00	2	1			3							
04:15	0	0			0		16:15	5	1			6							
04:30	0	0			0		16:30	11	5			16							
04:45	0	1	1		1	1	16:45	3	21	1	8	4	29						
05:00	0	0			0		17:00	6	3			9							
05:15	0	0			0		17:15	1	2			3							
05:30	6	2			8		17:30	3	1			4							
05:45	2	8	12	14	14	22	17:45	1	11	0	6	1	17						
06:00	3	2			5		18:00	0	0			0							
06:15	2	2			4		18:15	1	3			4							
06:30	1	1			2		18:30	4	2			6							
06:45	10	16	2	7	12	23	18:45	0	5	0	5	0	10						
07:00	4	1			5		19:00	0	1			1							
07:15	0	1			1		19:15	4	0			4							
07:30	2	3			5		19:30	0	0			0							
07:45	4	10	4	9	8	19	19:45	4	8	0	1	4	9						
08:00	3	4			7		20:00	1	4			5							
08:15	5	2			7		20:15	0	0			0							
08:30	0	0			0		20:30	5	0			5							
08:45	0	8	1	7	1	15	20:45	2	8	0	4	2	12						
09:00	1	4			5		21:00	0	0			0							
09:15	1	0			1		21:15	0	0			0							
09:30	3	4			7		21:30	2	0			2							
09:45	0	5	1	9	1	14	21:45	1	3	0		1	3						
10:00	5	2			7		22:00	0	0			0							
10:15	0	3			3		22:15	1	0			1							
10:30	5	1			6		22:30	1	0			1							
10:45	5	15	5	11	10	26	22:45	3	5	1	1	4	6						
11:00	7	4			11		23:00	1	0			1							
11:15	1	2			3		23:15	0	0			0							
11:30	2	7			9		23:30	5	0			5							
11:45	5	15	9	22	14	37	23:45	0	6	0		0	6						
TOTALS	86	83			169		TOTALS	116	57			173							
SPLIT %	50.9%	49.1%			49.4%		SPLIT %	67.1%	32.9%			50.6%							

DAILY TOTALS					NB	SB						EB	WB						Total
					202	140						0	0						342
AM Peak Hour	10:30	11:00			11:00		PM Peak Hour	16:15	15:45			16:15							
AM Pk Volume	18	22			37		PM Pk Volume	25	12			35							
Pk Hr Factor	0.643	0.611			0.661		Pk Hr Factor	0.568	0.600			0.547							
7 - 9 Volume	18	16	0	0	34		4 - 6 Volume	32	14	0	0	46							
7 - 9 Peak Hour	07:30	07:30			07:30		4 - 6 Peak Hour	16:15	16:30			16:15							
7 - 9 Pk Volume	14	13	0	0	27		4 - 6 Pk Volume	25	11	0	0	35							
Pk Hr Factor	0.700	0.813	0.000	0.000	0.844		Pk Hr Factor	0.568	0.550	0.000	0.000	0.547							

**CLASSIFICATION**

Tidelands Ave btwn Bay Marina &amp; 19th St

Day: Wednesday

Date: 8/13/2014

City: San Diego

Project #: CA14\_4203\_001

**Summary**

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	17	3	0	0	0	0	1	0	0	0	0	0	21
01:00	0	1	0	0	0	0	0	0	1	0	0	0	0	2
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
04:00	0	18	7	0	0	0	0	1	1	0	0	0	0	27
05:00	1	101	30	1	6	0	0	0	0	0	0	0	0	139
06:00	0	110	20	0	5	0	0	0	3	0	0	0	0	138
07:00	3	76	21	1	6	1	0	2	4	0	0	0	0	114
08:00	1	64	17	4	4	2	1	2	3	0	0	0	0	98
09:00	1	38	9	4	4	1	0	5	8	0	0	0	0	70
10:00	0	43	21	1	3	0	0	3	8	0	0	0	0	79
11:00	1	43	8	2	9	1	0	2	9	0	0	0	0	75
12:00 PM	1	39	15	1	11	1	0	3	4	0	0	0	0	75
13:00	2	43	21	4	15	1	0	3	5	0	0	0	0	94
14:00	0	59	16	4	6	1	0	3	7	0	0	0	0	96
15:00	1	65	17	0	5	0	0	4	5	0	0	0	0	97
16:00	0	49	11	0	2	1	0	1	1	0	0	0	0	65
17:00	2	20	5	0	0	0	0	0	2	0	0	0	0	29
18:00	0	17	5	0	2	0	0	1	3	0	0	0	0	28
19:00	1	35	10	0	0	0	0	0	0	0	0	0	0	46
20:00	2	25	7	0	0	1	0	0	4	0	0	0	0	39
21:00	0	29	12	0	1	0	1	0	4	0	0	0	0	47
22:00	1	20	7	0	1	0	0	0	0	0	0	0	0	29
23:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
Totals	17	931	266	22	80	10	2	31	72					1431
% of Totals	1%	65%	19%	2%	6%	1%	0%	2%	5%					100%

AM Volumes	7	517	137	13	37	5	1	16	37	0	0	0	0	770
% AM	0%	36%	10%	1%	3%	0%	0%	1%	3%					54%
AM Peak Hour	07:00	06:00	05:00	08:00	11:00	08:00	08:00	09:00	11:00					05:00
Volume	3	110	30	4	9	2	1	5	9					139
PM Volumes	10	414	129	9	43	5	1	15	35	0	0	0	0	661
% PM	1%	29%	9%	1%	3%	0%	0%	1%	2%					46%
PM Peak Hour	13:00	15:00	13:00	13:00	13:00	12:00	21:00	15:00	14:00					15:00
Volume	2	65	21	4	15	1	1	4	7					97
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes			Volume		%	Volume		%	Volume		%	Volume		%
			212	↔	15%	169	↔	12%	94	↔	7%	956	↔	67%

**Classification Definitions**

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

**VOLUME**

Tidelands Ave S/o Bay Marina Dr

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_005

DAILY TOTALS					NB	SB					EB	WB	Total
					945	849					0	0	1,794
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL		
00:00	0	2			2	12:00	26	19			45		
00:15	5	3			8	12:15	18	13			31		
00:30	0	2			2	12:30	18	12			30		
00:45	1	6	0	7	13	12:45	16	16	60		32	138	
01:00	1	2			3	13:00	23	14			37		
01:15	1	0			1	13:15	8	27			35		
01:30	0	0			0	13:30	15	10			25		
01:45	7	9	3	5	14	13:45	24	70	21	72	45	142	
02:00	1	6			7	14:00	26	20			46		
02:15	2	2			4	14:15	24	11			35		
02:30	1	0			1	14:30	26	15			41		
02:45	2	6	1	9	15	14:45	9	85	12	58	21	143	
03:00	9	10			19	15:00	12	11			23		
03:15	4	4			8	15:15	21	14			35		
03:30	3	0			3	15:30	12	8			20		
03:45	2	18	2	16	34	15:45	26	71	15	48	41	119	
04:00	0	2			2	16:00	14	9			23		
04:15	0	3			3	16:15	17	8			25		
04:30	13	1			14	16:30	26	13			39		
04:45	0	13	5	11	24	16:45	6	63	12	42	18	105	
05:00	2	4			6	17:00	13	9			22		
05:15	5	13			18	17:15	18	7			25		
05:30	9	32			41	17:30	9	2			11		
05:45	2	18	18	67	85	17:45	5	45	10	28	15	73	
06:00	8	9			17	18:00	3	3			6		
06:15	2	15			17	18:15	7	8			15		
06:30	16	10			26	18:30	10	3			13		
06:45	16	42	13	47	89	18:45	7	27	5	19	12	46	
07:00	8	13			21	19:00	4	5			9		
07:15	4	6			10	19:15	11	2			13		
07:30	10	15			25	19:30	8	1			9		
07:45	17	39	26	60	99	19:45	2	25	3	11	5	36	
08:00	21	9			30	20:00	4	3			7		
08:15	16	17			33	20:15	7	3			10		
08:30	23	14			37	20:30	2	3			5		
08:45	12	72	13	53	125	20:45	1	14	8	17	9	31	
09:00	17	17			34	21:00	3	1			4		
09:15	12	12			24	21:15	1	0			1		
09:30	15	19			34	21:30	1	5			6		
09:45	21	65	12	60	125	21:45	1	6	2	8	3	14	
10:00	18	21			39	22:00	4	0			4		
10:15	20	17			37	22:15	3	1			4		
10:30	14	19			33	22:30	2	2			4		
10:45	15	67	23	80	147	22:45	5	14	2	5	7	19	
11:00	16	16			32	23:00	1	3			4		
11:15	20	13			33	23:15	1	1			2		
11:30	25	17			42	23:30	1	0			1		
11:45	26	87	12	58	145	23:45	2	5	4	8	6	13	
TOTALS	442	473			915	TOTALS	503	376			879		
SPLIT %	48.3%	51.7%			51.0%	SPLIT %	57.2%	42.8%			49.0%		

DAILY TOTALS					NB	SB					EB	WB	Total
					945	849					0	0	1,794
AM Peak Hour	11:15	10:00			11:15	PM Peak Hour	13:45	13:15			13:45		
AM Pk Volume	97	80			158	PM Pk Volume	100	78			167		
Pk Hr Factor	0.933	0.870			0.878	Pk Hr Factor	0.962	0.722			0.908		
7 - 9 Volume	111	113	0	0	224	4 - 6 Volume	108	70	0	0	178		
7 - 9 Peak Hour	07:45	07:30			07:45	4 - 6 Peak Hour	16:00	16:00			16:00		
7 - 9 Pk Volume	77	67	0	0	143	4 - 6 Pk Volume	63	42	0	0	105		
Pk Hr Factor	0.837	0.644	0.000	0.000	0.831	Pk Hr Factor	0.606	0.808	0.000	0.000	0.673		

**CLASSIFICATION**

Tidelands Ave btwn 28th St &amp; 32nd St

Day: Wednesday

Date: 8/13/2014

City: San Diego

Project #: CA14\_4205\_001n

**North Bound**

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	4	0	0	0	0	0	0	1	0	0	0	0	5
02:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	2	0	0	0	0	3
05:00	0	13	4	0	4	0	0	1	1	0	0	0	0	23
06:00	0	22	11	0	6	0	0	0	1	0	0	0	0	40
07:00	0	30	4	0	1	0	0	1	5	0	0	0	0	41
08:00	0	10	5	0	1	0	0	0	2	0	0	0	0	18
09:00	0	12	4	0	1	0	0	2	3	0	0	0	0	22
10:00	0	11	5	0	3	1	0	0	5	0	0	0	0	25
11:00	0	30	9	1	3	1	0	0	6	0	0	0	0	50
12:00 PM	0	33	7	0	5	0	0	2	3	0	0	0	0	50
13:00	1	27	12	0	4	1	0	2	4	0	0	0	0	51
14:00	0	30	7	1	5	0	0	2	3	0	0	0	0	48
15:00	0	31	10	0	2	0	0	2	4	0	0	0	0	49
16:00	0	41	4	0	2	0	0	1	7	0	0	0	0	55
17:00	0	31	6	0	0	0	0	1	2	0	0	0	0	40
18:00	0	29	4	0	1	0	0	0	5	0	0	0	0	39
19:00	1	14	3	0	1	0	0	0	2	0	0	0	0	21
20:00	0	11	4	0	1	0	0	0	1	0	0	0	0	17
21:00	1	14	4	0	0	1	0	1	3	0	0	0	0	24
22:00	0	4	2	0	0	0	0	0	1	0	0	0	0	7
23:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
<b>Totals</b>	<b>3</b>	<b>403</b>	<b>106</b>	<b>2</b>	<b>40</b>	<b>4</b>		<b>16</b>	<b>61</b>					<b>635</b>
<b>% of Totals</b>	<b>0%</b>	<b>63%</b>	<b>17%</b>	<b>0%</b>	<b>6%</b>	<b>1%</b>		<b>3%</b>	<b>10%</b>					<b>100%</b>

<b>AM Volumes</b>	0	136	42	1	19	2	0	5	26	0	0	0	0	231
<b>% AM</b>		21%	7%	0%	3%	0%		1%	4%					36%
<b>AM Peak Hour</b>		07:00	06:00	11:00	06:00	10:00		09:00	11:00					11:00
<b>Volume</b>		30	11	1	6	1		2	6					50
<b>PM Volumes</b>	3	267	64	1	21	2	0	11	35	0	0	0	0	404
<b>% PM</b>	0%	42%	10%	0%	3%	0%		2%	6%					64%
<b>PM Peak Hour</b>	13:00	16:00	13:00	14:00	12:00	13:00		12:00	16:00					16:00
<b>Volume</b>	1	41	12	1	5	1		2	7					55
<b>Directional Peak Periods</b>		<b>AM 7-9</b>				<b>NOON 12-2</b>				<b>PM 4-6</b>				<b>Off Peak Volumes</b>
<b>All Classes</b>		Volume				Volume				Volume				Volume
		59				101				95				380
		↔				↔				↔				↔
		9%				16%				15%				60%

**Classification Definitions**

<b>1</b> Motorcycles	<b>4</b> Buses	<b>7</b> >=4-Axle Single Units	<b>10</b> >=6-Axle Single Trailers	<b>13</b> >=7-Axle Multi-Trailers
<b>2</b> Passenger Cars	<b>5</b> 2-Axle, 6-Tire Single Units	<b>8</b> <=4-Axle Single Trailers	<b>11</b> <=5-Axle Multi-Trailers	
<b>3</b> 2-Axle, 4-Tire Single Units	<b>6</b> 3-Axle Single Units	<b>9</b> 5-Axle Single Trailers	<b>12</b> 6-Axle Multi-Trailers	

**VOLUME**

Access Rd btwn Terminal Ave &amp; Quay Ave

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_006

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17	21						38
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL							TOTAL
00:00			0	0	0		12:00			1	1	2							2
00:15			0	0	0		12:15			1	1	2							2
00:30			0	0	0		12:30			2	1	3							3
00:45			1	1	1	2	12:45			1	5	0	3	1	8				
01:00			0	0	0		13:00			0	0	0							0
01:15			0	0	0		13:15			0	0	0							0
01:30			0	0	0		13:30			0	0	0							0
01:45			0	0	0		13:45			0	0	0							0
02:00			0	0	0		14:00			0	0	0							0
02:15			0	0	0		14:15			0	0	0							0
02:30			0	0	0		14:30			0	0	0							0
02:45			0	0	0		14:45			0	0	0							0
03:00			0	0	0		15:00			0	0	0							0
03:15			0	0	0		15:15			0	2	2							2
03:30			0	0	0		15:30			0	0	0							0
03:45			0	0	0		15:45			1	1	1	3	2	4				
04:00			0	0	0		16:00			1	0	1							1
04:15			0	0	0		16:15			0	1	1							1
04:30			0	0	0		16:30			0	0	0							0
04:45			0	0	0		16:45			2	3	0	1	2	4				
05:00			0	0	0		17:00			0	0	0							0
05:15			0	0	0		17:15			0	0	0							0
05:30			0	1	1		17:30			0	0	0							0
05:45			0	0	1	0	17:45			0	0	0							0
06:00			0	0	0		18:00			0	0	0							0
06:15			0	0	0		18:15			0	0	0							0
06:30			0	0	0		18:30			0	0	0							0
06:45			0	1	1	1	18:45			0	0	0							0
07:00			1	0	1		19:00			0	0	0							0
07:15			0	0	0		19:15			0	2	2							2
07:30			0	0	0		19:30			0	0	0							0
07:45			0	1	0	0	19:45			0	0	0	2	0	2				
08:00			0	0	0		20:00			0	0	0							0
08:15			0	1	1		20:15			1	0	1							1
08:30			0	0	0		20:30			0	0	0							0
08:45			0	0	1	0	20:45			0	1	0		0	1				
09:00			0	0	0		21:00			0	0	0							0
09:15			0	0	0		21:15			0	0	0							0
09:30			0	0	0		21:30			0	0	0							0
09:45			0	0	0		21:45			0	0	0							0
10:00			2	3	5		22:00			0	0	0							0
10:15			0	0	0		22:15			1	1	2							2
10:30			0	0	0		22:30			1	1	2							2
10:45			0	2	0	3	22:45			0	2	0	2	0	4				
11:00			0	0	0		23:00			0	0	0							0
11:15			0	0	0		23:15			0	0	0							0
11:30			1	1	2		23:30			0	0	0							0
11:45			0	1	2	3	23:45			0	0	0							0
TOTALS			5	10	15		TOTALS			12	11	23							
SPLIT %			33.3%	66.7%	39.5%		SPLIT %			52.2%	47.8%	60.5%							

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						17	21						38
AM Peak Hour			11:45	11:30	11:45		PM Peak Hour			12:00	12:00	12:00							
AM Pk Volume			4	5	9		PM Pk Volume			5	3	8							
Pk Hr Factor			0.500	0.625	0.750		Pk Hr Factor			0.625	0.750	0.667							
7 - 9 Volume	0	0	1	1	2		4 - 6 Volume	0	0	3	1	4							
7 - 9 Peak Hour			07:00	07:30	07:00		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	1	1	1		4 - 6 Pk Volume	0	0	3	1	4							
Pk Hr Factor	0.000	0.000	0.250	0.250	0.250		Pk Hr Factor	0.000	0.000	0.375	0.250	0.500							

**VOLUME**

Access Rd btwn Quay Ave &amp; Tideland Ave

Day: Thursday  
Date: 1/9/2014City: National City  
Project #: CA14\_4004\_007

DAILY TOTALS					NB	SB	EB					WB	Total
					0	0	397					121	518
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL	
00:00			0	0	0		12:00			5	6	11	
00:15			0	0	0		12:15			2	1	3	
00:30			2	2	4		12:30			12	3	15	
00:45			1	3	0	2	12:45			5	24	1	11
					1	5						6	35
01:00			0	0	0		13:00			8	2	10	
01:15			0	0	0		13:15			9	2	11	
01:30			0	0	0		13:30			4	1	5	
01:45			2	2	0	2	13:45			7	28	5	10
					2	2						12	38
02:00			8	1	9		14:00			6	2	8	
02:15			1	0	1		14:15			17	6	23	
02:30			1	0	1		14:30			13	0	13	
02:45			1	11	0	1	14:45			0	36	0	8
					1	12						0	44
03:00			4	2	6		15:00			15	2	17	
03:15			7	1	8		15:15			7	2	9	
03:30			3	0	3		15:30			6	0	6	
03:45			2	16	0	3	15:45			4	32	3	7
					2	19						7	39
04:00			0	0	0		16:00			16	4	20	
04:15			0	0	0		16:15			4	1	5	
04:30			0	0	0		16:30			5	3	8	
04:45			1	1	1	1	16:45			15	40	0	8
					2	2						15	48
05:00			3	0	3		17:00			1	1	2	
05:15			0	0	0		17:15			4	0	4	
05:30			3	3	6		17:30			3	0	3	
05:45			0	6	1	4	17:45			10	18	0	1
					1	10						10	19
06:00			3	0	3		18:00			0	0	0	
06:15			7	1	8		18:15			3	2	5	
06:30			5	1	6		18:30			2	0	2	
06:45			10	25	1	3	18:45			8	13	1	3
					11	28						9	16
07:00			11	0	11		19:00			1	0	1	
07:15			2	2	4		19:15			0	1	1	
07:30			3	4	7		19:30			1	0	1	
07:45			8	24	4	10	19:45			0	2	3	4
					12	34						3	6
08:00			3	1	4		20:00			2	1	3	
08:15			7	4	11		20:15			1	0	1	
08:30			0	1	1		20:30			0	1	1	
08:45			2	12	2	8	20:45			0	3	1	3
					4	20						1	6
09:00			2	5	7		21:00			0	0	0	
09:15			3	0	3		21:15			0	0	0	
09:30			13	1	14		21:30			2	3	5	
09:45			7	25	2	8	21:45			0	2	0	3
					9	33						0	5
10:00			2	5	7		22:00			0	0	0	
10:15			10	0	10		22:15			1	0	1	
10:30			6	1	7		22:30			1	0	1	
10:45			16	34	3	9	22:45			1	3	0	3
					19	43						1	3
11:00			16	3	19		23:00			1	3	4	
11:15			1	2	3		23:15			0	0	0	
11:30			2	1	3		23:30			0	0	0	
11:45			12	31	5	11	23:45			5	6	0	3
					17	42						5	9
TOTALS	190				60	250	TOTALS	207				61	268
SPLIT %	76.0%				24.0%	48.3%	SPLIT %	77.2%				22.8%	51.7%

DAILY TOTALS					NB	SB						EB	WB						Total
					0	0						397	121						518
AM Peak Hour			10:15	11:45	10:15		PM Peak Hour			14:15	13:30	13:45							
AM Pk Volume			48	15	55		PM Pk Volume			45	14	56							
Pk Hr Factor			0.750	0.625	0.724		Pk Hr Factor			0.662	0.583	0.609							
7 - 9 Volume	0	0	36	18	54		4 - 6 Volume	0	0	58	9	67							
7 - 9 Peak Hour			07:00	07:30	07:00		4 - 6 Peak Hour			16:00	16:00	16:00							
7 - 9 Pk Volume	0	0	24	13	34		4 - 6 Pk Volume	0	0	40	8	48							
Pk Hr Factor	0.000	0.000	0.545	0.813	0.708		Pk Hr Factor	0.000	0.000	0.625	0.500	0.600							

# INTERSECTION: Tidelands @ 19th

Page 1 (of 5)

Group Assignment: **None**

N/S Street Name: **Tidelands**

Last Database Change: **3/3/2011 0:00**

Field Master Assignment: **None**

E/W Street Name: **19th**

System Reference Number:

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number		<C+0+0>
Zone Number		<C+0+1>
Area Number		<C+0+2>
Area Address		<C+0+3>
QuicNet Channel		(QuicNet)

## Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

## Manual Selection

Max Initial	<b>20</b>	<F+0+E>
Red Revert	<b>5.0</b>	<F+0+F>
All Red Start	<b>5.0</b>	<F+C+0>

## Start / Revert Times

Column Numbers ---->		Phase							
Phase Names ---->		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	0
1	Ped FDW	0	21	0	19	0	22	0	0
2	Min Green	0	10	0	5	0	10	0	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
6	Max Gap	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
7	Min Gap	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
8	Max Limit	0	30	0	25	0	30	0	25
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	4.0	0.0	4.0	0.0	4.0	0.0	4.0
F	Red Clear	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0

## Phase Timing - Bank 1

<F Page>

E	
RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	0
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	0
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

## Preempt Timing

F	
Permit	<b>2_4_6_8</b>
Red Lock	_____
Yellow Lock	_____
Min Recall	_____
Ped Recall	_____
View Set Peds	-----
Rest In Walk	_____
Red Rest	_____
Dual Entry	<b>2_4_6_8</b>
Max Recall	_____
Soft Recall	<b>4_8</b>
Max 2	_____
Cond. Service	_____
Man Cntrl Calls	_____
Yellow Start	<b>2_6_</b>
First Phases	<b>4_8</b>

## Phase Functions

<F Page>

Manual Plan  
0 = Automatic  
1-9 = Plan 1-9  
14 = Free  
15 = Flash

Manual Offset  
0 = Automatic  
1 = Offset A  
2 = Offset B  
3 = Offset C



Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Cycle Length	0	0	0	0	0	0	0	0	0
1	Phase 1 - ForceOff	0	0	0	0	0	0	0	0	0
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	0
5	Phase 5 - ForceOff	0	0	0	0	0	0	0	0	0
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	0	0	0	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	0	0	0	0	0	0	0	0	0
E	Hold Release	0	0	0	0	0	0	0	0	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

&lt;C Page&gt;

(\* = Coordination Recall)

E		Row
Plan 1 - Sync		1
Plan 2 - Sync		2
Plan 3 - Sync		3
Plan 4 - Sync		4
Plan 5 - Sync		5
Plan 6 - Sync		6
Plan 7 - Sync		7
Plan 8 - Sync		8
Plan 9 - Sync		9
Coord Ped *		A
NEMA Hold		B
		C
		D
		E
		F

Sync Phases &lt;C Page&gt;

Column Numbers ---->		E
0	Exclusive Phases	
1	RR-1 Clear Phases	6
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2
B	EV-B Phases	4
C	EV-C Phases	6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 3
F	IC Select (Interconnect)	2

Configuration

&lt;E Page&gt;

F		Row
RR Overlap A - Phases		
RR Overlap B - Phases		
RR Overlap C - Phases		
RR Overlap D - Phases		
Ped 2P	2	
Ped 6P	6	
Ped 4P	4	
Ped 8P		
Yellow Flash Phases		
Overlap A - Phases		
Overlap B - Phases		
Overlap C - Phases		
Overlap D - Phases		
Restricted Phases		
Assign 5 Outputs		

Configuration

&lt;E Page&gt;

Extra 1 Flags  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = EV Advance  
 5 =  
 6 = Special Event  
 7 = Pretimed Operation  
 8 = Split Ring Operation

Assign 5 Outputs  
 (Ped Loadswitch Yellows)  
 1 = Right Turn Overlap  
 2 = TOD Outputs  
 3 = EV Beacon - Steady  
 4 = EV Beacon - Flashing  
 5 = Special Event Outputs  
 6 = Phase 3 & 7 Ped  
 7 = Advanced Warning Sign  
 8 =

Force-Off Adjust 0  
**Coord Force-Off Adjust**  
**for Ped Service <C+D+F>**

Transition Type 0  
**TBC Transition <C+D+D>**

Transition Type  
 0 = Shortway  
 Non-zero = Lengthen

IC Select Flags  
 1 =  
 2 = Modem  
 3 = 7-Wire Slave  
 4 = Flash / Free  
 5 =  
 6 = Simplex Master  
 7 = 7-Wire Master  
 8 = Offset Interrupter

F		Row
Free Lag	2 4 6 8	0
Plan 1 - Lag	2 4 6 8	1
Plan 2 - Lag	2 4 6 8	2
Plan 3 - Lag	2 4 6 8	3
Plan 4 - Lag	2 4 6 8	4
Plan 5 - Lag	2 4 6 8	5
Plan 6 - Lag	2 4 6 8	6
Plan 7 - Lag	2 4 6 8	7
Plan 8 - Lag	2 4 6 8	8
Plan 9 - Lag	2 4 6 8	9
Coord Max *		A
Coord Lag *		B
		C
		D
		E
		F

Lag Phases &lt;C Page&gt;

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination**  
<9 Key with C+D+9=0>

Plan Select  
1 thru 9 = Coordination  
Plan 1 thru 9  
14 or E = Free  
15 or F = Flash

Offset Select  
A = Offset A  
B = Offset B  
C = Offset C

Time	Funct.	Day of Week	Column F Phases/Bits
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

**TOD Function**  
<7 Key>

T.O.D. Functions  
0 = Permitted Phases  
1 = Red Lock  
2 = Yellow Lock  
3 = Veh Min Recall  
4 = Ped Recall  
5 =  
6 = Rest In Walk  
7 = Red Rest  
8 = Double Entry  
9 = Veh Max Recall  
A = Veh Soft Recall  
B = Maximum 2  
C = Conditional Service  
D = Free Lag Phases  
E = Bit 1 - Local Override  
Bit 2 - Phase Bank 2  
Bit 3 - Phase Bank 3  
Bit 4 - Disable Detector  
OFF Monitor  
Bit 7 - Detector Count Monitor  
Bit 8 - Real Time Split Monitor  
F = Output Bits 1 thru 4

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 1**  
**TOD Coordination**  
<9 Key with C+D+9=1>

Month Select  
1 = January  
2 = February  
3 = March  
4 = April  
5 = May  
6 = June  
7 = July  
8 = August  
9 = September  
A = October  
B = November  
C = December

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 2**  
**TOD Coordination**  
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 3**  
**TOD Coordination**  
<9 Key with C+D+9=3>

Row	Day	Year	Month	Day of Week
A				
B				
C				

Holiday # 1 Date	Day	Year	Month
	0	0	0
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

**Holiday Dates**  
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay &amp; Carryover &lt;D Page&gt;

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing &lt;F Page&gt;

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors &lt;D Page&gt;

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0 Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors &lt;D Page&gt;

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Column Numbers ---->		Phase							
Phase Names ---->		1	2	3	4	5	6	7	8
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 2

&lt;F Page&gt;

Column Numbers ---->		Phase							
Phase Names ---->		1	2	3	4	5	6	7	8
Ped Walk	0	0	0	0	0	0	0	0	0
Ped FDW	0	0	0	0	0	0	0	0	0
Min Green	0	0	0	0	0	0	0	0	0
Type 3 Limit	0	0	0	0	0	0	0	0	0
Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Limit	0	0	0	0	0	0	0	0	0
Max Limit 2	0	0	0	0	0	0	0	0	0
-----	0	0	0	0	0	0	0	0	0
Call To Phase	0	0	0	0	0	0	0	0	0
Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 3

&lt;F Page&gt;

Row		7	8	9	A	B	C	D	E	F	Row	
Delay Only ---->		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output		
0		0	---	---	---	---	---	---	---	---	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. ---->	0	0								9	
A		---	0								A	
B		0	0								B	
C		0	0								C	
D		0	0								D	
E		0	0								E	
F		0	0								F	

Special Event Schedule

&lt;C Page with F+9+F=22&gt;

----- Limited  
Service  
Interval  
(Set Dwell = 255)

# **INTERSECTION: Tidelands @ Bay Marina**

Page 1 (of 5)

Group Assignment: **None**

N/S Street Name: **Tidelands**

Last Database Change: **3/2/2011 0:00**

Field Master Assignment: **None**

E/W Street Name: **Bay Marina**

System Reference Number:

Change Record					
Change	By	Date	Change	By	Date

Notes:

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Drop Number		<C+0+0>
Zone Number		<C+0+1>
Area Number		<C+0+2>
Area Address		<C+0+3>
QuicNet Channel		(QuicNet)

## **Communication Addresses**

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

## **Manual Selection**

Max Initial	<b>20</b>	<F+0+E>
Red Revert	<b>5.0</b>	<F+0+F>
All Red Start	<b>5.0</b>	<F+C+0>

## **Start / Revert Times**

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	17	0	20	0	20	0	19
2	Min Green	0	10	0	5	0	10	0	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
6	Max Gap	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
7	Min Gap	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0
8	Max Limit	0	30	0	25	0	30	0	25
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	4.0	0.0	4.0	0.0	4.0	0.0	4.0
F	Red Clear	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0

## **Phase Timing - Bank 1**

<F Page>

E	
RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	20
EV-B Delay	0
EV-B Clear	20
EV-C Delay	0
EV-C Clear	20
EV-D Delay	0
EV-D Clear	20
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

## **Preempt Timing**

F	
Permit	<u>2_4_6_8</u>
Red Lock	_____
Yellow Lock	_____
Min Recall	_____
Ped Recall	_____
View Set Peds	-----
Rest In Walk	_____
Red Rest	_____
Dual Entry	<u>2_4_6_8</u>
Max Recall	_____
Soft Recall	<u>2_6_</u>
Max 2	_____
Cond. Service	_____
Man Cntrl Calls	_____
Yellow Start	<u>2_6_</u>
First Phases	<u>4_8</u>

## **Phase Functions**

<F Page>

Row
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

Manual Plan  
0 = Automatic  
1-9 = Plan 1-9  
14 = Free  
15 = Flash

Manual Offset  
0 = Automatic  
1 = Offset A  
2 = Offset B  
3 = Offset C

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Cycle Length	0	0	0	0	0	0	0	0	0
1	Phase 1 - ForceOff	0	0	0	0	0	0	0	0	0
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	0
5	Phase 5 - ForceOff	0	0	0	0	0	0	0	0	0
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	0	0	0	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	0	0	0	0	0	0	0	0	0
E	Hold Release	0	0	0	0	0	0	0	0	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

&lt;C Page&gt;

(\* = Coordination Recall)

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Cycle Length	0	0	0	0	0	0	0	0	0
1	Phase 1 - ForceOff	0	0	0	0	0	0	0	0	0
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	0
5	Phase 5 - ForceOff	0	0	0	0	0	0	0	0	0
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	0	0	0	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	0	0	0	0	0	0	0	0	0
E	Hold Release	0	0	0	0	0	0	0	0	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Sync Phases

&lt;C Page&gt;

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Exclusive Phases	0	0	0	0	0	0	0	0	0
1	RR-1 Clear Phases	0	0	0	0	0	0	0	0	0
2	RR-2 Clear Phases	0	0	0	0	0	0	0	0	0
3	RR-2 Limited Service	0	0	0	0	0	0	0	0	0
4	Prot / Perm Phases	0	0	0	0	0	0	0	0	0
5	Overlap A - Green Omit	0	0	0	0	0	0	0	0	0
6	Overlap B - Green Omit	0	0	0	0	0	0	0	0	0
7	Overlap C - Green Omit	0	0	0	0	0	0	0	0	0
8	Overlap D - Green Omit	0	0	0	0	0	0	0	0	0
9	Overlap Yellow Flash	0	0	0	0	0	0	0	0	0
A	EV-A Phases	0	0	0	0	0	0	0	0	0
B	EV-B Phases	0	0	0	0	0	0	0	0	0
C	EV-C Phases	0	0	0	0	0	0	0	0	0
D	EV-D Phases	0	0	0	0	0	0	0	0	0
E	Extra 1 Config. Bits	0	0	0	0	0	0	0	0	0
F	IC Select (Interconnect)	0	0	0	0	0	0	0	0	0

Configuration

&lt;E Page&gt;

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	RR Overlap A - Phases	0	0	0	0	0	0	0	0	0
1	RR Overlap B - Phases	0	0	0	0	0	0	0	0	0
2	RR Overlap C - Phases	0	0	0	0	0	0	0	0	0
3	RR Overlap D - Phases	0	0	0	0	0	0	0	0	0
4	Ped 2P	0	0	0	0	0	0	0	0	0
5	Ped 6P	0	0	0	0	0	0	0	0	0
6	Ped 4P	0	0	0	0	0	0	0	0	0
7	Ped 8P	0	0	0	0	0	0	0	0	0
8	Yellow Flash Phases	0	0	0	0	0	0	0	0	0
9	Overlap A - Phases	0	0	0	0	0	0	0	0	0
A	Overlap B - Phases	0	0	0	0	0	0	0	0	0
B	Overlap C - Phases	0	0	0	0	0	0	0	0	0
C	Overlap D - Phases	0	0	0	0	0	0	0	0	0
D	Restricted Phases	0	0	0	0	0	0	0	0	0
E	Assign 5 Outputs	0	0	0	0	0	0	0	0	0
F	Assign 5 Outputs	0	0	0	0	0	0	0	0	0

Configuration

&lt;E Page&gt;

Extra 1 Flags  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = EV Advance  
 5 =  
 6 = Special Event  
 7 = Pretimed Operation  
 8 = Split Ring Operation

Assign 5 Outputs  
 (Ped Loadswitch Yellows)  
 1 = Right Turn Overlap  
 2 = TOD Outputs  
 3 = EV Beacon - Steady  
 4 = EV Beacon - Flashing  
 5 = Special Event Outputs  
 6 = Phase 3 & 7 Ped  
 7 = Advanced Warning Sign  
 8 =

Force-Off Adjust 0  
**Coord Force-Off Adjust**  
**for Ped Service <C+D+F>**

Transition Type 0  
**TBC Transition <C+D+D>**

Transition Type  
 0 = Shortway  
 Non-zero = Lengthen

IC Select Flags  
 1 =  
 2 = Modem  
 3 = 7-Wire Slave  
 4 = Flash / Free  
 5 =  
 6 = Simplex Master  
 7 = 7-Wire Master  
 8 = Offset Interrupter

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Free Lag	0	0	0	0	0	0	0	0	0
1	Plan 1 - Lag	0	0	0	0	0	0	0	0	0
2	Plan 2 - Lag	0	0	0	0	0	0	0	0	0
3	Plan 3 - Lag	0	0	0	0	0	0	0	0	0
4	Plan 4 - Lag	0	0	0	0	0	0	0	0	0
5	Plan 5 - Lag	0	0	0	0	0	0	0	0	0
6	Plan 6 - Lag	0	0	0	0	0	0	0	0	0
7	Plan 7 - Lag	0	0	0	0	0	0	0	0	0
8	Plan 8 - Lag	0	0	0	0	0	0	0	0	0
9	Plan 9 - Lag	0	0	0	0	0	0	0	0	0
A	Coord Max *	0	0	0	0	0	0	0	0	0
B	Coord Lag *	0	0	0	0	0	0	0	0	0
C		0	0	0	0	0	0	0	0	0
D		0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0
F		0	0	0	0	0	0	0	0	0

Lag Phases

&lt;C Page&gt;

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination**  
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

**TOD Function**  
<7 Key> <D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 1**  
**TOD Coordination**  
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 2**  
**TOD Coordination**  
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00:00	0	0		0
00:00	0	0		1
00:00	0	0		2
00:00	0	0		3
00:00	0	0		4
00:00	0	0		5
00:00	0	0		6
00:00	0	0		7
00:00	0	0		8
00:00	0	0		9
00:00	0	0		A
00:00	0	0		B
00:00	0	0		C
00:00	0	0		D
00:00	0	0		E
00:00	0	0		F

**Holiday # 3**  
**TOD Coordination**  
<9 Key with C+D+9=3>

Plan Select  
1 thru 9 = Coordination  
Plan 1 thru 9  
14 or E = Free  
15 or F = Flash

Offset Select  
A = Offset A  
B = Offset B  
C = Offset C

T.O.D. Functions  
0 = Permitted Phases  
1 = Red Lock  
2 = Yellow Lock  
3 = Veh Min Recall  
4 = Ped Recall  
5 =  
6 = Rest In Walk  
7 = Red Rest  
8 = Double Entry  
9 = Veh Max Recall  
A = Veh Soft Recall  
B = Maximum 2  
C = Conditional Service  
D = Free Lag Phases  
E = Bit 1 - Local Override  
Bit 2 - Phase Bank 2  
Bit 3 - Phase Bank 3  
Bit 4 - Disable Detector  
OFF Monitor  
Bit 7 - Detector Count Monitor  
Bit 8 - Real Time Split Monitor  
F = Output Bits 1 thru 4

Month Select  
1 = January  
2 = February  
3 = March  
4 = April  
5 = May  
6 = June  
7 = July  
8 = August  
9 = September  
A = October  
B = November  
C = December

Row	Day	Year	Month	Day of Week
A				
B				
C				

Holiday # 1 Date	0	0	0
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

**Holiday Dates**  
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay &amp; Carryover &lt;D Page&gt;

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing &lt;F Page&gt;

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors &lt;D Page&gt;

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0 Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors &lt;D Page&gt;

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)



		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 2

&lt;F Page&gt;

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 3

&lt;F Page&gt;

		7	8	9	A	B	C	D	E	F	Row
Row	Delay Only ---->	Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output	
0		0	---	---	---	---	---	---	---	---	0
1		0	0								1
2		0	0								2
3		0	0								3
4		0	0								4
5		0	0								5
6		0	0								6
7		0	0								7
8		0	0								8
9	Limited Service Int. ---->	0	0								9
A		---	0								A
B		0	0								B
C		0	0								C
D		0	0								D
E		0	0								E
F		0	0								F

Special Event Schedule

&lt;C Page with F+9+F=22&gt;

----- Limited  
Service  
Interval  
(Set Dwell = 255)

# INTERSECTION: Marina Way @ Bay Marina

Page 1 (of 5)

Group Assignment: **None**

N/S Street Name: **Marina Way**

Last Database Change: **3/2/2011 0:00**

Field Master Assignment: **None**

E/W Street Name: **Bay Marina**

System Reference Number:

Change Record					
Change	By	Date	Change	By	Date

Notes:

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---

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---

Drop Number		<C+0+0>
Zone Number		<C+0+1>
Area Number		<C+0+2>
Area Address		<C+0+3>
QuicNet Channel		(QuicNet)

## Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

## Manual Selection

Max Initial	<b>20</b>	<F+0+E>
Red Revert	<b>5.0</b>	<F+0+F>
All Red Start	<b>5.0</b>	<F+C+0>

## Start / Revert Times

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	7	0	0	0	7	0	7
1	Ped FDW	0	16	0	0	0	16	0	24
2	Min Green	2	10	0	0	0	10	0	5
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	2.0	3.0	0.0	0.0	0.0	3.0	0.0	3.0
6	Max Gap	2.0	3.0	0.0	0.0	0.0	3.0	0.0	3.0
7	Min Gap	2.0	3.0	0.0	0.0	0.0	3.0	0.0	3.0
8	Max Limit	15	30	0	0	0	30	0	25
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	3.0	4.0	0.0	0.0	0.0	4.0	0.0	4.0
F	Red Clear	1.0	2.0	0.0	0.0	0.0	2.0	0.0	2.0

## Phase Timing - Bank 1

<F Page>

E	
RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	10
EV-B Delay	0
EV-B Clear	10
EV-C Delay	0
EV-C Clear	10
EV-D Delay	0
EV-D Clear	10
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

## Preempt Timing

F	
Permit	12_6_8
Red Lock	_____
Yellow Lock	_____8
Min Recall	_____
Ped Recall	_____
View Set Peds	-----
Rest In Walk	_____
Red Rest	_____
Dual Entry	_____
Max Recall	_____
Soft Recall	2_6_
Max 2	_____
Cond. Service	_____
Man Cntrl Calls	_____
Yellow Start	_____
First Phases	1_____

## Phase Functions

<F Page>

Row	
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
A	
B	
C	
D	
E	
F	

Manual Plan  
0 = Automatic  
1-9 = Plan 1-9  
14 = Free  
15 = Flash

Manual Offset  
0 = Automatic  
1 = Offset A  
2 = Offset B  
3 = Offset C

Column Numbers ---->		Plan								
Plan Name ---->		1	2	3	4	5	6	7	8	9
0	Cycle Length	0	0	0	0	0	0	0	0	0
1	Phase 1 - ForceOff	0	0	0	0	0	0	0	0	0
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	0	0	0
4	Phase 4 - ForceOff	0	0	0	0	0	0	0	0	0
5	Phase 5 - ForceOff	0	0	0	0	0	0	0	0	0
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	0	0	0	0	0	0	0	0	0
8	Phase 8 - ForceOff	0	0	0	0	0	0	0	0	0
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	0	0	0	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	0	0	0	0	0	0	0	0	0
E	Hold Release	0	0	0	0	0	0	0	0	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

&lt;C Page&gt;

(\* = Coordination Recall)

E		Row
Plan 1 - Sync		1
Plan 2 - Sync		2
Plan 3 - Sync		3
Plan 4 - Sync		4
Plan 5 - Sync		5
Plan 6 - Sync		6
Plan 7 - Sync		7
Plan 8 - Sync		8
Plan 9 - Sync		9
Coord Ped *		A
NEMA Hold		B
		C
		D
		E
		F

Sync Phases &lt;C Page&gt;

Column Numbers ---->		E
0	Exclusive Phases	8
1	RR-1 Clear Phases	2
2	RR-2 Clear Phases	2
3	RR-2 Limited Service	1
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2
B	EV-B Phases	8
C	EV-C Phases	1 6
D	EV-D Phases	
E	Extra 1 Config. Bits	
F	IC Select (Interconnect)	

Configuration

&lt;E Page&gt;

F		Row
RR Overlap A - Phases		
RR Overlap B - Phases		
RR Overlap C - Phases		
RR Overlap D - Phases		
Ped 2P	2	
Ped 6P		
Ped 4P		
Ped 8P	8	
Yellow Flash Phases		
Overlap A - Phases		
Overlap B - Phases		
Overlap C - Phases		
Overlap D - Phases		
Restricted Phases		
Assign 5 Outputs		

Configuration

&lt;E Page&gt;

Extra 1 Flags  
 1 = TBC Type 1  
 2 = NEMA Ext. Coord  
 3 = Auto Daylight Savings  
 4 = EV Advance  
 5 =  
 6 = Special Event  
 7 = Pretimed Operation  
 8 = Split Ring Operation

Assign 5 Outputs  
 (Ped Loadswitch Yellows)  
 1 = Right Turn Overlap  
 2 = TOD Outputs  
 3 = EV Beacon - Steady  
 4 = EV Beacon - Flashing  
 5 = Special Event Outputs  
 6 = Phase 3 & 7 Ped  
 7 = Advanced Warning Sign  
 8 =

Force-Off Adjust 0  
**Coord Force-Off Adjust**  
**for Ped Service <C+D+F>**

Transition Type 0  
**TBC Transition <C+D+D>**

Transition Type  
 0 = Shortway  
 Non-zero = Lengthen

IC Select Flags  
 1 =  
 2 = Modem  
 3 = 7-Wire Slave  
 4 = Flash / Free  
 5 =  
 6 = Simplex Master  
 7 = 7-Wire Master  
 8 = Offset Interrupter

F		Row
Free Lag	2 4 6 8	0
Plan 1 - Lag	2 4 6 8	1
Plan 2 - Lag	2 4 6 8	2
Plan 3 - Lag	2 4 6 8	3
Plan 4 - Lag	2 4 6 8	4
Plan 5 - Lag	2 4 6 8	5
Plan 6 - Lag	2 4 6 8	6
Plan 7 - Lag	2 4 6 8	7
Plan 8 - Lag	2 4 6 8	8
Plan 9 - Lag	2 4 6 8	9
Coord Max *	2 4 6 8	A
Coord Lag *	2 4 6 8	B
		C
		D
		E
		F

Lag Phases &lt;C Page&gt;

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

**TOD Coordination**  
<9 Key with C+D+9=0>

Plan Select  
1 thru 9 = Coordination  
Plan 1 thru 9  
14 or E = Free  
15 or F = Flash

Offset Select  
A = Offset A  
B = Offset B  
C = Offset C

Time	Funct.	Day of Week	Column F Phases/Bits
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

**TOD Function**  
<7 Key>

T.O.D. Functions  
0 = Permitted Phases  
1 = Red Lock  
2 = Yellow Lock  
3 = Veh Min Recall  
4 = Ped Recall  
5 =  
6 = Rest In Walk  
7 = Red Rest  
8 = Double Entry  
9 = Veh Max Recall  
A = Veh Soft Recall  
B = Maximum 2  
C = Conditional Service  
D = Free Lag Phases  
E = Bit 1 - Local Override  
Bit 2 - Phase Bank 2  
Bit 3 - Phase Bank 3  
Bit 4 - Disable Detector  
OFF Monitor  
Bit 7 - Detector Count Monitor  
Bit 8 - Real Time Split Monitor  
F = Output Bits 1 thru 4

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 1**  
**TOD Coordination**  
<9 Key with C+D+9=1>

Month Select  
1 = January  
2 = February  
3 = March  
4 = April  
5 = May  
6 = June  
7 = July  
8 = August  
9 = September  
A = October  
B = November  
C = December

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 2**  
**TOD Coordination**  
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

**Holiday # 3**  
**TOD Coordination**  
<9 Key with C+D+9=3>

Row	Day	Year	Month	Day of Week
A				
B				
C				

Holiday # 1 Date	Day	Year	Month
	0	0	0
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

**Holiday Dates**  
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay &amp; Carryover &lt;D Page&gt;

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing &lt;F Page&gt;

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors &lt;D Page&gt;

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0 Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors &lt;D Page&gt;

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 2

&lt;F Page&gt;

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	0	0	0	0	0	0	0
1	Ped FDW	0	0	0	0	0	0	0	0
2	Min Green	0	0	0	0	0	0	0	0
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Max Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	Max Limit	0	0	0	0	0	0	0	0
9	Max Limit 2	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D	Reduce Every	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Phase Timing - Bank 3

&lt;F Page&gt;

		7	8	9	A	B	C	D	E	F	Row
Row	Delay Only ---->	Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output	
0		0	---	---	---	---	---	---	---	---	0
1		0	0								1
2		0	0								2
3		0	0								3
4		0	0								4
5		0	0								5
6		0	0								6
7		0	0								7
8		0	0								8
9	Limited Service Int. ---->	0	0								9
A		---	0								A
B		0	0								B
C		0	0								C
D		0	0								D
E		0	0								E
F		0	0								F

Special Event Schedule

&lt;C Page with F+9+F=22&gt;

----- Limited  
Service  
Interval  
(Set Dwell = 255)

INTERVAL	PHASE TIMING								9	PRE-EMPTION		F							
	1	2	3	4	5	6	7	8		E	FLGS	1	2	3	4	5	6	7	8
0 WALK	1	1	1	1	1	7	1	1	CLK RST	EY SET	0	1	2	4	6				0
1 DONT WALK	1	1	1	1	1	16	1	1		RR1 CLR	5	1							1
2 MIN GREEN	5	10	1	5	1	10	1	1		EVA DLY	0				4				2
3 TYPE 3 DET	0	0	0	0	0	0	0	0		EVA CLR	5		2			6			3
4 ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		EVB DLY	0								4
5 PASSAGE	2.0	5.0	0.9	2.0	0.9	5.0	0.9	0.9		EVB CLR	5								5
6 MAX GAP	2.0	7.0	0.9	2.0	0.9	7.0	0.9	0.9		EVC DLY	0								6
7 MIN GAP	2.0	3.0	0.9	2.0	0.9	3.0	0.9	0.9		EVC CLR	5								7
8 MAX EXT	30	30	9	30	9	30	9	9		EVD DLY	0								8
9 MAX 2									YR	EVD CLR	5								9
A MAX 3	45								MO	MAX EV	255								A
B									DAY	RR2 CLR	5								B
C REDUCE BY	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	DOW		REST-IN-WALK								C
D EVERY	1.0	0.6	1.0	1.0	1.0	0.6	1.0	1.0	HR		MAX 3 PHASES	1							D
E YELLOW	3.2	3.6	3.0	3.6	3.0	3.6	3.0	3.0	MIN		YEL START UP	2				6			E
F RED	1.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0	SEC		FIRST PHASE			4					F
3.5' PED XING FT						70'						1	2	3	4	5	6	7	8
BIKE XING FT		45'																	

NOTES:

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CCI FLASH ONLY

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FDS PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

	CONTROL PLANS									Y-COORD		LAG PHASE		FLAG									
	1	2	3	4	5	6	7	8	9		C	D	E	F	1	2	3	4	5	6	7	8	
0 CYCLE LENGTH	80	90	100											LAG FZ FREE		2		4		6		8	0
1 FZ1 GRN FCTR	20	25	30										GAPOUT CP1	LAG FZ CP 1		2		4		6		8	1
2													GAPOUT CP2	LAG FZ CP 2		2		4		6		8	2
3 FZ3 GRN FCTR													GAPOUT CP3	LAG FZ CP 3		2		4		6		8	3
4 FZ4 GRN FCTR	20	22	25							PERM TIME			GAPOUT CP4	LAG FZ CP 4									4
5 FZ5 GRN FCTR										LAG OFFSET			GAPOUT CP5	LAG FZ CP 5									5
6										FORCE OFF			GAPOUT CP6	LAG FZ CP 6									6
7 FZ7 GRN FCTR										LONG GRN			GAPOUT CP7	LAG FZ CP 7									7
8 FZ8 GRN FCTR										NO GREEN			GAPOUT CP8	LAG FZ CP 8									8
9 MULTI CYCLE													GAPOUT CP9	LAG FZ CP 9									9
A OFFSET A										OFFSET				LAG C COORD									A
B OFFSET B														LAG D COORD									B
C OFFSET C														COORD FAZES		2				6			C
D FZ 3 EXT																							D
E FZ 7 EXT																							E
F OFFSET INTRPT																							F

	FEATURE								LOCATION		CCB/CDB OFFSET TIMER							
	1	2	3	4	5	6	7	8	OFF	ON	1	2	3	4	5	6	7	8
CO1 MANUAL CP																		
CO2 MASTER CP																		
CO3 CURRENT CP																		
CO4 LAST CP																		
CO7 TRNSMT CP																		
COD MANUAL OFFSET																		
CAO LOCAL CYCLE TIMER																		
CBO MASTER CYCLE TIMER																		
CAA LOCAL OFFSET																		
CBA MASTER OFFSET																		

CCB/CDB OFFSET TIMER  
CCC/CDC LAG GREEN TIMER  
CCD/CDD FORCE OFF TIMER  
CCE/CDE LONG GREEN TIMER  
CCF/CDF NO GREEN TIMER

COO = 2



D		FLAGS								E	FLAGS								F	FLAGS								
		MAX	1	2	3	4	5	6	7		8	MIN	1	2	3	4	5	6		7	8	PED	1	2	3	4	5	6
0	RCL									RCL										RCL								
1	CP 1	1								CP 1			4							CP 1								
2	CP 2	1								CP 2			4							CP 2								
3	CP 3	1								CP 3			4							CP 3								
4	CP 4									CP 4										CP 4								
5	CP 5									CP 5										CP 5								
6	CP 6									CP 6										CP 6								
7	CP 7									CP 7										CP 7								
8	CP 8									CP 8										CP 8								
9	CP 9									CP 9										CP 9								
A																				RCL 1								
B																				RCL 2								
C																												
D																												
E																												
F																												
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8

LAST POWER FAILURE REGISTER

E	FLAGS								F	FLAGS										
	FUNCTION	1	2	3	4	5	6	7		8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4								0		
1										CODE 5								1		
2										C-RECALL								2		
3										D-RECALL								3		
4										EXCLUSIVE								4		
5										2 PED			2					5		
6										6 PED					6			6		
7										4 PED				4				7		
8										8 PED							8	8		
9																		9		
A	OLA NOT									OLA ON								A		
B	OLB NOT									OLB ON								B		
C	OLC NOT									OLC ON								C		
D	OLD NOT									OLD ON								D		
E																		E		
F																		F		
		1	2	3	4	5	6	7	8				1	2	3	4	5	6	7	8

LAST FLASH TIME REGISTER

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

HOUR = D-A-F  
 MINUTE = D-B-F  
 DAY = D-C-F  
 84 = BAD  
 85 = GOOD

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES  
 (CALL ACTIVE LIGHTS)  
 RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES  
 (CALL ACTIVE LIGHTS)

TIME OF DAY ACTIVITY TABLE

7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS												
	HR	MIN	ACT	OFF	ON	S	M	T	W	T	F	S
0	06	00	3		ON	1	2	3	4	5	6	7
1	18	00	3			1	2	3	4	5	6	7
2												
3												
4												
5												
6												
7												
8												
9												
A												
B												
C												
D												
E												
F												

ACTIVITY CODE

- 1 TYPE OF MAX TERMINATION
- 2 MAX 2
- 3 MAX 3
- 4 COND SERV (1ST SELECT)
- 5 COND SERV (2ND SELECT)
- 6 ENERGIZE AUX OUTPUT-RED
- 7 ENERGIZE AUX OUTPUT-GREEN

CONTROL PLAN TIME OF DAY

9+EVENT+HR+MIN+CP+OS+E+DOW												
	HR	MIN	CP	OS	S	M	T	W	T	F	S	
0	06	00	1	A	1	2	3	4	5	6	7	
1	18	00	E	A	1	2	3	4	5	6	7	
2												
3												
4												
5												
6												
7												
8												
9												
A												
B												
C												
D												
E												
F												

CONTROL PLAN TIME OF DAY

9+EVENT+HR+MIN+CP+OS+E+DOW												
	HR	MIN	CP	OS	S	M	T	W	T	F	S	
0					1	2	3	4	5	6	7	
1												
2												
3												
4												
5												
6												
7												
8												
9												
A												
B												
C												
D												
E												
F												

- 8 ENERGIZE AUX OUTPUT-YELLOW
- 9 TIME OF DAY MAX RECALL (1ST SELECT)
- A TRAFFIC ACT. MAX 2 OPERATION
- B TIME OF DAY MAX RECALL (2ND SELECT)
- C YELLOW YIELD COORDINATION
- D YELLOW YIELD COORDINATION
- E TIME OF DAY FREE OPERATION
- F FLASHING OPERATION

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.									
PHASES			TYPE		PHASES			TYPE	
C			D		E			F	
0	I1	1	5,6		J1	5	5,6		
1	I2U	2	5,6		J2U	6	5,6		
2	I2L	2	5,6		J2L	6	5,6		
3	I3U	2	5,6		J3U	6	5,6		
4	I3L	2	5		J3L	6	5	5,6	
5	I4	2	7,8	5,6	J4	6	7,8	5,6	
6	I5	3	5,6		J5	7	5,6		
7	I6U	4	5,6		J6U	8	5,6		
8	I6L	4	5,6		J6L	8	5,6		
9	I7U	4	5,6		J7U	8	5,6		
A	I7L	4	5		J7L	8	5		
B	I8	4	7,8	5,6	J8	8	7,8		
C	I9U	1	5,6		J9U	5	5,6		
D	I9L	3	5,6		J9L	7	5,6		

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

F-C-F MUST EQUAL ZERO WHEN FINISHED

FUTURE 11-2976U4

LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)

**DETECTOR TYPE**  
 1 RED LOCK  
 2 YELLOW LOCK  
 5 EXTENSION  
 6 COUNT  
 7 CALLING  
 8 TYPE 3 DISCONNECT

DETECTOR SETTINGS									
I FILE					J FILE				
DELAY			CARRYOVER		DELAY			CARRYOVER	
I1	D10		D30		J1	D20		D40	
I2U	D11		D31		J2U	D21		D41	
I2L	D12		D32		J2L	D22		D42	
I3U	D13		D33		J3U	D23		D43	
I3L	D14		D34		J3L	D24		D44	
I4	D15		D35		J4	D25		D45	
I5	D16		D36		J5	D26		D46	
I6U	D17		D37		J6U	D27		D47	
I6L	D18		D38		J6L	D28		D48	
I7U	D19		D39		J7U	D29		D49	
I7L	D1A		D3A		J7L	D2A		D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

INTERVAL		PHASE TIMING								PRE-EMPTION		F										
		1	2	3	4	5	6	7	8	9	E		FLAGS		1	2	3	4	5	6	7	8
0	WALK	1	1	1	1	1	7	1	1	CLK RST	EV SEL	0	PERMIT	2	5	6	8	0				
1	DONT WALK	1	1	1	1	1	18	1	1		RR1 CLR	5	RED LOCK									1
2	MIN GREEN	1	5	1	1	5	5	1	5		EVA DLY	0	YEL LOCK									2
3	TYPE 3 DET	0	0	0	0	0	0	0	0		EVA CLR	5	V RECALL	2		6						3
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		EVB DLY	0	P RECALL									4
5	PASSAGE	0.9	5.0	0.9	0.9	2.0	5.0	0.9	2.0		EVB CLR	5	PED PHASES			5						5
6	MAX GAP	0.9	7.0	0.9	0.9	2.0	7.0	0.9	2.0		EVC DLY	0	RT OLA									6
7	MIN GAP	0.9	3.0	0.9	0.9	2.0	3.0	0.9	2.0		EVC CLR	5	RT OLB									7
8	MAX EXT	9	35	9	9	25	35	9	20		EVD DLY	0	DBL ENTRY									8
9	MAX 2									YR	EVD CLR	5	MAX 2 PHASES									9
A	MAX 3					35				MO	MAX EV	255	LAG PHASES		READ ONLY							A
B										DAY	RR2 CLR	5	RED REST									B
C	REDUCE BY	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	DOW			REST-IN-WALK									C
D	EVERY	1.0	0.6	1.0	1.0	1.0	0.6	1.0	1.0	HR			MAX 3 PHASES			5						D
E	YELLOW	3.0	3.6	3.0	3.0	3.2	3.6	3.0	3.6	MIN			YEL START UP	2		6						E
F	RED	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	SEC			FIRST PHASE								8	F
3.5' PED XING FT							75'								1	2	3	4	5	6	7	8

NOTES:

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

	CONTROL PLANS									Y-COORD		LAG PHASE		FLAG							
	1	2	3	4	5	6	7	8	9	C	D	E	F	1	2	3	4	5	6	7	8
0 CYCLE LENGTH	80	90	100										LAG FZ FREE		2		4		6		8
1 FZ1 GRN FCTR												GAPOUT CP1	LAG FZ CP 1		2		4		6		8
2												GAPOUT CP2	LAG FZ CP 2		2		4		6		8
3 FZ3 GRN FCTR												GAPOUT CP3	LAG FZ CP 3		2		4		6		8
4 FZ4 GRN FCTR												GAPOUT CP4	LAG FZ CP 4								4
5 FZ5 GRN FCTR	20	25	30									GAPOUT CP5	LAG FZ CP 5								5
6												GAPOUT CP6	LAG FZ CP 6								6
7 FZ7 GRN FCTR												GAPOUT CP7	LAG FZ CP 7								7
8 FZ8 GRN FCTR	20	22	25									GAPOUT CP8	LAG FZ CP 8								8
9 MULTI CYCLE												GAPOUT CP9	LAG FZ CP 9								9
A OFFSET A	40	45	50										LAG C COORD								A
B OFFSET B	40	45	50										LAG D COORD								B
C OFFSET C	40	45	50										COORD FAZES		2			6			C
D FZ 3 EXT																					D
E FZ 7 EXT																					E
F OFFSET INTRPT																					F
														1	2	3	4	5	6	7	8

CO1 MANUAL CP

CO2 MASTER CP

CO3 CURRENT CP

CO4 LAST CP

CO7 TRNSMT CP

COD MANUAL OFFSET

CAO LOCAL CYCLE TIMER

CBO MASTER CYCLE TIMER

CAA LOCAL OFFSET

CBA MASTER OFFSET

FEATURE

SYSTEM MASTER:

NB OFF

LOCATION

	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

COO = 1

CCB/CDB OFFSET TIMER

CCC/CDC LAG GREEN TIMER

CCD/CDD FORCE OFF TIMER

CCE/CDE LONG GREEN TIMER

CCF/CDF NO GREEN TIMER

	D	FLAGS								E	FLAGS								F	FLAGS									
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		
0	MAX									MIN																			
	RCL									RCL																			
1	CP 1				5					CP 1							8												
2	CP 2				5					CP 2							8												
3	CP 3				5					CP 3							8												
4	CP 4									CP 4																			
5	CP 5									CP 5																			
6	CP 6									CP 6																			
7	CP 7									CP 7																			
8	CP 8									CP 8																			
9	CP 9									CP 9																			
A																													
B																													
C																													
D																													
E																													
F																													
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		

**LAST POWER FAILURE REGISTER**

HOUR = D-A-E

**MINUTE = D-B-E**

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES

(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES

(CALL ACTIVE LIGHTS)

**LAST FLASH TIME REGISTER**

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

**D-E-E = C8 VERSION NUMBER**

### D-E-F = LITHIUM BATTERY CONDITION

**84 = BAD**

85 = GOOD

	E		FLAGS								F		FLAGS							
	FUNCTION		1	2	3	4	5	6	7	8	FUNCTION		1	2	3	4	5	6	7	8
0											CODE 4									0
1											CODE 5									1
2											C-RECALL									2
3											D-RECALL									3
4											EXCLUSIVE									4
5											2 PED		2							5
6											6 PED					6				6
7											4 PED			4						7
8											8 PED							8		8
9																				9
A	OLA NOT										OLA ON									A
B	OLB NOT										OLB ON									B
C	OLC NOT										OLC ON									C
D	OLD NOT										OLD ON									D
E																				E
F																				F
			1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8

[illegible]

## ACTIVITY CODE

- 1 TYPE OF MAX TERMINATION
- 2 MAX 2
- 3 MAX 3
- 4 COND SERV (1ST SELECT)
- 5 COND SERV (2ND SELECT)
- 6 ENERGIZE AUX OUTPUT-RED
- 7 ENERGIZE AUX OUTPUT-GREEN

[illegible]

- 8 ENERGIZE AUX OUTPUT-YELLOW  
9 TIME OF DAY MAX RECALL (1ST SELECT)  
A TRAFFIC ACT. MAX 2 OPERATION  
B TIME OF DAY MAX RECALL (2ND SELECT)  
C YELLOW YIELD COORDINATION  
D YELLOW YIELD COORDINATION  
E TIME OF DAY FREE OPERATION  
F FLASHING OPERATION

[illegible]

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.									
PHASES			TYPE		PHASES		TYPE		
C			D		E		F		
0	I1	1	5,6		J1	5	5,6		
1	I2U	2	5,6		J2U	6	5,6		
2	I2L	2	5,6		J2L	6	5,6		
3	I3U	2	5,6		J3U	6	5,6		
4	I3L	2	5		J3L	6	5	5,6	
5	I4	2	7,8		J4	6	7,8		
6	I5	3	5,6		J5	7	5,6		
7	I6U	4	5,6		J6U	8	5,6		
8	I6L	4	5,6		J6L	8	5,6		
9	I7U	4	5,6		J7U	8	5,6		
A	I7L	4	5		J7L	8	5		
B	I8	4	7,8		J8	8	7,8	5,6	
C	I9U	1	5,6		J9U	5	5,6		
D	I9L	3	5,6		J9L	7	5,6		

DETECTOR TYPE

- 1 RED LOCK
- 2 YELLOW LOCK
- 5 EXTENSION
- 6 COUNT
- 7 CALLING
- 8 TYPE 3 DISCONNECT

DETECTOR SETTINGS									
I FILE					J FILE				
DELAY		CARRYOVER			DELAY		CARRYOVER		
I1	D10		D30		J1	D20	2.0	D40	
I2U	D11		D31		J2U	D21		D41	
I2L	D12		D32		J2L	D22		D42	
I3U	D13		D33		J3U	D23		D43	
I3L	D14		D34		J3L	D24		D44	
I4	D15		D35		J4	D25		D45	
I5	D16		D36		J5	D26		D46	
I6U	D17		D37		J6U	D27		D47	
I6L	D18		D38		J6L	D28		D48	
I7U	D19		D39		J7U	D29		D49	
I7L	D1A		D3A		J7L	D2A	7.0	D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

F-C-F MUST EQUAL ZERO WHEN FINISHED

LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)



---

## **Appendix B**

### **Trip Distribution – Trucks, Employees, External Vehicle Movement**

AM

← 17%  
248-161

← 87

Bay/Marina 64 →  
Drive 90 ↘

90  
90+52+12  
58%

142  
87+142+280

200%

142  
336

← 385  
161

24.0%

52  
90+52+12

← 248

374  
52

12 →  
Through  
From NCMT  
(64-52)

8%

280  
142+280+87  
55%

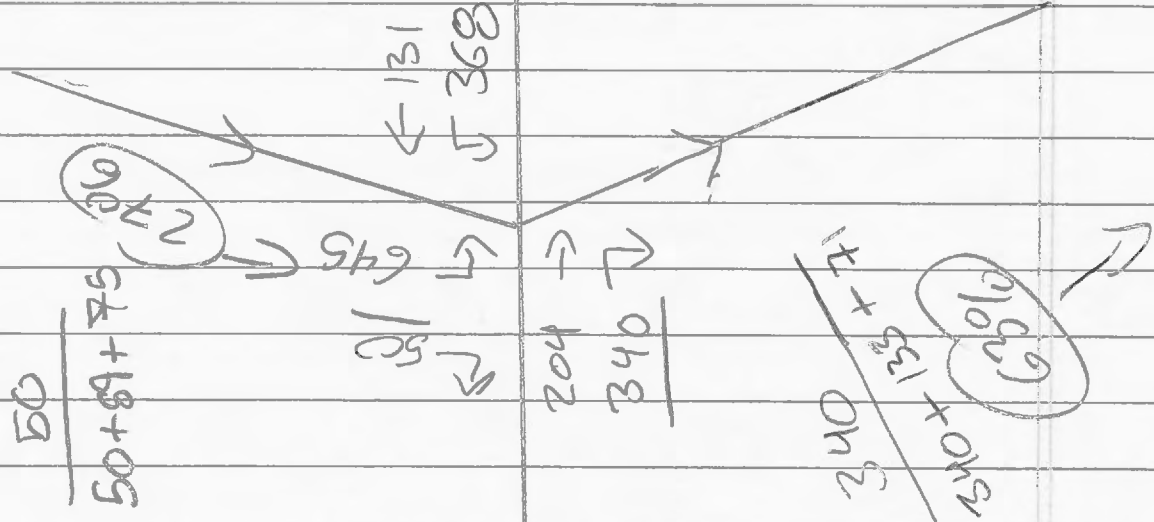
PM

← (32%)

427 - 368

← 59

Bay Marina  
Drive



← (24%)

$$\frac{131}{340+131+7}$$

← 427

131  
704

71 →  
Through  
From  
N/CMT  
204 - 133

(13%)

$$\frac{75}{59+50+75}$$

(41%)

---

**Appendix C**  
**Peak Hour Intersection LOS Worksheets, ILV, and Queueing**  
**Worksheets – Existing Conditions**

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 1: Existing AM

Report File: P:\...\1. Existing AM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.091	12.7	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	NBT	0.005	11.3	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	NBT	0.197	8.7	A
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.221	9.3	A
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.337	15.7	B
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	SBR	0.245	22.6	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	NBR	0.537	71.2	E
8	28th Street / Quay Avenue	Two-way stop	HCM2000	SBT	0.004	9.5	A
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBT	0.073	9.4	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		7.8	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.091

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	17	24	9	2	37	37	21	31	8	5	80	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	24	9	2	37	37	21	31	8	5	80	4
Peak Hour Factor	0.7400	0.7400	0.7400	0.7600	0.7600	0.7600	0.7100	0.7100	0.7100	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	8	3	1	12	12	7	11	3	2	26	1
Total Analysis Volume [veh/h]	23	32	12	3	49	49	30	44	11	6	104	5
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.00	0.06	0.03	0.03
Total Saturation Flow Adjustment	0.68	0.94	0.71	0.91	0.79	0.88
s, saturation flow rate [veh/h]	1292	1787	1357	1723	2984	3331
c, Capacity [veh/h]	535	740	562	714	1236	1380
d1, Uniform Delay [s]	12.22	12.31	12.03	12.73	12.36	12.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.15	0.15	0.02	0.40	0.11	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.06	0.01	0.14	0.07	0.08
d, Delay for Lane Group [s/veh]	12.38	12.46	12.05	13.13	12.47	12.55
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.29	0.56	0.04	1.30	0.58	0.78
50th-Percentile Queue Length [ft]	7.36	14.07	0.94	32.59	14.39	19.55
95th-Percentile Queue Length [veh]	0.75	1.40	0.10	3.09	1.43	1.92
95th-Percentile Queue Length [ft]	18.72	35.08	2.44	77.26	35.85	48.00

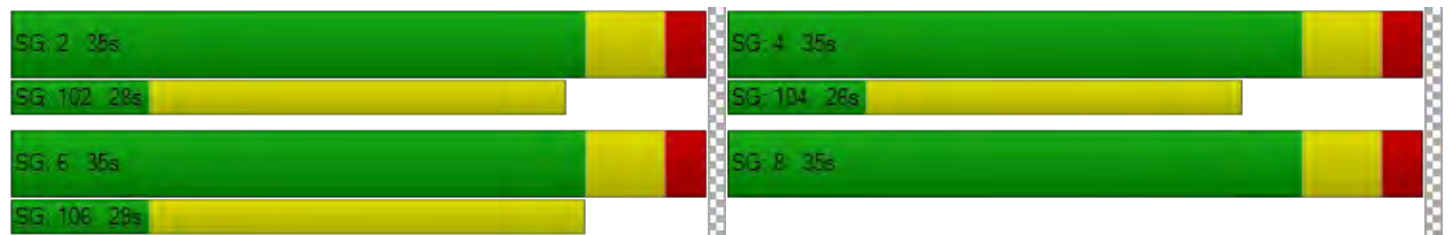


**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.38	12.46	12.46	12.05	13.13	13.13	12.47	12.47	12.47	12.55	12.55	12.55
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.43			13.10			12.47			12.55		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.66											
Intersection LOS	B											
Intersection V/C	0.091											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	3	1	5	20	1	0	3	41	2	8	116	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1	5	20	1	0	3	41	2	8	116	36
Peak Hour Factor	0.3800	0.3800	0.3800	0.8600	0.8600	0.8600	0.6400	0.6400	0.6400	0.6500	0.6500	0.6500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	3	6	0	0	1	16	1	3	45	14
Total Analysis Volume [veh/h]	8	3	13	23	1	0	5	64	3	12	178	55
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.01	0.01	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.95	11.35	8.61	10.84	11.24	9.16	7.71	0.00	0.00	7.37	0.00	0.00
Movement LOS	A	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.09	0.09	0.09	0.12	0.12	0.12	0.08	0.04	0.00	0.26	0.13	0.00
95th-Percentile Queue Length [ft]	2.20	2.20	2.20	2.92	2.92	2.92	2.08	1.04	0.00	6.51	3.25	0.00
d_A, Approach Delay [s/veh]	9.40			10.86			0.54			0.36		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	1.68											
Intersection LOS	B											

### Intersection Level Of Service Report #3: Bay Marina Drive / Tidelands Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 8.7  
Level Of Service: A  
Volume to Capacity (v/c): 0.197

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	1	4	4	8	2	4	3	34	1	70	142	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	4	4	8	2	4	3	34	1	70	142	196
Peak Hour Factor	0.5600	0.5600	0.5600	0.7000	0.7000	0.7000	0.7300	0.7300	0.7300	0.7300	0.7300	0.7300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	2	3	1	1	1	12	0	24	49	67
Total Analysis Volume [veh/h]	2	7	7	11	3	6	4	47	1	96	195	268
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	117	0	0	117	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	111	111	111	111	111
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.74	0.74	0.74	0.74	0.74
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.01	0.01	0.00	0.01	0.07	0.10	0.19
Total Saturation Flow Adjustment	0.74	0.82	0.73	0.79	0.62	0.93	0.71	0.98	0.75
s, saturation flow rate [veh/h]	1400	1551	1394	1509	1172	3536	1349	1863	1425
c, Capacity [veh/h]	252	279	251	272	868	2616	998	1378	1055
d1, Uniform Delay [s]	50.50	50.89	50.83	50.73	5.09	5.14	5.46	5.66	6.24
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.34	0.33	0.23	0.01	0.01	0.19	0.22	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.05	0.04	0.03	0.00	0.02	0.10	0.14	0.25
d, Delay for Lane Group [s/veh]	50.56	51.23	51.16	50.96	5.10	5.15	5.65	5.88	6.83
Lane Group LOS	D	D	D	D	A	A	A	A	A
Critical Lane Group	no	yes	no	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.07	0.52	0.41	0.33	0.05	0.31	1.29	2.70	4.15
50th-Percentile Queue Length [ft]	1.84	12.95	10.18	8.30	1.26	7.87	32.32	67.39	103.75
95th-Percentile Queue Length [veh]	0.19	1.30	1.03	0.84	0.13	0.80	3.07	5.89	8.45
95th-Percentile Queue Length [ft]	4.74	32.39	25.67	21.03	3.26	19.99	76.68	147.13	211.24

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	50.56	51.23	51.23	51.16	50.96	50.96	5.10	5.15	5.15	5.65	5.88	6.83
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	51.15			51.07			5.15			6.29		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	8.69											
Intersection LOS	A											
Intersection V/C	0.197											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-








**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.3  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.221

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	1	6	52	1	7	591
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	52	1	7	591
Peak Hour Factor	0.9200	0.9200	0.9640	0.9200	0.9200	0.7710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	13	0	2	192
Total Analysis Volume [veh/h]	1	7	54	1	8	767
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	103	0	10	113
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	97	6	107
g / C, Green / Cycle	0.21	0.21	0.65	0.04	0.71
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.02	0.00	0.22
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3537	1770	3547
c, Capacity [veh/h]	366	327	2287	71	2530
d1, Uniform Delay [s]	47.23	47.41	9.51	69.43	7.86
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.12	0.02	3.21	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.02	0.02	0.11	0.30
d, Delay for Lane Group [s/veh]	47.24	47.53	9.53	72.65	8.17
Lane Group LOS	D	D	A	E	A
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.04	0.25	0.48	0.35	7.00
50th-Percentile Queue Length [ft]	0.88	6.22	11.94	8.85	175.00
95th-Percentile Queue Length [veh]	0.09	0.63	1.20	0.90	12.93
95th-Percentile Queue Length [ft]	2.29	15.87	29.96	22.40	323.15

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	47.24	47.53	9.53	9.53	72.65	8.17
Movement LOS	D	D	A	A	E	A
d_A, Approach Delay [s/veh]	47.50		9.53		8.84	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	9.25					
Intersection LOS	A					
Intersection V/C	0.221					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#5: Bay Marina Drive / Cleveland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 15.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.337

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

**Volumes**

Name												
Base Volume Input [veh/h]	4	0	20	27	1	8	12	149	1	6	588	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	20	27	1	8	12	149	1	6	588	232
Peak Hour Factor	0.5500	0.5500	0.5500	0.6900	0.6900	0.6900	0.8500	0.8500	0.8500	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	9	10	0	3	4	44	0	2	177	70
Total Analysis Volume [veh/h]	7	0	36	39	1	12	14	175	1	7	708	280
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	19	0	9	107	0	9	107	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	15	5	103	5	103
g / C, Green / Cycle	0.07	0.07	0.10	0.03	0.69	0.03	0.69
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.02	0.01	0.03	0.00	0.29
Total Saturation Flow Adjustment	0.93	0.83	0.87	0.93	0.89	0.93	0.89
s, saturation flow rate [veh/h]	1770	1583	3300	1770	5070	1770	3396
c, Capacity [veh/h]	130	116	330	59	3481	59	2332
d1, Uniform Delay [s]	64.66	65.90	61.72	70.64	7.63	70.36	10.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.79	6.82	1.02	9.25	0.03	4.07	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.05	0.31	0.16	0.24	0.05	0.12	0.42
d, Delay for Lane Group [s/veh]	65.45	72.72	62.74	79.89	7.66	74.43	10.95
Lane Group LOS	E	E	E	E	A	E	B
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.29	1.58	1.13	0.64	0.98	0.31	10.92
50th-Percentile Queue Length [ft]	7.34	39.56	28.24	15.94	24.43	7.83	272.93
95th-Percentile Queue Length [veh]	0.75	3.68	2.71	1.58	2.37	0.80	18.70
95th-Percentile Queue Length [ft]	18.67	92.12	67.72	39.54	59.17	19.89	467.43

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	65.45	72.72	72.72	62.74	62.74	62.74	79.89	7.66	7.66	74.43	10.95	10.95
Movement LOS	E	E	E	E	E	E	E	A	A	E	B	B
d_A, Approach Delay [s/veh]	71.53			62.74			12.98			11.40		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	15.74											
Intersection LOS	B											
Intersection V/C	0.337											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 22.6  
Level Of Service: C  
Volume to Capacity (v/c): 0.245

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	336	1	142	0	64	90	161	385	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	336	1	142	0	64	90	161	385	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800	1.0000	0.8600	0.8600	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	46	0	19	26	43	103	0
Total Analysis Volume [veh/h]	0	0	0	431	1	182	0	74	105	173	414	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	20	0	0	40	0	20	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		15	15	35	35	16	55
g / C, Green / Cycle		0.19	0.19	0.44	0.44	0.20	0.69
(v / s)_i Volume / Saturation Flow Rate		0.13	0.11	0.02	0.07	0.05	0.12
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3378	1583	3547	1583	3437	3547
c, Capacity [veh/h]		650	305	1569	701	679	2456
d1, Uniform Delay [s]		29.91	29.47	12.70	13.32	27.13	4.28
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.29	8.37	0.06	0.45	0.90	0.15
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.66	0.60	0.05	0.15	0.25	0.17
d, Delay for Lane Group [s/veh]		35.20	37.84	12.75	13.77	28.03	4.43
Lane Group LOS		D	D	B	B	C	A
Critical Lane Group		yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]		5.59	4.34	0.54	1.54	1.84	1.94
50th-Percentile Queue Length [ft]		139.76	108.53	13.43	38.44	46.11	48.41
95th-Percentile Queue Length [veh]		10.77	8.77	1.34	3.59	4.23	4.41
95th-Percentile Queue Length [ft]		269.30	219.19	33.55	89.76	105.66	110.33

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.20	35.20	37.84	0.00	12.75	13.77	28.03	4.43	0.00
Movement LOS				D	D	D		B	B	C	A	
d_A, Approach Delay [s/veh]	0.00			35.98			13.35			11.39		
Approach LOS	A			D			B			B		
d_I, Intersection Delay [s/veh]	22.58											
Intersection LOS	C											
Intersection V/C	0.245											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 71.2  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.537

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	280	204	482	0	0	0	52	374	0	0	248	428
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	280	204	482	0	0	0	52	374	0	0	248	428
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.8500	0.8500	1.0000	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	78	57	134	0	0	0	15	110	0	0	66	114
Total Analysis Volume [veh/h]	311	227	536	0	0	0	61	440	0	0	264	455
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	20	0	0	0	0	20	60	0	0	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	15		16	55	35	35
g / C, Green / Cycle	0.19		0.20	0.69	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.23		0.02	0.12	0.14	0.29
Total Saturation Flow Adjustment	0.81		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4627		3437	3547	1863	1583
c, Capacity [veh/h]	891		679	2456	824	701
d1, Uniform Delay [s]	32.30		26.23	4.32	14.49	17.45
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	103.20		0.26	0.16	1.03	4.62
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

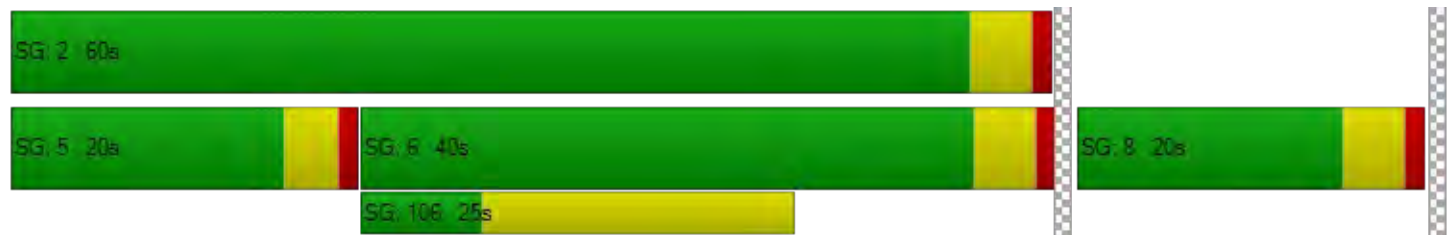
X, volume / capacity	1.21		0.09	0.18	0.32	0.65
d, Delay for Lane Group [s/veh]	135.50		26.49	4.48	15.51	22.07
Lane Group LOS	F		C	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	19.40		0.62	2.08	4.24	9.36
50th-Percentile Queue Length [ft]	484.98		15.50	51.91	106.03	234.01
95th-Percentile Queue Length [veh]	31.44		1.54	4.69	8.60	16.42
95th-Percentile Queue Length [ft]	785.98		38.49	117.33	215.04	410.41

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	135.50	135.50	135.50	0.00	0.00	0.00	26.49	4.48	0.00	0.00	15.51	22.07
Movement LOS	F	F	F				C	A			B	C
d_A, Approach Delay [s/veh]	135.50			0.00			7.16			19.66		
Approach LOS	F			A			A			B		
d_I, Intersection Delay [s/veh]	71.16											
Intersection LOS	E											
Intersection V/C	0.537											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.004

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	1	6	1	1	0	3	0	11	3	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	6	1	1	0	3	0	11	3	11
Peak Hour Factor	0.2500	0.2500	0.2500	0.4000	0.4000	0.4000	0.3800	0.3800	0.3800	0.5800	0.5800	0.5800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	4	1	1	0	2	0	5	1	5
Total Analysis Volume [veh/h]	0	0	4	15	3	3	0	8	0	19	5	19
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.94	9.45	8.36	9.00	9.48	8.47	7.26	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	0.07	0.07	0.07	0.00	0.00	0.00	0.08	0.08	0.08
95th-Percentile Queue Length [ft]	0.28	0.28	0.28	1.75	1.75	1.75	0.00	0.00	0.00	2.05	2.05	2.05
d_A, Approach Delay [s/veh]	8.36			8.99			0.00			3.21		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.74											
Intersection LOS	A											

**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.4  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.073

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	0	0	46	8	0	0	1	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	8	0	0	46	8	0	0	1	0	0	0
Peak Hour Factor	0.6700	0.6700	0.6700	0.7100	0.7100	0.7100	0.2500	0.2500	0.2500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	0	0	16	3	0	0	1	0	0	0
Total Analysis Volume [veh/h]	0	12	0	0	65	11	0	0	4	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.05	9.08	8.38	8.95	9.39	8.67	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.04	0.04	0.04	0.27	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.02	1.02	1.02	6.78	6.78	6.78	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.08			9.29			0.00			2.41		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.86											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 7.8  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	3	0	5	4	22	34	43	0	0	11	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	0	5	4	22	34	43	0	0	11	3
Peak Hour Factor	0.3800	0.3800	0.9200	0.9200	0.7800	0.7800	0.6200	0.9200	0.6200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	1	1	7	14	12	0	0	3	1
Total Analysis Volume [veh/h]	0	8	0	5	5	28	55	47	0	0	12	3
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.03	0.04	0.10	0.26	0.19	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	0.83	1.08	2.51	6.43	4.87	0.00	0.00	0.77	0.72
Approach Delay [s/veh]	7.98	7.24		8.03			7.47		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	7.79								
Intersection LOS	A								



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 1: Existing AM

Report File: P:\...\1. Existing AM.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	17	24	9	2	37	37	21	31	8	5	80	4	275

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	3	1	5	20	1	0	3	41	2	8	116	36	236

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	1	4	4	8	2	4	3	34	1	70	142	196	469

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	1	6	52	1	7	591	658

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	4	0	20	27	1	8	12	149	1	6	588	232	1048

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	336	1	142	64	90	161	385	1179

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	280	204	482	52	374	248	428	2068

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	0	0	1	6	1	1	0	3	0	11	3	11	37

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	0	8	0	0	46	8	0	0	1	0	0	0	63

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	3	0	5	4	22	34	43	0	0	11	3	125

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 1: Existing AM

Report File: P:\...\1. Existing AM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	17	24	9	2	37	37	21	31	8	5	80	4	275
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>17</b>	<b>24</b>	<b>9</b>	<b>2</b>	<b>37</b>	<b>37</b>	<b>21</b>	<b>31</b>	<b>8</b>	<b>5</b>	<b>80</b>	<b>4</b>	<b>275</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	3	1	5	20	1	0	3	41	2	8	116	36	236
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>1</b>	<b>5</b>	<b>20</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>41</b>	<b>2</b>	<b>8</b>	<b>116</b>	<b>36</b>	<b>236</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	1	4	4	8	2	4	3	34	1	70	142	196	469
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>34</b>	<b>1</b>	<b>70</b>	<b>142</b>	<b>196</b>	<b>469</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	1	6	52	1	7	591	658
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>6</b>	<b>52</b>	<b>1</b>	<b>7</b>	<b>591</b>	<b>658</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	4	0	20	27	1	8	12	149	1	6	588	232	1048
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>4</b>	<b>0</b>	<b>20</b>	<b>27</b>	<b>1</b>	<b>8</b>	<b>12</b>	<b>149</b>	<b>1</b>	<b>6</b>	<b>588</b>	<b>232</b>	<b>1048</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	336	1	142	64	90	161	385	1179
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>336</b>	<b>1</b>	<b>142</b>	<b>64</b>	<b>90</b>	<b>161</b>	<b>385</b>	<b>1179</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	280	204	482	52	374	248	428	2068
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>280</b>	<b>204</b>	<b>482</b>	<b>52</b>	<b>374</b>	<b>248</b>	<b>428</b>	<b>2068</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	Final Base	0	0	1	6	1	1	0	3	0	11	3	11	37
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>11</b>	<b>3</b>	<b>11</b>	<b>37</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	Final Base	0	8	0	0	46	8	0	0	1	0	0	0	63
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>63</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	3	0	5	4	22	34	43	0	0	11	3	125
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>4</b>	<b>22</b>	<b>34</b>	<b>43</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>3</b>	<b>125</b>

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	160	46	9	21
2	154	44	9	20
3	150	43	8	20
4	128	37	7	17
5	122	35	7	16
6	109	31	6	14
7	101	29	6	13
8	96	28	5	13
9	77	22	4	10
10	72	21	4	9
11	72	21	4	9
12	69	20	4	9
13	62	18	4	8
14	58	17	3	8
15	58	17	3	8
16	56	16	3	7
17	32	9	2	4
18	18	5	1	2
19	16	5	1	2
20	6	2	0	1
21	5	1	0	1
22	5	1	0	1
23	3	1	0	0
24	3	1	0	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	206	2	30	No	No	No	No	No	No	No	No	No	No
2	4	198	2	29	No	No	No	No	No	No	No	No	No	No
3	4	193	2	28	No	No	No	No	No	No	No	No	No	No
4	4	165	2	24	No	No	No	No	No	No	No	No	No	No
5	4	157	2	23	No	No	No	No	No	No	No	No	No	No
6	4	140	2	20	No	No	No	No	No	No	No	No	No	No
7	4	130	2	19	No	No	No	No	No	No	No	No	No	No
8	4	124	2	18	No	No	No	No	No	No	No	No	No	No
9	4	99	2	14	No	No	No	No	No	No	No	No	No	No
10	4	93	2	13	No	No	No	No	No	No	No	No	No	No
11	4	93	2	13	No	No	No	No	No	No	No	No	No	No
12	4	89	2	13	No	No	No	No	No	No	No	No	No	No
13	4	80	2	12	No	No	No	No	No	No	No	No	No	No
14	4	75	2	11	No	No	No	No	No	No	No	No	No	No
15	4	75	2	11	No	No	No	No	No	No	No	No	No	No
16	4	72	2	10	No	No	No	No	No	No	No	No	No	No
17	4	41	2	6	No	No	No	No	No	No	No	No	No	No
18	4	23	2	3	No	No	No	No	No	No	No	No	No	No
19	4	21	2	3	No	No	No	No	No	No	No	No	No	No
20	4	8	2	1	No	No	No	No	No	No	No	No	No	No
21	4	6	2	1	No	No	No	No	No	No	No	No	No	No
22	4	6	2	1	No	No	No	No	No	No	No	No	No	No
23	4	4	2	0	No	No	No	No	No	No	No	No	No	No
24	4	4	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.4	10.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	9	21
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	236	236
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	25	3	1	8
2	24	3	1	8
3	24	3	1	8
4	20	2	1	6
5	19	2	1	6
6	17	2	1	5
7	16	2	1	5
8	15	2	1	5
9	12	1	0	4
10	11	1	0	4
11	11	1	0	4
12	11	1	0	3
13	10	1	0	3
14	9	1	0	3
15	9	1	0	3
16	9	1	0	3
17	5	1	0	2
18	3	0	0	1
19	3	0	0	1
20	1	0	0	0
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0
24	1	0	0	0



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	28	2	9	No	No	No	No	No	No	No	No	No	No
2	2	27	2	9	No	No	No	No	No	No	No	No	No	No
3	2	27	2	9	No	No	No	No	No	No	No	No	No	No
4	2	22	2	7	No	No	No	No	No	No	No	No	No	No
5	2	21	2	7	No	No	No	No	No	No	No	No	No	No
6	2	19	2	6	No	No	No	No	No	No	No	No	No	No
7	2	18	2	6	No	No	No	No	No	No	No	No	No	No
8	2	17	2	6	No	No	No	No	No	No	No	No	No	No
9	2	13	2	4	No	No	No	No	No	No	No	No	No	No
10	2	12	2	4	No	No	No	No	No	No	No	No	No	No
11	2	12	2	4	No	No	No	No	No	No	No	No	No	No
12	2	12	2	3	No	No	No	No	No	No	No	No	No	No
13	2	11	2	3	No	No	No	No	No	No	No	No	No	No
14	2	10	2	3	No	No	No	No	No	No	No	No	No	No
15	2	10	2	3	No	No	No	No	No	No	No	No	No	No
16	2	10	2	3	No	No	No	No	No	No	No	No	No	No
17	2	6	2	2	No	No	No	No	No	No	No	No	No	No
18	2	3	2	1	No	No	No	No	No	No	No	No	No	No
19	2	3	2	1	No	No	No	No	No	No	No	No	No	No
20	2	1	2	0	No	No	No	No	No	No	No	No	No	No
21	2	1	2	0	No	No	No	No	No	No	No	No	No	No
22	2	1	2	0	No	No	No	No	No	No	No	No	No	No
23	2	1	2	0	No	No	No	No	No	No	No	No	No	No
24	2	1	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:01
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	1	8
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	37	37
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	0	1	8	54
2	0	1	8	52
3	0	1	8	51
4	0	1	6	43
5	0	1	6	41
6	0	1	5	37
7	0	1	5	34
8	0	1	5	32
9	0	0	4	26
10	0	0	4	24
11	0	0	4	24
12	0	0	3	23
13	0	0	3	21
14	0	0	3	19
15	0	0	3	19
16	0	0	3	19
17	0	0	2	11
18	0	0	1	6
19	0	0	1	5
20	0	0	0	2
21	0	0	0	2
22	0	0	0	2
23	0	0	0	1
24	0	0	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1	2	62	No	No	No	No	No	No	No	No	No	No
2	2	1	2	60	No	No	No	No	No	No	No	No	No	No
3	2	1	2	59	No	No	No	No	No	No	No	No	No	No
4	2	1	2	49	No	No	No	No	No	No	No	No	No	No
5	2	1	2	47	No	No	No	No	No	No	No	No	No	No
6	2	1	2	42	No	No	No	No	No	No	No	No	No	No
7	2	1	2	39	No	No	No	No	No	No	No	No	No	No
8	2	1	2	37	No	No	No	No	No	No	No	No	No	No
9	2	0	2	30	No	No	No	No	No	No	No	No	No	No
10	2	0	2	28	No	No	No	No	No	No	No	No	No	No
11	2	0	2	28	No	No	No	No	No	No	No	No	No	No
12	2	0	2	26	No	No	No	No	No	No	No	No	No	No
13	2	0	2	24	No	No	No	No	No	No	No	No	No	No
14	2	0	2	22	No	No	No	No	No	No	No	No	No	No
15	2	0	2	22	No	No	No	No	No	No	No	No	No	No
16	2	0	2	22	No	No	No	No	No	No	No	No	No	No
17	2	0	2	13	No	No	No	No	No	No	No	No	No	No
18	2	0	2	7	No	No	No	No	No	No	No	No	No	No
19	2	0	2	6	No	No	No	No	No	No	No	No	No	No
20	2	0	2	2	No	No	No	No	No	No	No	No	No	No
21	2	0	2	2	No	No	No	No	No	No	No	No	No	No
22	2	0	2	2	No	No	No	No	No	No	No	No	No	No
23	2	0	2	1	No	No	No	No	No	No	No	No	No	No
24	2	0	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1	9.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:08
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	8	54
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	63	63
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	14	77	3	31
2	13	74	3	30
3	13	72	3	29
4	11	62	2	25
5	11	59	2	24
6	10	52	2	21
7	9	49	2	20
8	8	46	2	19
9	7	37	1	15
10	6	35	1	14
11	6	35	1	14
12	6	33	1	13
13	5	30	1	12
14	5	28	1	11
15	5	28	1	11
16	5	27	1	11
17	3	15	1	6
18	2	8	0	3
19	1	8	0	3
20	1	3	0	1
21	0	2	0	1
22	0	2	0	1
23	0	2	0	1
24	0	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	91	3	34	No	No	No	No	No	No	No	No	No	No
2	6	87	3	33	No	No	No	No	No	No	No	No	No	No
3	6	85	3	32	No	No	No	No	No	No	No	No	No	No
4	6	73	3	27	No	No	No	No	No	No	No	No	No	No
5	6	70	3	26	No	No	No	No	No	No	No	No	No	No
6	6	62	3	23	No	No	No	No	No	No	No	No	No	No
7	6	58	3	22	No	No	No	No	No	No	No	No	No	No
8	6	54	3	21	No	No	No	No	No	No	No	No	No	No
9	6	44	3	16	No	No	No	No	No	No	No	No	No	No
10	6	41	3	15	No	No	No	No	No	No	No	No	No	No
11	6	41	3	15	No	No	No	No	No	No	No	No	No	No
12	6	39	3	14	No	No	No	No	No	No	No	No	No	No
13	6	35	3	13	No	No	No	No	No	No	No	No	No	No
14	6	33	3	12	No	No	No	No	No	No	No	No	No	No
15	6	33	3	12	No	No	No	No	No	No	No	No	No	No
16	6	32	3	12	No	No	No	No	No	No	No	No	No	No
17	6	18	3	7	No	No	No	No	No	No	No	No	No	No
18	6	10	3	3	No	No	No	No	No	No	No	No	No	No
19	6	9	3	3	No	No	No	No	No	No	No	No	No	No
20	6	4	3	1	No	No	No	No	No	No	No	No	No	No
21	6	2	3	1	No	No	No	No	No	No	No	No	No	No
22	6	2	3	1	No	No	No	No	No	No	No	No	No	No
23	6	2	3	1	No	No	No	No	No	No	No	No	No	No
24	6	2	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

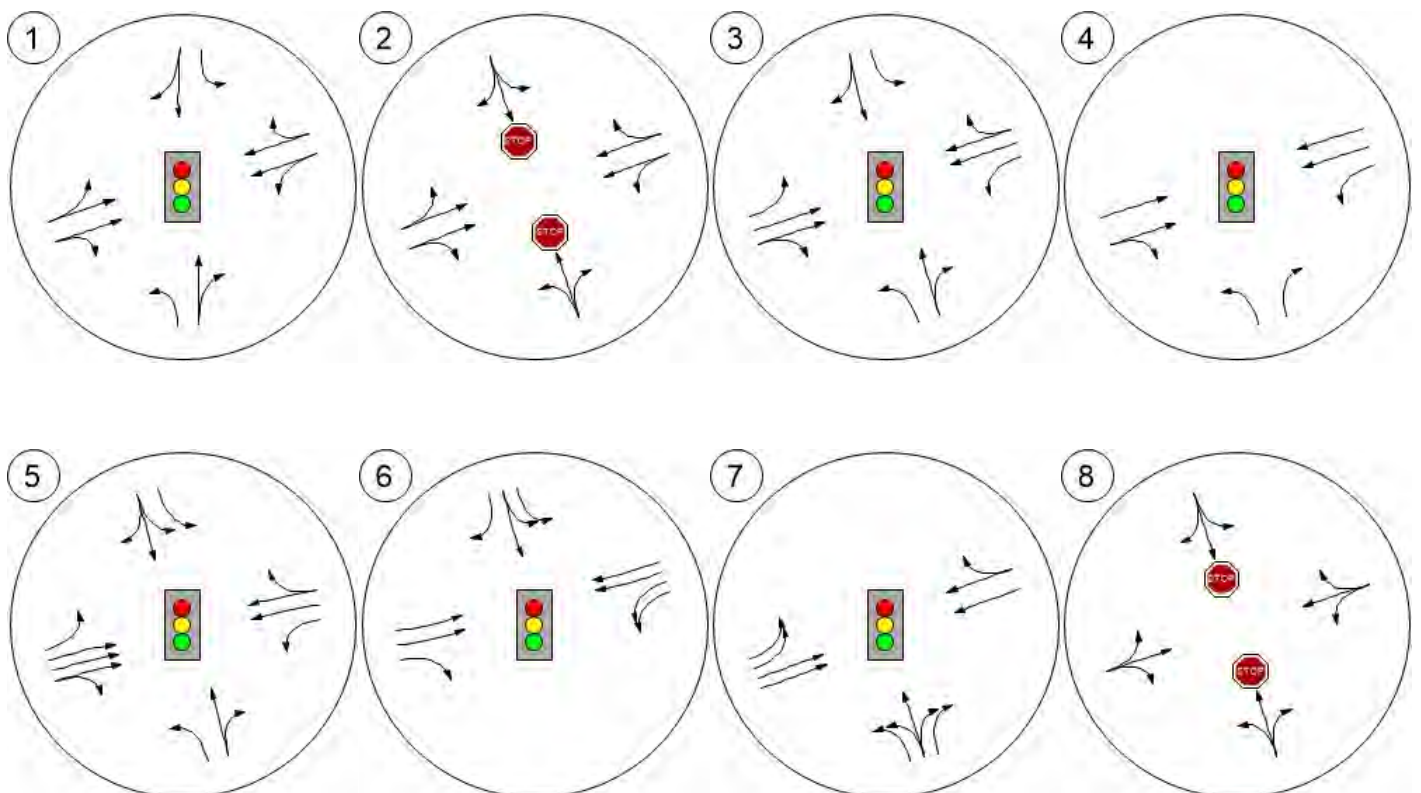
Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8	7.2
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	3	31
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	125	125
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Study Intersections

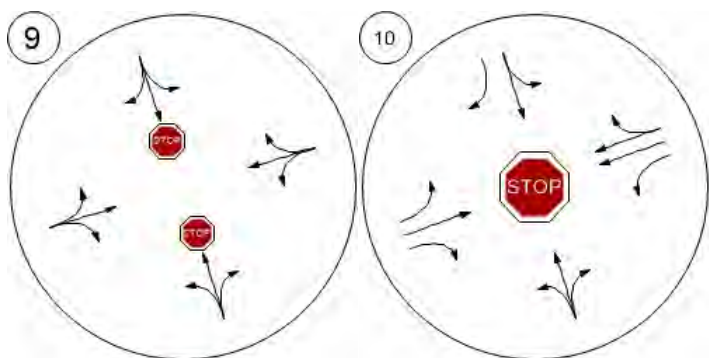




# Lane Configuration and Traffic Control

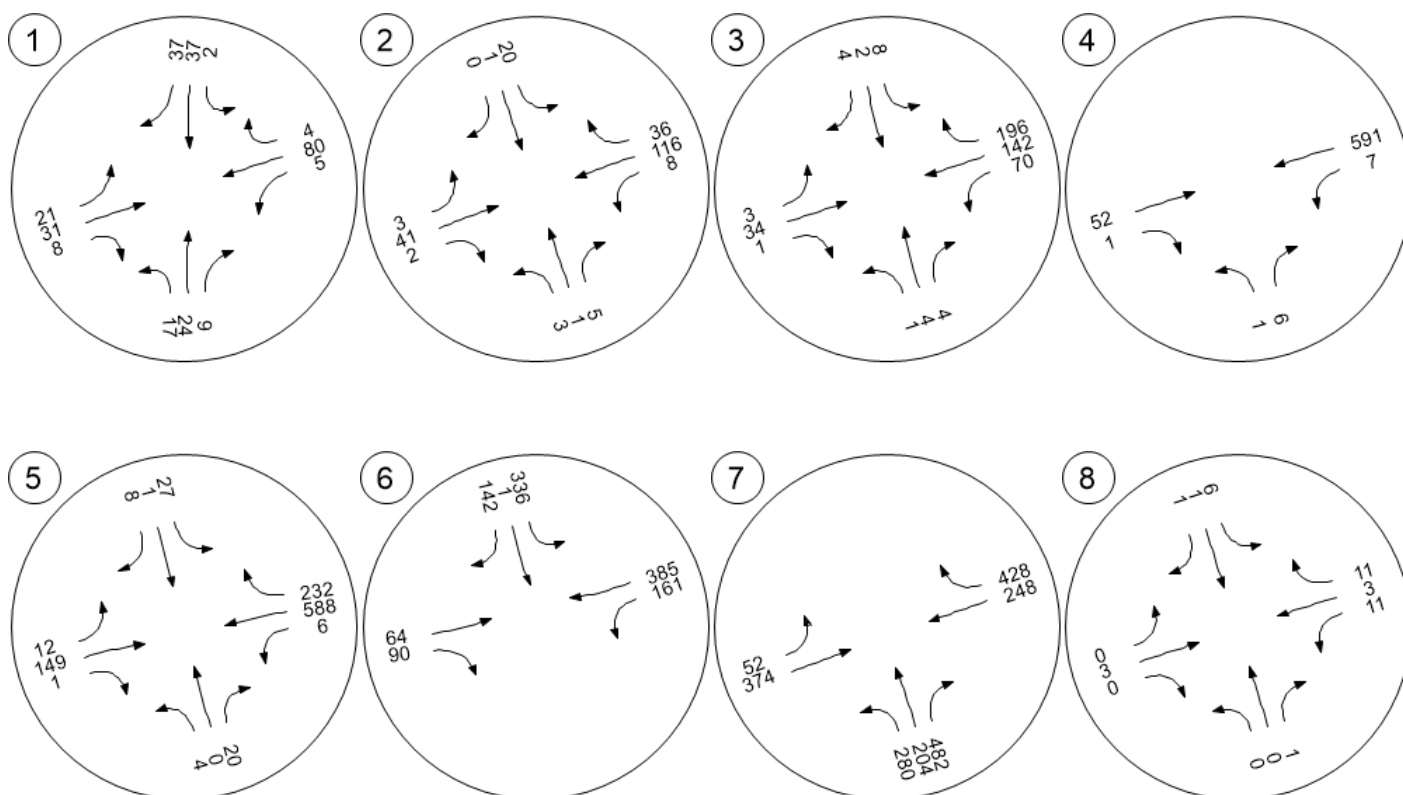


## Lane Configuration and Traffic Control

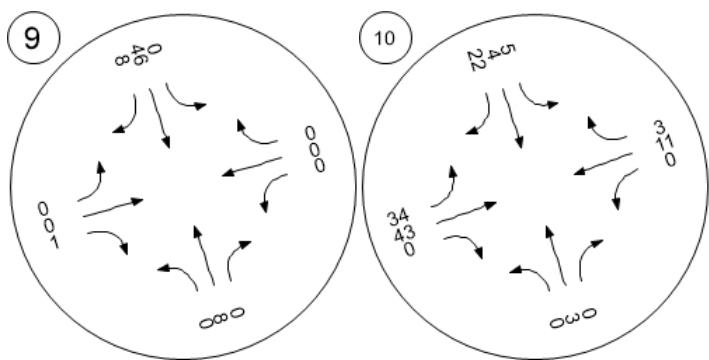




Traffic Volume - Base Volume

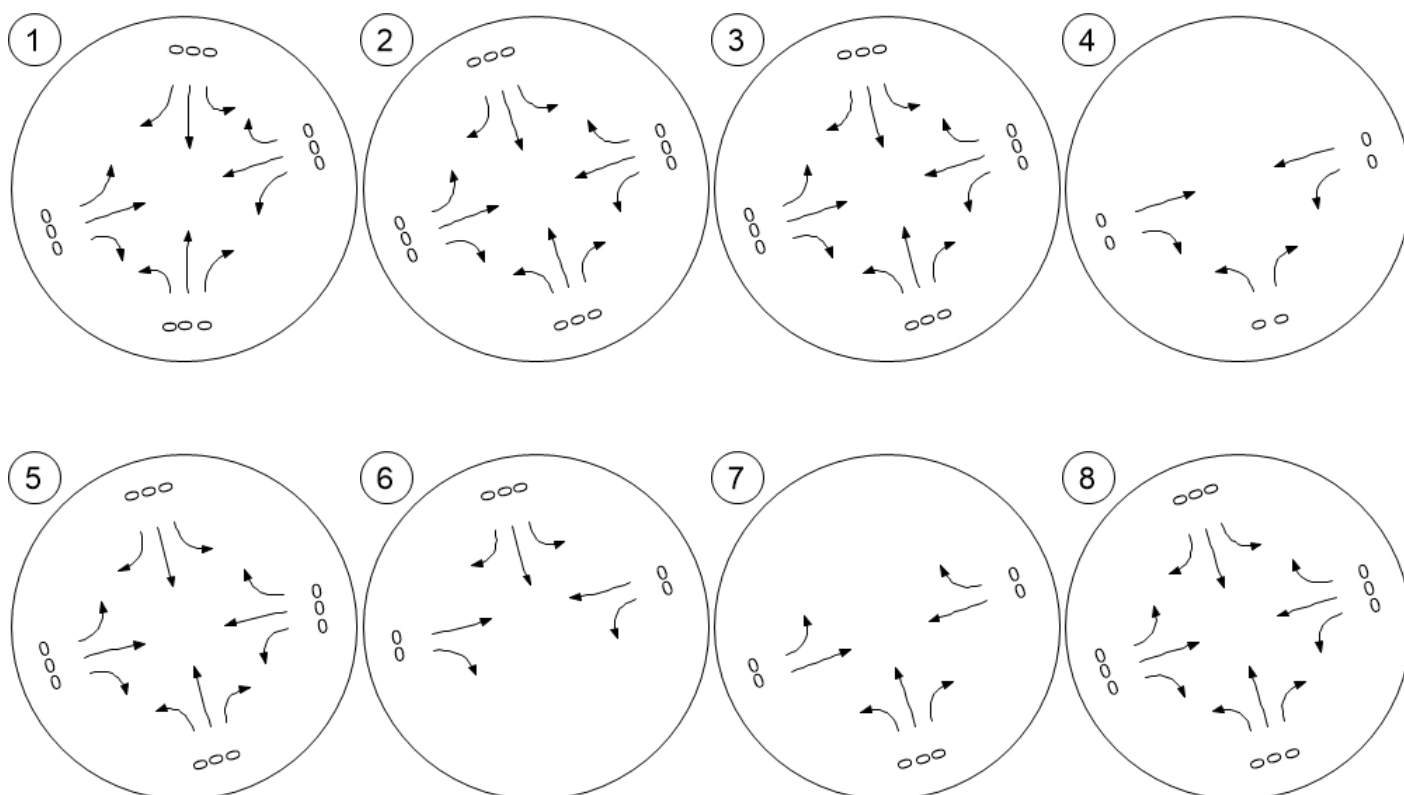


Traffic Volume - Base Volume

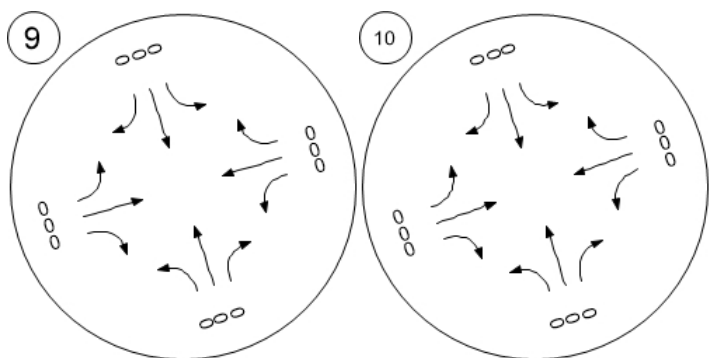




Traffic Volume - In-Process Volume

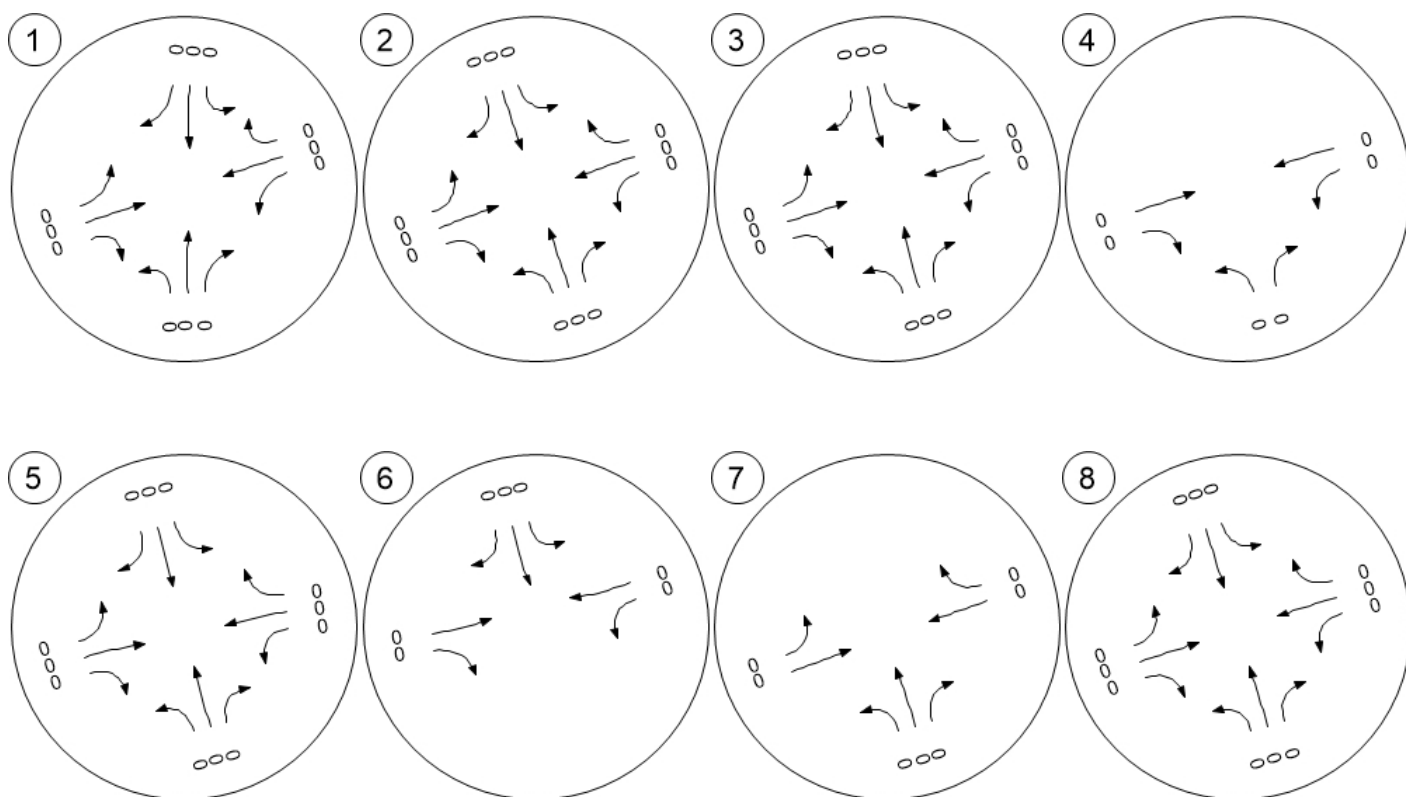


Traffic Volume - In-Process Volume

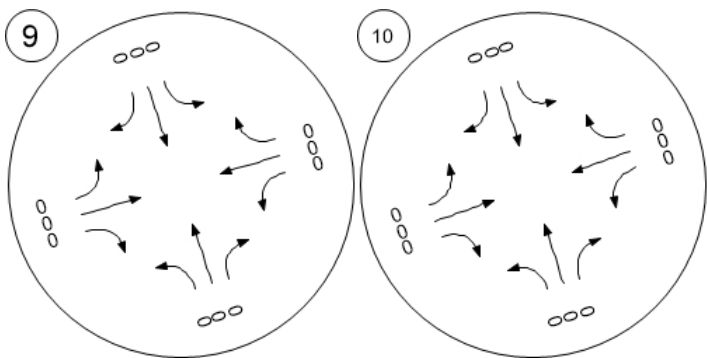




Traffic Volume - Net New Site Trips

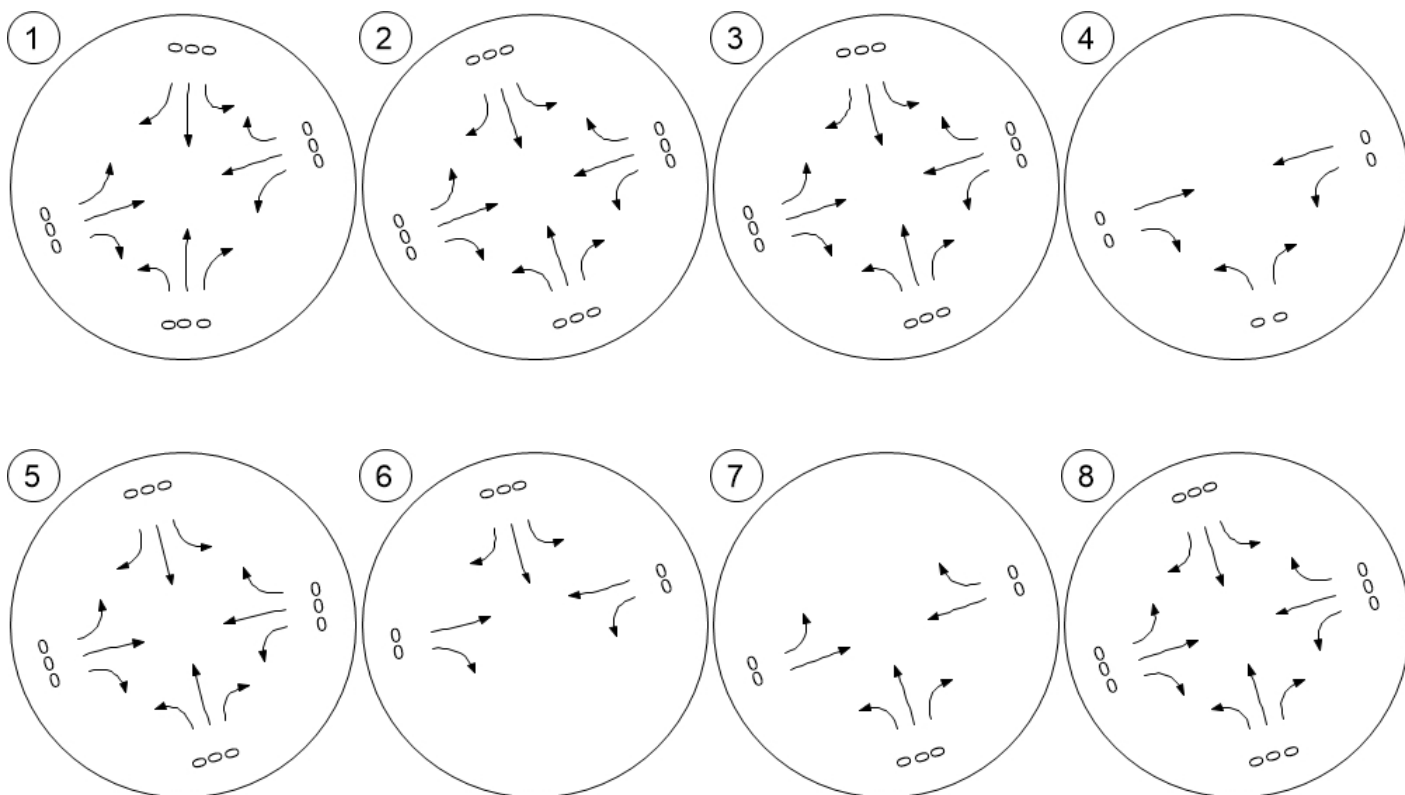


Traffic Volume - Net New Site Trips

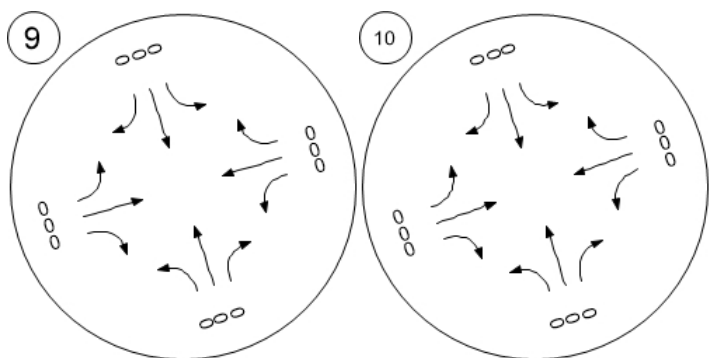




Traffic Volume - Other Volume

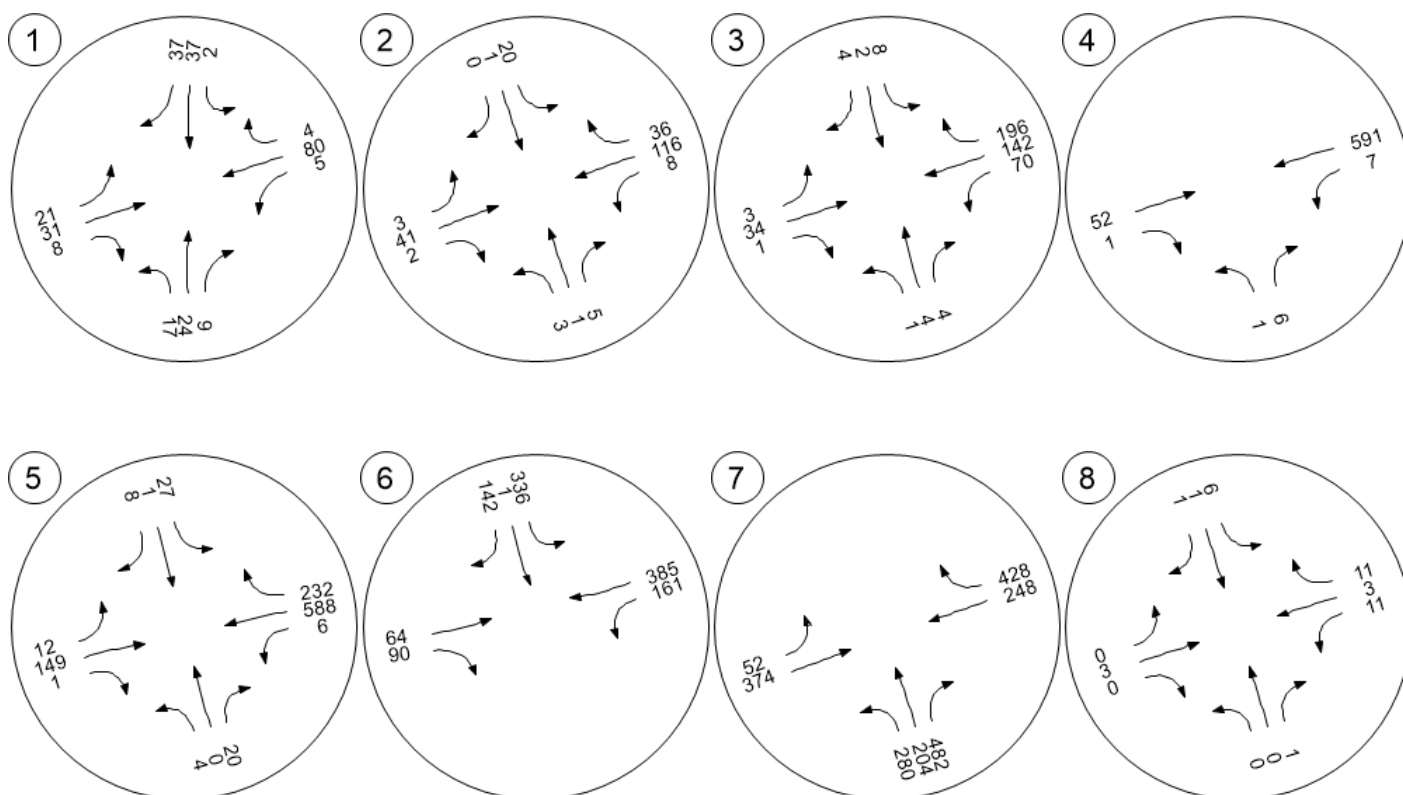


Traffic Volume - Other Volume

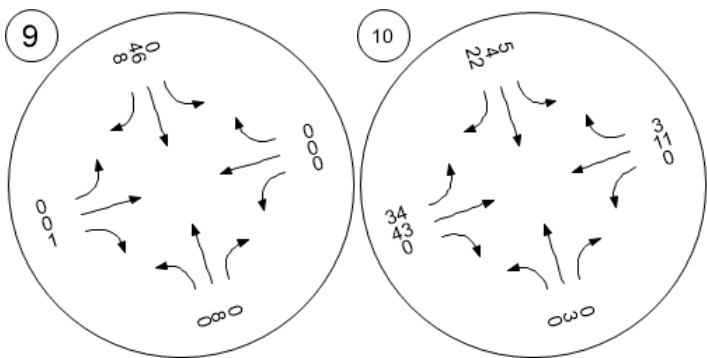




Traffic Volume - Future Total Volume

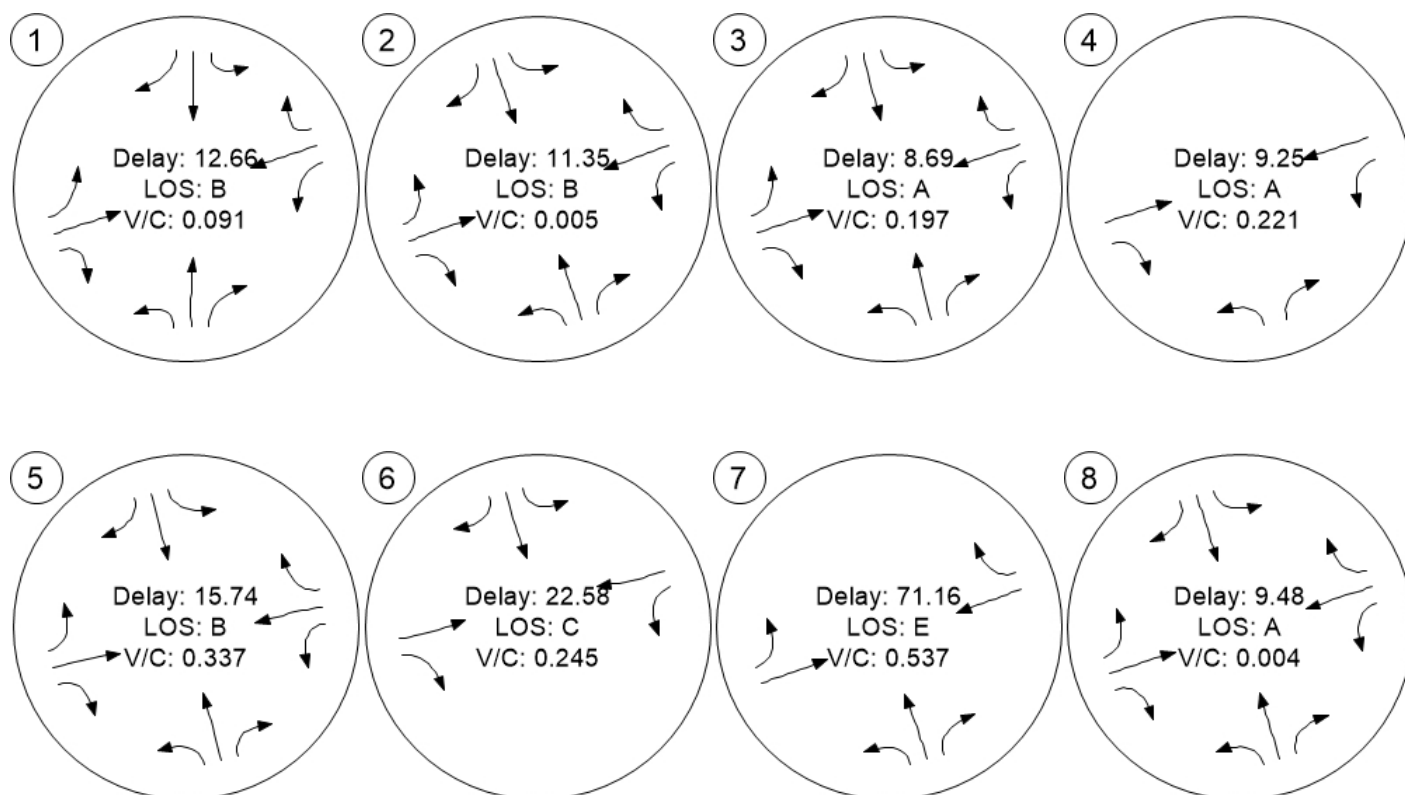


Traffic Volume - Future Total Volume

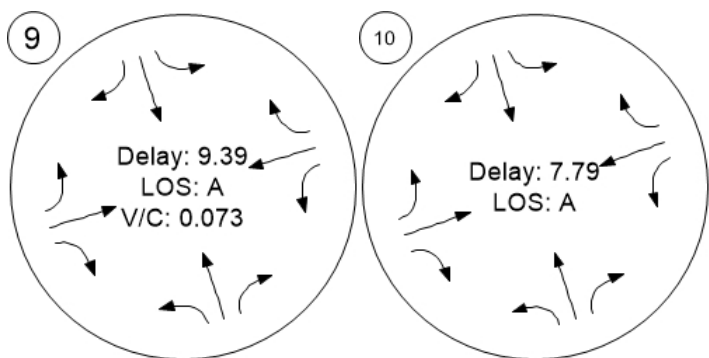




# Traffic Conditions



Traffic Conditions



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 2: Existing PM

Report File: P:\...\2. Existing PM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.109	12.2	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	NBT	0.000	10.5	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	SBL	0.185	13.5	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.134	18.5	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	WBL	0.274	23.1	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	SBL	0.563	52.1	D
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	NBR	0.430	17.8	B
8	28th Street / Quay Avenue	Two-way stop	HCM2000	SBT	0.005	9.2	A
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	NBT	0.064	9.6	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.1	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.109

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	15	6	10	24	4	36	56	16	3	2	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	15	6	10	24	4	36	56	16	3	2	4
Peak Hour Factor	0.7900	0.7900	0.7900	0.5900	0.5900	0.5900	0.4400	0.4400	0.4400	0.5770	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	2	4	10	2	20	32	9	1	1	2
Total Analysis Volume [veh/h]	1	19	8	17	41	7	82	127	36	5	4	8
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	32	0	0	32	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	26	26	26	26	32	32
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.01	0.03	0.08	0.01
Total Saturation Flow Adjustment	0.71	0.94	0.73	0.96	0.78	0.78
s, saturation flow rate [veh/h]	1352	1780	1378	1822	2965	2967
c, Capacity [veh/h]	502	661	512	677	1355	1356
d1, Uniform Delay [s]	13.84	14.04	14.00	14.20	11.24	10.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.12	0.12	0.20	0.29	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.04	0.03	0.07	0.18	0.01
d, Delay for Lane Group [s/veh]	13.85	14.16	14.12	14.41	11.54	10.39
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.01	0.37	0.23	0.66	1.65	0.10
50th-Percentile Queue Length [ft]	0.34	9.14	5.77	16.45	41.17	2.61
95th-Percentile Queue Length [veh]	0.03	0.92	0.59	1.63	3.82	0.27
95th-Percentile Queue Length [ft]	0.87	23.12	14.75	40.75	95.49	6.73



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	13.85	14.16	14.16	14.12	14.41	14.41	11.54	11.54	11.54	10.39	10.39	10.39
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	14.15			14.33			11.54			10.39		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.20											
Intersection LOS	B											
Intersection V/C	0.109											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.000

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	6	0	43	25	0	0	1	45	6	13	13	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	43	25	0	0	1	45	6	13	13	2
Peak Hour Factor	0.3100	0.3100	0.3100	0.6900	0.6900	0.6900	0.6500	0.6500	0.6500	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	35	9	0	0	0	17	2	4	4	1
Total Analysis Volume [veh/h]	19	0	139	36	0	0	2	69	9	16	16	2
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.02	0.00	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.97	10.46	9.19	9.97	10.04	8.60	7.26	0.00	0.00	7.40	0.00	0.00
Movement LOS	A	B	A	A	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.56	0.56	0.56	0.15	0.15	0.15	0.08	0.04	0.00	0.03	0.02	0.00
95th-Percentile Queue Length [ft]	14.04	14.04	14.04	3.72	3.72	3.72	1.93	0.96	0.00	0.85	0.42	0.00
d_A, Approach Delay [s/veh]	9.29			9.97			0.18			3.48		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.36											
Intersection LOS	B											

**Intersection Level Of Service Report**  
**#3: Bay Marina Drive / Tideland Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.185

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	7	14	50	95	10	11	15	72	7	32	40	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	14	50	95	10	11	15	72	7	32	40	41
Peak Hour Factor	0.8100	0.8100	0.8100	0.4900	0.4900	0.4900	0.6700	0.6700	0.6700	0.7600	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	15	48	5	6	6	27	3	11	13	13
Total Analysis Volume [veh/h]	9	17	62	194	20	22	22	107	10	42	53	54
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	31	31	31	31	27	27	27	27	27
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.15	0.03	0.02	0.03	0.03	0.03	0.04
Total Saturation Flow Adjustment	0.72	0.78	0.69	0.81	0.71	0.92	0.66	0.98	0.75
s, saturation flow rate [veh/h]	1359	1479	1314	1545	1342	3501	1263	1863	1425
c, Capacity [veh/h]	602	655	582	684	518	1350	487	718	550
d1, Uniform Delay [s]	10.94	11.48	12.75	11.17	13.43	13.66	13.66	13.59	13.73
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.38	1.54	0.17	0.15	0.13	0.35	0.20	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

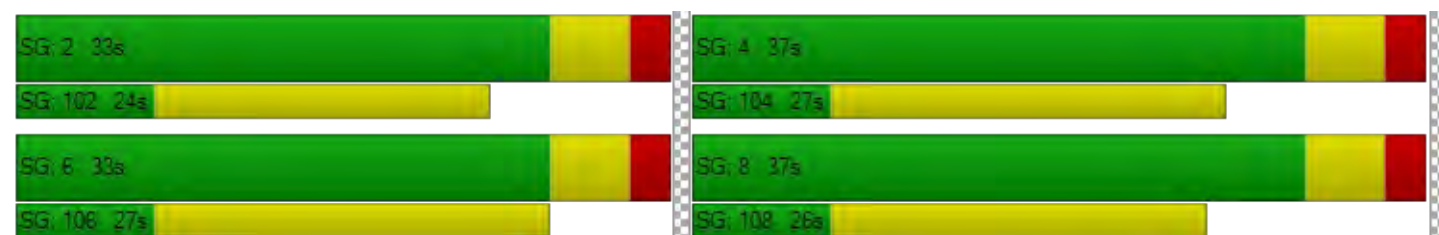
X, volume / capacity	0.01	0.12	0.33	0.06	0.04	0.09	0.09	0.07	0.10
d, Delay for Lane Group [s/veh]	10.98	11.85	14.28	11.34	13.58	13.79	14.01	13.79	14.08
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	no	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.11	1.00	2.79	0.52	0.29	0.83	0.57	0.71	0.74
50th-Percentile Queue Length [ft]	2.71	25.04	69.78	12.89	7.35	20.77	14.34	17.80	18.47
95th-Percentile Queue Length [veh]	0.28	2.42	6.06	1.29	0.75	2.03	1.43	1.76	1.82
95th-Percentile Queue Length [ft]	6.98	60.56	151.58	32.26	18.69	50.82	35.72	43.92	45.50

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	10.98	11.85	11.85	14.28	11.34	11.34	13.58	13.79	13.79	14.01	13.79	14.08
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	11.76			13.76			13.76			13.96		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.52											
Intersection LOS	B											
Intersection V/C	0.185											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-








**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 18.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.134

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	3	50	227	4	36	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	50	227	4	36	127
Peak Hour Factor	0.9200	0.9200	0.8370	0.9200	0.9200	0.7690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	14	68	1	10	41
Total Analysis Volume [veh/h]	3	54	271	4	39	165
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	47	0	16	63
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	41	12	57
g / C, Green / Cycle	0.31	0.31	0.41	0.12	0.57
(v / s)_i Volume / Saturation Flow Rate	0.00	0.03	0.08	0.02	0.05
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3539	1770	3547
c, Capacity [veh/h]	549	491	1451	212	2022
d1, Uniform Delay [s]	23.85	24.65	18.87	39.59	9.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.45	0.29	1.90	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

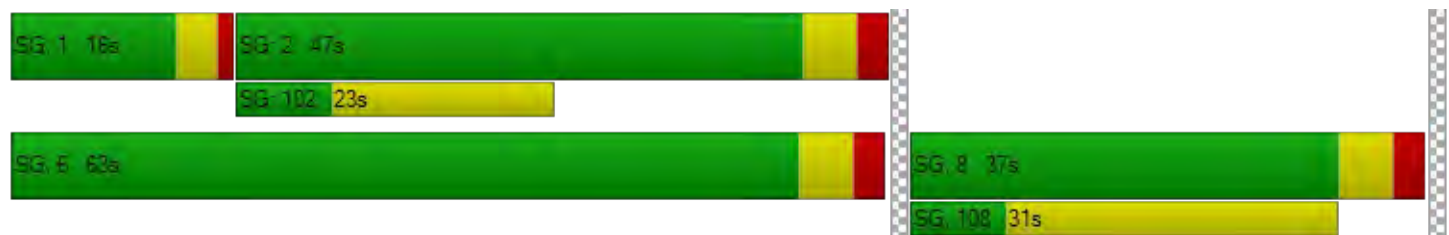
X, volume / capacity	0.01	0.11	0.19	0.18	0.08
d, Delay for Lane Group [s/veh]	23.86	25.10	19.16	41.49	9.78
Lane Group LOS	C	C	B	D	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.06	1.16	2.80	1.07	1.20
50th-Percentile Queue Length [ft]	1.55	29.09	70.09	26.70	29.99
95th-Percentile Queue Length [veh]	0.16	2.78	6.09	2.57	2.86
95th-Percentile Queue Length [ft]	4.01	69.60	152.15	64.28	71.57

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	23.86	25.10	19.16	19.16	41.49	9.78
Movement LOS	C	C	B	B	D	A
d_A, Approach Delay [s/veh]	25.03		19.16		15.84	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	18.52					
Intersection LOS	B					
Intersection V/C	0.134					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#5: Bay Marina Drive / Cleveland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.1  
Level Of Service: C  
Volume to Capacity (v/c): 0.274

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	25	313	5	14	8	281	3	28	130	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	25	313	5	14	8	281	3	28	130	88
Peak Hour Factor	0.6900	0.6900	0.6900	0.5900	0.5900	0.5900	0.8600	0.8600	0.8600	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	133	2	6	2	82	1	8	39	27
Total Analysis Volume [veh/h]	0	0	36	531	8	24	9	327	3	34	157	106
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	27	0	9	19	0	9	19	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	23	5	15	5	15
g / C, Green / Cycle	0.16	0.16	0.33	0.07	0.21	0.07	0.21
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.17	0.01	0.07	0.02	0.08
Total Saturation Flow Adjustment	0.93	0.83	0.89	0.93	0.89	0.93	0.88
s, saturation flow rate [veh/h]	1770	1583	3365	1770	5067	1770	3332
c, Capacity [veh/h]	278	249	1106	126	1086	126	714
d1, Uniform Delay [s]	24.86	25.44	18.95	30.33	23.11	30.77	23.46
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.22	1.68	1.09	0.72	5.16	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.14	0.51	0.07	0.30	0.27	0.37
d, Delay for Lane Group [s/veh]	24.86	26.66	20.62	31.42	23.83	35.93	24.92
Lane Group LOS	C	C	C	C	C	D	C
Critical Lane Group	no	yes	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.00	0.66	5.30	0.18	2.20	0.71	2.57
50th-Percentile Queue Length [ft]	0.00	16.62	132.57	4.51	54.95	17.70	64.24
95th-Percentile Queue Length [veh]	0.00	1.65	10.32	0.46	4.93	1.75	5.65
95th-Percentile Queue Length [ft]	0.00	41.14	258.02	11.58	123.33	43.69	141.21

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	24.86	26.66	26.66	20.62	20.62	20.62	31.42	23.83	23.83	35.93	24.92	24.92
Movement LOS	C	C	C	C	C	C	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.66			20.62			24.04			26.18		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	23.07											
Intersection LOS	C											
Intersection V/C	0.274											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 52.1  
Level Of Service: D  
Volume to Capacity (v/c): 0.563

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	645	14	50	0	204	340	368	131	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	645	14	50	0	204	340	368	131	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100	1.0000	0.9400	0.9400	0.8900	0.8900	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	177	4	14	0	54	90	103	37	0
Total Analysis Volume [veh/h]	0	0	0	709	15	55	0	217	362	413	147	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	20	0	0	40	0	20	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		15	15	35	35	16	55
g / C, Green / Cycle		0.19	0.19	0.44	0.44	0.20	0.69
(v / s)_i Volume / Saturation Flow Rate		0.21	0.03	0.06	0.23	0.12	0.04
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3381	1583	3547	1583	3437	3547
c, Capacity [veh/h]		651	305	1569	701	679	2456
d1, Uniform Delay [s]		32.30	27.02	13.24	16.12	29.28	3.95
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		70.27	1.30	0.18	2.71	4.03	0.05
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		1.11	0.18	0.14	0.52	0.61	0.06
d, Delay for Lane Group [s/veh]		102.57	28.32	13.43	18.83	33.31	3.99
Lane Group LOS		F	C	B	B	C	A
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		16.27	1.12	1.65	6.67	5.06	0.63
50th-Percentile Queue Length [ft]		406.70	28.07	41.28	166.83	126.52	15.76
95th-Percentile Queue Length [veh]		26.66	2.69	3.83	12.43	9.94	1.56
95th-Percentile Queue Length [ft]		666.43	67.34	95.72	310.84	248.42	39.11

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	102.57	102.57	28.32	0.00	13.43	18.83	33.31	3.99	0.00
Movement LOS				F	F	C		B	B	C	A	
d_A, Approach Delay [s/veh]	0.00			97.32			16.80			25.61		
Approach LOS	A			F			B			C		
d_I, Intersection Delay [s/veh]	52.08											
Intersection LOS	D											
Intersection V/C	0.563											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 17.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.430

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	75	3	374	0	0	0	133	704	0	0	427	439
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	75	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	3	299	0	0	0	133	704	0	0	427	439
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	1	80	0	0	0	36	189	0	0	115	118
Total Analysis Volume [veh/h]	80	3	318	0	0	0	143	757	0	0	459	472
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	20	0	0	0	0	20	60	0	0	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	15		16	55	35	35
g / C, Green / Cycle	0.19		0.20	0.69	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.09		0.04	0.21	0.25	0.30
Total Saturation Flow Adjustment	0.78		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4426		3437	3547	1863	1583
c, Capacity [veh/h]	852		679	2456	824	701
d1, Uniform Delay [s]	28.68		26.88	4.81	16.50	17.71
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.86		0.71	0.33	2.71	5.13
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

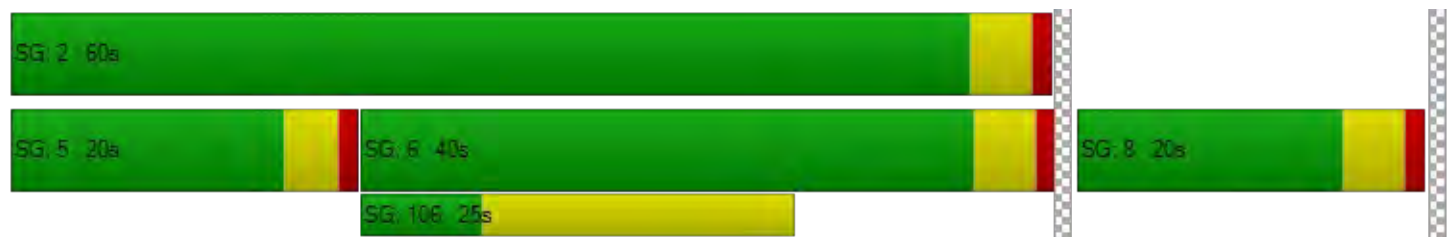
X, volume / capacity	0.47		0.21	0.31	0.56	0.67
d, Delay for Lane Group [s/veh]	30.54		27.59	5.13	19.20	22.84
Lane Group LOS	C		C	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	3.31		1.50	4.01	8.67	9.93
50th-Percentile Queue Length [ft]	82.78		37.60	100.28	216.81	248.35
95th-Percentile Queue Length [veh]	7.01		3.52	8.22	15.41	17.26
95th-Percentile Queue Length [ft]	175.14		88.00	205.41	385.17	431.42

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	30.54	30.54	30.54	0.00	0.00	0.00	27.59	5.13	0.00	0.00	19.20	22.84
Movement LOS	C	C	C				C	A			B	C
d_A, Approach Delay [s/veh]	30.54			0.00			8.70			21.05		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	17.78											
Intersection LOS	B											
Intersection V/C	0.430											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.2  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	3	0	9	2	0	0	2	0	2	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	0	9	2	0	0	2	0	2	0	1
Peak Hour Factor	0.3800	0.3800	0.3800	0.5500	0.5500	0.5500	0.2500	0.2500	0.2500	0.7500	0.7500	0.7500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	4	1	0	0	2	0	1	0	0
Total Analysis Volume [veh/h]	0	8	0	16	4	0	0	8	0	3	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.66	9.14	8.39	8.73	9.18	8.40	7.22	0.00	0.00	7.24	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.03	0.03	0.03	0.06	0.06	0.06	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft]	0.69	0.69	0.69	1.59	1.59	1.59	0.00	0.00	0.00	0.19	0.19	0.19
d_A, Approach Delay [s/veh]	9.14			8.82			0.00			5.43		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.78											
Intersection LOS	A											

**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.6  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.064

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	44	1	4	37	6	5	0	8	0	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	44	1	4	37	6	5	0	8	0	0	4
Peak Hour Factor	0.8200	0.8200	0.8200	0.9000	0.9000	0.9000	0.4600	0.4600	0.4600	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	13	0	1	10	2	3	0	4	0	0	4
Total Analysis Volume [veh/h]	1	54	1	4	41	7	11	0	17	0	0	16
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.06	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.36	9.59	8.66	9.37	9.56	8.62	7.26	0.00	0.00	7.25	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.21	0.21	0.21	0.19	0.19	0.19	0.05	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	5.32	5.32	5.32	4.78	4.78	4.78	1.33	1.33	1.33	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.57			9.42			2.85			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.27											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	3	6	13	9	54	4	0	6	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	8	3	6	13	9	54	4	0	6	1	2
Peak Hour Factor	0.6900	0.6900	0.9200	0.9200	0.7800	0.7800	0.6900	0.9200	0.6900	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	1	2	4	3	20	1	0	2	0	1
Total Analysis Volume [veh/h]	0	12	3	7	17	12	78	4	0	7	1	2
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.06	0.10	0.04	0.38	0.02	0.00	0.03	0.00	0.01
95th-Percentile Queue Length [ft]	1.51	2.57	1.05	9.48	0.39	0.00	0.79	0.10	0.17
Approach Delay [s/veh]	7.85	7.52		8.50			7.80		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.14								
Intersection LOS	A								



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 2: Existing PM

Report File: P:\...\2. Existing PM.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	1	15	6	10	24	4	36	56	16	3	2	4	177

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	6	0	43	25	0	0	1	45	6	13	13	2	154

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	7	14	50	95	10	11	15	72	7	32	40	41	394

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	3	50	227	4	36	127	447

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	0	0	25	313	5	14	8	281	3	28	130	88	895

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	645	14	50	204	340	368	131	1752

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	75	3	374	133	704	427	439	2155

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	0	3	0	9	2	0	0	2	0	2	0	1	19

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	1	44	1	4	37	6	5	0	8	0	0	4	110

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	8	3	6	13	9	54	4	0	6	1	2	106

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 2: Existing PM

Report File: P:\...2. Existing PM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	1	15	6	10	24	4	36	56	16	3	2	4	177
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>15</b>	<b>6</b>	<b>10</b>	<b>24</b>	<b>4</b>	<b>36</b>	<b>56</b>	<b>16</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>177</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	6	0	43	25	0	0	1	45	6	13	13	2	154
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>6</b>	<b>0</b>	<b>43</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>45</b>	<b>6</b>	<b>13</b>	<b>13</b>	<b>2</b>	<b>154</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	7	14	50	95	10	11	15	72	7	32	40	41	394
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>7</b>	<b>14</b>	<b>50</b>	<b>95</b>	<b>10</b>	<b>11</b>	<b>15</b>	<b>72</b>	<b>7</b>	<b>32</b>	<b>40</b>	<b>41</b>	<b>394</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	3	50	227	4	36	127	447
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>50</b>	<b>227</b>	<b>4</b>	<b>36</b>	<b>127</b>	<b>447</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	0	0	25	313	5	14	8	281	3	28	130	88	895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>313</b>	<b>5</b>	<b>14</b>	<b>8</b>	<b>281</b>	<b>3</b>	<b>28</b>	<b>130</b>	<b>88</b>	<b>895</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	645	14	50	204	340	368	131	1752
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>645</b>	<b>14</b>	<b>50</b>	<b>204</b>	<b>340</b>	<b>368</b>	<b>131</b>	<b>1752</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	75	3	374	133	704	427	439	2155
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>75</b>	<b>3</b>	<b>374</b>	<b>133</b>	<b>704</b>	<b>427</b>	<b>439</b>	<b>2155</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	Final Base	0	3	0	9	2	0	0	2	0	2	0	1	19
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>19</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	Final Base	1	44	1	4	37	6	5	0	8	0	0	4	110
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>44</b>	<b>1</b>	<b>4</b>	<b>37</b>	<b>6</b>	<b>5</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>110</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	8	3	6	13	9	54	4	0	6	1	2	106
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>8</b>	<b>3</b>	<b>6</b>	<b>13</b>	<b>9</b>	<b>54</b>	<b>4</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>106</b>

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	28	52	49	25
2	27	50	47	24
3	26	49	46	24
4	22	42	39	20
5	21	40	37	19
6	19	35	33	17
7	18	33	31	16
8	17	31	29	15
9	13	25	24	12
10	13	23	22	11
11	13	23	22	11
12	12	22	21	11
13	11	20	19	10
14	10	19	18	9
15	10	19	18	9
16	10	18	17	9
17	6	10	10	5
18	3	6	5	3
19	3	5	5	3
20	1	2	2	1
21	1	2	1	1
22	1	2	1	1
23	1	1	1	1
24	1	1	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	80	2	74	No	No	No	No	No	No	No	No	No	No
2	4	77	2	71	No	No	No	No	No	No	No	No	No	No
3	4	75	2	70	No	No	No	No	No	No	No	No	No	No
4	4	64	2	59	No	No	No	No	No	No	No	No	No	No
5	4	61	2	56	No	No	No	No	No	No	No	No	No	No
6	4	54	2	50	No	No	No	No	No	No	No	No	No	No
7	4	51	2	47	No	No	No	No	No	No	No	No	No	No
8	4	48	2	44	No	No	No	No	No	No	No	No	No	No
9	4	38	2	36	No	No	No	No	No	No	No	No	No	No
10	4	36	2	33	No	No	No	No	No	No	No	No	No	No
11	4	36	2	33	No	No	No	No	No	No	No	No	No	No
12	4	34	2	32	No	No	No	No	No	No	No	No	No	No
13	4	31	2	29	No	No	No	No	No	No	No	No	No	No
14	4	29	2	27	No	No	No	No	No	No	No	No	No	No
15	4	29	2	27	No	No	No	No	No	No	No	No	No	No
16	4	28	2	26	No	No	No	No	No	No	No	No	No	No
17	4	16	2	15	No	No	No	No	No	No	No	No	No	No
18	4	9	2	8	No	No	No	No	No	No	No	No	No	No
19	4	8	2	8	No	No	No	No	No	No	No	No	No	No
20	4	3	2	3	No	No	No	No	No	No	No	No	No	No
21	4	3	2	2	No	No	No	No	No	No	No	No	No	No
22	4	3	2	2	No	No	No	No	No	No	No	No	No	No
23	4	2	2	2	No	No	No	No	No	No	No	No	No	No
24	4	2	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.3	10
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07	0:04
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	49	25
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	154	154
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	3	2	3	11
2	3	2	3	11
3	3	2	3	10
4	2	2	2	9
5	2	2	2	8
6	2	1	2	7
7	2	1	2	7
8	2	1	2	7
9	1	1	1	5
10	1	1	1	5
11	1	1	1	5
12	1	1	1	5
13	1	1	1	4
14	1	1	1	4
15	1	1	1	4
16	1	1	1	4
17	1	0	1	2
18	0	0	0	1
19	0	0	0	1
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	5	2	14	No	No	No	No	No	No	No	No	No	No
2	2	5	2	14	No	No	No	No	No	No	No	No	No	No
3	2	5	2	13	No	No	No	No	No	No	No	No	No	No
4	2	4	2	11	No	No	No	No	No	No	No	No	No	No
5	2	4	2	10	No	No	No	No	No	No	No	No	No	No
6	2	3	2	9	No	No	No	No	No	No	No	No	No	No
7	2	3	2	9	No	No	No	No	No	No	No	No	No	No
8	2	3	2	9	No	No	No	No	No	No	No	No	No	No
9	2	2	2	6	No	No	No	No	No	No	No	No	No	No
10	2	2	2	6	No	No	No	No	No	No	No	No	No	No
11	2	2	2	6	No	No	No	No	No	No	No	No	No	No
12	2	2	2	6	No	No	No	No	No	No	No	No	No	No
13	2	2	2	5	No	No	No	No	No	No	No	No	No	No
14	2	2	2	5	No	No	No	No	No	No	No	No	No	No
15	2	2	2	5	No	No	No	No	No	No	No	No	No	No
16	2	2	2	5	No	No	No	No	No	No	No	No	No	No
17	2	1	2	3	No	No	No	No	No	No	No	No	No	No
18	2	0	2	1	No	No	No	No	No	No	No	No	No	No
19	2	0	2	1	No	No	No	No	No	No	No	No	No	No
20	2	0	2	0	No	No	No	No	No	No	No	No	No	No
21	2	0	2	0	No	No	No	No	No	No	No	No	No	No
22	2	0	2	0	No	No	No	No	No	No	No	No	No	No
23	2	0	2	0	No	No	No	No	No	No	No	No	No	No
24	2	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1	8.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:01
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	3	11
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	19	19
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	4	13	46	47
2	4	12	44	45
3	4	12	43	44
4	3	10	37	38
5	3	10	35	36
6	3	9	31	32
7	3	8	29	30
8	2	8	28	28
9	2	6	22	23
10	2	6	21	21
11	2	6	21	21
12	2	6	20	20
13	2	5	18	18
14	1	5	17	17
15	1	5	17	17
16	1	5	16	16
17	1	3	9	9
18	0	1	5	5
19	0	1	5	5
20	0	1	2	2
21	0	0	1	1
22	0	0	1	1
23	0	0	1	1
24	0	0	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	17	2	93	No	No	No	No	No	No	No	No	No	No
2	2	16	2	89	No	No	No	No	No	No	No	No	No	No
3	2	16	2	87	No	No	No	No	No	No	No	No	No	No
4	2	13	2	75	No	No	No	No	No	No	No	No	No	No
5	2	13	2	71	No	No	No	No	No	No	No	No	No	No
6	2	12	2	63	No	No	No	No	No	No	No	No	No	No
7	2	11	2	59	No	No	No	No	No	No	No	No	No	No
8	2	10	2	56	No	No	No	No	No	No	No	No	No	No
9	2	8	2	45	No	No	No	No	No	No	No	No	No	No
10	2	8	2	42	No	No	No	No	No	No	No	No	No	No
11	2	8	2	42	No	No	No	No	No	No	No	No	No	No
12	2	8	2	40	No	No	No	No	No	No	No	No	No	No
13	2	7	2	36	No	No	No	No	No	No	No	No	No	No
14	2	6	2	34	No	No	No	No	No	No	No	No	No	No
15	2	6	2	34	No	No	No	No	No	No	No	No	No	No
16	2	6	2	32	No	No	No	No	No	No	No	No	No	No
17	2	4	2	18	No	No	No	No	No	No	No	No	No	No
18	2	1	2	10	No	No	No	No	No	No	No	No	No	No
19	2	1	2	10	No	No	No	No	No	No	No	No	No	No
20	2	1	2	4	No	No	No	No	No	No	No	No	No	No
21	2	0	2	2	No	No	No	No	No	No	No	No	No	No
22	2	0	2	2	No	No	No	No	No	No	No	No	No	No
23	2	0	2	2	No	No	No	No	No	No	No	No	No	No
24	2	0	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.6	9.4
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07	0:07
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	46	47
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	110	110
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	9	58	11	28
2	9	56	11	27
3	8	55	10	26
4	7	46	9	22
5	7	44	8	21
6	6	39	7	19
7	6	37	7	18
8	5	35	7	17
9	4	28	5	13
10	4	26	5	13
11	4	26	5	13
12	4	25	5	12
13	4	23	4	11
14	3	21	4	10
15	3	21	4	10
16	3	20	4	10
17	2	12	2	6
18	1	6	1	3
19	1	6	1	3
20	0	2	0	1
21	0	2	0	1
22	0	2	0	1
23	0	1	0	1
24	0	1	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	67	3	39	No	No	No	No	No	No	No	No	No	No
2	6	65	3	38	No	No	No	No	No	No	No	No	No	No
3	6	63	3	36	No	No	No	No	No	No	No	No	No	No
4	6	53	3	31	No	No	No	No	No	No	No	No	No	No
5	6	51	3	29	No	No	No	No	No	No	No	No	No	No
6	6	45	3	26	No	No	No	No	No	No	No	No	No	No
7	6	43	3	25	No	No	No	No	No	No	No	No	No	No
8	6	40	3	24	No	No	No	No	No	No	No	No	No	No
9	6	32	3	18	No	No	No	No	No	No	No	No	No	No
10	6	30	3	18	No	No	No	No	No	No	No	No	No	No
11	6	30	3	18	No	No	No	No	No	No	No	No	No	No
12	6	29	3	17	No	No	No	No	No	No	No	No	No	No
13	6	27	3	15	No	No	No	No	No	No	No	No	No	No
14	6	24	3	14	No	No	No	No	No	No	No	No	No	No
15	6	24	3	14	No	No	No	No	No	No	No	No	No	No
16	6	23	3	14	No	No	No	No	No	No	No	No	No	No
17	6	14	3	8	No	No	No	No	No	No	No	No	No	No
18	6	7	3	4	No	No	No	No	No	No	No	No	No	No
19	6	7	3	4	No	No	No	No	No	No	No	No	No	No
20	6	2	3	1	No	No	No	No	No	No	No	No	No	No
21	6	2	3	1	No	No	No	No	No	No	No	No	No	No
22	6	2	3	1	No	No	No	No	No	No	No	No	No	No
23	6	1	3	1	No	No	No	No	No	No	No	No	No	No
24	6	1	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

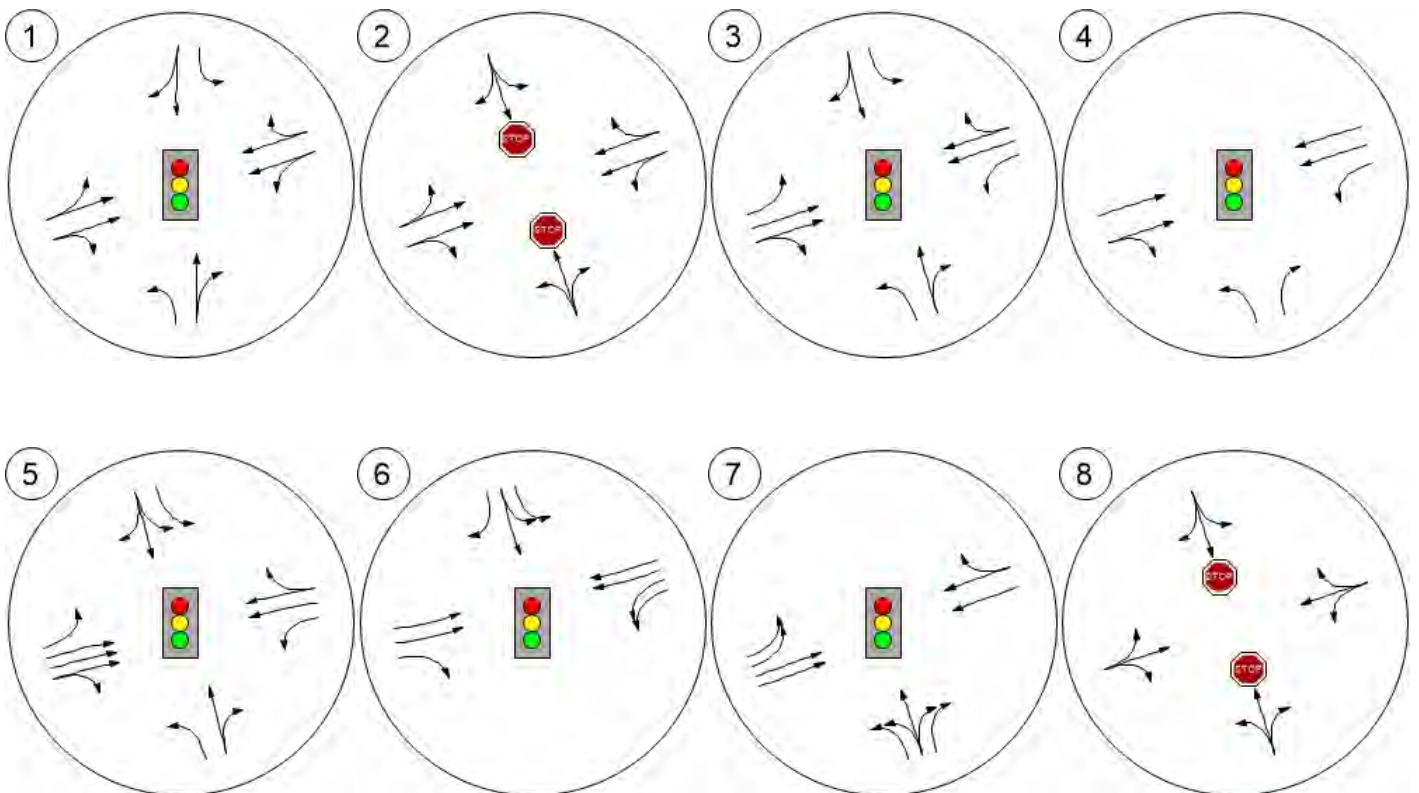
Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	7.8	7.5
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	11	28
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	106	106
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Study Intersections

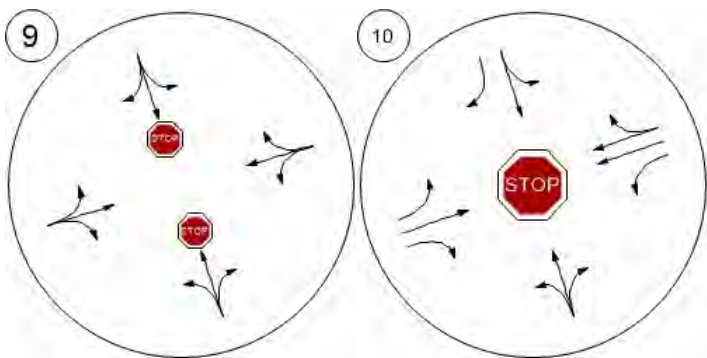




# Lane Configuration and Traffic Control

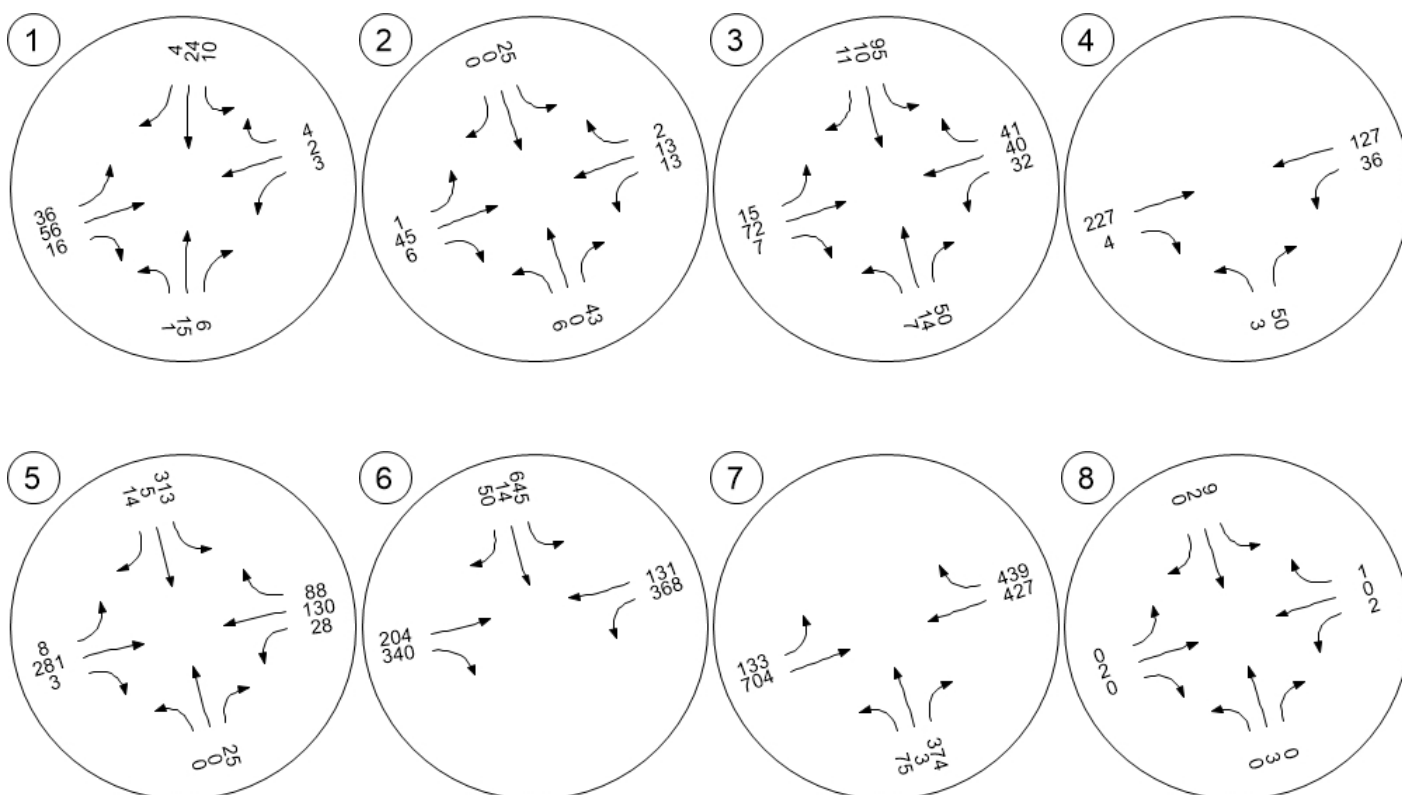


## Lane Configuration and Traffic Control

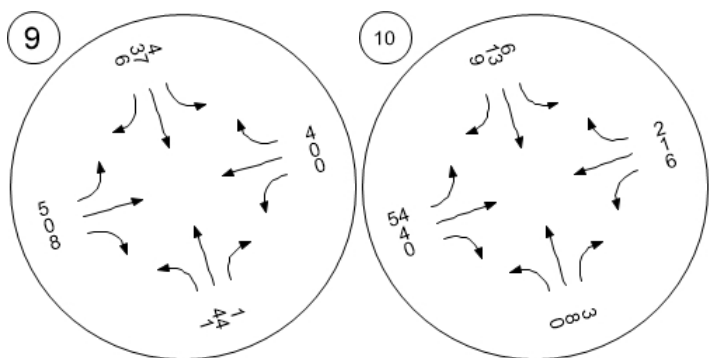




Traffic Volume - Base Volume

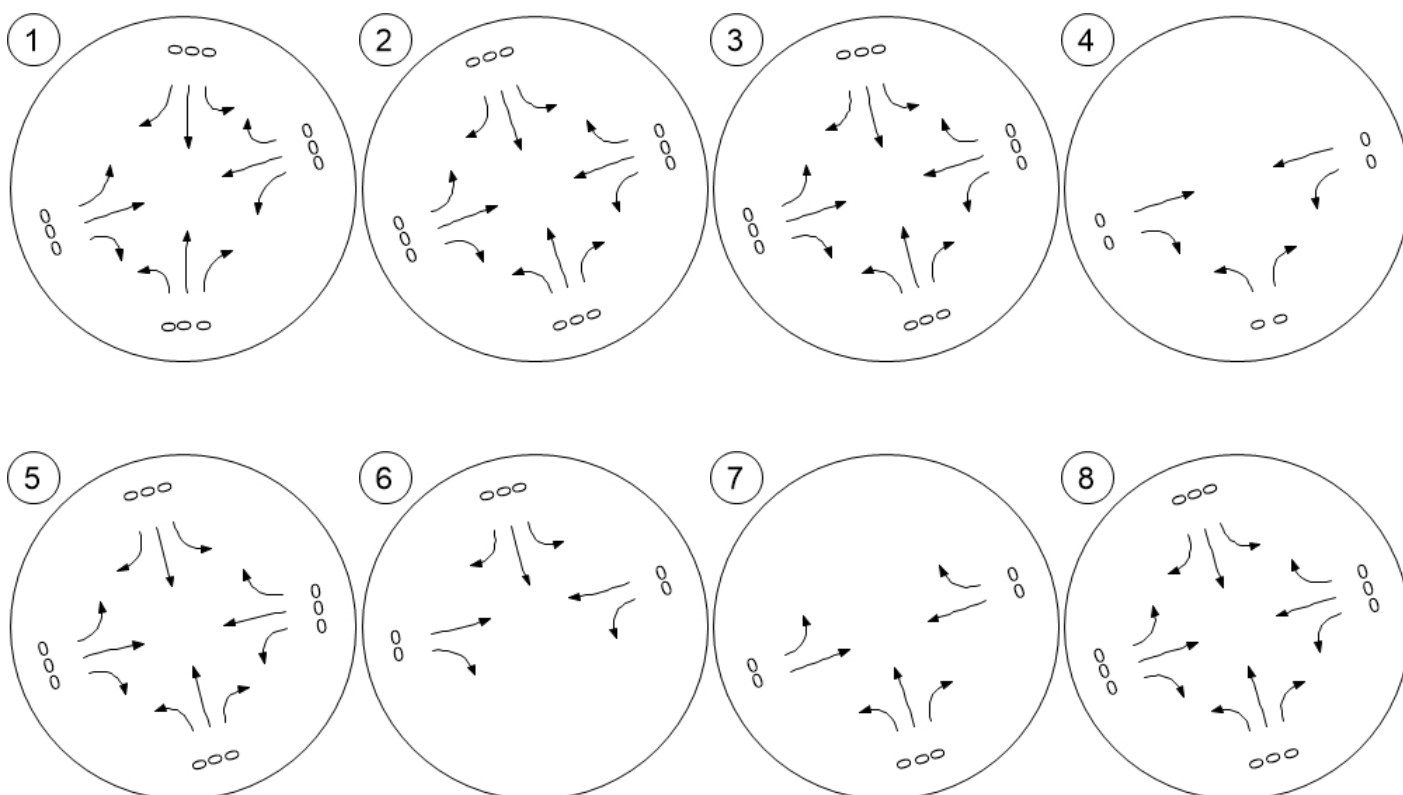


Traffic Volume - Base Volume

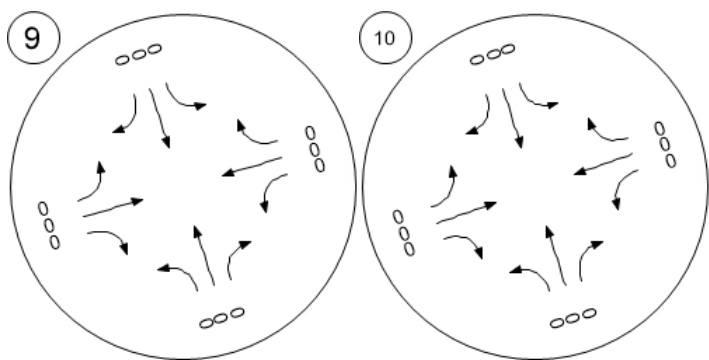




Traffic Volume - In-Process Volume

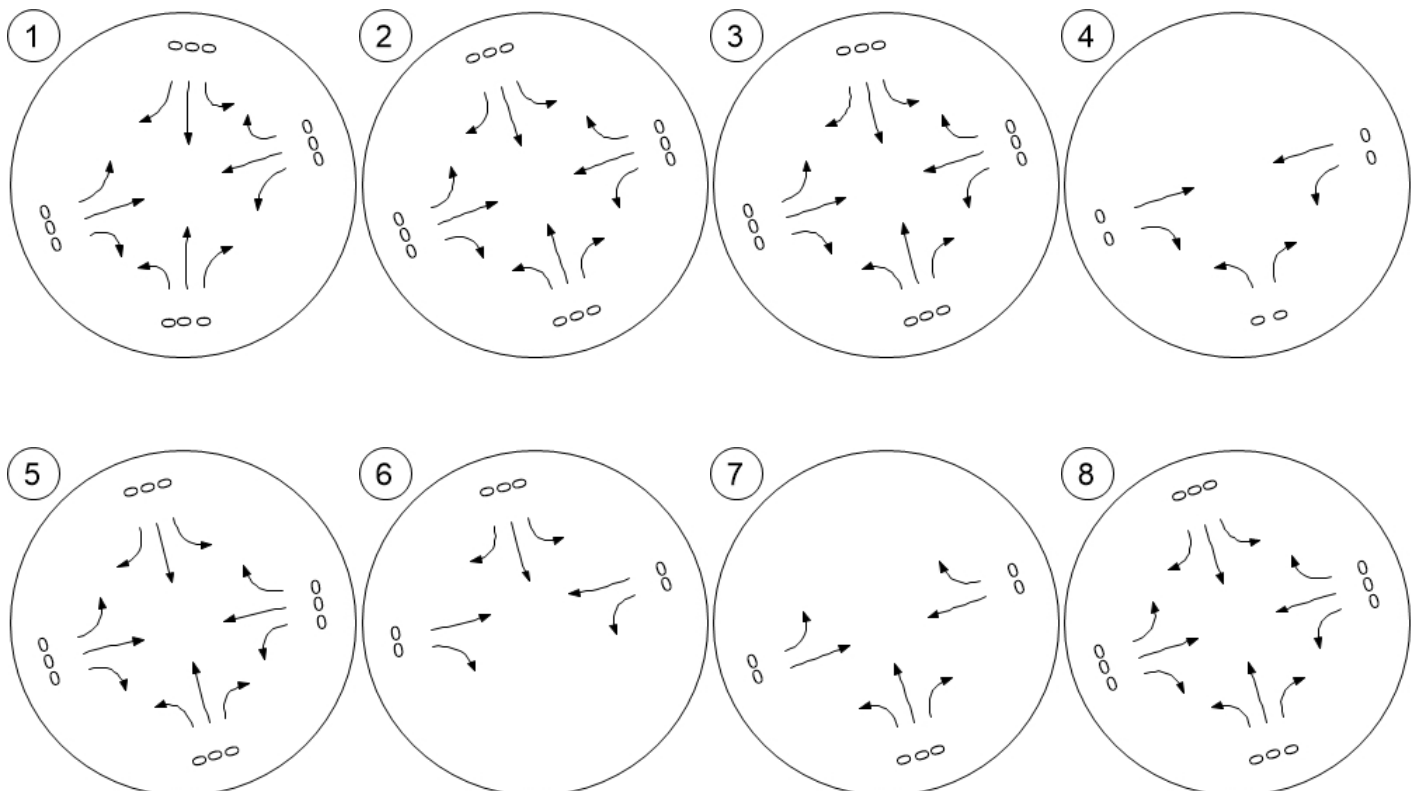


Traffic Volume - In-Process Volume

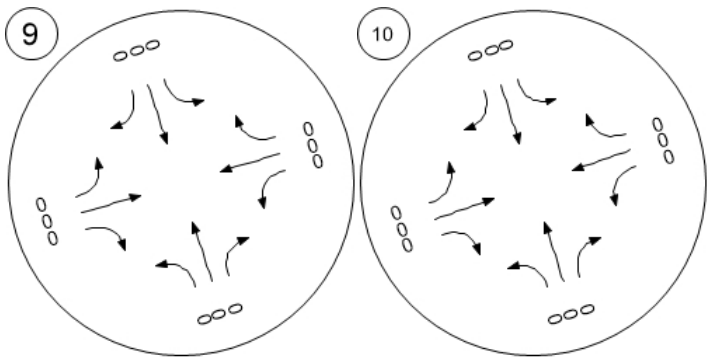




Traffic Volume - Net New Site Trips

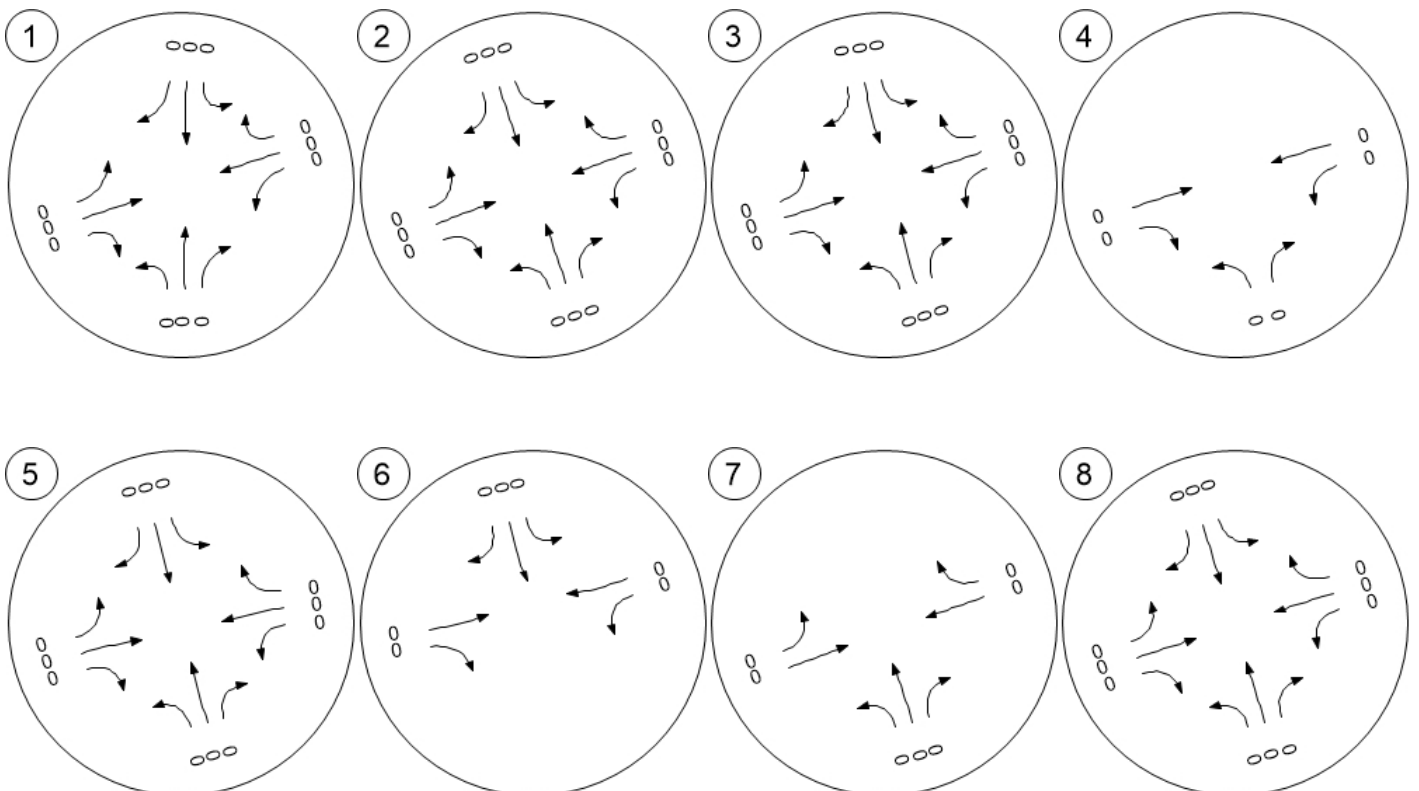


Traffic Volume - Net New Site Trips

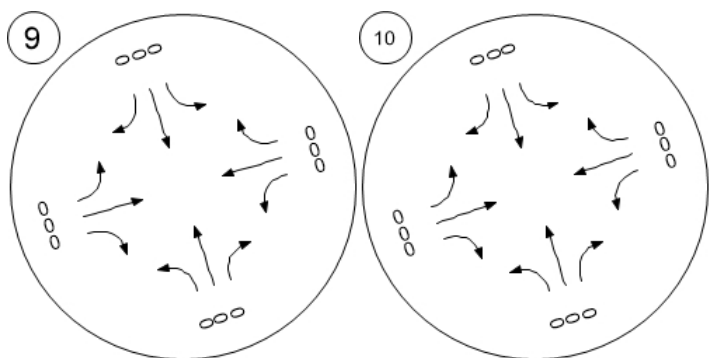




Traffic Volume - Other Volume

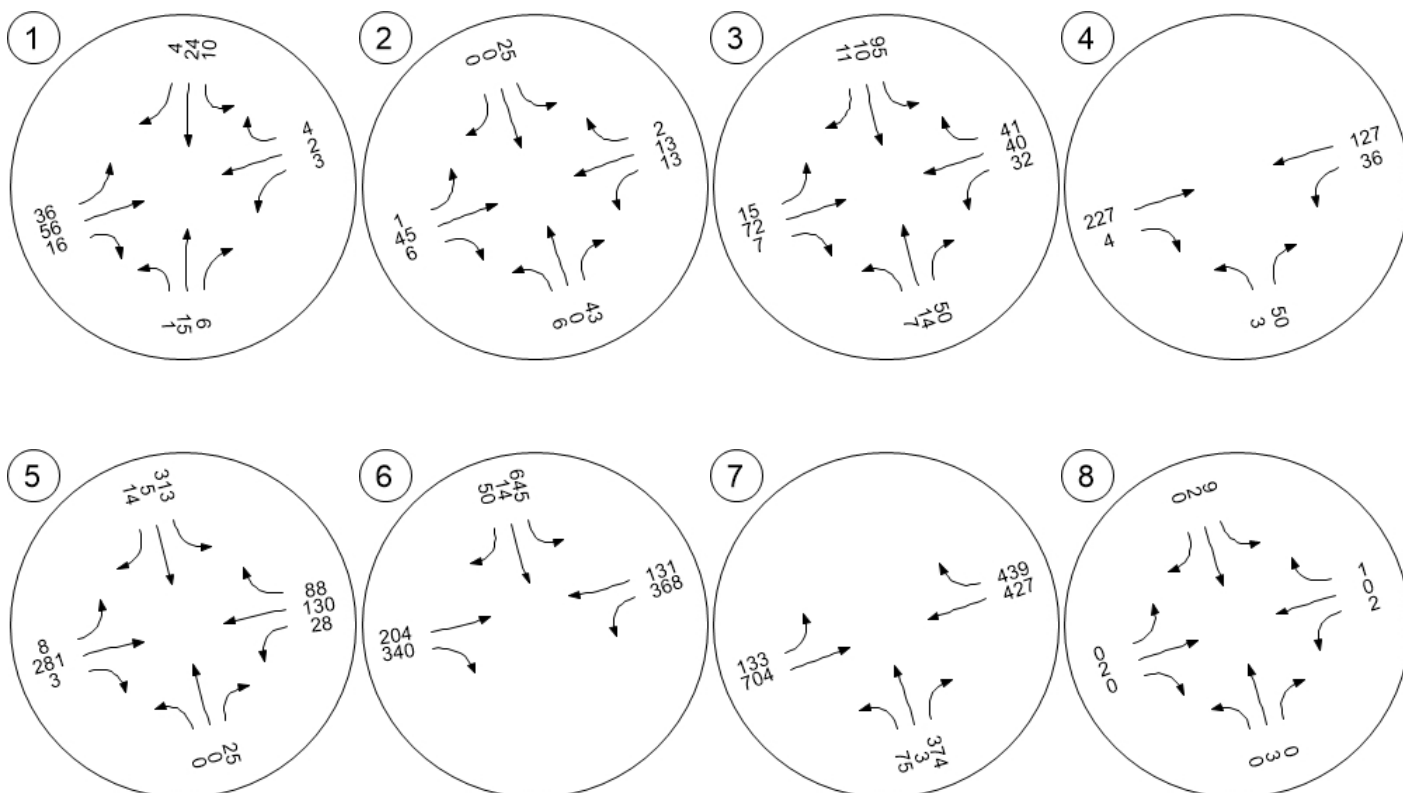


Traffic Volume - Other Volume

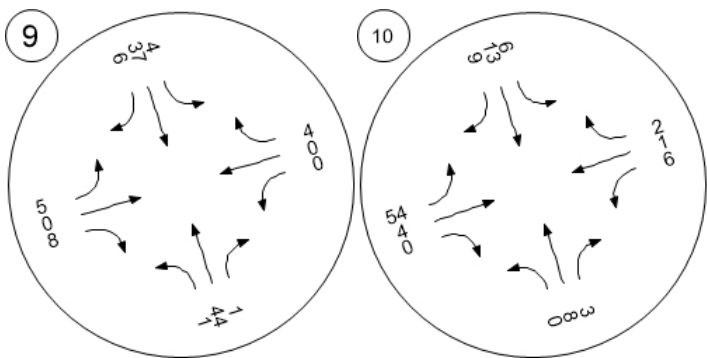




Traffic Volume - Future Total Volume

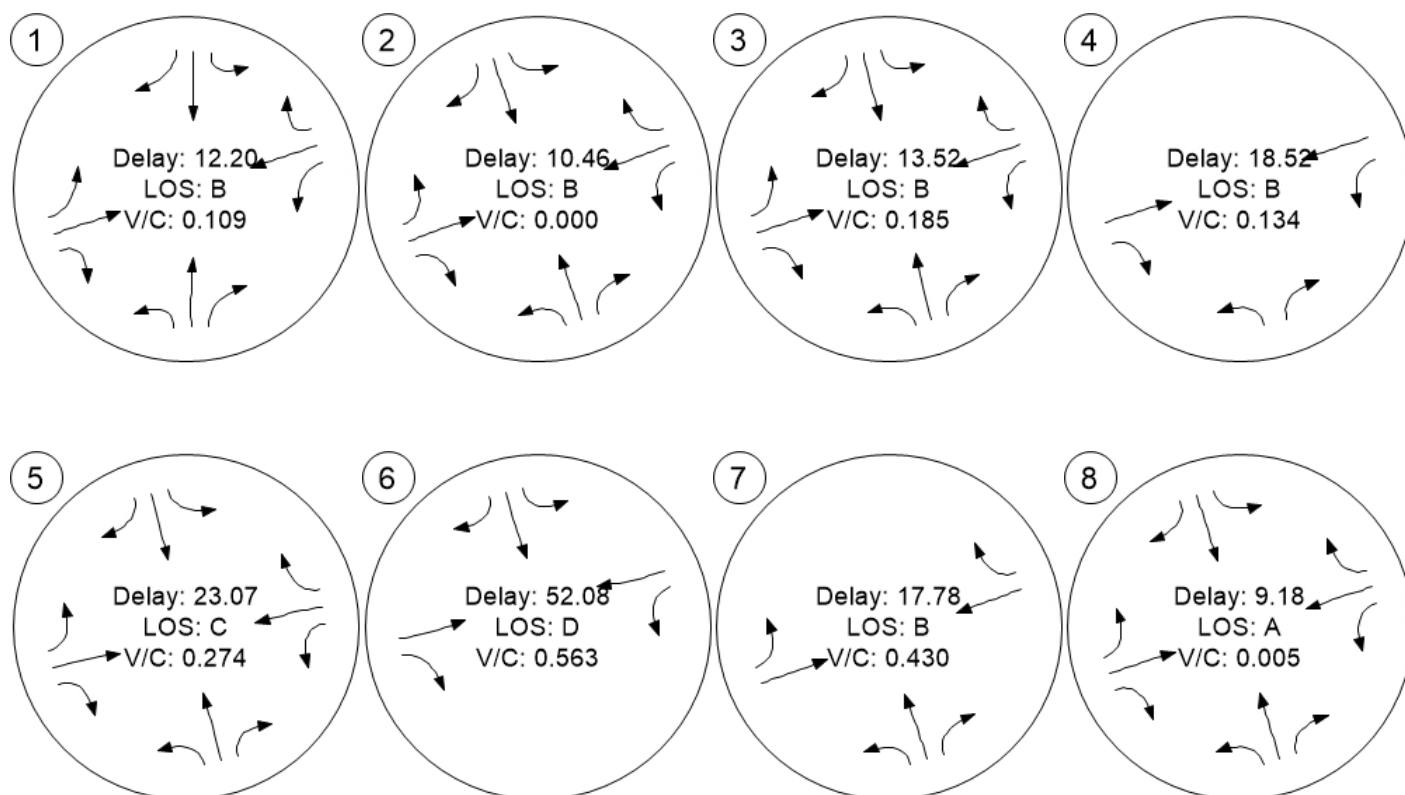


Traffic Volume - Future Total Volume

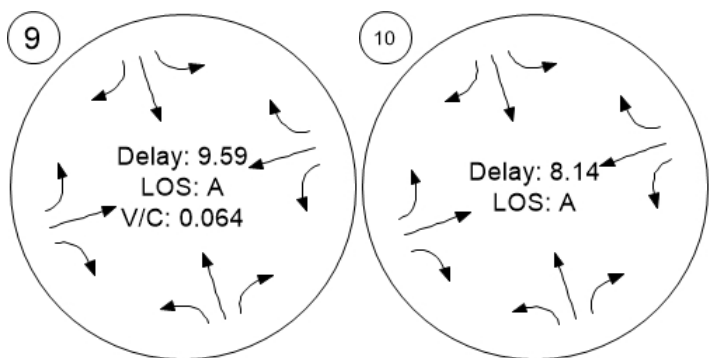




# Traffic Conditions



Traffic Conditions

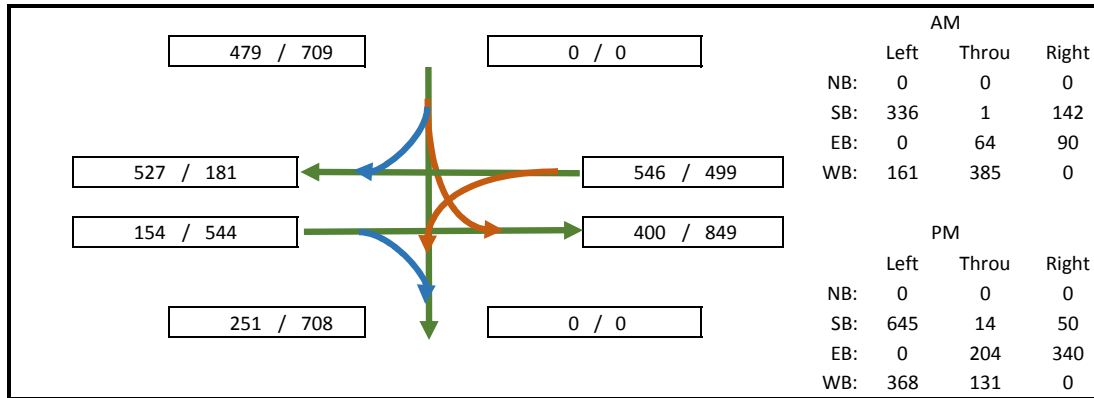


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

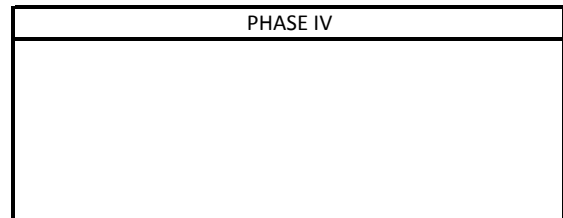
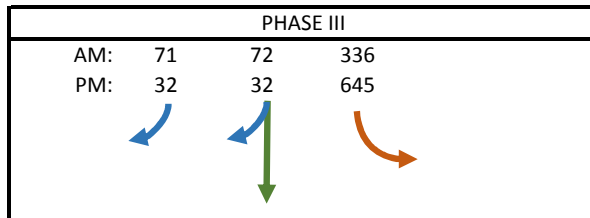
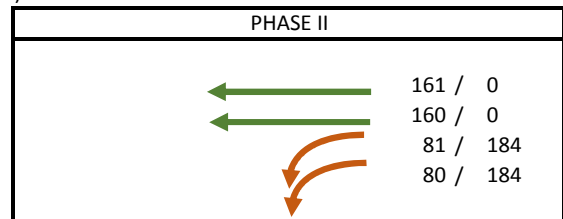
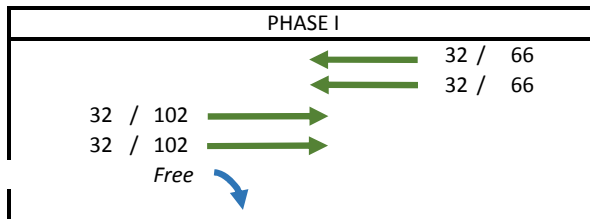
INTERSECTION: I-5 SB / Bay Marina Drive  
 ALTERNATIVE: Existing Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

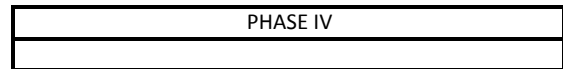
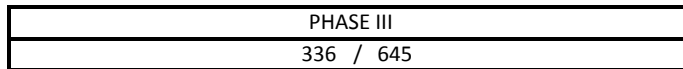
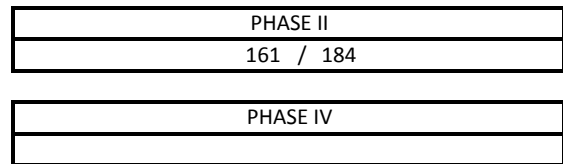
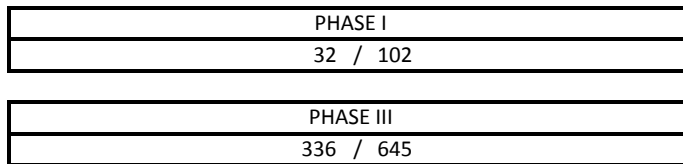
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

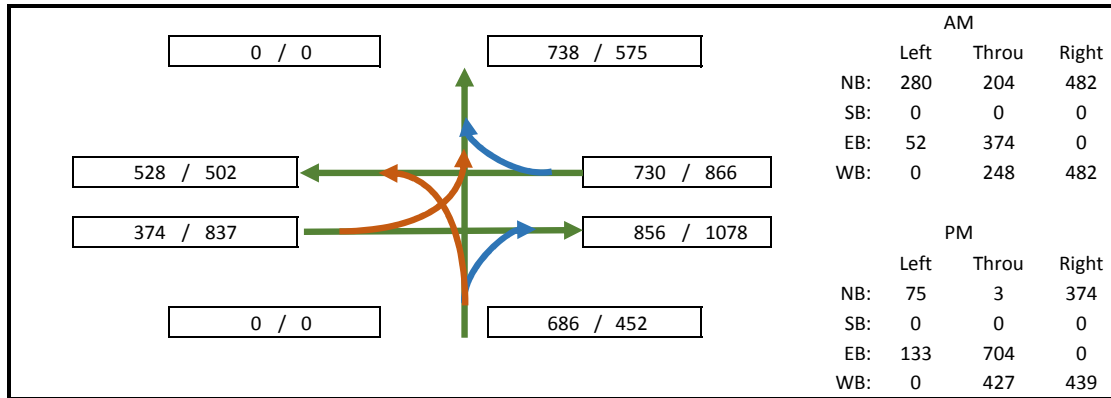
AM:	529	UNDER CAPACITY
PM:	931	UNDER CAPACITY

# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

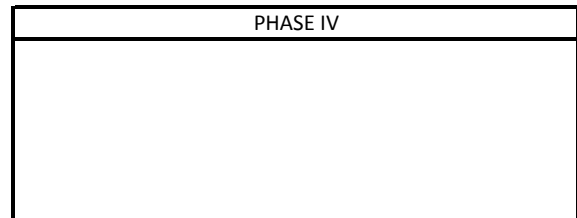
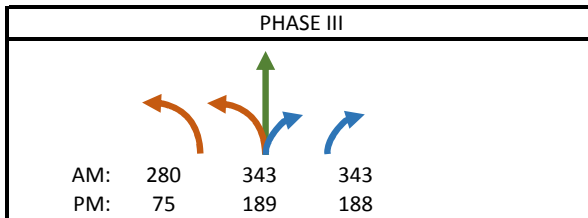
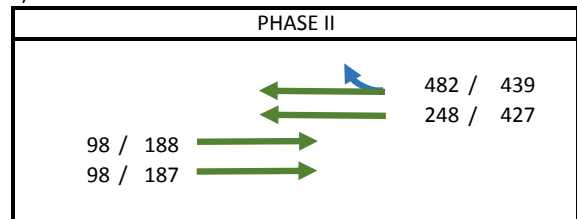
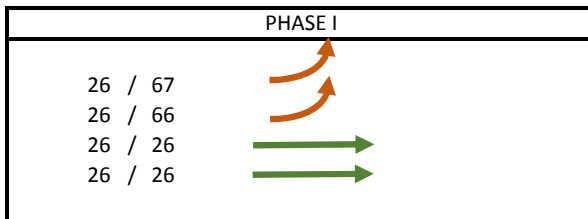
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Existing Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

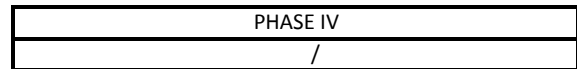
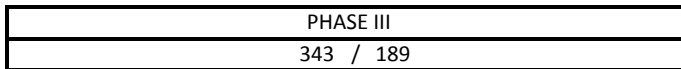
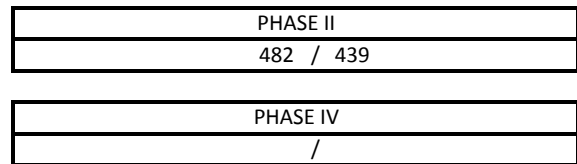
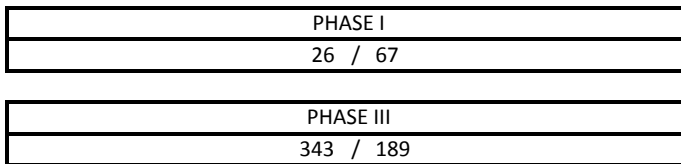
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

AM: 851	UNDER CAPACITY
PM: 695	UNDER CAPACITY

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## **Appendix D**

### **Caltrans 2014 Volumes**

2014 Traffic Volumes Book

Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
10	4	CAL	49.57	MEKO DRIVE	360	2500	1350	380	2600	1450
10	4	CAL	R 62.84	BIG MEADOWS	450	1950	1050	380	2100	990
10	4	CAL	R 65.865	CALAVERAS/ALPINE COUNTY LINE	290	1650	1150			
10	4	ALP	R 0	CALAVERAS/ALPINE COUNTY LINE				290	1650	1150
10	4	ALP	R 2.896	MOUNT REBA ROAD	290	1900	1250	270	1600	1200
10	4	ALP	3.89	LAKE ALPINE	270	1600	1200	220	1250	950
10	4	ALP	18.556	EBBETTS PASS SUMMIT (ELEV. 8730 FEET)	120	710	490	120	710	490
10	4	ALP	31.677	BULLION, JCT. RTE. 89	140	780	560			
11	5	SD	R 0.306	SAN DIEGO, CAMINO DE LA PLAZA, INTN'L BNDRY				6200	74000	73000
11	5	SD	R 0.878	SOUTH JCT. RTE. 805	6200	74000	73000	3300	38500	37000
11	5	SD	R 1.198	VIA SAN YSIDRO	3300	38500	37000	4350	53000	49000
11	5	SD	2.312	SAN DIEGO, DAIRY MART ROAD	4350	53000	49000	5400	66000	65000
11	5	SD	3.1	SAN DIEGO, JCT. RTE. 905	5400	66000	65000	7700	99000	98000
11	5	SD	4.042	SAN DIEGO, CORONADO AVENUE	8100	105000	104000	8900	117000	116000
11	5	SD	4.632	JCT. RTE. 75 WEST	8900	117000	116000	12300	151000	148000
11	5	SD	5.404	SAN DIEGO, MAIN STREET	12300	151000	148000	12800	152000	150000
11	5	SD	6.056	CHULA VISTA, PALOMAR STREET	12800	152000	150000	12500	148000	146000
11	5	SD	6.807	CHULA VISTA, L STREET	12500	148000	146000	13500	159000	158000
11	5	SD	7.3	CHULA VISTA, J STREET	13500	159000	158000	13500	163000	162000
11	5	SD	7.812	CHULA VISTA, H STREET	13500	163000	162000	13700	172000	166000
11	5	SD	8.562	E STREET	13700	172000	166000	10800	133000	127000
11	5	SD	9.396	JCT. RTE. 54	10800	133000	127000	15400	189000	183000
11	5	SD	R 10.042	NATIONAL CITY, 24TH STREET	15400	189000	183000	15300	187000	182000
11	5	SD	R 10.749	NATIONAL CITY, 9TH STREET	15300	187000	182000	14500	181000	173000
11	5	SD	R 11.129	8TH STREET	14500	181000	173000	15600	196000	187000
11	5	SD	R 11.66	SAN DIEGO, DIVISION/MAIN STREETS	15600	196000	187000	15700	195000	194000
11	5	SD	R 12.647	JCT. RTE. 15 NORTH	15700	195000	194000	12600	165000	157000
11	5	SD	R 13.386	SAN DIEGO, 28TH STREET	12600	165000	157000	12500	167000	161000
11	5	SD	R 14.077	SAN DIEGO, JCT. RTE. 75 SOUTH	12500	167000	161000	12700	170000	163000
11	5	SD	R 14.74	J STREET	12700	170000	163000	13800	180000	167000
11	5	SD	R 15.036	SAN DIEGO, JCT. RTE. 94	13800	180000	167000	16600	230000	215000

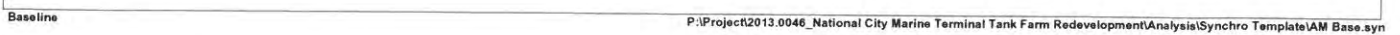


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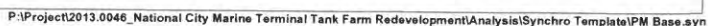
## **Appendix E**

### **Trip Redistribution Worksheets**

8/27/2014



8/27/2014



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**Appendix F**  
**Peak Hour Intersection LOS Worksheets, ILV, and Queueing Worksheet**  
**– Existing Plus Project Conditions**

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.091	12.7	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.044	12.0	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	NBR	0.208	9.3	A
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.260	9.5	A
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.374	15.7	B
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	SBR	0.294	23.0	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	NBR	0.548	72.1	E
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBT	0.092	9.5	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.0	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.091

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	17	24	9	2	37	37	21	31	8	5	80	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	33	9	2	37	37	21	31	8	5	80	4
Peak Hour Factor	0.7400	0.7400	0.7400	0.7600	0.7600	0.7600	0.7100	0.7100	0.7100	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	11	3	1	12	12	7	11	3	2	26	1
Total Analysis Volume [veh/h]	23	45	12	3	49	49	30	44	11	6	104	5
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.00	0.06	0.03	0.03
Total Saturation Flow Adjustment	0.68	0.95	0.71	0.91	0.79	0.88
s, saturation flow rate [veh/h]	1292	1804	1341	1723	2984	3331
c, Capacity [veh/h]	535	747	556	714	1236	1380
d1, Uniform Delay [s]	12.22	12.40	12.03	12.73	12.36	12.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.15	0.20	0.02	0.40	0.11	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.08	0.01	0.14	0.07	0.08
d, Delay for Lane Group [s/veh]	12.38	12.60	12.05	13.13	12.47	12.55
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.29	0.73	0.04	1.30	0.58	0.78
50th-Percentile Queue Length [ft]	7.36	18.37	0.94	32.59	14.39	19.55
95th-Percentile Queue Length [veh]	0.75	1.81	0.10	3.09	1.43	1.92
95th-Percentile Queue Length [ft]	18.72	45.25	2.44	77.26	35.85	48.00

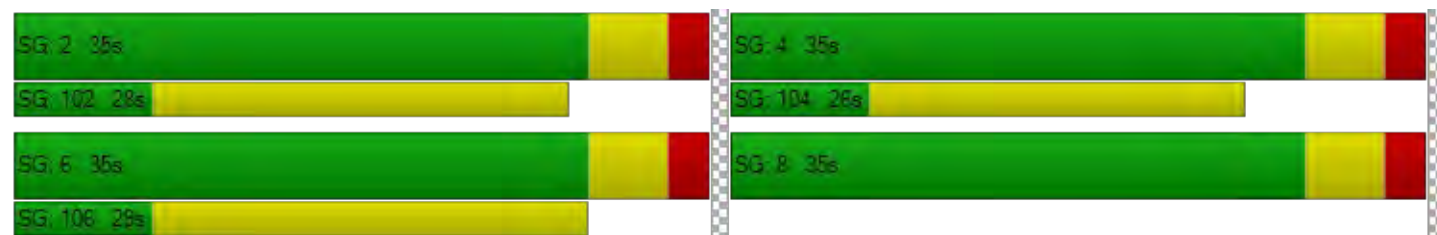


**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.38	12.60	12.60	12.05	13.13	13.13	12.47	12.47	12.47	12.55	12.55	12.55
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.53			13.10			12.47			12.55		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.68											
Intersection LOS	B											
Intersection V/C	0.091											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.0  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.044

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	21	0	3	43	119	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	3	127	199	37
Peak Hour Factor	0.8600	0.8600	0.6400	0.6400	0.6500	0.6500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	0	1	50	77	14
Total Analysis Volume [veh/h]	24	0	5	198	306	57
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.97	9.65	8.03	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.14	0.28	0.14	0.00	0.00
95th-Percentile Queue Length [ft]	3.48	3.48	6.97	3.48	0.00	0.00
d_A, Approach Delay [s/veh]	11.97		0.20		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	B					

### Intersection Level Of Service Report #3: Bay Marina Drive / Tidelands Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 9.3  
Level Of Service: A  
Volume to Capacity (v/c): 0.208

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	5	4	9	8	2	4	3	29	4	78	136	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	0	10	74	0	18	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	4	15	8	2	4	13	103	4	96	216	205
Peak Hour Factor	0.5600	0.5600	0.5600	0.7000	0.7000	0.7000	0.7300	0.7300	0.7300	0.7300	0.7300	0.7300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	7	3	1	1	4	35	1	33	74	70
Total Analysis Volume [veh/h]	9	7	27	11	3	6	18	141	5	132	296	281
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	117	0	0	117	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	111	111	111	111
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.74	0.74	0.74	0.74
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.01	0.01	0.02	0.04	0.11	0.18
Total Saturation Flow Adjustment	0.74	0.78	0.72	0.79	0.42	0.93	0.65	0.82
s, saturation flow rate [veh/h]	1400	1477	1369	1509	797	3528	1229	3123
c, Capacity [veh/h]	252	266	246	272	590	2611	909	2311
d1, Uniform Delay [s]	50.76	51.62	50.84	50.73	5.19	5.29	5.68	6.22
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.99	0.34	0.23	0.10	0.04	0.34	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.13	0.04	0.03	0.03	0.06	0.15	0.25
d, Delay for Lane Group [s/veh]	51.02	52.61	51.18	50.96	5.28	5.33	6.02	6.48
Lane Group LOS	D	D	D	D	A	A	A	A
Critical Lane Group	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.33	1.28	0.41	0.33	0.24	0.99	1.86	4.65
50th-Percentile Queue Length [ft]	8.31	32.09	10.19	8.30	5.88	24.68	46.52	116.15
95th-Percentile Queue Length [veh]	0.84	3.05	1.03	0.84	0.60	2.39	4.26	9.27
95th-Percentile Queue Length [ft]	21.08	76.16	25.69	21.03	15.01	59.74	106.50	231.70

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	51.02	52.61	52.61	51.18	50.96	50.96	5.28	5.33	5.33	6.02	6.48	6.48
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	52.28			51.08			5.32			6.39		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	9.27											
Intersection LOS	A											
Intersection V/C	0.208											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-








**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.260

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	1	6	52	1	7	591
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	80	0	0	107
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	132	1	7	698
Peak Hour Factor	0.9200	0.9200	0.9640	0.9200	0.9200	0.7710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	34	0	2	226
Total Analysis Volume [veh/h]	1	7	137	1	8	905
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	105	0	8	113
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	99	4	107
g / C, Green / Cycle	0.21	0.21	0.66	0.03	0.71
(v / s)_i Volume / Saturation Flow Rate	0.00	0.00	0.04	0.00	0.26
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3543	1770	3547
c, Capacity [veh/h]	366	327	2338	47	2530
d1, Uniform Delay [s]	47.23	47.41	9.02	71.38	8.27
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.12	0.05	7.63	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.02	0.06	0.17	0.36
d, Delay for Lane Group [s/veh]	47.24	47.53	9.07	79.01	8.67
Lane Group LOS	D	D	A	E	A
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.04	0.25	1.19	0.36	8.72
50th-Percentile Queue Length [ft]	0.88	6.22	29.66	9.12	218.02
95th-Percentile Queue Length [veh]	0.09	0.63	2.83	0.92	15.48
95th-Percentile Queue Length [ft]	2.29	15.87	70.86	23.08	386.94

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	47.24	47.53	9.07	9.07	79.01	8.67
Movement LOS	D	D	A	A	E	A
d_A, Approach Delay [s/veh]	47.50		9.07		9.29	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	9.55					
Intersection LOS	A					
Intersection V/C	0.260					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 15.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.374

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	4	0	20	27	1	8	12	149	1	6	588	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	20	27	1	8	12	229	1	6	695	232
Peak Hour Factor	0.5500	0.5500	0.5500	0.6900	0.6900	0.6900	0.8500	0.8500	0.8500	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	9	10	0	3	4	67	0	2	209	70
Total Analysis Volume [veh/h]	7	0	36	39	1	12	14	269	1	7	837	280
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	16	0	0	19	0	9	106	0	9	106	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	15	5	102	5	102
g / C, Green / Cycle	0.08	0.08	0.10	0.03	0.68	0.03	0.68
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.02	0.01	0.05	0.00	0.33
Total Saturation Flow Adjustment	0.93	0.83	0.87	0.93	0.89	0.93	0.90
s, saturation flow rate [veh/h]	1770	1583	3300	1770	5071	1770	3413
c, Capacity [veh/h]	142	127	330	59	3448	59	2321
d1, Uniform Delay [s]	63.73	64.96	61.72	70.64	8.11	70.36	11.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.66	5.55	1.02	9.25	0.04	4.07	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.05	0.28	0.16	0.24	0.08	0.12	0.48
d, Delay for Lane Group [s/veh]	64.39	70.50	62.74	79.89	8.16	74.43	12.13
Lane Group LOS	E	E	E	E	A	E	B
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.29	1.56	1.13	0.64	1.56	0.31	13.33
50th-Percentile Queue Length [ft]	7.27	39.07	28.24	15.94	38.98	7.83	333.27
95th-Percentile Queue Length [veh]	0.74	3.64	2.71	1.58	3.64	0.80	22.26
95th-Percentile Queue Length [ft]	18.50	91.09	67.72	39.54	90.91	19.89	556.40

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	64.39	70.50	70.50	62.74	62.74	62.74	79.89	8.16	8.16	74.43	12.13	12.13
Movement LOS	E	E	E	E	E	E	E	A	A	E	B	B
d_A, Approach Delay [s/veh]	69.51			62.74			11.69			12.52		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	15.73											
Intersection LOS	B											
Intersection V/C	0.374											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.0  
Level Of Service: C  
Volume to Capacity (v/c): 0.294

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	336	1	142	0	64	90	161	385	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	37	0	35	45	0	70	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	336	1	179	0	99	135	161	455	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800	1.0000	0.8600	0.8600	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	57	0	29	39	43	122	0
Total Analysis Volume [veh/h]	0	0	0	431	1	229	0	115	157	173	489	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	20	0	0	40	0	20	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		15	15	35	35	16	55
g / C, Green / Cycle		0.19	0.19	0.44	0.44	0.20	0.69
(v / s)_i Volume / Saturation Flow Rate		0.13	0.14	0.03	0.10	0.05	0.14
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3378	1583	3547	1583	3437	3547
c, Capacity [veh/h]		650	305	1569	701	679	2456
d1, Uniform Delay [s]		29.91	30.49	12.85	13.80	27.13	4.39
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.29	15.65	0.09	0.74	0.90	0.18
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.66	0.75	0.07	0.22	0.25	0.20
d, Delay for Lane Group [s/veh]		35.20	46.15	12.94	14.54	28.03	4.57
Lane Group LOS		D	D	B	B	C	A
Critical Lane Group		no	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]		5.59	6.03	0.85	2.40	1.84	2.35
50th-Percentile Queue Length [ft]		139.76	150.73	21.15	59.88	46.11	58.68
95th-Percentile Queue Length [veh]		10.77	11.45	2.07	5.32	4.23	5.22
95th-Percentile Queue Length [ft]		269.30	286.30	51.69	132.89	105.66	130.59

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	35.20	35.20	46.15	0.00	12.94	14.54	28.03	4.57	0.00
Movement LOS				D	D	D		B	B	C	A	
d_A, Approach Delay [s/veh]	0.00			38.99			13.86			10.70		
Approach LOS	A			D			B			B		
d_I, Intersection Delay [s/veh]	22.96											
Intersection LOS	C											
Intersection V/C	0.294											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 72.1  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.548

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	280	204	482	0	0	0	52	374	0	0	248	428
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	0	0	0	0	0	28	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	50	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	343	204	432	0	0	0	80	381	0	0	255	428
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.8500	0.8500	1.0000	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	57	120	0	0	0	24	112	0	0	68	114
Total Analysis Volume [veh/h]	381	227	480	0	0	0	94	448	0	0	271	455
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	20	0	0	0	0	20	60	0	0	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	15		16	55	35	35
g / C, Green / Cycle	0.19		0.20	0.69	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.23		0.03	0.13	0.15	0.29
Total Saturation Flow Adjustment	0.82		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4657		3437	3547	1863	1583
c, Capacity [veh/h]	896		679	2456	824	701
d1, Uniform Delay [s]	32.30		26.48	4.33	14.55	17.45
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	106.47		0.43	0.16	1.07	4.62
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	1.21		0.14	0.18	0.33	0.65
d, Delay for Lane Group [s/veh]	138.77		26.91	4.49	15.61	22.07
Lane Group LOS	F		C	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	19.86		0.97	2.12	4.38	9.36
50th-Percentile Queue Length [ft]	496.55		24.21	53.00	109.40	234.01
95th-Percentile Queue Length [veh]	32.15		2.35	4.78	8.83	16.42
95th-Percentile Queue Length [ft]	803.83		58.68	119.49	220.64	410.41

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	138.77	138.77	138.77	0.00	0.00	0.00	26.91	4.49	0.00	0.00	15.61	22.07
Movement LOS	F	F	F				C	A			B	C
d_A, Approach Delay [s/veh]	138.77			0.00			8.38			19.66		
Approach LOS	F			A			A			B		
d_I, Intersection Delay [s/veh]	72.07											
Intersection LOS	E											
Intersection V/C	0.548											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.092

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	0	0	46	12	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	6	12	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	11	0	6	58	12	0	0	0	0	0	3
Peak Hour Factor	0.6700	0.6700	0.6700	0.7100	0.7100	0.7100	0.2500	0.2500	0.2500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	2	20	4	0	0	0	0	0	1
Total Analysis Volume [veh/h]	0	16	0	8	82	17	0	0	0	0	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.02	0.00	0.01	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.22	9.11	8.39	9.12	9.53	8.83	7.22	0.00	0.00	7.22	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.05	0.05	0.05	0.39	0.39	0.39	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.37	1.37	1.37	9.75	9.75	9.75	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.11			9.39			2.41			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	9.13											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.0  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	3	0	5	4	22	34	43	0	0	11	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	0	6	3	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	0	11	4	28	37	74	0	0	11	3
Peak Hour Factor	0.3800	0.3800	0.9200	0.9200	0.7800	0.7800	0.6200	0.9200	0.6200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	3	1	9	15	20	0	0	3	1
Total Analysis Volume [veh/h]	0	8	0	12	5	36	60	80	0	0	12	3
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.03	0.08	0.13	0.29	0.35	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	0.85	1.93	3.34	7.14	8.77	0.00	0.00	0.79	0.74
Approach Delay [s/veh]	8.12	7.48		8.17			7.59		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	7.96								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	17	33	9	2	37	37	21	31	8	5	80	4	284

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	21	0	3	127	199	37	387

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	5	4	15	8	2	4	13	103	4	96	216	205	675

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	1	6	132	1	7	698	845

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	4	0	20	27	1	8	12	229	1	6	695	232	1235

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	336	1	179	99	135	161	455	1366

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	343	204	482	80	381	255	428	2173

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	0	11	0	6	58	12	0	0	0	0	0	3	90

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	3	0	11	4	28	37	74	0	0	11	3	171

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	17	24	9	2	37	37	21	31	8	5	80	4	275
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>17</b>	<b>33</b>	<b>9</b>	<b>2</b>	<b>37</b>	<b>37</b>	<b>21</b>	<b>31</b>	<b>8</b>	<b>5</b>	<b>80</b>	<b>4</b>	<b>284</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	21	0	3	43	119	37	223
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>21</b>	<b>0</b>	<b>3</b>	<b>127</b>	<b>199</b>	<b>37</b>	<b>387</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	5	4	9	8	2	4	3	29	4	78	136	196	478
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	0	0	0	10	74	0	18	80	9	197
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>4</b>	<b>15</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>13</b>	<b>103</b>	<b>4</b>	<b>96</b>	<b>216</b>	<b>205</b>	<b>675</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	1	6	52	1	7	591	658
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	80	0	0	107	187
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>6</b>	<b>132</b>	<b>1</b>	<b>7</b>	<b>698</b>	<b>845</b>



ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	4	0	20	27	1	8	12	149	1	6	588	232	1048
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	80	0	0	107	0	187
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>4</b>	<b>0</b>	<b>20</b>	<b>27</b>	<b>1</b>	<b>8</b>	<b>12</b>	<b>229</b>	<b>1</b>	<b>6</b>	<b>695</b>	<b>232</b>	<b>1235</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	336	1	142	64	90	161	385	1179
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	37	35	45	0	70	187
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>336</b>	<b>1</b>	<b>179</b>	<b>99</b>	<b>135</b>	<b>161</b>	<b>455</b>	<b>1366</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	280	204	482	52	374	248	428	2068
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	63	0	0	28	7	7	0	105
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>343</b>	<b>204</b>	<b>482</b>	<b>80</b>	<b>381</b>	<b>255</b>	<b>428</b>	<b>2173</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tideland Avenue	Final Base	0	8	0	0	46	12	0	0	0	0	0	0	66
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	3	0	6	12	0	0	0	0	0	0	3	24
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>6</b>	<b>58</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>90</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	3	0	5	4	22	34	43	0	0	11	3	125
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	6	0	6	3	31	0	0	0	0	46
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>11</b>	<b>4</b>	<b>28</b>	<b>37</b>	<b>74</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>3</b>	<b>171</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	368	720	192	48	784	784	480	704	176	96	1664	80	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	384	0	80	3168	4896	912	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	6	0	0	0	10	74	0	18	80	9	
Total Analysis Volume	144	112	432	176	48	96	288	2256	80	2112	4736	4496	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	0	80	0	0	107	
Total Analysis Volume	16	112	2192	16	128	14480	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	80	0	0	107	0	
Total Analysis Volume	112	0	576	624	16	192	224	4304	16	112	13392	4480	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	37	35	45	0	70	
Total Analysis Volume	6896	16	3664	1840	2512	2768	7824	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	63	0	0	28	7	7	0	
Total Analysis Volume	6096	3632	7680	1504	7168	4336	7280	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	3	0	0	3	0	0	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	3	0	0	0	0	0	0	0	3
28: 028-007	0	0	0	0	3	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	0	3	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	3	0	0	0	0	0	0	0	3	6
33: 027-042	0	0	0	3	0	0	0	0	0	0	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	6	12	0	0	0	0	0	0	3	
Total Analysis Volume	0	256	0	128	1312	272	0	0	0	0	0	48	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	3	3	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	3	0	0	0	0	0	0	3
28: 028-007	0	0	0	3	0	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	3	0	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	6	0	6	3	31	0	0	0	0	
Total Analysis Volume	0	128	0	192	80	576	960	1280	0	0	192	48	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
32: 027-029	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	100.02%	100.00%	99.99%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	2.8%	1.40%
19: 025-010 B	0	0	0%	0	0	2.8%	1.40%
20: 025-010 C	0	0	0%	0	0	2.8%	1.40%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	88.75%	0	0	66.36%	77.57%
23: NCTF Trucks	0	0	3.75%	0	0	2.8%	3.28%
24: 027-016	0	0	3.75%	0	0	2.8%	3.28%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	2.8%	1.40%
28: 028-007	0	0	0%	0	0	2.8%	1.40%
29: 025-010 D	0	0	0%	0	0	2.8%	1.40%
32: 027-029	0	0	3.75%	0	0	2.8%	3.28%
33: 027-042	0	0	0%	0	0	2.8%	1.40%
34: 026-009 & 027-011	0	0	0%	0	0	2.8%	1.40%
35: 027-014 & 027-016	0	0	0%	0	0	2.8%	1.40%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	88.75%	0	0	66.36%	0	77.57%
23: NCTF Trucks	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
24: 027-016	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
32: 027-029	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.7%	0%	0%	0	2.86%	1.39%
19: 025-010 B	0	0	2.7%	0%	0%	0	2.86%	1.39%
20: 025-010 C	0	0	2.7%	0%	0%	0	2.86%	1.39%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	67.57%	91.43%	86.67%	0	65.71%	77.85%
23: NCTF Trucks	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
24: 027-016	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.7%	0%	0%	0	2.86%	1.39%
28: 028-007	0	0	2.7%	0%	0%	0	2.86%	1.39%
29: 025-010 D	0	0	2.7%	0%	0%	0	2.86%	1.39%
32: 027-029	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
33: 027-042	0	0	2.7%	0%	0%	0	2.86%	1.39%
34: 026-009 & 027-011	0	0	2.7%	0%	0%	0	2.86%	1.39%
35: 027-014 & 027-016	0	0	2.7%	0%	0%	0	2.86%	1.39%
Total	0.00%	0.00%	99.97%	100.01%	99.99%	0.00%	100.03%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	3.17%	0	0	0%	0%	0%	0	0.79%
19: 025-010 B	3.17%	0	0	0%	0%	0%	0	0.79%
20: 025-010 C	3.17%	0	0	0%	0%	0%	0	0.79%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	61.9%	0	0	89.29%	100%	100%	0	87.81%
23: NCTF Trucks	3.17%	0	0	3.57%	0%	0%	0	1.69%
24: 027-016	3.17%	0	0	3.57%	0%	0%	0	1.69%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	3.17%	0	0	0%	0%	0%	0	0.79%
28: 028-007	3.17%	0	0	0%	0%	0%	0	0.79%
29: 025-010 D	3.17%	0	0	0%	0%	0%	0	0.79%
32: 027-029	3.17%	0	0	3.57%	0%	0%	0	1.69%
33: 027-042	3.17%	0	0	0%	0%	0%	0	0.79%
34: 026-009 & 027-011	3.17%	0	0	0%	0%	0%	0	0.79%
35: 027-014 & 027-016	3.17%	0	0	0%	0%	0%	0	0.79%
Total	99.94%	0.00%	0.00%	100.00%	100.00%	100.00%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	100%	0	0%	25%	0	0	0	0	0	0	0%	31.25%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
28: 028-007	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
29: 025-010 D	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
32: 027-029	0	0%	0	50%	0%	0	0	0	0	0	0	100%	37.50%
33: 027-042	0	0%	0	50%	0%	0	0	0	0	0	0	0%	12.50%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	100.00%	0.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	50%	100%	0%	0	0	0	0%	37.50%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	100%	0	0	0	0%	25.00%
27: 028-003	0	0	0	0%	0	50%	0%	0%	0	0	0	0%	12.50%
28: 028-007	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
29: 025-010 D	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	5.56%	0	0	0%	0	0	0	0	0	0	0	0.09%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	11.11%	0	0	0%	0	0	0	0	0	0	0	0.18%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	25.18%	18.39%	0	0.46%
23: NCTF Trucks	0	0	0	1.06%	0.78%	0	0.02%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.55%	0%	0	0.04%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	0.78%	0	0.01%
35: 027-014 & 027-016	0	0	0	0%	0.78%	0	0.01%
Total	0.00%	0.00%	0.00%	29.79%	20.73%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	1.03%	0.01%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	1.03%	0.01%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	1.03%	0.01%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	33.02%	0	0%	18.88%	0%	0.35%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.4%	0	0%	0.8%	0%	0.01%
24: 027-016	0	0	9.09%	0%	0	0	0%	0%	0	2%	0%	0%	0.07%
25: Vehicle Movement External	0	0	0%	0%	0	0	35.71%	0%	0	0%	0%	0%	0.24%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	2%	0%	0%	0.01%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	2%	0%	0%	0.01%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	2%	0%	0%	0.01%
32: 027-029	0	0	9.09%	0%	0	0	0%	0%	0	2%	0%	0%	0.07%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	2%	0%	0%	0.01%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	0.8%	0%	0.01%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	0.8%	0%	0.01%
Total	0.00%	0.00%	18.18%	0.00%	0.00%	0.00%	35.71%	34.42%	0.00%	12.00%	21.28%	3.09%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	0.3%	0.00%
19: 025-010 B	0	0	0%	0	0	0.3%	0.00%
20: 025-010 C	0	0	0%	0	0	0.3%	0.00%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	32.72%	0	0	7.02%	0.23%
23: NCTF Trucks	0	0	1.38%	0	0	0.3%	0.01%
24: 027-016	0	0	1.38%	0	0	0.3%	0.01%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	0.3%	0.00%
28: 028-007	0	0	0%	0	0	0.3%	0.00%
29: 025-010 D	0	0	0%	0	0	0.3%	0.00%
32: 027-029	0	0	1.38%	0	0	0.3%	0.01%
33: 027-042	0	0	0%	0	0	0.3%	0.00%
34: 026-009 & 027-011	0	0	0%	0	0	0.3%	0.00%
35: 027-014 & 027-016	0	0	0%	0	0	0.3%	0.00%
Total	0.00%	0.00%	36.86%	0.00%	0.00%	10.62%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	20.34%	0	0	7.52%	0	0.12%
23: NCTF Trucks	0	0	0	0	0	0	0	0.86%	0	0	0.32%	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0.86%	0	0	0.32%	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0.86%	0	0	0.32%	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.32%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	22.92%	0.00%	0.00%	11.36%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.38%	0%	0%	0	0.36%	0.00%
19: 025-010 B	0	0	0.38%	0%	0%	0	0.36%	0.00%
20: 025-010 C	0	0	0.38%	0%	0%	0	0.36%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	9.4%	21.33%	19.31%	0	8.23%	0.23%
23: NCTF Trucks	0	0	0.38%	0.67%	0.99%	0	0.36%	0.01%
24: 027-016	0	0	0.38%	0.67%	0.99%	0	0.36%	0.01%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.38%	0%	0%	0	0.36%	0.00%
28: 028-007	0	0	0.38%	0%	0%	0	0.36%	0.00%
29: 025-010 D	0	0	0.38%	0%	0%	0	0.36%	0.00%
32: 027-029	0	0	0.38%	0.67%	0.99%	0	0.36%	0.01%
33: 027-042	0	0	0.38%	0%	0%	0	0.36%	0.00%
34: 026-009 & 027-011	0	0	0.38%	0%	0%	0	0.36%	0.00%
35: 027-014 & 027-016	0	0	0.38%	0%	0%	0	0.36%	0.00%
Total	0.00%	0.00%	13.96%	23.34%	22.28%	0.00%	12.55%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.45%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.45%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.45%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	8.78%	0	0	20.49%	1.54%	2.52%	0	0.09%
23: NCTF Trucks	0.45%	0	0	0.82%	0%	0%	0	0.00%
24: 027-016	0.45%	0	0	0.82%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.45%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.45%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.45%	0	0	0%	0%	0%	0	0.00%
32: 027-029	0.45%	0	0	0.82%	0%	0%	0	0.00%
33: 027-042	0.45%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.45%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.45%	0	0	0%	0%	0%	0	0.00%
Total	14.18%	0.00%	0.00%	22.95%	1.54%	2.52%	0.00%	



Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	15.79%	0	0%	3.19%	0	0	0	0	0	0	0%	0.94%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	3.19%	0	0	0	0	0	0	0%	0.16%
28: 028-007	0	0%	0	0%	3.19%	0	0	0	0	0	0	0%	0.16%
29: 025-010 D	0	0%	0	0%	3.19%	0	0	0	0	0	0	0%	0.16%
32: 027-029	0	0%	0	21.43%	0%	0	0	0	0	0	0	50%	3.54%
33: 027-042	0	0%	0	21.43%	0%	0	0	0	0	0	0	0%	1.06%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	15.79%	0.00%	42.86%	12.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	7.14%	4.76%	0%	0	0	0	0%	0.34%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	27.93%	0	0	0	0%	0.81%
27: 028-003	0	0	0	0%	0	7.14%	0%	0%	0	0	0	0%	0.21%
28: 028-007	0	0	0	16.67%	0	0%	0%	0%	0	0	0	0%	0.48%
29: 025-010 D	0	0	0	16.67%	0	0%	0%	0%	0	0	0	0%	0.48%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	33.34%	0.00%	14.28%	4.76%	27.93%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	236	130	21
2	227	125	20
3	222	122	20
4	189	104	17
5	179	99	16
6	160	88	14
7	149	82	13
8	142	78	13
9	113	62	10
10	106	59	9
11	106	59	9
12	101	56	9
13	92	51	8
14	85	47	8
15	85	47	8
16	83	46	7
17	47	26	4
18	26	14	2
19	24	13	2
20	9	5	1
21	7	4	1
22	7	4	1
23	5	3	0
24	5	3	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	366	1	21	No	No	No	No	No	No	No	No	No	No
2	4	352	1	20	No	No	No	No	No	No	No	No	No	No
3	4	344	1	20	No	No	No	No	No	No	No	No	No	No
4	4	293	1	17	No	No	No	No	No	No	No	No	No	No
5	4	278	1	16	No	No	No	No	No	No	No	No	No	No
6	4	248	1	14	No	No	No	No	No	No	No	No	No	No
7	4	231	1	13	No	No	No	No	No	No	No	No	No	No
8	4	220	1	13	No	No	No	No	No	No	No	No	No	No
9	4	175	1	10	No	No	No	No	No	No	No	No	No	No
10	4	165	1	9	No	No	No	No	No	No	No	No	No	No
11	4	165	1	9	No	No	No	No	No	No	No	No	No	No
12	4	157	1	9	No	No	No	No	No	No	No	No	No	No
13	4	143	1	8	No	No	No	No	No	No	No	No	No	No
14	4	132	1	8	No	No	No	No	No	No	No	No	No	No
15	4	132	1	8	No	No	No	No	No	No	No	No	No	No
16	4	129	1	7	No	No	No	No	No	No	No	No	No	No
17	4	73	1	4	No	No	No	No	No	No	No	No	No	No
18	4	40	1	2	No	No	No	No	No	No	No	No	No	No
19	4	37	1	2	No	No	No	No	No	No	No	No	No	No
20	4	14	1	1	No	No	No	No	No	No	No	No	No	No
21	4	11	1	1	No	No	No	No	No	No	No	No	No	No
22	4	11	1	1	No	No	No	No	No	No	No	No	No	No
23	4	8	1	0	No	No	No	No	No	No	No	No	No	No
24	4	8	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	12
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	21
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	387
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	3	0	11	76
2	3	0	11	73
3	3	0	10	71
4	2	0	9	61
5	2	0	8	58
6	2	0	7	52
7	2	0	7	48
8	2	0	7	46
9	1	0	5	36
10	1	0	5	34
11	1	0	5	34
12	1	0	5	33
13	1	0	4	30
14	1	0	4	27
15	1	0	4	27
16	1	0	4	27
17	1	0	2	15
18	0	0	1	8
19	0	0	1	8
20	0	0	0	3
21	0	0	0	2
22	0	0	0	2
23	0	0	0	2
24	0	0	0	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	3	2	87	No	No	No	No	No	No	No	No	No	No
2	2	3	2	84	No	No	No	No	No	No	No	No	No	No
3	2	3	2	81	No	No	No	No	No	No	No	No	No	No
4	2	2	2	70	No	No	No	No	No	No	No	No	No	No
5	2	2	2	66	No	No	No	No	No	No	No	No	No	No
6	2	2	2	59	No	No	No	No	No	No	No	No	No	No
7	2	2	2	55	No	No	No	No	No	No	No	No	No	No
8	2	2	2	53	No	No	No	No	No	No	No	No	No	No
9	2	1	2	41	No	No	No	No	No	No	No	No	No	No
10	2	1	2	39	No	No	No	No	No	No	No	No	No	No
11	2	1	2	39	No	No	No	No	No	No	No	No	No	No
12	2	1	2	38	No	No	No	No	No	No	No	No	No	No
13	2	1	2	34	No	No	No	No	No	No	No	No	No	No
14	2	1	2	31	No	No	No	No	No	No	No	No	No	No
15	2	1	2	31	No	No	No	No	No	No	No	No	No	No
16	2	1	2	31	No	No	No	No	No	No	No	No	No	No
17	2	1	2	17	No	No	No	No	No	No	No	No	No	No
18	2	0	2	9	No	No	No	No	No	No	No	No	No	No
19	2	0	2	9	No	No	No	No	No	No	No	No	No	No
20	2	0	2	3	No	No	No	No	No	No	No	No	No	No
21	2	0	2	2	No	No	No	No	No	No	No	No	No	No
22	2	0	2	2	No	No	No	No	No	No	No	No	No	No
23	2	0	2	2	No	No	No	No	No	No	No	No	No	No
24	2	0	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1	9.4
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	11	76
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	90	90
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	14	111	3	43
2	13	107	3	41
3	13	104	3	40
4	11	89	2	34
5	11	84	2	33
6	10	75	2	29
7	9	70	2	27
8	8	67	2	26
9	7	53	1	21
10	6	50	1	19
11	6	50	1	19
12	6	48	1	18
13	5	43	1	17
14	5	40	1	15
15	5	40	1	15
16	5	39	1	15
17	3	22	1	9
18	2	12	0	5
19	1	11	0	4
20	1	4	0	2
21	0	3	0	1
22	0	3	0	1
23	0	2	0	1
24	0	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	125	3	46	No	No	No	No	No	No	No	No	No	No
2	6	120	3	44	No	No	No	No	No	No	No	No	No	No
3	6	117	3	43	No	No	No	No	No	No	No	No	No	No
4	6	100	3	36	No	No	No	No	No	No	No	No	No	No
5	6	95	3	35	No	No	No	No	No	No	No	No	No	No
6	6	85	3	31	No	No	No	No	No	No	No	No	No	No
7	6	79	3	29	No	No	No	No	No	No	No	No	No	No
8	6	75	3	28	No	No	No	No	No	No	No	No	No	No
9	6	60	3	22	No	No	No	No	No	No	No	No	No	No
10	6	56	3	20	No	No	No	No	No	No	No	No	No	No
11	6	56	3	20	No	No	No	No	No	No	No	No	No	No
12	6	54	3	19	No	No	No	No	No	No	No	No	No	No
13	6	48	3	18	No	No	No	No	No	No	No	No	No	No
14	6	45	3	16	No	No	No	No	No	No	No	No	No	No
15	6	45	3	16	No	No	No	No	No	No	No	No	No	No
16	6	44	3	16	No	No	No	No	No	No	No	No	No	No
17	6	25	3	10	No	No	No	No	No	No	No	No	No	No
18	6	14	3	5	No	No	No	No	No	No	No	No	No	No
19	6	12	3	4	No	No	No	No	No	No	No	No	No	No
20	6	5	3	2	No	No	No	No	No	No	No	No	No	No
21	6	3	3	1	No	No	No	No	No	No	No	No	No	No
22	6	3	3	1	No	No	No	No	No	No	No	No	No	No
23	6	2	3	1	No	No	No	No	No	No	No	No	No	No
24	6	2	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.1	7.5
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:05
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	3	43
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	171	171
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...\3. Existing + Project AM.pdf

4/27/2016

## Trip generation summary

## Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.22
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.22
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.22
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	57.96
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.45
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.45
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	4.08
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	19.59
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.22
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.22
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.22
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.45
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.22
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.22
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.22
Added Trips Total								107	138	245	100.00



## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated).vistr

Scenario 3: Existing + Project AM

Report File: P:\...3. Existing + Project AM.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0

34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0

27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 28: 028-007			
	To 028-007:		From 028-007:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0

Zone / Gate	Zone 29: 025-010 D			
	To 025-010 D:		From 025-010 D:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0

20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

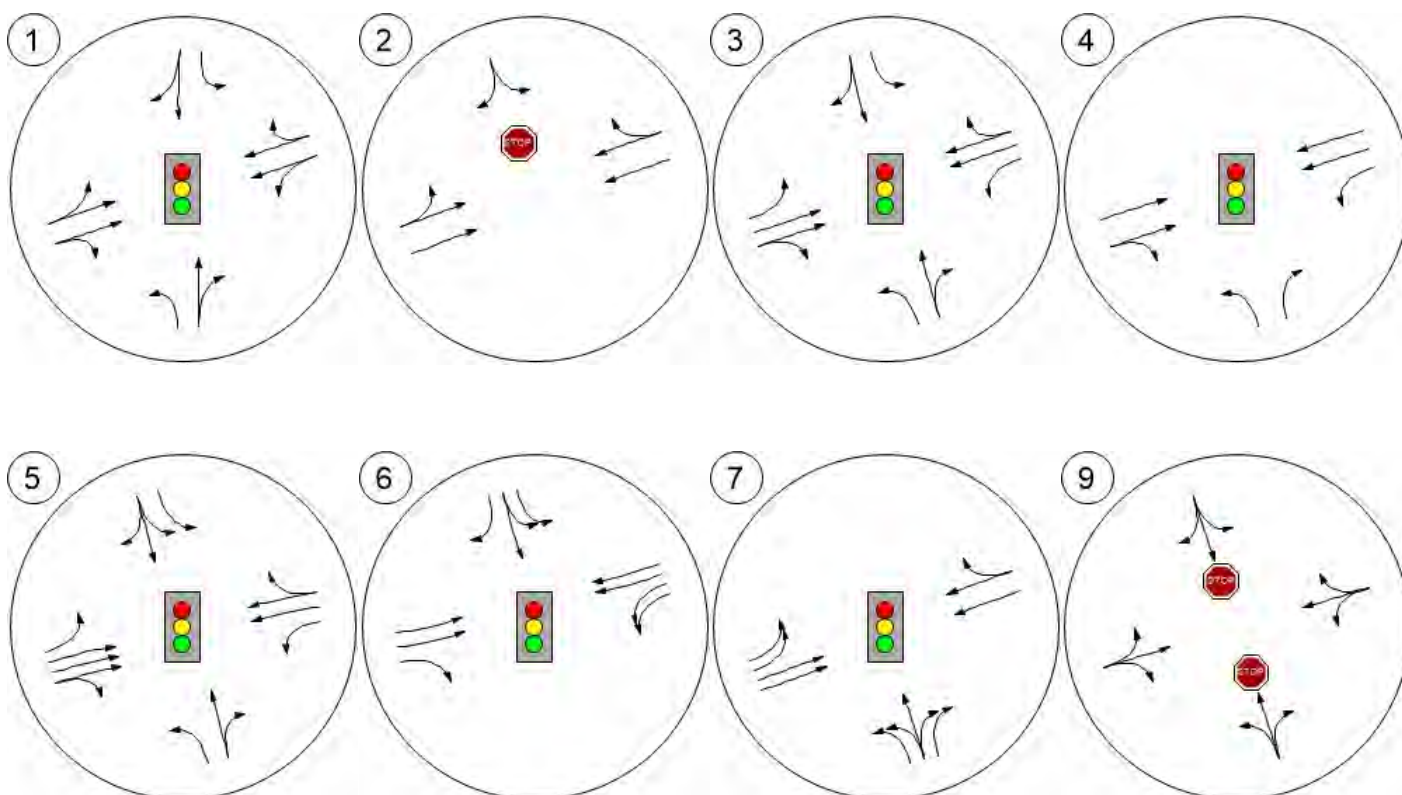


Study Intersections

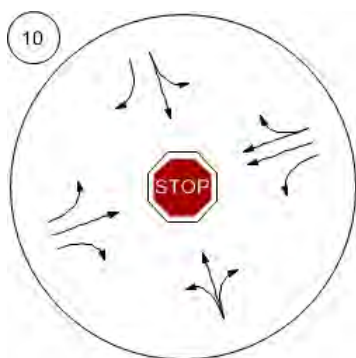




# Lane Configuration and Traffic Control

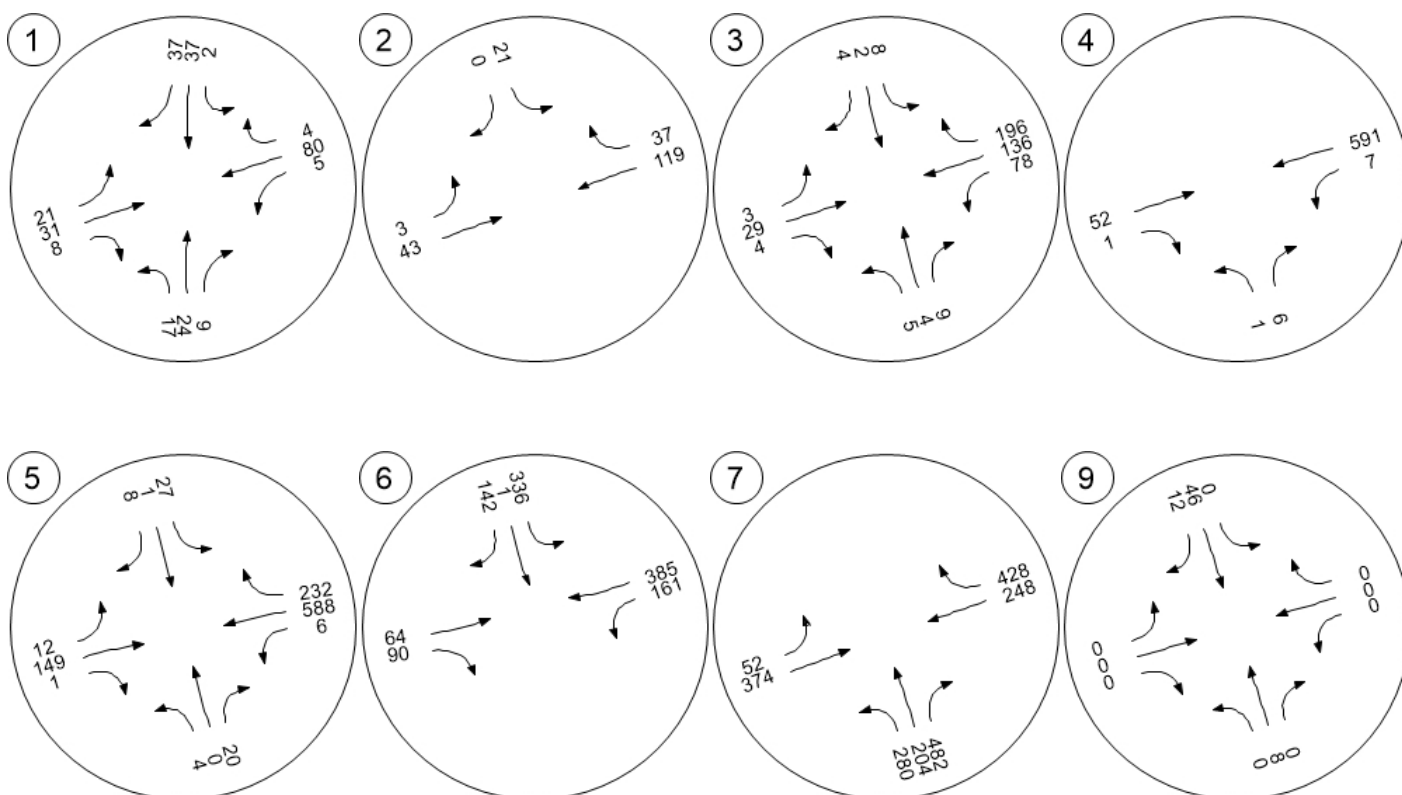


## Lane Configuration and Traffic Control

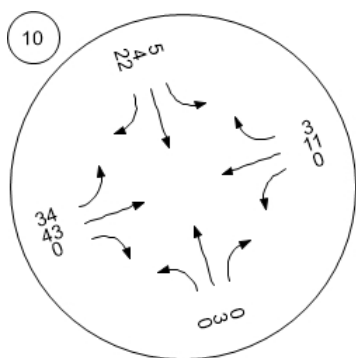




Traffic Volume - Base Volume

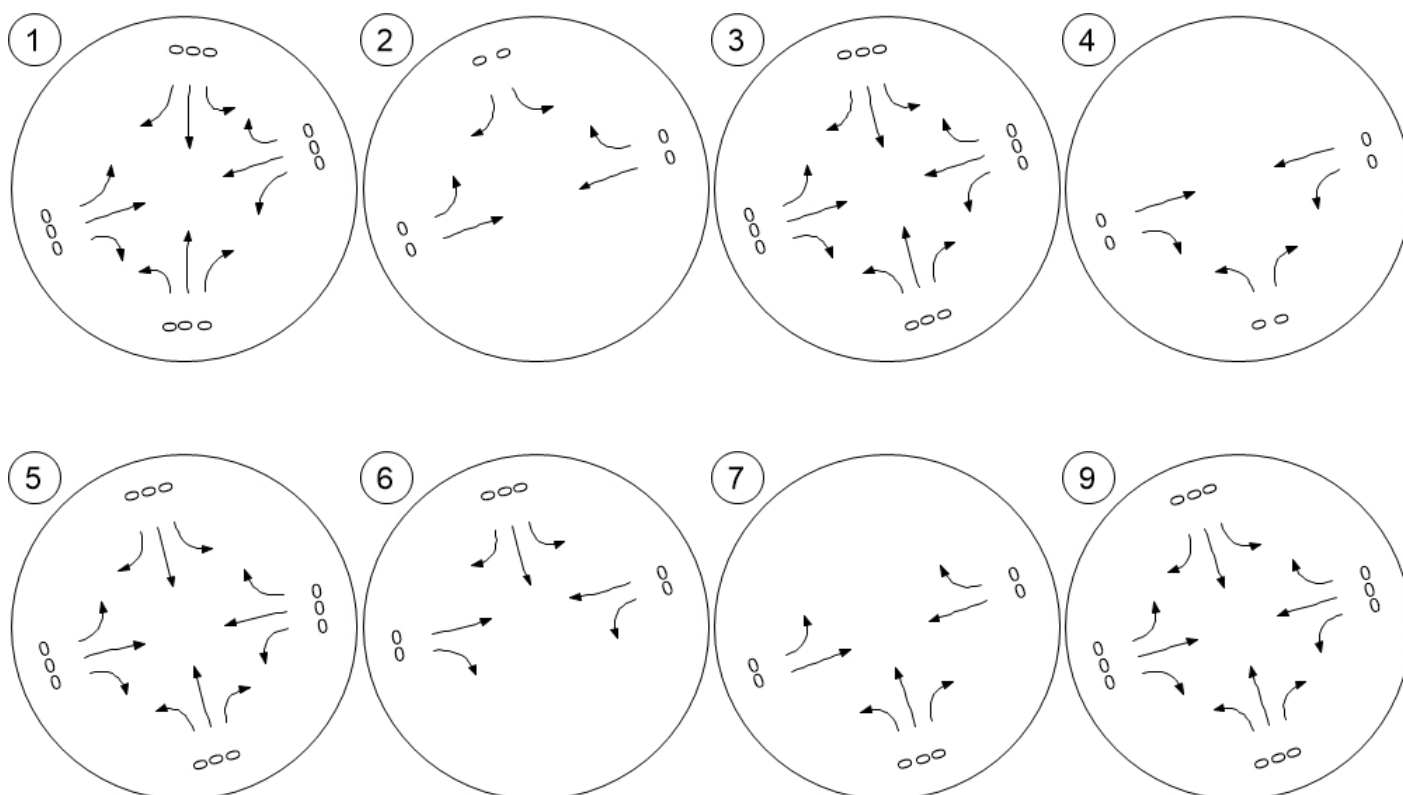


Traffic Volume - Base Volume

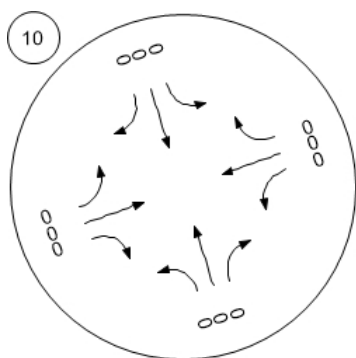




Traffic Volume - In-Process Volume

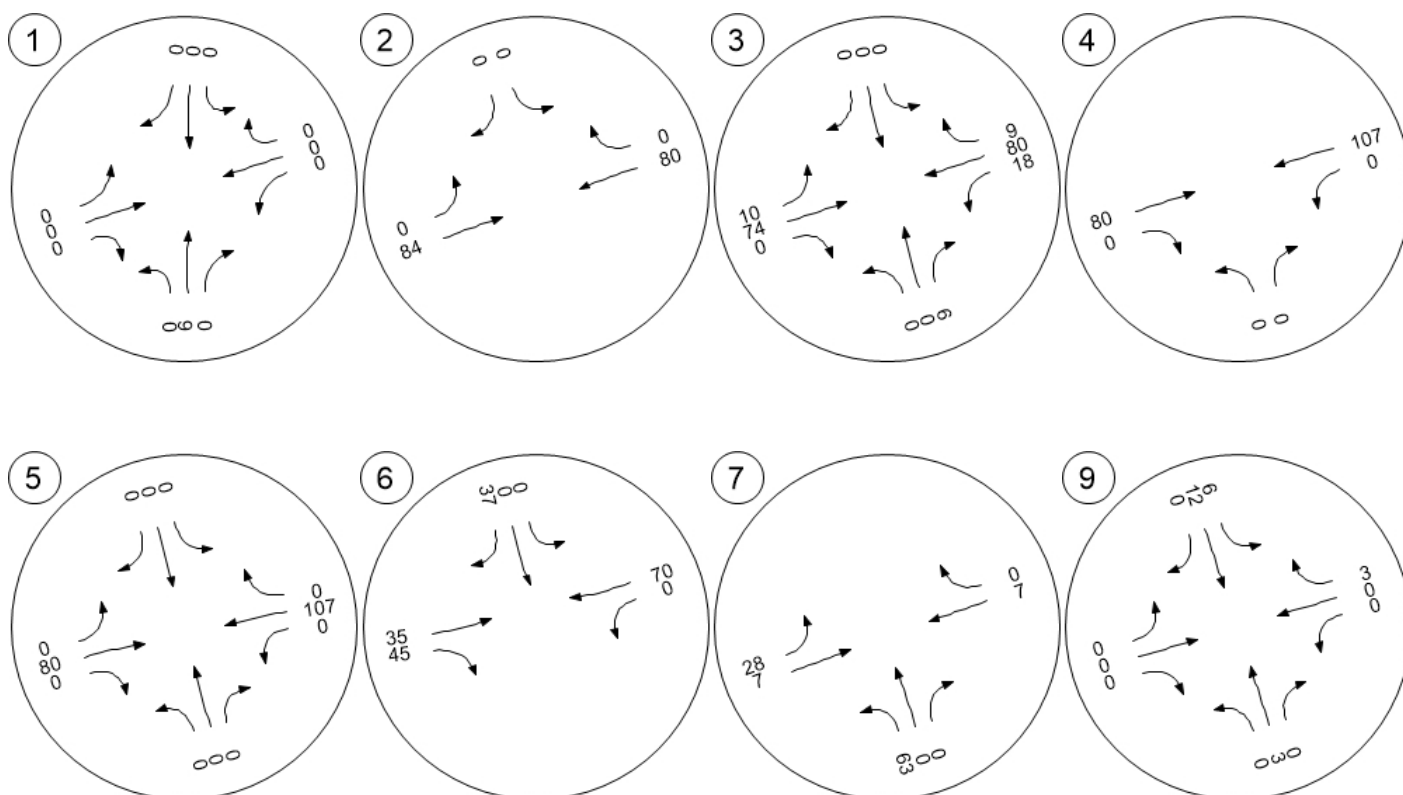


Traffic Volume - In-Process Volume

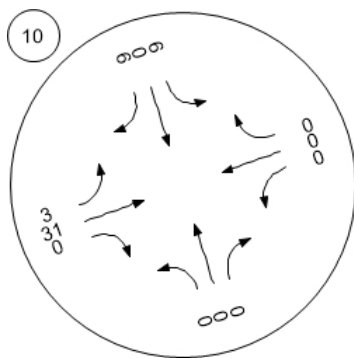




# Traffic Volume - Net New Site Trips

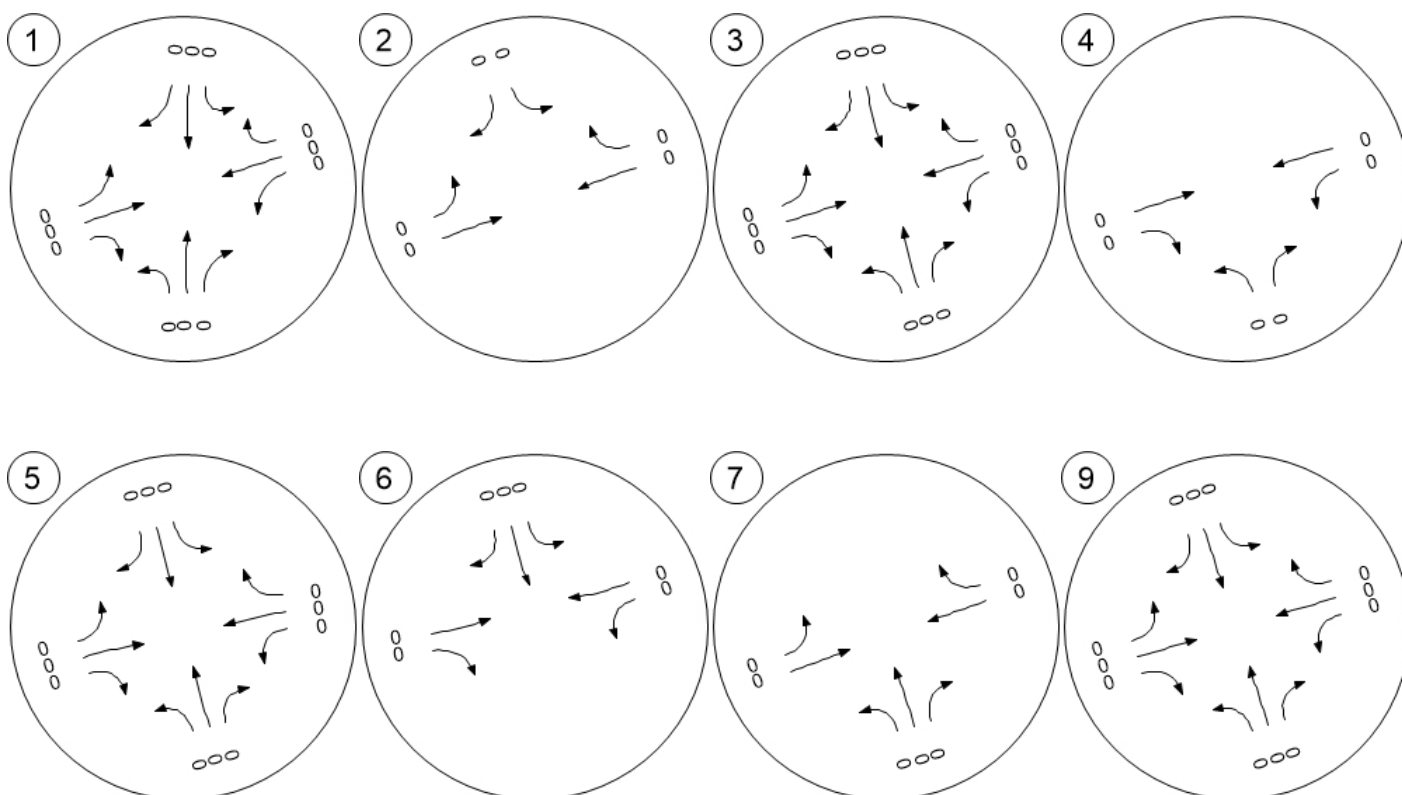


Traffic Volume - Net New Site Trips

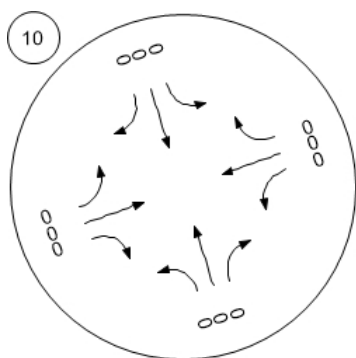




Traffic Volume - Other Volume

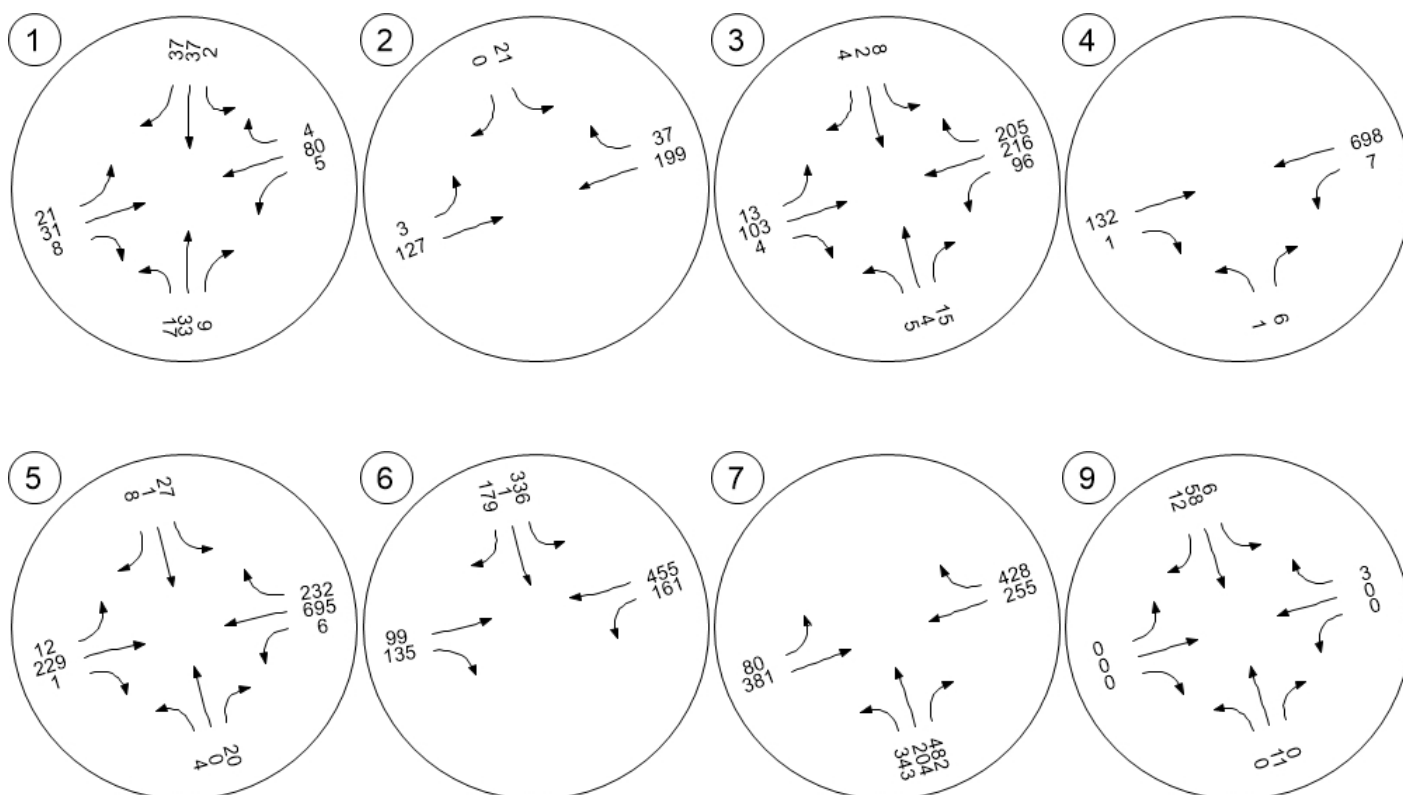


Traffic Volume - Other Volume

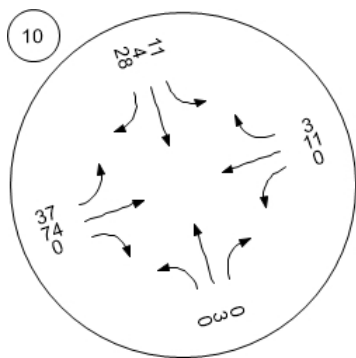




Traffic Volume - Future Total Volume

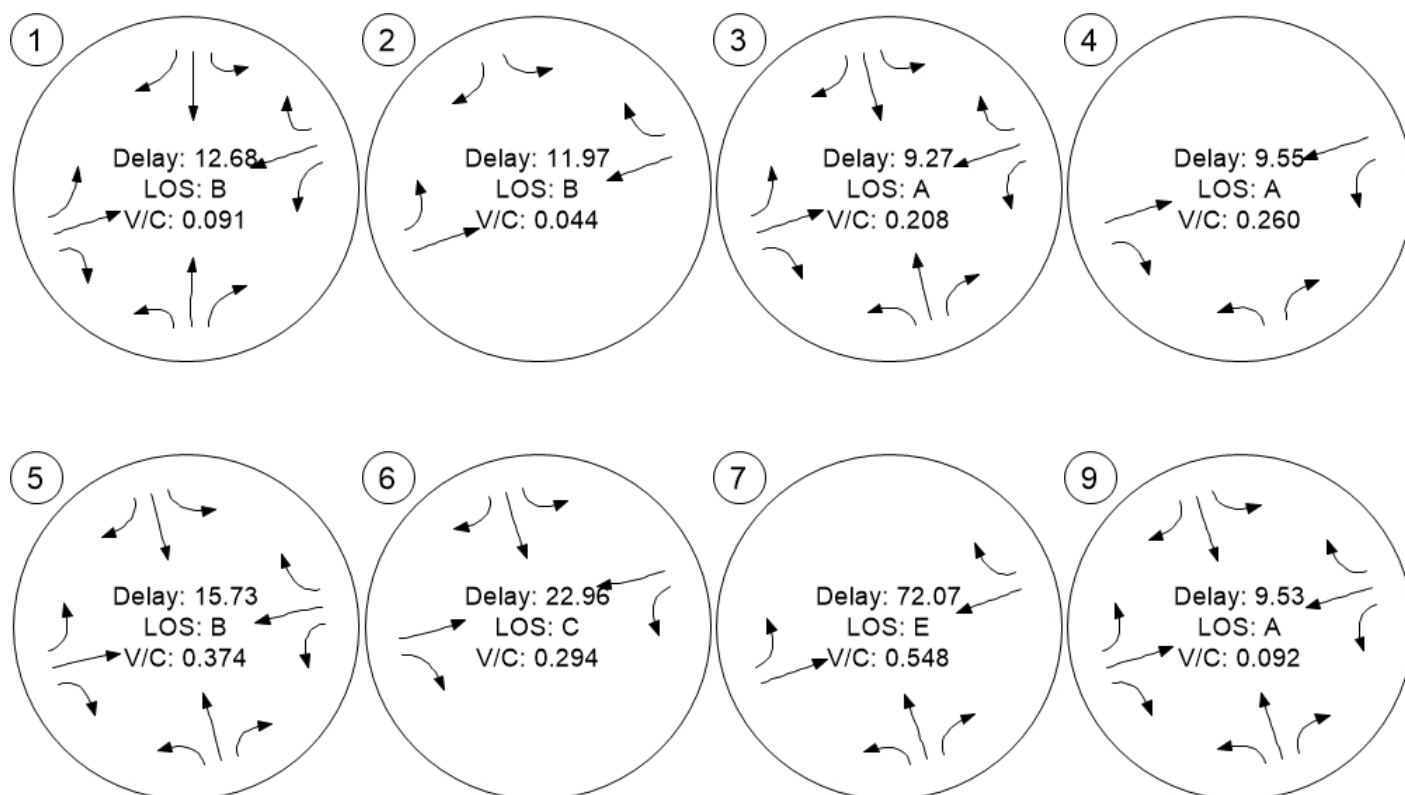


Traffic Volume - Future Total Volume

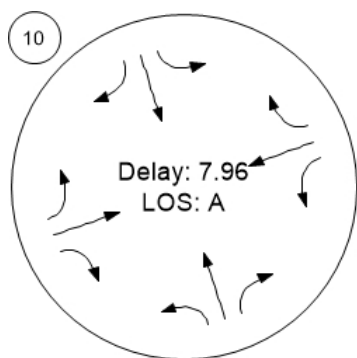




# Traffic Conditions

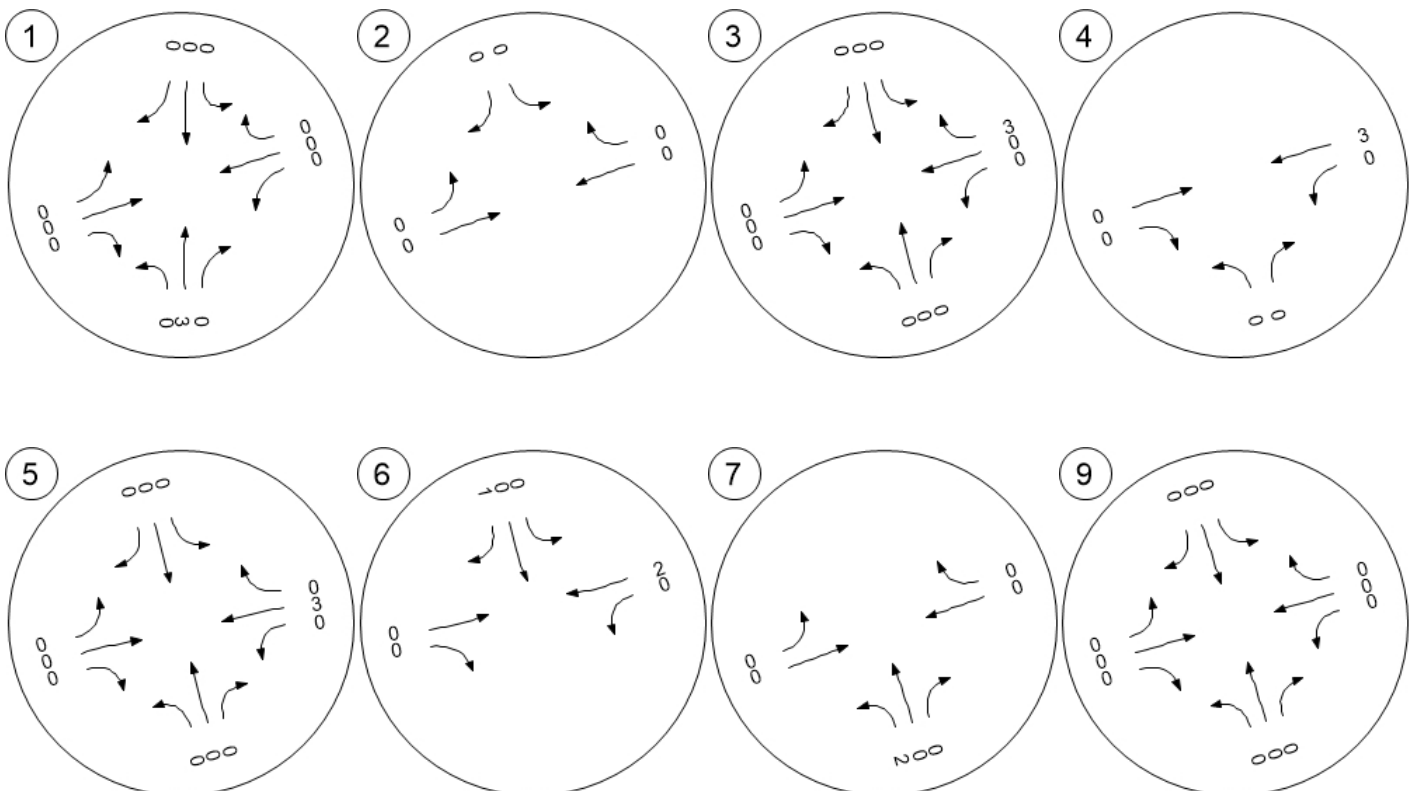


## Traffic Conditions

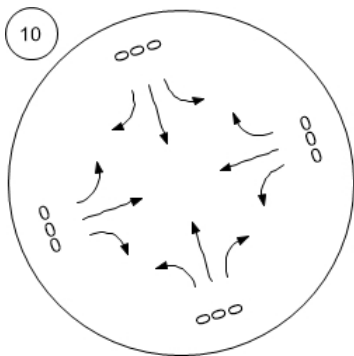




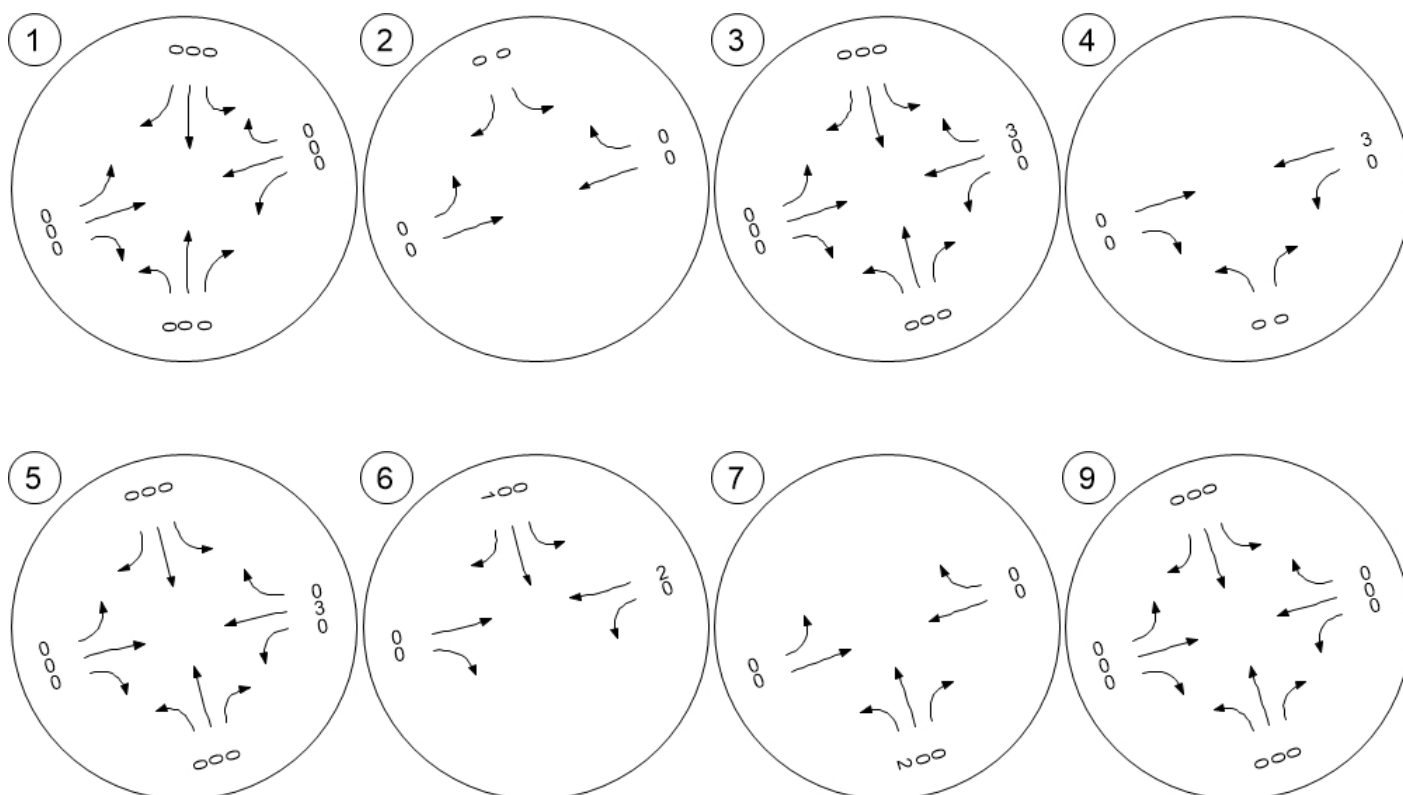
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 18

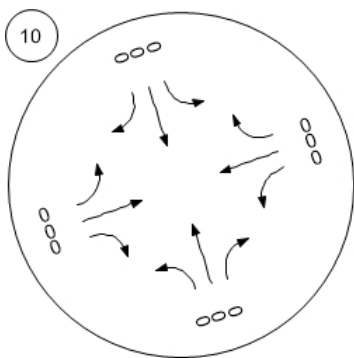


Fair Share - Fair Share Volumes - Zone 19



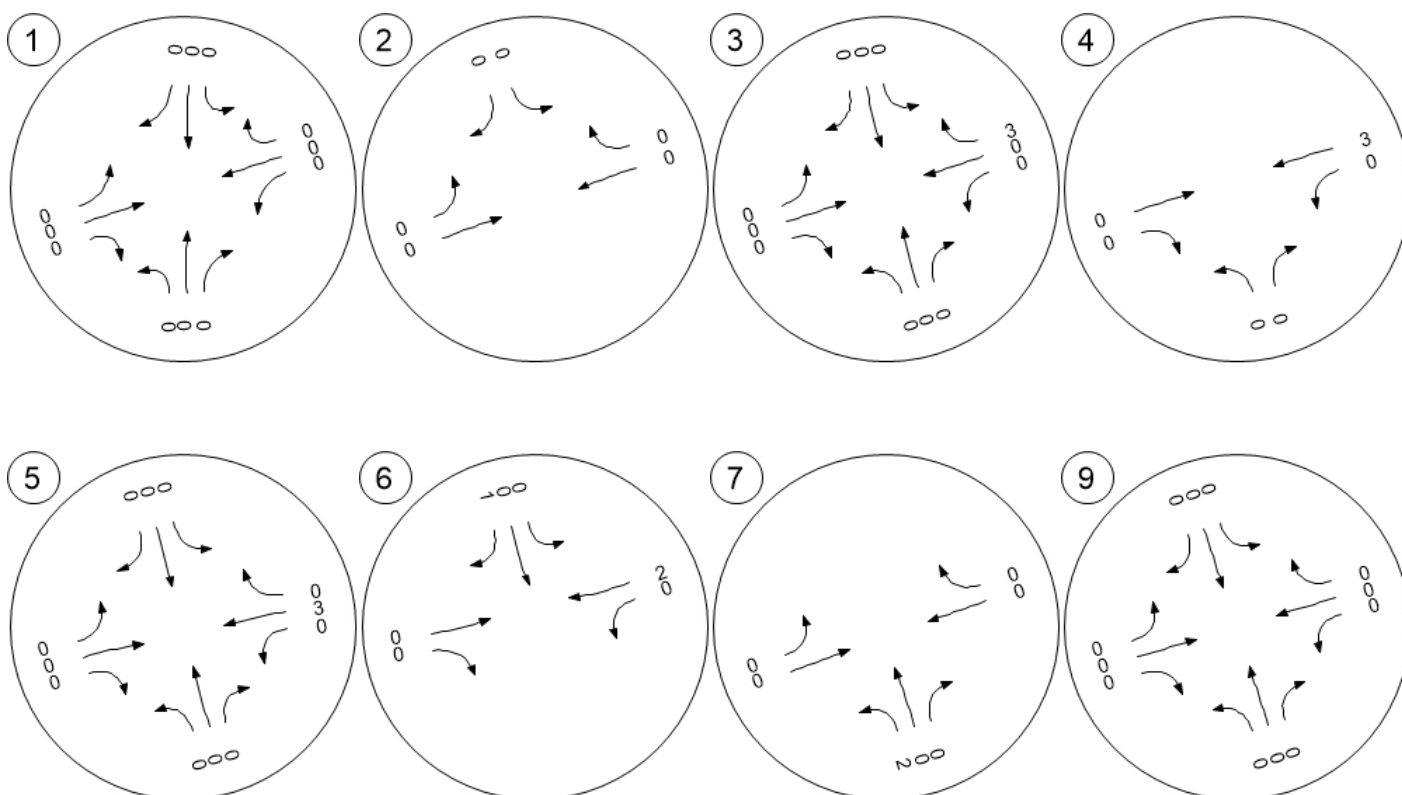


Fair Share - Fair Share Volumes - Zone 19

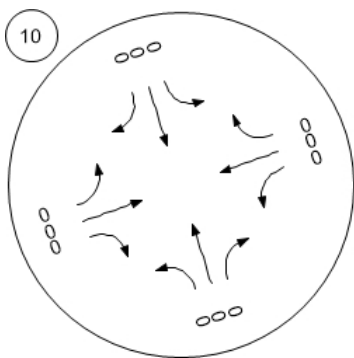




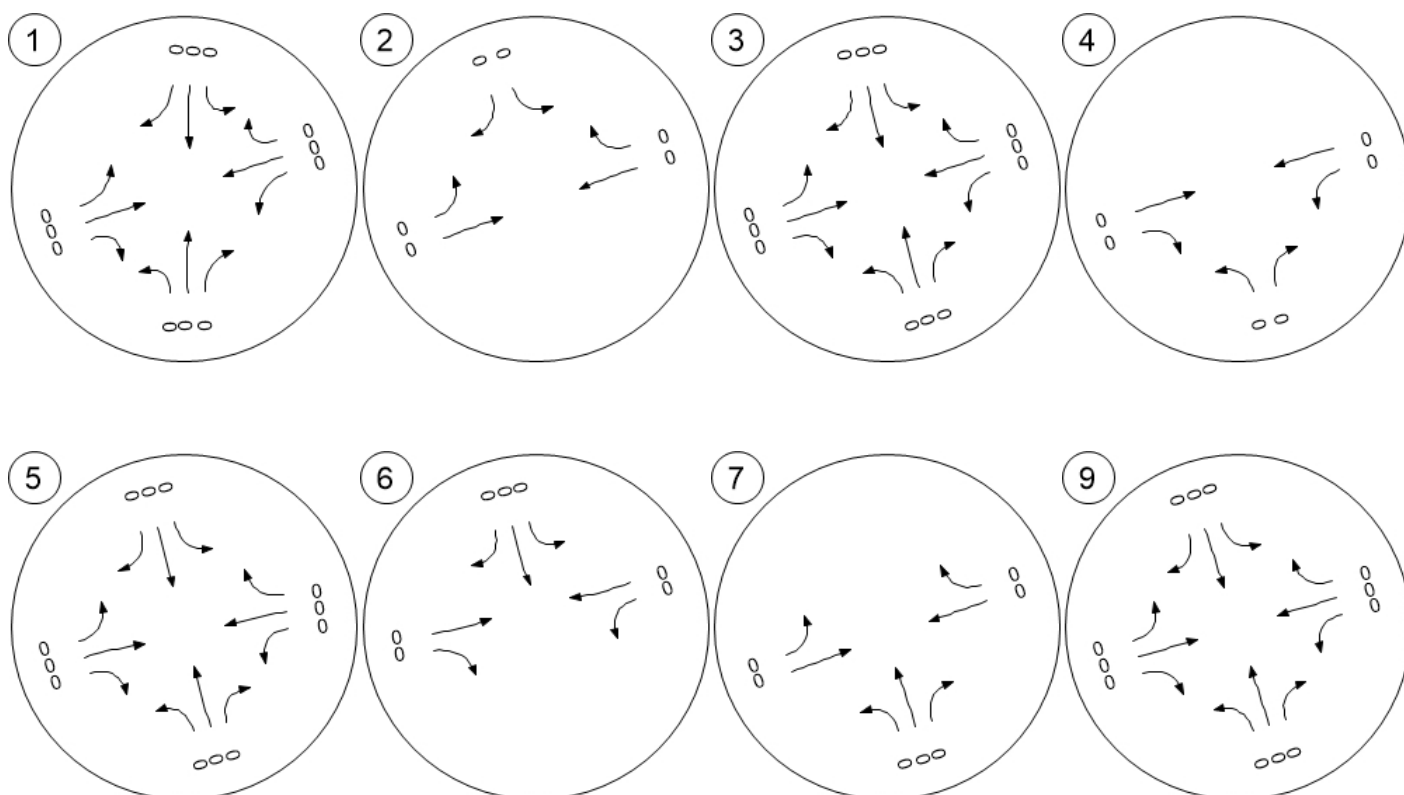
Fair Share - Fair Share Volumes - Zone 20



Fair Share - Fair Share Volumes - Zone 20

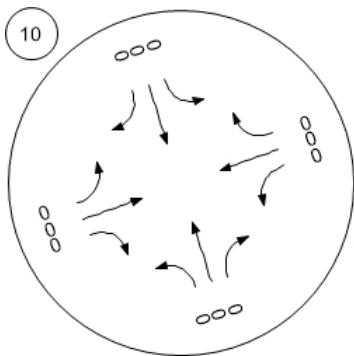


Fair Share - Fair Share Volumes - Zone 21

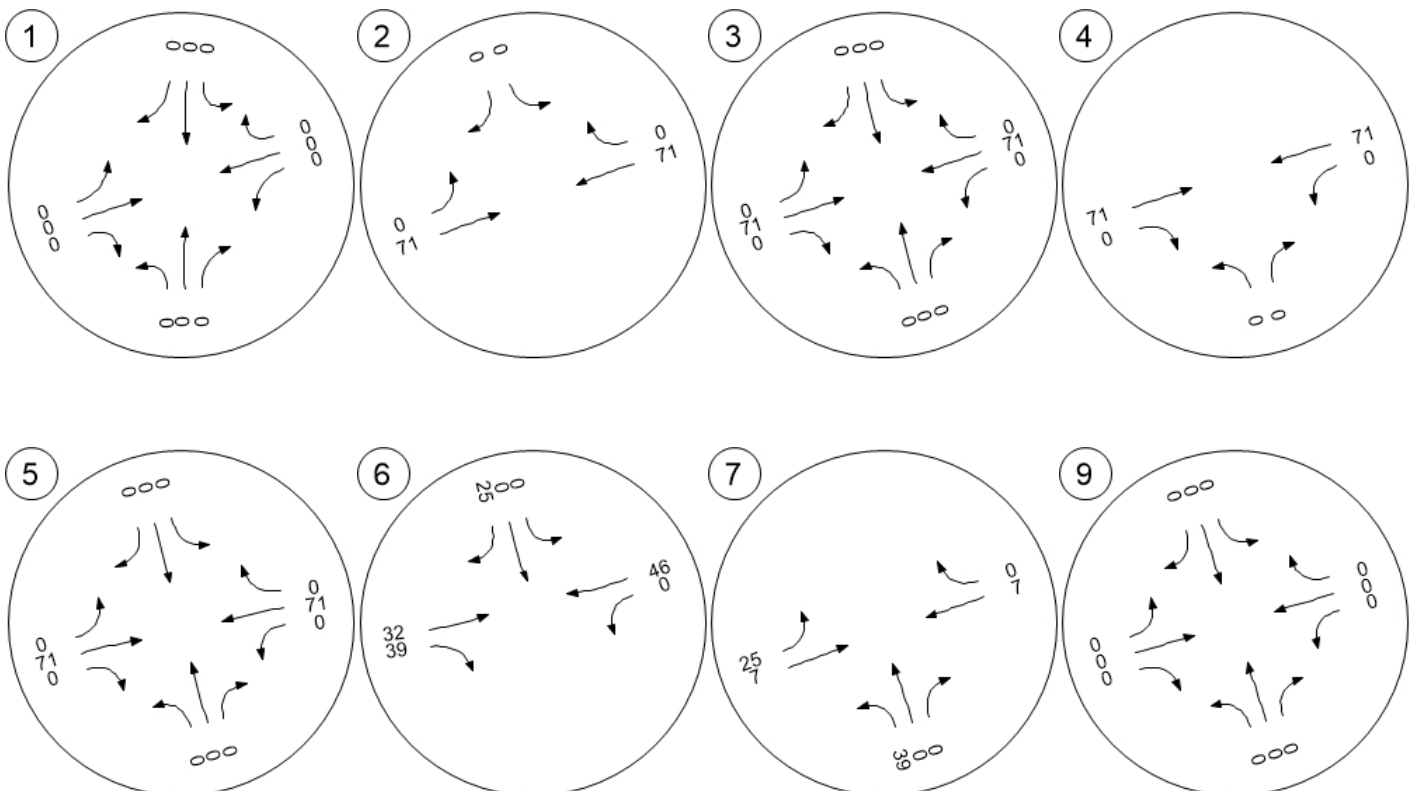




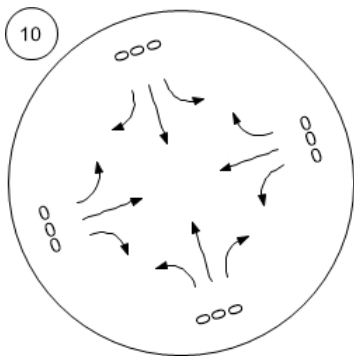
Fair Share - Fair Share Volumes - Zone 21



Fair Share - Fair Share Volumes - Zone 22

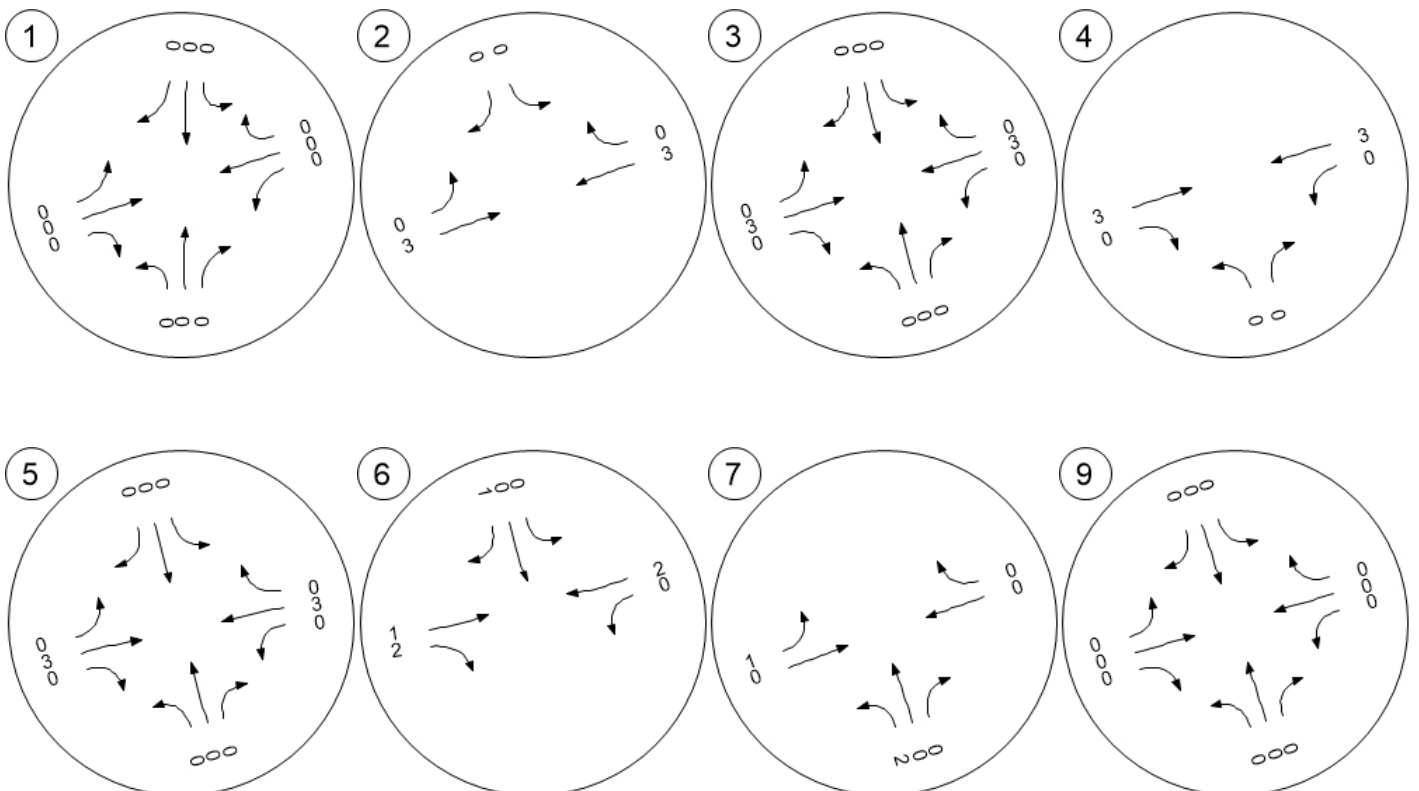


Fair Share - Fair Share Volumes - Zone 22

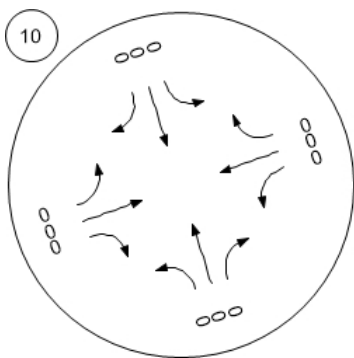




Fair Share - Fair Share Volumes - Zone 23

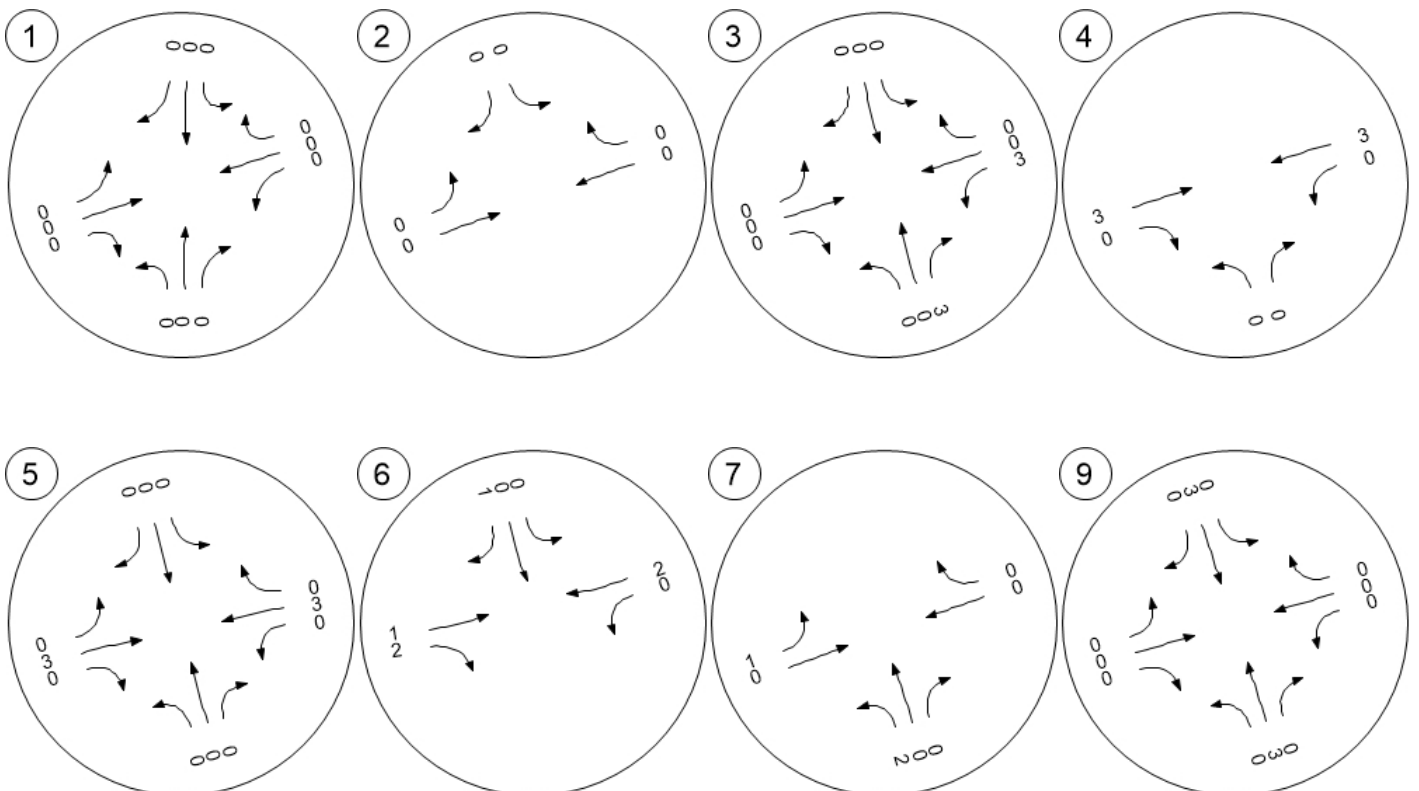


Fair Share - Fair Share Volumes - Zone 23

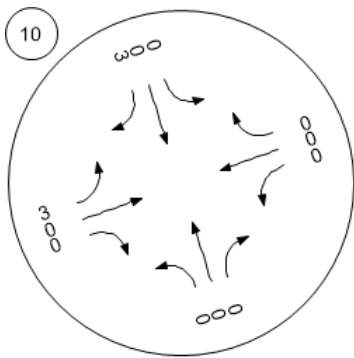




Fair Share - Fair Share Volumes - Zone 24

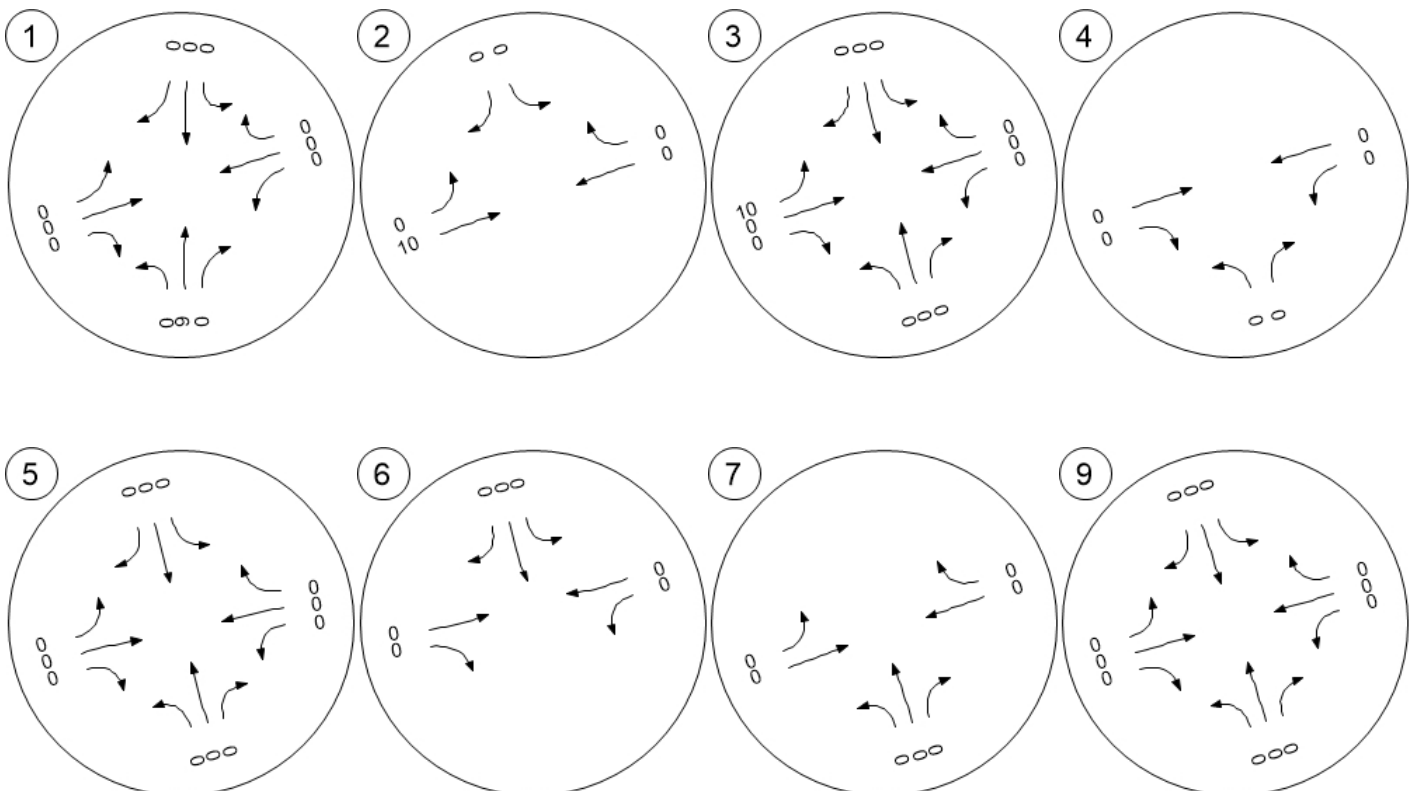


Fair Share - Fair Share Volumes - Zone 24

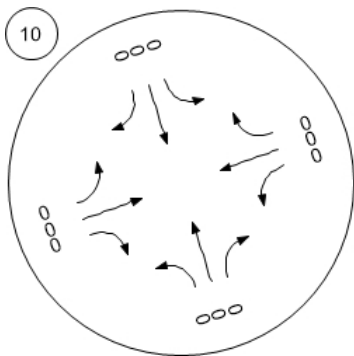




Fair Share - Fair Share Volumes - Zone 25

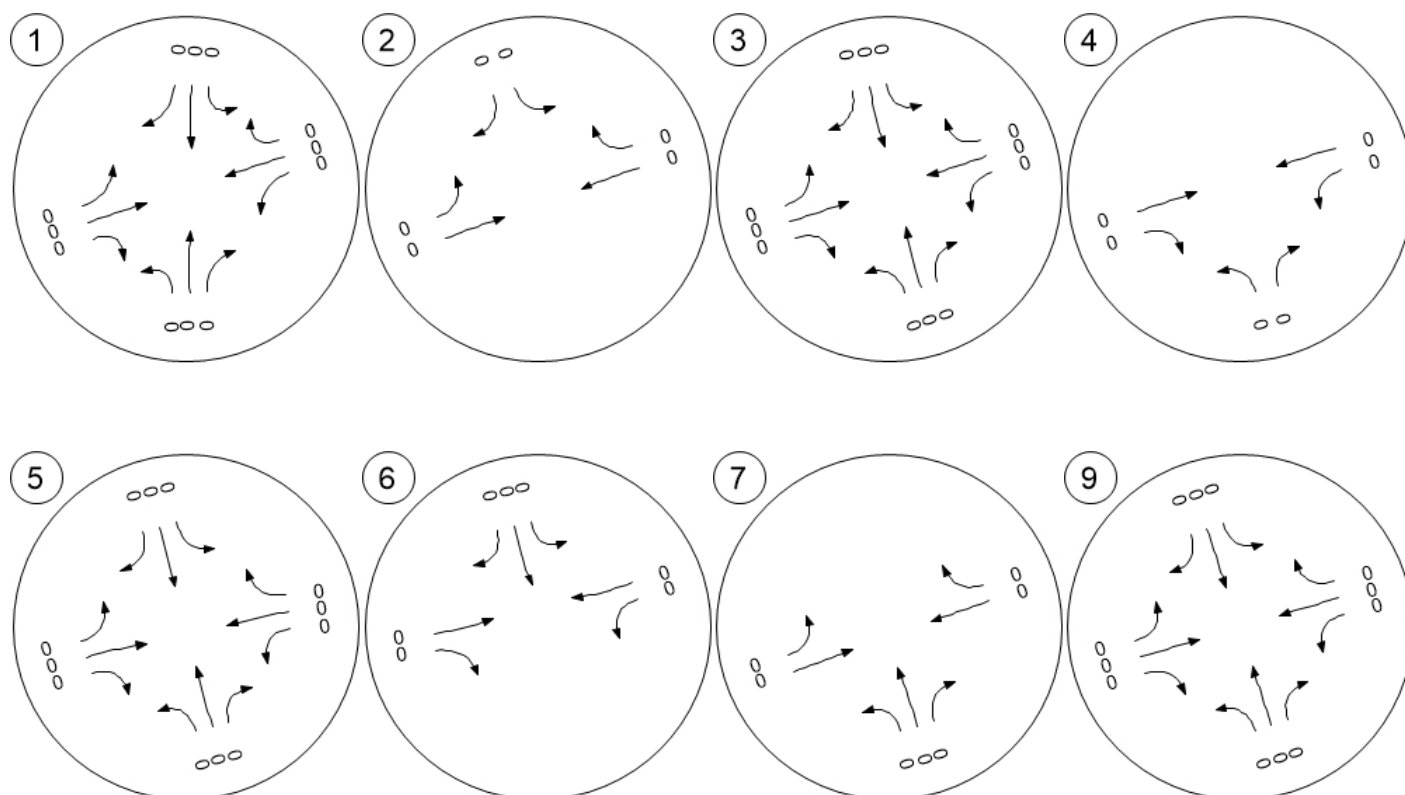


Fair Share - Fair Share Volumes - Zone 25

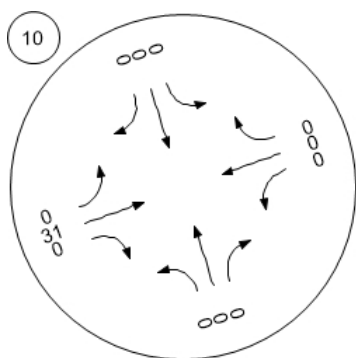




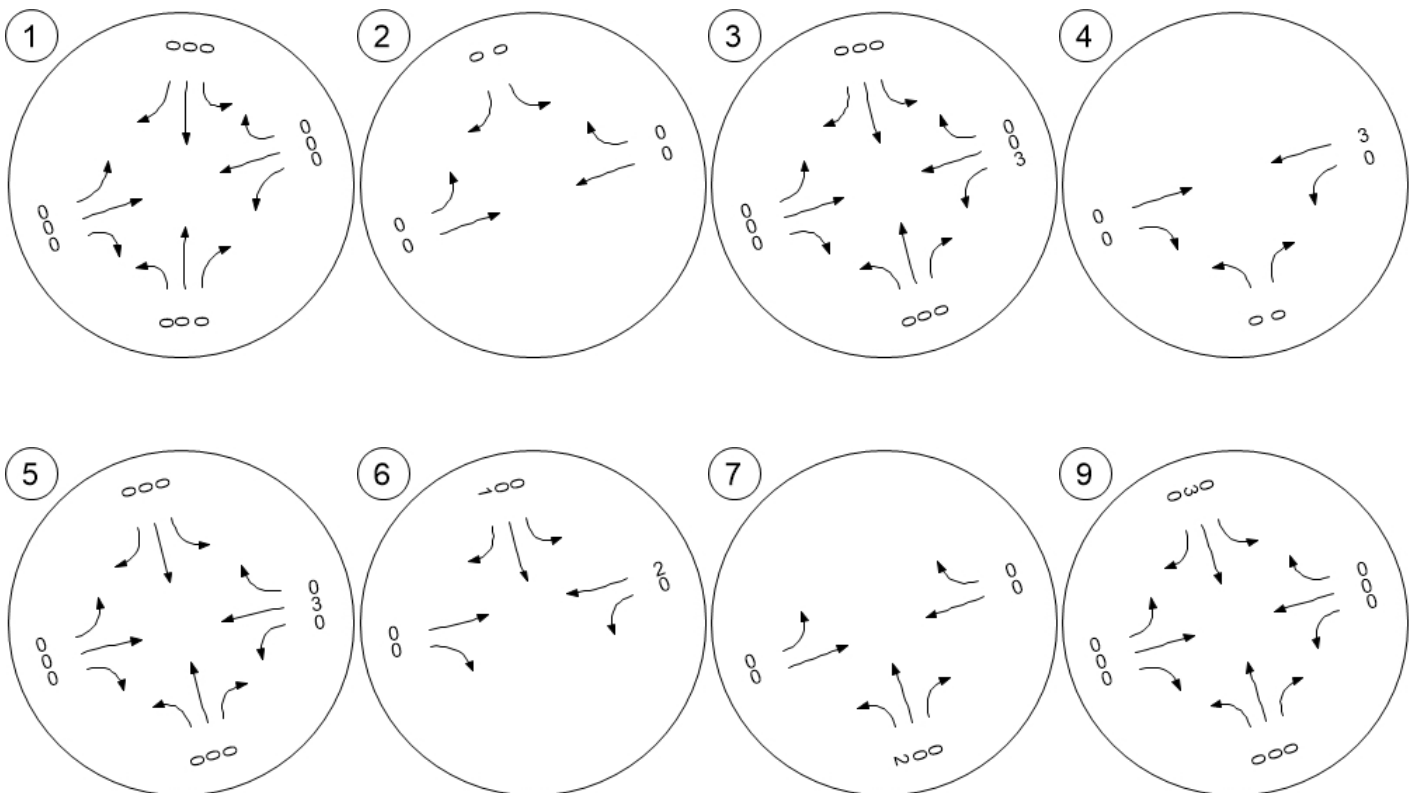
Fair Share - Fair Share Volumes - Zone 26



Fair Share - Fair Share Volumes - Zone 26

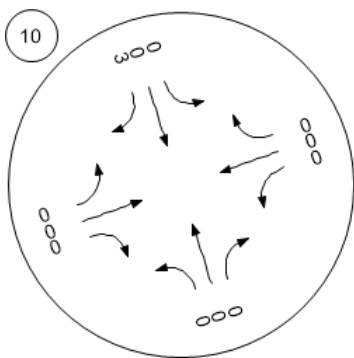


Fair Share - Fair Share Volumes - Zone 27



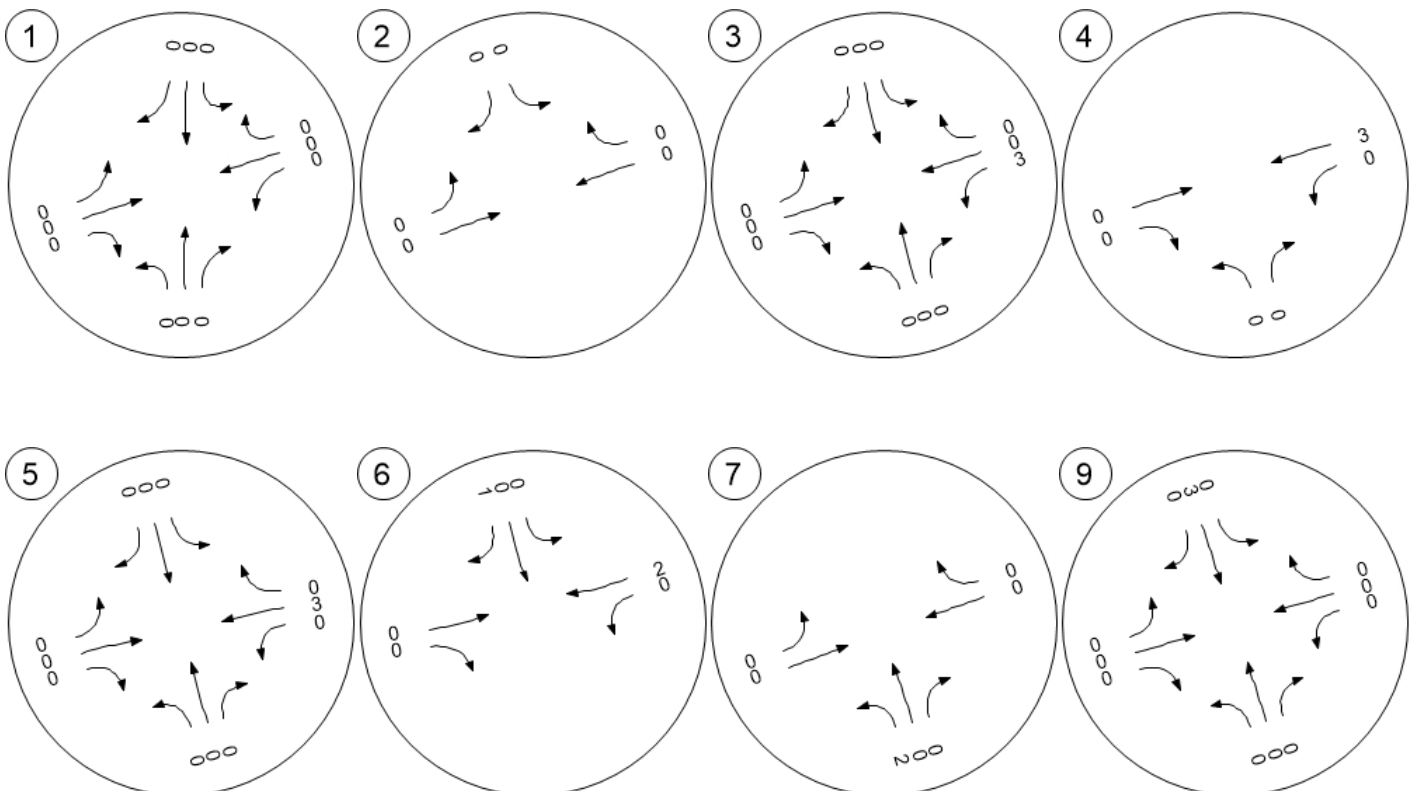


Fair Share - Fair Share Volumes - Zone 27

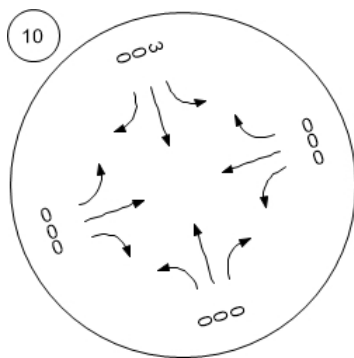




Fair Share - Fair Share Volumes - Zone 28

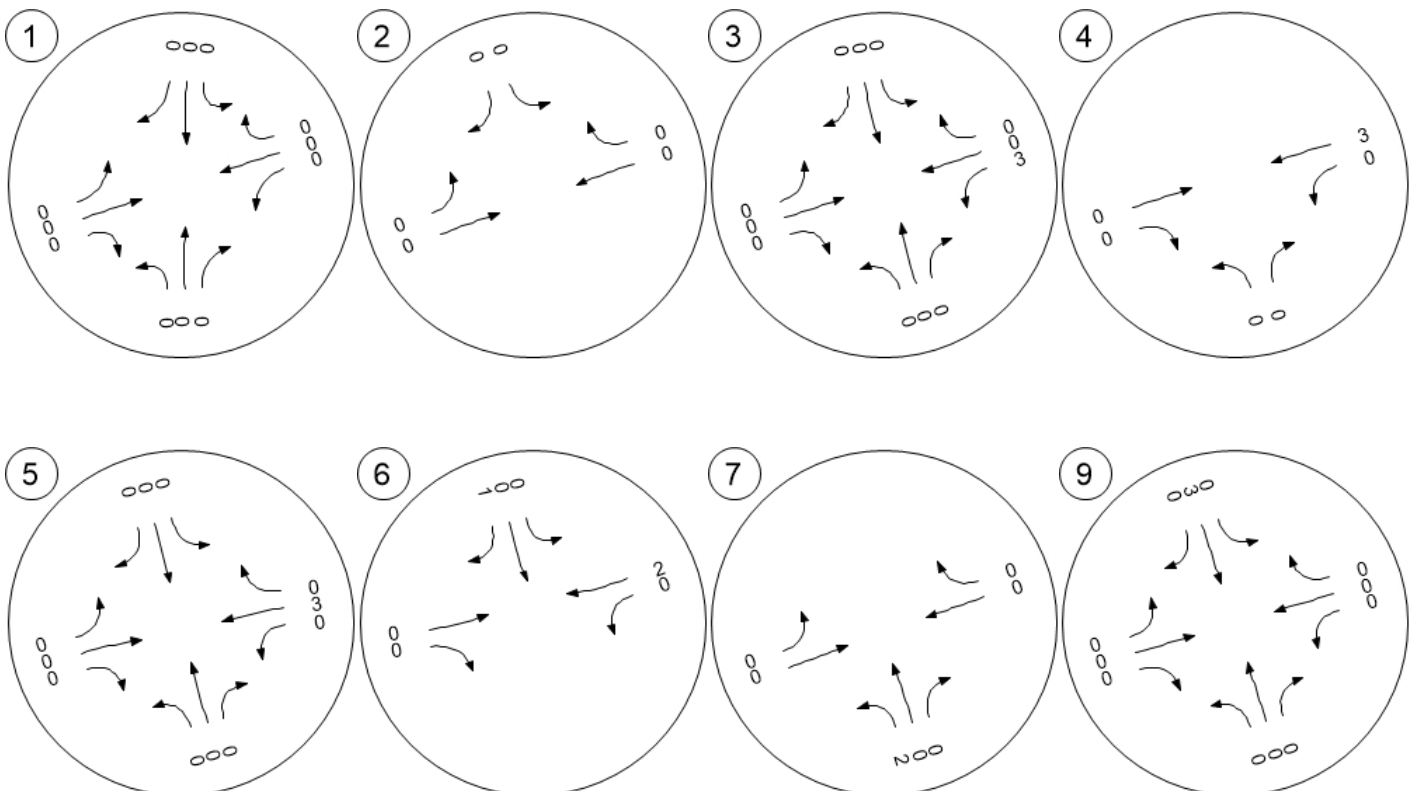


Fair Share - Fair Share Volumes - Zone 28

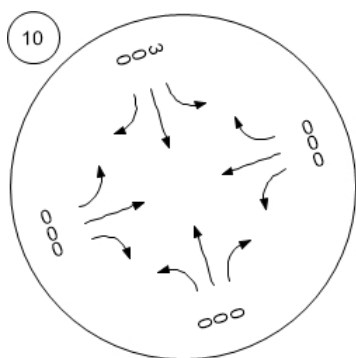
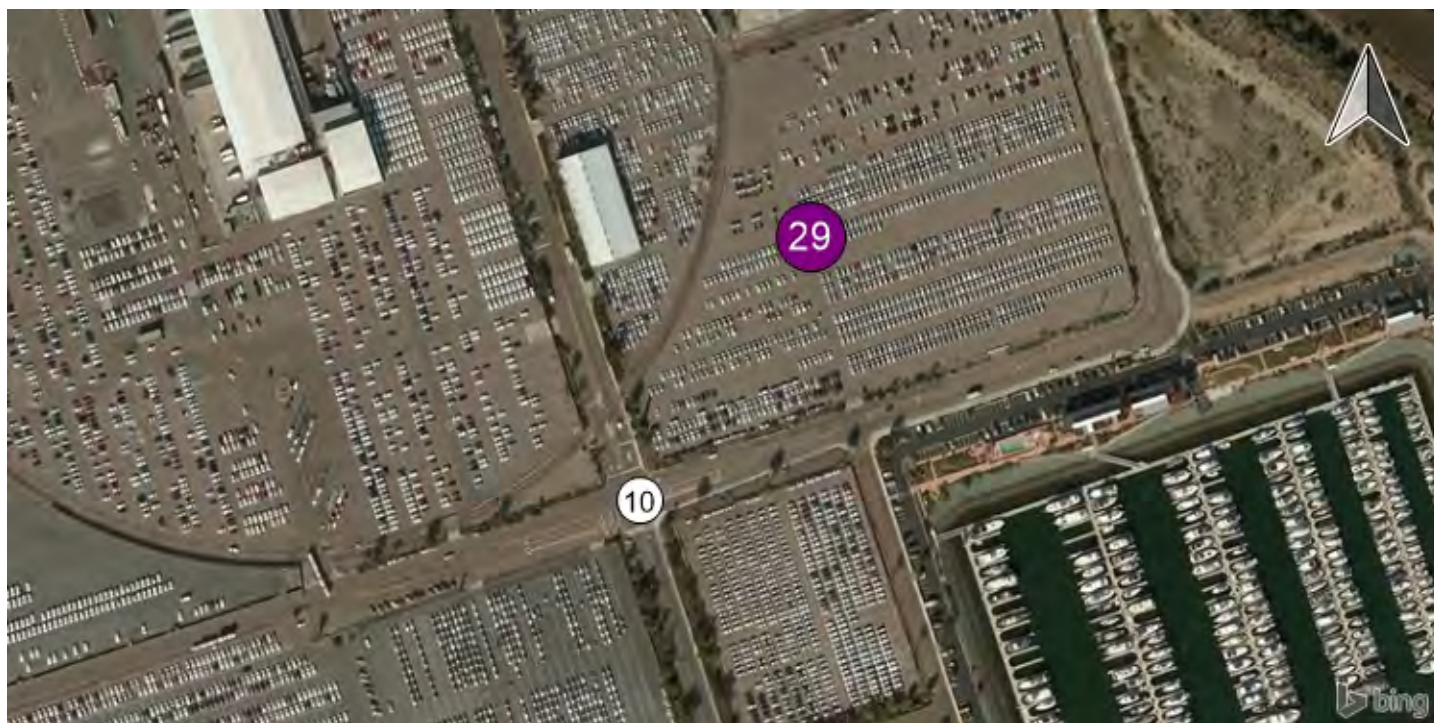




Fair Share - Fair Share Volumes - Zone 29

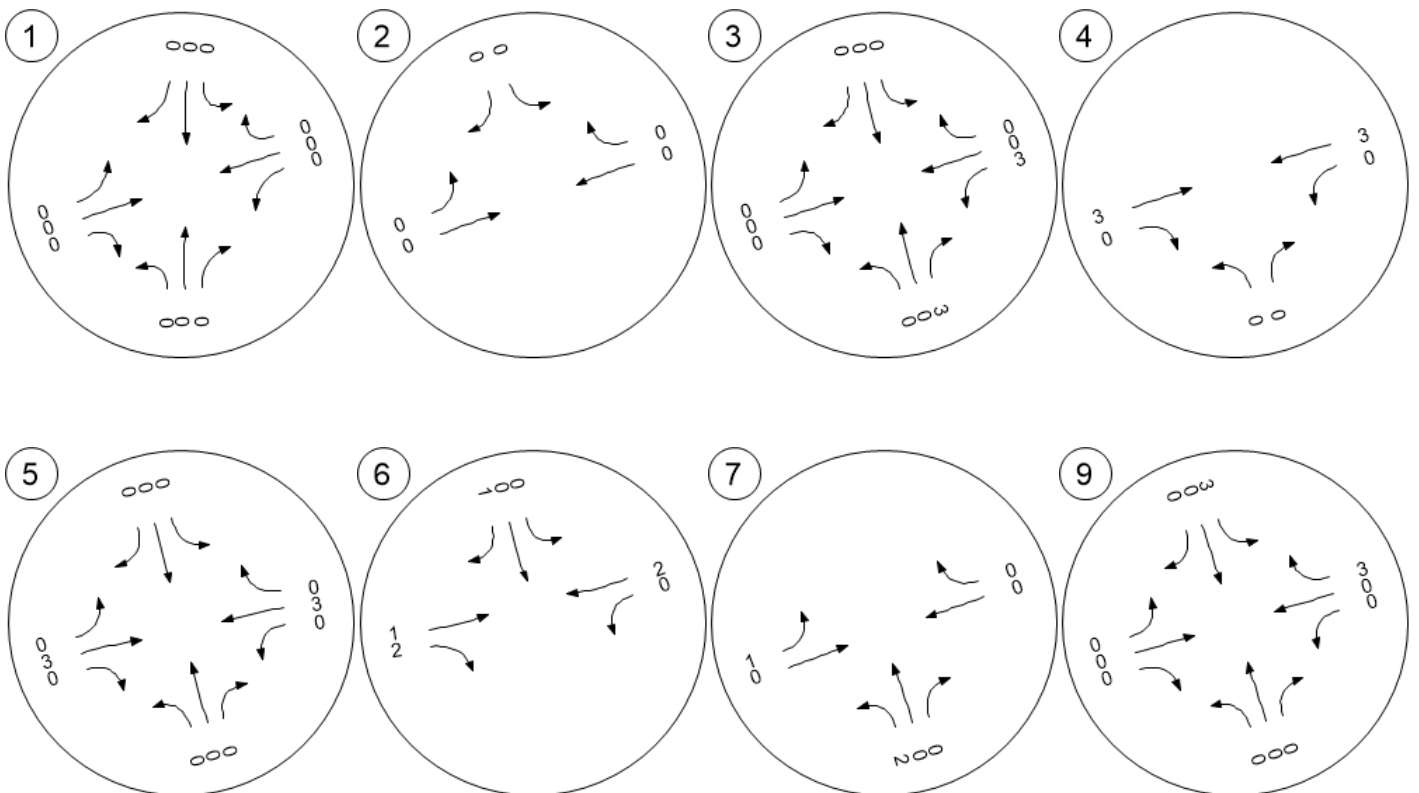


Fair Share - Fair Share Volumes - Zone 29

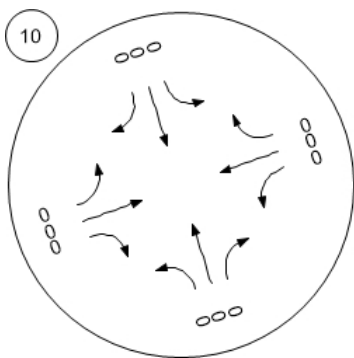




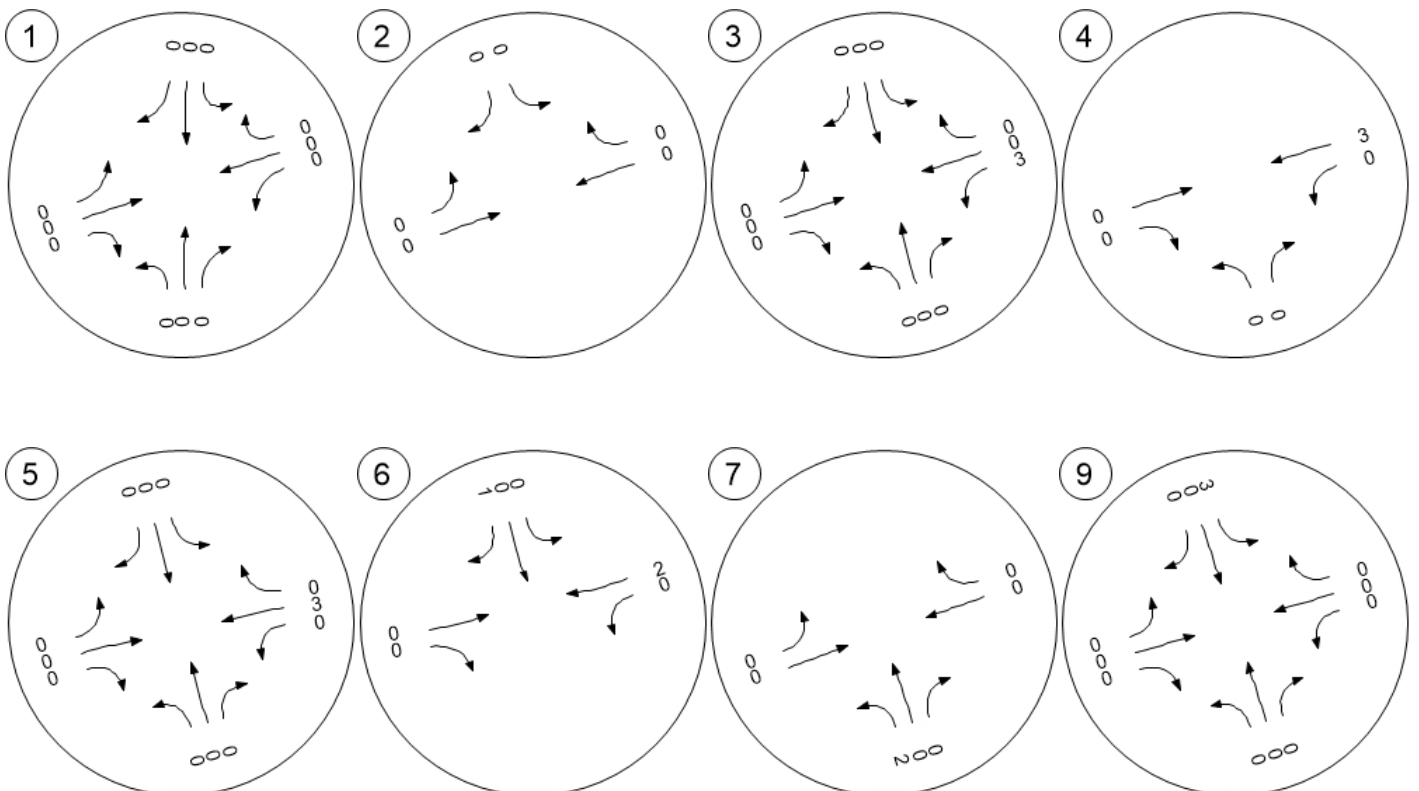
Fair Share - Fair Share Volumes - Zone 32



Fair Share - Fair Share Volumes - Zone 32

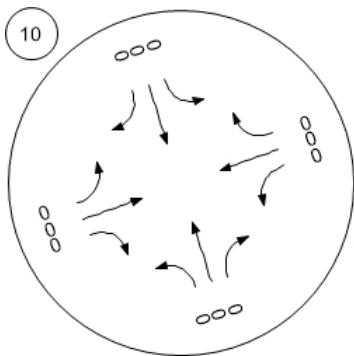


Fair Share - Fair Share Volumes - Zone 33



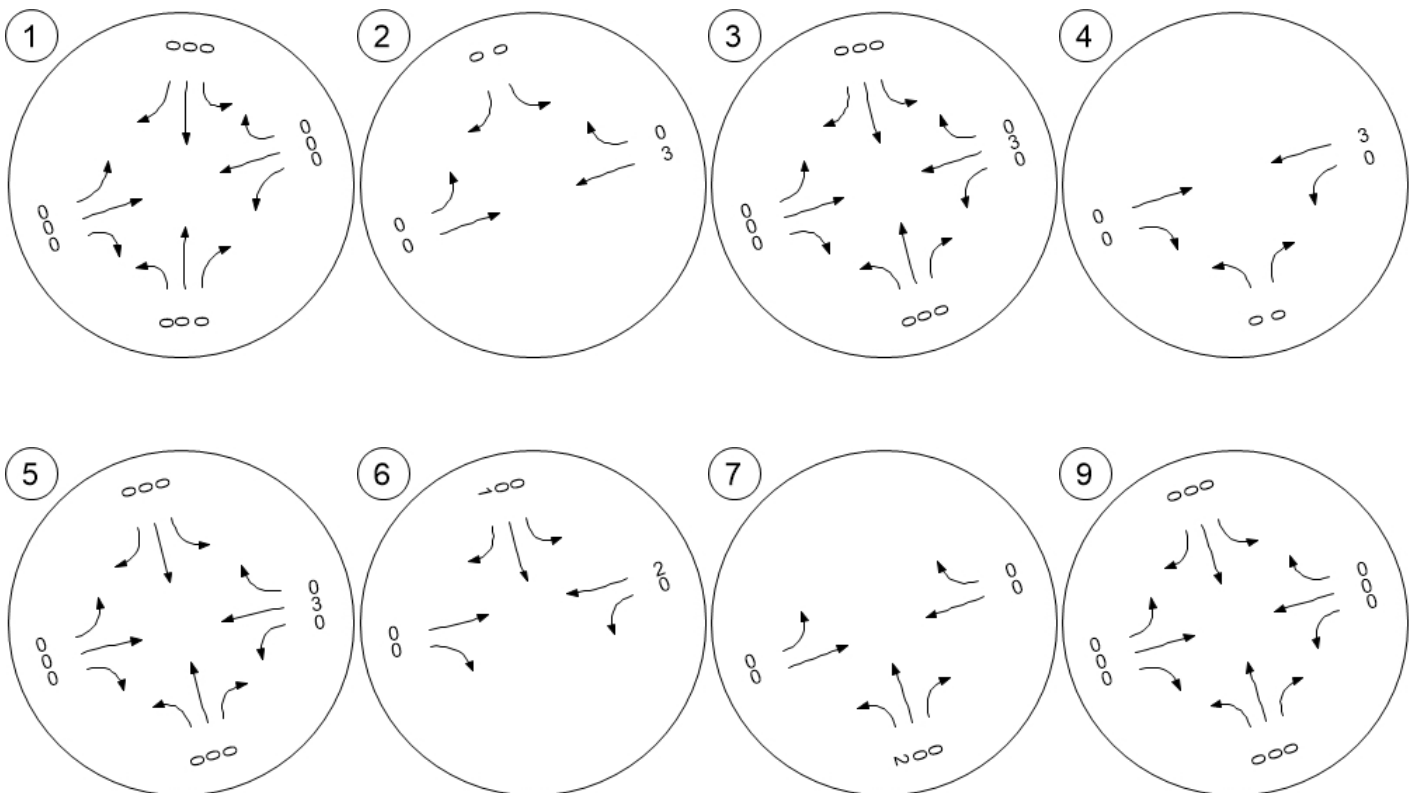


Fair Share - Fair Share Volumes - Zone 33

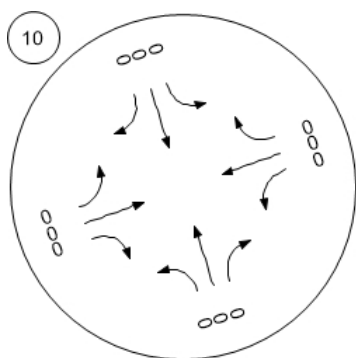




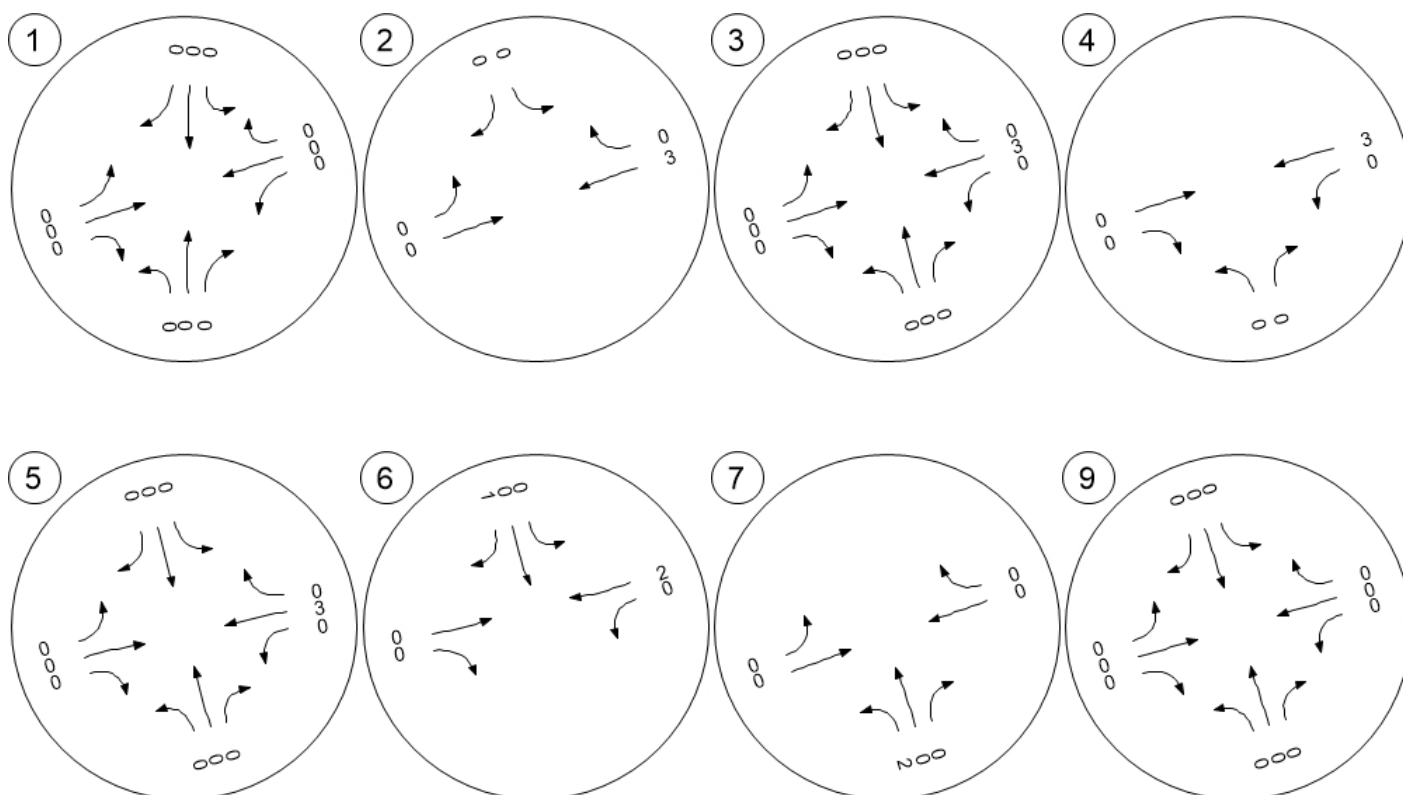
Fair Share - Fair Share Volumes - Zone 34



Fair Share - Fair Share Volumes - Zone 34

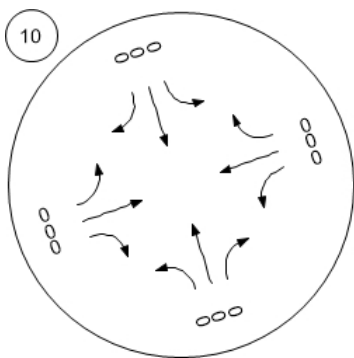


Fair Share - Fair Share Volumes - Zone 35

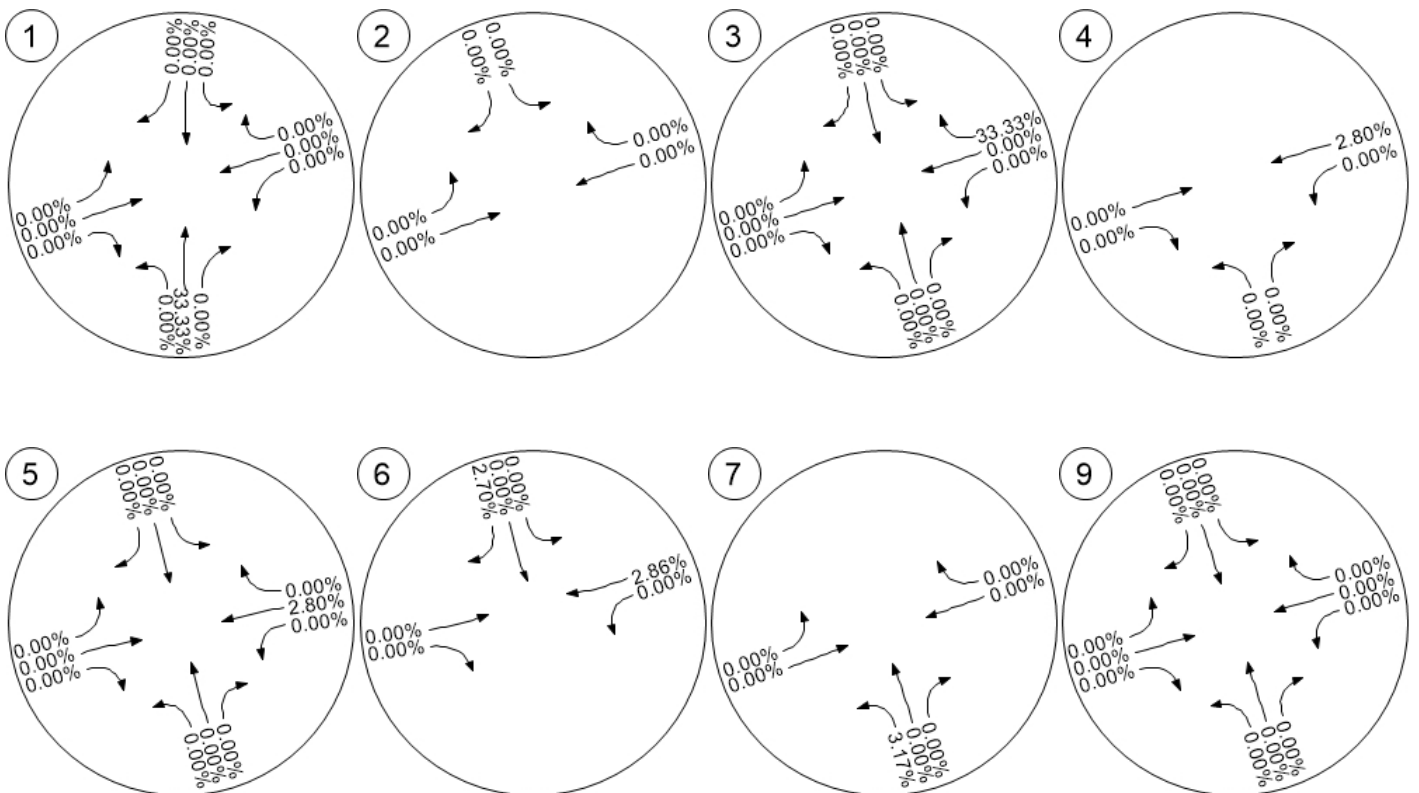




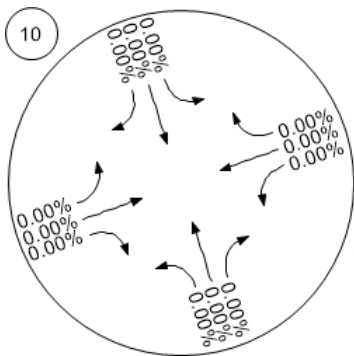
Fair Share - Fair Share Volumes - Zone 35



## Fair Share - Fair Share % of Net New Site - Zone 18

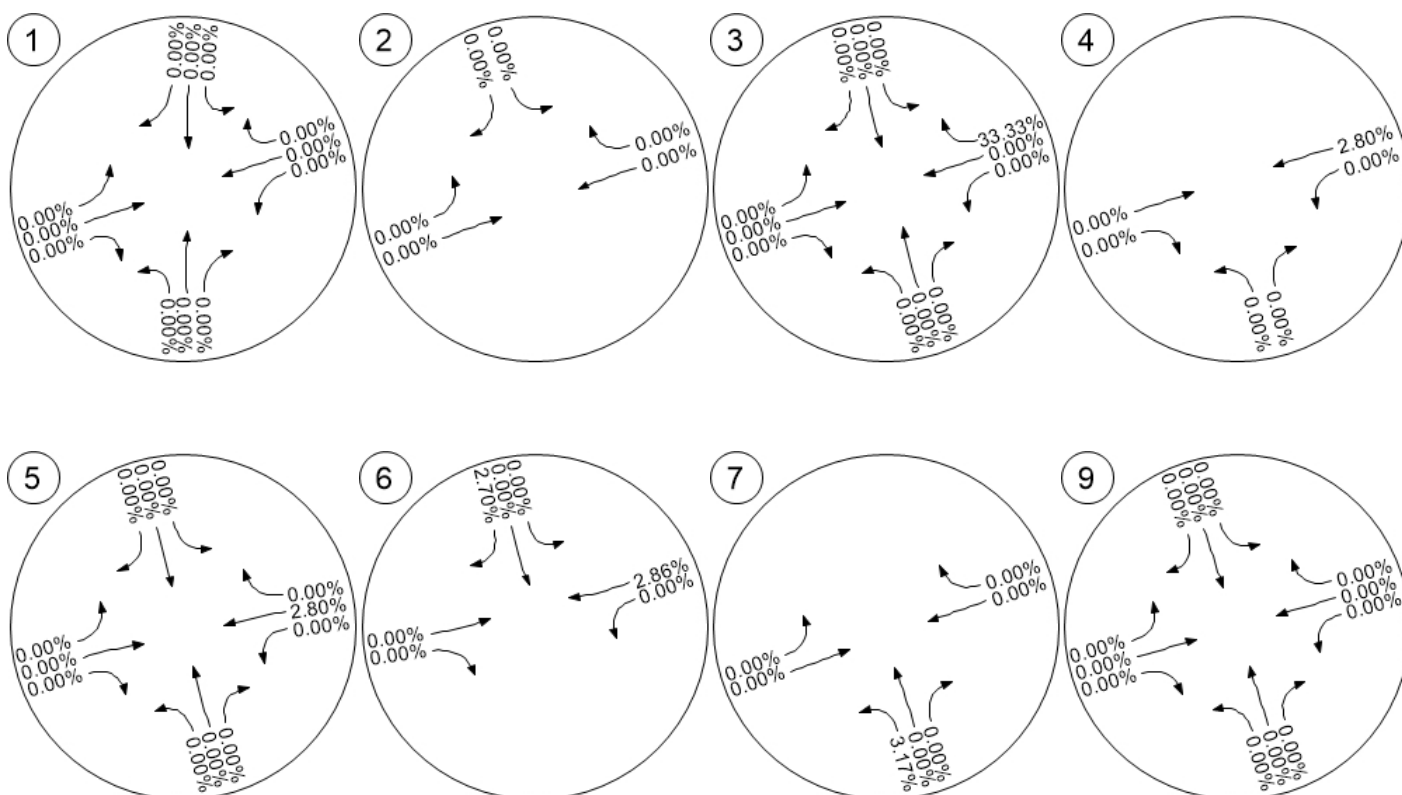


Fair Share - Fair Share % of Net New Site - Zone 18

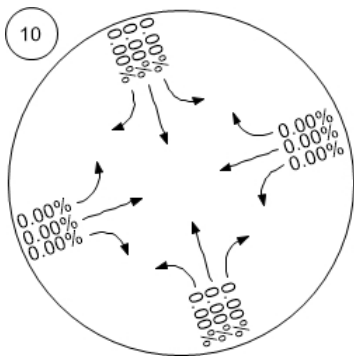




Fair Share - Fair Share % of Net New Site - Zone 19

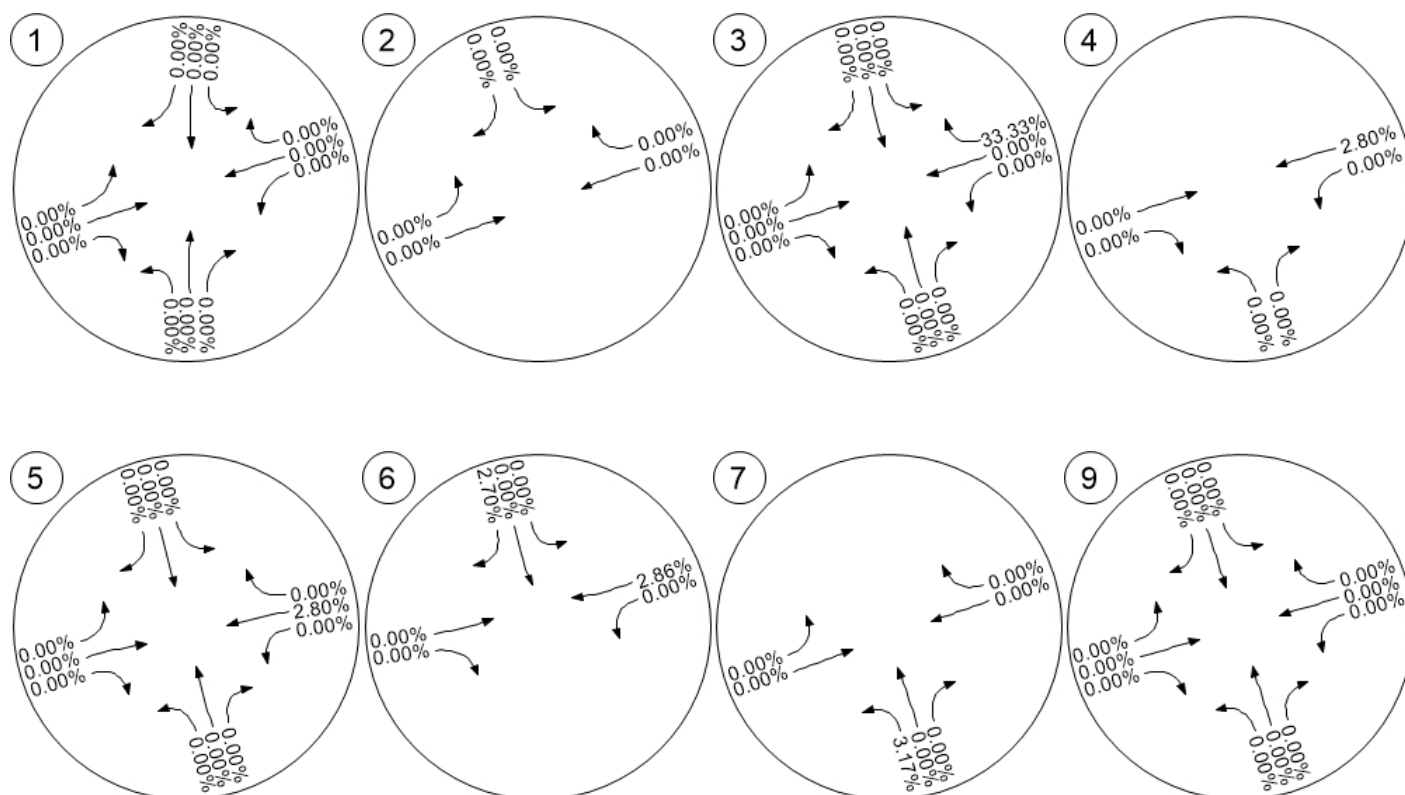


Fair Share - Fair Share % of Net New Site - Zone 19

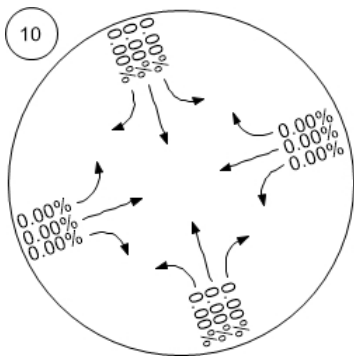




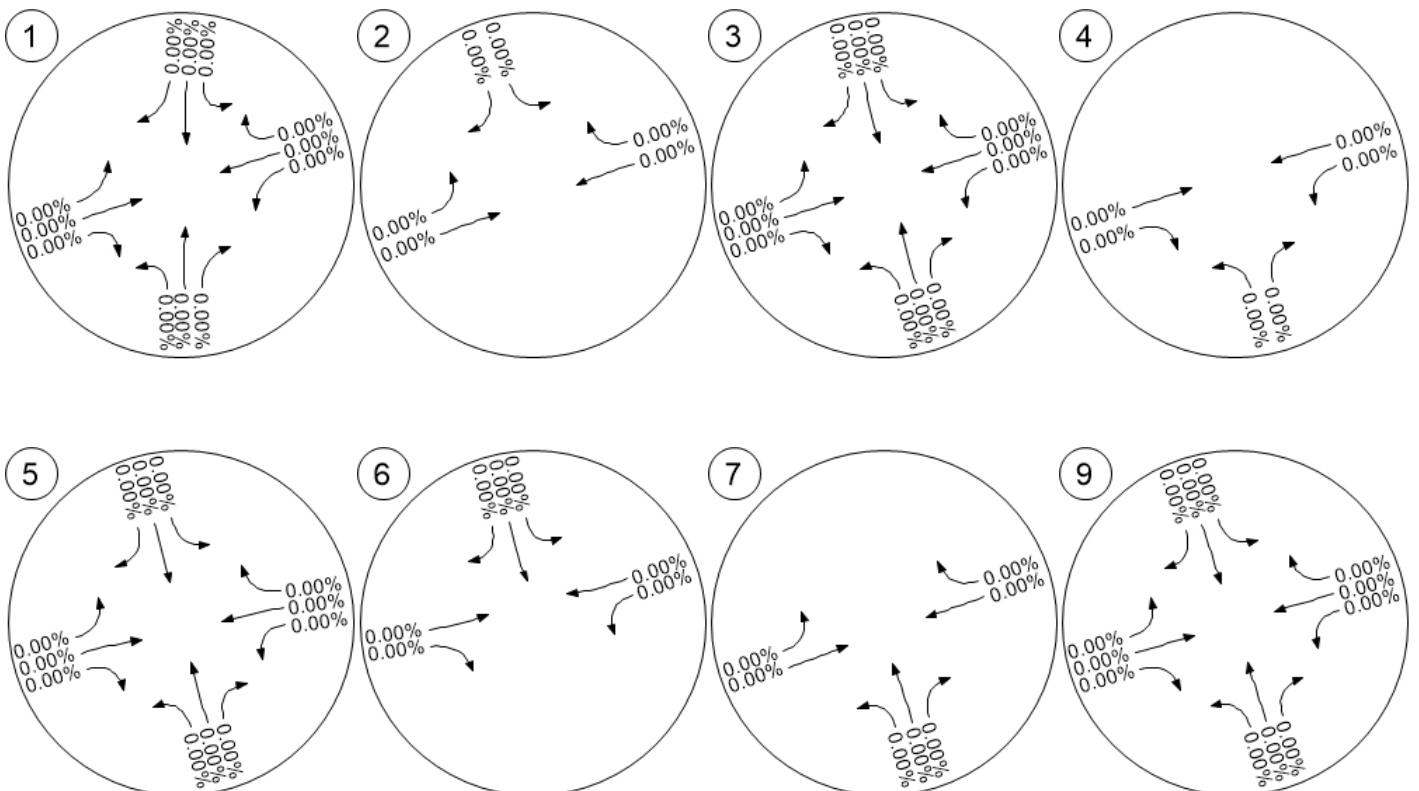
## Fair Share - Fair Share % of Net New Site - Zone 20



Fair Share - Fair Share % of Net New Site - Zone 20

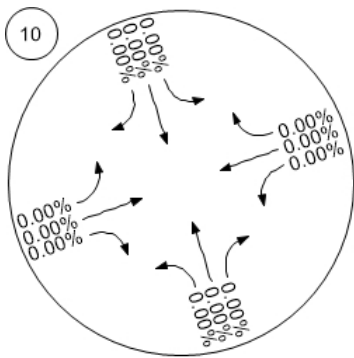


Fair Share - Fair Share % of Net New Site - Zone 21

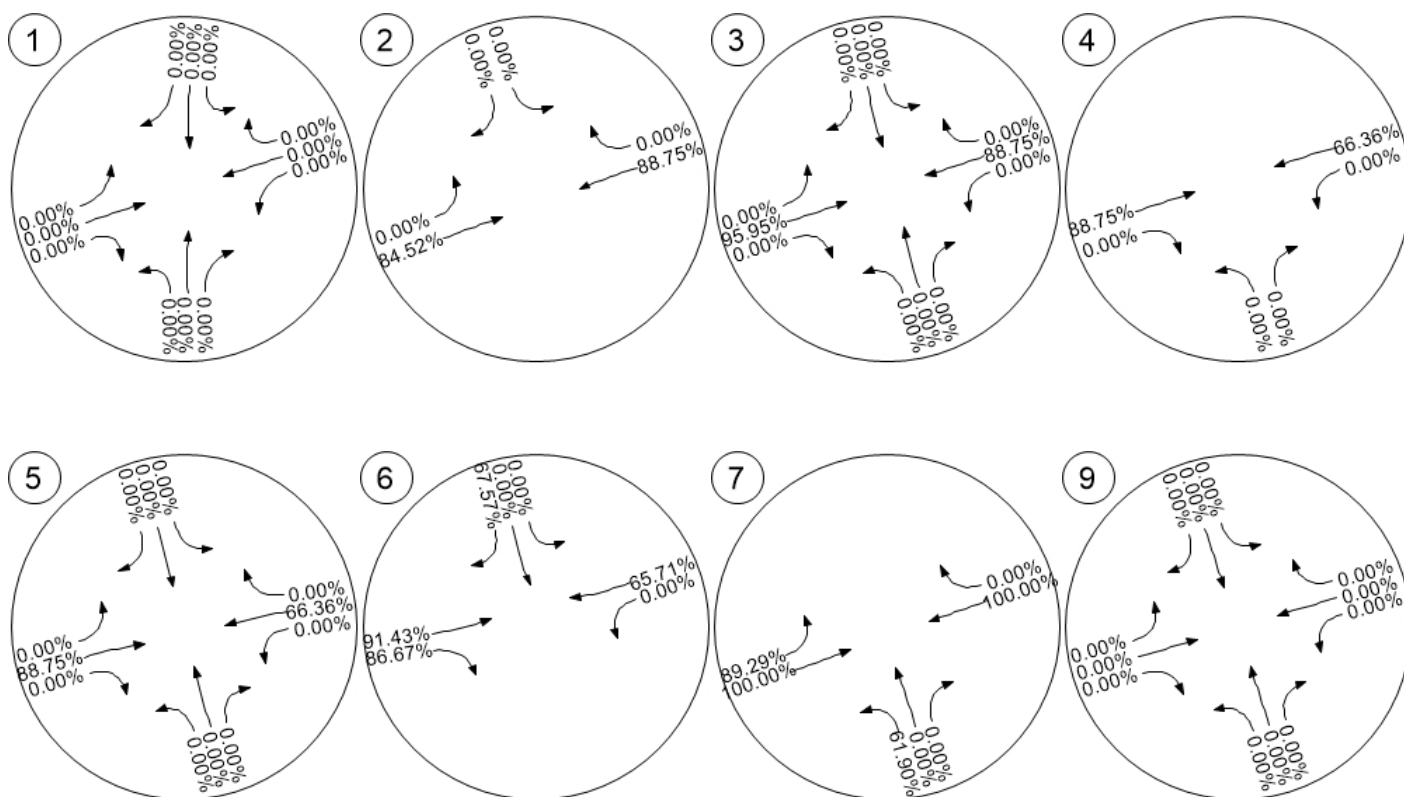




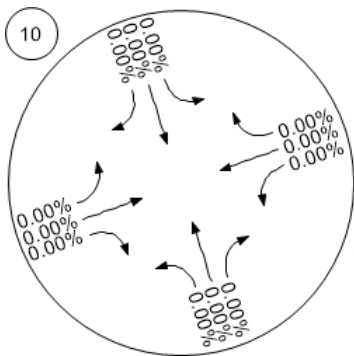
Fair Share - Fair Share % of Net New Site - Zone 21



## Fair Share - Fair Share % of Net New Site - Zone 22

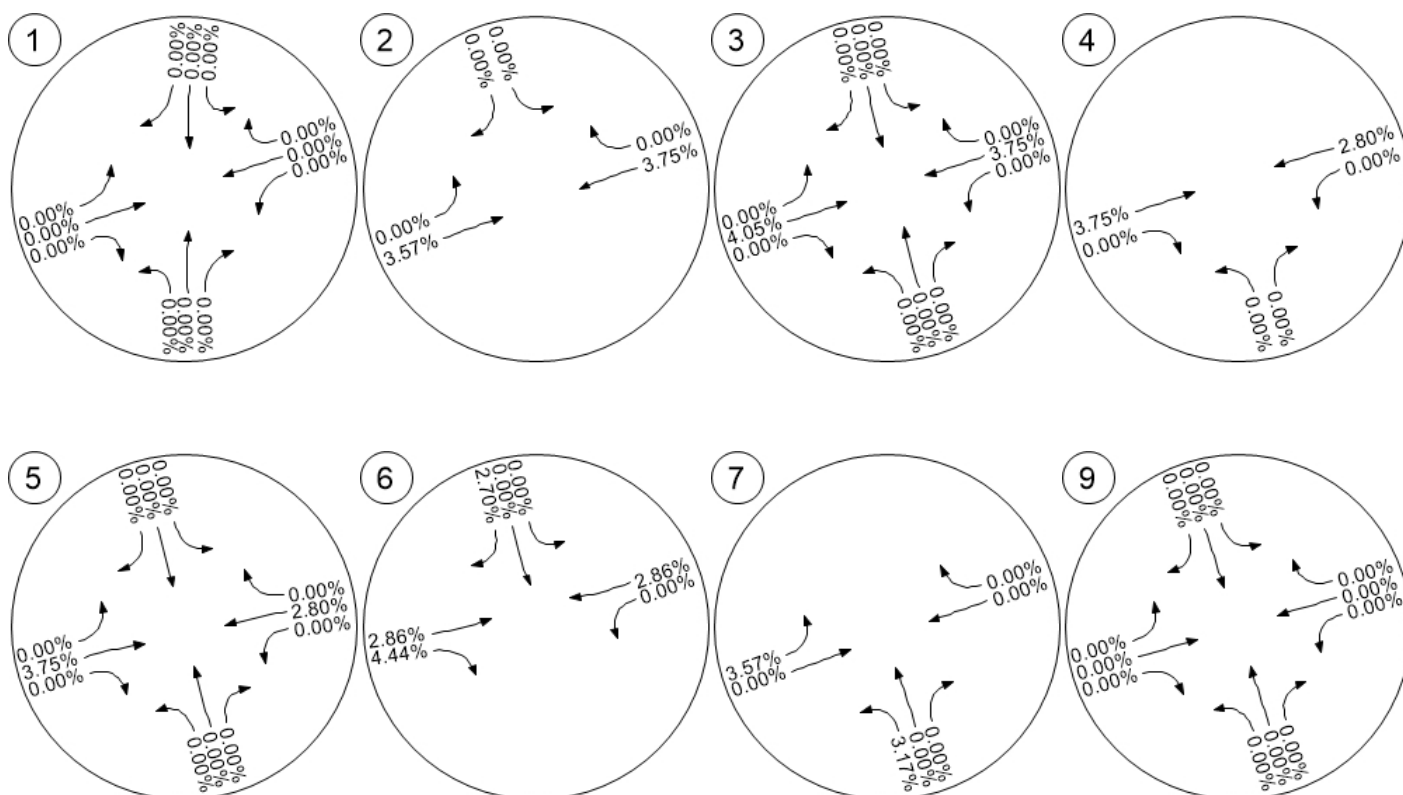


Fair Share - Fair Share % of Net New Site - Zone 22



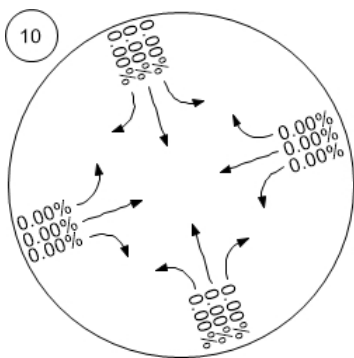


Fair Share - Fair Share % of Net New Site - Zone 23

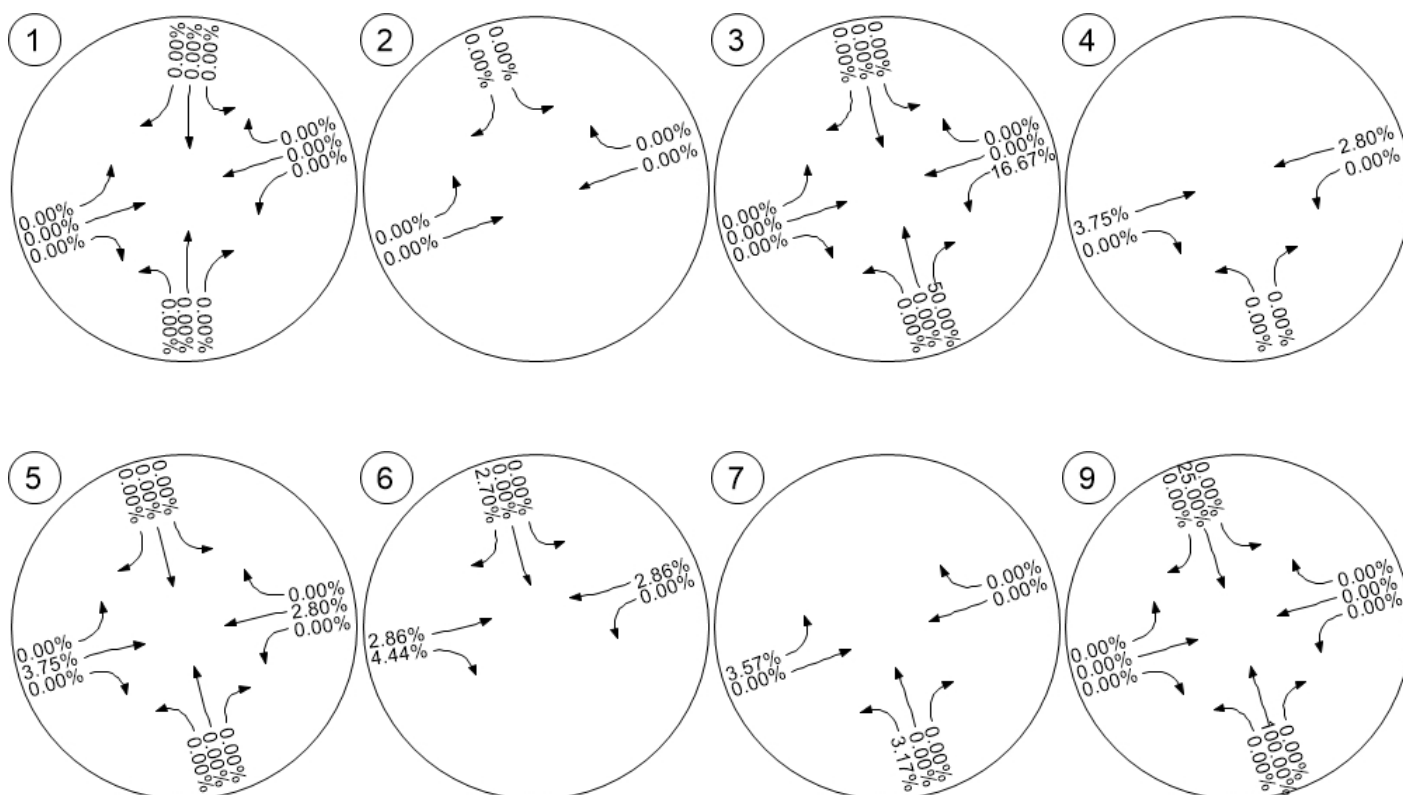




Fair Share - Fair Share % of Net New Site - Zone 23

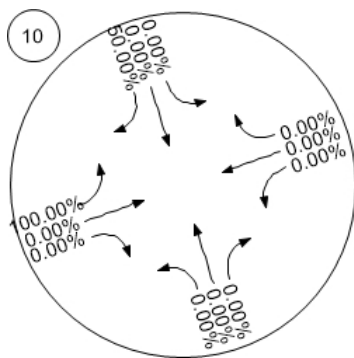


Fair Share - Fair Share % of Net New Site - Zone 24

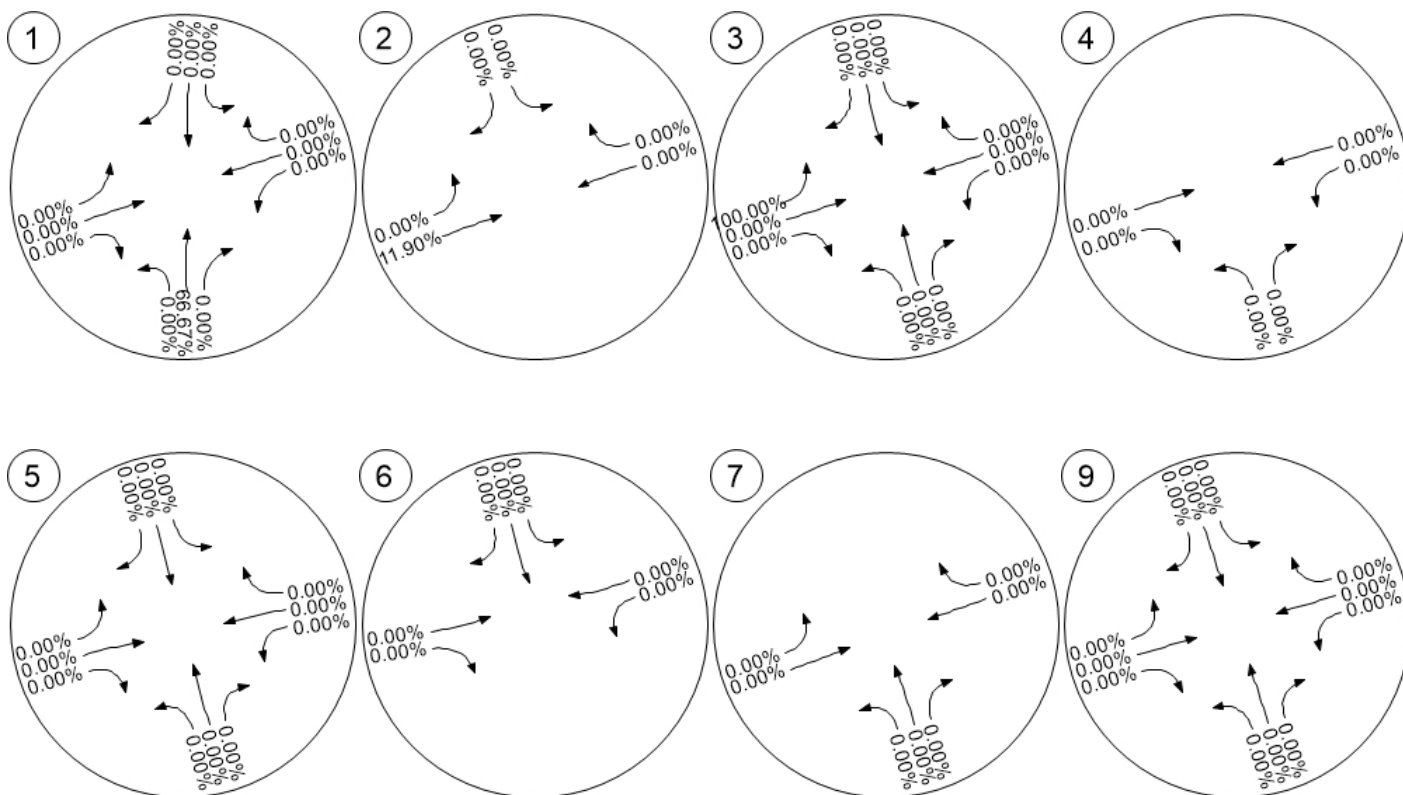




### Fair Share - Fair Share % of Net New Site - Zone 24

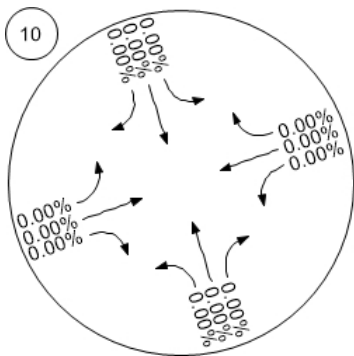


## Fair Share - Fair Share % of Net New Site - Zone 25

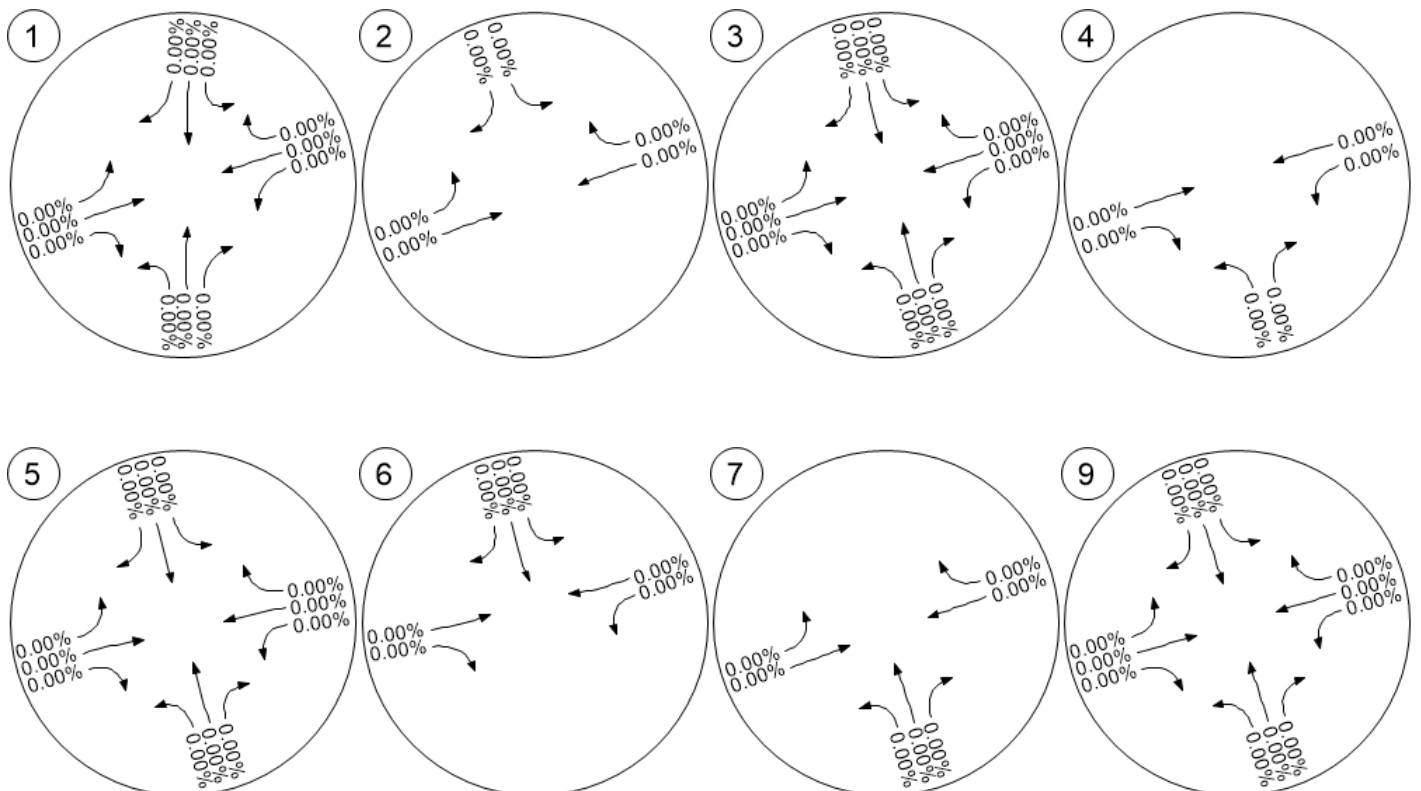




Fair Share - Fair Share % of Net New Site - Zone 25

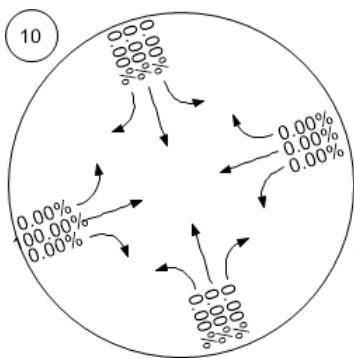


Fair Share - Fair Share % of Net New Site - Zone 26



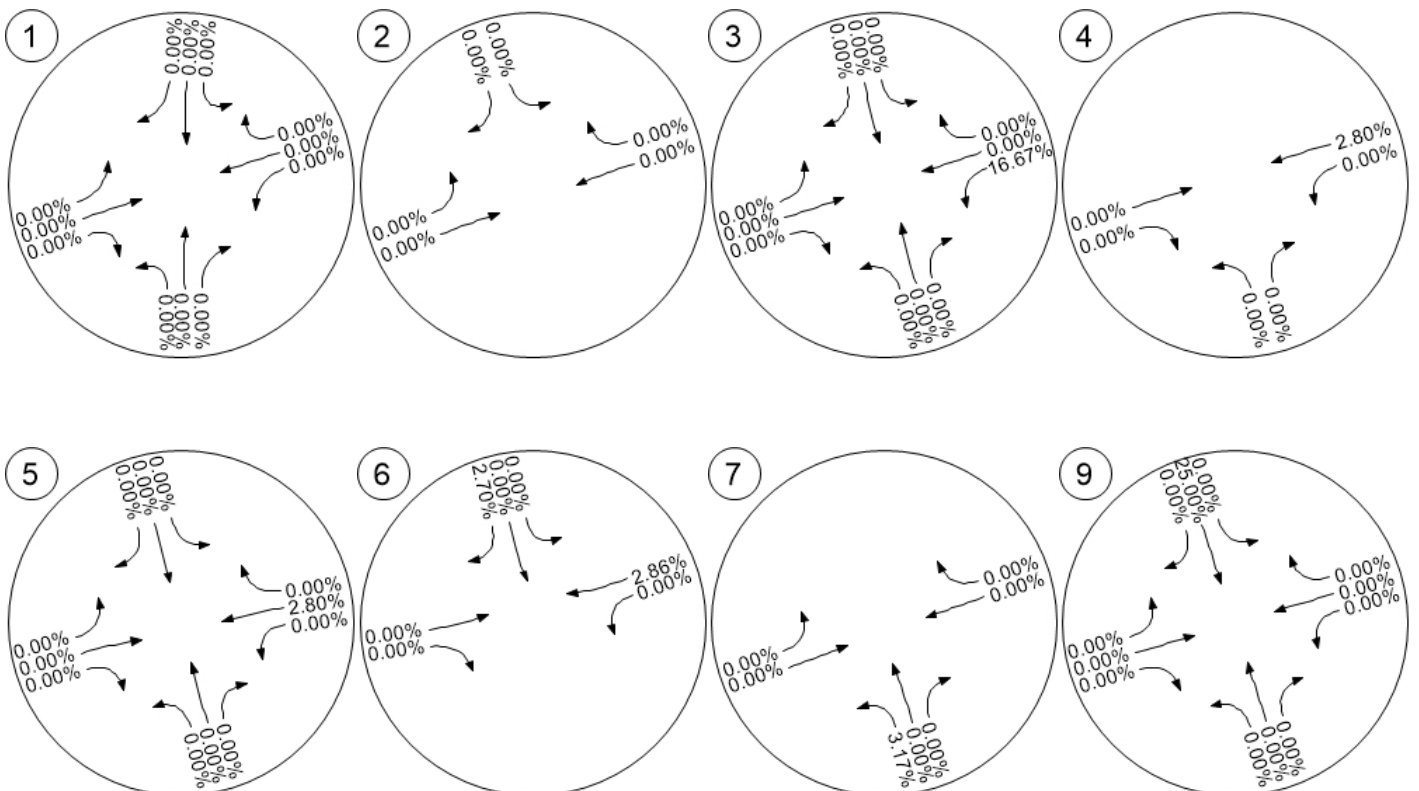


Fair Share - Fair Share % of Net New Site - Zone 26

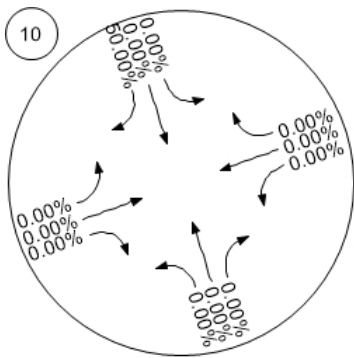




Fair Share - Fair Share % of Net New Site - Zone 27

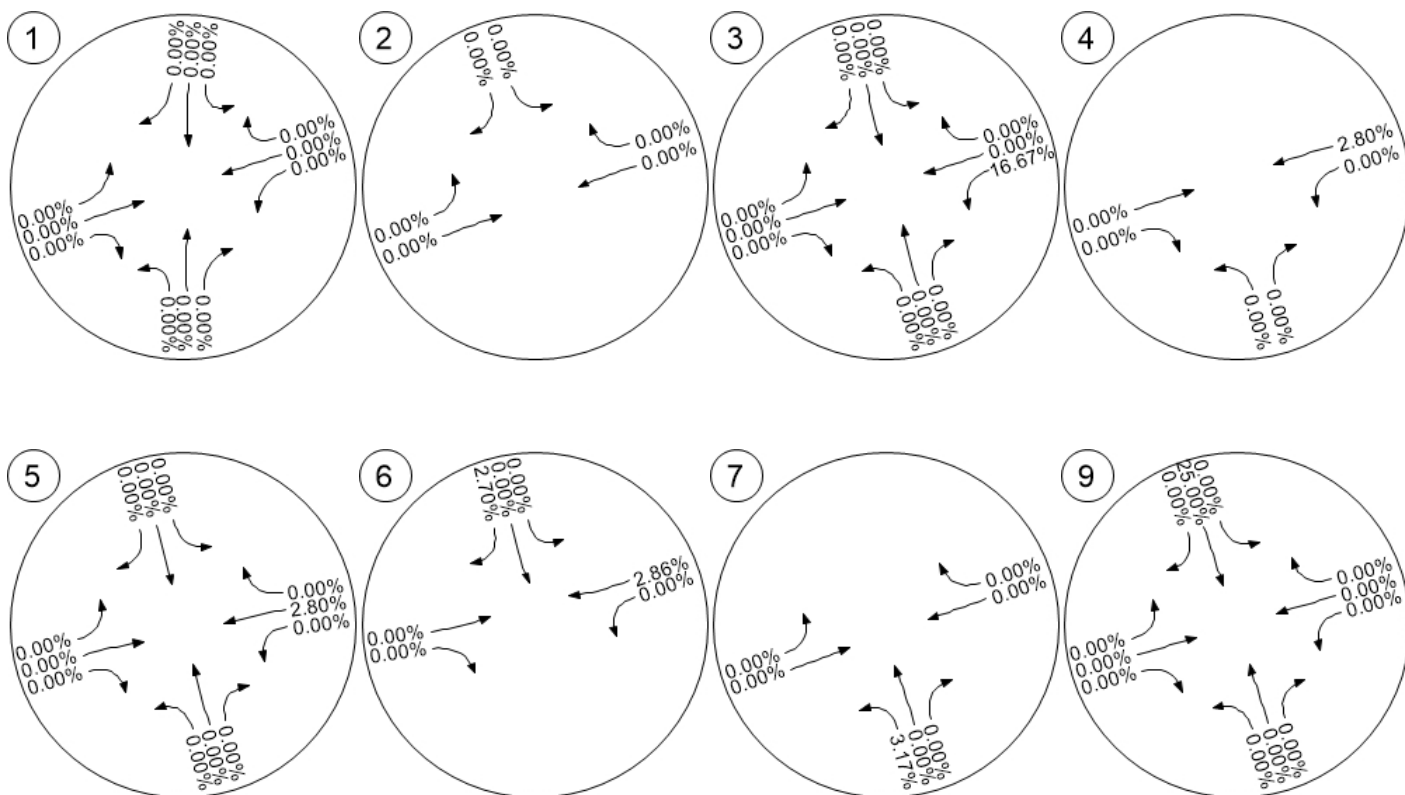


Fair Share - Fair Share % of Net New Site - Zone 27

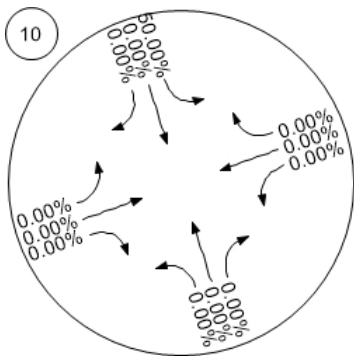




## Fair Share - Fair Share % of Net New Site - Zone 28

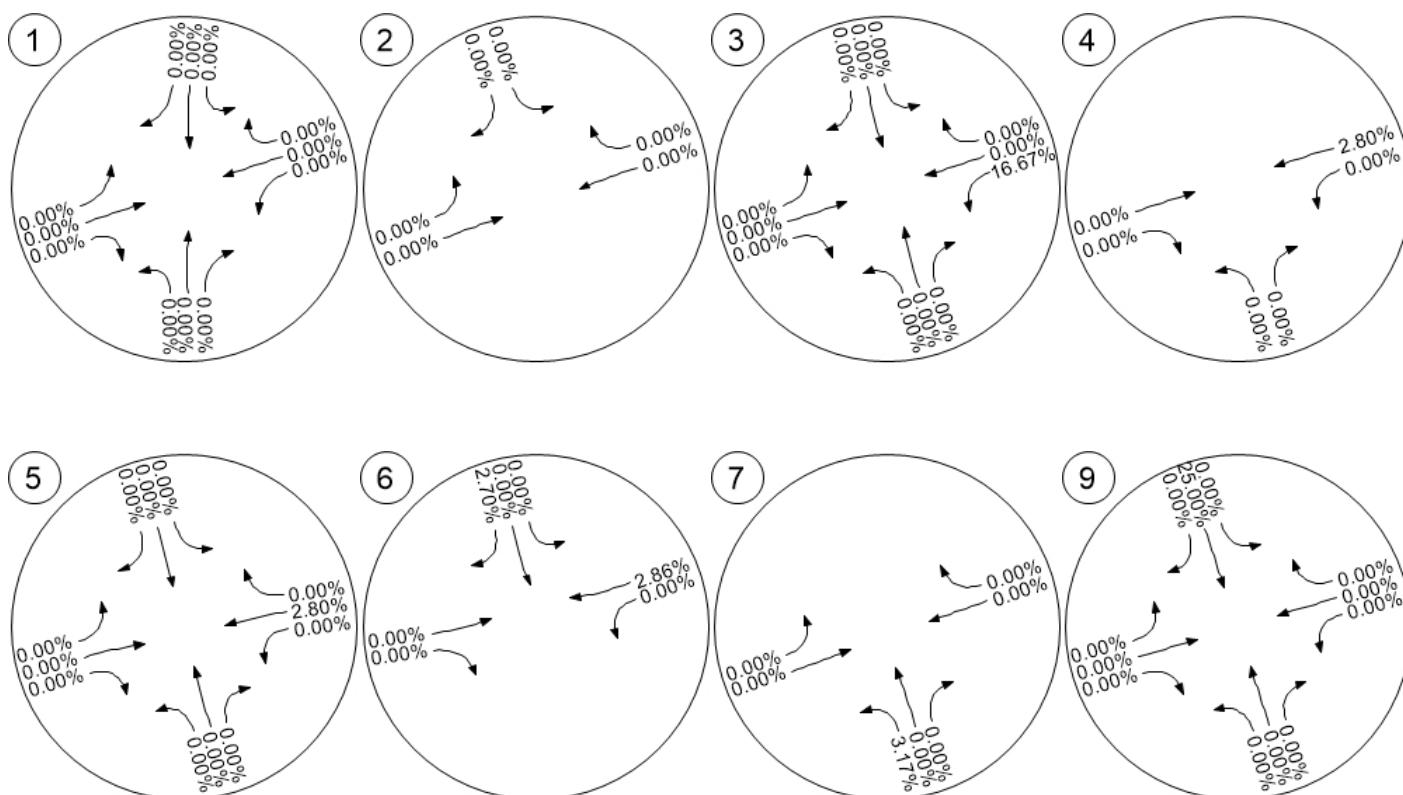


Fair Share - Fair Share % of Net New Site - Zone 28

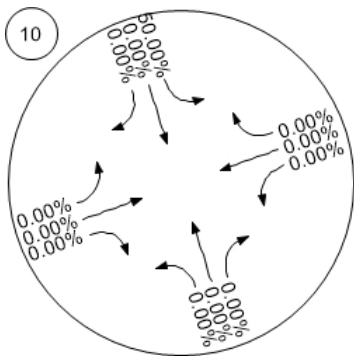
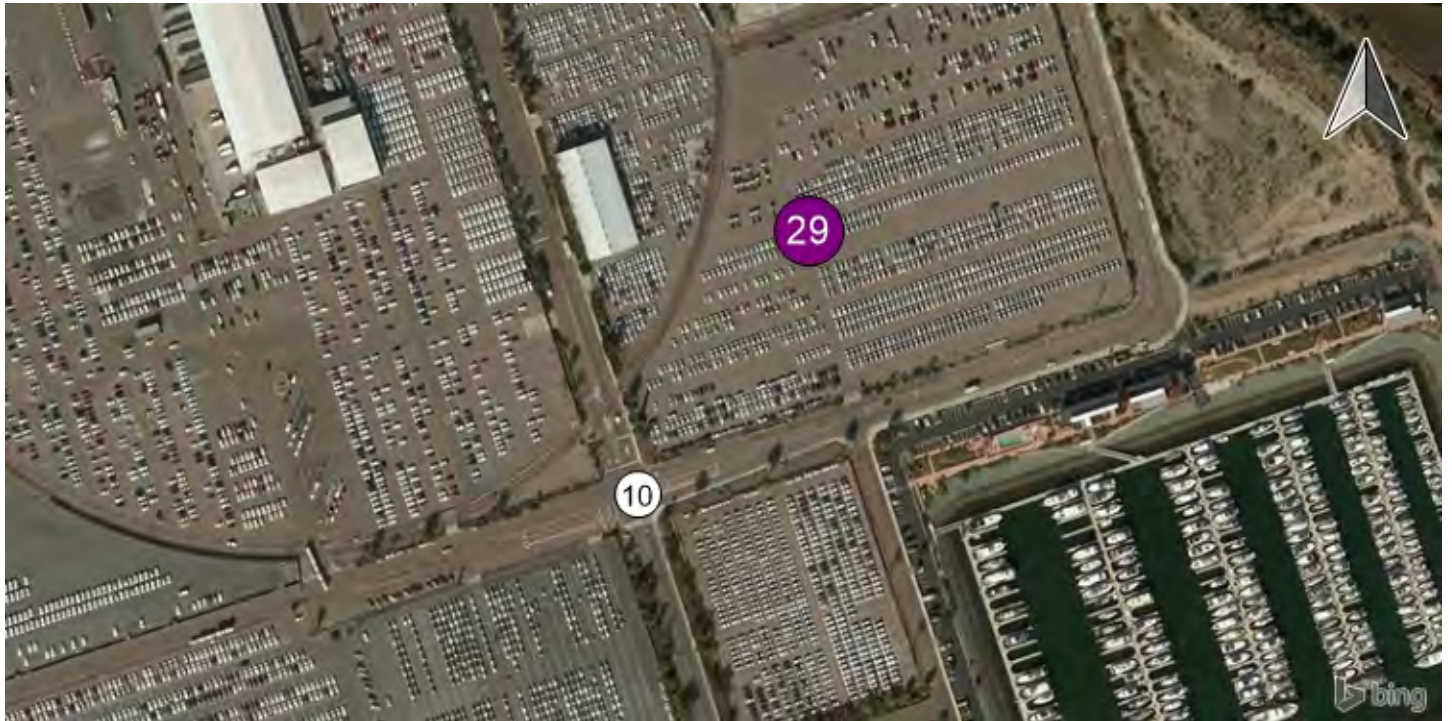




Fair Share - Fair Share % of Net New Site - Zone 29

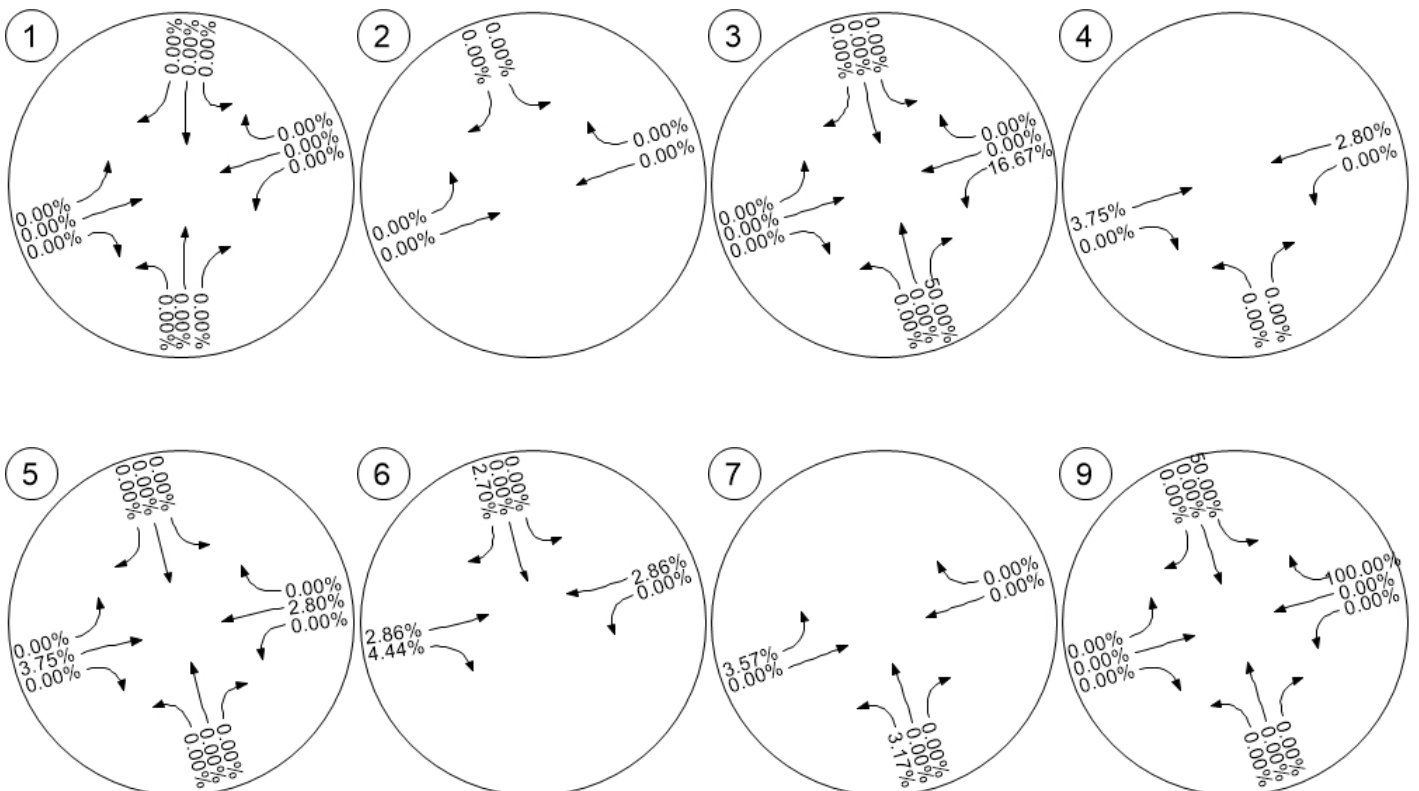


Fair Share - Fair Share % of Net New Site - Zone 29



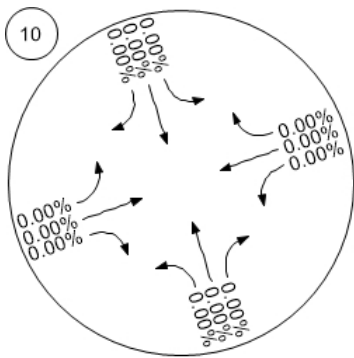


Fair Share - Fair Share % of Net New Site - Zone 32

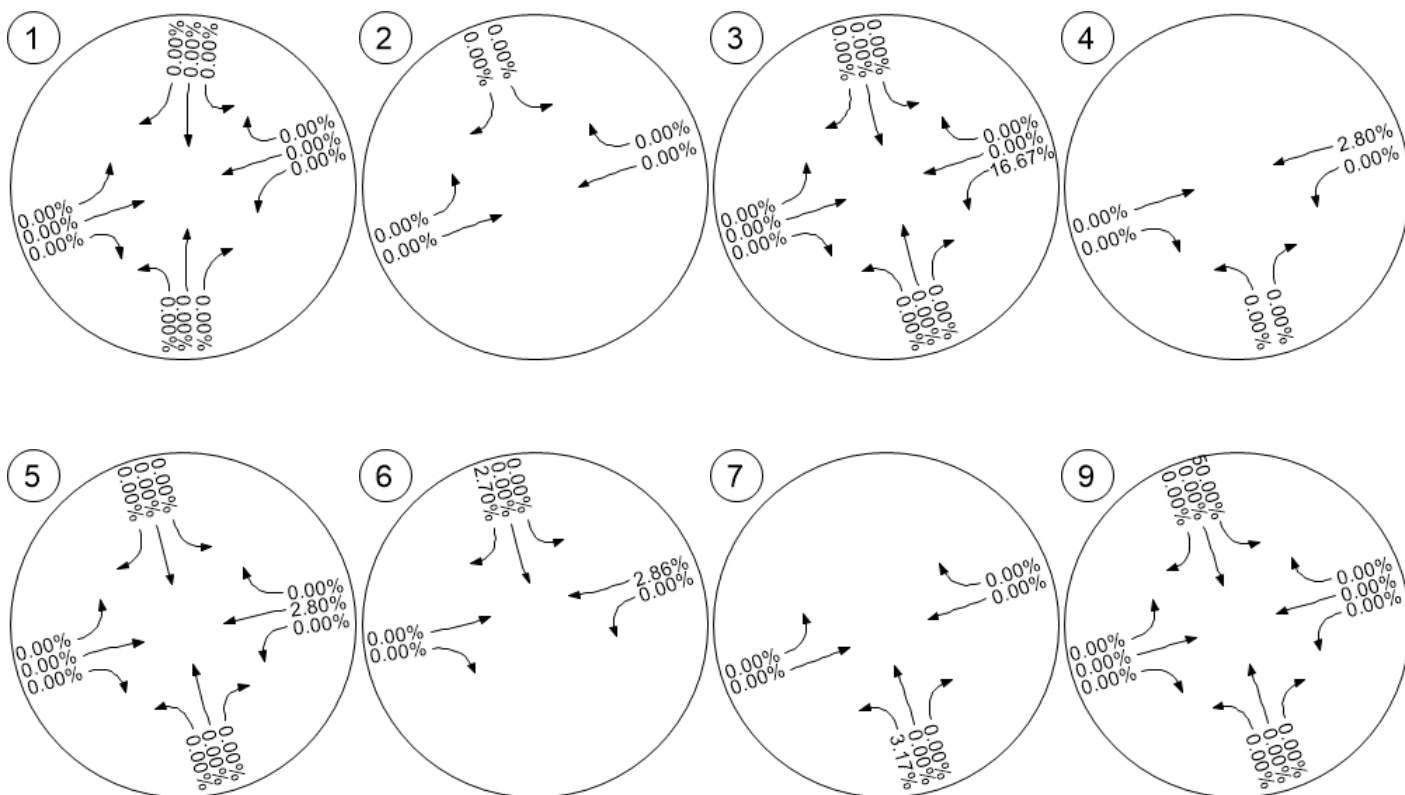




Fair Share - Fair Share % of Net New Site - Zone 32

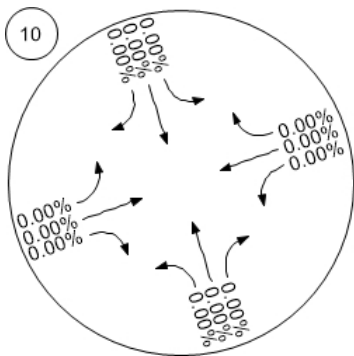


## Fair Share - Fair Share % of Net New Site - Zone 33

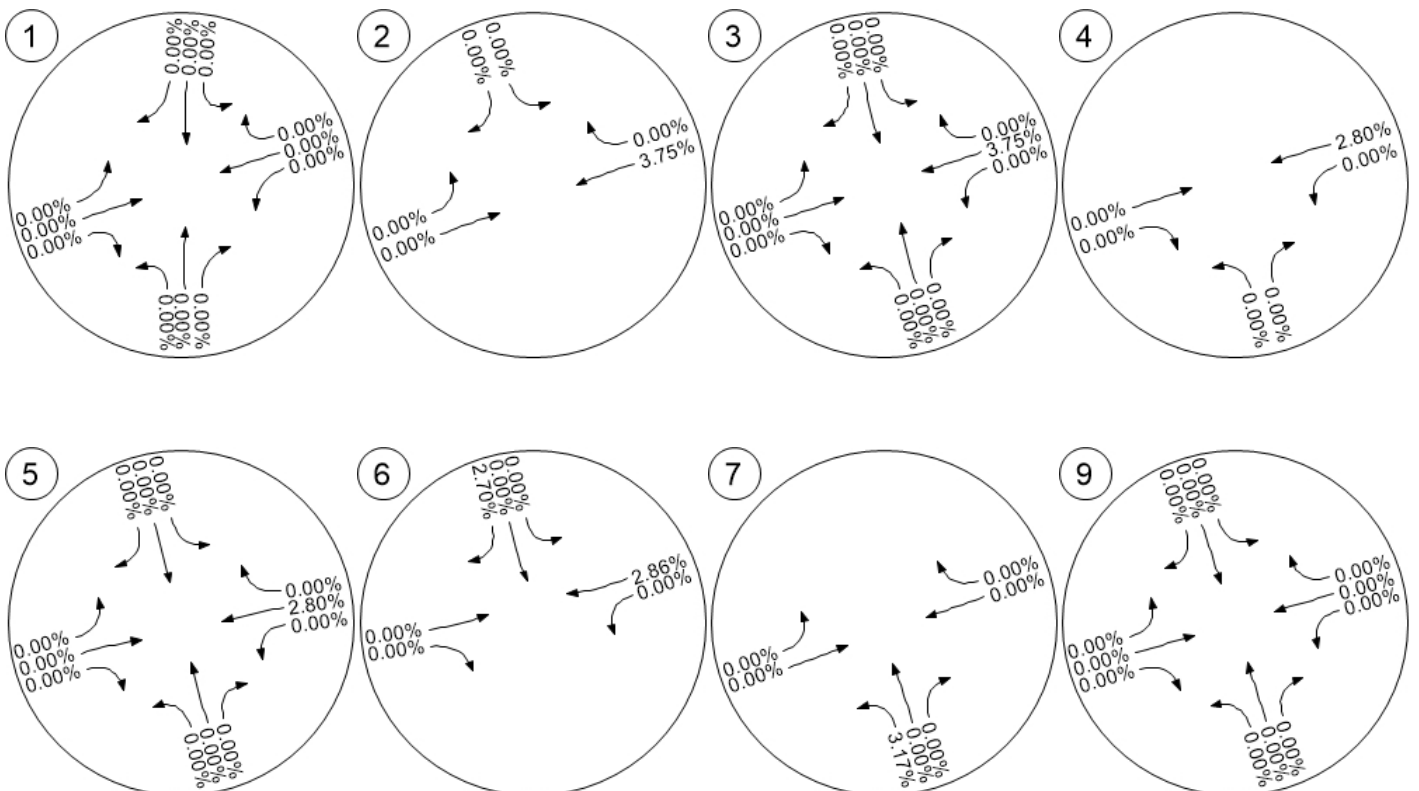




Fair Share - Fair Share % of Net New Site - Zone 33

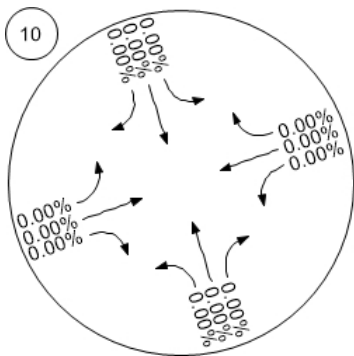


Fair Share - Fair Share % of Net New Site - Zone 34

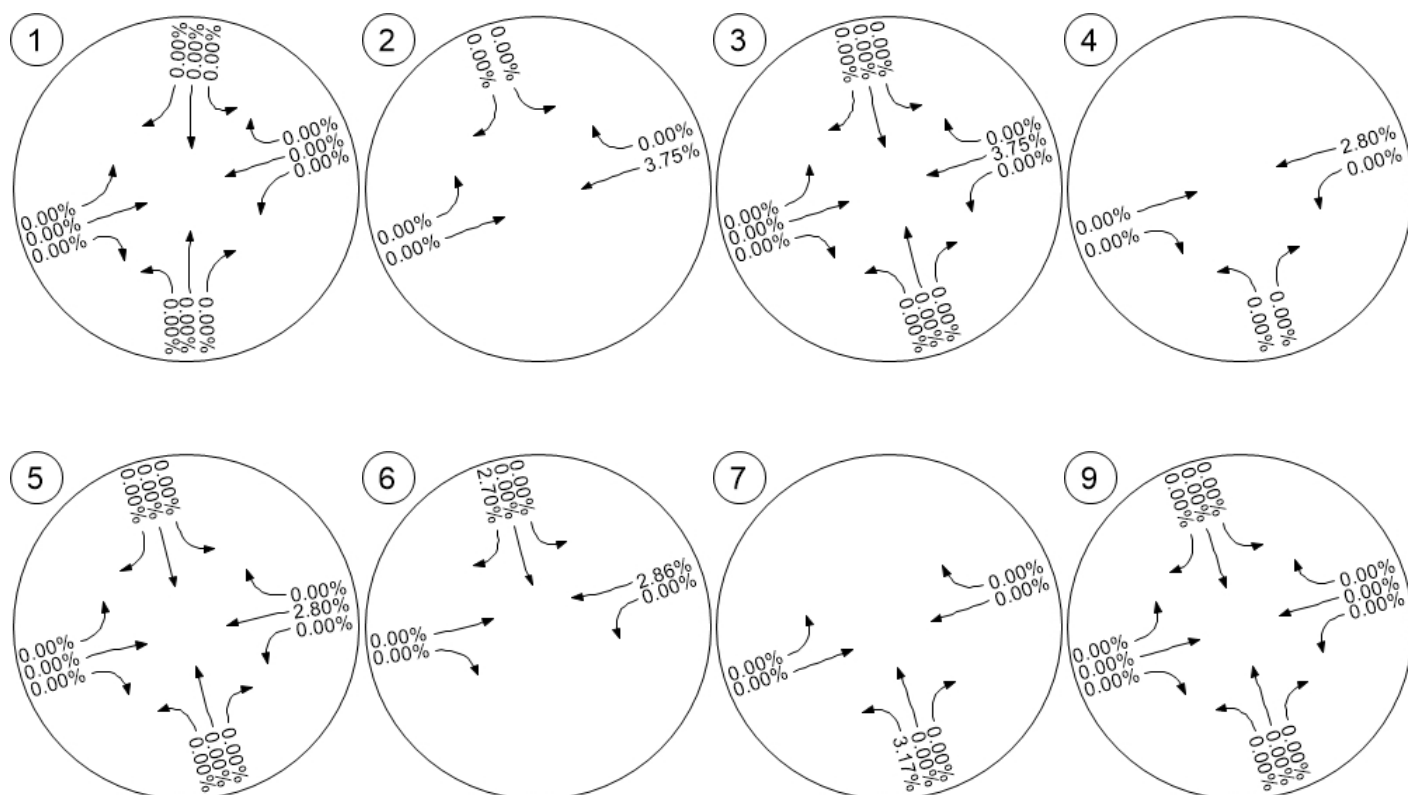




Fair Share - Fair Share % of Net New Site - Zone 34

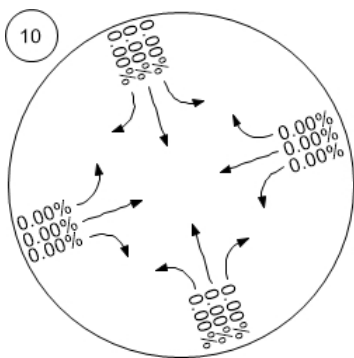


## Fair Share - Fair Share % of Net New Site - Zone 35

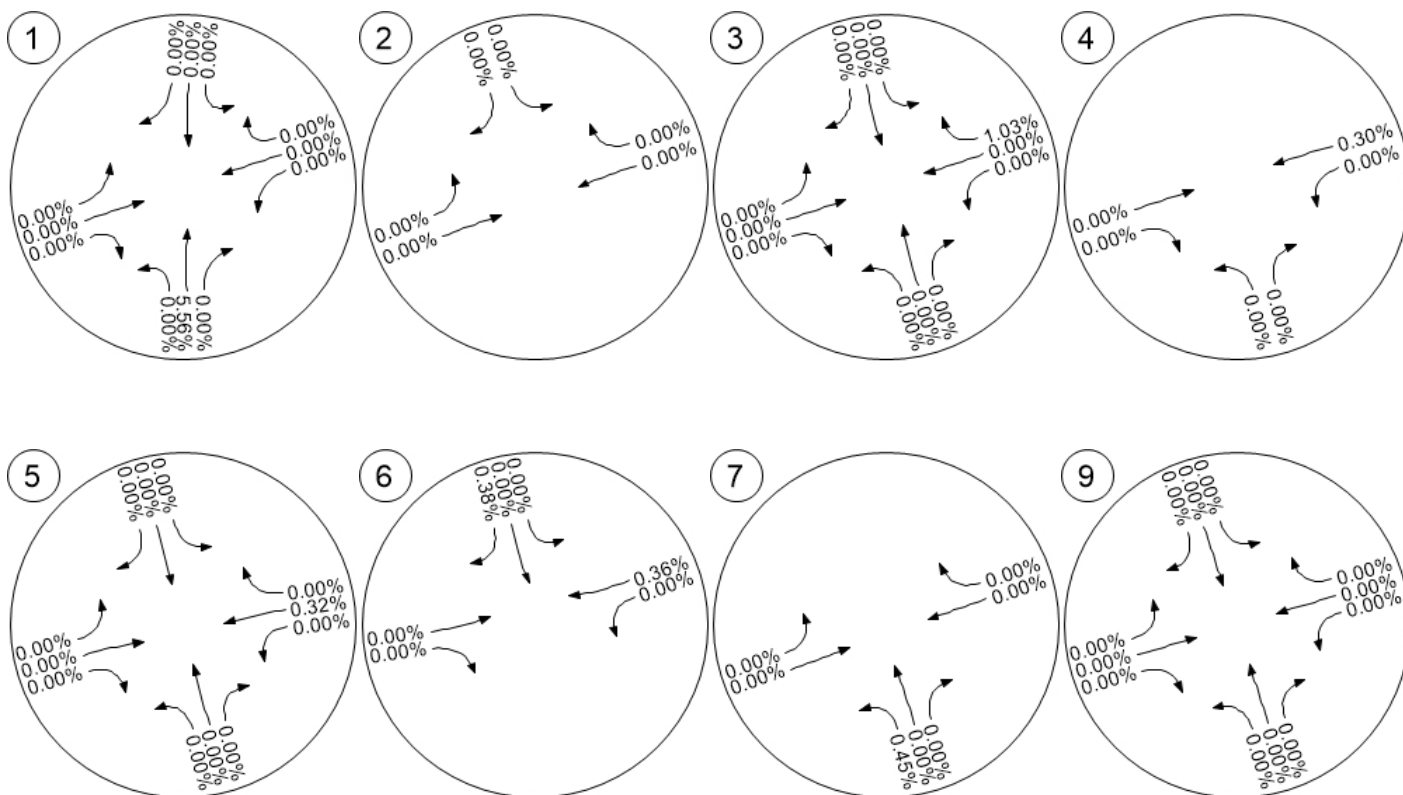




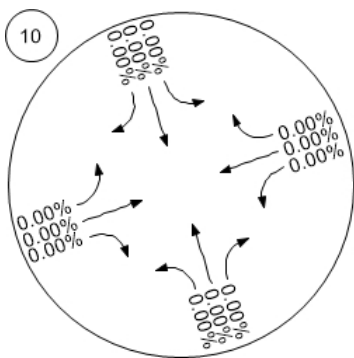
Fair Share - Fair Share % of Net New Site - Zone 35



## Fair Share - Fair Share % of Total Analysis - Zone 18

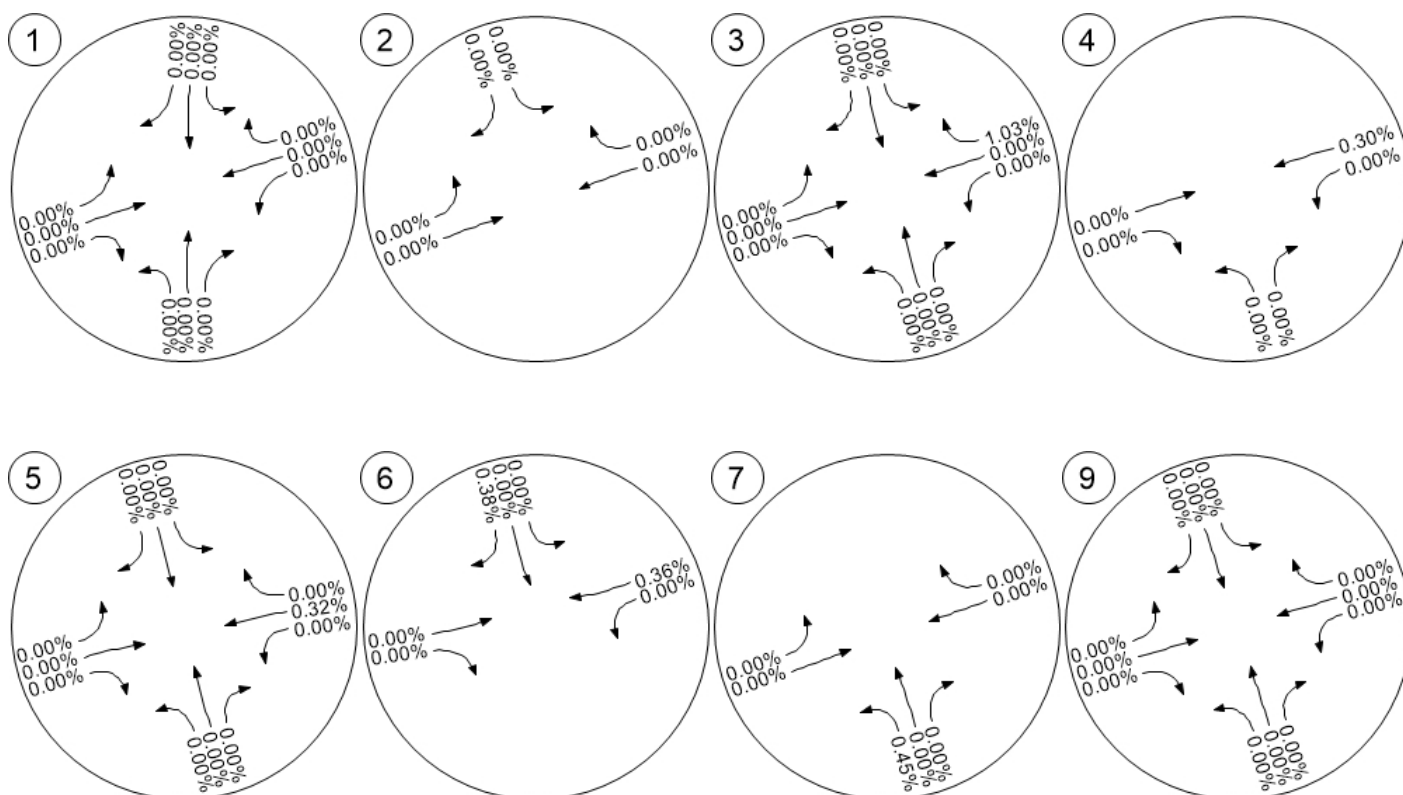


Fair Share - Fair Share % of Total Analysis - Zone 18

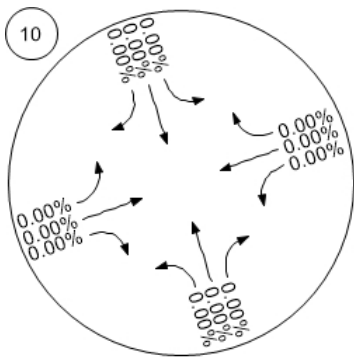




Fair Share - Fair Share % of Total Analysis - Zone 19

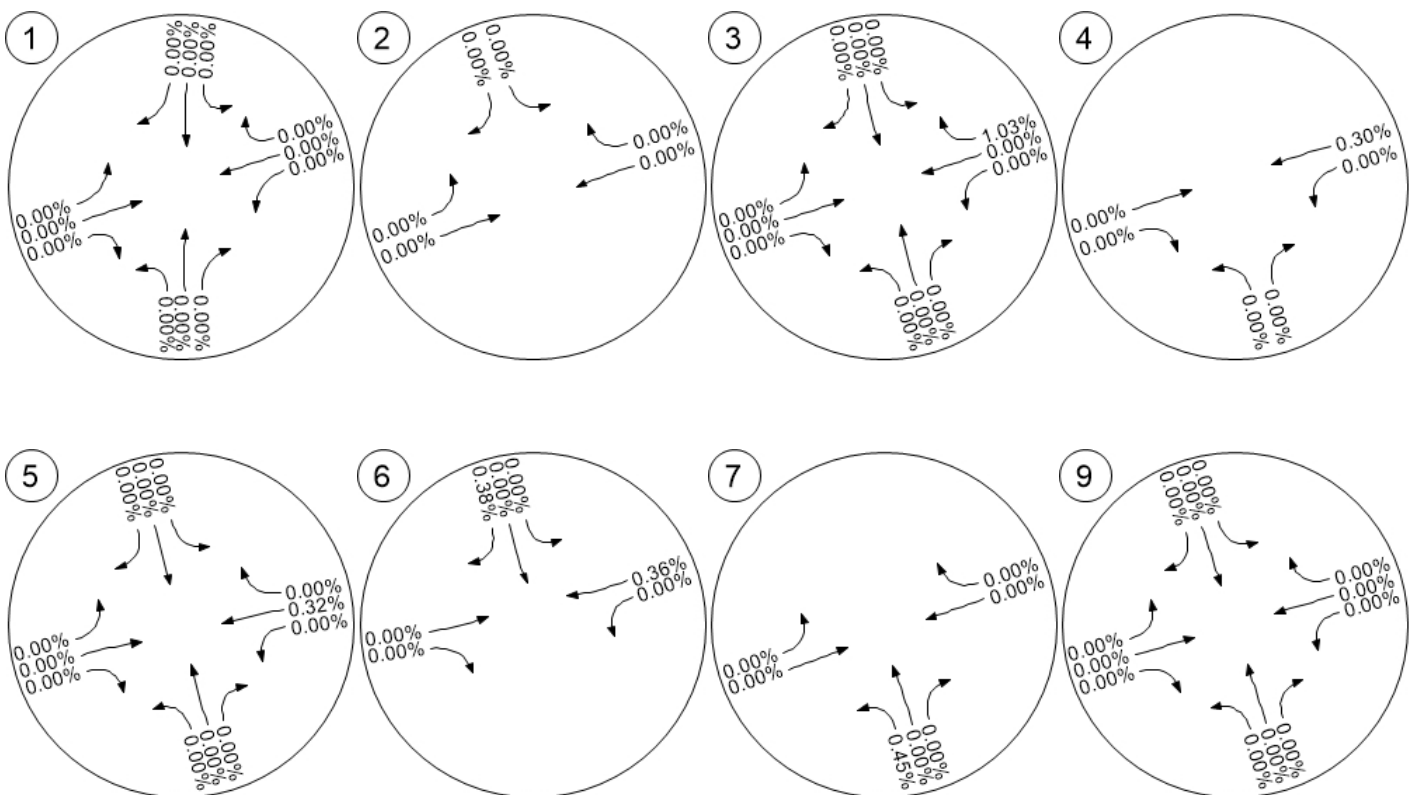


Fair Share - Fair Share % of Total Analysis - Zone 19



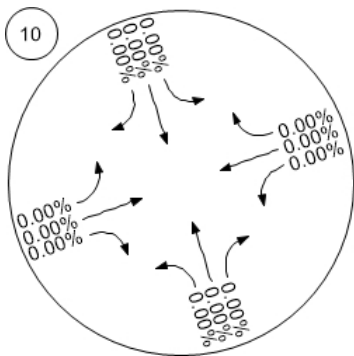


## Fair Share - Fair Share % of Total Analysis - Zone 20

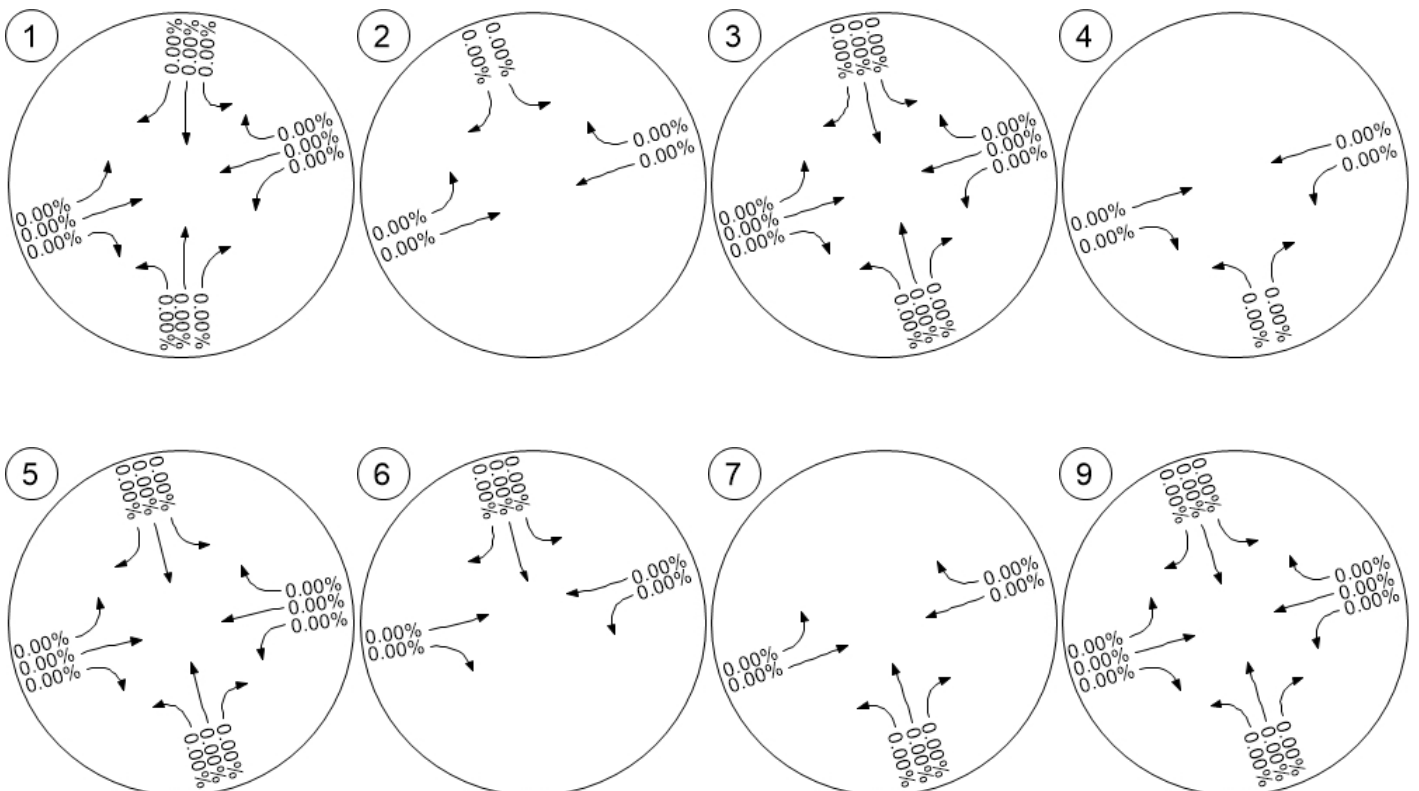




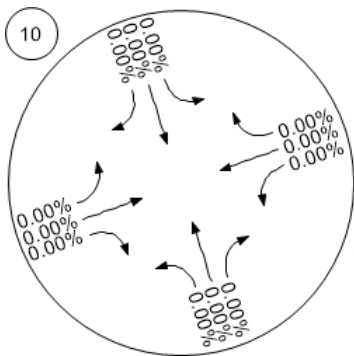
Fair Share - Fair Share % of Total Analysis - Zone 20



Fair Share - Fair Share % of Total Analysis - Zone 21

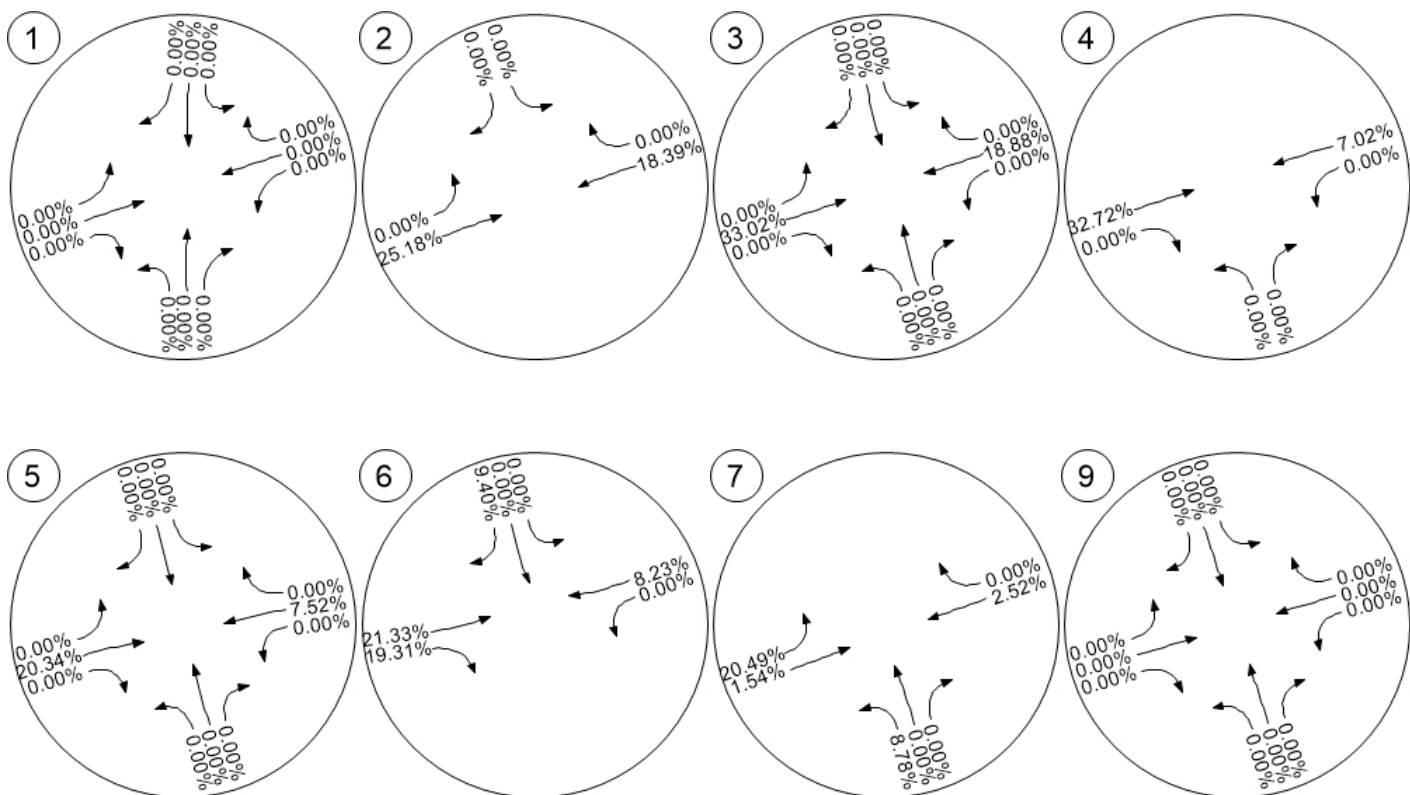


Fair Share - Fair Share % of Total Analysis - Zone 21

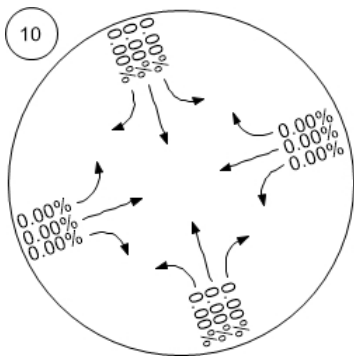




## Fair Share - Fair Share % of Total Analysis - Zone 22

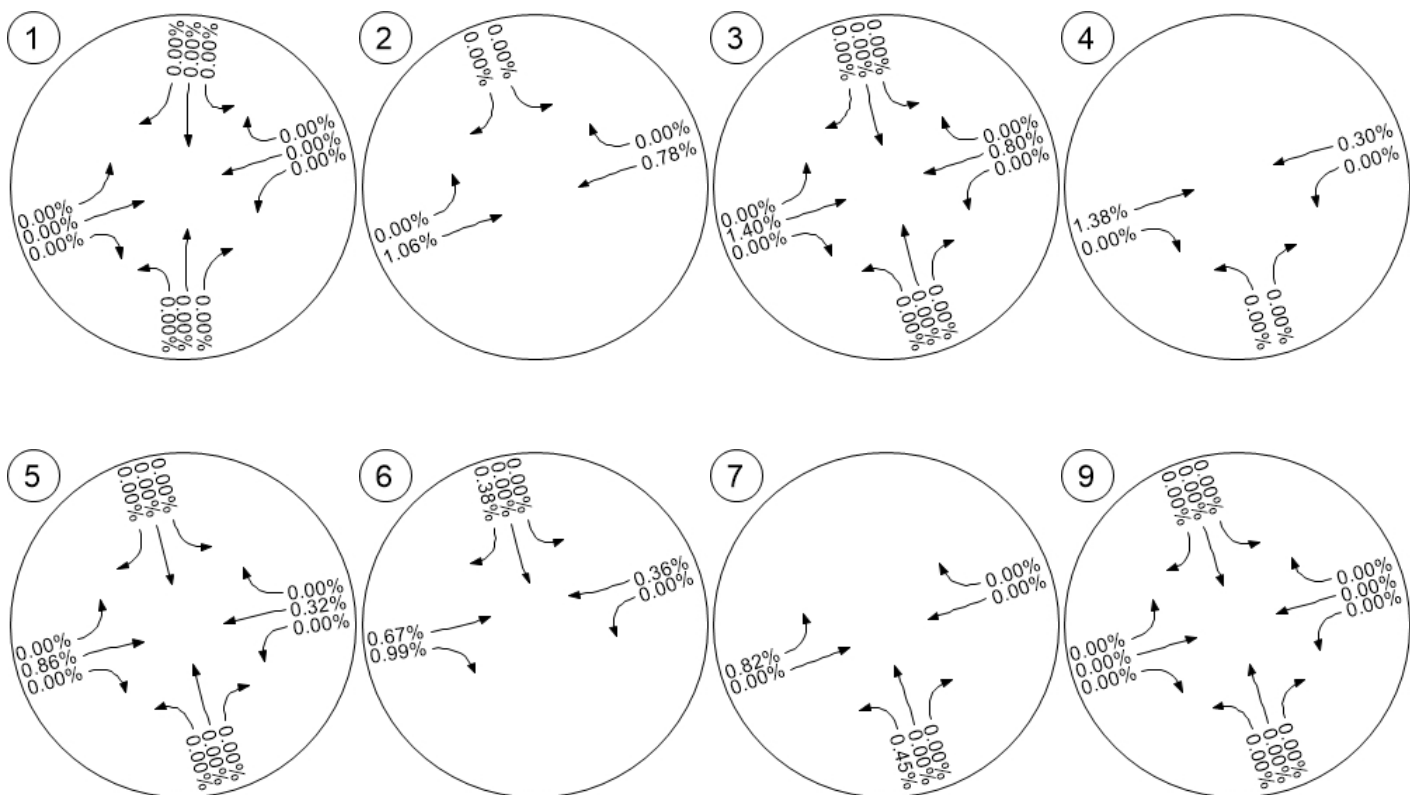


Fair Share - Fair Share % of Total Analysis - Zone 22



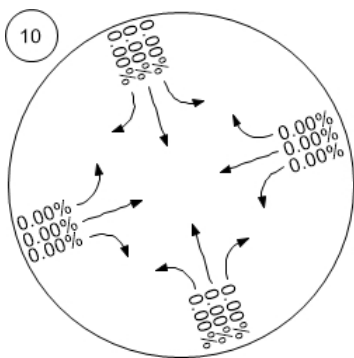


## Fair Share - Fair Share % of Total Analysis - Zone 23

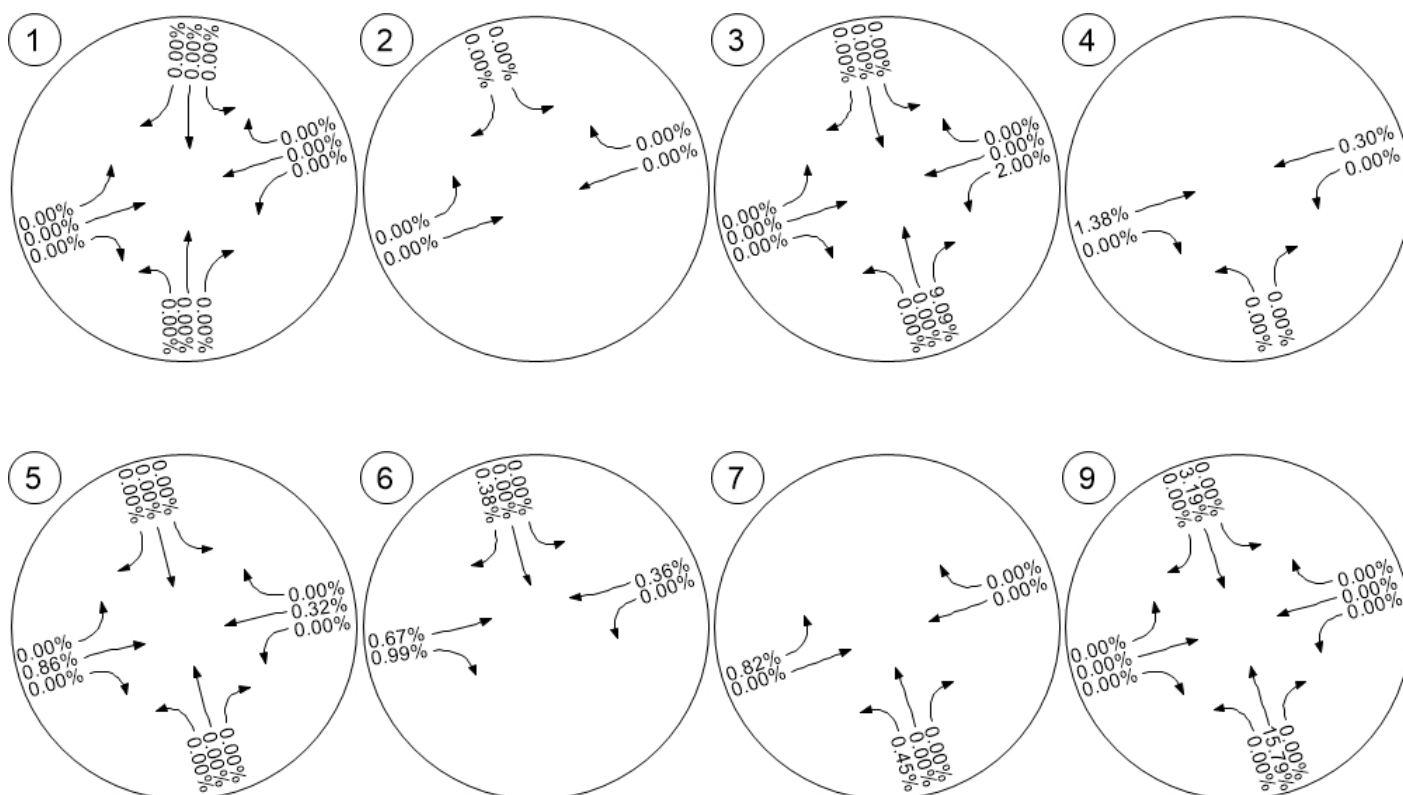




Fair Share - Fair Share % of Total Analysis - Zone 23

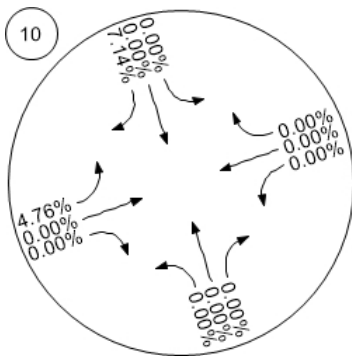


Fair Share - Fair Share % of Total Analysis - Zone 24

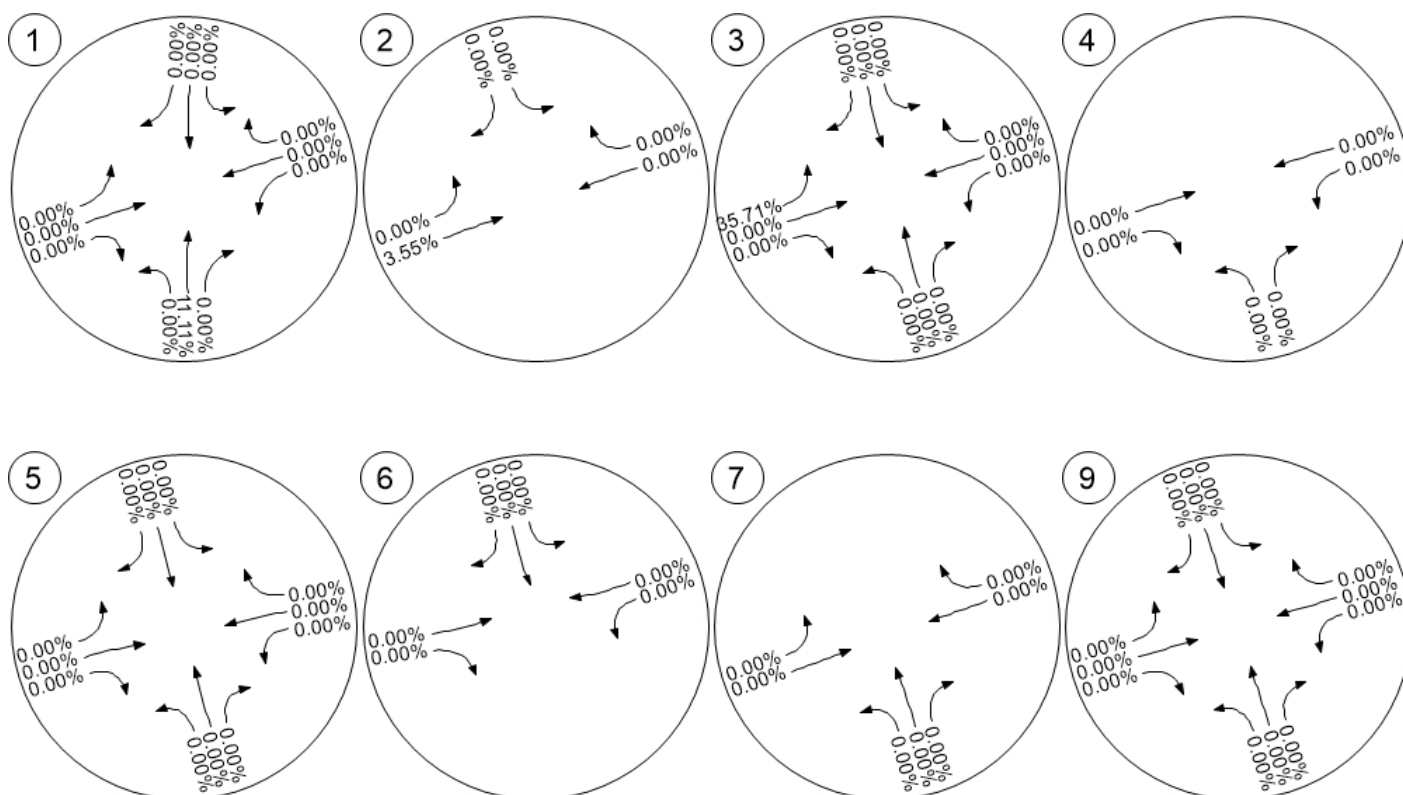




Fair Share - Fair Share % of Total Analysis - Zone 24

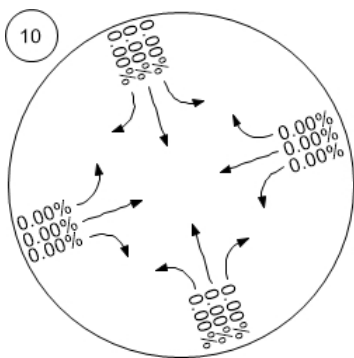


## Fair Share - Fair Share % of Total Analysis - Zone 25

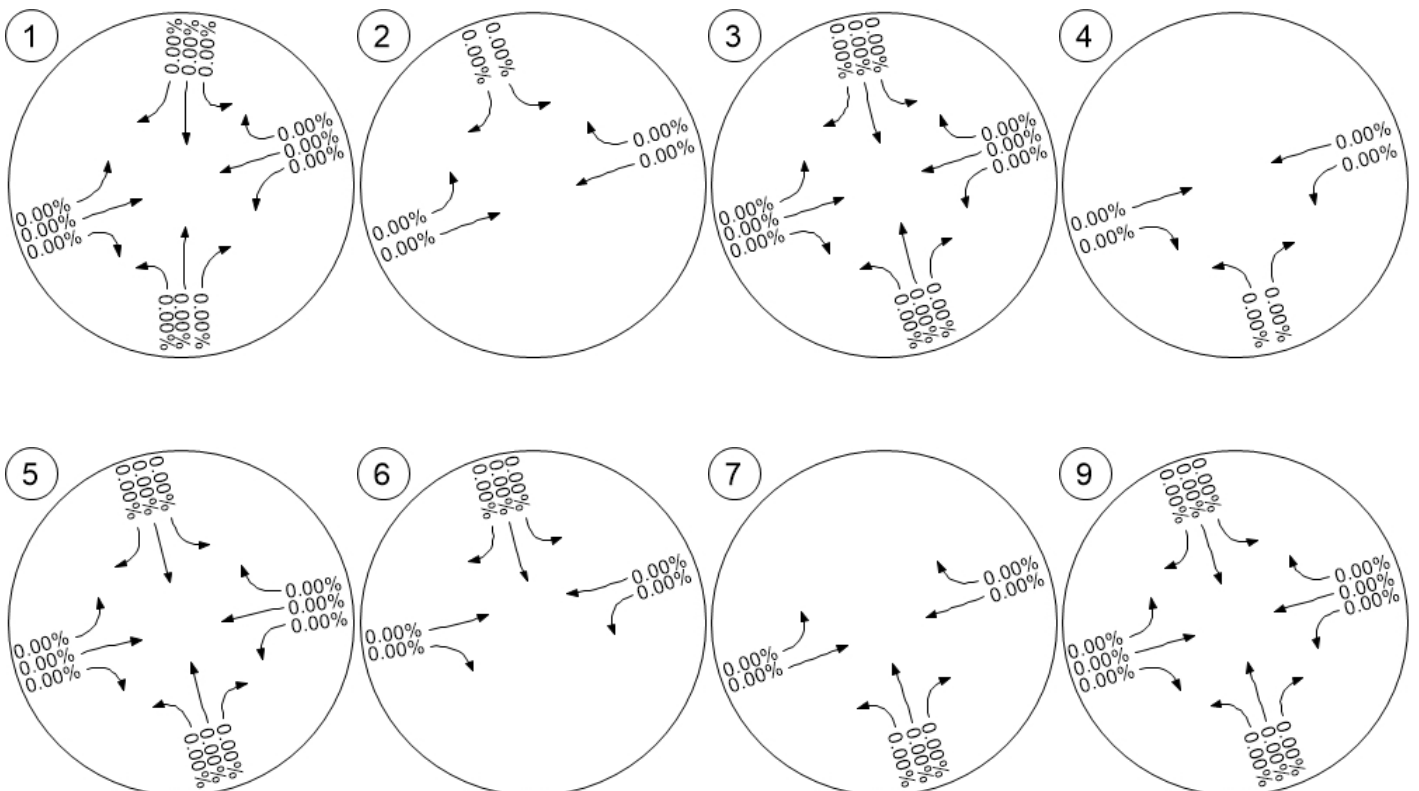




Fair Share - Fair Share % of Total Analysis - Zone 25

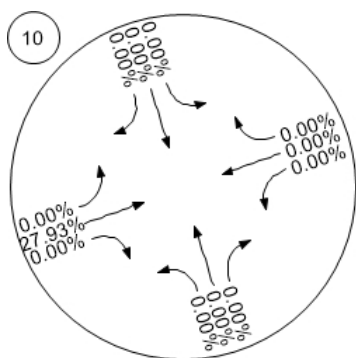


Fair Share - Fair Share % of Total Analysis - Zone 26

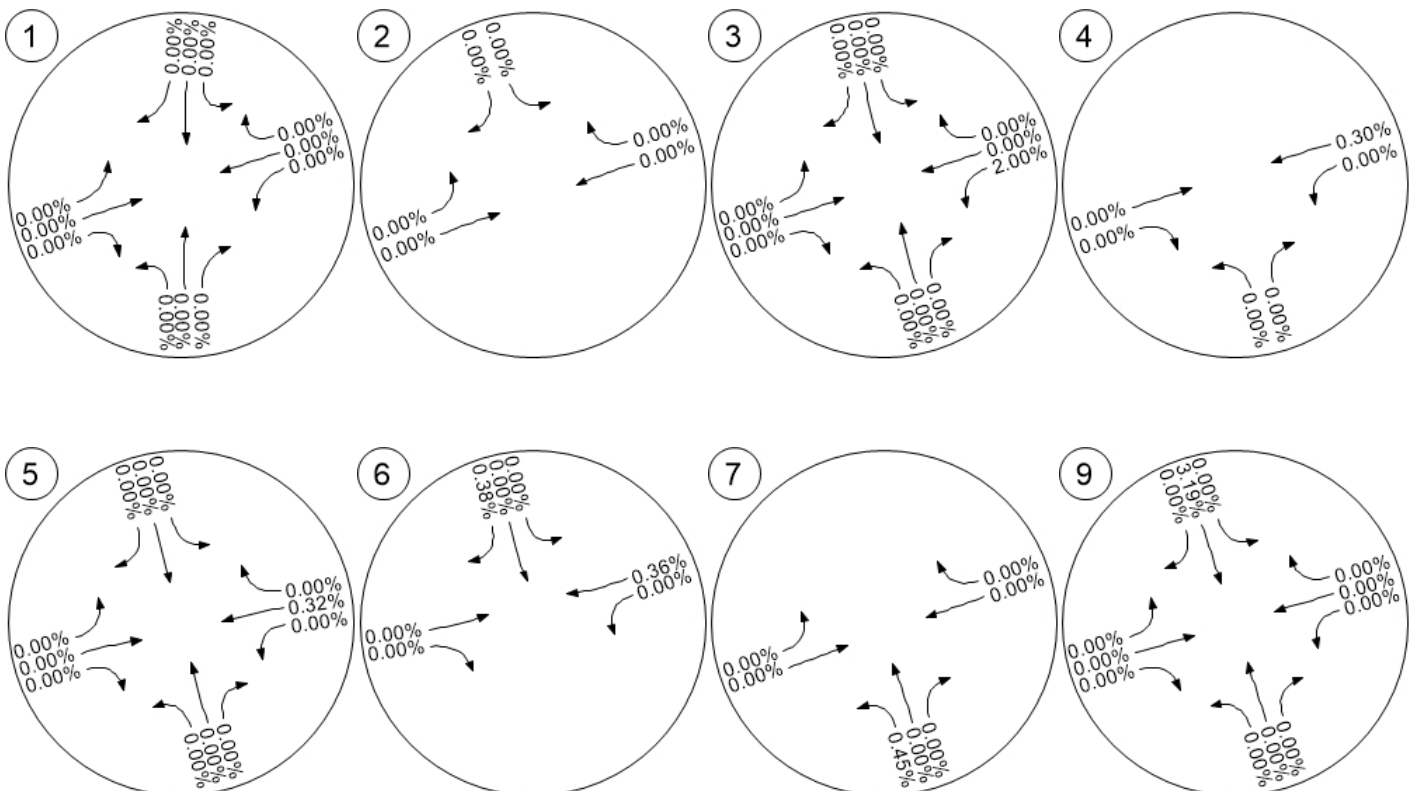




## Fair Share - Fair Share % of Total Analysis - Zone 26

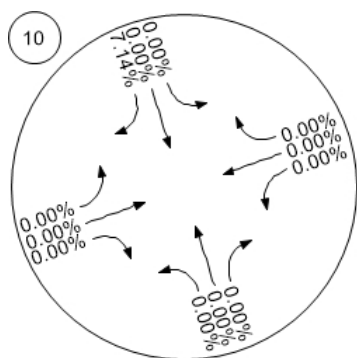


Fair Share - Fair Share % of Total Analysis - Zone 27

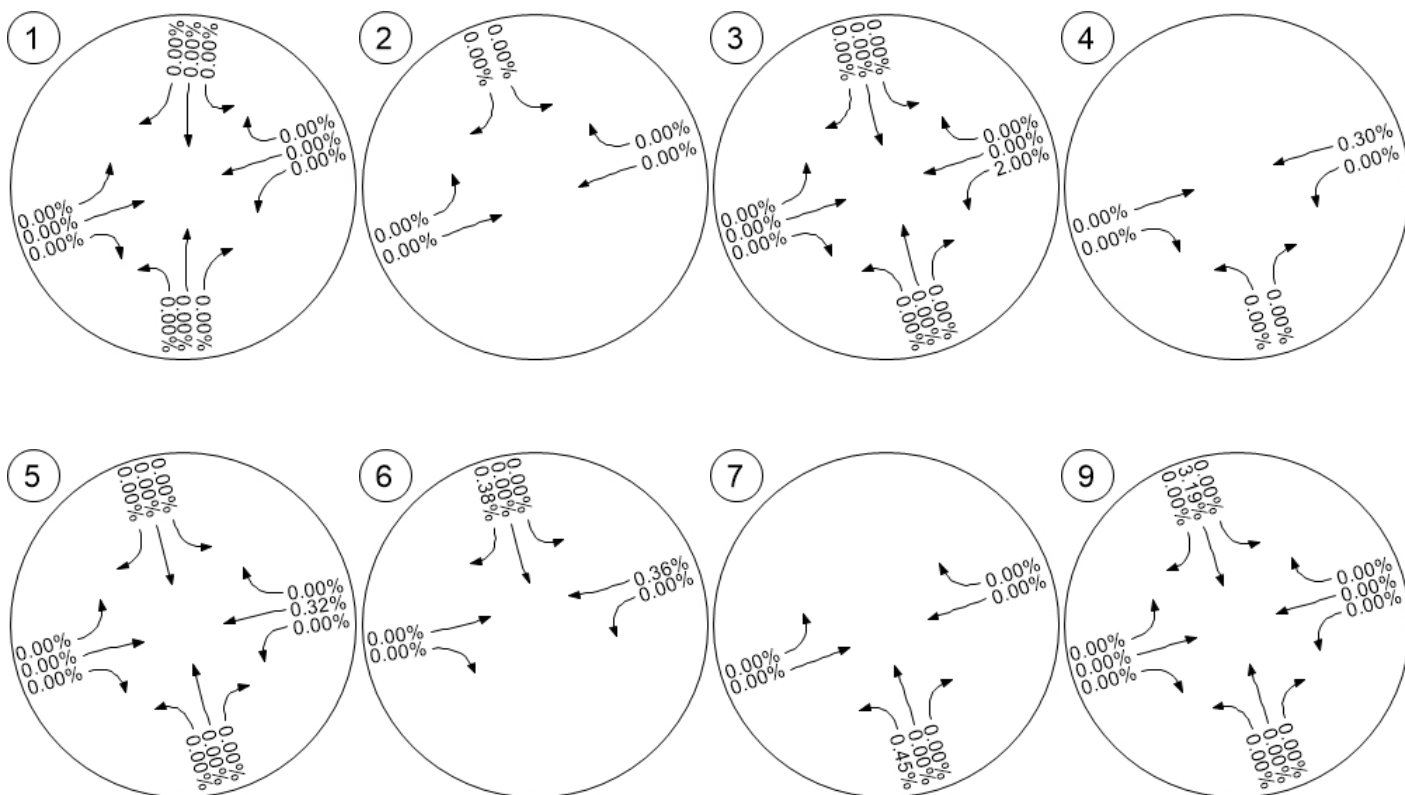




## Fair Share - Fair Share % of Total Analysis - Zone 27

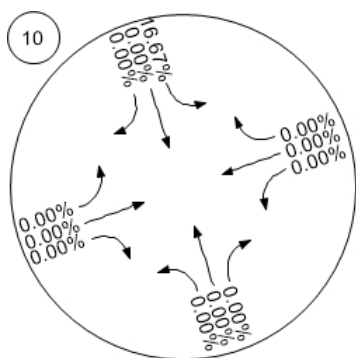


## Fair Share - Fair Share % of Total Analysis - Zone 28

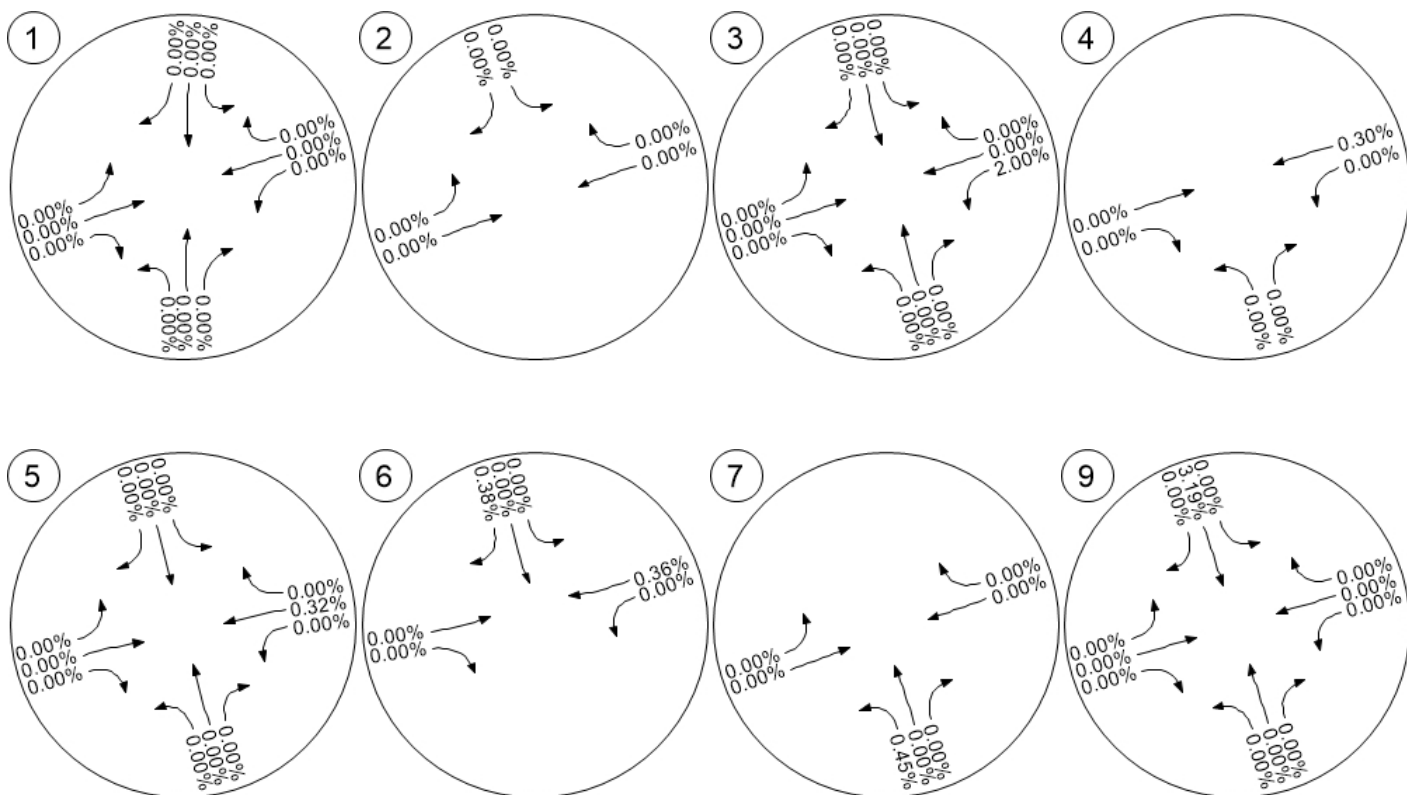




Fair Share - Fair Share % of Total Analysis - Zone 28

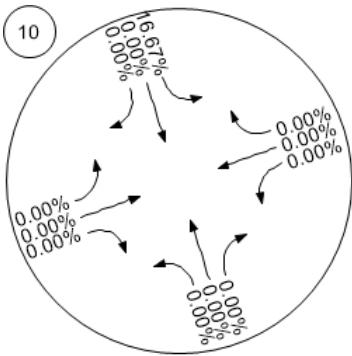


## Fair Share - Fair Share % of Total Analysis - Zone 29

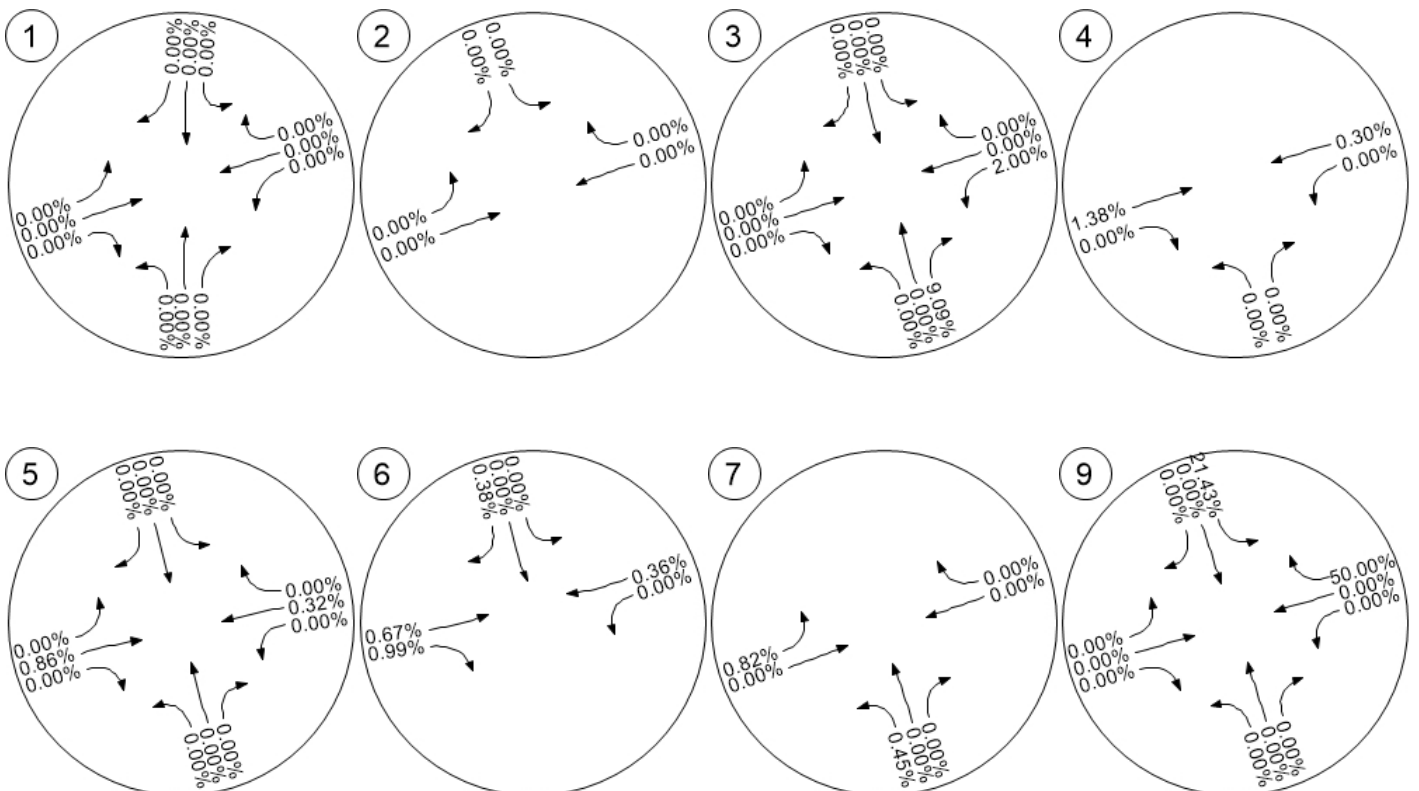




### Fair Share - Fair Share % of Total Analysis - Zone 29

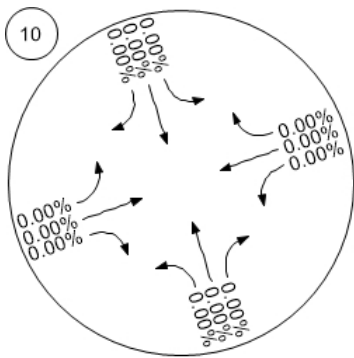


Fair Share - Fair Share % of Total Analysis - Zone 32

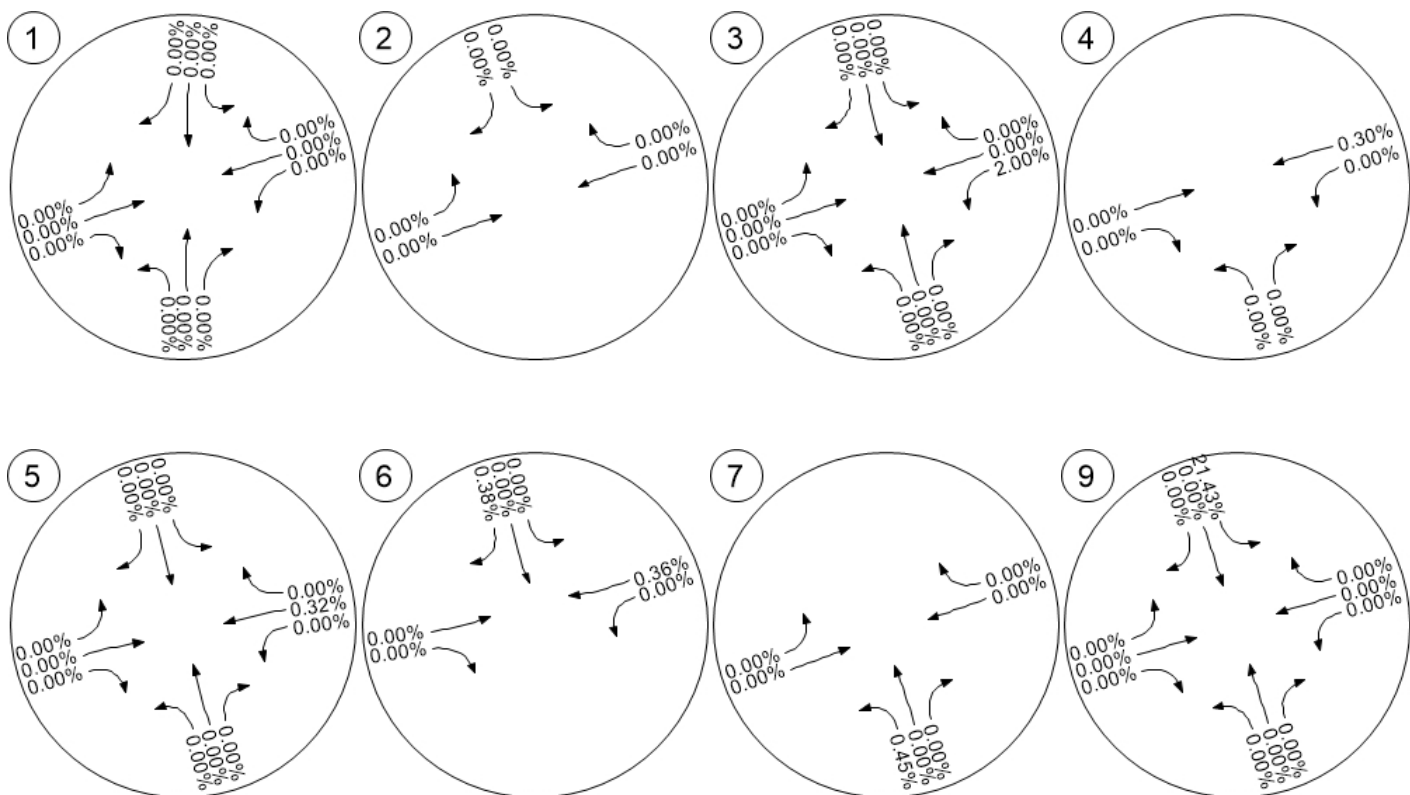




Fair Share - Fair Share % of Total Analysis - Zone 32

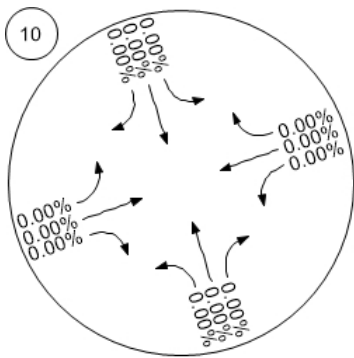


## Fair Share - Fair Share % of Total Analysis - Zone 33

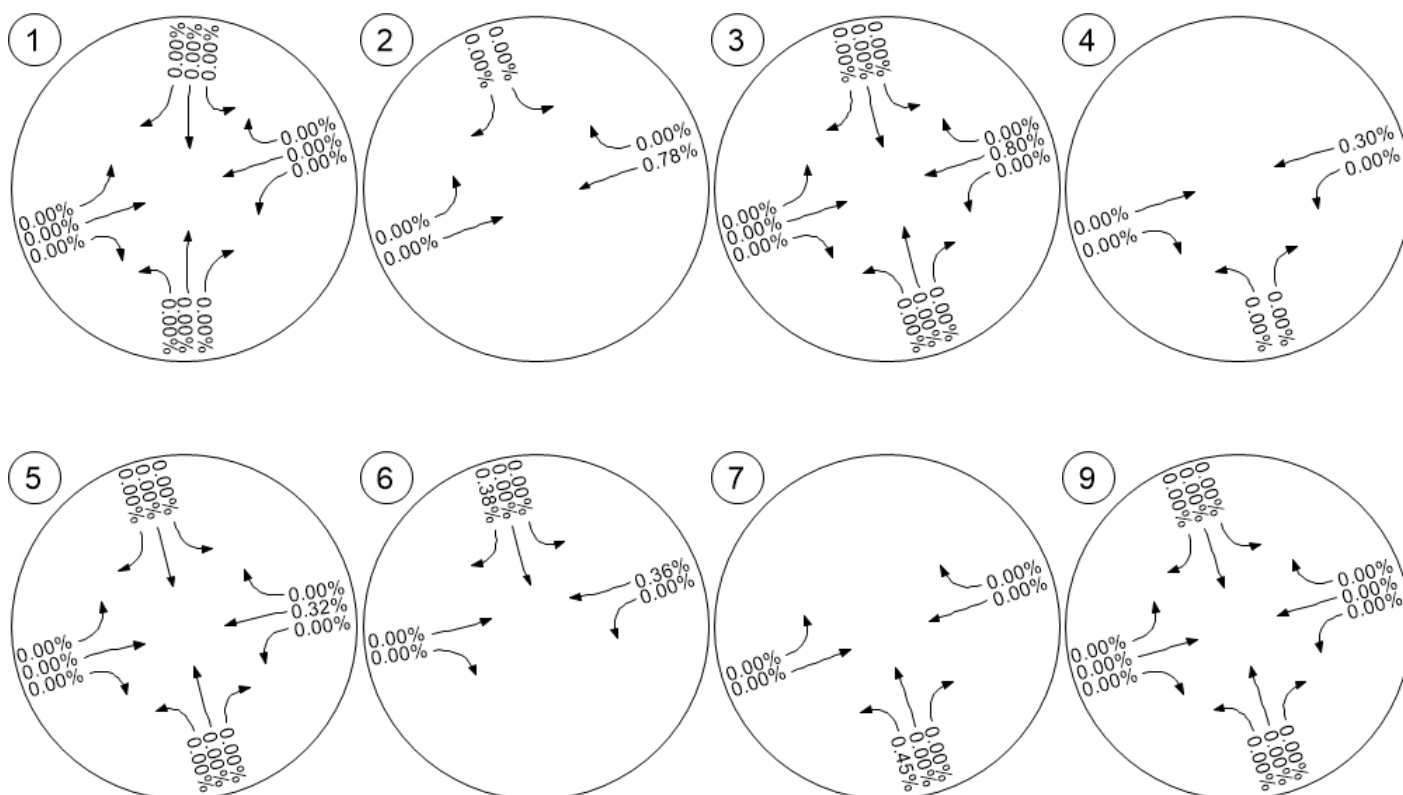




Fair Share - Fair Share % of Total Analysis - Zone 33

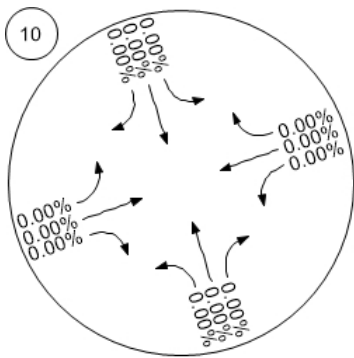


Fair Share - Fair Share % of Total Analysis - Zone 34

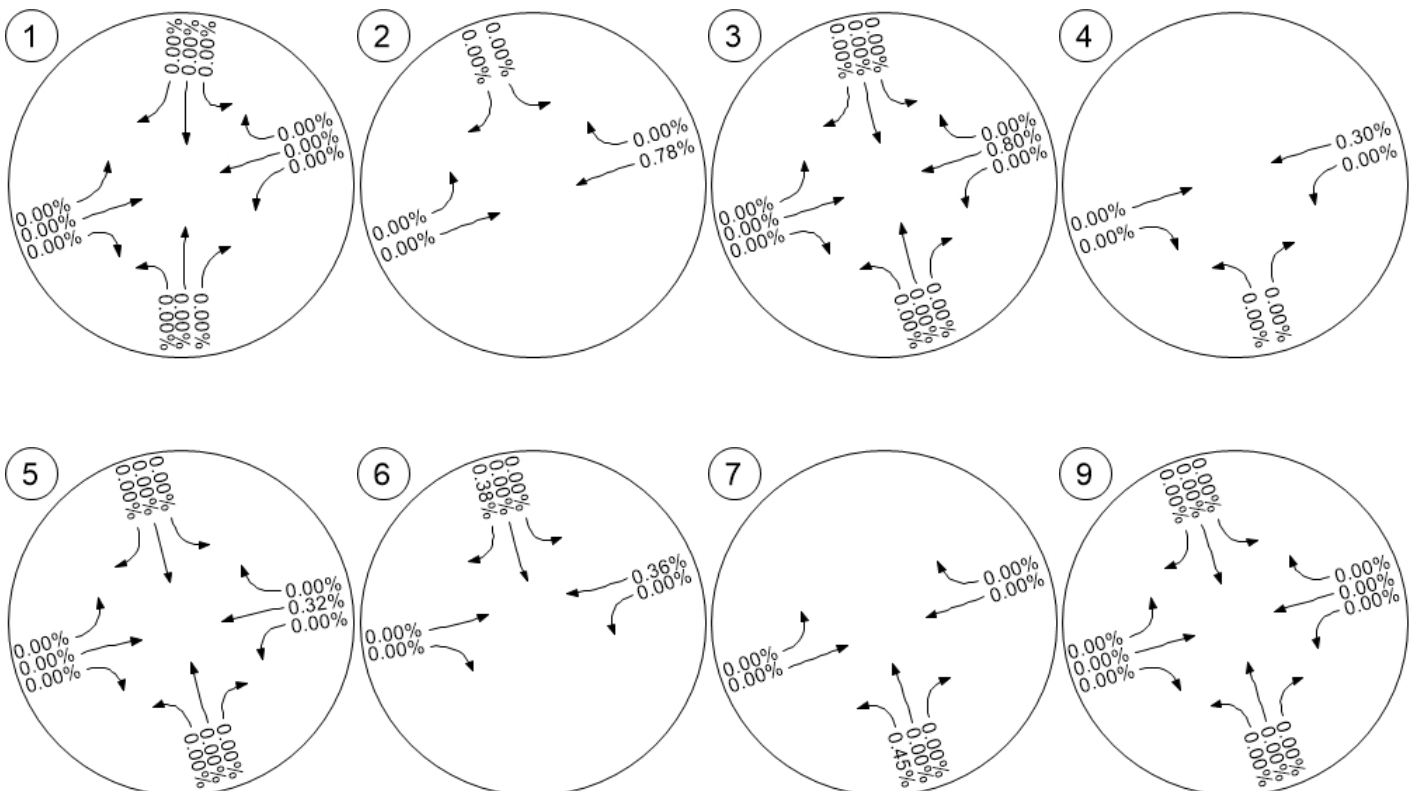




Fair Share - Fair Share % of Total Analysis - Zone 34

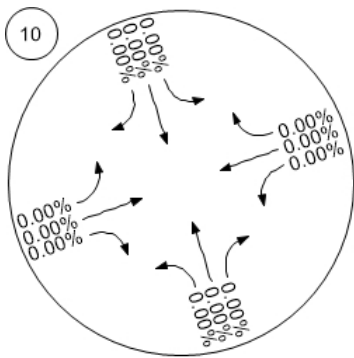


Fair Share - Fair Share % of Total Analysis - Zone 35





Fair Share - Fair Share % of Total Analysis - Zone 35



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...\4. Existing + Project PM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.109	12.3	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.049	10.1	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	WBL	0.230	14.1	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.161	19.3	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	WBL	0.310	23.9	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	EBR	0.593	58.7	E
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	NBR	0.471	19.3	B
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	NBT	0.067	9.5	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.1	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.109

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	15	6	10	24	4	36	56	16	3	2	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	24	6	10	24	4	36	56	16	3	2	4
Peak Hour Factor	0.7900	0.7900	0.7900	0.5900	0.5900	0.5900	0.4400	0.4400	0.4400	0.5770	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	2	4	10	2	20	32	9	1	1	2
Total Analysis Volume [veh/h]	1	30	8	17	41	7	82	127	36	5	4	8
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	32	0	0	32	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	26	26	26	26	32	32
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.01	0.03	0.08	0.01
Total Saturation Flow Adjustment	0.71	0.95	0.72	0.96	0.78	0.78
s, saturation flow rate [veh/h]	1352	1804	1364	1822	2965	2967
c, Capacity [veh/h]	502	670	507	677	1355	1356
d1, Uniform Delay [s]	13.84	14.13	14.00	14.20	11.24	10.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.16	0.12	0.20	0.29	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.06	0.03	0.07	0.18	0.01
d, Delay for Lane Group [s/veh]	13.85	14.29	14.13	14.41	11.54	10.39
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.01	0.52	0.23	0.66	1.65	0.10
50th-Percentile Queue Length [ft]	0.34	12.95	5.78	16.45	41.17	2.61
95th-Percentile Queue Length [veh]	0.03	1.30	0.59	1.63	3.82	0.27
95th-Percentile Queue Length [ft]	0.87	32.39	14.76	40.75	95.49	6.73

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	13.85	14.29	14.29	14.13	14.41	14.41	11.54	11.54	11.54	10.39	10.39	10.39
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	14.28			14.33			11.54			10.39		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.27											
Intersection LOS	B											
Intersection V/C	0.109											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.049

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	25	0	1	51	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	0	1	135	99	2
Peak Hour Factor	0.6900	0.6900	0.6500	0.6500	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	0	0	52	31	1
Total Analysis Volume [veh/h]	36	0	2	208	122	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.15	8.89	7.47	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.15	0.23	0.12	0.00	0.00
95th-Percentile Queue Length [ft]	3.85	3.85	5.80	2.90	0.00	0.00
d_A, Approach Delay [s/veh]	10.15		0.07		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.03					
Intersection LOS	B					







### Intersection Level Of Service Report #3: Bay Marina Drive / Tideland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 14.1  
Level Of Service: B  
Volume to Capacity (v/c): 0.230

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	13	14	93	95	10	11	15	72	13	45	27	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	0	10	74	0	18	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	14	99	95	10	11	25	146	13	63	107	50
Peak Hour Factor	0.8100	0.8100	0.8100	0.4900	0.4900	0.4900	0.6700	0.6700	0.6700	0.7600	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	31	48	5	6	9	54	5	21	35	16
Total Analysis Volume [veh/h]	16	17	122	194	20	22	37	218	19	83	141	66
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	31	31	31	31	27	27	27	27
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.01	0.10	0.16	0.03	0.03	0.07	0.07	0.06
Total Saturation Flow Adjustment	0.72	0.77	0.66	0.81	0.61	0.92	0.59	0.84
s, saturation flow rate [veh/h]	1359	1456	1245	1545	1159	3504	1126	3208
c, Capacity [veh/h]	602	645	551	684	447	1352	434	1237
d1, Uniform Delay [s]	10.99	12.01	12.87	11.17	13.64	14.17	14.26	14.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.77	1.76	0.17	0.36	0.28	0.98	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.03	0.22	0.35	0.06	0.08	0.18	0.19	0.17
d, Delay for Lane Group [s/veh]	11.08	12.78	14.63	11.34	14.01	14.45	15.23	14.41
Lane Group LOS	B	B	B	B	B	B	B	B
Critical Lane Group	no	no	yes	no	no	no	yes	no
50th-Percentile Queue Length [veh]	0.19	1.86	2.83	0.52	0.51	1.75	1.20	1.53
50th-Percentile Queue Length [ft]	4.84	46.45	70.75	12.89	12.64	43.86	29.90	38.25
95th-Percentile Queue Length [veh]	0.50	4.25	6.13	1.29	1.27	4.04	2.86	3.58
95th-Percentile Queue Length [ft]	12.41	106.35	153.37	32.26	31.65	101.06	71.39	89.38

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	11.08	12.78	12.78	14.63	11.34	11.34	14.01	14.45	14.45	15.23	14.41	14.41
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.60			14.05			14.39			14.65		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.09											
Intersection LOS	B											
Intersection V/C	0.230											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 19.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.161

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	3	50	227	4	36	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	80	0	0	107
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	50	307	4	36	234
Peak Hour Factor	0.9200	0.9200	0.8370	0.9200	0.9200	0.7690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	14	92	1	10	76
Total Analysis Volume [veh/h]	3	54	367	4	39	304
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups		8				
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	35	0	47	0	28	75
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	29	29	41	24	69
g / C, Green / Cycle	0.26	0.26	0.37	0.22	0.63
(v / s)_i Volume / Saturation Flow Rate	0.00	0.03	0.10	0.02	0.09
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3541	1770	3547
c, Capacity [veh/h]	467	417	1320	386	2225
d1, Uniform Delay [s]	29.87	30.88	24.17	34.38	8.36
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.64	0.53	0.52	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.13	0.28	0.10	0.14
d, Delay for Lane Group [s/veh]	29.90	31.52	24.71	34.90	8.49
Lane Group LOS	C	C	C	C	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.07	1.36	4.57	1.03	2.22
50th-Percentile Queue Length [ft]	1.82	34.09	114.17	25.71	55.51
95th-Percentile Queue Length [veh]	0.19	3.22	9.14	2.48	4.98
95th-Percentile Queue Length [ft]	4.69	80.50	228.48	62.07	124.42

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	29.90	31.52	24.71	24.71	34.90	8.49
Movement LOS	C	C	C	C	C	A
d_A, Approach Delay [s/veh]	31.43		24.71		11.49	
Approach LOS	C		C		B	
d_I, Intersection Delay [s/veh]	19.32					
Intersection LOS	B					
Intersection V/C	0.161					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#5: Bay Marina Drive / Cleveland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.9  
Level Of Service: C  
Volume to Capacity (v/c): 0.310

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	25	313	5	14	8	281	3	28	130	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	25	313	5	14	8	361	3	28	237	88
Peak Hour Factor	0.6900	0.6900	0.6900	0.5900	0.5900	0.5900	0.8600	0.8600	0.8600	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	133	2	6	2	105	1	8	71	27
Total Analysis Volume [veh/h]	0	0	36	531	8	24	9	420	3	34	286	106
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	26	0	9	20	0	9	20	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	22	5	16	5	16
g / C, Green / Cycle	0.16	0.16	0.31	0.07	0.23	0.07	0.23
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.17	0.01	0.08	0.02	0.12
Total Saturation Flow Adjustment	0.93	0.83	0.89	0.93	0.89	0.93	0.90
s, saturation flow rate [veh/h]	1770	1583	3365	1770	5069	1770	3403
c, Capacity [veh/h]	278	249	1058	126	1159	126	778
d1, Uniform Delay [s]	24.86	25.44	19.76	30.33	22.73	30.77	23.54
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.22	1.92	1.09	0.89	5.16	2.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.14	0.53	0.07	0.37	0.27	0.50
d, Delay for Lane Group [s/veh]	24.86	26.66	21.68	31.42	23.62	35.93	25.87
Lane Group LOS	C	C	C	C	C	D	C
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.00	0.66	5.44	0.18	2.84	0.71	4.00
50th-Percentile Queue Length [ft]	0.00	16.62	136.04	4.51	71.04	17.70	100.00
95th-Percentile Queue Length [veh]	0.00	1.65	10.54	0.46	6.16	1.75	8.20
95th-Percentile Queue Length [ft]	0.00	41.14	263.49	11.58	153.90	43.69	204.94



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	24.86	26.66	26.66	21.68	21.68	21.68	31.42	23.62	23.62	35.93	25.87	25.87
Movement LOS	C	C	C	C	C	C	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.66			21.68			23.78			26.67		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	23.89											
Intersection LOS	C											
Intersection V/C	0.310											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**#6: I-5 SB Off-Ramp and Bay Marina Drive**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 58.7  
 Level Of Service: E  
 Volume to Capacity (v/c): 0.593

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	0	645	14	50	0	204	340	368	131	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	37	0	35	45	0	70	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	645	14	87	0	239	385	368	201	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100	1.0000	0.9400	0.9400	0.8900	0.8900	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	177	4	24	0	64	102	103	56	0
Total Analysis Volume [veh/h]	0	0	0	709	15	96	0	254	410	413	226	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	34	0	0	40	0	28	68	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		29	29	35	35	24	63
g / C, Green / Cycle		0.23	0.23	0.27	0.27	0.18	0.49
(v / s)_i Volume / Saturation Flow Rate		0.21	0.06	0.07	0.26	0.12	0.06
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3381	1583	3547	1583	3437	3547
c, Capacity [veh/h]		765	358	966	431	629	1730
d1, Uniform Delay [s]		49.53	41.44	37.08	46.45	49.30	18.22
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		21.89	1.83	0.66	32.65	5.29	0.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.95	0.27	0.26	0.95	0.66	0.13
d, Delay for Lane Group [s/veh]		71.42	43.27	37.74	79.09	54.59	18.38
Lane Group LOS		E	D	D	E	D	B
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		18.42	3.12	4.10	19.83	8.31	2.55
50th-Percentile Queue Length [ft]		460.52	77.94	102.54	495.81	207.82	63.81
95th-Percentile Queue Length [veh]		29.94	6.66	8.37	32.11	14.88	5.62
95th-Percentile Queue Length [ft]		748.40	166.48	209.21	802.68	371.92	140.40

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	71.42	71.42	43.27	0.00	37.74	79.09	54.59	18.38	0.00
Movement LOS				E	E	D		D	E	D	B	
d_A, Approach Delay [s/veh]	0.00			68.13			63.27			41.78		
Approach LOS	A			E			E			D		
d_I, Intersection Delay [s/veh]	58.68											
Intersection LOS	E											
Intersection V/C	0.593											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 19.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.471

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	75	3	374	0	0	0	133	704	0	0	427	439
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	0	0	0	0	0	28	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	3	374	0	0	0	161	711	0	0	434	439
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	1	99	0	0	0	43	191	0	0	117	118
Total Analysis Volume [veh/h]	147	3	398	0	0	0	173	765	0	0	467	472
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	20	0	0	0	0	20	60	0	0	40	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	15		16	55	35	35
g / C, Green / Cycle	0.19		0.20	0.69	0.44	0.44
(v / s)_i Volume / Saturation Flow Rate	0.12		0.05	0.22	0.25	0.30
Total Saturation Flow Adjustment	0.78		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4461		3437	3547	1863	1583
c, Capacity [veh/h]	859		679	2456	824	701
d1, Uniform Delay [s]	29.73		27.13	4.82	16.59	17.71
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.61		0.90	0.33	2.81	5.13
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

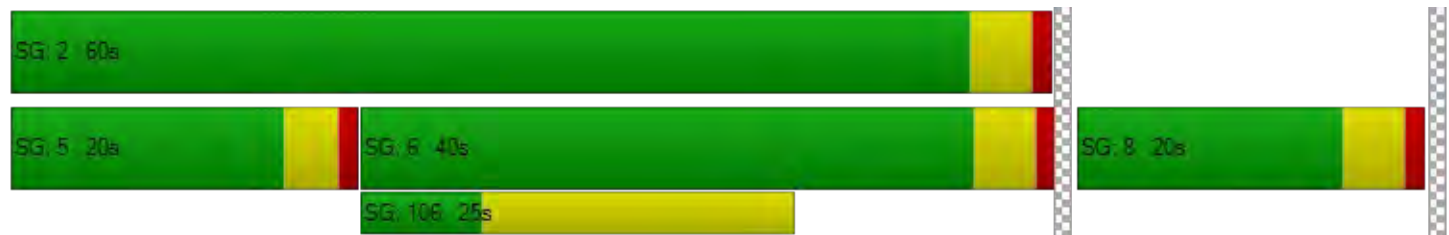
X, volume / capacity	0.64		0.25	0.31	0.57	0.67
d, Delay for Lane Group [s/veh]	33.35		28.03	5.15	19.41	22.84
Lane Group LOS	C		C	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	4.90		1.84	4.07	8.89	9.93
50th-Percentile Queue Length [ft]	122.47		46.11	101.66	222.29	248.35
95th-Percentile Queue Length [veh]	9.68		4.23	8.31	15.73	17.26
95th-Percentile Queue Length [ft]	241.93		105.66	207.73	393.22	431.42

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	33.35	33.35	33.35	0.00	0.00	0.00	28.03	5.15	0.00	0.00	19.41	22.84
Movement LOS	C	C	C				C	A			B	C
d_A, Approach Delay [s/veh]	33.35			0.00			9.37			21.13		
Approach LOS	C			A			A			C		
d_I, Intersection Delay [s/veh]	19.34											
Intersection LOS	B											
Intersection V/C	0.471											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.067

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	44	1	4	37	7	1	0	3	0	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	6	12	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	47	1	10	49	7	1	0	3	0	0	7
Peak Hour Factor	0.8200	0.8200	0.8200	0.9000	0.9000	0.9000	0.4600	0.4600	0.4600	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	14	0	3	14	2	1	0	2	0	0	7
Total Analysis Volume [veh/h]	1	57	1	11	54	8	2	0	7	0	0	28
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.07	0.00	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.34	9.51	8.64	9.37	9.51	8.74	7.27	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.22	0.22	0.22	0.27	0.27	0.27	0.02	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	5.52	5.52	5.52	6.68	6.68	6.68	0.43	0.43	0.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.50			9.41			1.62			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.46											
Intersection LOS	A											







**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	3	6	13	9	54	4	0	6	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	0	6	3	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	8	3	12	13	15	57	35	0	6	1	2
Peak Hour Factor	0.6900	0.6900	0.9200	0.9200	0.7800	0.7800	0.6900	0.9200	0.6900	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	1	3	4	5	21	10	0	2	0	1
Total Analysis Volume [veh/h]	0	12	3	13	17	19	83	38	0	7	1	2
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.06	0.13	0.07	0.41	0.16	0.00	0.03	0.00	0.01
95th-Percentile Queue Length [ft]	1.56	3.35	1.71	10.25	3.94	0.00	0.80	0.10	0.18
Approach Delay [s/veh]	7.98	7.67		8.36			7.92		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.13								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...\4. Existing + Project PM.pdf

4/27/2016

## Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	1	24	6	10	24	4	36	56	16	3	2	4	186

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	25	0	1	135	99	2	262

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	13	14	99	95	10	11	25	146	13	63	107	50	646

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	3	50	307	4	36	234	634

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	0	0	25	313	5	14	8	361	3	28	237	88	1082

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	645	14	87	239	385	368	201	1939

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	138	3	374	161	711	434	439	2260

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	1	47	1	10	49	7	1	0	3	0	0	7	126

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	8	3	12	13	15	57	35	0	6	1	2	152

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...14. Existing + Project PM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	Final Base	1	15	6	10	24	4	36	56	16	3	2	4	177
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>24</b>	<b>6</b>	<b>10</b>	<b>24</b>	<b>4</b>	<b>36</b>	<b>56</b>	<b>16</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>186</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	25	0	1	51	19	2	98
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>25</b>	<b>0</b>	<b>1</b>	<b>135</b>	<b>99</b>	<b>2</b>	<b>262</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	13	14	93	95	10	11	15	72	13	45	27	41	449
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	0	0	0	10	74	0	18	80	9	197
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>13</b>	<b>14</b>	<b>99</b>	<b>95</b>	<b>10</b>	<b>11</b>	<b>25</b>	<b>146</b>	<b>13</b>	<b>63</b>	<b>107</b>	<b>50</b>	<b>646</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	3	50	227	4	36	127	447
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	80	0	0	107	187
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>50</b>	<b>307</b>	<b>4</b>	<b>36</b>	<b>234</b>	<b>634</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	0	0	25	313	5	14	8	281	3	28	130	88	895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	80	0	0	107	0	187
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>313</b>	<b>5</b>	<b>14</b>	<b>8</b>	<b>361</b>	<b>3</b>	<b>28</b>	<b>237</b>	<b>88</b>	<b>1082</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	645	14	50	204	340	368	131	1752
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	37	35	45	0	70	187
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>645</b>	<b>14</b>	<b>87</b>	<b>239</b>	<b>385</b>	<b>368</b>	<b>201</b>	<b>1939</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	75	3	374	133	704	427	439	2155
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	63	0	0	28	7	7	0	105
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>138</b>	<b>3</b>	<b>374</b>	<b>161</b>	<b>711</b>	<b>434</b>	<b>439</b>	<b>2260</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tideland Avenue	Final Base	1	44	1	4	37	7	1	0	3	0	0	4	102
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	3	0	6	12	0	0	0	0	0	0	3	24
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>47</b>	<b>1</b>	<b>10</b>	<b>49</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>126</b>



ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	8	3	6	13	9	54	4	0	6	1	2	106
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	6	0	6	3	31	0	0	0	0	46
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>8</b>	<b>3</b>	<b>12</b>	<b>13</b>	<b>15</b>	<b>57</b>	<b>35</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>152</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...14. Existing + Project PM.pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	16	480	128	272	656	112	1312	2032	576	80	64	128	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	576	0	32	3328	1952	32	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	6	0	0	0	10	74	0	18	80	9	
Total Analysis Volume	256	272	1952	3104	320	352	592	3488	304	1328	2256	1056	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	0	80	0	0	107	
Total Analysis Volume	48	864	5872	64	624	4864	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	80	0	0	107	0	
Total Analysis Volume	0	0	576	8496	128	384	144	6720	48	544	4576	1696	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	37	35	45	0	70	
Total Analysis Volume	11344	240	1536	4064	6560	6608	3616	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	63	0	0	28	7	7	0	
Total Analysis Volume	2352	48	6368	2768	12240	7472	7552	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	3	0	0	3	0	0	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	3	0	0	0	0	0	0	0	3
28: 028-007	0	0	0	0	3	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	0	3	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	3	0	0	0	0	0	0	0	3	6
33: 027-042	0	0	0	3	0	0	0	0	0	0	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	6	12	0	0	0	0	0	0	3	
Total Analysis Volume	16	912	16	176	864	128	32	0	112	0	0	448	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	3	3	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	3	0	0	0	0	0	0	3
28: 028-007	0	0	0	3	0	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	3	0	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	6	0	6	3	31	0	0	0	0	
Total Analysis Volume	0	192	48	208	272	304	1328	608	0	112	16	32	



## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...4. Existing + Project PM.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
32: 027-029	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	100.02%	100.00%	99.99%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	2.8%	1.40%
19: 025-010 B	0	0	0%	0	0	2.8%	1.40%
20: 025-010 C	0	0	0%	0	0	2.8%	1.40%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	88.75%	0	0	66.36%	77.57%
23: NCTF Trucks	0	0	3.75%	0	0	2.8%	3.28%
24: 027-016	0	0	3.75%	0	0	2.8%	3.28%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	2.8%	1.40%
28: 028-007	0	0	0%	0	0	2.8%	1.40%
29: 025-010 D	0	0	0%	0	0	2.8%	1.40%
32: 027-029	0	0	3.75%	0	0	2.8%	3.28%
33: 027-042	0	0	0%	0	0	2.8%	1.40%
34: 026-009 & 027-011	0	0	0%	0	0	2.8%	1.40%
35: 027-014 & 027-016	0	0	0%	0	0	2.8%	1.40%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	88.75%	0	0	66.36%	0	77.57%
23: NCTF Trucks	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
24: 027-016	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
32: 027-029	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.7%	0%	0%	0	2.86%	1.39%
19: 025-010 B	0	0	2.7%	0%	0%	0	2.86%	1.39%
20: 025-010 C	0	0	2.7%	0%	0%	0	2.86%	1.39%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	67.57%	91.43%	86.67%	0	65.71%	77.85%
23: NCTF Trucks	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
24: 027-016	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.7%	0%	0%	0	2.86%	1.39%
28: 028-007	0	0	2.7%	0%	0%	0	2.86%	1.39%
29: 025-010 D	0	0	2.7%	0%	0%	0	2.86%	1.39%
32: 027-029	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
33: 027-042	0	0	2.7%	0%	0%	0	2.86%	1.39%
34: 026-009 & 027-011	0	0	2.7%	0%	0%	0	2.86%	1.39%
35: 027-014 & 027-016	0	0	2.7%	0%	0%	0	2.86%	1.39%
Total	0.00%	0.00%	99.97%	100.01%	99.99%	0.00%	100.03%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	3.17%	0	0	0%	0%	0%	0	0.79%
19: 025-010 B	3.17%	0	0	0%	0%	0%	0	0.79%
20: 025-010 C	3.17%	0	0	0%	0%	0%	0	0.79%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	61.9%	0	0	89.29%	100%	100%	0	87.81%
23: NCTF Trucks	3.17%	0	0	3.57%	0%	0%	0	1.69%
24: 027-016	3.17%	0	0	3.57%	0%	0%	0	1.69%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	3.17%	0	0	0%	0%	0%	0	0.79%
28: 028-007	3.17%	0	0	0%	0%	0%	0	0.79%
29: 025-010 D	3.17%	0	0	0%	0%	0%	0	0.79%
32: 027-029	3.17%	0	0	3.57%	0%	0%	0	1.69%
33: 027-042	3.17%	0	0	0%	0%	0%	0	0.79%
34: 026-009 & 027-011	3.17%	0	0	0%	0%	0%	0	0.79%
35: 027-014 & 027-016	3.17%	0	0	0%	0%	0%	0	0.79%
Total	99.94%	0.00%	0.00%	100.00%	100.00%	100.00%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	100%	0	0%	25%	0	0	0	0	0	0	0%	31.25%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
28: 028-007	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
29: 025-010 D	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
32: 027-029	0	0%	0	50%	0%	0	0	0	0	0	0	100%	37.50%
33: 027-042	0	0%	0	50%	0%	0	0	0	0	0	0	0%	12.50%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	100.00%	0.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	50%	100%	0%	0	0	0	0%	37.50%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	100%	0	0	0	0%	25.00%
27: 028-003	0	0	0	0%	0	50%	0%	0%	0	0	0	0%	12.50%
28: 028-007	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
29: 025-010 D	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...4. Existing + Project PM.pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	7.69%	0	0	0%	0	0	0	0	0	0	0	0.13%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	15.38%	0	0	0%	0	0	0	0	0	0	0	0.26%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	23.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	24.32%	35.15%	0	1.00%
23: NCTF Trucks	0	0	0	1.03%	1.49%	0	0.04%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.42%	0%	0	0.06%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	1.49%	0	0.03%
35: 027-014 & 027-016	0	0	0	0%	1.49%	0	0.03%
Total	0.00%	0.00%	0.00%	28.77%	39.62%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	4%	0.03%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	4%	0.03%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	4%	0.03%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	24.32%	0	0%	32.13%	0%	0.37%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.03%	0	0%	1.36%	0%	0.02%
24: 027-016	0	0	2.34%	0%	0	0	0%	0%	0	2.97%	0%	0%	0.03%
25: Vehicle Movement External	0	0	0%	0%	0	0	21.28%	0%	0	0%	0%	0%	0.14%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	2.97%	0%	0%	0.02%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	2.97%	0%	0%	0.02%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	2.97%	0%	0%	0.02%
32: 027-029	0	0	2.34%	0%	0	0	0%	0%	0	2.97%	0%	0%	0.03%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	2.97%	0%	0%	0.02%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	1.36%	0%	0.01%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	1.36%	0%	0.01%
Total	0.00%	0.00%	4.68%	0.00%	0.00%	0.00%	21.28%	25.35%	0.00%	17.82%	36.21%	12.00%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	0.73%	0.01%
19: 025-010 B	0	0	0%	0	0	0.73%	0.01%
20: 025-010 C	0	0	0%	0	0	0.73%	0.01%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	15.88%	0	0	17.27%	0.27%
23: NCTF Trucks	0	0	0.67%	0	0	0.73%	0.01%
24: 027-016	0	0	0.67%	0	0	0.73%	0.01%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	0.73%	0.01%
28: 028-007	0	0	0%	0	0	0.73%	0.01%
29: 025-010 D	0	0	0%	0	0	0.73%	0.01%
32: 027-029	0	0	0.67%	0	0	0.73%	0.01%
33: 027-042	0	0	0%	0	0	0.73%	0.01%
34: 026-009 & 027-011	0	0	0%	0	0	0.73%	0.01%
35: 027-014 & 027-016	0	0	0%	0	0	0.73%	0.01%
Total	0.00%	0.00%	17.89%	0.00%	0.00%	26.03%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	14.2%	0	0	18.07%	0	0.14%
23: NCTF Trucks	0	0	0	0	0	0	0	0.6%	0	0	0.76%	0	0.01%
24: 027-016	0	0	0	0	0	0	0	0.6%	0	0	0.76%	0	0.01%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0.6%	0	0	0.76%	0	0.01%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.76%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.00%	0.00%	0.00%	27.19%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.75%	0%	0%	0	0.68%	0.00%
19: 025-010 B	0	0	0.75%	0%	0%	0	0.68%	0.00%
20: 025-010 C	0	0	0.75%	0%	0%	0	0.68%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	18.8%	11.07%	8.57%	0	15.54%	0.16%
23: NCTF Trucks	0	0	0.75%	0.35%	0.44%	0	0.68%	0.01%
24: 027-016	0	0	0.75%	0.35%	0.44%	0	0.68%	0.01%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.75%	0%	0%	0	0.68%	0.00%
28: 028-007	0	0	0.75%	0%	0%	0	0.68%	0.00%
29: 025-010 D	0	0	0.75%	0%	0%	0	0.68%	0.00%
32: 027-029	0	0	0.75%	0.35%	0.44%	0	0.68%	0.01%
33: 027-042	0	0	0.75%	0%	0%	0	0.68%	0.00%
34: 026-009 & 027-011	0	0	0.75%	0%	0%	0	0.68%	0.00%
35: 027-014 & 027-016	0	0	0.75%	0%	0%	0	0.68%	0.00%
Total	0.00%	0.00%	27.80%	12.12%	9.89%	0.00%	23.70%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.95%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.95%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.95%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	18.57%	0	0	12.44%	0.91%	1.48%	0	0.09%
23: NCTF Trucks	0.95%	0	0	0.5%	0%	0%	0	0.00%
24: 027-016	0.95%	0	0	0.5%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.95%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.95%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.95%	0	0	0%	0%	0%	0	0.00%
32: 027-029	0.95%	0	0	0.5%	0%	0%	0	0.00%
33: 027-042	0.95%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.95%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.95%	0	0	0%	0%	0%	0	0.00%
Total	29.97%	0.00%	0.00%	13.94%	0.91%	1.48%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	5%	0	0%	4.55%	0	0	0	0	0	0	0%	0.35%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	4.55%	0	0	0	0	0	0	0%	0.17%
28: 028-007	0	0%	0	0%	4.55%	0	0	0	0	0	0	0%	0.17%
29: 025-010 D	0	0%	0	0%	4.55%	0	0	0	0	0	0	0%	0.17%
32: 027-029	0	0%	0	17.65%	0%	0	0	0	0	0	0	9.68%	1.01%
33: 027-042	0	0%	0	17.65%	0%	0	0	0	0	0	0	0%	0.65%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	5.00%	0.00%	35.30%	18.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.68%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	12%	3.49%	0%	0	0	0	0%	0.50%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	44.93%	0	0	0	0%	1.44%
27: 028-003	0	0	0	0%	0	12%	0%	0%	0	0	0	0%	0.38%
28: 028-007	0	0	0	15.79%	0	0%	0%	0%	0	0	0	0%	0.51%
29: 025-010 D	0	0	0	15.79%	0	0%	0%	0%	0	0	0	0%	0.51%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	31.58%	0.00%	24.00%	3.49%	44.93%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	101	136	25
2	97	131	24
3	95	128	24
4	81	109	20
5	77	103	19
6	69	92	17
7	64	86	16
8	61	82	15
9	48	65	12
10	45	61	11
11	45	61	11
12	43	58	11
13	39	53	10
14	36	49	9
15	36	49	9
16	35	48	9
17	20	27	5
18	11	15	3
19	10	14	3
20	4	5	1
21	3	4	1
22	3	4	1
23	2	3	1
24	2	3	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	237	1	25	No	No	No	No	No	No	No	No	No	No
2	4	228	1	24	No	No	No	No	No	No	No	No	No	No
3	4	223	1	24	No	No	No	No	No	No	No	No	No	No
4	4	190	1	20	No	No	No	No	No	No	No	No	No	No
5	4	180	1	19	No	No	No	No	No	No	No	No	No	No
6	4	161	1	17	No	No	No	No	No	No	No	No	No	No
7	4	150	1	16	No	No	No	No	No	No	No	No	No	No
8	4	143	1	15	No	No	No	No	No	No	No	No	No	No
9	4	113	1	12	No	No	No	No	No	No	No	No	No	No
10	4	106	1	11	No	No	No	No	No	No	No	No	No	No
11	4	106	1	11	No	No	No	No	No	No	No	No	No	No
12	4	101	1	11	No	No	No	No	No	No	No	No	No	No
13	4	92	1	10	No	No	No	No	No	No	No	No	No	No
14	4	85	1	9	No	No	No	No	No	No	No	No	No	No
15	4	85	1	9	No	No	No	No	No	No	No	No	No	No
16	4	83	1	9	No	No	No	No	No	No	No	No	No	No
17	4	47	1	5	No	No	No	No	No	No	No	No	No	No
18	4	26	1	3	No	No	No	No	No	No	No	No	No	No
19	4	24	1	3	No	No	No	No	No	No	No	No	No	No
20	4	9	1	1	No	No	No	No	No	No	No	No	No	No
21	4	7	1	1	No	No	No	No	No	No	No	No	No	No
22	4	7	1	1	No	No	No	No	No	No	No	No	No	No
23	4	5	1	1	No	No	No	No	No	No	No	No	No	No
24	4	5	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.1
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	25
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	262
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>



## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	7	4	49	66
2	7	4	47	63
3	7	4	46	62
4	6	3	39	53
5	5	3	37	50
6	5	3	33	45
7	4	3	31	42
8	4	2	29	40
9	3	2	24	32
10	3	2	22	30
11	3	2	22	30
12	3	2	21	28
13	3	2	19	26
14	3	1	18	24
15	3	1	18	24
16	2	1	17	23
17	1	1	10	13
18	1	0	5	7
19	1	0	5	7
20	0	0	2	3
21	0	0	1	2
22	0	0	1	2
23	0	0	1	1
24	0	0	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	11	2	115	No	No	No	No	No	No	No	No	No	No
2	2	11	2	110	No	No	No	No	No	No	No	No	No	No
3	2	11	2	108	No	No	No	No	No	No	No	No	No	No
4	2	9	2	92	No	No	No	No	No	No	No	No	No	No
5	2	8	2	87	No	No	No	No	No	No	No	No	No	No
6	2	8	2	78	No	No	No	No	No	No	No	No	No	No
7	2	7	2	73	No	No	No	No	No	No	No	No	No	No
8	2	6	2	69	No	No	No	No	No	No	No	No	No	No
9	2	5	2	56	No	No	No	No	No	No	No	No	No	No
10	2	5	2	52	No	No	No	No	No	No	No	No	No	No
11	2	5	2	52	No	No	No	No	No	No	No	No	No	No
12	2	5	2	49	No	No	No	No	No	No	No	No	No	No
13	2	5	2	45	No	No	No	No	No	No	No	No	No	No
14	2	4	2	42	No	No	No	No	No	No	No	No	No	No
15	2	4	2	42	No	No	No	No	No	No	No	No	No	No
16	2	3	2	40	No	No	No	No	No	No	No	No	No	No
17	2	2	2	23	No	No	No	No	No	No	No	No	No	No
18	2	1	2	12	No	No	No	No	No	No	No	No	No	No
19	2	1	2	12	No	No	No	No	No	No	No	No	No	No
20	2	0	2	5	No	No	No	No	No	No	No	No	No	No
21	2	0	2	3	No	No	No	No	No	No	No	No	No	No
22	2	0	2	3	No	No	No	No	No	No	No	No	No	No
23	2	0	2	2	No	No	No	No	No	No	No	No	No	No
24	2	0	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.5	9.4
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07	0:10
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	49	66
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	126	126
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	9	92	11	40
2	9	88	11	38
3	8	86	10	38
4	7	74	9	32
5	7	70	8	30
6	6	63	7	27
7	6	58	7	25
8	5	55	7	24
9	4	44	5	19
10	4	41	5	18
11	4	41	5	18
12	4	40	5	17
13	4	36	4	16
14	3	33	4	14
15	3	33	4	14
16	3	32	4	14
17	2	18	2	8
18	1	10	1	4
19	1	9	1	4
20	0	4	0	2
21	0	3	0	1
22	0	3	0	1
23	0	2	0	1
24	0	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	101	3	51	No	No	No	No	No	No	No	No	No	No
2	6	97	3	49	No	No	No	No	No	No	No	No	No	No
3	6	94	3	48	No	No	No	No	No	No	No	No	No	No
4	6	81	3	41	No	No	No	No	No	No	No	No	No	No
5	6	77	3	38	No	No	No	No	No	No	No	No	No	No
6	6	69	3	34	No	No	No	No	No	No	No	No	No	No
7	6	64	3	32	No	No	No	No	No	No	No	No	No	No
8	6	60	3	31	No	No	No	No	No	No	No	No	No	No
9	6	48	3	24	No	No	No	No	No	No	No	No	No	No
10	6	45	3	23	No	No	No	No	No	No	No	No	No	No
11	6	45	3	23	No	No	No	No	No	No	No	No	No	No
12	6	44	3	22	No	No	No	No	No	No	No	No	No	No
13	6	40	3	20	No	No	No	No	No	No	No	No	No	No
14	6	36	3	18	No	No	No	No	No	No	No	No	No	No
15	6	36	3	18	No	No	No	No	No	No	No	No	No	No
16	6	35	3	18	No	No	No	No	No	No	No	No	No	No
17	6	20	3	10	No	No	No	No	No	No	No	No	No	No
18	6	11	3	5	No	No	No	No	No	No	No	No	No	No
19	6	10	3	5	No	No	No	No	No	No	No	No	No	No
20	6	4	3	2	No	No	No	No	No	No	No	No	No	No
21	6	3	3	1	No	No	No	No	No	No	No	No	No	No
22	6	3	3	1	No	No	No	No	No	No	No	No	No	No
23	6	2	3	1	No	No	No	No	No	No	No	No	No	No
24	6	2	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8	7.7
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:05
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	11	40
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	152	152
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...14. Existing + Project PM.pdf

4/27/2016

### Trip generation summary

#### Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.22
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.22
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.22
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	57.96
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.45
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.45
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	4.08
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	19.59
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.22
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.22
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.22
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.45
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.22
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.22
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.22
<b>Added Trips Total</b>								<b>107</b>	<b>138</b>	<b>245</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 4: Existing + Project PM

Report File: P:\...14. Existing + Project PM.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0



33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 28: 028-007			
	To 028-007:		From 028-007:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

Zone / Gate	Zone 29: 025-010 D			
	To 025-010 D:		From 025-010 D:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

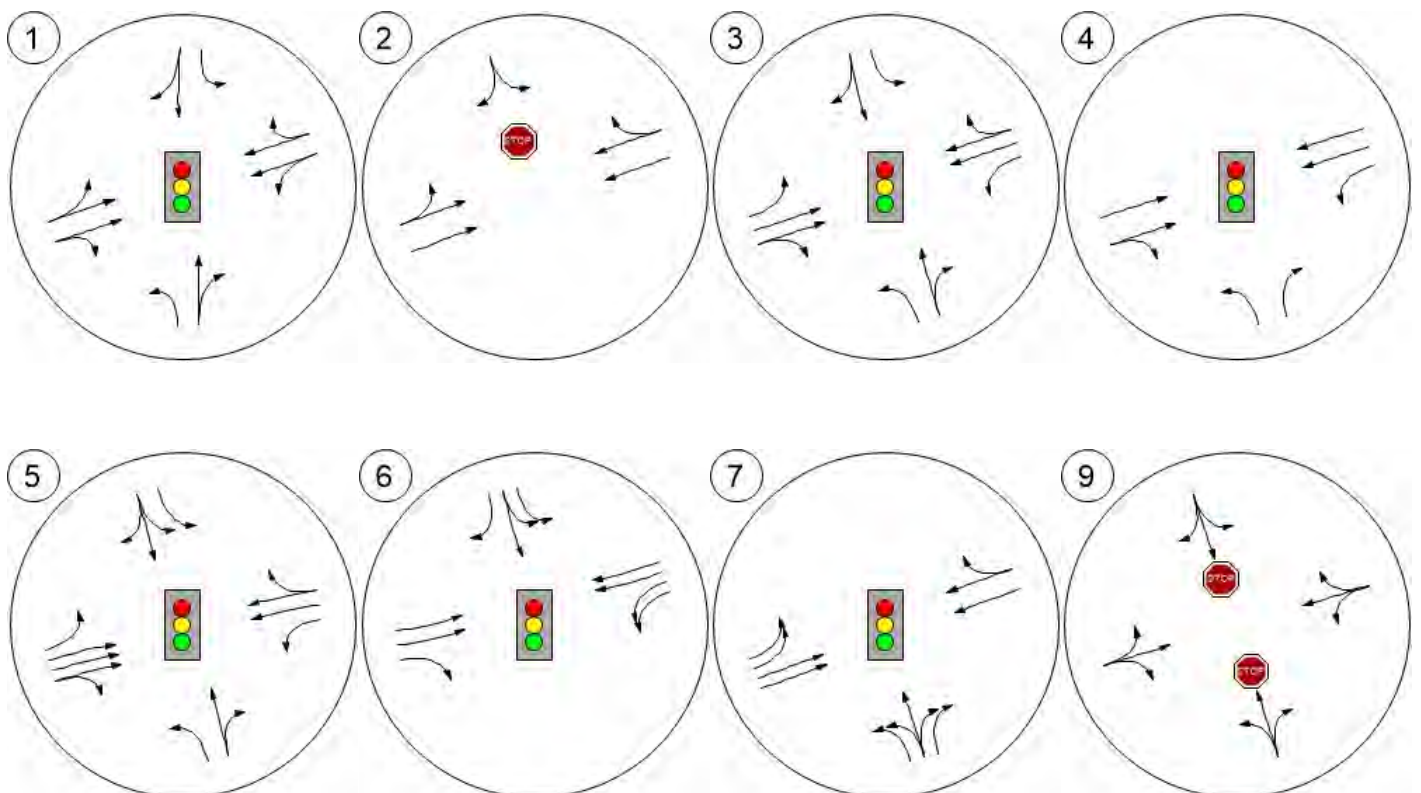


Study Intersections



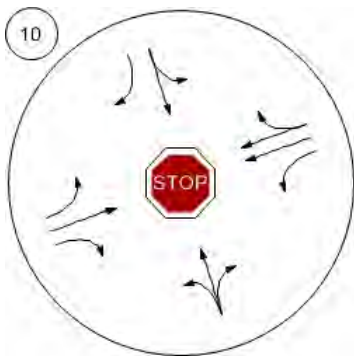


# Lane Configuration and Traffic Control

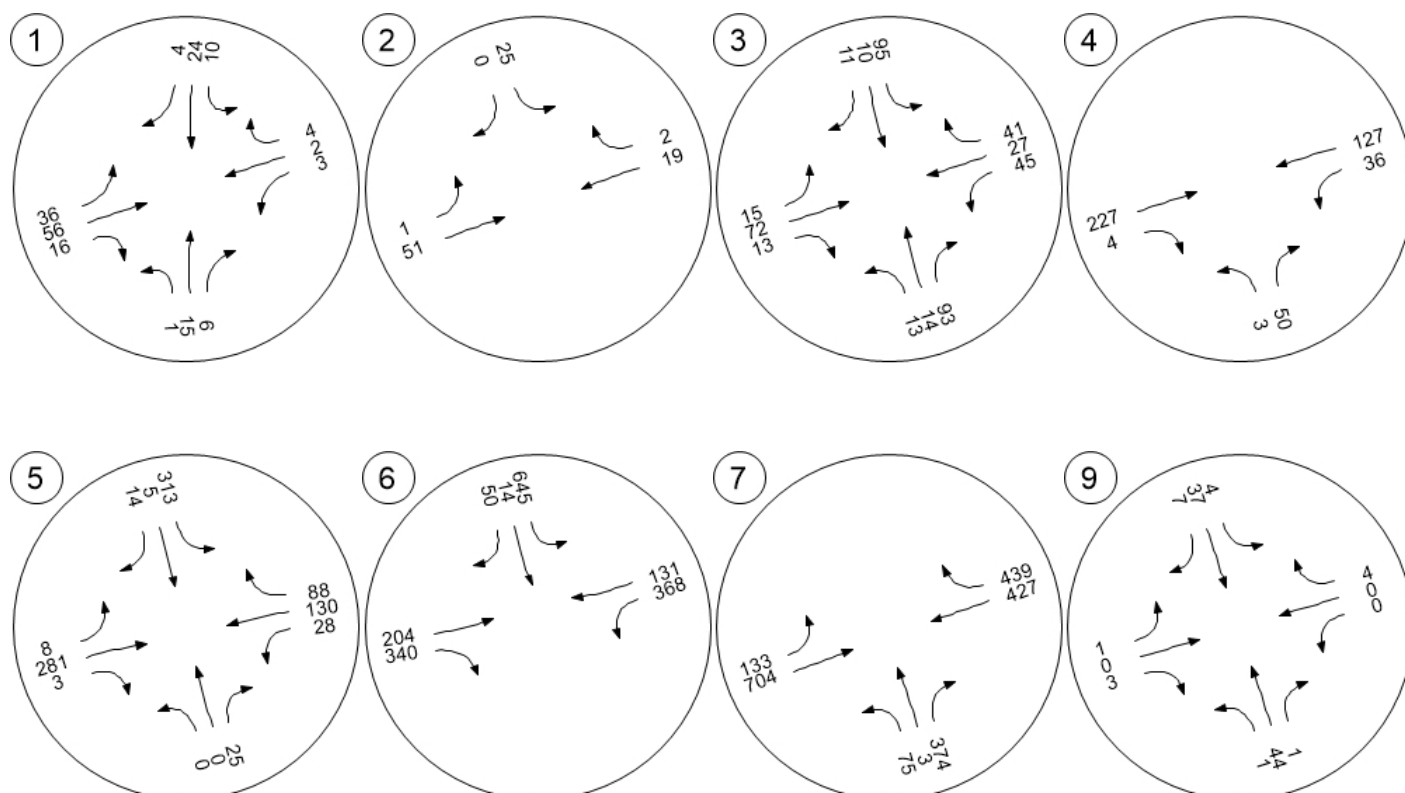




## Lane Configuration and Traffic Control

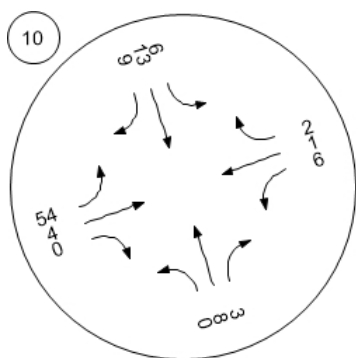


Traffic Volume - Base Volume

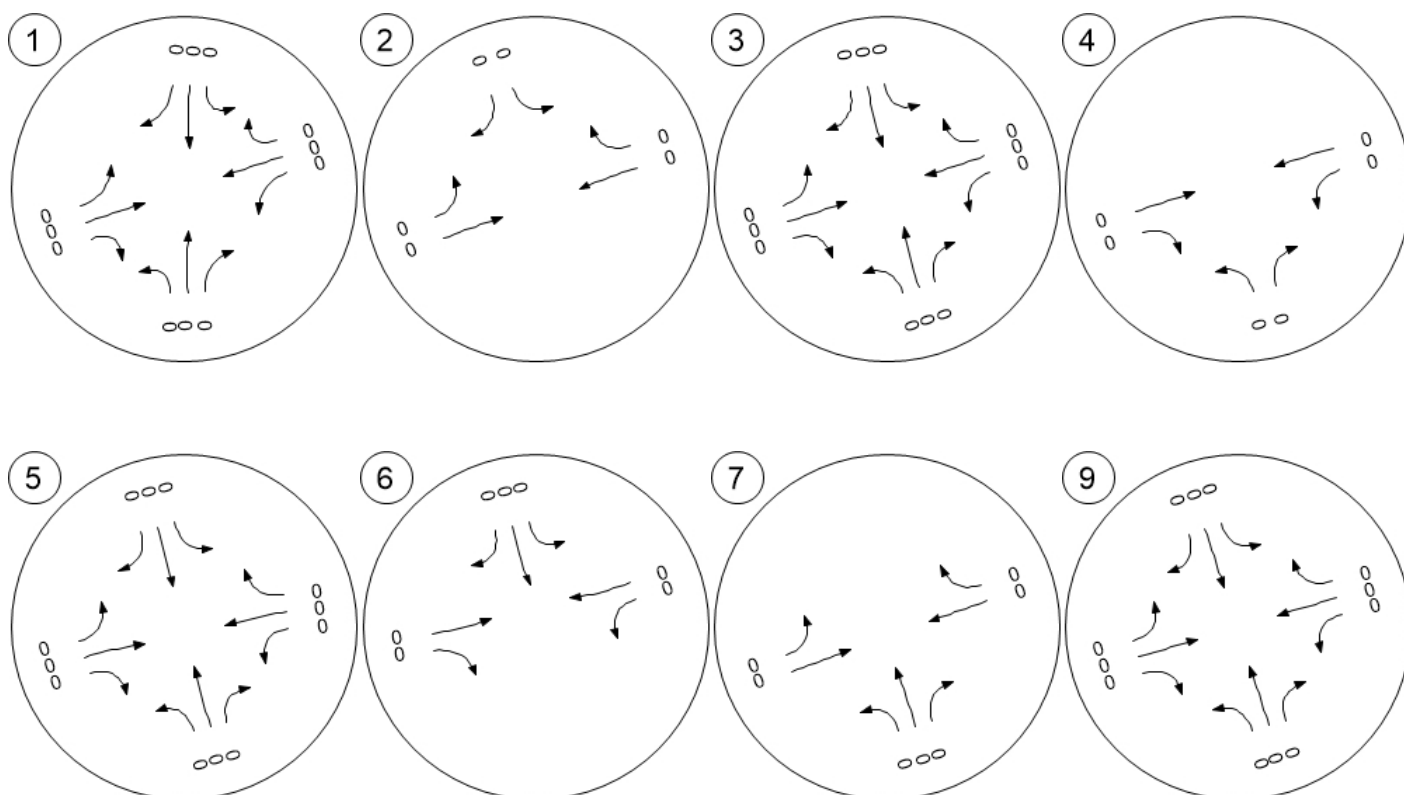




Traffic Volume - Base Volume

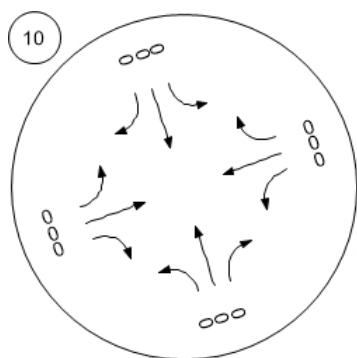


Traffic Volume - In-Process Volume

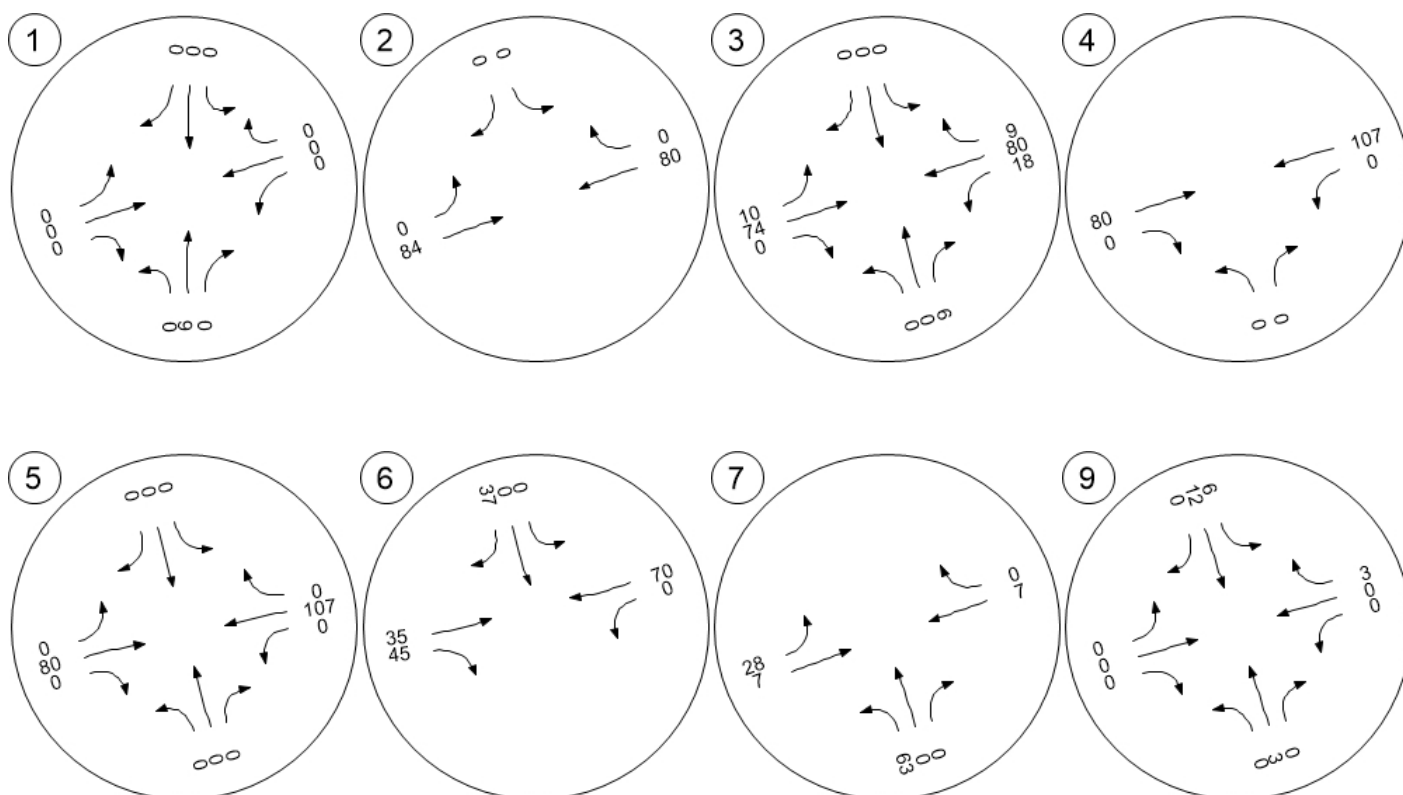




Traffic Volume - In-Process Volume

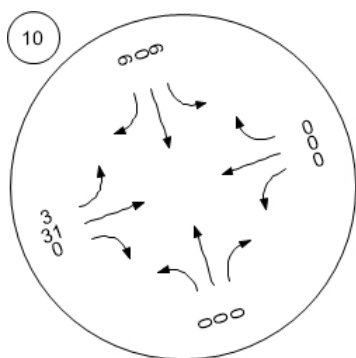


# Traffic Volume - Net New Site Trips

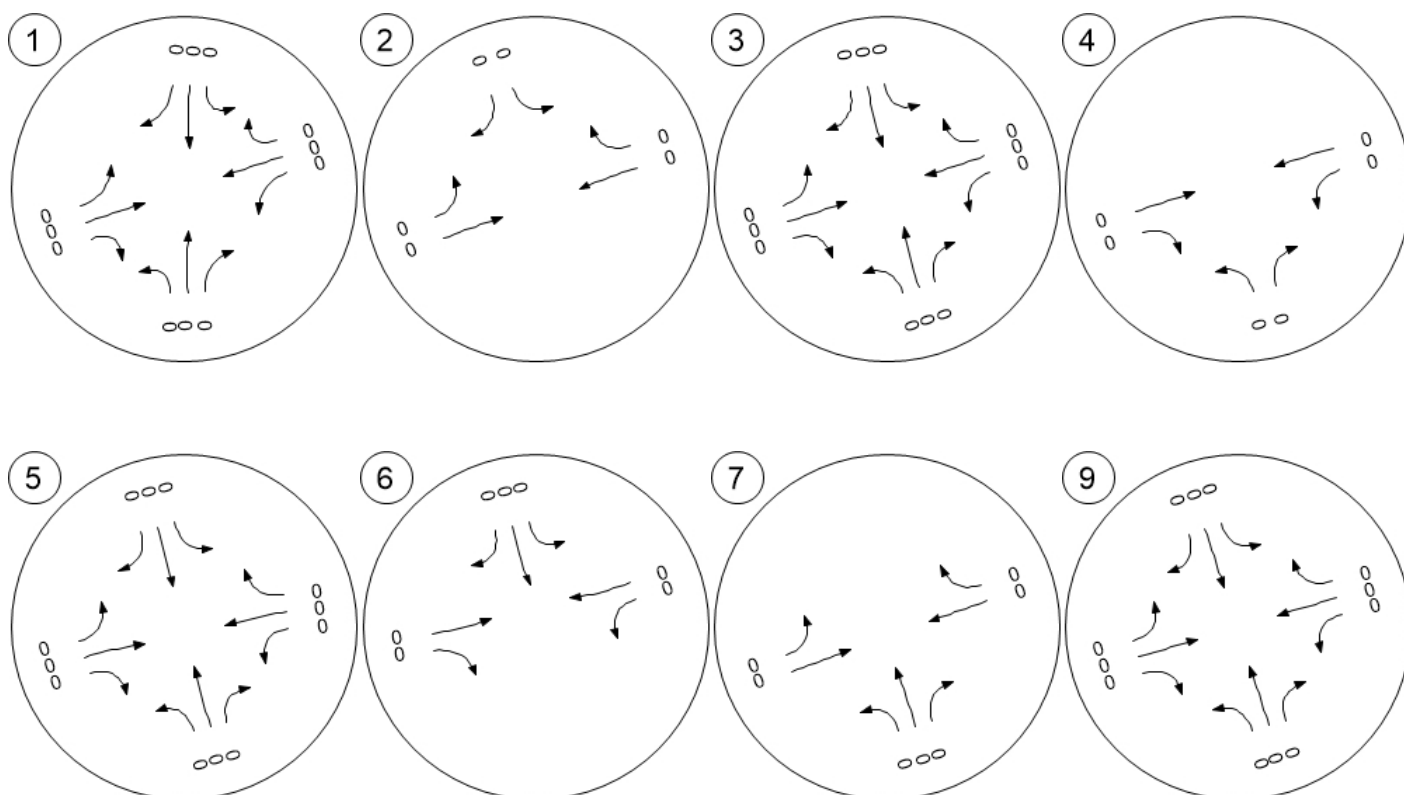




Traffic Volume - Net New Site Trips

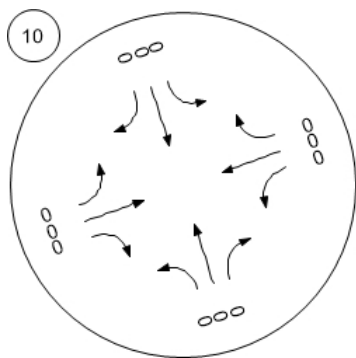


Traffic Volume - Other Volume

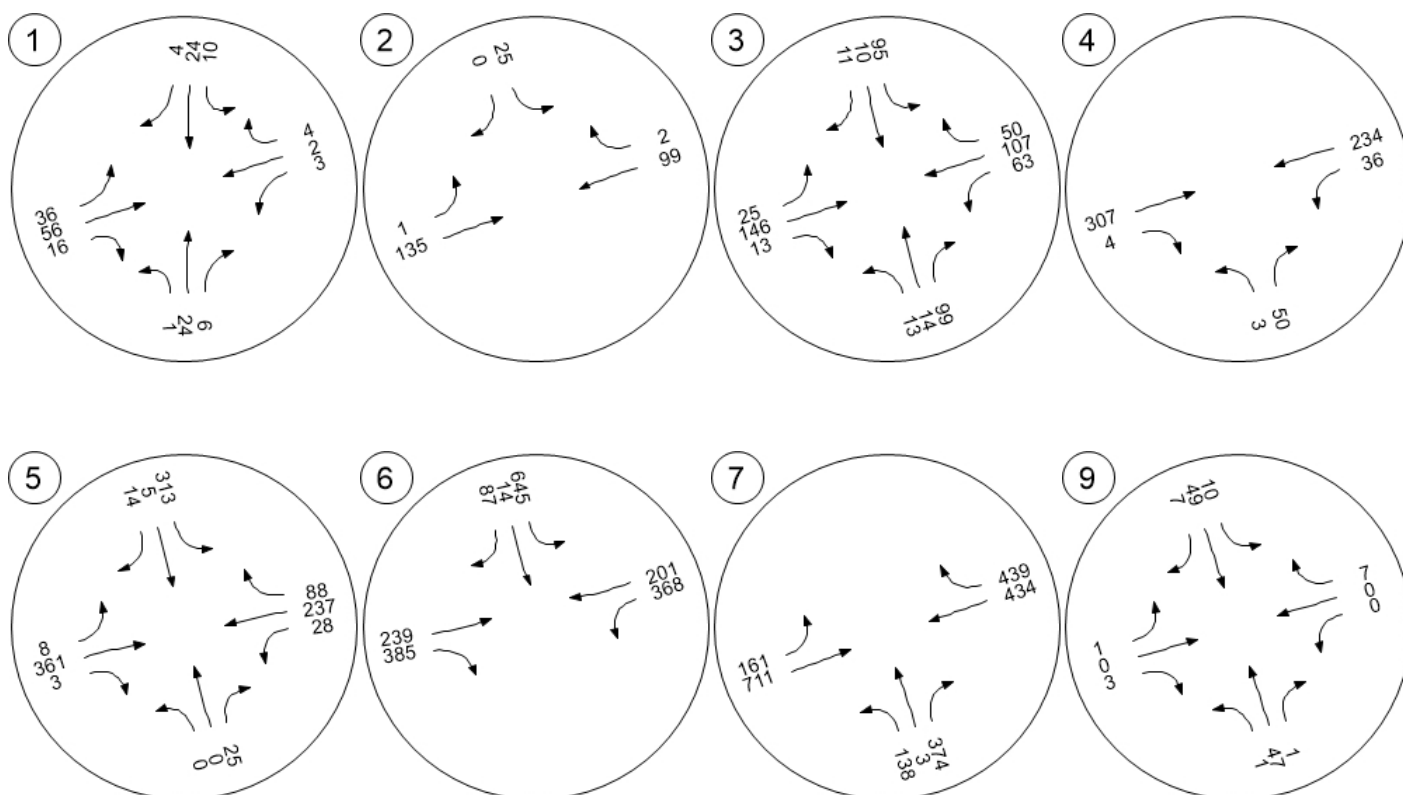




Traffic Volume - Other Volume

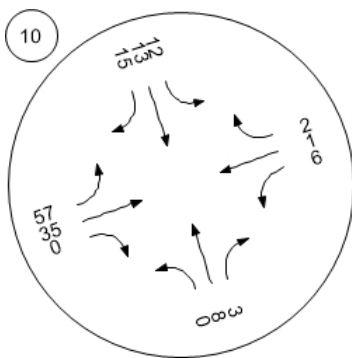


Traffic Volume - Future Total Volume

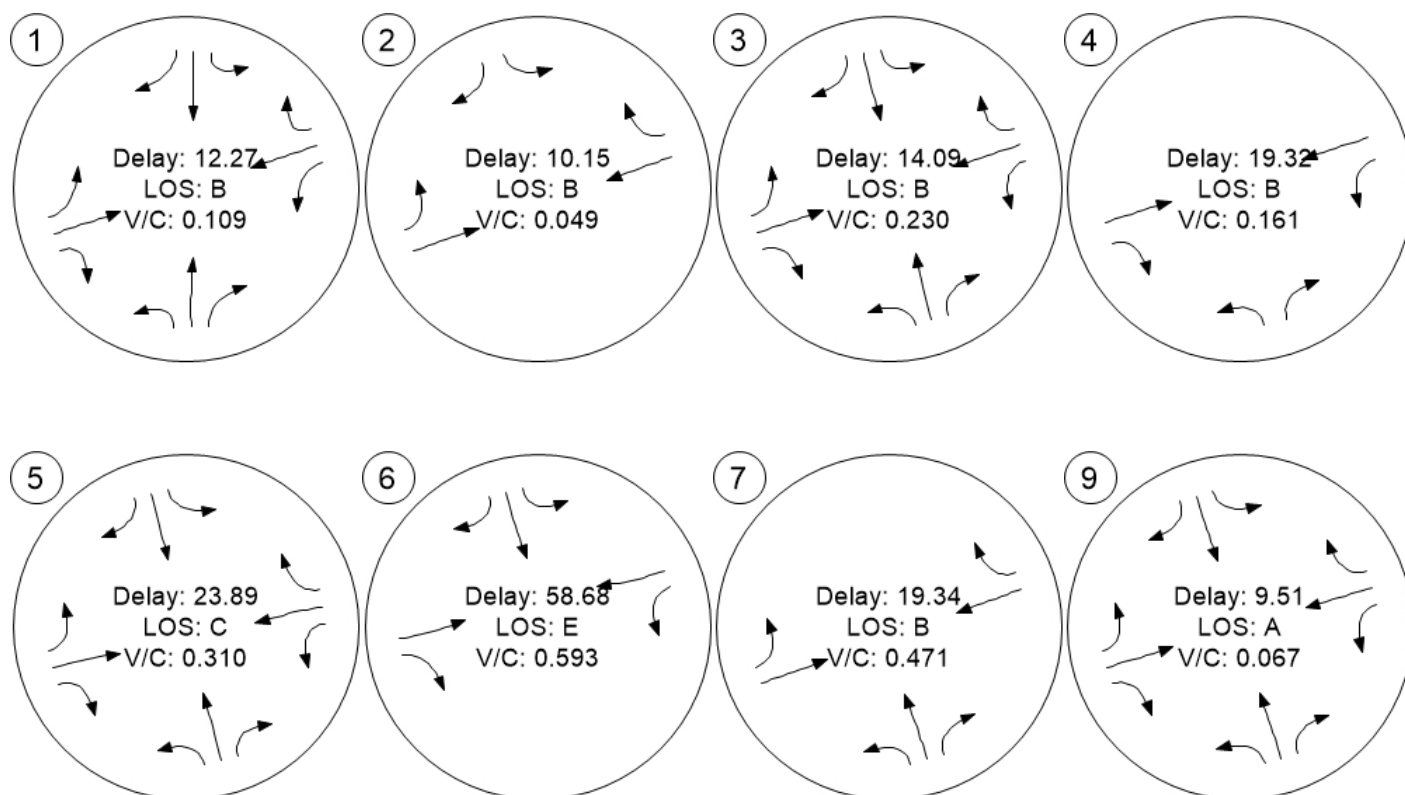




Traffic Volume - Future Total Volume

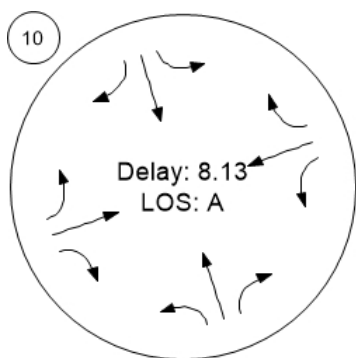


## Traffic Conditions

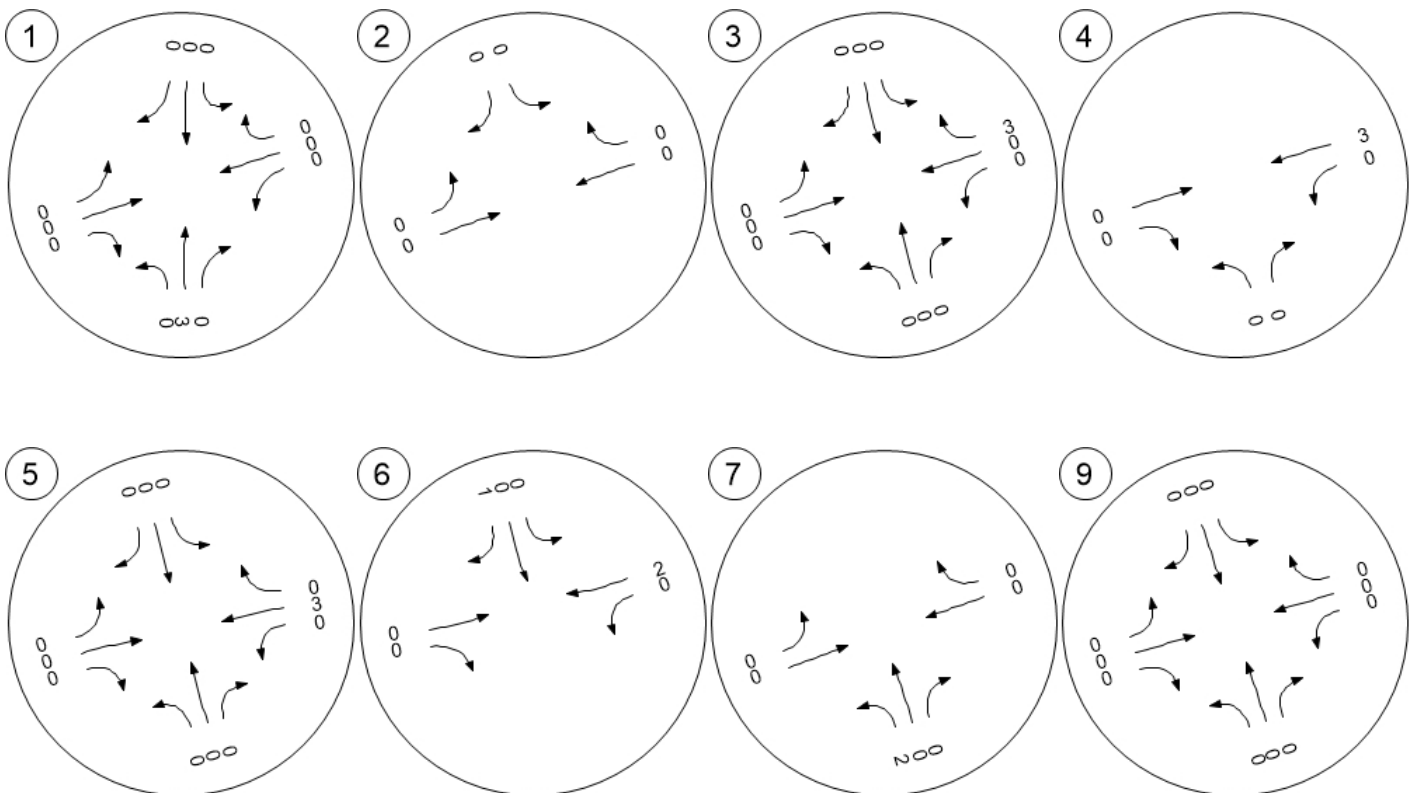




## Traffic Conditions

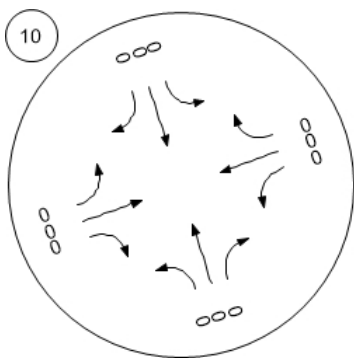


Fair Share - Fair Share Volumes - Zone 18

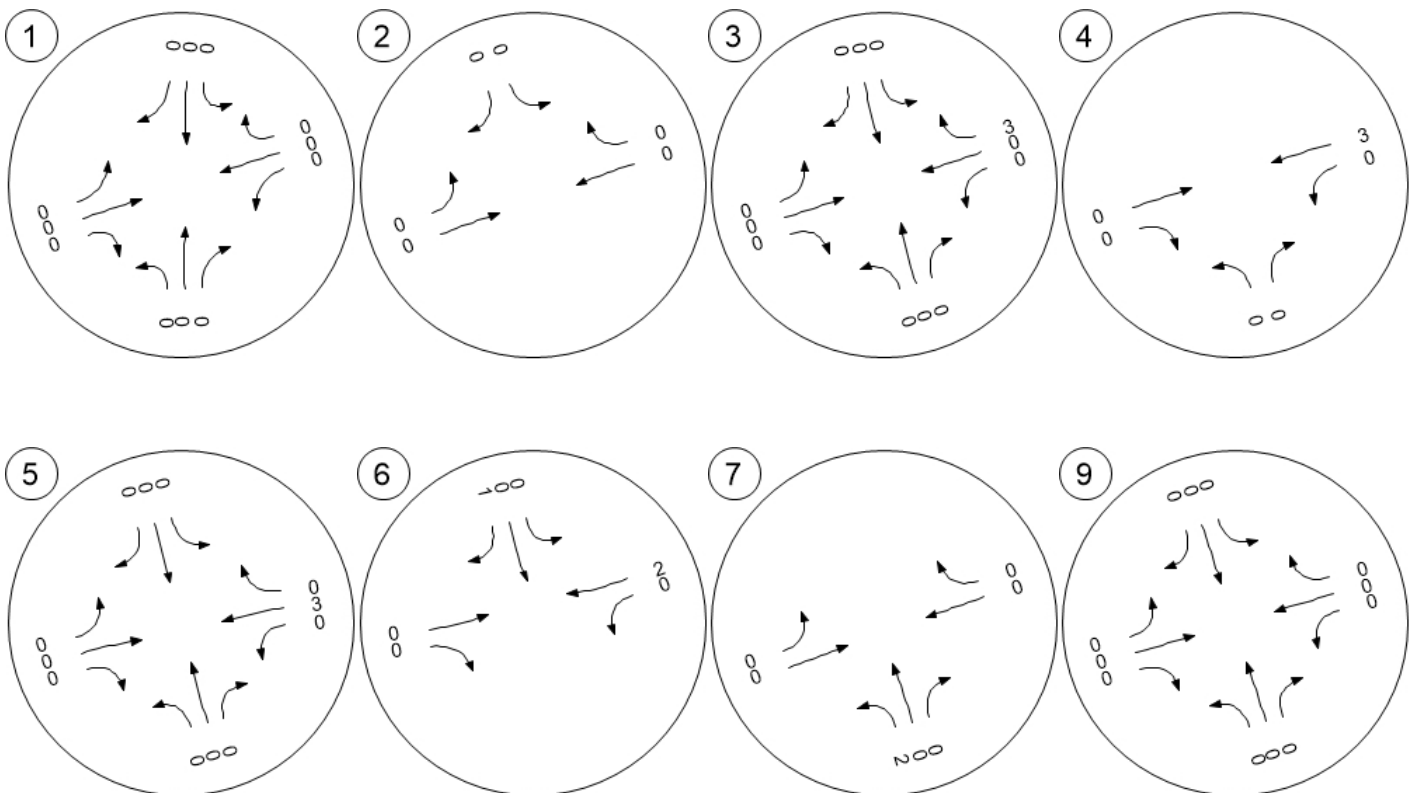




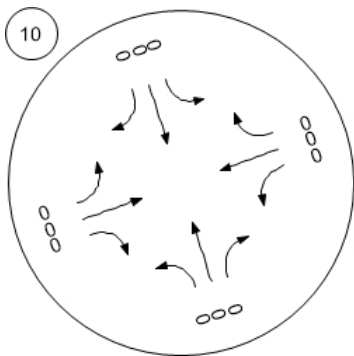
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 19

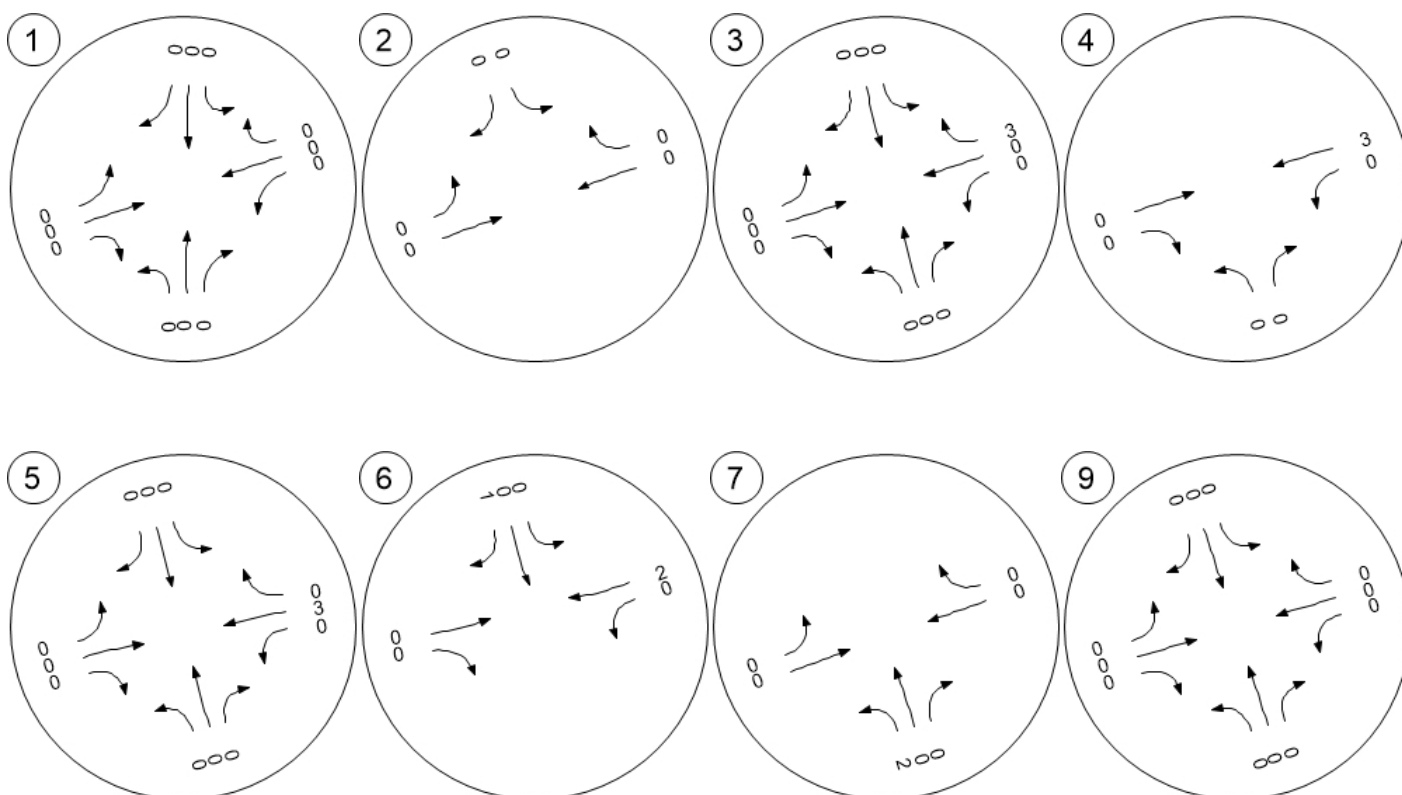


Fair Share - Fair Share Volumes - Zone 19



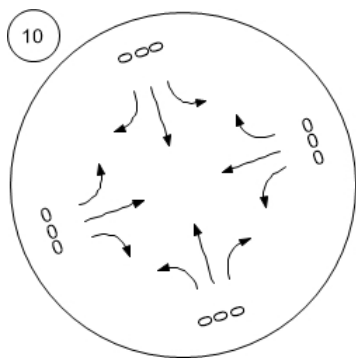


Fair Share - Fair Share Volumes - Zone 20

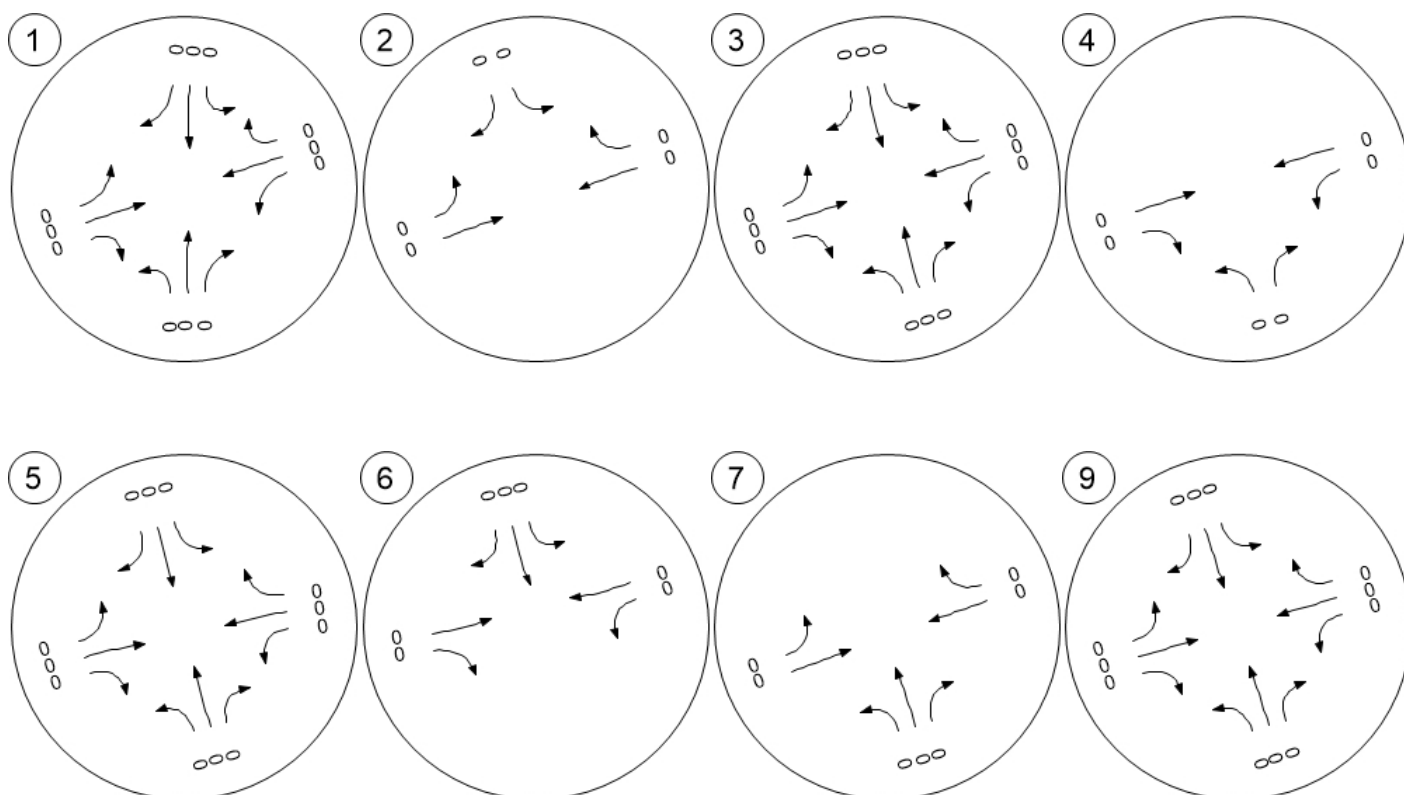




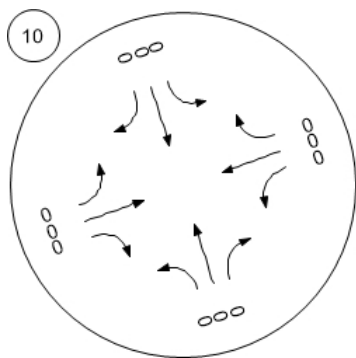
Fair Share - Fair Share Volumes - Zone 20



Fair Share - Fair Share Volumes - Zone 21

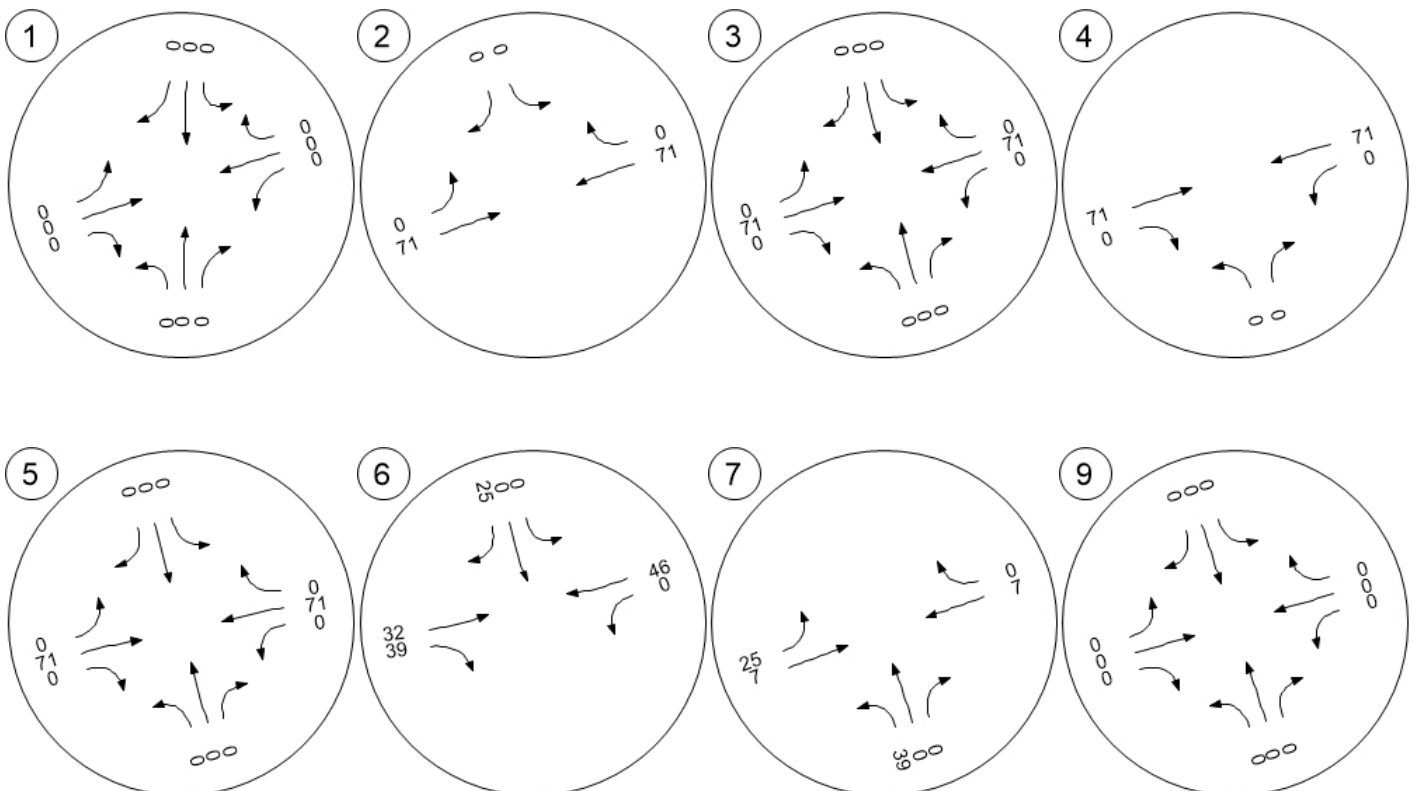


Fair Share - Fair Share Volumes - Zone 21

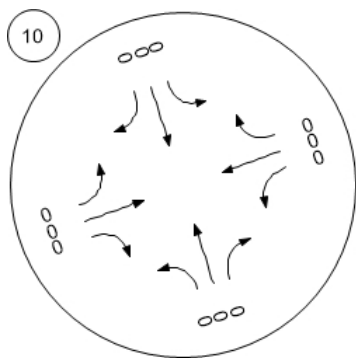




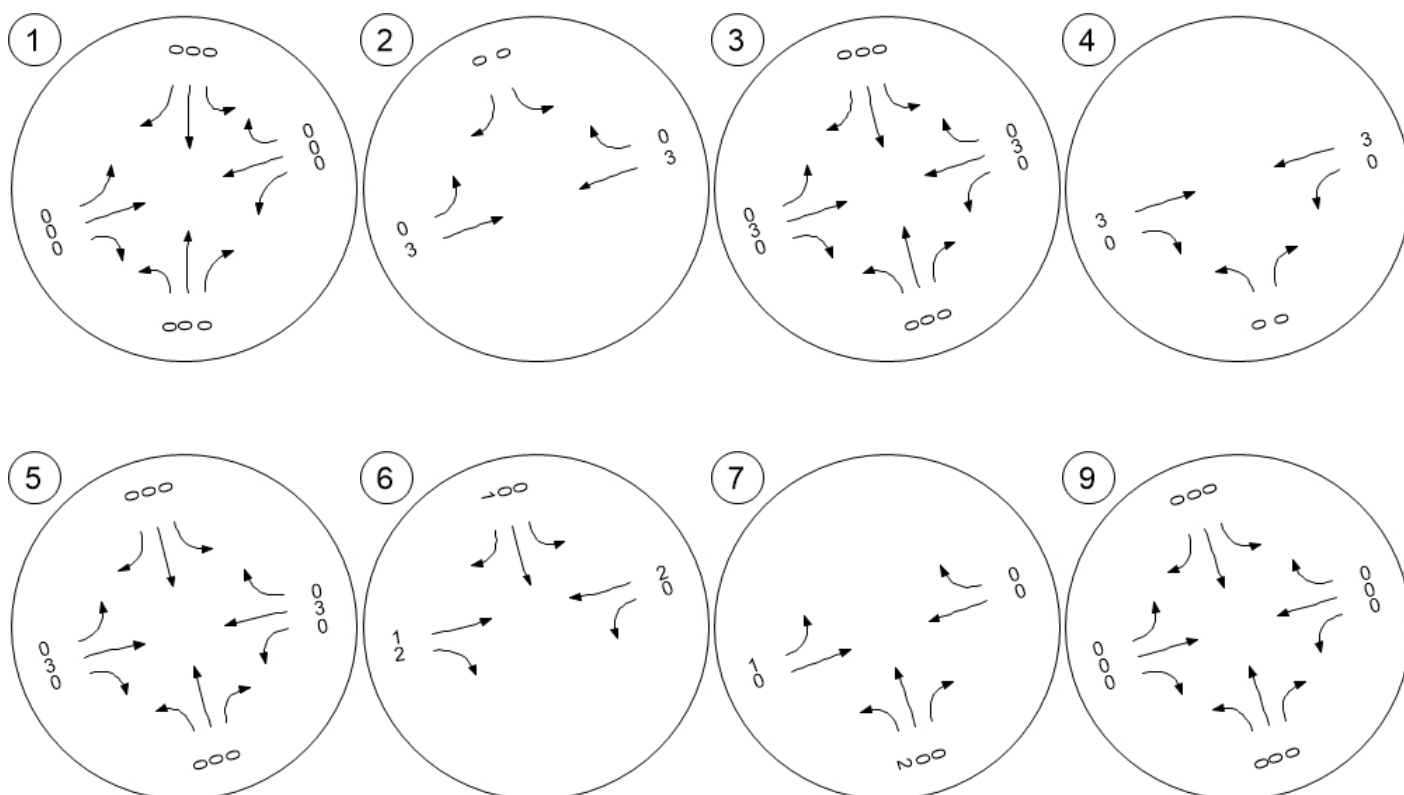
Fair Share - Fair Share Volumes - Zone 22



Fair Share - Fair Share Volumes - Zone 22

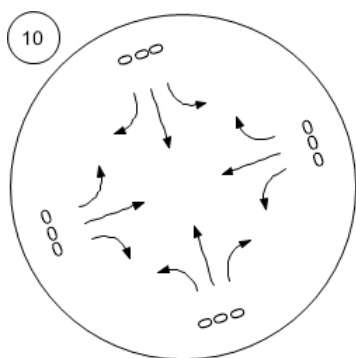


Fair Share - Fair Share Volumes - Zone 23

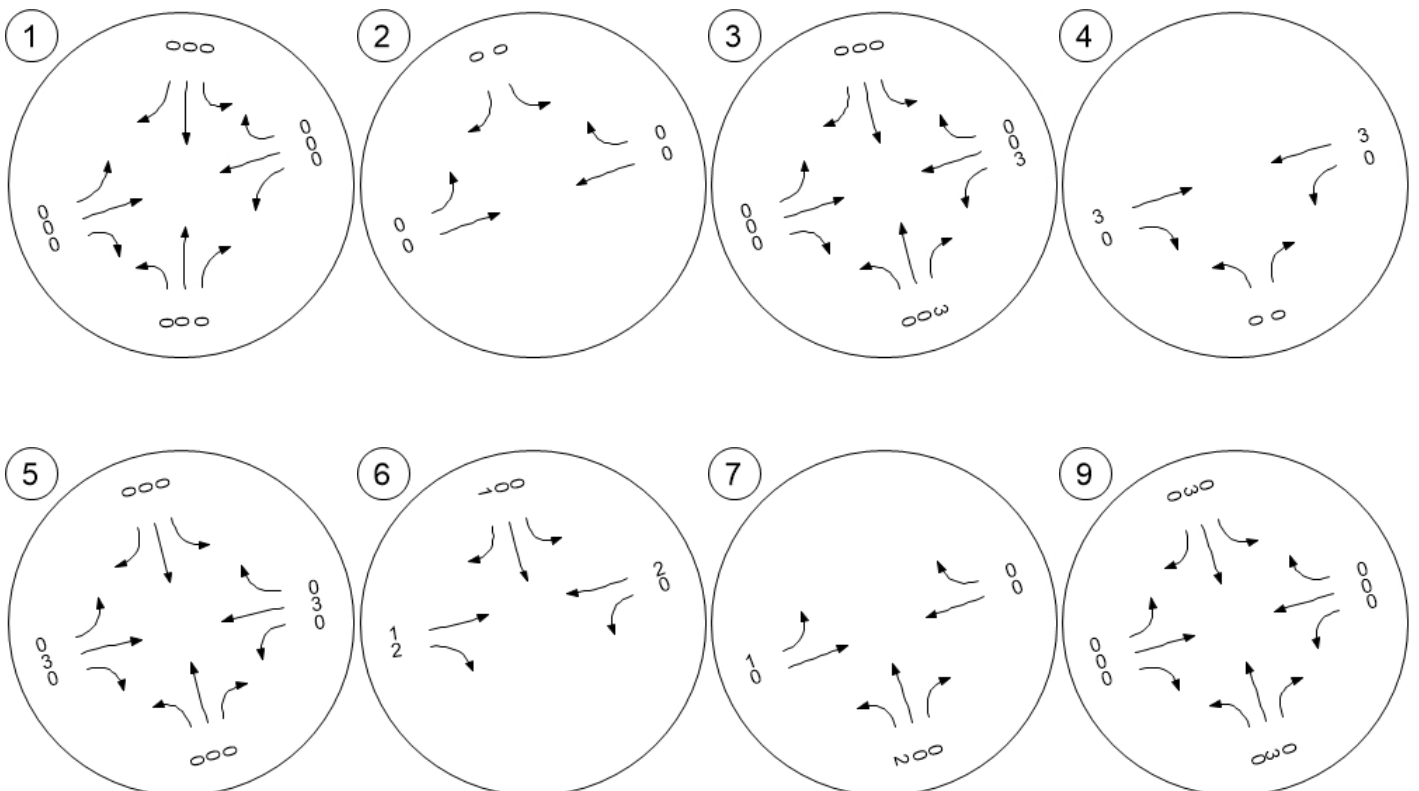




Fair Share - Fair Share Volumes - Zone 23

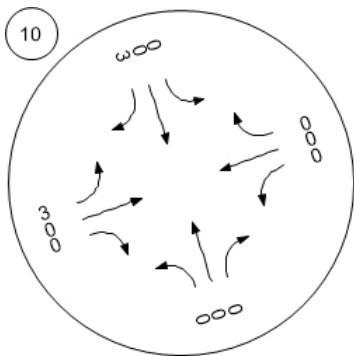


Fair Share - Fair Share Volumes - Zone 24

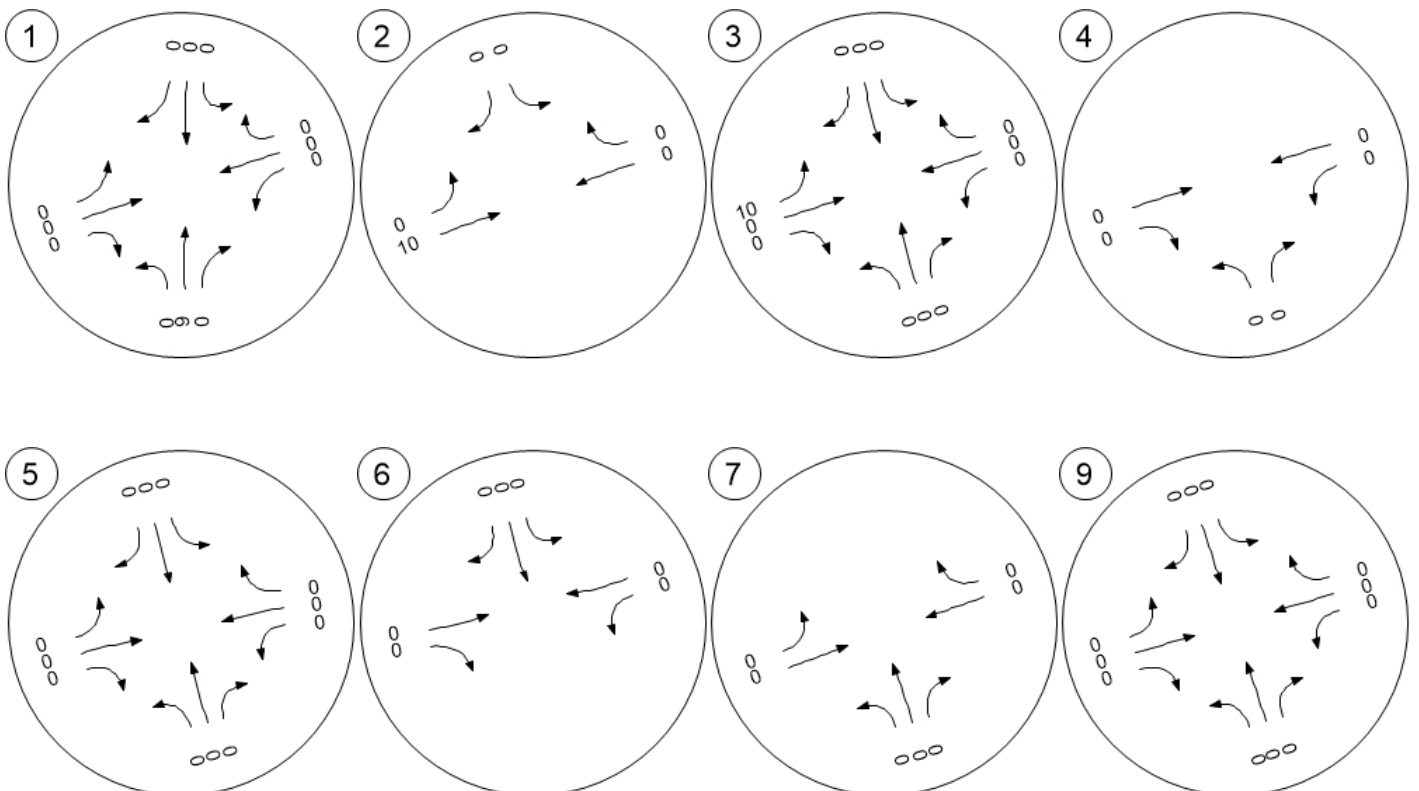




Fair Share - Fair Share Volumes - Zone 24

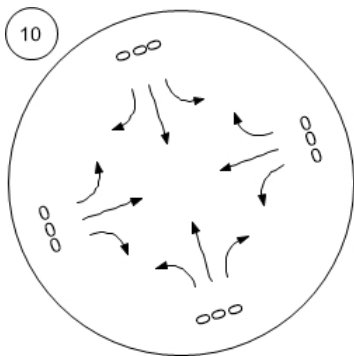


Fair Share - Fair Share Volumes - Zone 25

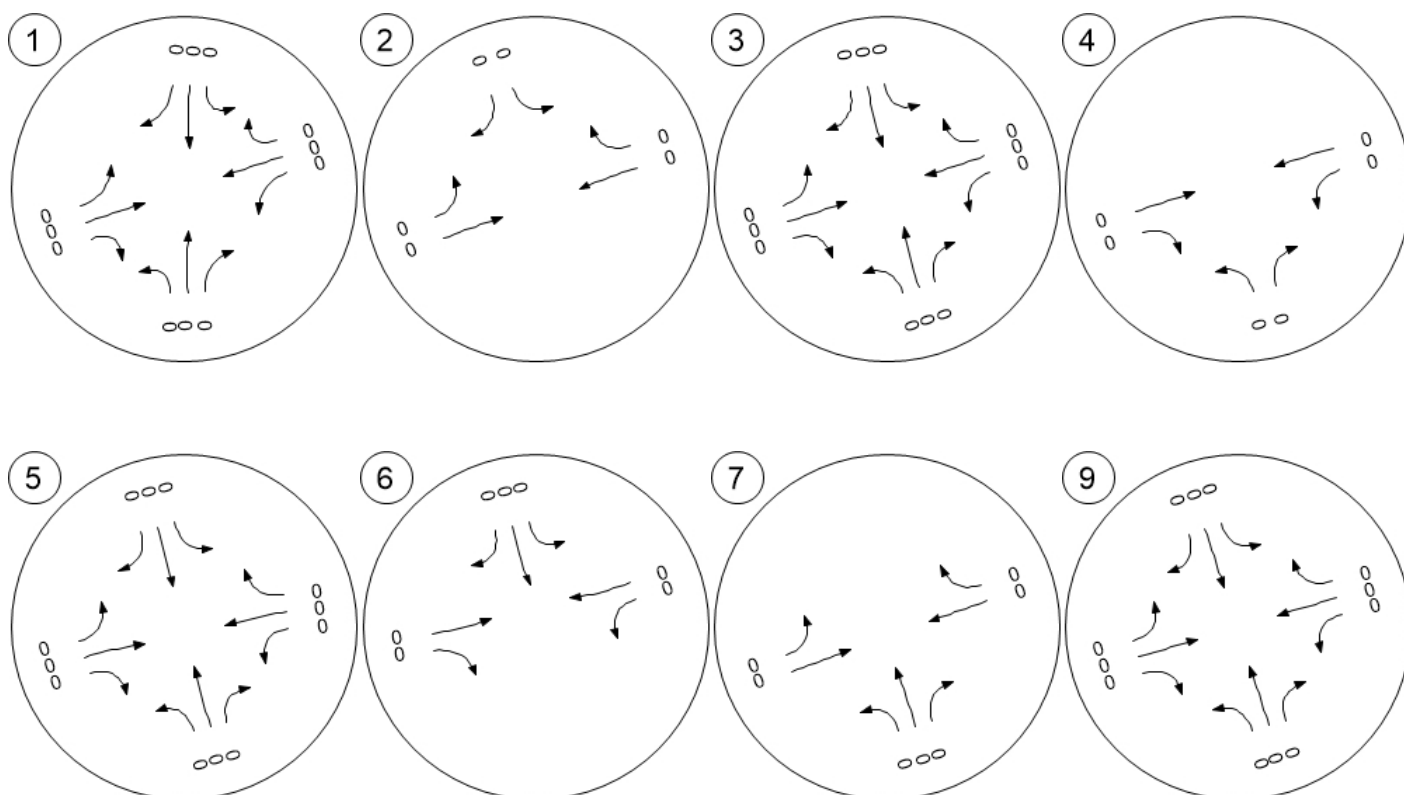




Fair Share - Fair Share Volumes - Zone 25

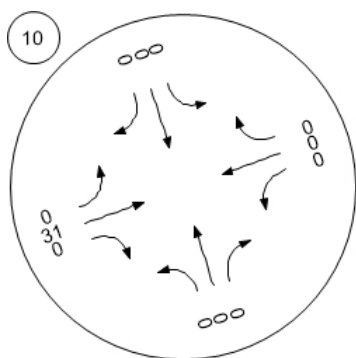


Fair Share - Fair Share Volumes - Zone 26

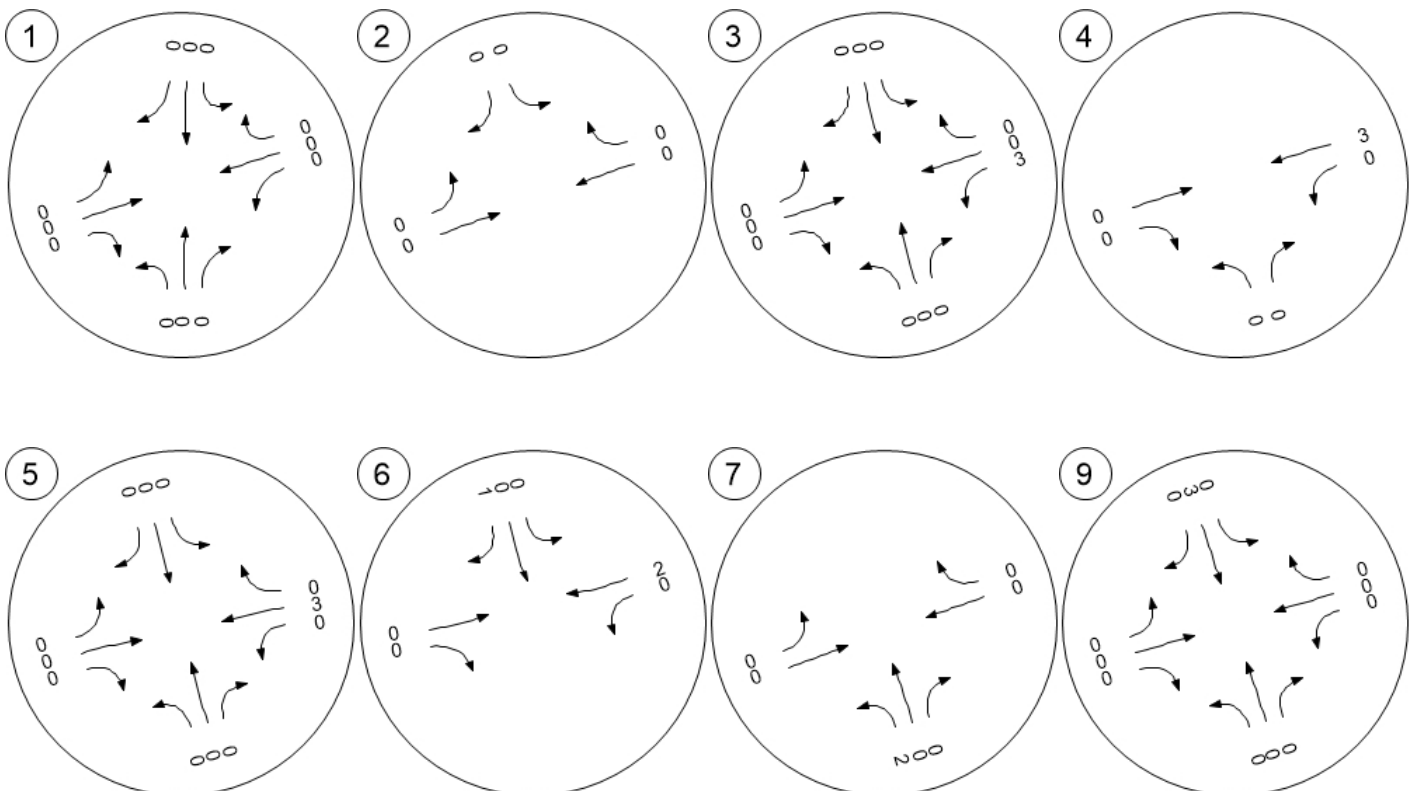




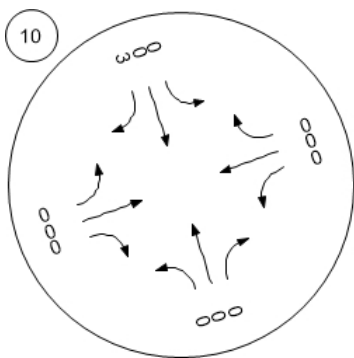
Fair Share - Fair Share Volumes - Zone 26



Fair Share - Fair Share Volumes - Zone 27

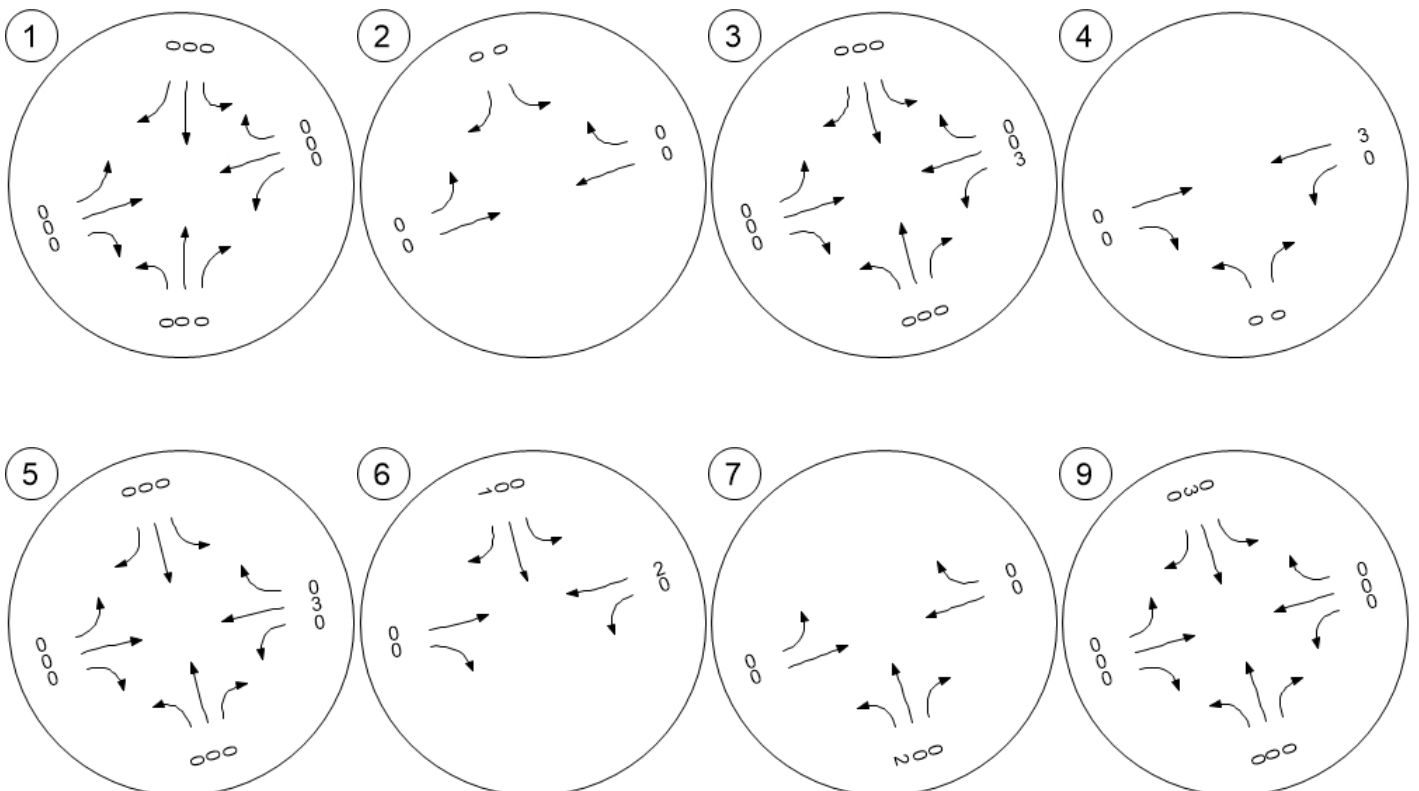


Fair Share - Fair Share Volumes - Zone 27

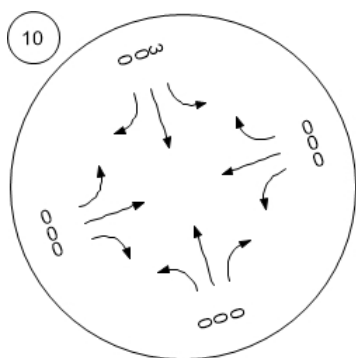




Fair Share - Fair Share Volumes - Zone 28

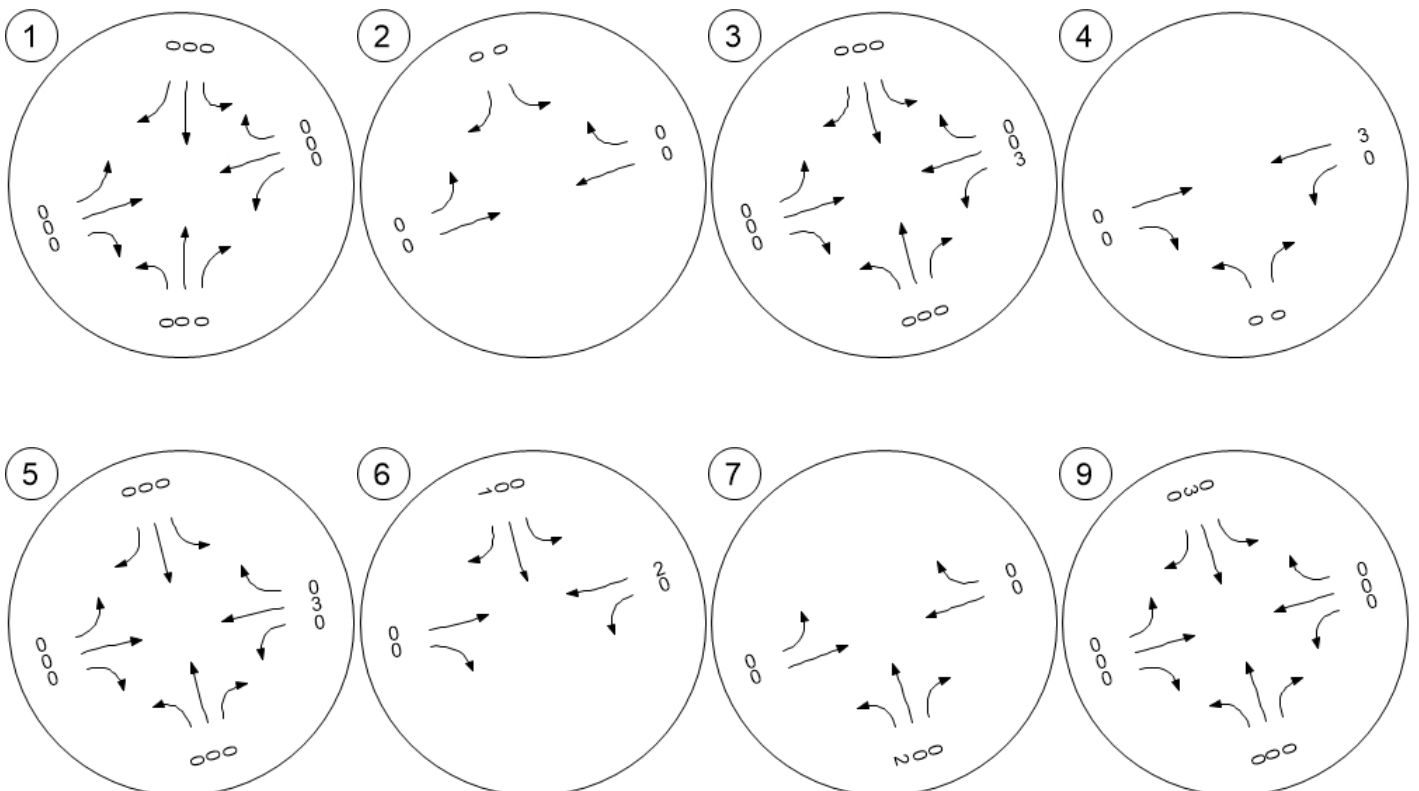


Fair Share - Fair Share Volumes - Zone 28



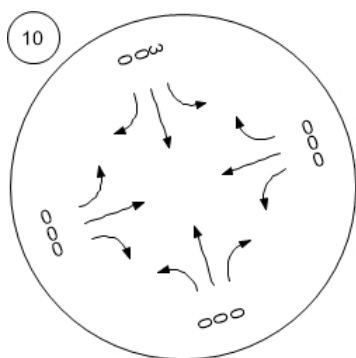
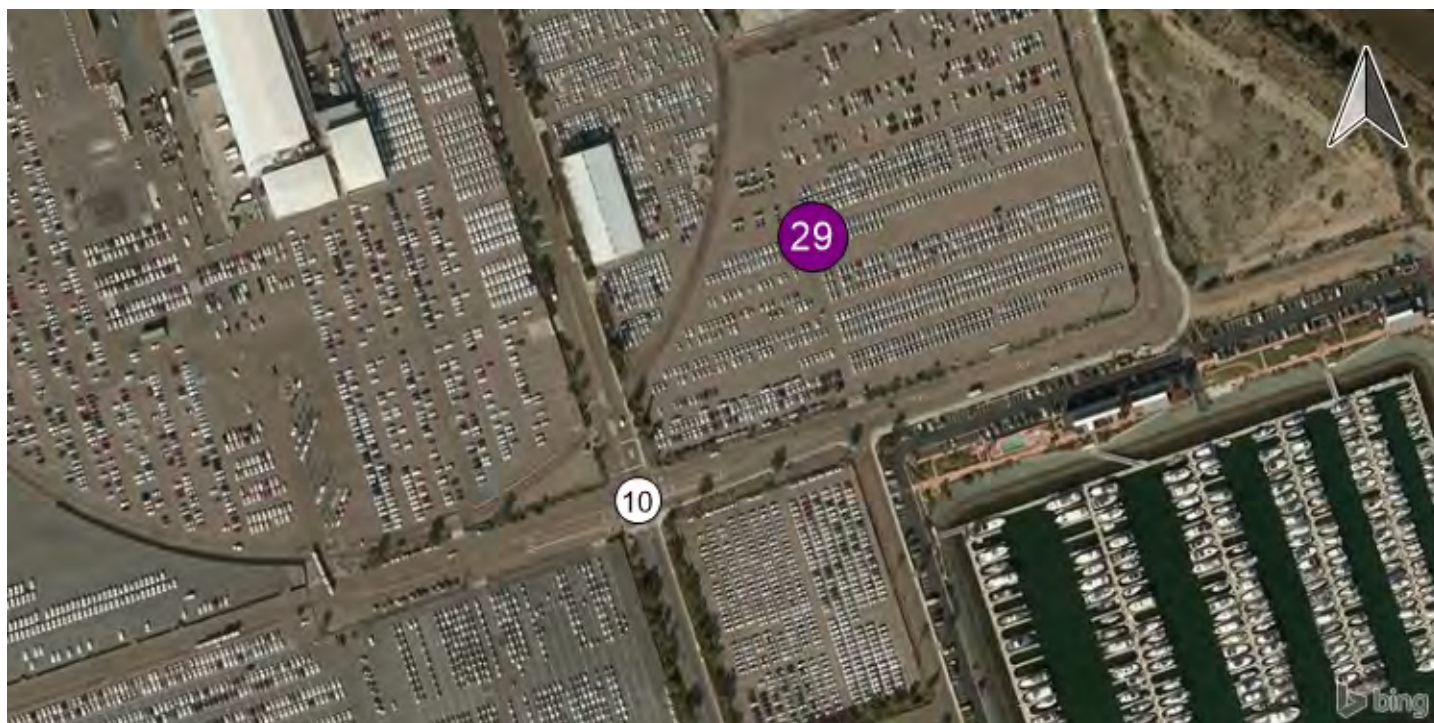


Fair Share - Fair Share Volumes - Zone 29

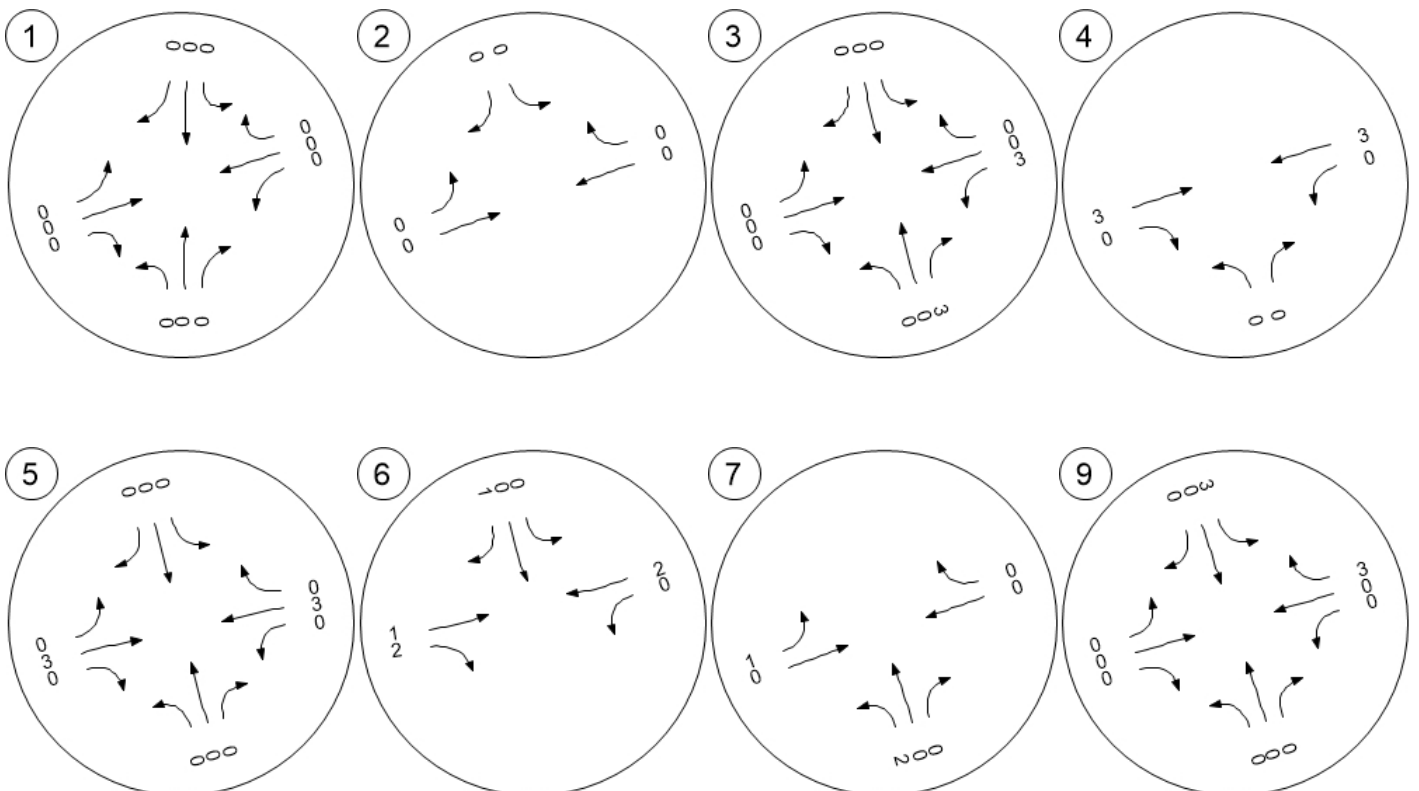




Fair Share - Fair Share Volumes - Zone 29

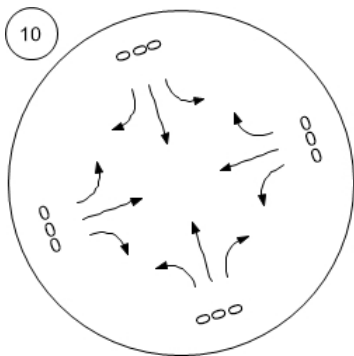


Fair Share - Fair Share Volumes - Zone 32

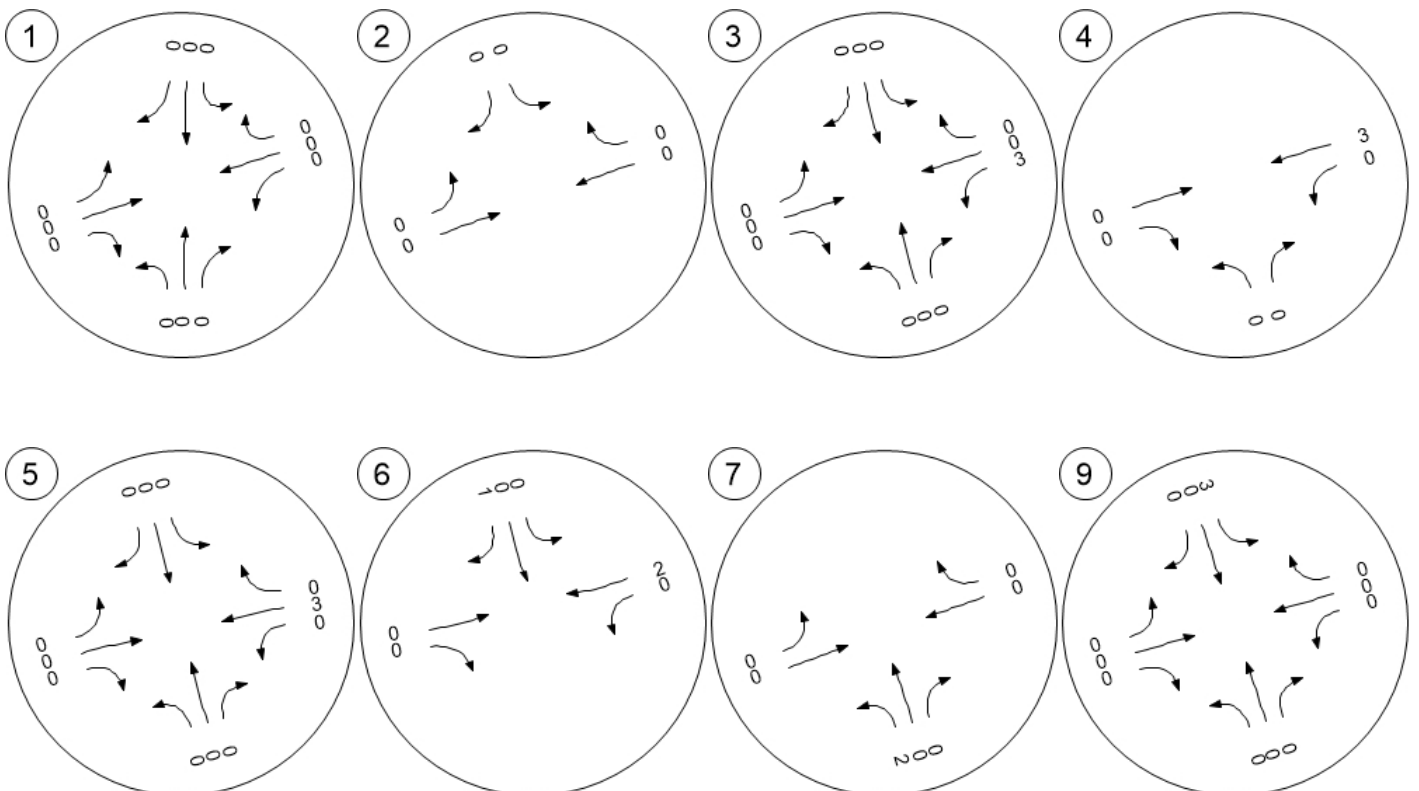




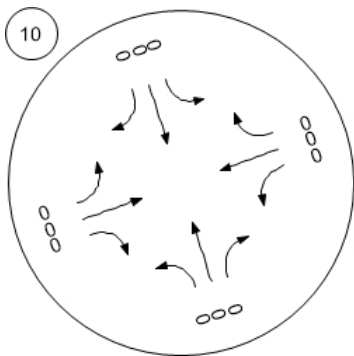
Fair Share - Fair Share Volumes - Zone 32



Fair Share - Fair Share Volumes - Zone 33

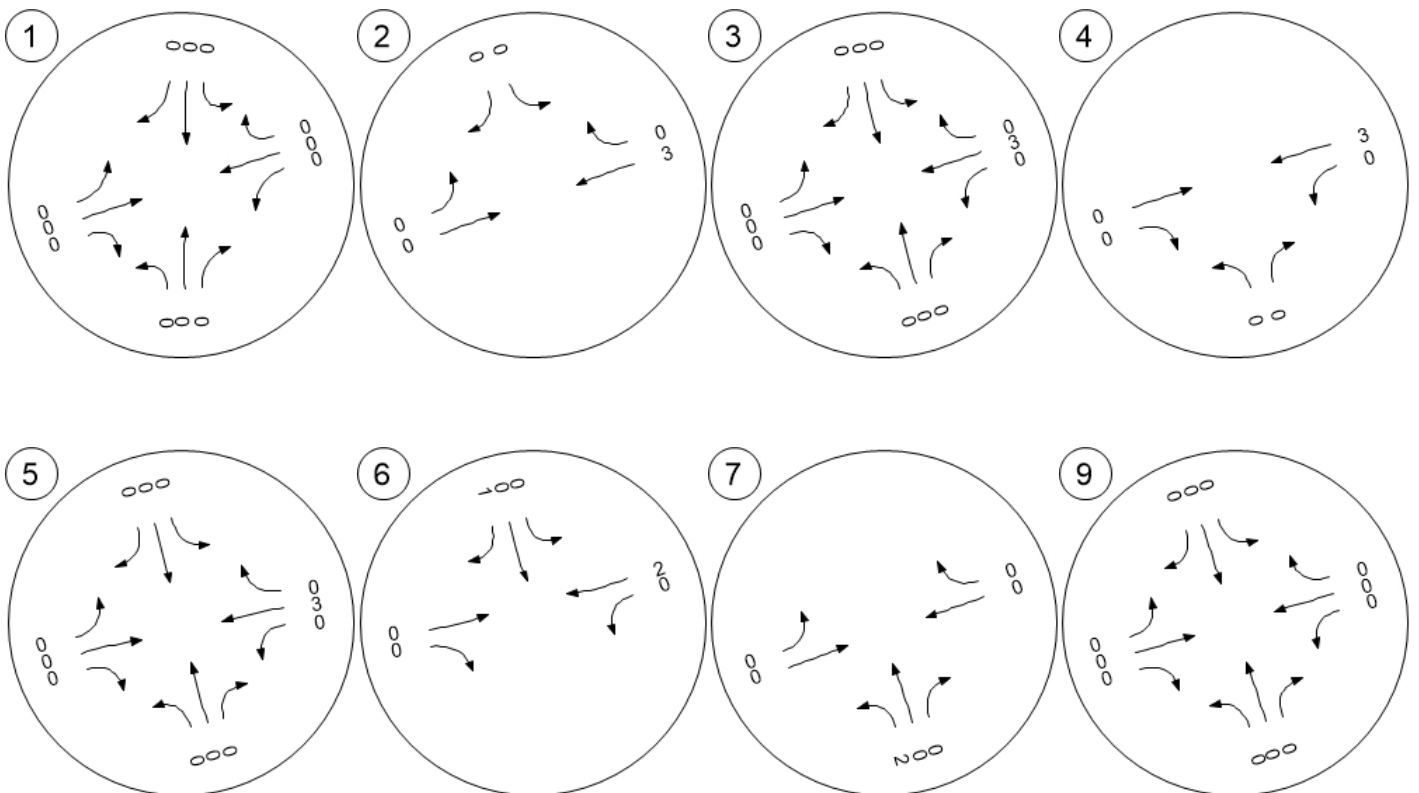


Fair Share - Fair Share Volumes - Zone 33



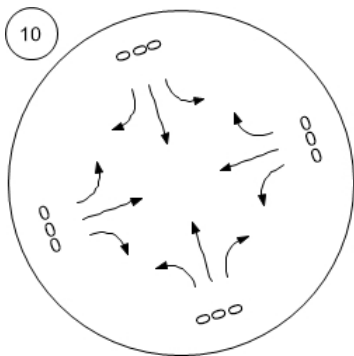


Fair Share - Fair Share Volumes - Zone 34

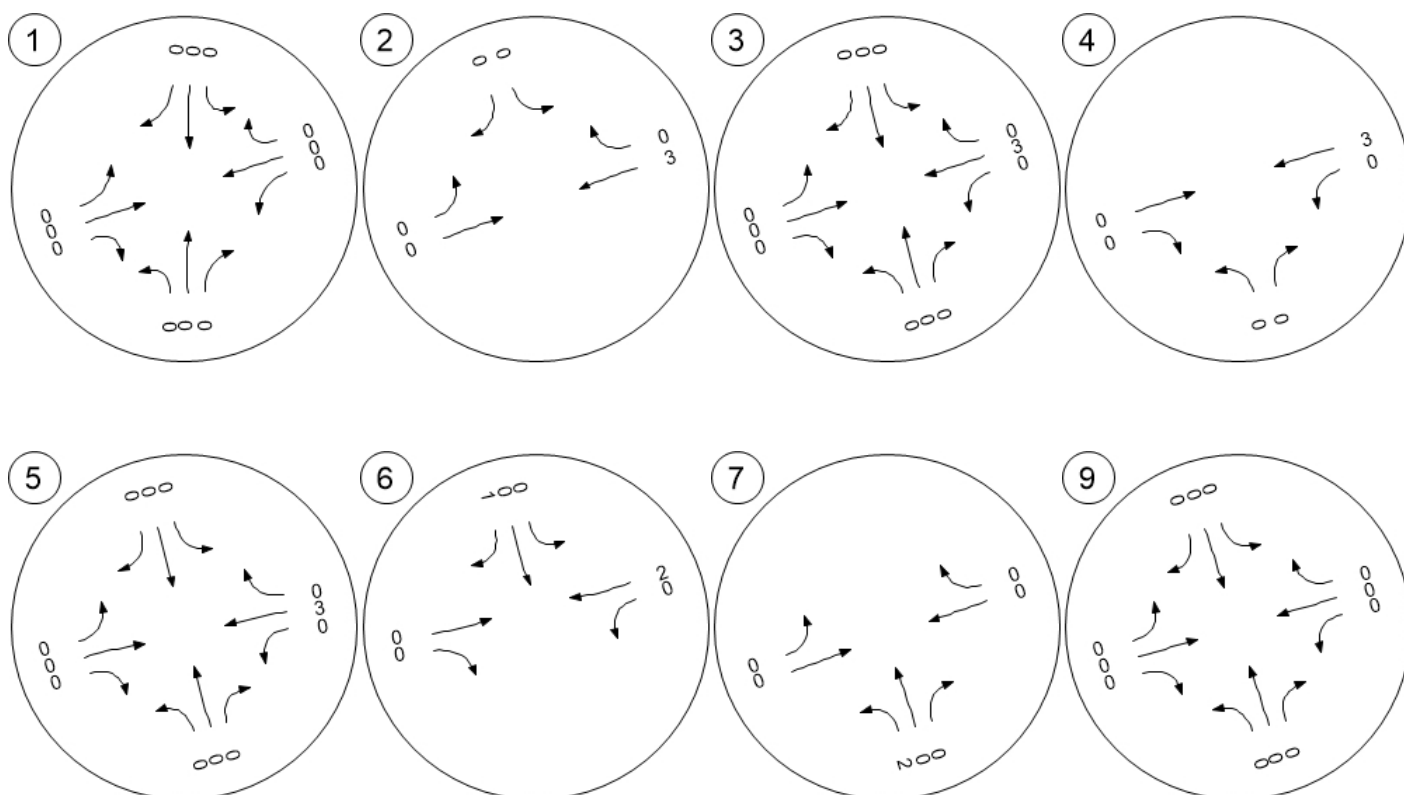




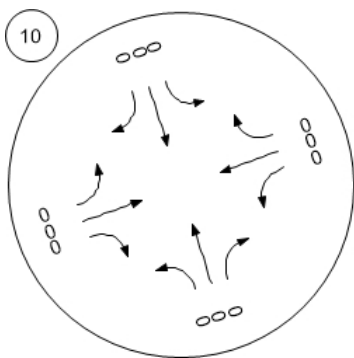
Fair Share - Fair Share Volumes - Zone 34



Fair Share - Fair Share Volumes - Zone 35

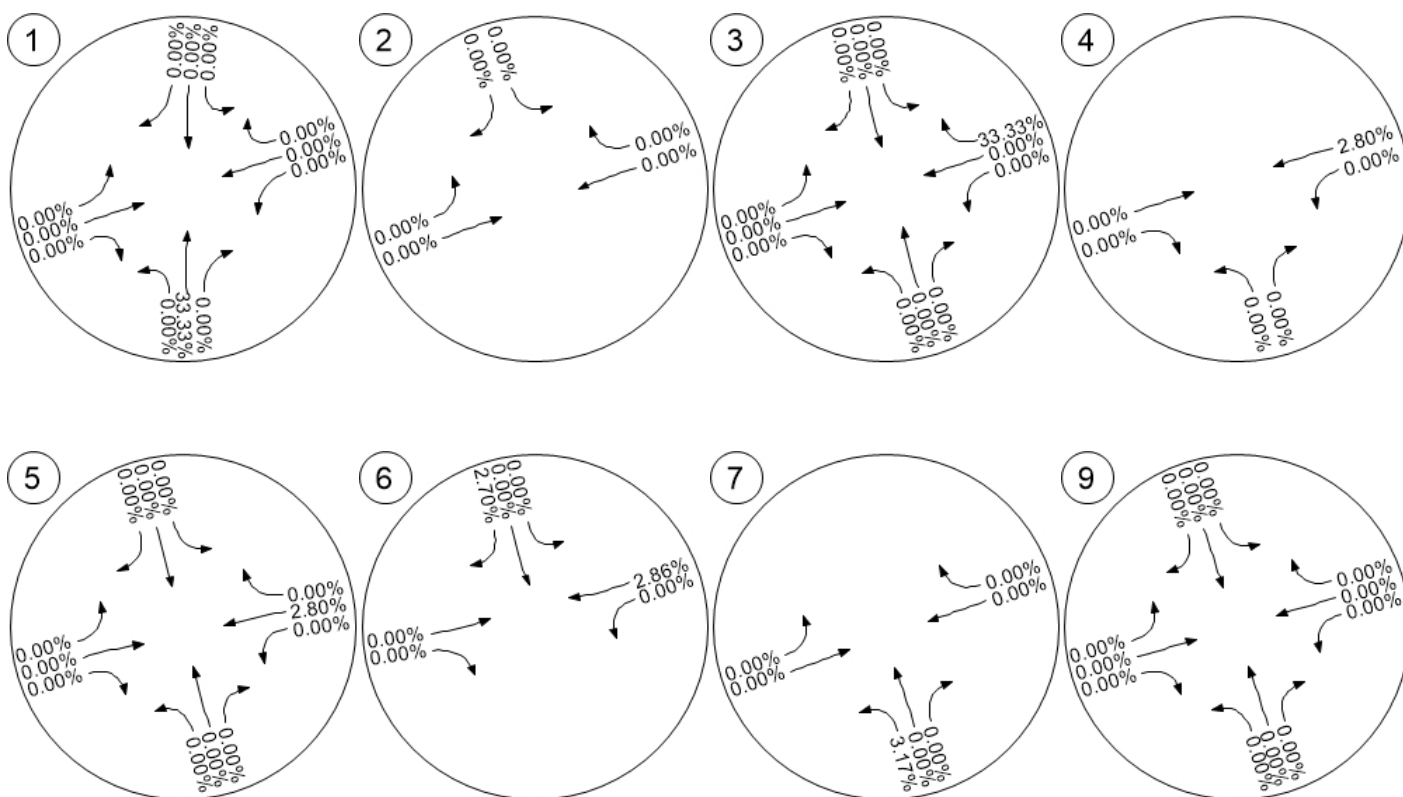


Fair Share - Fair Share Volumes - Zone 35





## Fair Share - Fair Share % of Net New Site - Zone 18

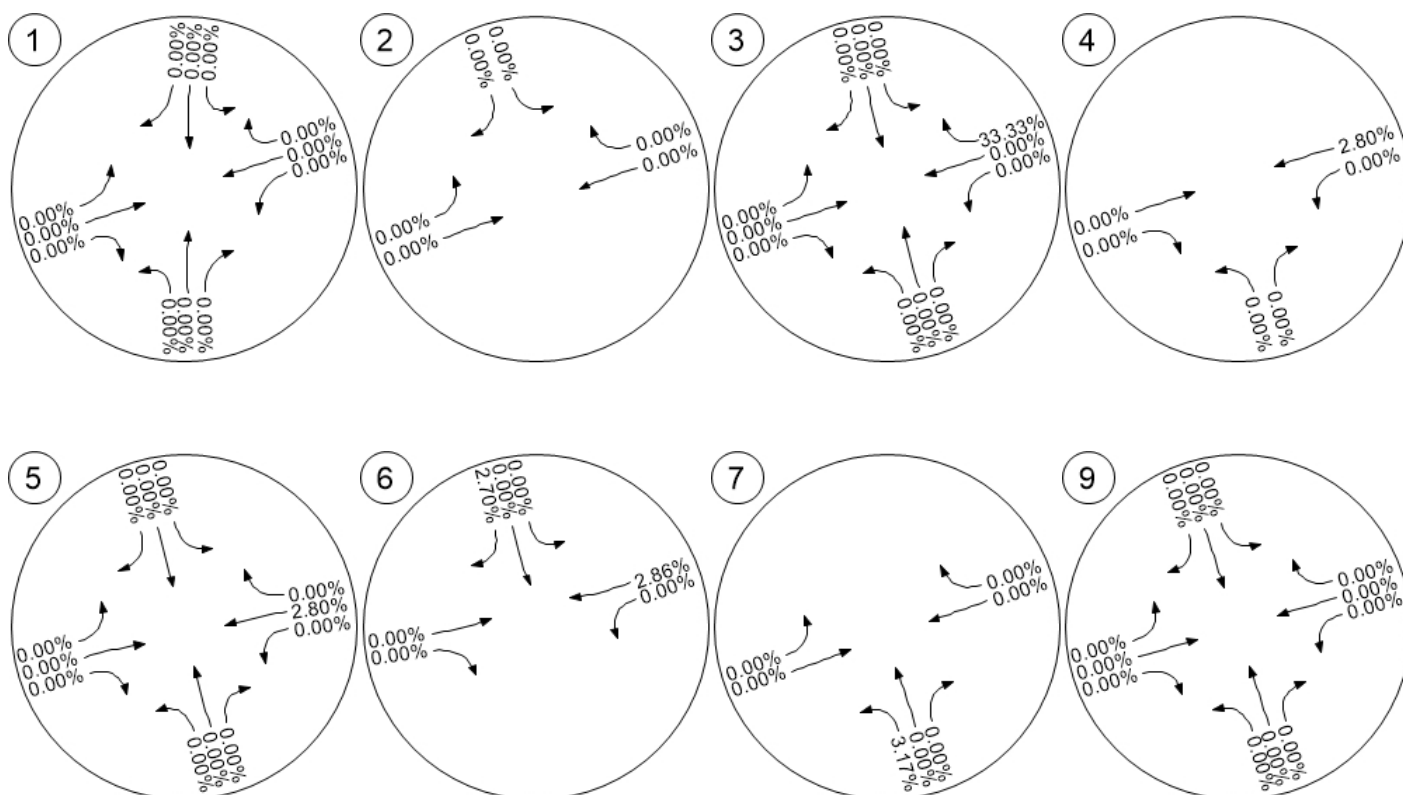


Fair Share - Fair Share % of Net New Site - Zone 18





Fair Share - Fair Share % of Net New Site - Zone 19

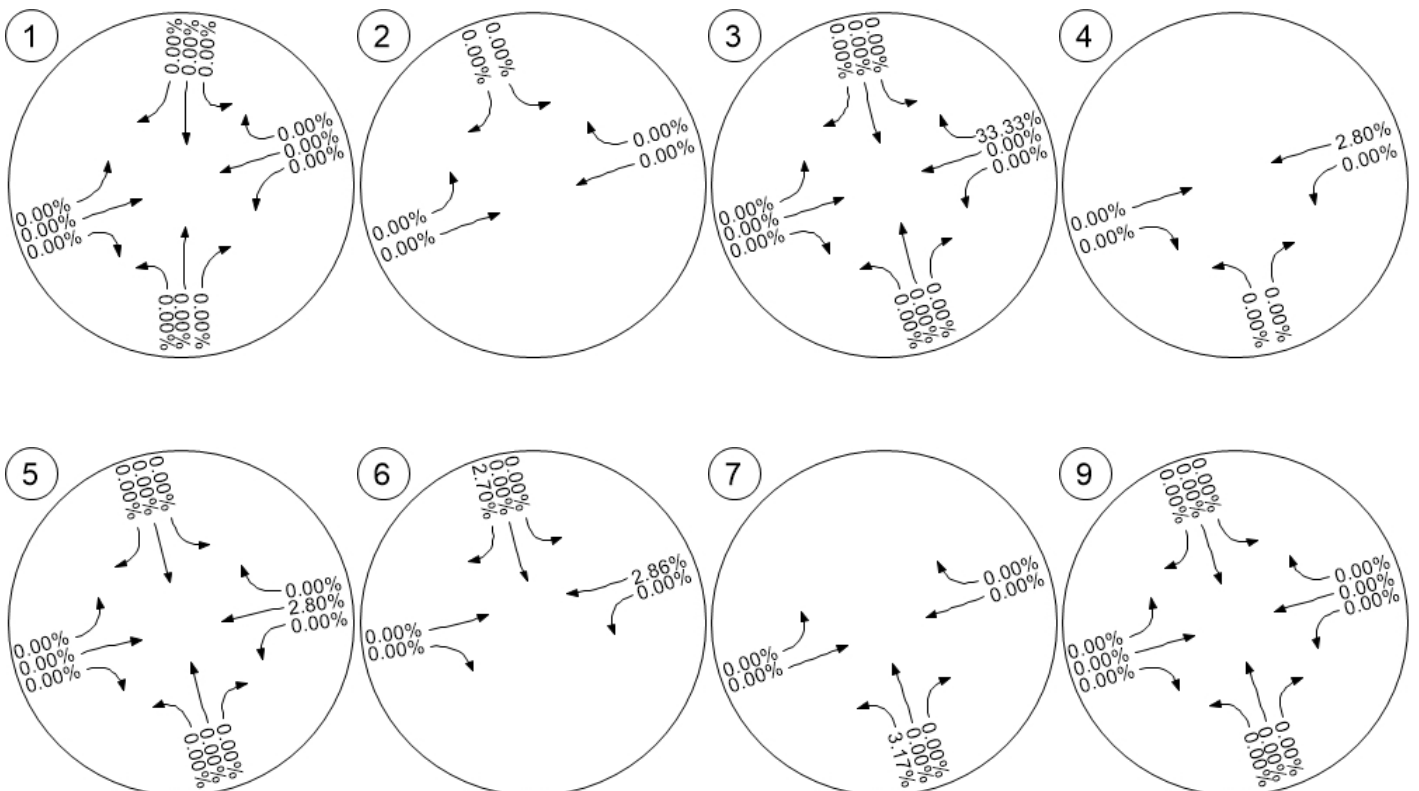


Fair Share - Fair Share % of Net New Site - Zone 19

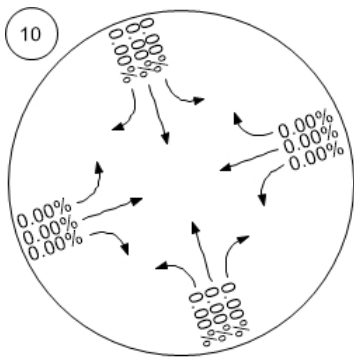




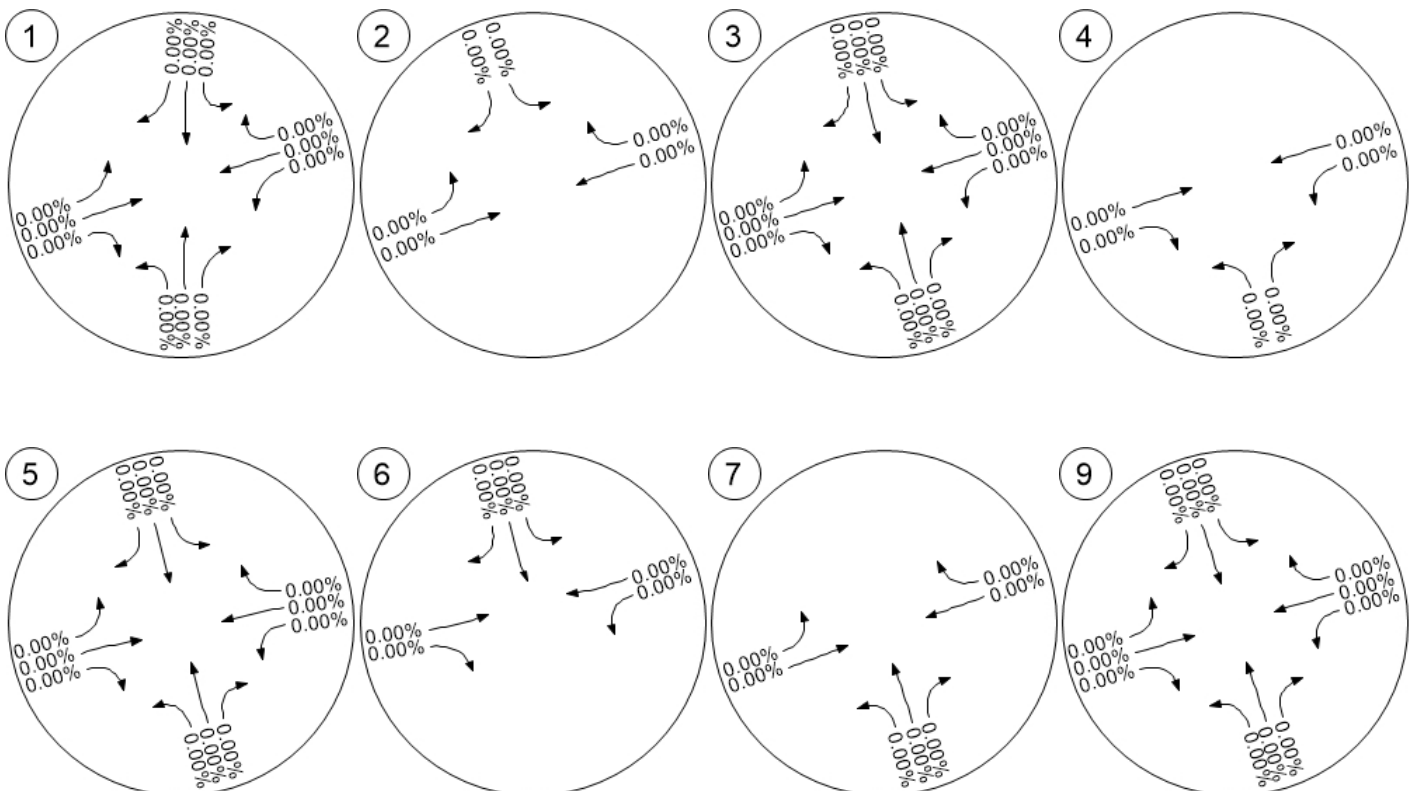
Fair Share - Fair Share % of Net New Site - Zone 20



Fair Share - Fair Share % of Net New Site - Zone 20

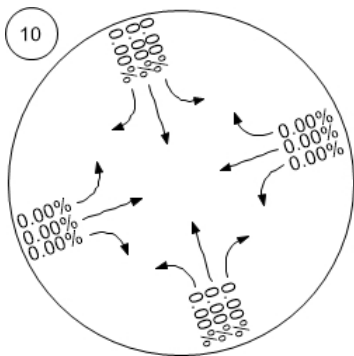


Fair Share - Fair Share % of Net New Site - Zone 21

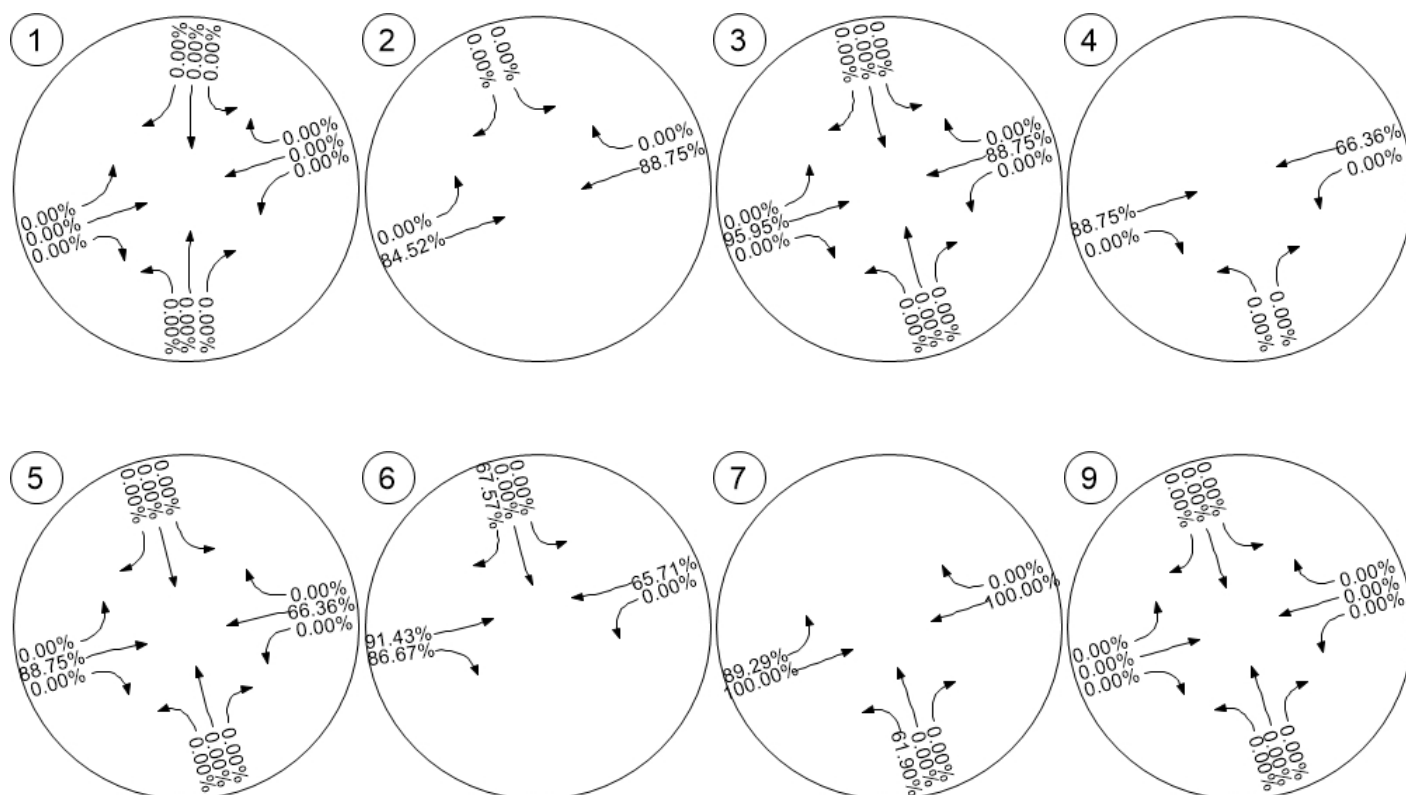




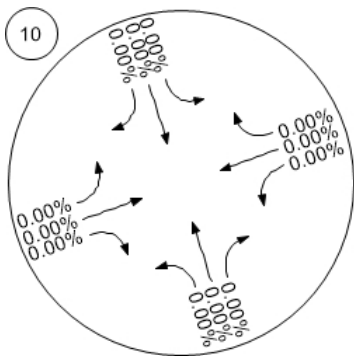
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## Fair Share - Fair Share % of Net New Site - Zone 22

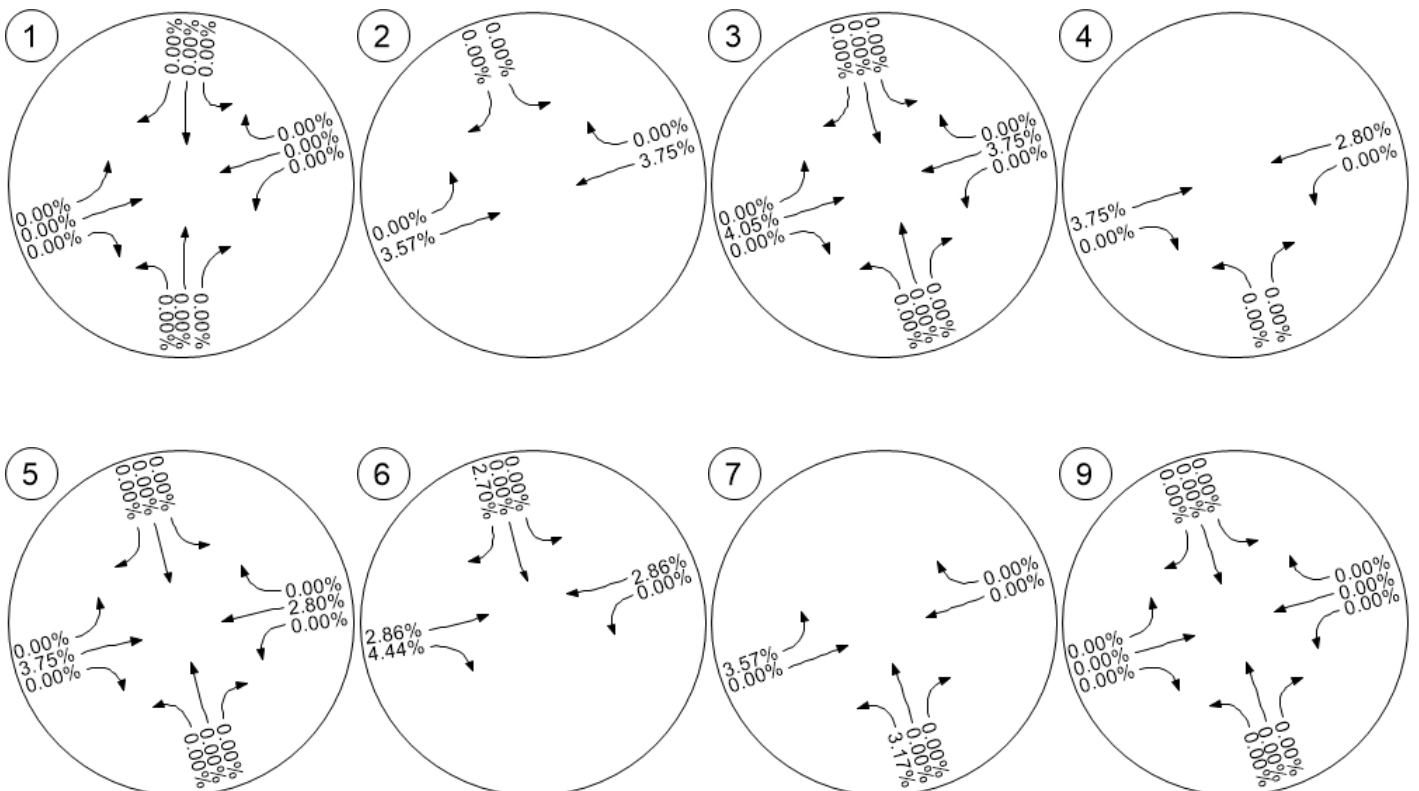


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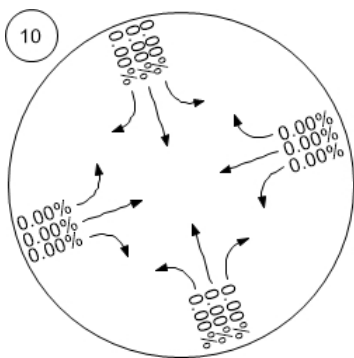




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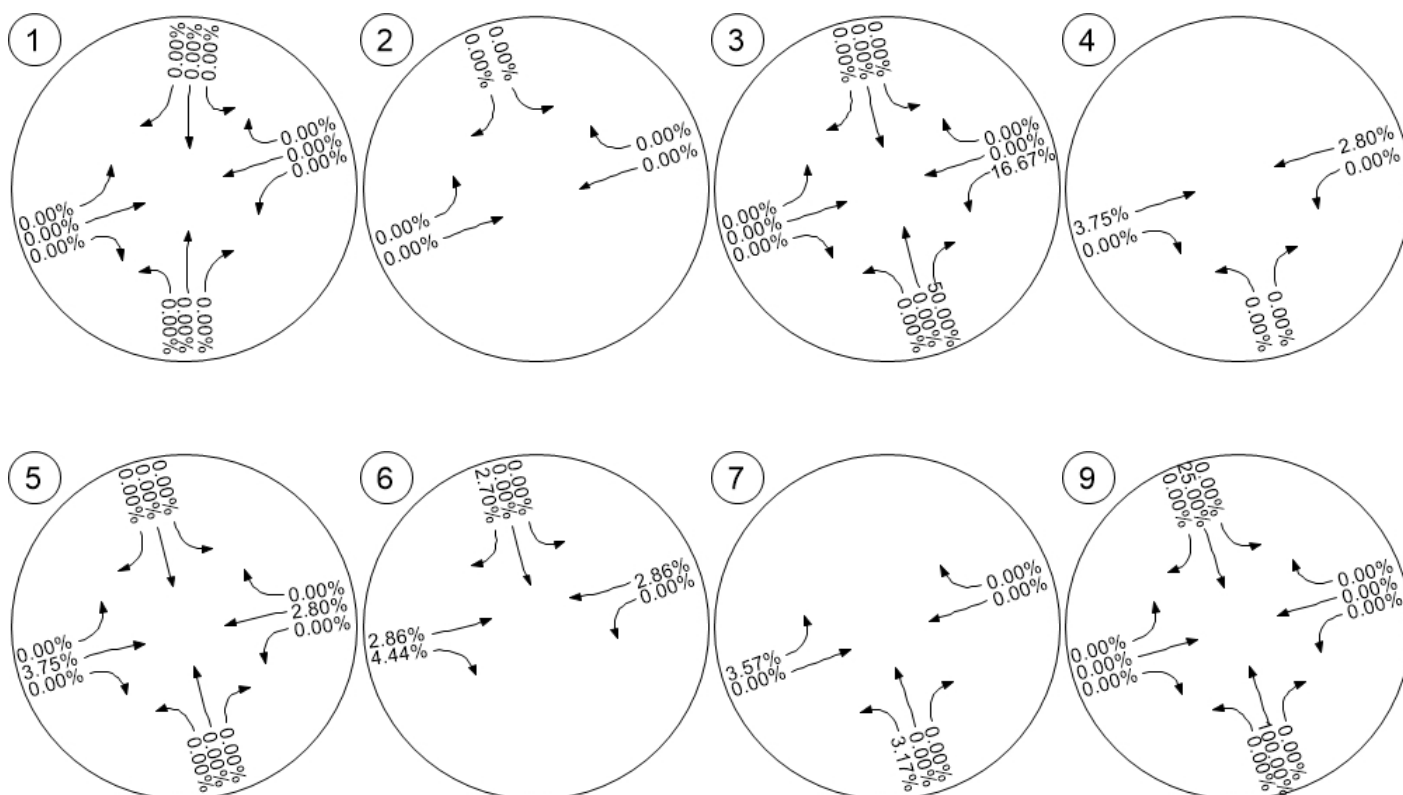


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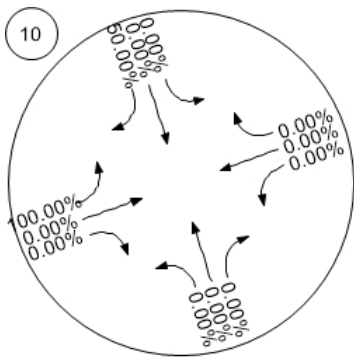




Fair Share - Fair Share % of Net New Site - Zone 24

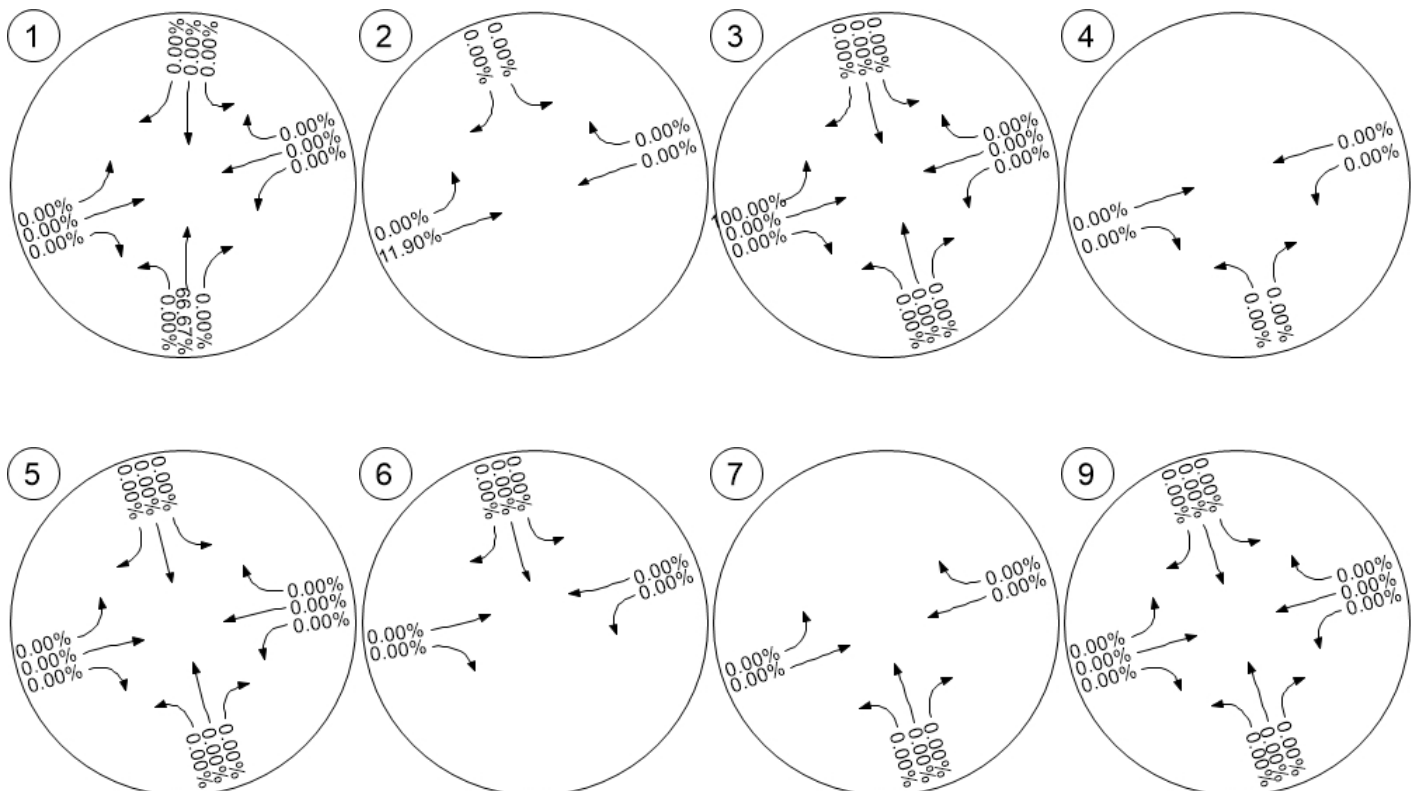


Fair Share - Fair Share % of Net New Site - Zone 24





Fair Share - Fair Share % of Net New Site - Zone 25

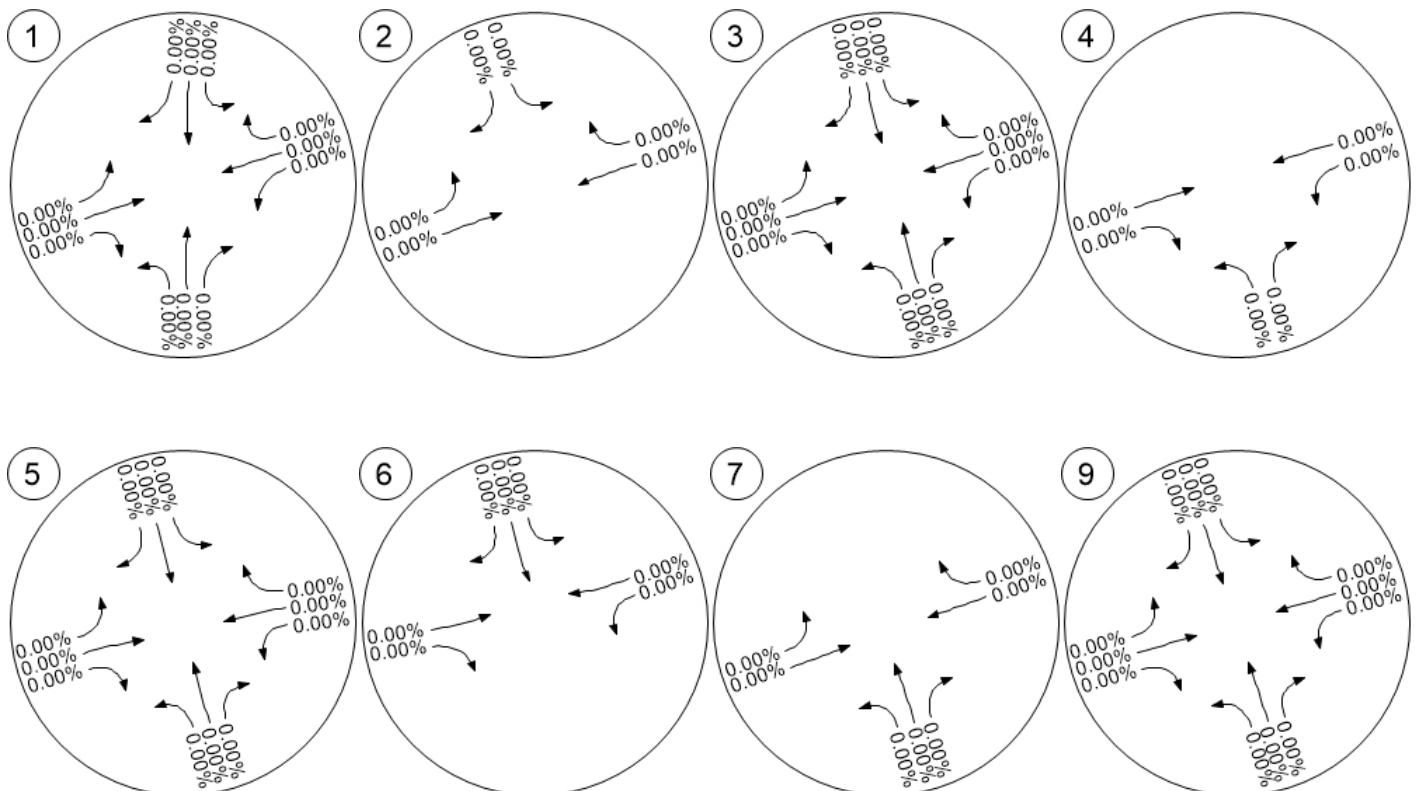


Fair Share - Fair Share % of Net New Site - Zone 25



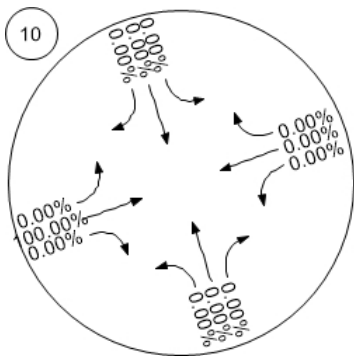


Fair Share - Fair Share % of Net New Site - Zone 26

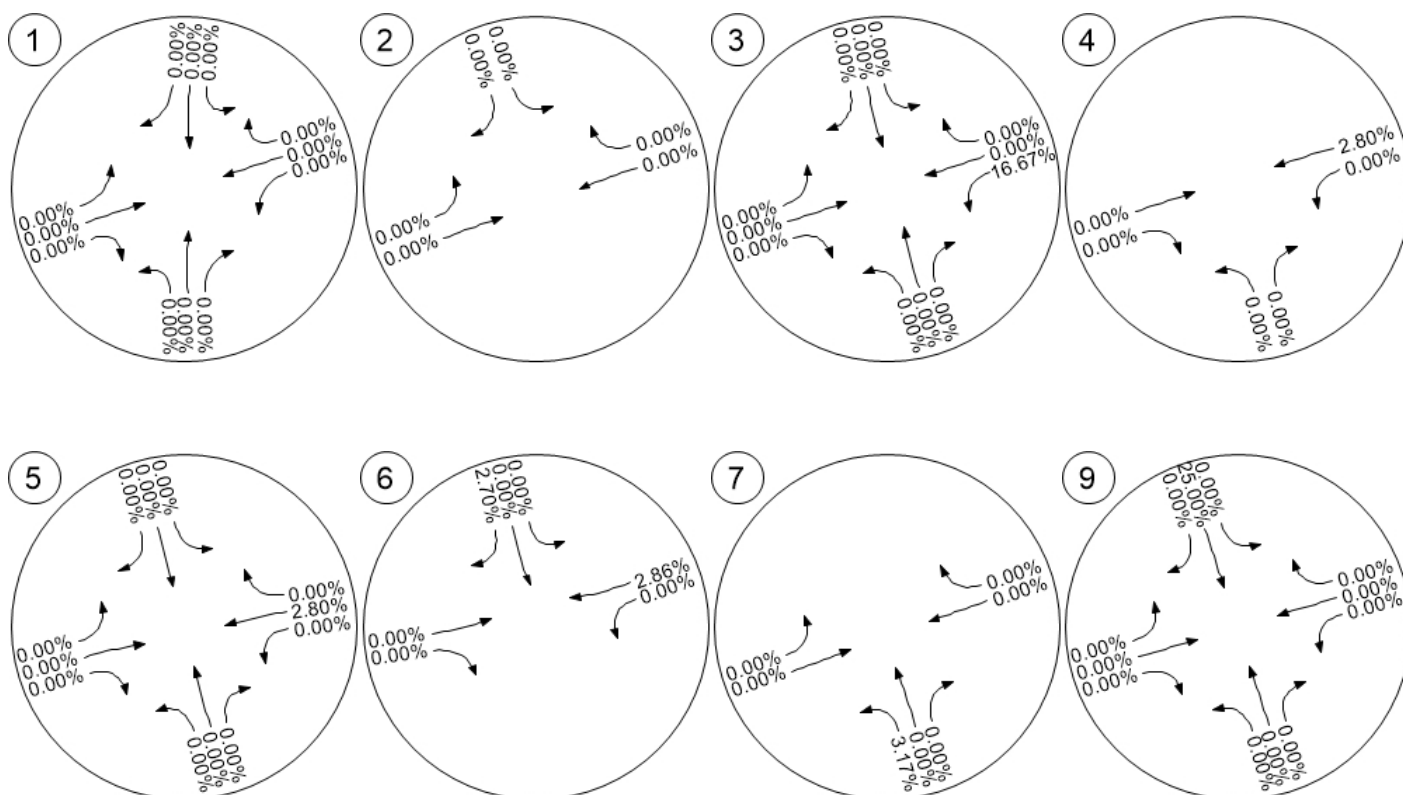




Fair Share - Fair Share % of Net New Site - Zone 26

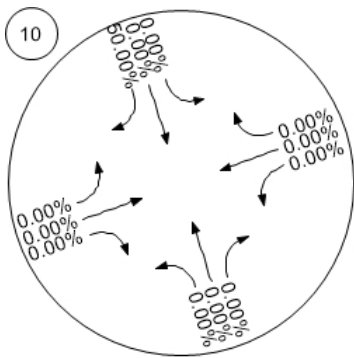


Fair Share - Fair Share % of Net New Site - Zone 27

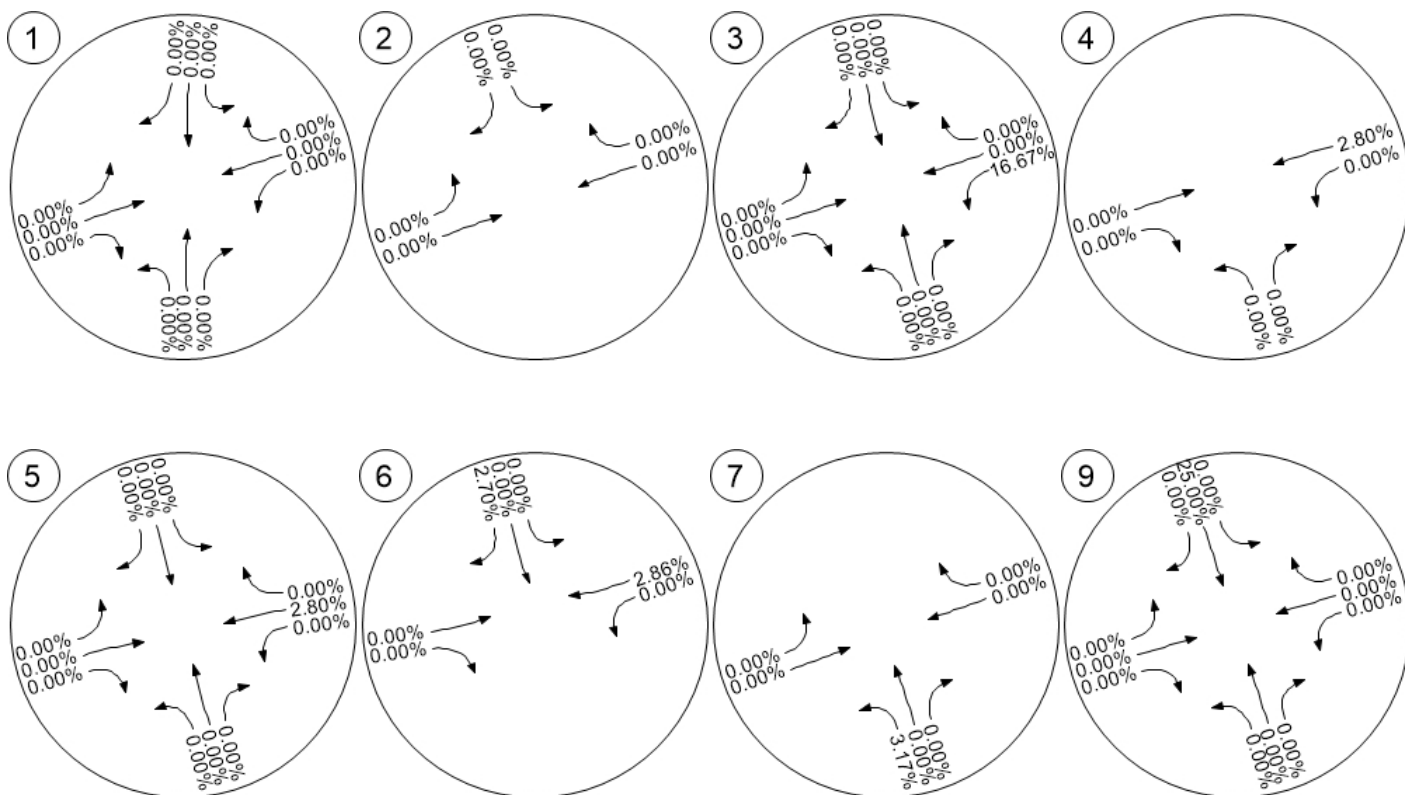




Fair Share - Fair Share % of Net New Site - Zone 27

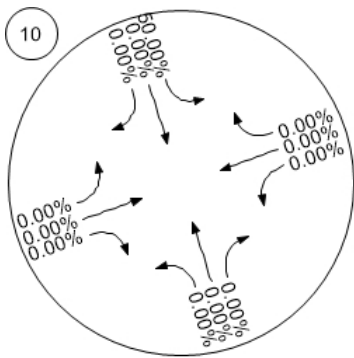


## Fair Share - Fair Share % of Net New Site - Zone 28



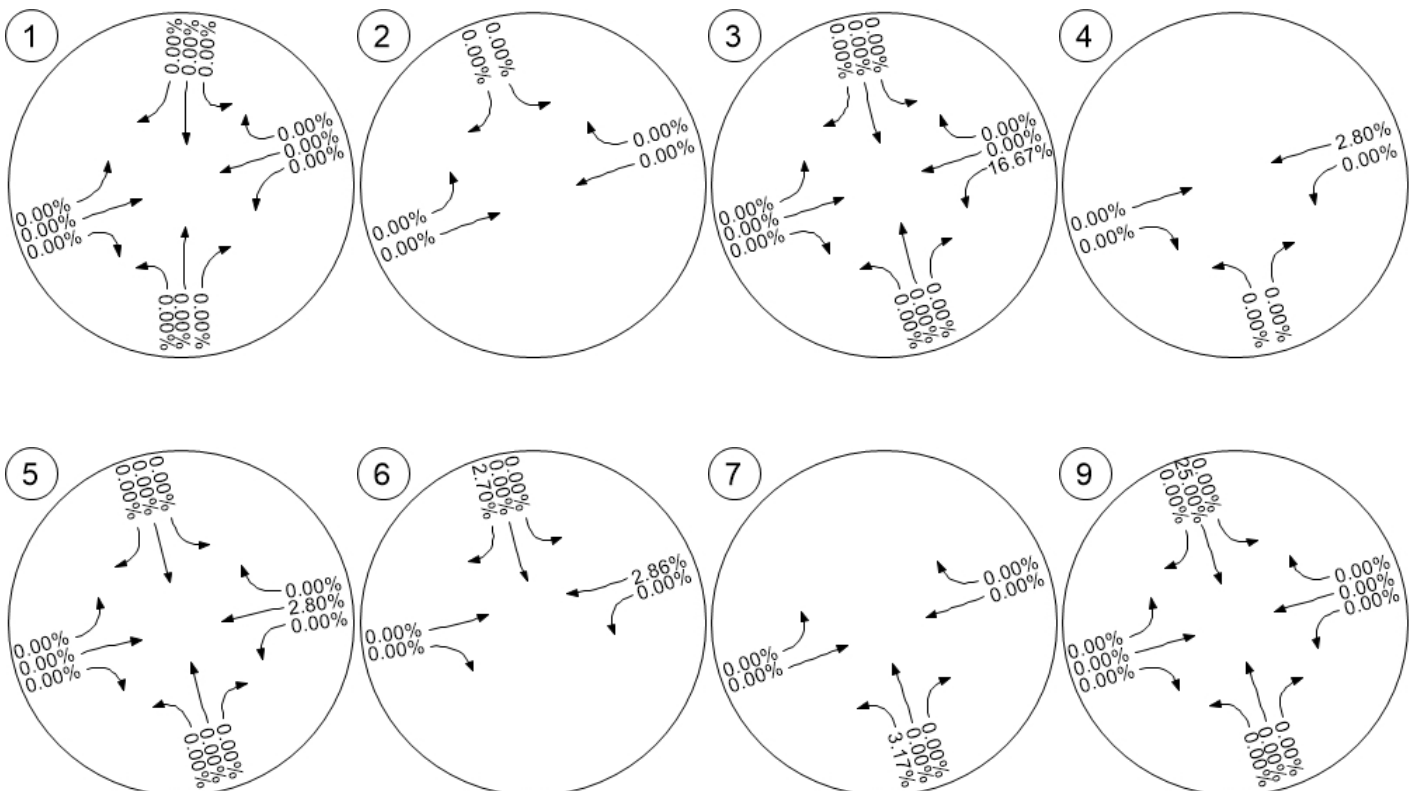


Fair Share - Fair Share % of Net New Site - Zone 28

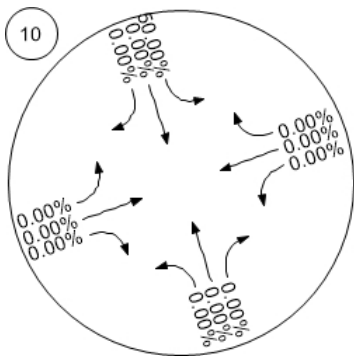




Fair Share - Fair Share % of Net New Site - Zone 29

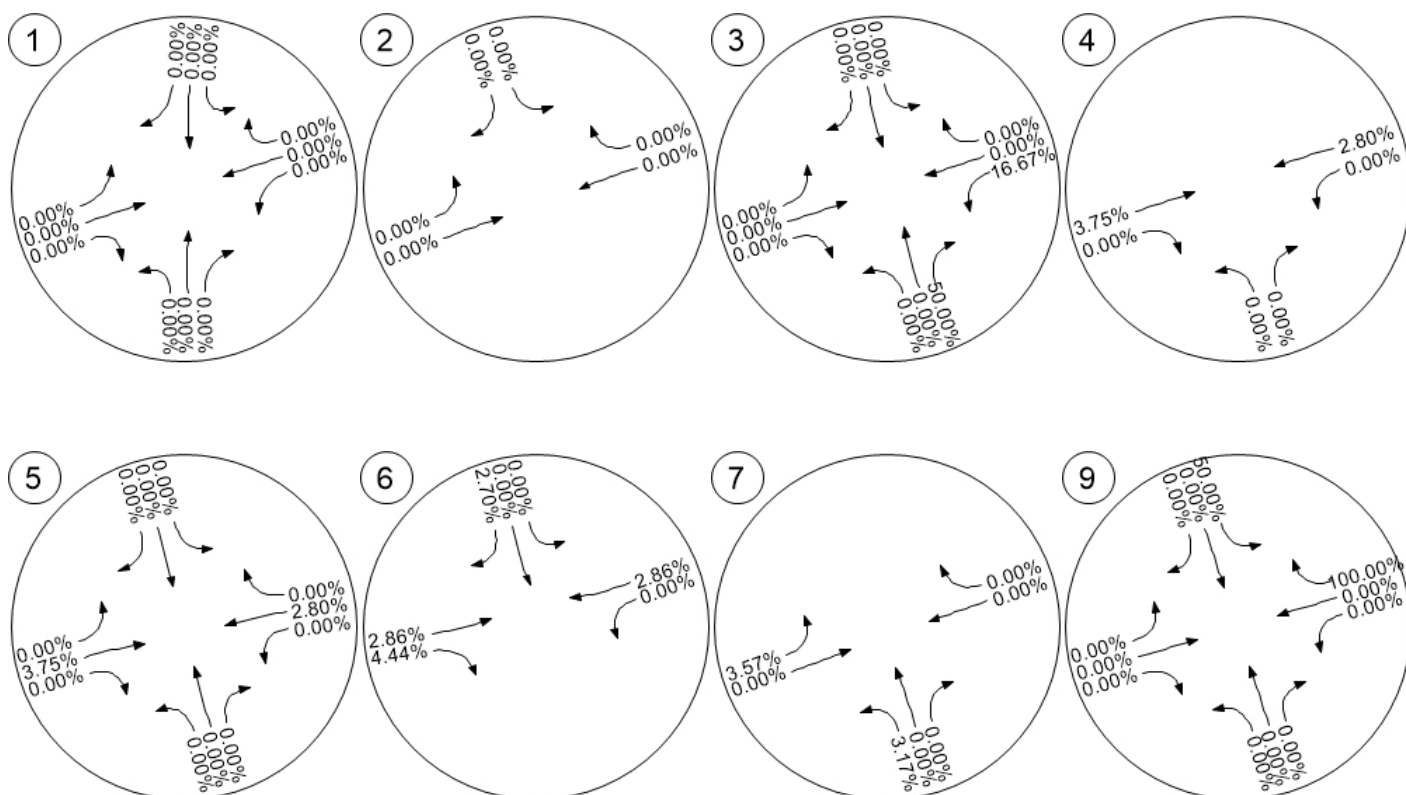


Fair Share - Fair Share % of Net New Site - Zone 29





Fair Share - Fair Share % of Net New Site - Zone 32

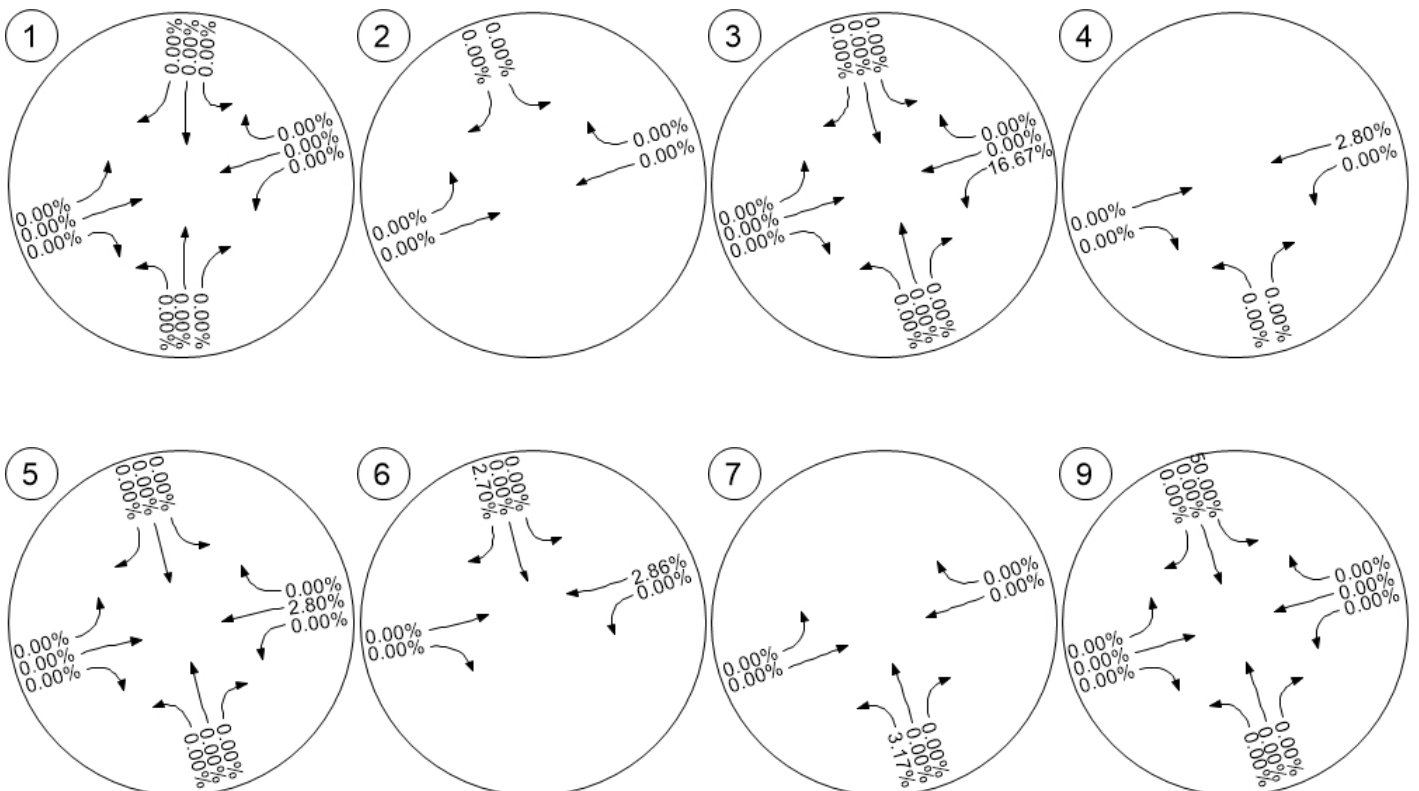


Fair Share - Fair Share % of Net New Site - Zone 32



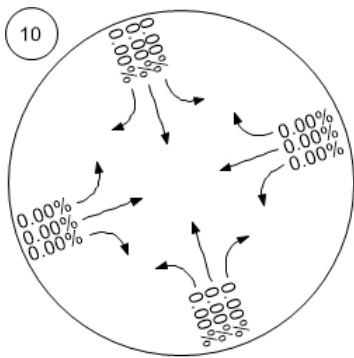


Fair Share - Fair Share % of Net New Site - Zone 33

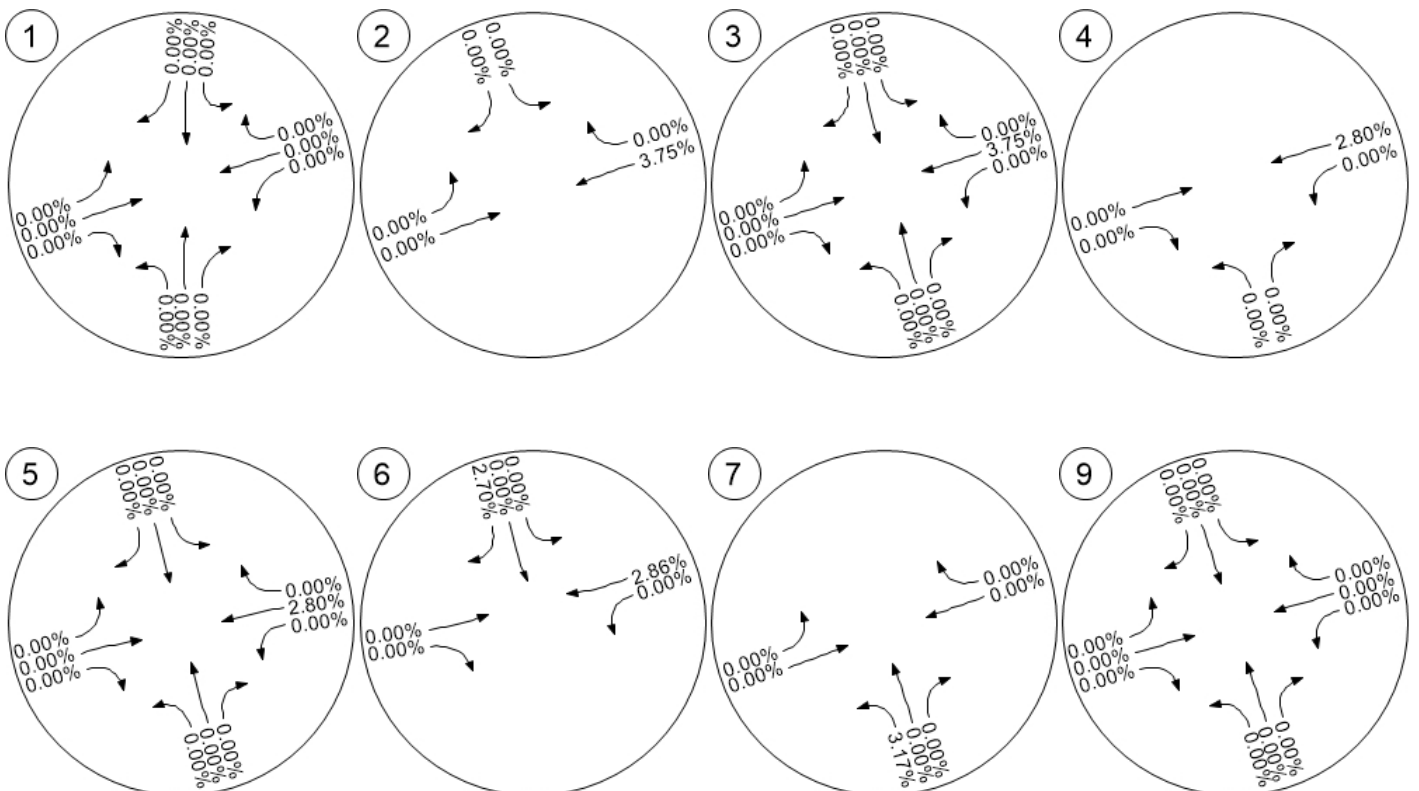




Fair Share - Fair Share % of Net New Site - Zone 33

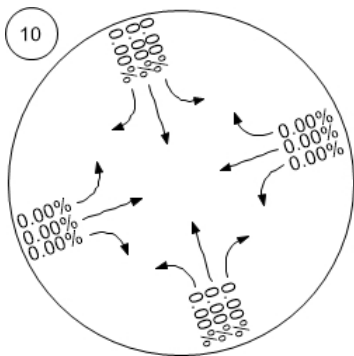


Fair Share - Fair Share % of Net New Site - Zone 34

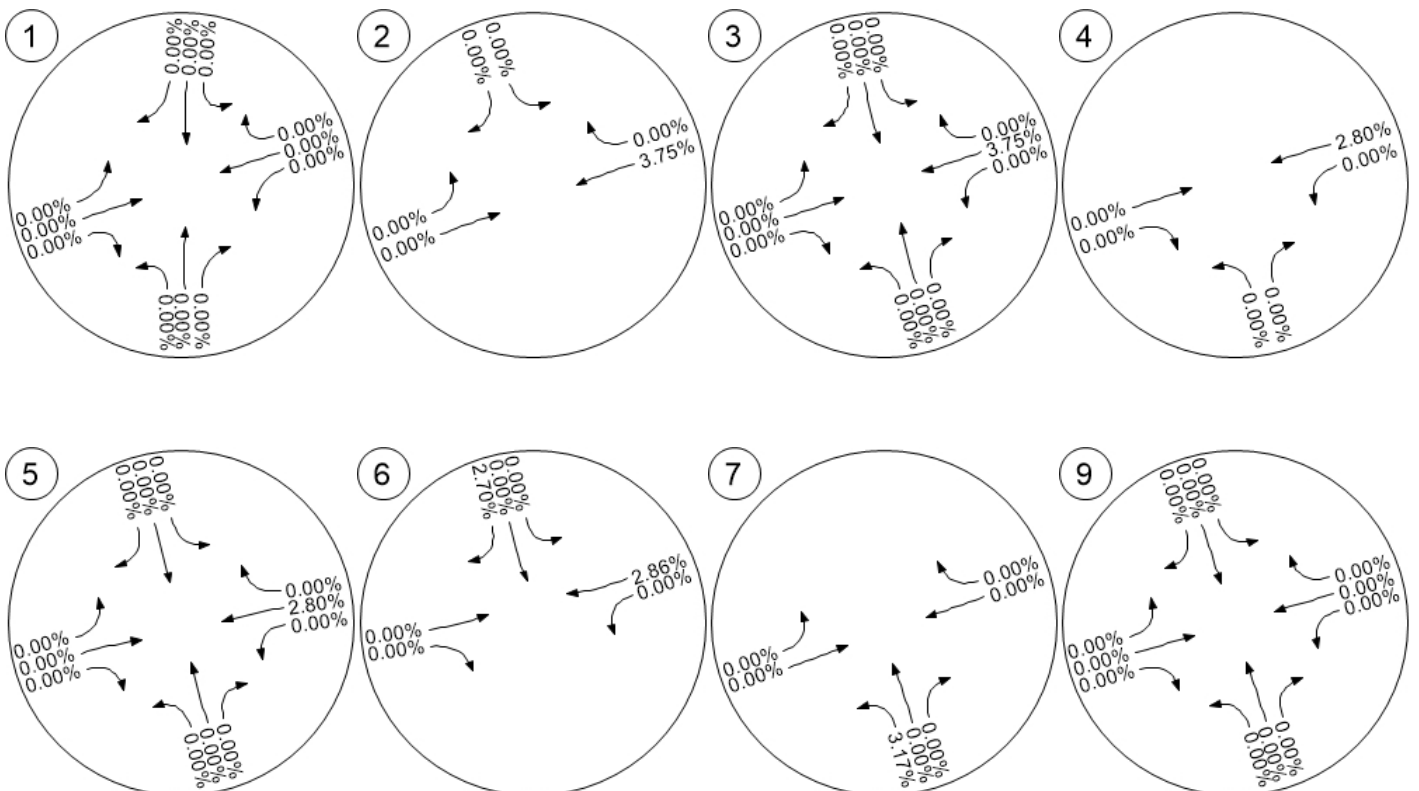




Fair Share - Fair Share % of Net New Site - Zone 34

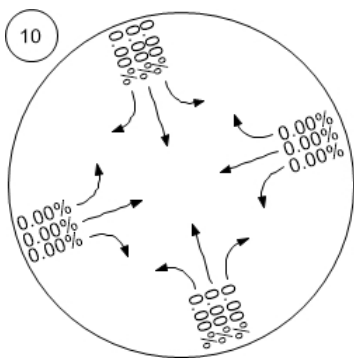


Fair Share - Fair Share % of Net New Site - Zone 35



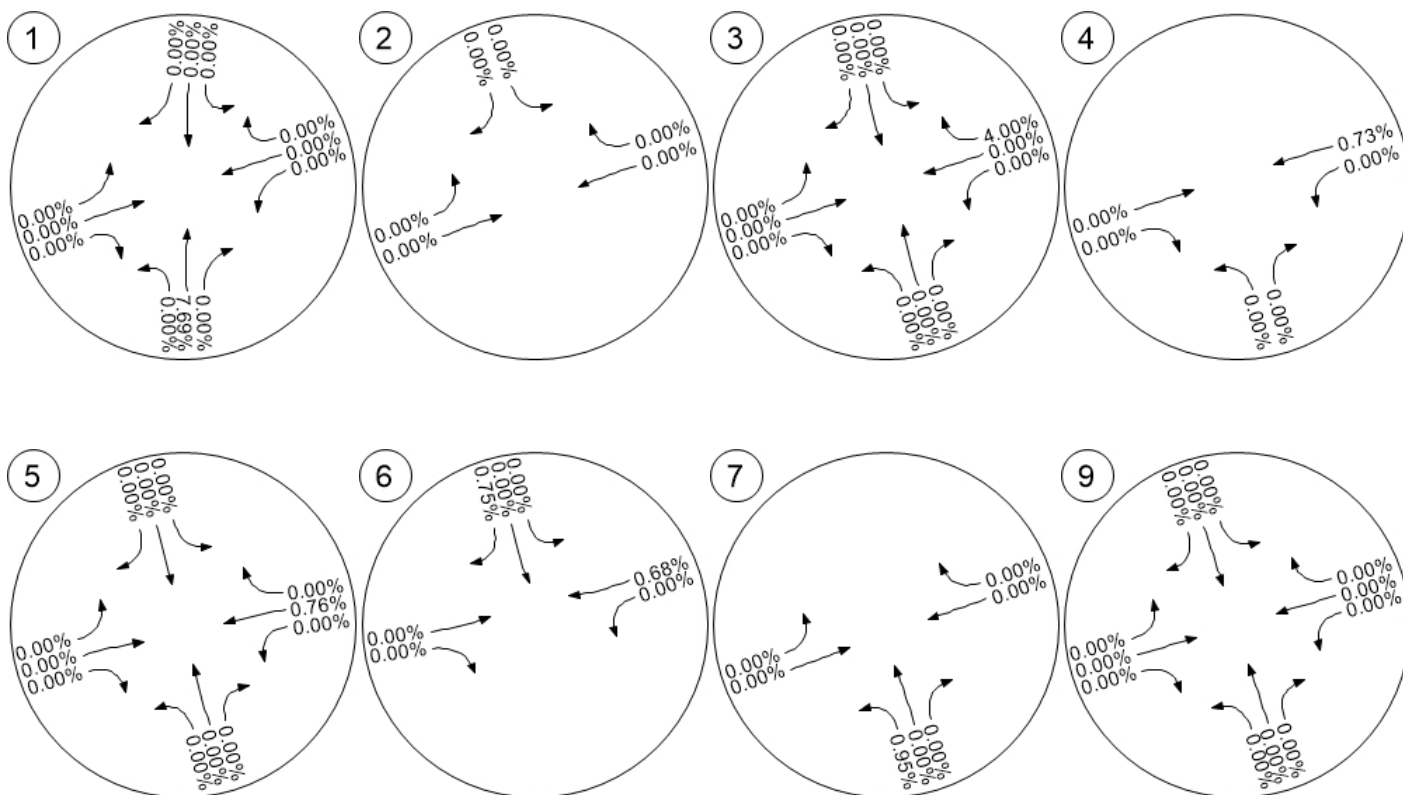


Fair Share - Fair Share % of Net New Site - Zone 35





## Fair Share - Fair Share % of Total Analysis - Zone 18

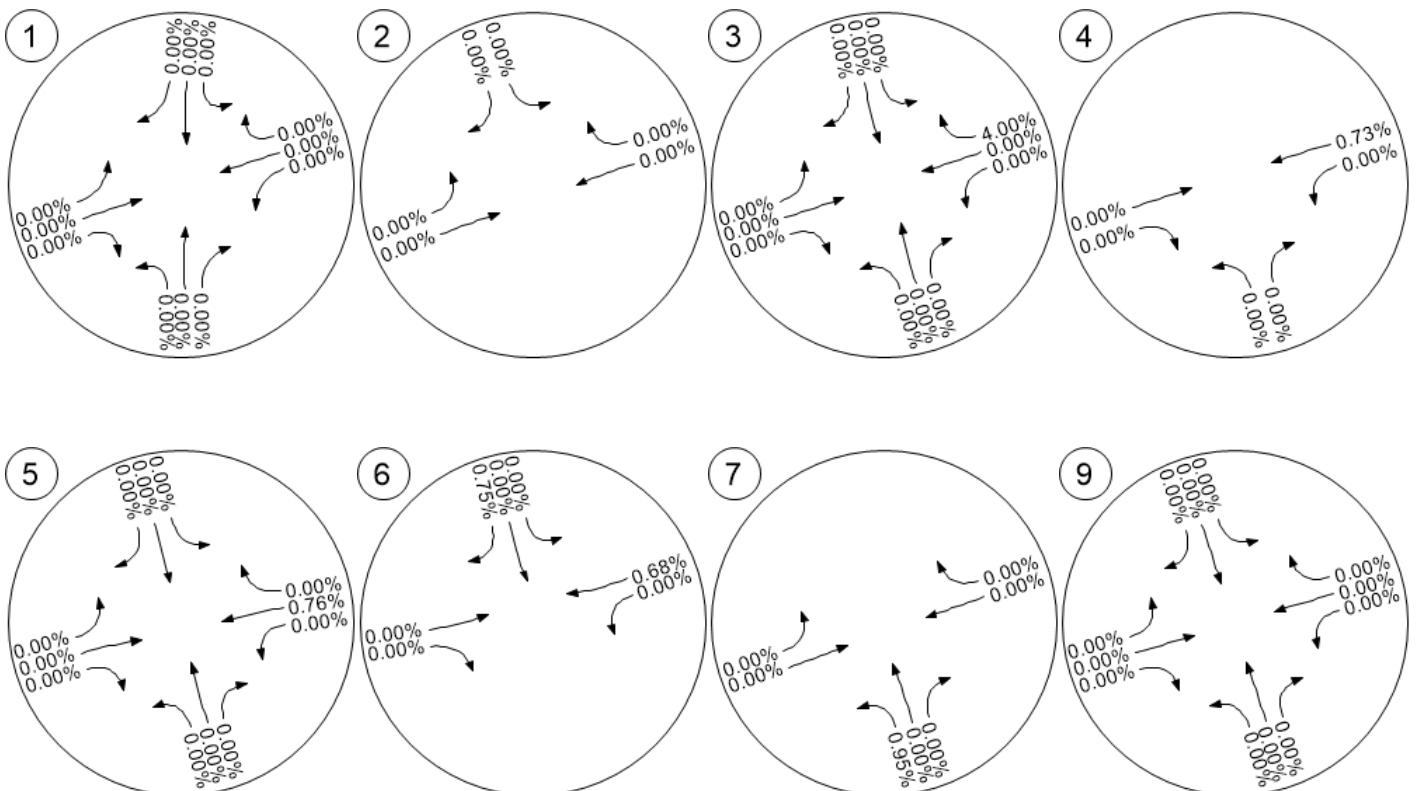


Fair Share - Fair Share % of Total Analysis - Zone 18





Fair Share - Fair Share % of Total Analysis - Zone 19

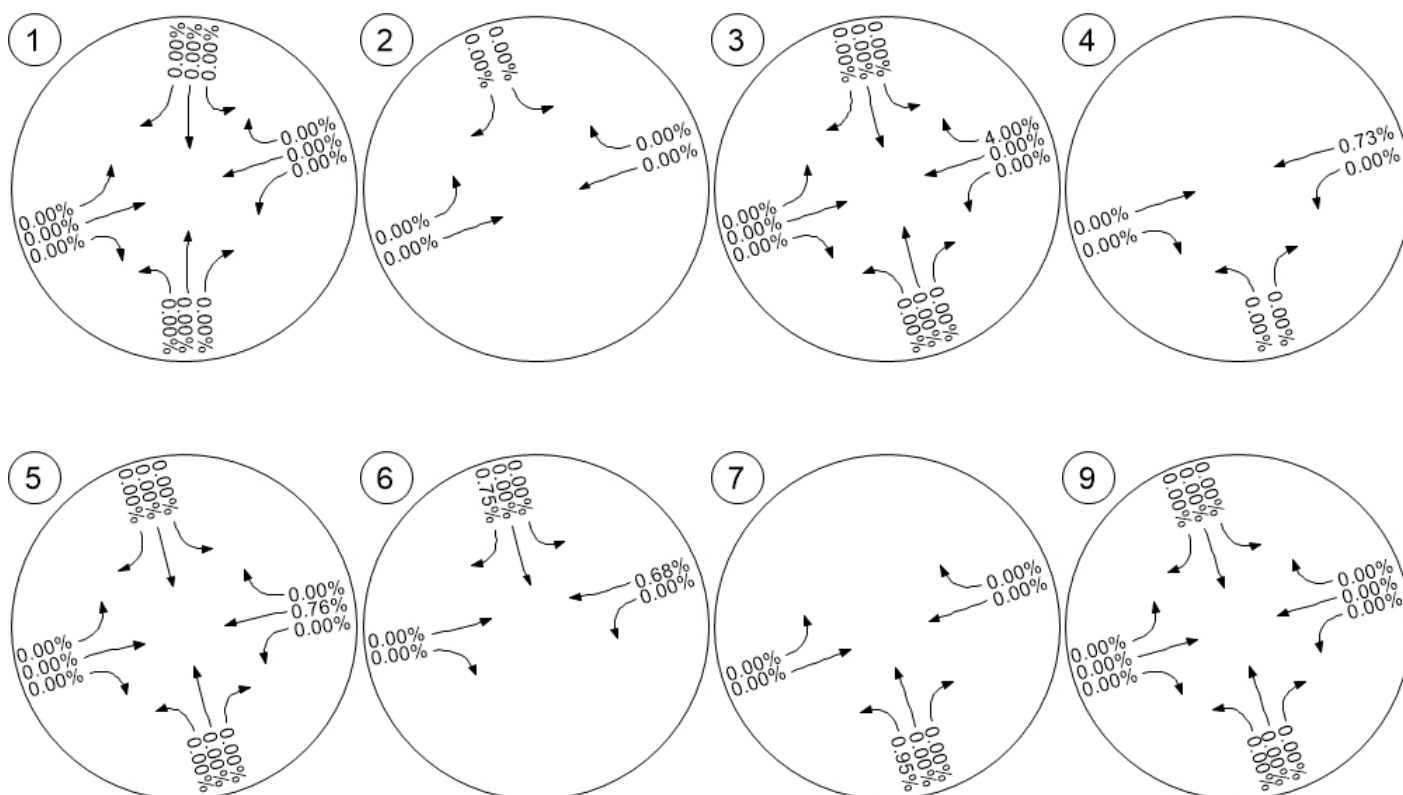


Fair Share - Fair Share % of Total Analysis - Zone 19



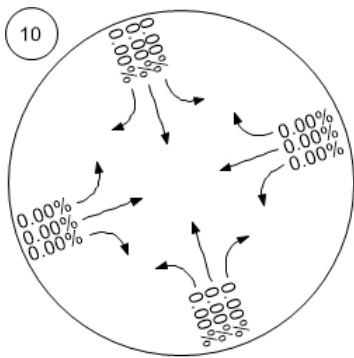


Fair Share - Fair Share % of Total Analysis - Zone 20

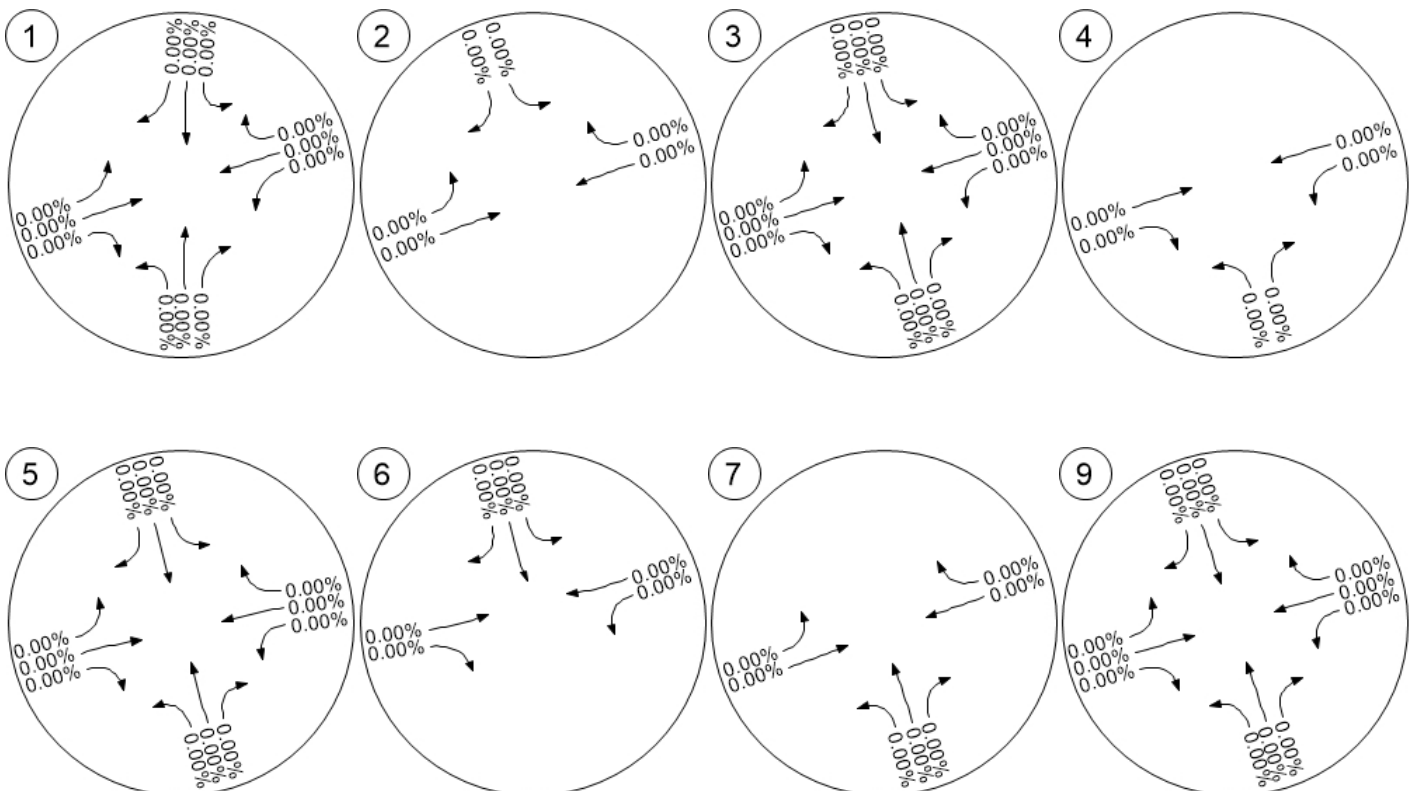




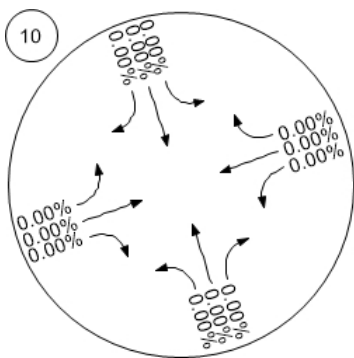
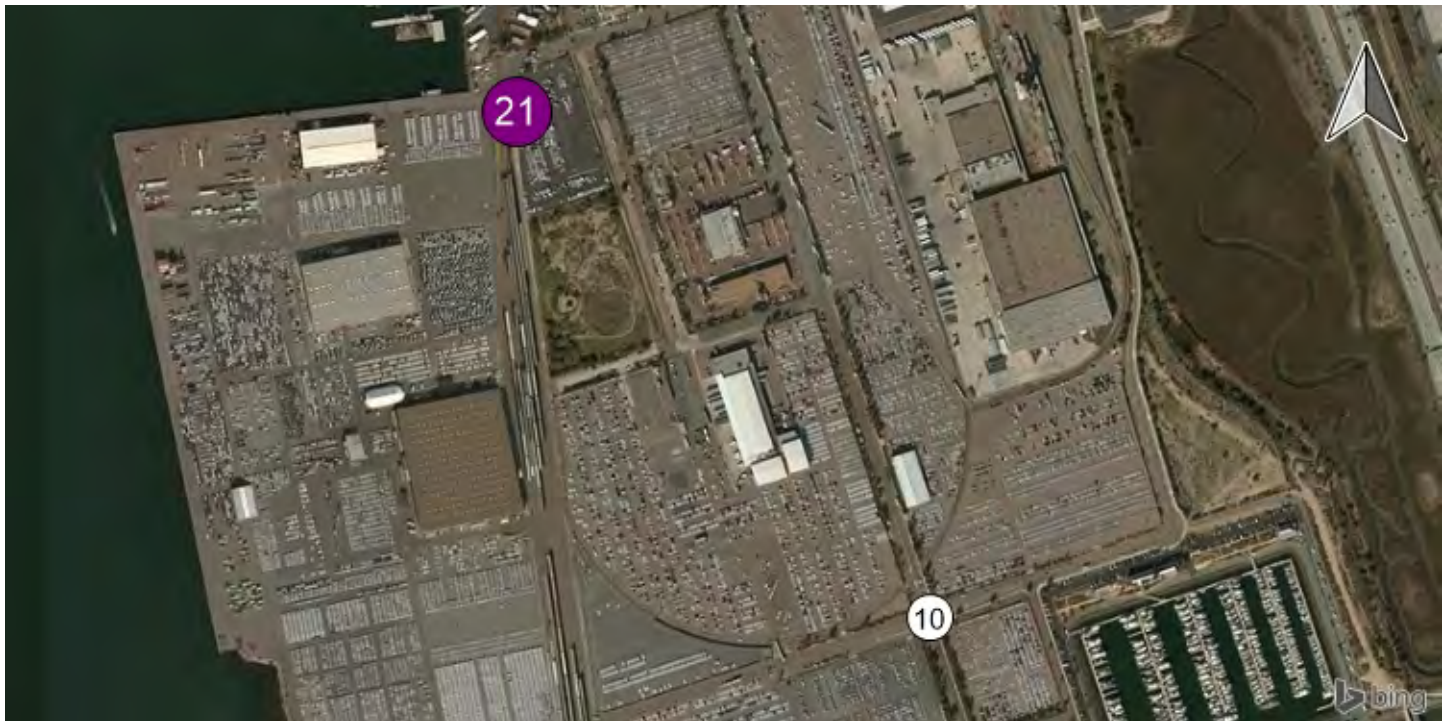
Fair Share - Fair Share % of Total Analysis - Zone 20



Fair Share - Fair Share % of Total Analysis - Zone 21

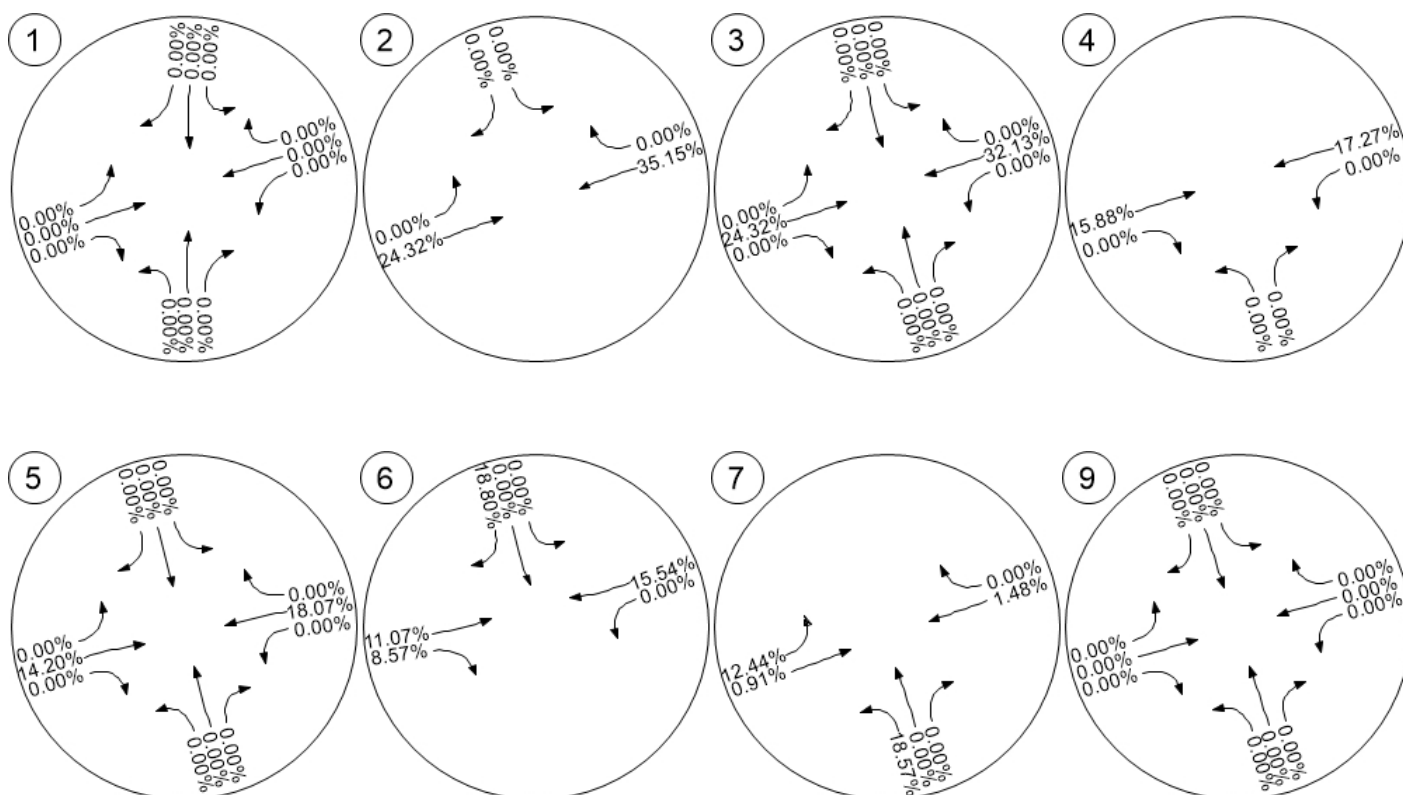


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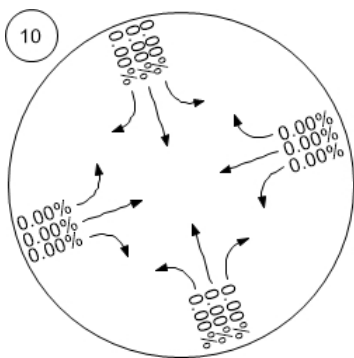




Fair Share - Fair Share % of Total Analysis - Zone 22

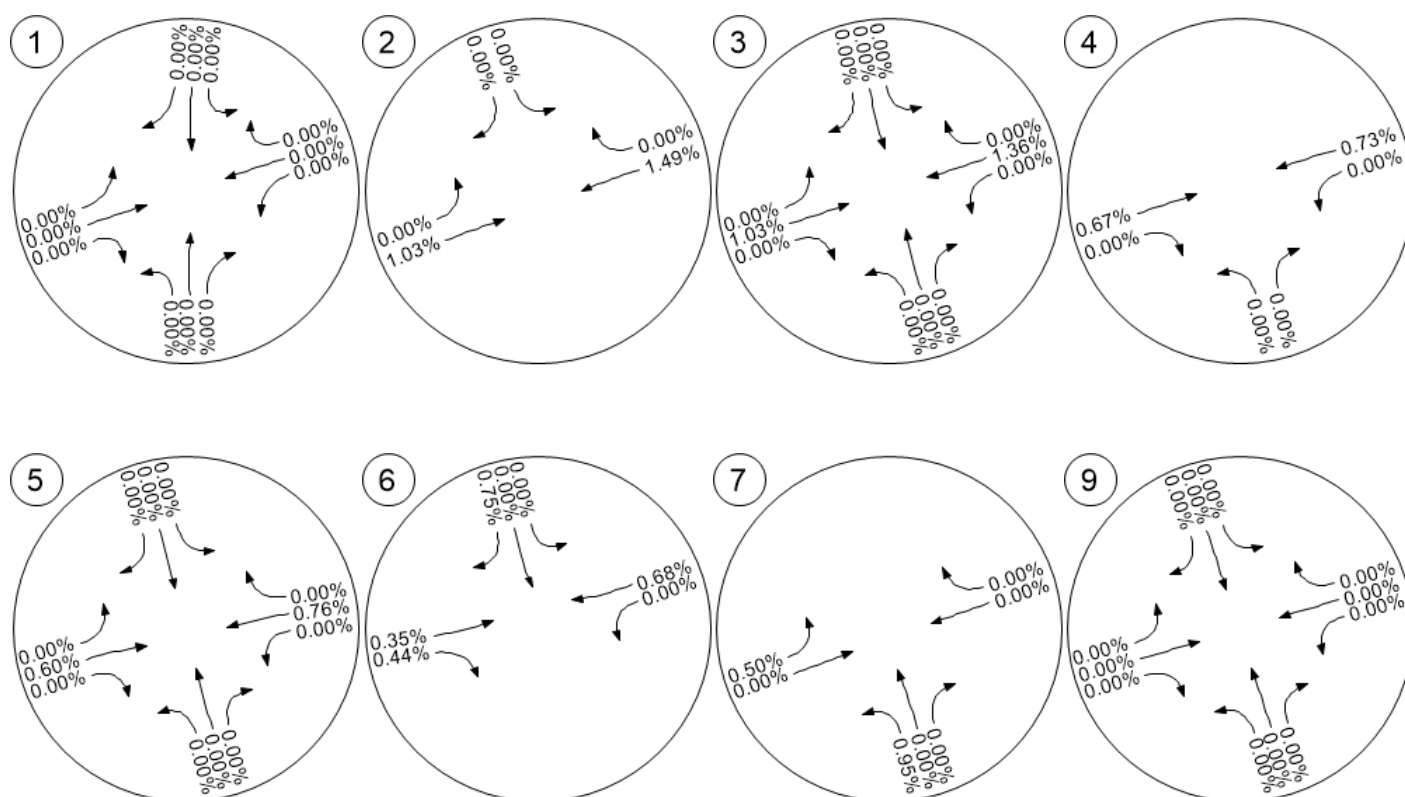


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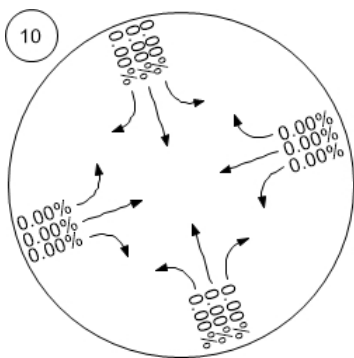




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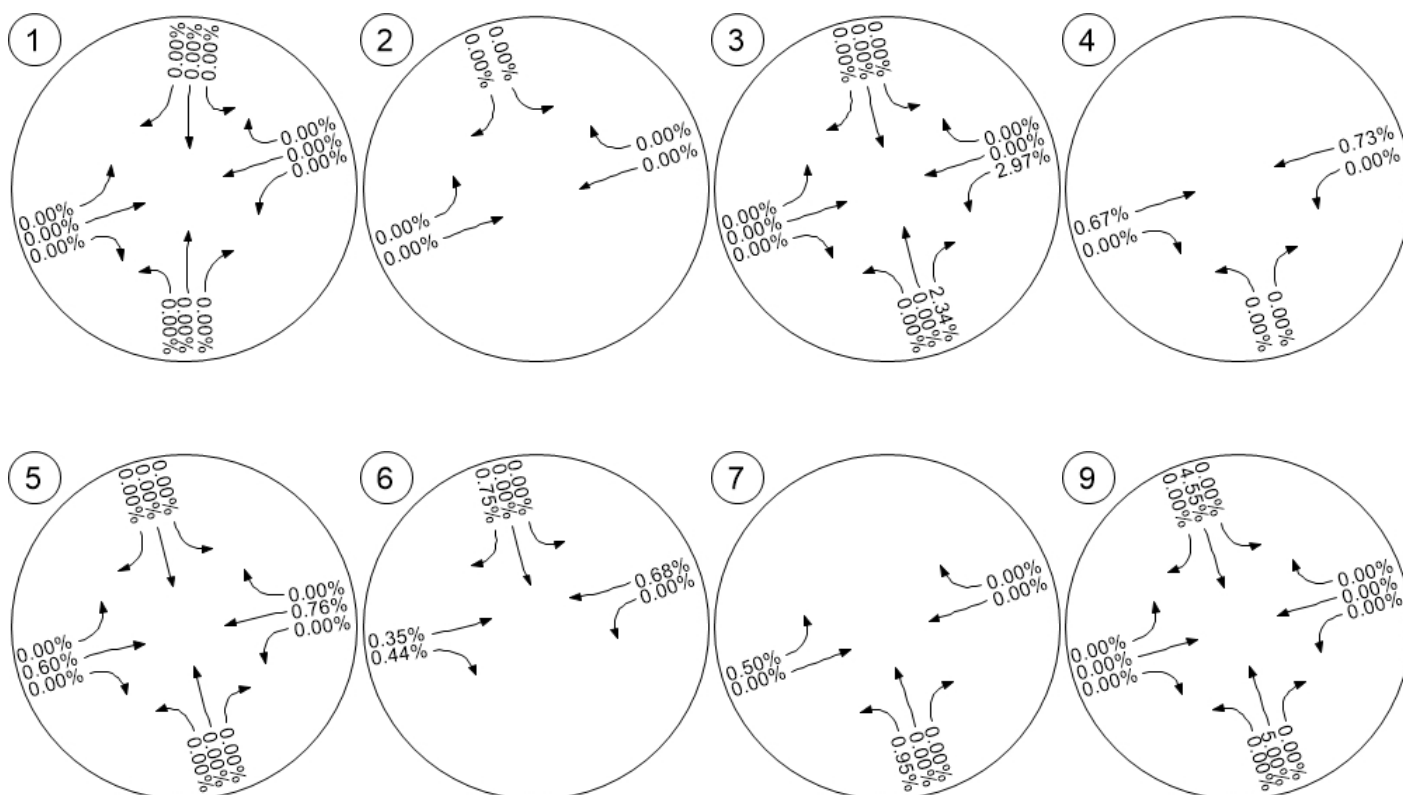


Fair Share - Fair Share % of Total Analysis - Zone 23

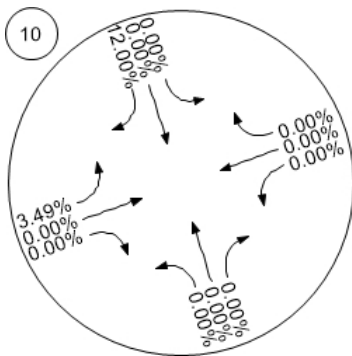




Fair Share - Fair Share % of Total Analysis - Zone 24

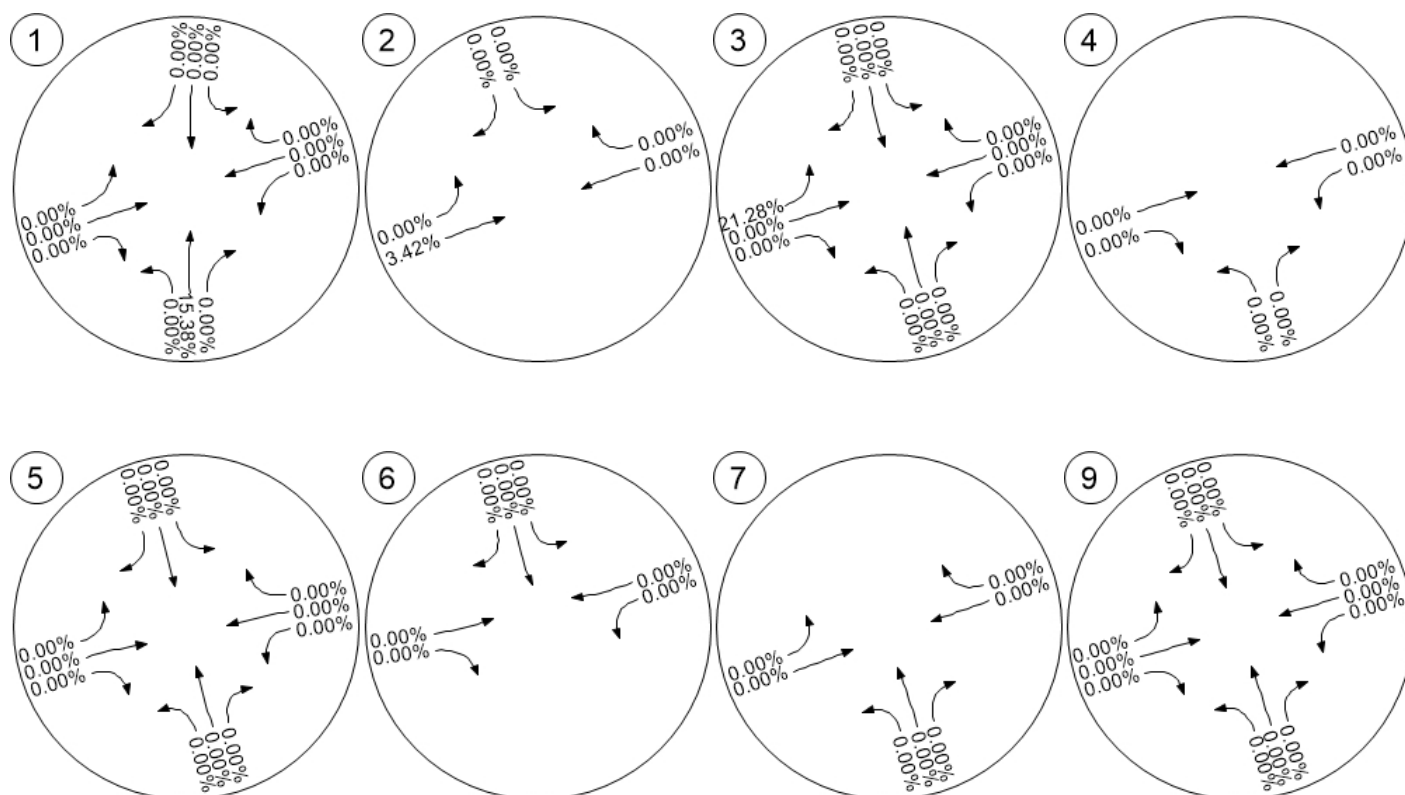


Fair Share - Fair Share % of Total Analysis - Zone 24



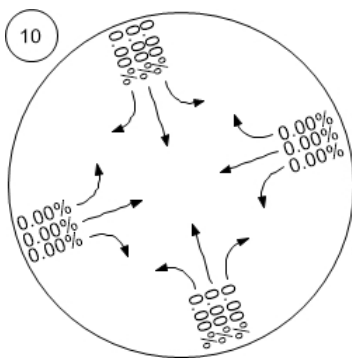


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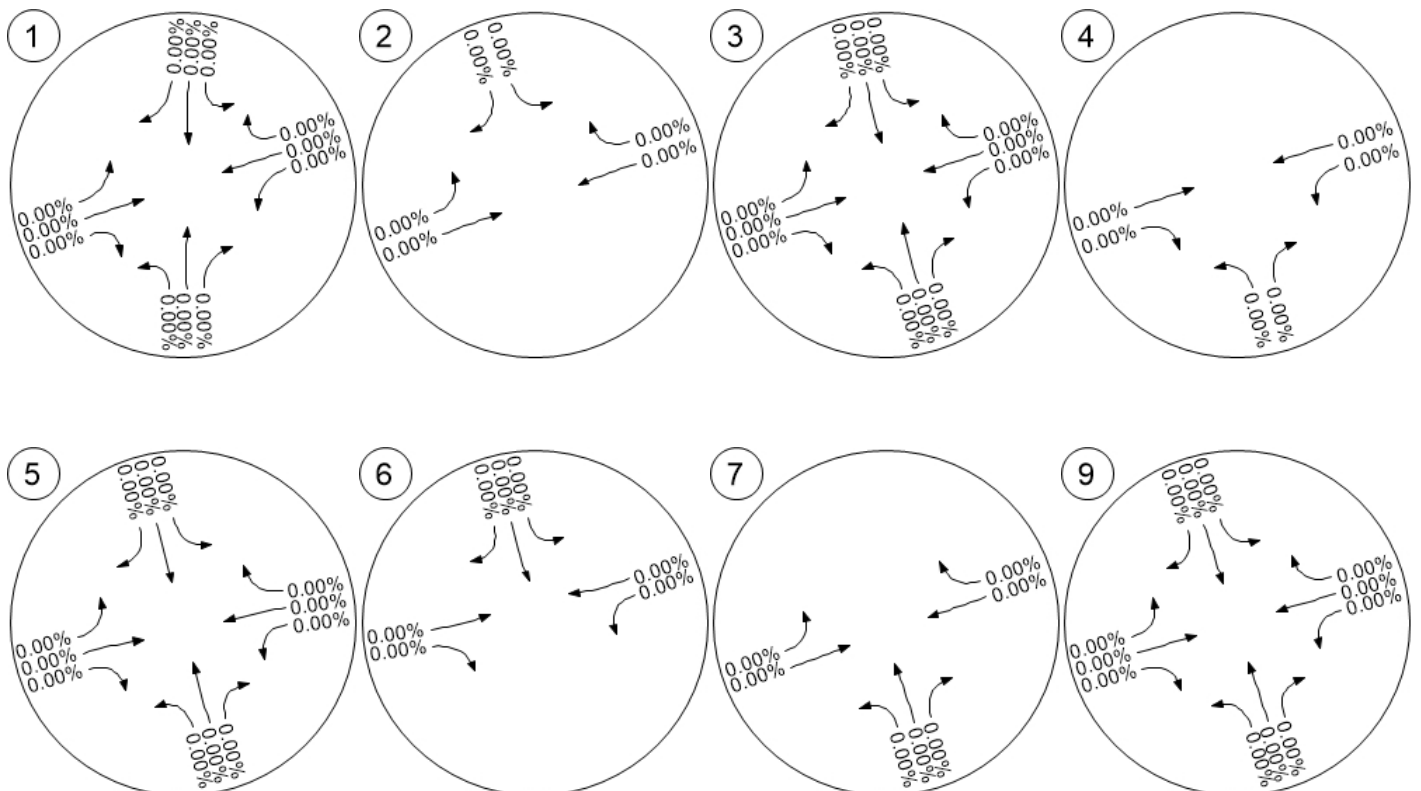




Fair Share - Fair Share % of Total Analysis - Zone 25

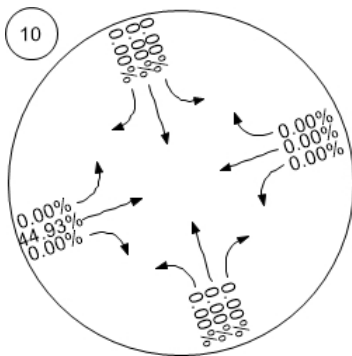


Fair Share - Fair Share % of Total Analysis - Zone 26

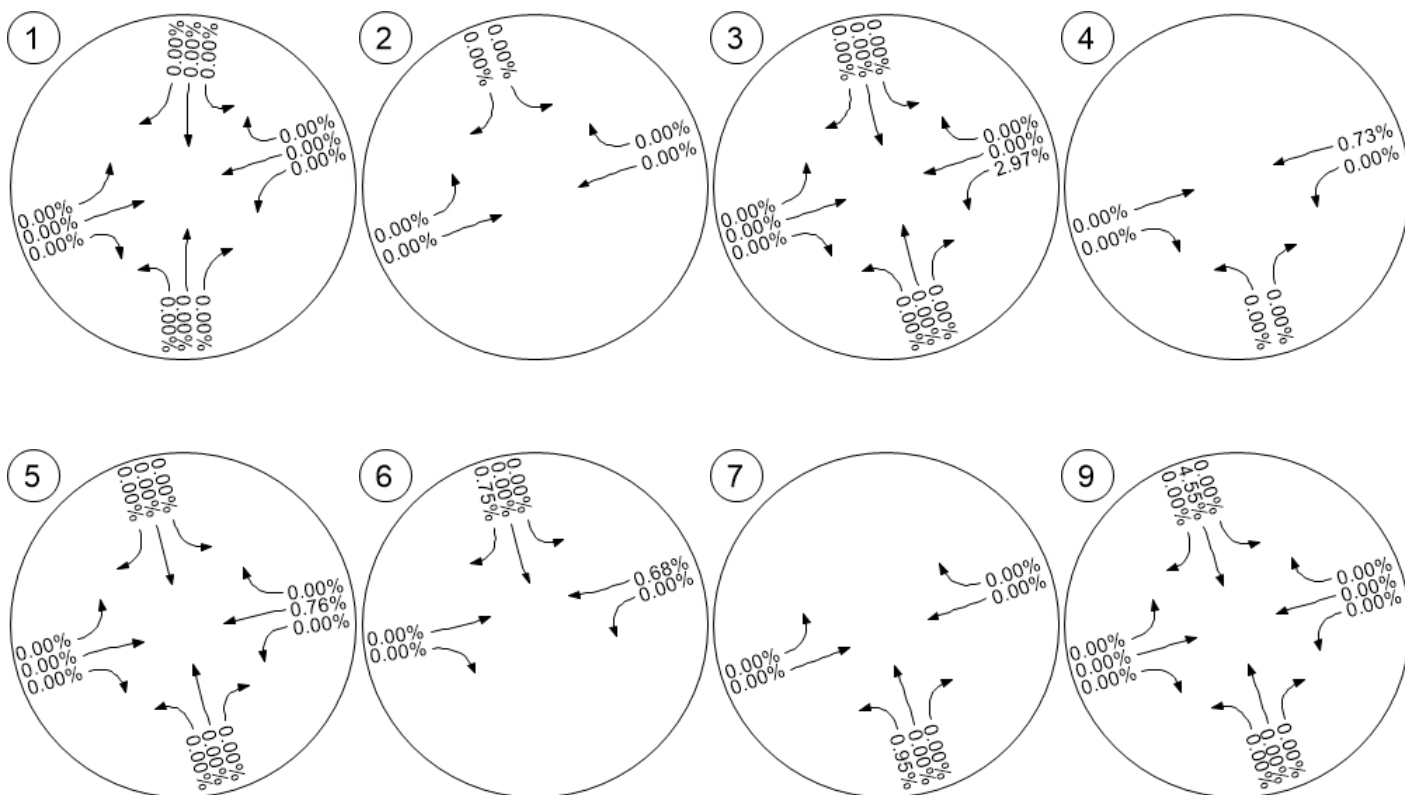




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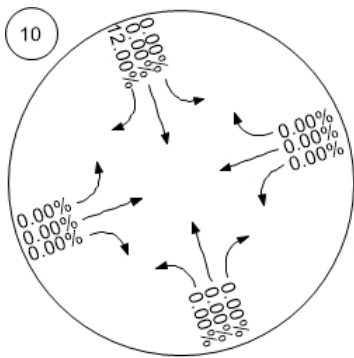


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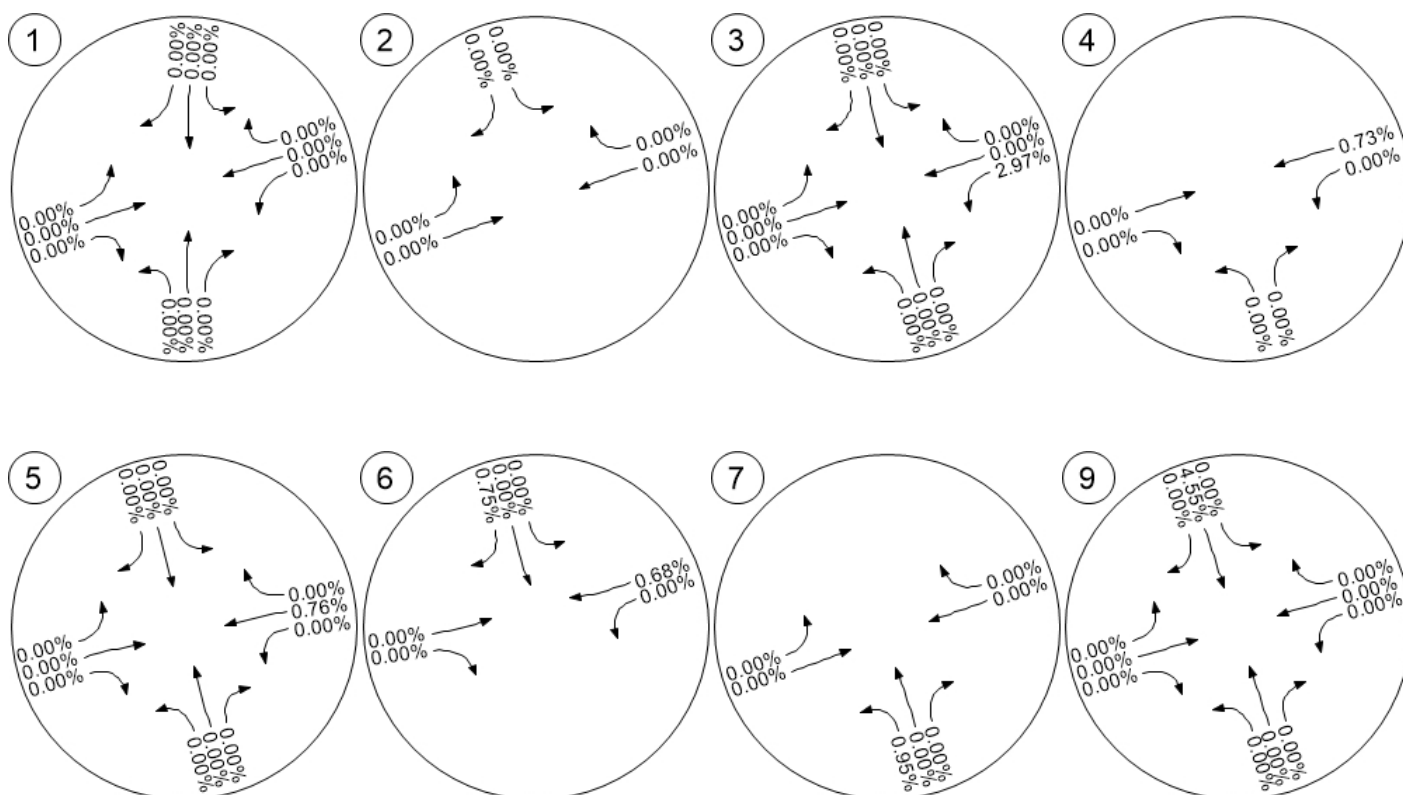


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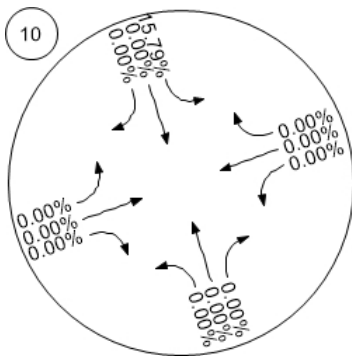




Fair Share - Fair Share % of Total Analysis - Zone 28

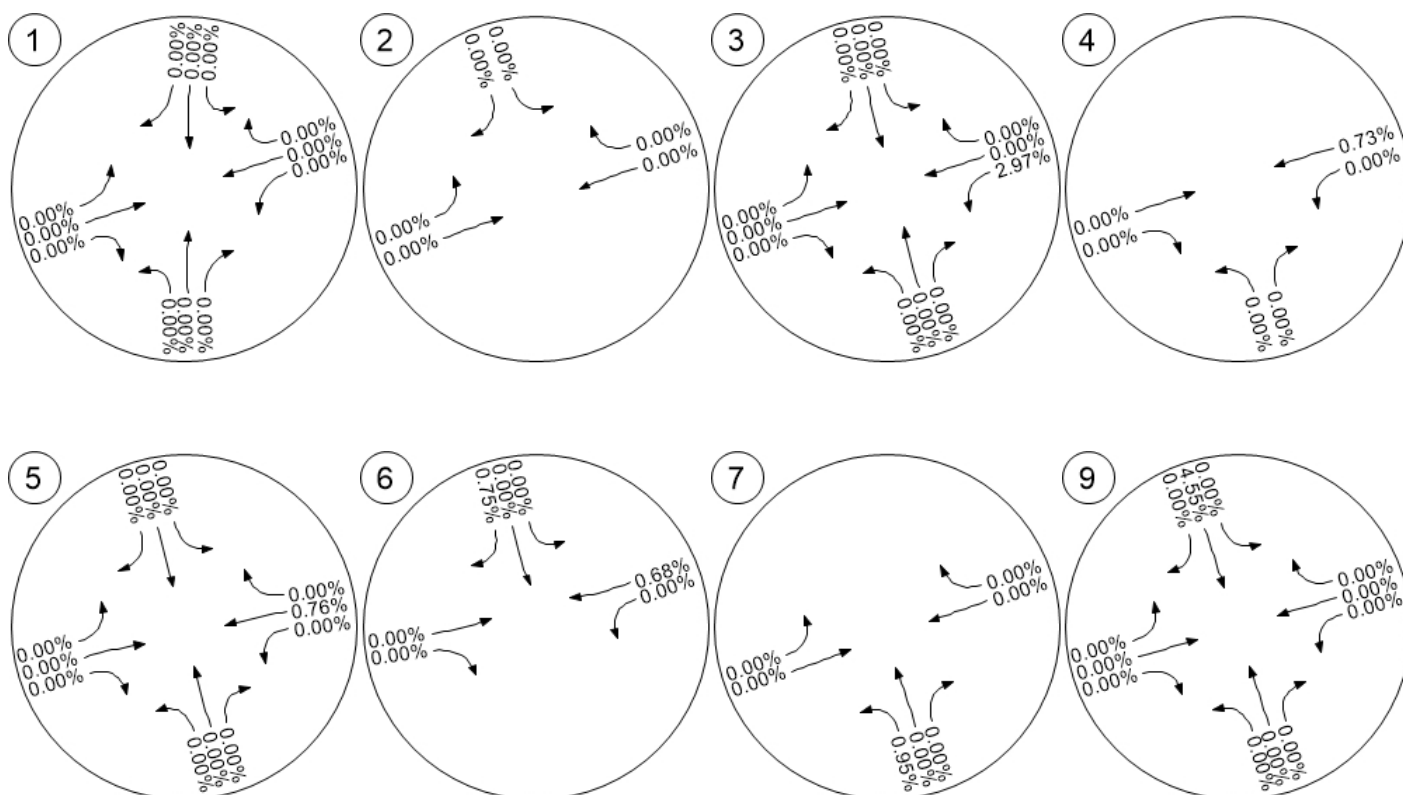


Fair Share - Fair Share % of Total Analysis - Zone 28

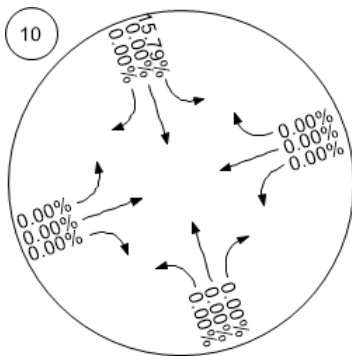




Fair Share - Fair Share % of Total Analysis - Zone 29

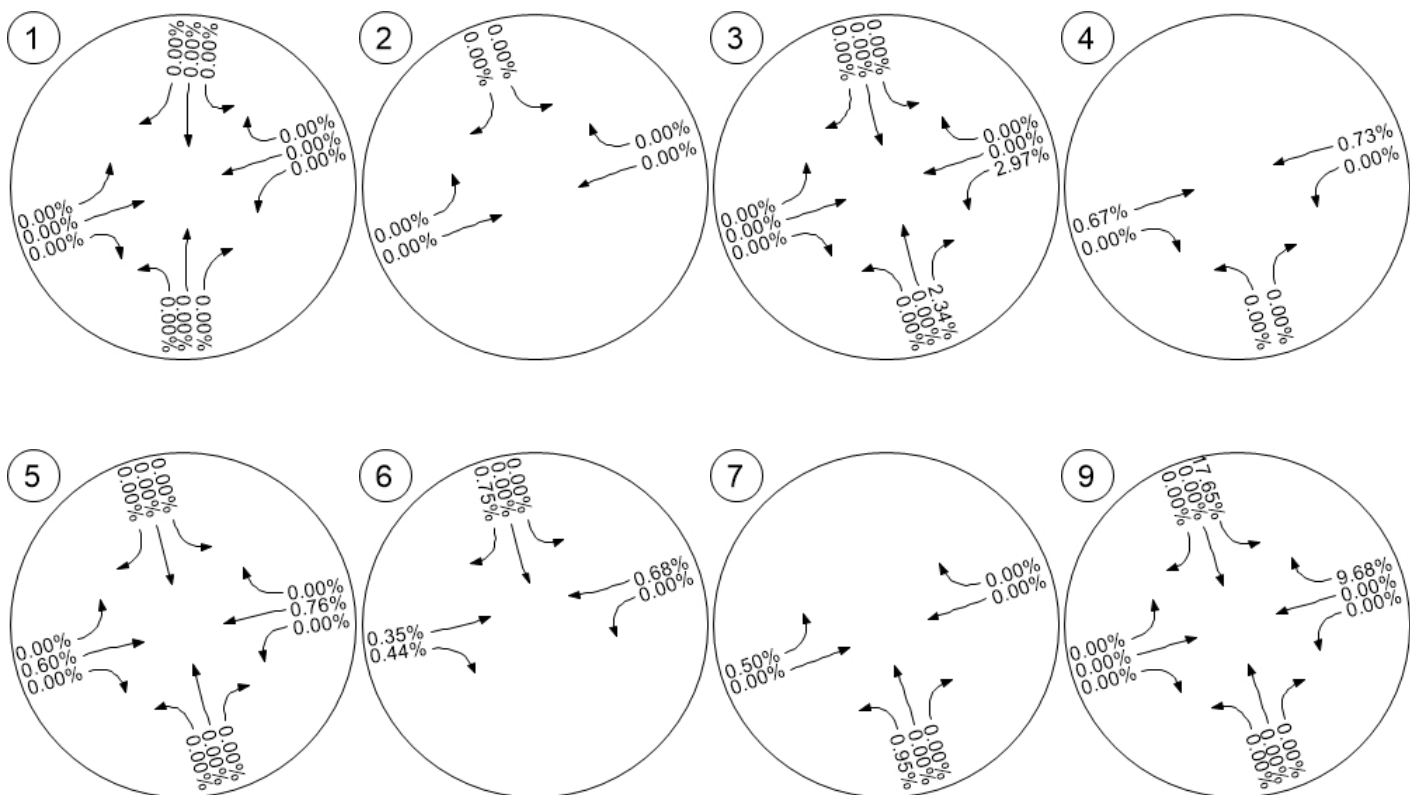


Fair Share - Fair Share % of Total Analysis - Zone 29



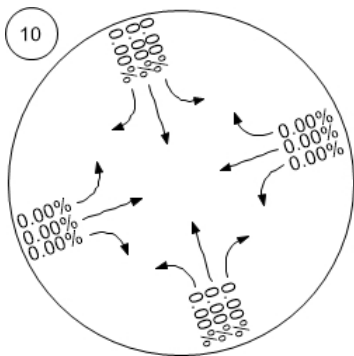


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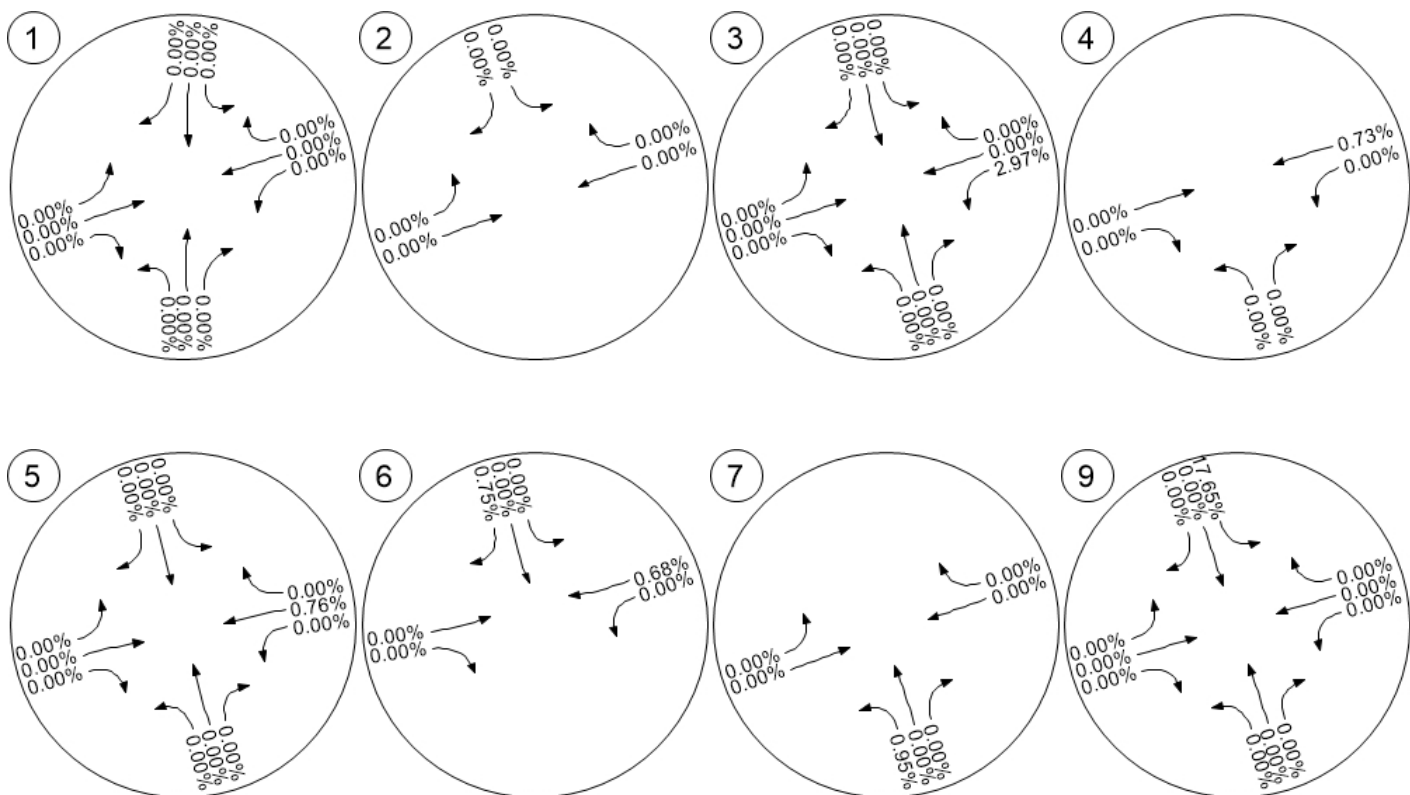




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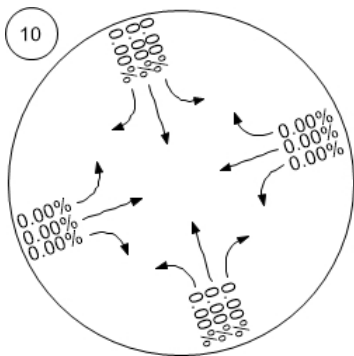


Fair Share - Fair Share % of Total Analysis - Zone 33

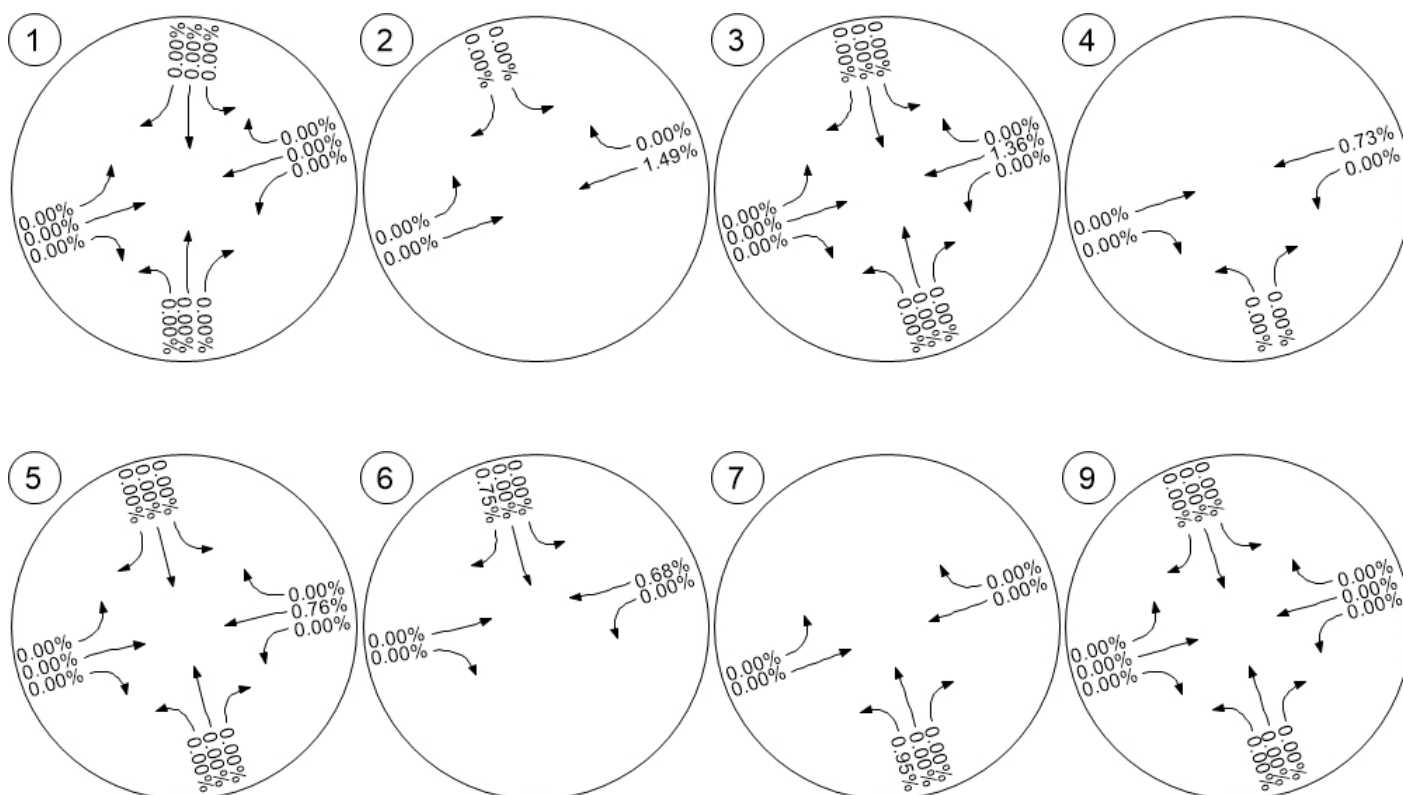




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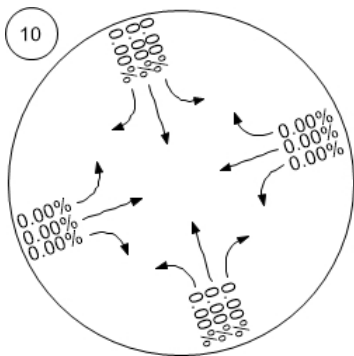


Fair Share - Fair Share % of Total Analysis - Zone 34



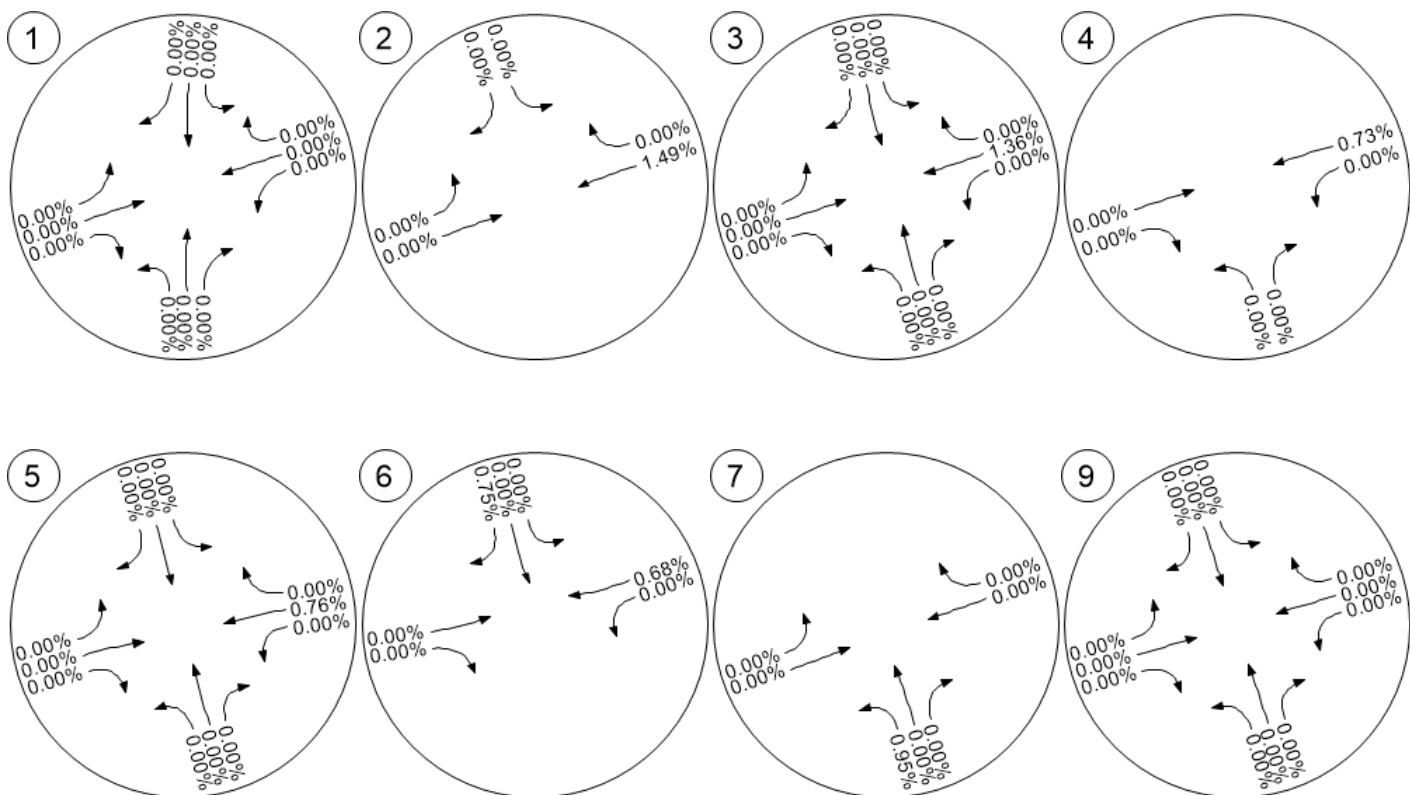


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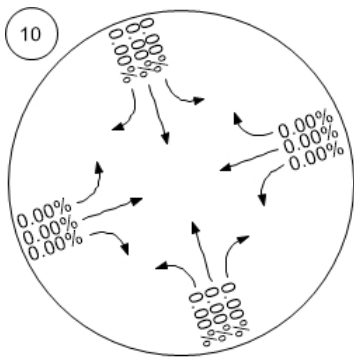




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Fair Share - Fair Share % of Total Analysis - Zone 35

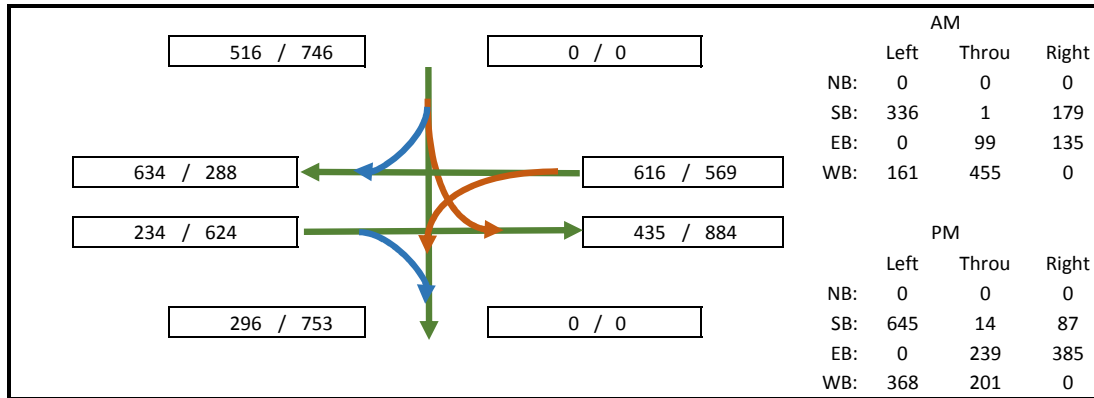


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

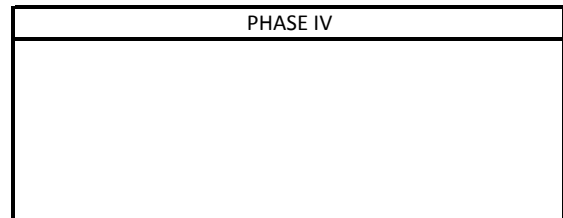
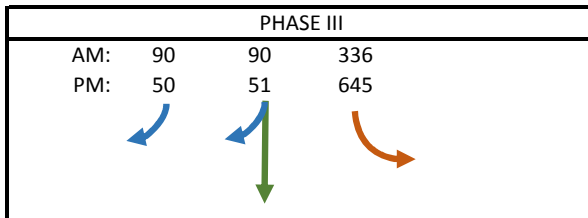
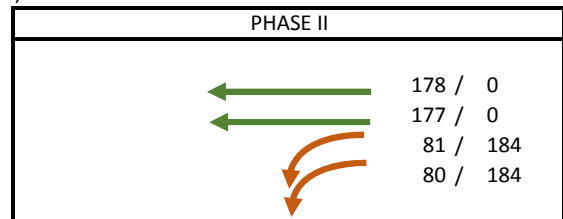
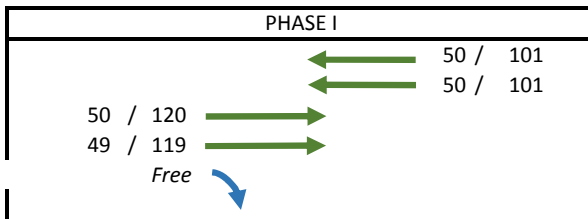
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 ALTERNATIVE: Existing + Project Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

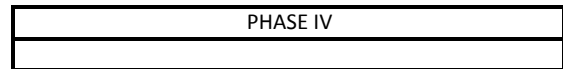
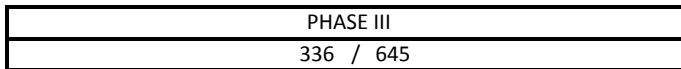
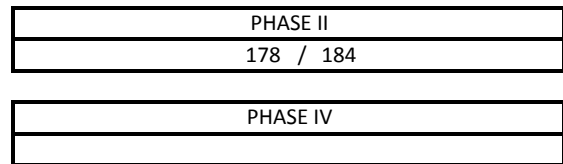
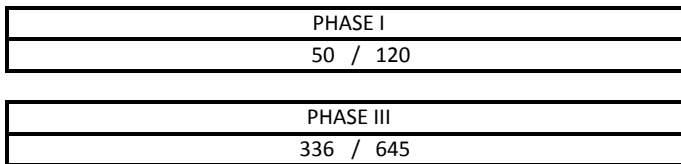
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

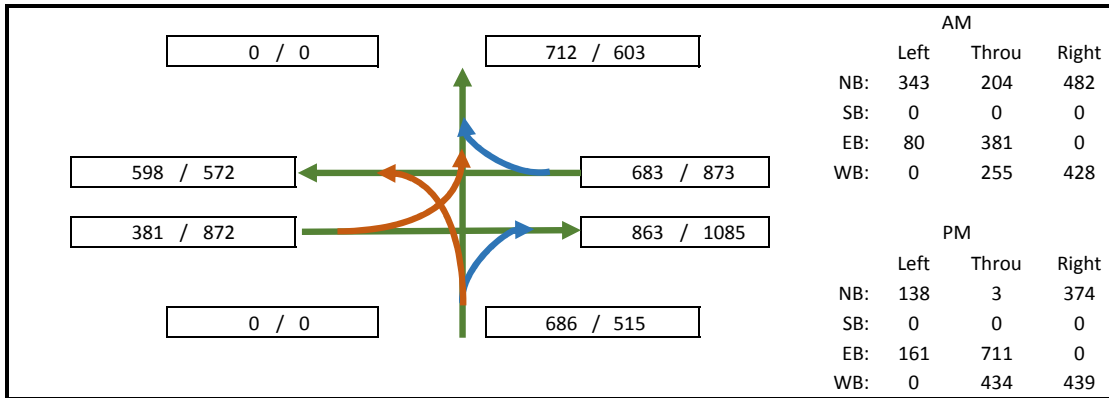
AM:	564	UNDER CAPACITY
PM:	949	UNDER CAPACITY

# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

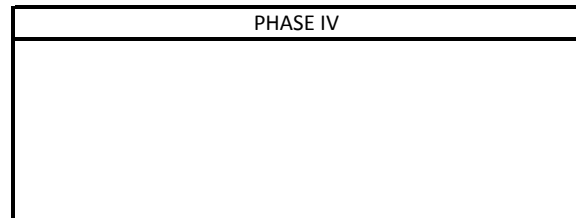
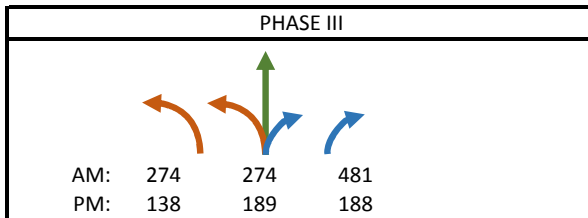
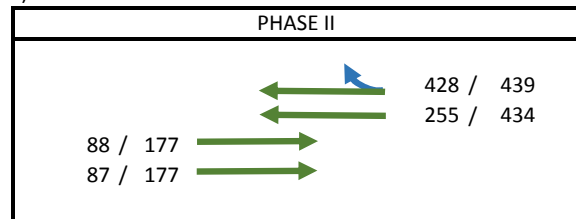
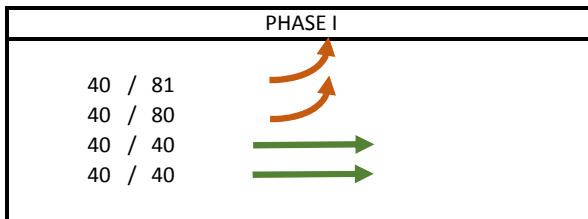
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 ALTERNATIVE: Existing + Project Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

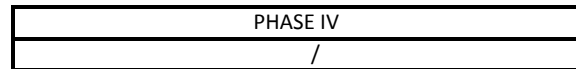
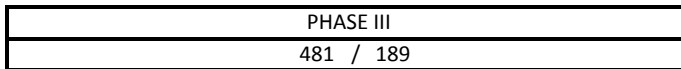
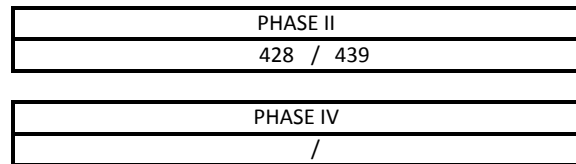
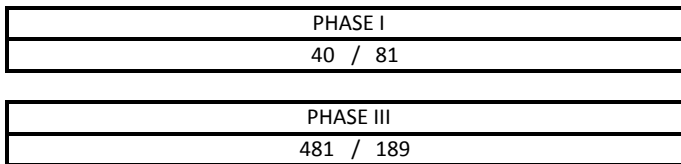
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

AM: 949	UNDER CAPACITY
PM: 709	UNDER CAPACITY

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## **Appendix G**

### **Cumulative Project Information**



## 8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is discussion of the project traffic generation, and the distribution and assignment

### 8.1 Trip Generation

There are no published trip generation rates for "aquatic center" land uses in the local SANDAG or City of San Diego trip generation guidelines, or in the national Institute of Traffic Engineers (ITE) guidelines. Therefore, LLG produced a "site-specific" trip generation calculation based on careful review of the proposed project's operations. Specific factors that were considered were seasonal and day-of-week variations in programming, user types and transportation alternatives, vehicle occupancy ratios, and staffing needs and miscellaneous trips. The following is a brief discussion of each of the operational factors considered to derive the trip generation.

**Seasonal Variation**—The proposed project will offer various types of classes throughout the year. The hours of operation and numbers of classes vary from fewer during the winter (8 am to 5 pm) to more during the summer (8 am to 7 pm). This analysis considers the summer operations, which are expected to represent worst-case.

**Day of Week Variation**—The proposed project will operate on both weekdays and weekends. During the summer period, the classes have the potential to conflict with weekday background traffic, including peak hour traffic on the street system. Given the industrial nature of the adjacent streets, the background traffic that occurs during the weekday is expected to be greater than on a weekend. The analysis is therefore based on weekday traffic operations.

**User Types**—Two distinct user-types are projected for the project: students and adults. Student-users will arrive/depart via buses provided by the YMCA. Each bus has a capacity of 67-77 students each. The classes will be a maximum of 30 students, so each class will require one bus for transportation. Three (3) student-classes are expected on a typical summer weekday.

Adult members will also participate in aquatic center activities. Adults may drive directly to the NCAC site. It is likely that some adults may carpool, but this is not assured, so the analysis assumes no carpooling. Three (3) adult programs are expected during the summer weekday period.

**Vehicle Occupancy Ratios**—The vehicle occupancy ratio (VOR) is a measure of how the number of occupants per vehicle. For the purposes of this analysis, adult users and staff are assumed to drive alone, resulting in a VOR of 1 per vehicle. Students, as noted, will arrive/depart via YMCA buses. Each class is approximately 30 students. Each bus holds between 67-77 students. Therefore, a VOR of 30 per vehicle is used.

**Staff Requirements (Instructors)**—The staffing ratios proposed are 1:6; meaning 1 staff member is required for each six students/adults. For class sizes of 30, 5 staff would be required. The summer schedule analyzed assumes 6 classes per day. It is assumed that two sets of staff (5 staff for each set) will serve the six classes.

**Miscellaneous Trips**—Finally, consideration was given to miscellaneous trips that may be generated on a given day. These may include trips made by additional staff or supervisors, by equipment and maintenance staff, by delivery companies, parents, etc. While these are not expected to occur during peak hours specifically, they were included as peak hour trips to be conservative.

**Table 8-1** shows a summary of the trip generation calculations based on the operational characteristics discussed above. The project is calculated to generate approximately 226 daily trips with 41 inbound / 6 outbound trips in the AM peak period and 41 inbound / 41 outbound trips in the PM peak period.

**TABLE 8-1**  
**PROJECT TRIP GENERATION**

User Type	# Classes Per Day <sup>a</sup>	# Users Per Class <sup>a</sup>	VOR <sup>b</sup>	ADI <sup>c</sup>	AM Peak Hour		PM Peak Hour	
					In	Out	In	Out
Adult <sup>d</sup>	3	30	1/car	180	30	0	30	30
Student <sup>e</sup>	3	30	30/bus	6	1	1	1	1
Instructor <sup>f</sup>	—	5	1/car	20	5	0	5	5
Miscellaneous <sup>g</sup>	—	—	1/car	20	5	5	5	5
<b>Total</b>	—	—	—	<b>226</b>	<b>41</b>	<b>6</b>	<b>41</b>	<b>41</b>

**Footnotes:**

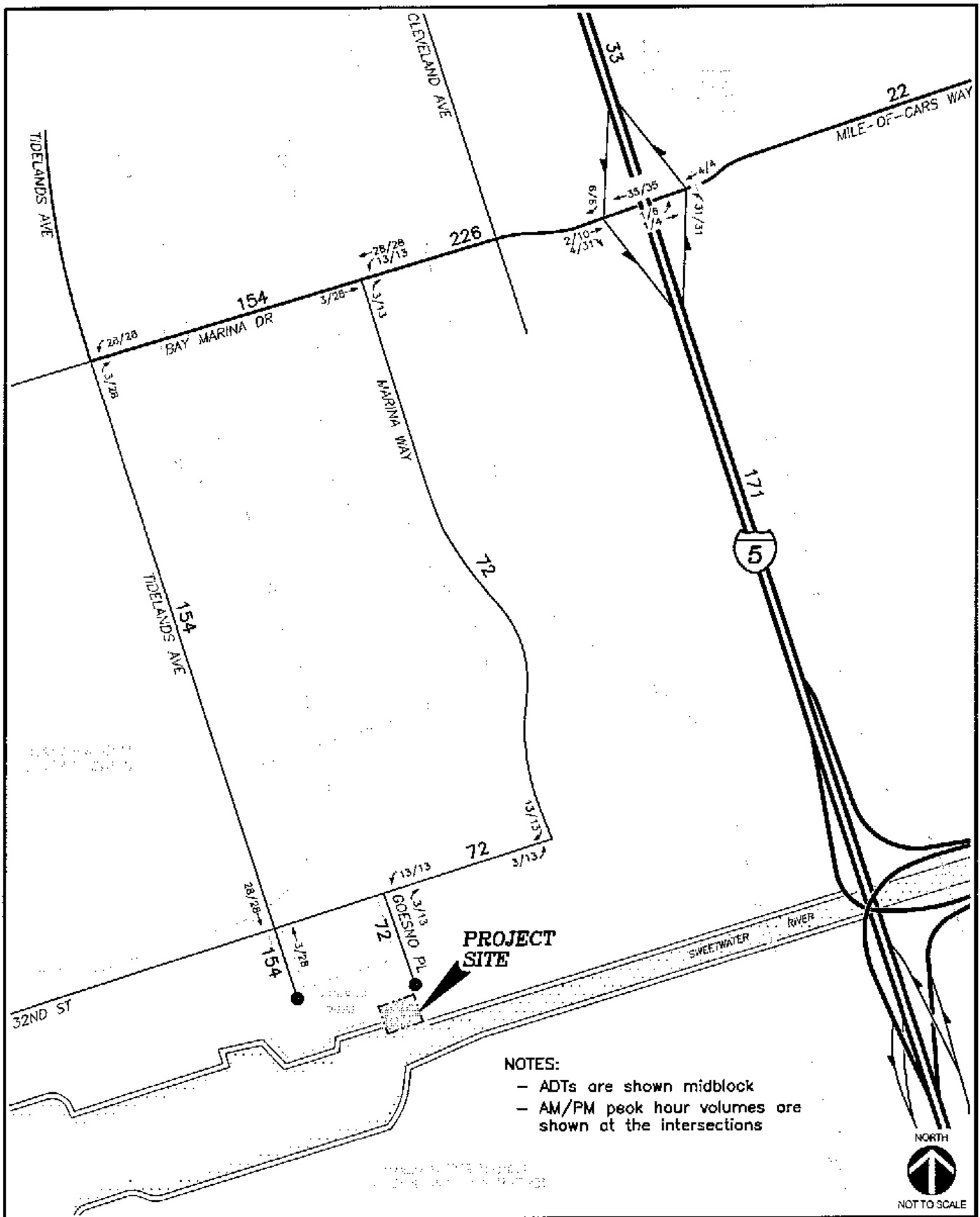
- a. Future operational information provided by the client
- b. VOR = Vehicle occupancy ratio. VOR represents how many users are in a single vehicle
- c. ADI = Average Daily Traffic volume
- d. "Adult" users are assumed to drive alone. This is conservative. 30 adults/class (3 classes daily) assumed. Two trip-ends/driver are 180 ADI.
- e. Students are to be bused to the site in buses with a capacity of 67-77 students. Buses leave and return for each class (3 classes daily). Two trip-ends per bus are 6 ADI.
- f. Instructor/student ratio is 1:6. For a class of 30 students, 5 instructors are required. Two sets of instructors (5 each, 10 total) are assumed to teach daily. Two trip-ends per instructor are 20 ADI.
- g. Miscellaneous trips are analyzed during the peak hour to be conservative. 10 miscellaneous users assumed. Two-trip ends/user are 20 ADI.

## 8.2 Trip Distribution/Assignment

The project's proposed traffic was distributed and assigned to the study area. Two separate distributions were considered—one for the "student" user type and one for the "adult/instructor/miscellaneous" user types since these separate categories would access the site in different ways. The distribution for the "student" user type took into account that students will be bussed to and from the site from the South Bay YMCA. This assignment followed a route that traveled along I-5, Bay Marina Drive, Marina Way, and ultimately accessing the site via the Gocsno Place entrance. The distribution for the "adult/instructor/miscellaneous" user types took into account the development traffic approaching and departing the site as a function of population densities, near-term travel patterns, and the efficiency of the study area roadways.

**Figure 8-1** shows the project distribution, **Figure 8-2** shows the project trip assignment, and **Figure 8-3** shows the Existing + Cumulative Projects + Project traffic volumes.





REV. 6/19/06  
LLG1644 FIG8-2.DWG

LINSCOTT  
LAW &  
GREENSPAN  
engineers

**Figure 8-2**  
**Project Traffic Volumes**  
**AM/PM Peak Hours & ADT**

National City Aquatic Center  
#51129  
150

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**Appendix H**  
**Peak Hour Intersection LOS Worksheets, ILV, and Queueing**  
**Worksheets – Near-Term Year 2016 Base Conditions**



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.091	12.7	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	NBT	0.005	11.3	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	NBR	0.202	9.0	A
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.233	10.4	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.333	18.7	B
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.255	14.7	B
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.519	19.7	B
8	28th Street / Quay Avenue	Two-way stop	HCM2000	SBT	0.004	9.5	A
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBT	0.117	9.6	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		7.9	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.091

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	17	24	9	2	37	37	21	31	8	5	80	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	24	9	2	37	37	21	31	8	5	80	4
Peak Hour Factor	0.7400	0.7400	0.7400	0.7600	0.7600	0.7600	0.7100	0.7100	0.7100	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	8	3	1	12	12	7	11	3	2	26	1
Total Analysis Volume [veh/h]	23	32	12	3	49	49	30	44	11	6	104	5
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.00	0.06	0.03	0.03
Total Saturation Flow Adjustment	0.68	0.94	0.71	0.91	0.79	0.88
s, saturation flow rate [veh/h]	1292	1787	1357	1723	2984	3331
c, Capacity [veh/h]	535	740	562	714	1236	1380
d1, Uniform Delay [s]	12.22	12.31	12.03	12.73	12.36	12.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.15	0.15	0.02	0.40	0.11	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

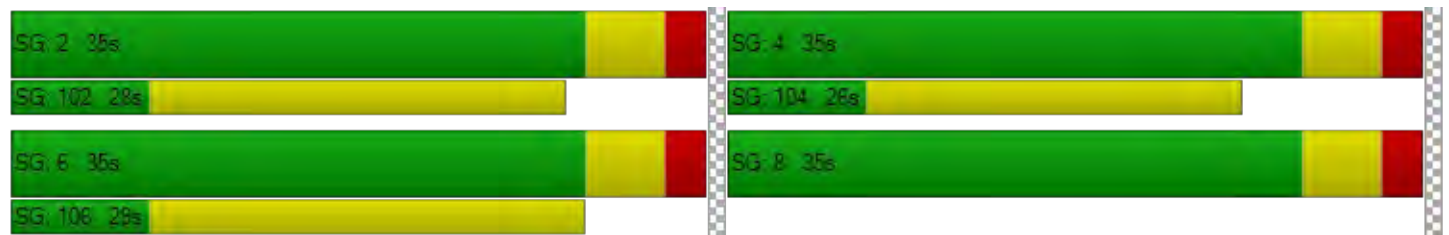
X, volume / capacity	0.04	0.06	0.01	0.14	0.07	0.08
d, Delay for Lane Group [s/veh]	12.38	12.46	12.05	13.13	12.47	12.55
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.29	0.56	0.04	1.30	0.58	0.78
50th-Percentile Queue Length [ft]	7.36	14.07	0.94	32.59	14.39	19.55
95th-Percentile Queue Length [veh]	0.75	1.40	0.10	3.09	1.43	1.92
95th-Percentile Queue Length [ft]	18.72	35.08	2.44	77.26	35.85	48.00

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.38	12.46	12.46	12.05	13.13	13.13	12.47	12.47	12.47	12.55	12.55	12.55
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.43			13.10			12.47			12.55		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.66											
Intersection LOS	B											
Intersection V/C	0.091											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	3	1	5	20	1	0	3	41	2	8	116	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1	5	20	1	0	3	41	2	8	116	36
Peak Hour Factor	0.3800	0.3800	0.3800	0.8600	0.8600	0.8600	0.6400	0.6400	0.6400	0.6500	0.6500	0.6500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	3	6	0	0	1	16	1	3	45	14
Total Analysis Volume [veh/h]	8	3	13	23	1	0	5	64	3	12	178	55
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.01	0.01	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.95	11.35	8.61	10.84	11.24	9.16	7.71	0.00	0.00	7.37	0.00	0.00
Movement LOS	A	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.09	0.09	0.09	0.12	0.12	0.12	0.08	0.04	0.00	0.26	0.13	0.00
95th-Percentile Queue Length [ft]	2.20	2.20	2.20	2.92	2.92	2.92	2.08	1.04	0.00	6.51	3.25	0.00
d_A, Approach Delay [s/veh]	9.40			10.86			0.54			0.36		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	1.68											
Intersection LOS	B											

### Intersection Level Of Service Report #3: Bay Marina Drive / Tidelands Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 9.0  
Level Of Service: A  
Volume to Capacity (v/c): 0.202

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	1	4	4	8	2	4	3	34	1	70	142	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	0	0	0	0	0	0	28	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	4	8	8	2	4	3	34	1	98	142	196
Peak Hour Factor	0.5600	0.5600	0.5600	0.7000	0.7000	0.7000	0.7300	0.7300	0.7300	0.7300	0.7300	0.7300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	4	3	1	1	1	12	0	34	49	67
Total Analysis Volume [veh/h]	2	7	14	11	3	6	4	47	1	134	195	268
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	117	0	0	117	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	111	111	111	111	111
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.74	0.74	0.74	0.74	0.74
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.01	0.01	0.00	0.01	0.10	0.10	0.19
Total Saturation Flow Adjustment	0.74	0.79	0.73	0.79	0.62	0.93	0.71	0.98	0.75
s, saturation flow rate [veh/h]	1400	1509	1385	1509	1172	3536	1349	1863	1425
c, Capacity [veh/h]	252	272	249	272	868	2616	998	1378	1055
d1, Uniform Delay [s]	50.50	51.14	50.83	50.73	5.09	5.14	5.63	5.66	6.24
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.06	0.55	0.33	0.23	0.01	0.01	0.28	0.22	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.08	0.04	0.03	0.00	0.02	0.13	0.14	0.25
d, Delay for Lane Group [s/veh]	50.56	51.70	51.17	50.96	5.10	5.15	5.91	5.88	6.83
Lane Group LOS	D	D	D	D	A	A	A	A	A
Critical Lane Group	no	yes	no	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.07	0.78	0.41	0.33	0.05	0.31	1.86	2.70	4.15
50th-Percentile Queue Length [ft]	1.84	19.56	10.18	8.30	1.26	7.87	46.60	67.39	103.75
95th-Percentile Queue Length [veh]	0.19	1.92	1.03	0.84	0.13	0.80	4.27	5.89	8.45
95th-Percentile Queue Length [ft]	4.74	48.03	25.68	21.03	3.26	19.99	106.66	147.13	211.24

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	50.56	51.70	51.70	51.17	50.96	50.96	5.10	5.15	5.15	5.91	5.88	6.83
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	51.60			51.07			5.15			6.31		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	9.02											
Intersection LOS	A											
Intersection V/C	0.202											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.4  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.233

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	1	6	52	1	7	591
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	4	0	13	28
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	9	56	1	20	619
Peak Hour Factor	0.9200	0.9200	0.9640	0.9200	0.9200	0.7710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	15	0	5	201
Total Analysis Volume [veh/h]	1	10	58	1	22	803
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	94	0	19	113
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	88	15	107
g / C, Green / Cycle	0.21	0.21	0.59	0.10	0.71
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.02	0.01	0.23
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3538	1770	3547
c, Capacity [veh/h]	366	327	2075	177	2530
d1, Uniform Delay [s]	47.23	47.50	13.03	61.51	7.97
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.17	0.03	1.44	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.03	0.03	0.12	0.32
d, Delay for Lane Group [s/veh]	47.24	47.68	13.06	62.95	8.30
Lane Group LOS	D	D	B	E	A
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.04	0.36	0.59	0.90	7.43
50th-Percentile Queue Length [ft]	0.88	8.90	14.84	22.60	185.77
95th-Percentile Queue Length [veh]	0.09	0.90	1.48	2.20	13.57
95th-Percentile Queue Length [ft]	2.29	22.54	36.91	55.03	339.27



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	47.24	47.68	13.06	13.06	62.95	8.30
Movement LOS	D	D	B	B	E	A
d_A, Approach Delay [s/veh]	47.64		13.06		9.76	
Approach LOS	D		B		A	
d_I, Intersection Delay [s/veh]	10.44					
Intersection LOS	B					
Intersection V/C	0.233					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 18.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.333

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	4	0	20	27	1	8	12	149	1	6	588	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	6	0	0	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	45
Total Hourly Volume [veh/h]	4	0	20	27	1	8	12	155	1	6	629	187
Peak Hour Factor	0.5500	0.5500	0.5500	0.6900	0.6900	0.6900	0.8500	0.8500	0.8500	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	9	10	0	3	4	46	0	2	189	56
Total Analysis Volume [veh/h]	7	0	36	39	1	12	14	182	1	7	758	225
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	19	0	0	23	0	9	99	0	9	99	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	7	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	12	12	0	0	12	0	0	12	0	0	12	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	19	5	95	5	95
g / C, Green / Cycle	0.10	0.10	0.13	0.03	0.63	0.03	0.63
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.02	0.01	0.04	0.00	0.29
Total Saturation Flow Adjustment	0.93	0.83	0.87	0.93	0.89	0.93	0.90
s, saturation flow rate [veh/h]	1770	1583	3300	1770	5070	1770	3425
c, Capacity [veh/h]	177	158	418	59	3211	59	2169
d1, Uniform Delay [s]	60.99	62.16	58.12	70.64	10.46	70.36	14.14
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.42	3.31	0.61	9.25	0.03	4.07	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.23	0.12	0.24	0.06	0.12	0.45
d, Delay for Lane Group [s/veh]	61.41	65.48	58.73	79.89	10.49	74.43	14.83
Lane Group LOS	E	E	E	E	B	E	B
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.28	1.51	1.09	0.64	1.18	0.31	12.52
50th-Percentile Queue Length [ft]	7.09	37.81	27.24	15.94	29.39	7.83	312.96
95th-Percentile Queue Length [veh]	0.72	3.54	2.62	1.58	2.81	0.80	21.05
95th-Percentile Queue Length [ft]	18.04	88.45	65.50	39.54	70.25	19.89	526.33

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	61.41	65.48	65.48	58.73	58.73	58.73	79.89	10.49	10.49	74.43	14.83	14.83
Movement LOS	E	E	E	E	E	E	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	64.82			58.73			15.43			15.25		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	18.70											
Intersection LOS	B											
Intersection V/C	0.333											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 14.7  
Level Of Service: B  
Volume to Capacity (v/c): 0.255

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	336	1	142	0	64	90	161	385	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	6	0	2	4	0	35	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	336	1	148	0	66	94	161	420	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800	1.0000	0.8600	0.8600	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	47	0	19	27	43	113	0
Total Analysis Volume [veh/h]	0	0	0	431	1	190	0	77	109	173	452	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	28	0	0	18	0	14	32	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		23	23	13	13	10	27
g / C, Green / Cycle		0.39	0.39	0.22	0.22	0.16	0.46
(v / s)_i Volume / Saturation Flow Rate		0.13	0.12	0.02	0.07	0.05	0.13
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3378	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1317	617	792	354	561	1620
d1, Uniform Delay [s]		12.80	12.69	18.50	19.43	22.11	10.15
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.67	1.29	0.24	2.25	1.42	0.43
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

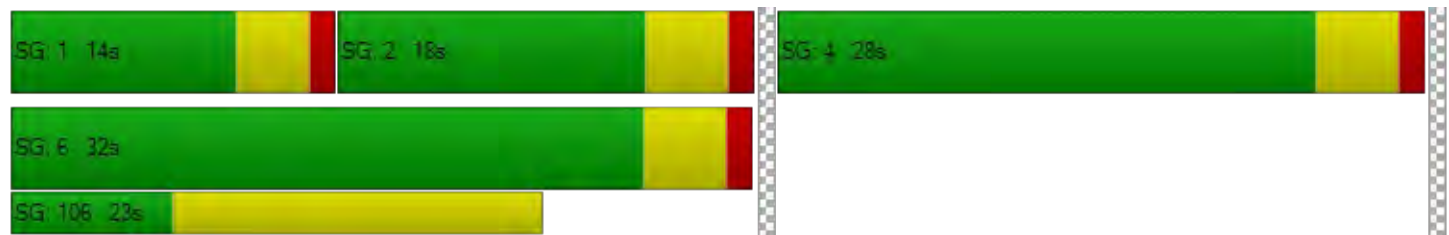
X, volume / capacity		0.33	0.31	0.10	0.31	0.31	0.28
d, Delay for Lane Group [s/veh]		13.46	13.98	18.74	21.69	23.54	10.58
Lane Group LOS		B	B	B	C	C	B
Critical Lane Group		yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]		2.97	2.47	0.59	1.70	1.47	2.76
50th-Percentile Queue Length [ft]		74.18	61.66	14.63	42.48	36.69	69.00
95th-Percentile Queue Length [veh]		6.39	5.45	1.46	3.93	3.44	6.00
95th-Percentile Queue Length [ft]		159.68	136.31	36.42	98.21	86.07	150.12

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	13.46	13.46	13.98	0.00	18.74	21.69	23.54	10.58	0.00
Movement LOS				B	B	B		B	C	C	B	
d_A, Approach Delay [s/veh]	0.00			13.62			20.47			14.17		
Approach LOS	A			B			C			B		
d_I, Intersection Delay [s/veh]	14.75											
Intersection LOS	B											
Intersection V/C	0.255											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 19.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.519

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	280	204	482	0	0	0	52	374	0	0	248	428
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	0	0	0	0	1	1	0	0	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	100	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	311	204	382	0	0	0	53	375	0	0	252	428
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.8500	0.8500	1.0000	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	57	106	0	0	0	16	110	0	0	67	114
Total Analysis Volume [veh/h]	346	227	424	0	0	0	62	441	0	0	268	455
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	26	0	0	0	0	10	44	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	21		6	39	29	29
g / C, Green / Cycle	0.31		0.08	0.56	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.21		0.02	0.12	0.14	0.29
Total Saturation Flow Adjustment	0.82		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4669		3437	3547	1863	1583
c, Capacity [veh/h]	1428		285	1996	782	665
d1, Uniform Delay [s]	21.45		29.98	7.64	13.75	16.52
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.86		1.75	0.26	1.19	5.64
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.70		0.22	0.22	0.34	0.68
d, Delay for Lane Group [s/veh]	24.31		31.73	7.89	14.95	22.16
Lane Group LOS	C		C	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	7.61		0.65	2.53	3.95	8.68
50th-Percentile Queue Length [ft]	190.13		16.23	63.21	98.70	216.94
95th-Percentile Queue Length [veh]	13.83		1.61	5.57	8.11	15.41
95th-Percentile Queue Length [ft]	345.75		40.21	139.25	202.73	385.35

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	24.31	24.31	24.31	0.00	0.00	0.00	31.73	7.89	0.00	0.00	14.95	22.16
Movement LOS	C	C	C				C	A			B	C
d_A, Approach Delay [s/veh]	24.31			0.00			10.83			19.49		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	19.69											
Intersection LOS	B											
Intersection V/C	0.519											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.5  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.004

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	1	6	1	1	0	3	0	11	3	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	1	6	1	1	0	3	0	11	3	11
Peak Hour Factor	0.2500	0.2500	0.2500	0.4000	0.4000	0.4000	0.3800	0.3800	0.3800	0.5800	0.5800	0.5800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	4	1	1	0	2	0	5	1	5
Total Analysis Volume [veh/h]	0	0	4	15	3	3	0	8	0	19	5	19
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0



**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.94	9.45	8.36	9.00	9.48	8.47	7.26	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	0.07	0.07	0.07	0.00	0.00	0.00	0.08	0.08	0.08
95th-Percentile Queue Length [ft]	0.28	0.28	0.28	1.75	1.75	1.75	0.00	0.00	0.00	2.05	2.05	2.05
d_A, Approach Delay [s/veh]	8.36			8.99			0.00			3.21		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.74											
Intersection LOS	A											

**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.6  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.117

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	0	0	46	8	0	0	1	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	28	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	12	0	0	74	8	0	0	1	0	0	0
Peak Hour Factor	0.6700	0.6700	0.6700	0.7100	0.7100	0.7100	0.2500	0.2500	0.2500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	0	26	3	0	0	1	0	0	0
Total Analysis Volume [veh/h]	0	18	0	0	104	11	0	0	4	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.02	0.00	0.00	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.35	9.11	8.41	9.21	9.61	8.89	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.06	0.06	0.06	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.54	1.54	1.54	10.84	10.84	10.84	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.11			9.54			0.00			2.41		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	9.21											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 7.9  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	3	0	5	4	22	34	43	0	0	11	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	0	28	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	0	5	32	22	34	43	0	0	11	3
Peak Hour Factor	0.3800	0.3800	0.9200	0.9200	0.7800	0.7800	0.6200	0.9200	0.6200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	0	1	10	7	14	12	0	0	3	1
Total Analysis Volume [veh/h]	0	18	0	5	41	28	55	47	0	0	12	3
Pedestrian Volume [ped/h]	0			0			0			0		



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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.08	0.20	0.10	0.26	0.20	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	1.92	5.05	2.53	6.61	5.02	0.00	0.00	0.79	0.74
Approach Delay [s/veh]	8.14	7.63		8.19			7.61		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	7.94								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

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Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

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**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	17	24	9	2	37	37	21	31	8	5	80	4	275

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	3	1	5	20	1	0	3	41	2	8	116	36	236

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	1	4	8	8	2	4	3	34	1	98	142	196	501

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	1	9	56	1	20	619	706

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	4	0	20	27	1	8	12	155	1	6	629	232	1095

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	336	1	148	66	94	161	420	1226

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	311	204	482	53	375	252	428	2105

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	0	0	1	6	1	1	0	3	0	11	3	11	37

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	0	12	0	0	74	8	0	0	1	0	0	0	95

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	7	0	5	32	22	34	43	0	0	11	3	157

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Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

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## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	17	24	9	2	37	37	21	31	8	5	80	4	275
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>17</b>	<b>24</b>	<b>9</b>	<b>2</b>	<b>37</b>	<b>37</b>	<b>21</b>	<b>31</b>	<b>8</b>	<b>5</b>	<b>80</b>	<b>4</b>	<b>275</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	3	1	5	20	1	0	3	41	2	8	116	36	236
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>1</b>	<b>5</b>	<b>20</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>41</b>	<b>2</b>	<b>8</b>	<b>116</b>	<b>36</b>	<b>236</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	1	4	4	8	2	4	3	34	1	70	142	196	469
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	4	0	0	0	0	0	0	28	0	0	32
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>4</b>	<b>8</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>34</b>	<b>1</b>	<b>98</b>	<b>142</b>	<b>196</b>	<b>501</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	1	6	52	1	7	591	658
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	3	4	0	13	28	48
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>9</b>	<b>56</b>	<b>1</b>	<b>20</b>	<b>619</b>	<b>706</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	4	0	20	27	1	8	12	149	1	6	588	232	1048
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	6	0	0	41	0	47
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>4</b>	<b>0</b>	<b>20</b>	<b>27</b>	<b>1</b>	<b>8</b>	<b>12</b>	<b>155</b>	<b>1</b>	<b>6</b>	<b>629</b>	<b>232</b>	<b>1095</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	336	1	142	64	90	161	385	1179
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	2	4	0	35	47
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>336</b>	<b>1</b>	<b>148</b>	<b>66</b>	<b>94</b>	<b>161</b>	<b>420</b>	<b>1226</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	280	204	482	52	374	248	428	2068
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	31	0	0	1	1	4	0	37
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>311</b>	<b>204</b>	<b>482</b>	<b>53</b>	<b>375</b>	<b>252</b>	<b>428</b>	<b>2105</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	Final Base	0	0	1	6	1	1	0	3	0	11	3	11	37
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>11</b>	<b>3</b>	<b>11</b>	<b>37</b>



ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	Final Base	0	8	0	0	46	8	0	0	1	0	0	0	63
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	4	0	0	28	0	0	0	0	0	0	0	32
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>74</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>95</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	3	0	5	4	22	34	43	0	0	11	3	125
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	4	0	0	28	0	0	0	0	0	0	0	32
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>5</b>	<b>32</b>	<b>22</b>	<b>34</b>	<b>43</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>3</b>	<b>157</b>

## NCMT Tank Farm Redevelopment

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Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

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## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	46	64	24	6	98	98	60	88	22	12	208	10	

Intersection 2: Bay Marina Drive / Quay Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	16	6	26	46	2	0	10	128	6	24	356	110	

Intersection 3: Bay Marina Drive / Tidlands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	4	0	0	0	0	0	0	28	0	0	32
Total Volume	0	0	4	0	0	0	0	0	0	28	0	0	
Total Analysis Volume	4	14	28	22	6	12	8	94	2	268	390	536	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
30: AC Students	0	1	0	0	1	0	2
31: AC Adults	0	1	4	0	12	28	45
Total Volume	0	2	4	0	13	28	
Total Analysis Volume	2	20	116	2	44	1606	

## Intersection 5: Bay Marina Drive / Cleveland Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	1	0	0	1	0	2
31: AC Adults	0	0	0	0	0	0	0	5	0	0	40	0	45
Total Volume	0	0	0	0	0	0	0	6	0	0	41	0	
Total Analysis Volume	14	0	72	78	2	24	28	364	2	14	1516	450	

## Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive

Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
30: AC Students	0	0	0	0	1	0	1	2
31: AC Adults	0	0	6	2	3	0	34	45
Total Volume	0	0	6	2	4	0	35	
Total Analysis Volume	862	2	380	154	218	346	904	

## Intersection 7: I-5 NB On-Ramp and Bay Marina

Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
30: AC Students	1	0	0	0	0	0	0	1
31: AC Adults	30	0	0	1	1	4	0	36
Total Volume	31	0	0	1	1	4	0	
Total Analysis Volume	692	454	848	124	882	536	910	

## Intersection 8: 28th Street / Quay Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	0	0	8	30	6	6	0	16	0	38	10	38	

## Intersection 9: 28th Street / Tidelands Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	4	0	0	28	0	0	0	0	0	0	0	32
Total Volume	0	4	0	0	28	0	0	0	0	0	0	0	
Total Analysis Volume	0	36	0	0	208	22	0	0	8	0	0	0	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	4	0	0	28	0	0	0	0	0	0	0	32
Total Volume	0	4	0	0	28	0	0	0	0	0	0	0	
Total Analysis Volume	0	36	0	10	82	56	110	94	0	0	24	6	

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Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

4/27/2016

**Fair Share % of Net New Site**

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 3: Bay Marina Drive / Tideland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0%	0	0	0	0	0	0	0%	0	0	0.00%
31: AC Adults	0	0	105.71%	0	0	0	0	0	0	99.29%	0	0	100.00%
Total	0.00%	0.00%	105.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.29%	0.00%	0.00%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
30: AC Students	0	40%	0%	0	7.69%	0%	12.01%
31: AC Adults	0	52%	105.71%	0	92.31%	99.29%	87.99%
Total	0.00%	92.00%	105.71%	0.00%	100.00%	99.29%	



## Intersection 5: Bay Marina Drive / Cleveland Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	16.67%	0	0	2.44%	0	9.80%
31: AC Adults	0	0	0	0	0	0	0	78.33%	0	0	97.56%	0	90.20%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	95.00%	0.00%	0.00%	100.00%	0.00%	

## Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive

Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
30: AC Students	0	0	0%	0%	25%	0	2.86%	7.13%
31: AC Adults	0	0	103.33%	85%	77.5%	0	97.14%	92.87%
Total	0.00%	0.00%	103.33%	85.00%	102.50%	0.00%	100.00%	

## Intersection 7: I-5 NB On-Ramp and Bay Marina

Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
30: AC Students	3.23%	0	0	0%	0%	0%	0	0.96%
31: AC Adults	96.77%	0	0	70%	70%	95%	0	99.04%
Total	100.00%	0.00%	0.00%	70.00%	70.00%	95.00%	0.00%	

## Intersection 8: 28th Street / Quay Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## Intersection 9: 28th Street / Tidelands Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	105.71%	0	0	99.29%	0	0	0	0	0	0	0	100.00%
Total	0.00%	105.71%	0.00%	0.00%	99.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	105.71%	0	0	99.29%	0	0	0	0	0	0	0	100.00%
Total	0.00%	105.71%	0.00%	0.00%	99.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

4/27/2016

**Fair Share % of Total Analysis**

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 3: Bay Marina Drive / Tideland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0%	0	0	0	0	0	0	0%	0	0	0.00%
31: AC Adults	0	0	21.14%	0	0	0	0	0	0	17.16%	0	0	2.77%
Total	0.00%	0.00%	21.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	17.16%	0.00%	0.00%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
30: AC Students	0	8%	0%	0	2.86%	0%	0.61%
31: AC Adults	0	10.4%	6.02%	0	34.29%	3.35%	3.02%
Total	0.00%	18.40%	6.02%	0.00%	37.15%	3.35%	

## Intersection 5: Bay Marina Drive / Cleveland Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0.53%	0	0	0.13%	0	0.03%
31: AC Adults	0	0	0	0	0	0	0	2.5%	0	0	5.01%	0	0.29%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.03%	0.00%	0.00%	5.14%	0.00%	

## Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive

Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
30: AC Students	0	0	0%	0%	0.88%	0	0.21%	0.04%
31: AC Adults	0	0	3.16%	2.15%	2.74%	0	6.98%	0.52%
Total	0.00%	0.00%	3.16%	2.15%	3.62%	0.00%	7.19%	

## Intersection 7: I-5 NB On-Ramp and Bay Marina

Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
30: AC Students	0.27%	0	0	0%	0%	0%	0	0.01%
31: AC Adults	7.96%	0	0	1.11%	0.16%	1.4%	0	0.24%
Total	8.23%	0.00%	0.00%	1.11%	0.16%	1.40%	0.00%	

## Intersection 8: 28th Street / Quay Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## Intersection 9: 28th Street / Tidelands Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	17.21%	0	0	21.06%	0	0	0	0	0	0	0	13.97%
Total	0.00%	17.21%	0.00%	0.00%	21.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	17.21%	0	0	40.29%	0	0	0	0	0	0	0	13.76%
Total	0.00%	17.21%	0.00%	0.00%	40.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	160	46	9	21
2	154	44	9	20
3	150	43	8	20
4	128	37	7	17
5	122	35	7	16
6	109	31	6	14
7	101	29	6	13
8	96	28	5	13
9	77	22	4	10
10	72	21	4	9
11	72	21	4	9
12	69	20	4	9
13	62	18	4	8
14	58	17	3	8
15	58	17	3	8
16	56	16	3	7
17	32	9	2	4
18	18	5	1	2
19	16	5	1	2
20	6	2	0	1
21	5	1	0	1
22	5	1	0	1
23	3	1	0	0
24	3	1	0	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	206	2	30	No	No	No	No	No	No	No	No	No	No
2	4	198	2	29	No	No	No	No	No	No	No	No	No	No
3	4	193	2	28	No	No	No	No	No	No	No	No	No	No
4	4	165	2	24	No	No	No	No	No	No	No	No	No	No
5	4	157	2	23	No	No	No	No	No	No	No	No	No	No
6	4	140	2	20	No	No	No	No	No	No	No	No	No	No
7	4	130	2	19	No	No	No	No	No	No	No	No	No	No
8	4	124	2	18	No	No	No	No	No	No	No	No	No	No
9	4	99	2	14	No	No	No	No	No	No	No	No	No	No
10	4	93	2	13	No	No	No	No	No	No	No	No	No	No
11	4	93	2	13	No	No	No	No	No	No	No	No	No	No
12	4	89	2	13	No	No	No	No	No	No	No	No	No	No
13	4	80	2	12	No	No	No	No	No	No	No	No	No	No
14	4	75	2	11	No	No	No	No	No	No	No	No	No	No
15	4	75	2	11	No	No	No	No	No	No	No	No	No	No
16	4	72	2	10	No	No	No	No	No	No	No	No	No	No
17	4	41	2	6	No	No	No	No	No	No	No	No	No	No
18	4	23	2	3	No	No	No	No	No	No	No	No	No	No
19	4	21	2	3	No	No	No	No	No	No	No	No	No	No
20	4	8	2	1	No	No	No	No	No	No	No	No	No	No
21	4	6	2	1	No	No	No	No	No	No	No	No	No	No
22	4	6	2	1	No	No	No	No	No	No	No	No	No	No
23	4	4	2	0	No	No	No	No	No	No	No	No	No	No
24	4	4	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.4	10.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	9	21
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	236	236
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	25	3	1	8
2	24	3	1	8
3	24	3	1	8
4	20	2	1	6
5	19	2	1	6
6	17	2	1	5
7	16	2	1	5
8	15	2	1	5
9	12	1	0	4
10	11	1	0	4
11	11	1	0	4
12	11	1	0	3
13	10	1	0	3
14	9	1	0	3
15	9	1	0	3
16	9	1	0	3
17	5	1	0	2
18	3	0	0	1
19	3	0	0	1
20	1	0	0	0
21	1	0	0	0
22	1	0	0	0
23	1	0	0	0
24	1	0	0	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	28	2	9	No	No	No	No	No	No	No	No	No	No
2	2	27	2	9	No	No	No	No	No	No	No	No	No	No
3	2	27	2	9	No	No	No	No	No	No	No	No	No	No
4	2	22	2	7	No	No	No	No	No	No	No	No	No	No
5	2	21	2	7	No	No	No	No	No	No	No	No	No	No
6	2	19	2	6	No	No	No	No	No	No	No	No	No	No
7	2	18	2	6	No	No	No	No	No	No	No	No	No	No
8	2	17	2	6	No	No	No	No	No	No	No	No	No	No
9	2	13	2	4	No	No	No	No	No	No	No	No	No	No
10	2	12	2	4	No	No	No	No	No	No	No	No	No	No
11	2	12	2	4	No	No	No	No	No	No	No	No	No	No
12	2	12	2	3	No	No	No	No	No	No	No	No	No	No
13	2	11	2	3	No	No	No	No	No	No	No	No	No	No
14	2	10	2	3	No	No	No	No	No	No	No	No	No	No
15	2	10	2	3	No	No	No	No	No	No	No	No	No	No
16	2	10	2	3	No	No	No	No	No	No	No	No	No	No
17	2	6	2	2	No	No	No	No	No	No	No	No	No	No
18	2	3	2	1	No	No	No	No	No	No	No	No	No	No
19	2	3	2	1	No	No	No	No	No	No	No	No	No	No
20	2	1	2	0	No	No	No	No	No	No	No	No	No	No
21	2	1	2	0	No	No	No	No	No	No	No	No	No	No
22	2	1	2	0	No	No	No	No	No	No	No	No	No	No
23	2	1	2	0	No	No	No	No	No	No	No	No	No	No
24	2	1	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:01
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	1	8
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	37	37
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	0	1	12	82
2	0	1	12	79
3	0	1	11	77
4	0	1	10	66
5	0	1	9	62
6	0	1	8	56
7	0	1	8	52
8	0	1	7	49
9	0	0	6	39
10	0	0	5	37
11	0	0	5	37
12	0	0	5	35
13	0	0	5	32
14	0	0	4	30
15	0	0	4	30
16	0	0	4	29
17	0	0	2	16
18	0	0	1	9
19	0	0	1	8
20	0	0	0	3
21	0	0	0	2
22	0	0	0	2
23	0	0	0	2
24	0	0	0	2



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1	2	94	No	No	No	No	No	No	No	No	No	No
2	2	1	2	91	No	No	No	No	No	No	No	No	No	No
3	2	1	2	88	No	No	No	No	No	No	No	No	No	No
4	2	1	2	76	No	No	No	No	No	No	No	No	No	No
5	2	1	2	71	No	No	No	No	No	No	No	No	No	No
6	2	1	2	64	No	No	No	No	No	No	No	No	No	No
7	2	1	2	60	No	No	No	No	No	No	No	No	No	No
8	2	1	2	56	No	No	No	No	No	No	No	No	No	No
9	2	0	2	45	No	No	No	No	No	No	No	No	No	No
10	2	0	2	42	No	No	No	No	No	No	No	No	No	No
11	2	0	2	42	No	No	No	No	No	No	No	No	No	No
12	2	0	2	40	No	No	No	No	No	No	No	No	No	No
13	2	0	2	37	No	No	No	No	No	No	No	No	No	No
14	2	0	2	34	No	No	No	No	No	No	No	No	No	No
15	2	0	2	34	No	No	No	No	No	No	No	No	No	No
16	2	0	2	33	No	No	No	No	No	No	No	No	No	No
17	2	0	2	18	No	No	No	No	No	No	No	No	No	No
18	2	0	2	10	No	No	No	No	No	No	No	No	No	No
19	2	0	2	9	No	No	No	No	No	No	No	No	No	No
20	2	0	2	3	No	No	No	No	No	No	No	No	No	No
21	2	0	2	2	No	No	No	No	No	No	No	No	No	No
22	2	0	2	2	No	No	No	No	No	No	No	No	No	No
23	2	0	2	2	No	No	No	No	No	No	No	No	No	No
24	2	0	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1	9.5
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01	0:13
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	12	82
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	95	95
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	14	77	7	59
2	13	74	7	57
3	13	72	7	55
4	11	62	6	47
5	11	59	5	45
6	10	52	5	40
7	9	49	4	37
8	8	46	4	35
9	7	37	3	28
10	6	35	3	27
11	6	35	3	27
12	6	33	3	25
13	5	30	3	23
14	5	28	3	21
15	5	28	3	21
16	5	27	2	21
17	3	15	1	12
18	2	8	1	6
19	1	8	1	6
20	1	3	0	2
21	0	2	0	2
22	0	2	0	2
23	0	2	0	1
24	0	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	91	3	66	No	No	No	No	No	No	No	No	No	No
2	6	87	3	64	No	No	No	No	No	No	No	No	No	No
3	6	85	3	62	No	No	No	No	No	No	No	No	No	No
4	6	73	3	53	No	No	No	No	No	No	No	No	No	No
5	6	70	3	50	No	No	No	No	No	No	No	No	No	No
6	6	62	3	45	No	No	No	No	No	No	No	No	No	No
7	6	58	3	41	No	No	No	No	No	No	No	No	No	No
8	6	54	3	39	No	No	No	No	No	No	No	No	No	No
9	6	44	3	31	No	No	No	No	No	No	No	No	No	No
10	6	41	3	30	No	No	No	No	No	No	No	No	No	No
11	6	41	3	30	No	No	No	No	No	No	No	No	No	No
12	6	39	3	28	No	No	No	No	No	No	No	No	No	No
13	6	35	3	26	No	No	No	No	No	No	No	No	No	No
14	6	33	3	24	No	No	No	No	No	No	No	No	No	No
15	6	33	3	24	No	No	No	No	No	No	No	No	No	No
16	6	32	3	23	No	No	No	No	No	No	No	No	No	No
17	6	18	3	13	No	No	No	No	No	No	No	No	No	No
18	6	10	3	7	No	No	No	No	No	No	No	No	No	No
19	6	9	3	7	No	No	No	No	No	No	No	No	No	No
20	6	4	3	2	No	No	No	No	No	No	No	No	No	No
21	6	2	3	2	No	No	No	No	No	No	No	No	No	No
22	6	2	3	2	No	No	No	No	No	No	No	No	No	No
23	6	2	3	1	No	No	No	No	No	No	No	No	No	No
24	6	2	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.1	7.6
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:07
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	7	59
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	157	157
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

4/27/2016

**Trip generation summary****Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
30: AC Students				1.000	2.000	50.00	50.00	1	1	2	4.26
31: AC Adults				1.000	45.000	90.00	10.00	40	5	45	95.74
<b>Added Trips Total</b>								<b>41</b>	<b>6</b>	<b>47</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 5: Near-Term AM

Report File: P:\...\5. Near-Term AM.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 30: AC Students			
	To AC Students:		From AC Students:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	100.00	1	100.00	1
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>1</b>	<b>100.00</b>	<b>1</b>

Zone / Gate	Zone 31: AC Adults			
	To AC Adults:		From AC Adults:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	15.00	6	15.00	1
3: Gate	75.00	30	75.00	3
4: Gate	10.00	4	10.00	1
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>40</b>	<b>100.00</b>	<b>5</b>

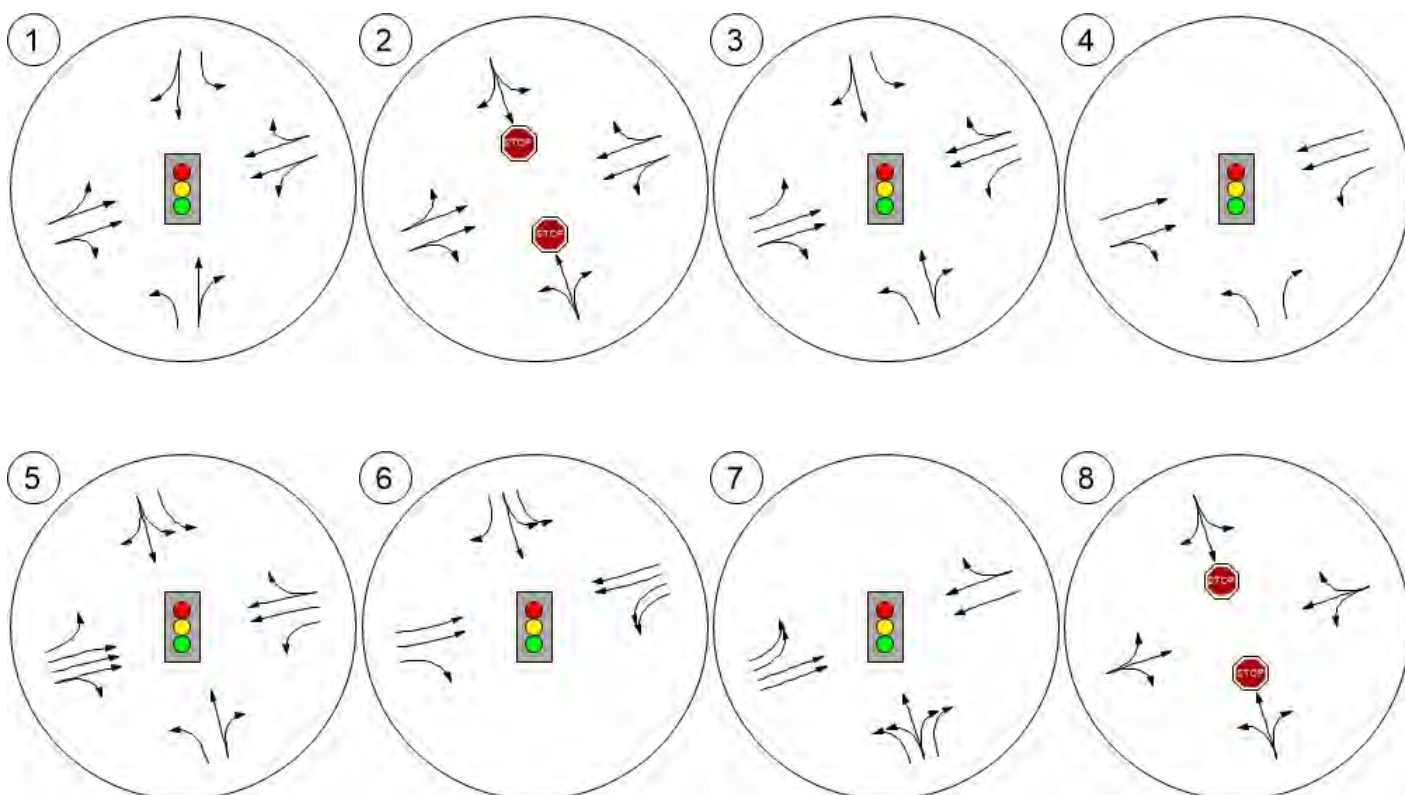


Study Intersections

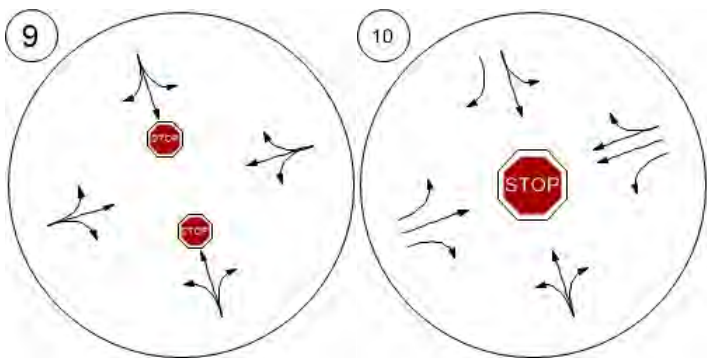




# Lane Configuration and Traffic Control

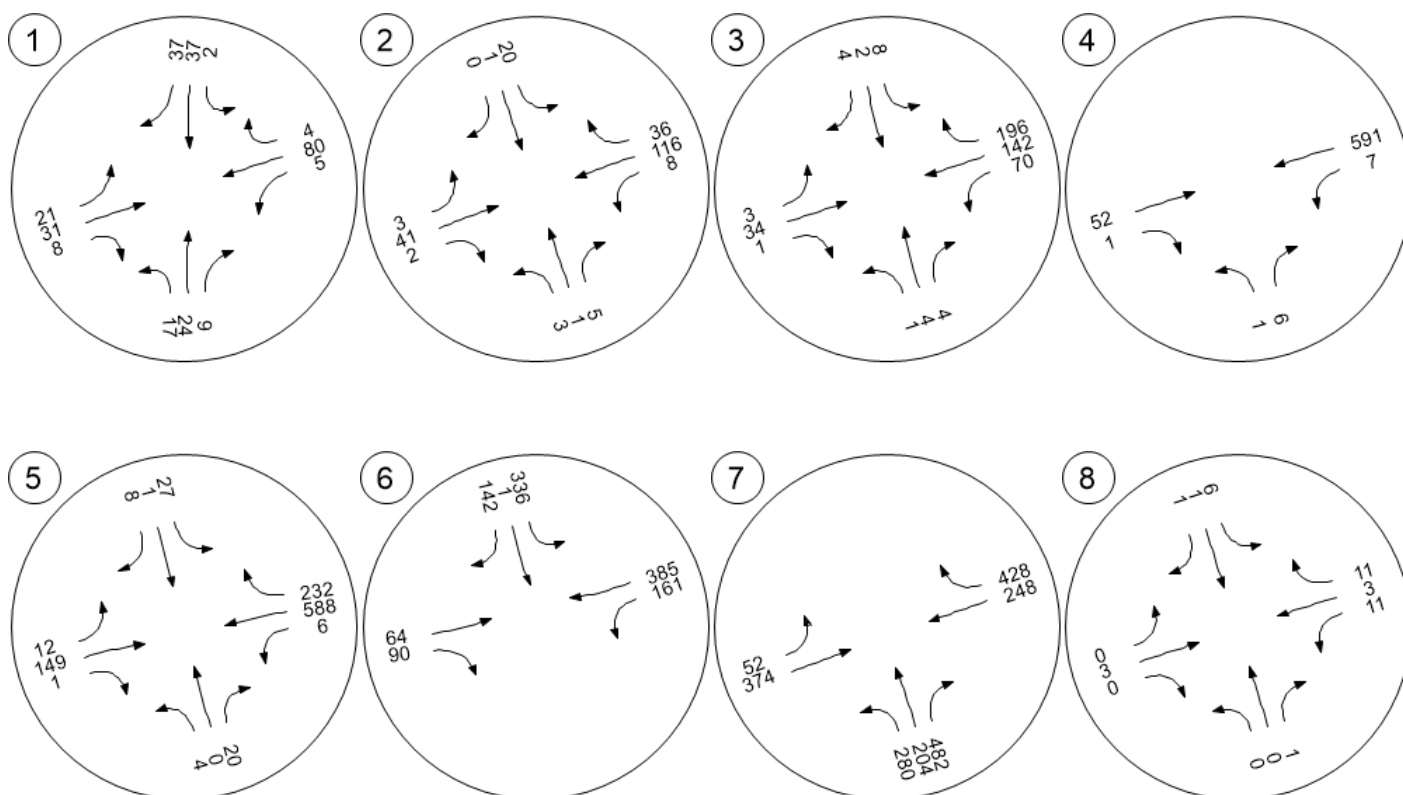


## Lane Configuration and Traffic Control

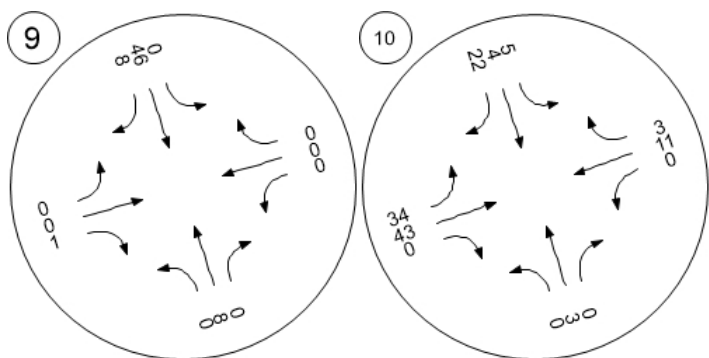




Traffic Volume - Base Volume

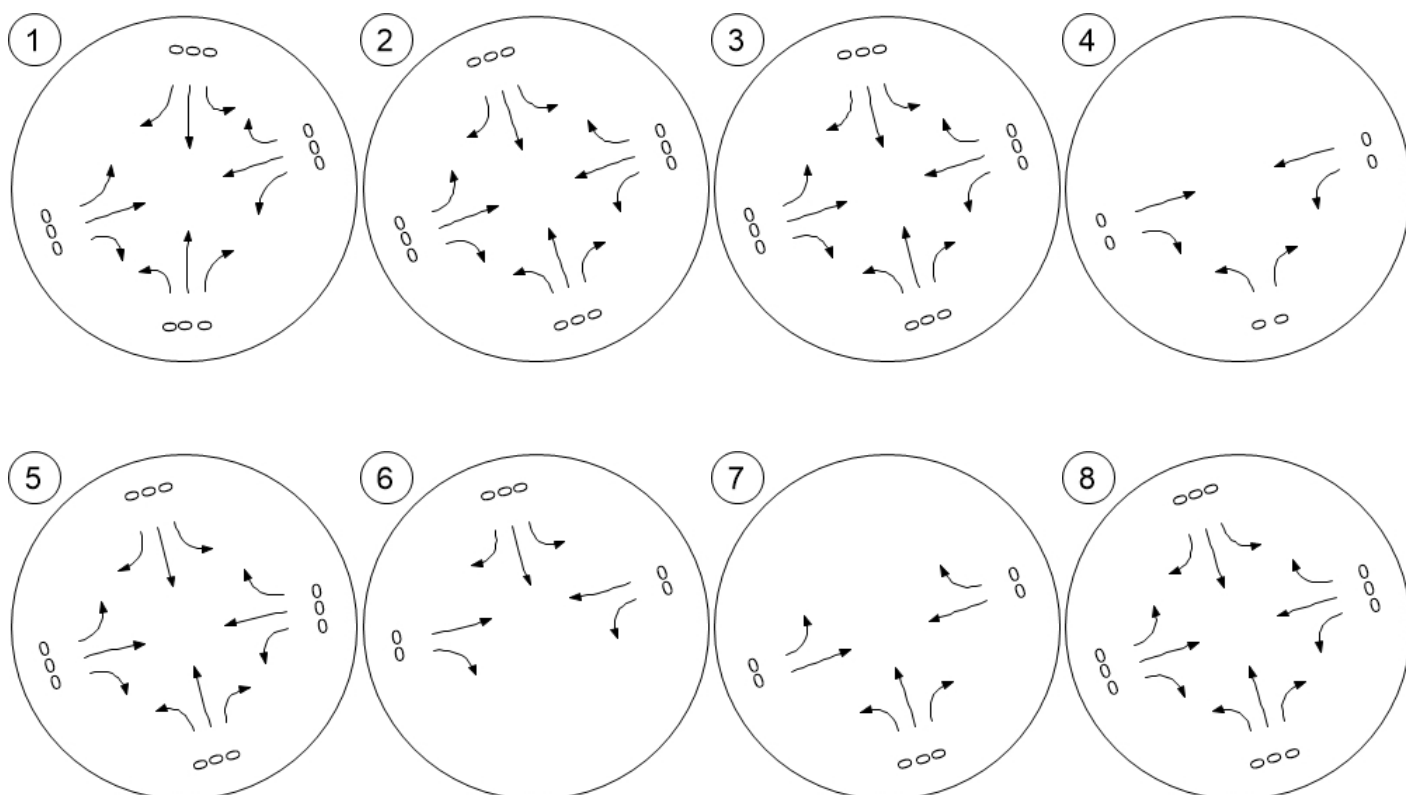


Traffic Volume - Base Volume

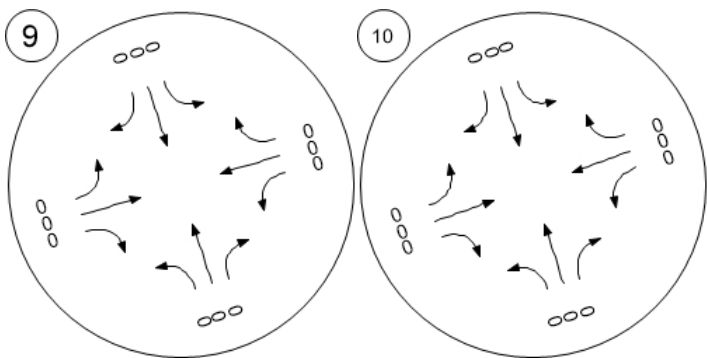




Traffic Volume - In-Process Volume

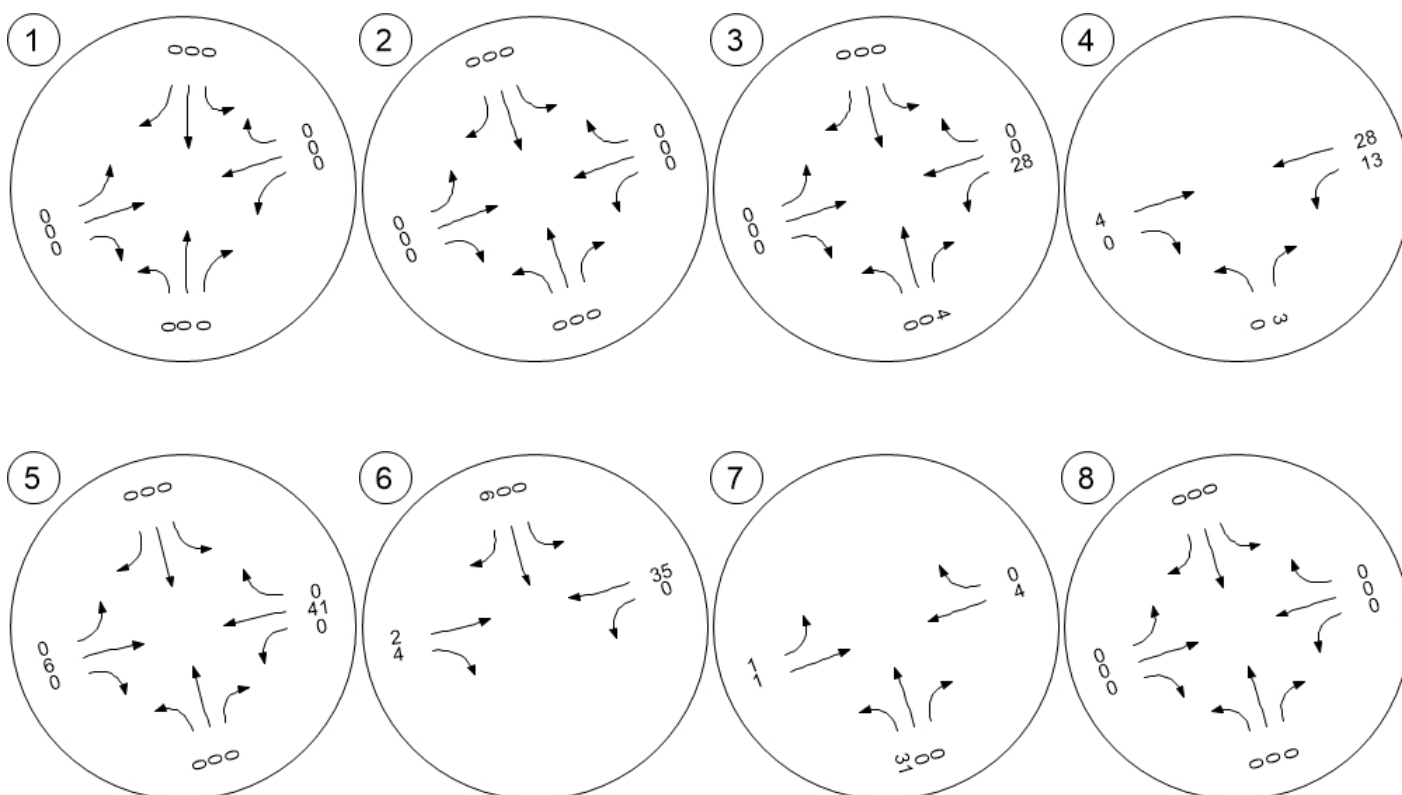


Traffic Volume - In-Process Volume

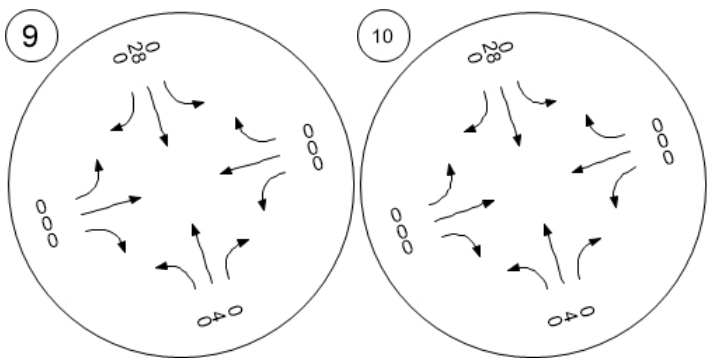




Traffic Volume - Net New Site Trips

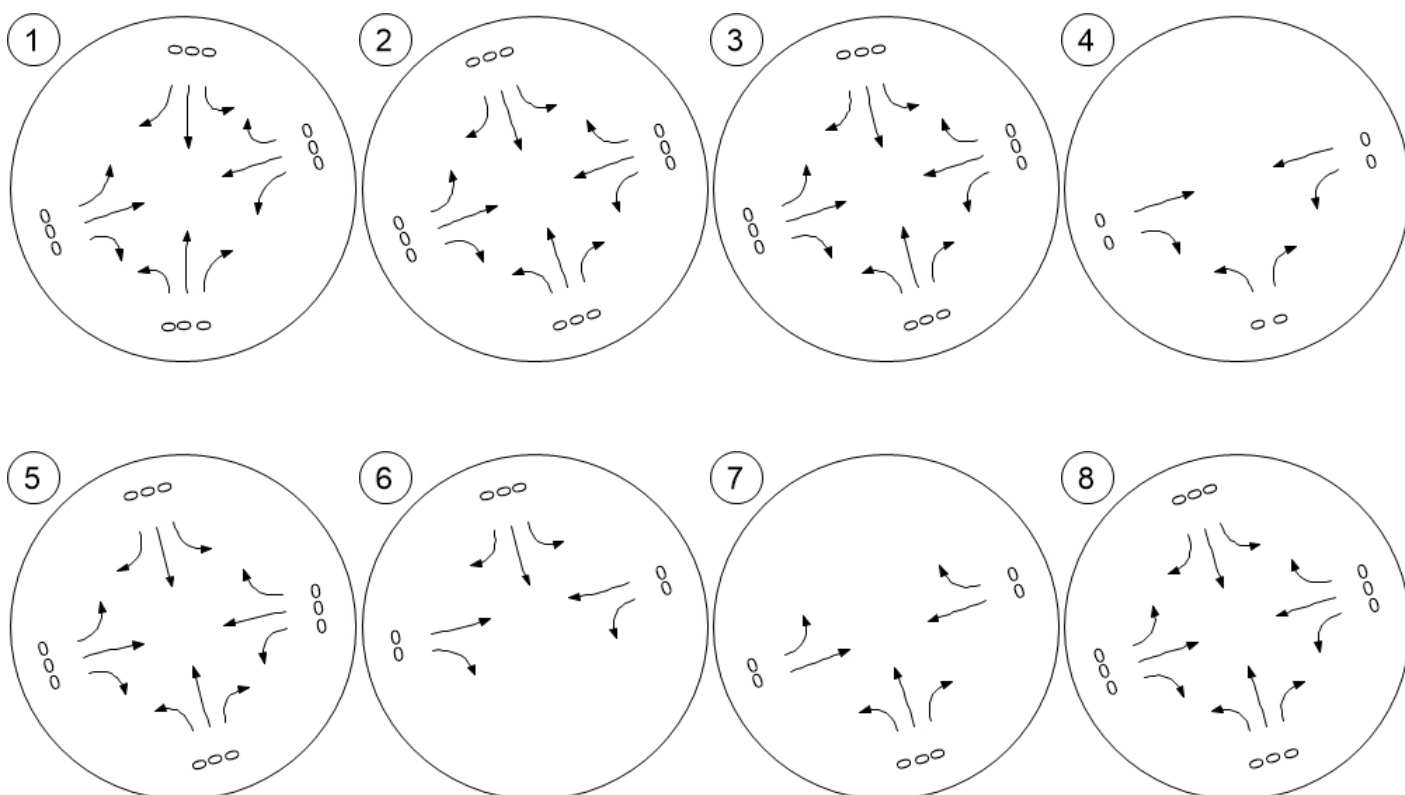


Traffic Volume - Net New Site Trips



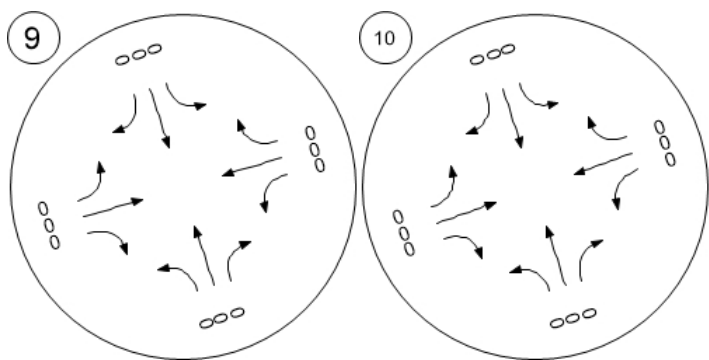


Traffic Volume - Other Volume

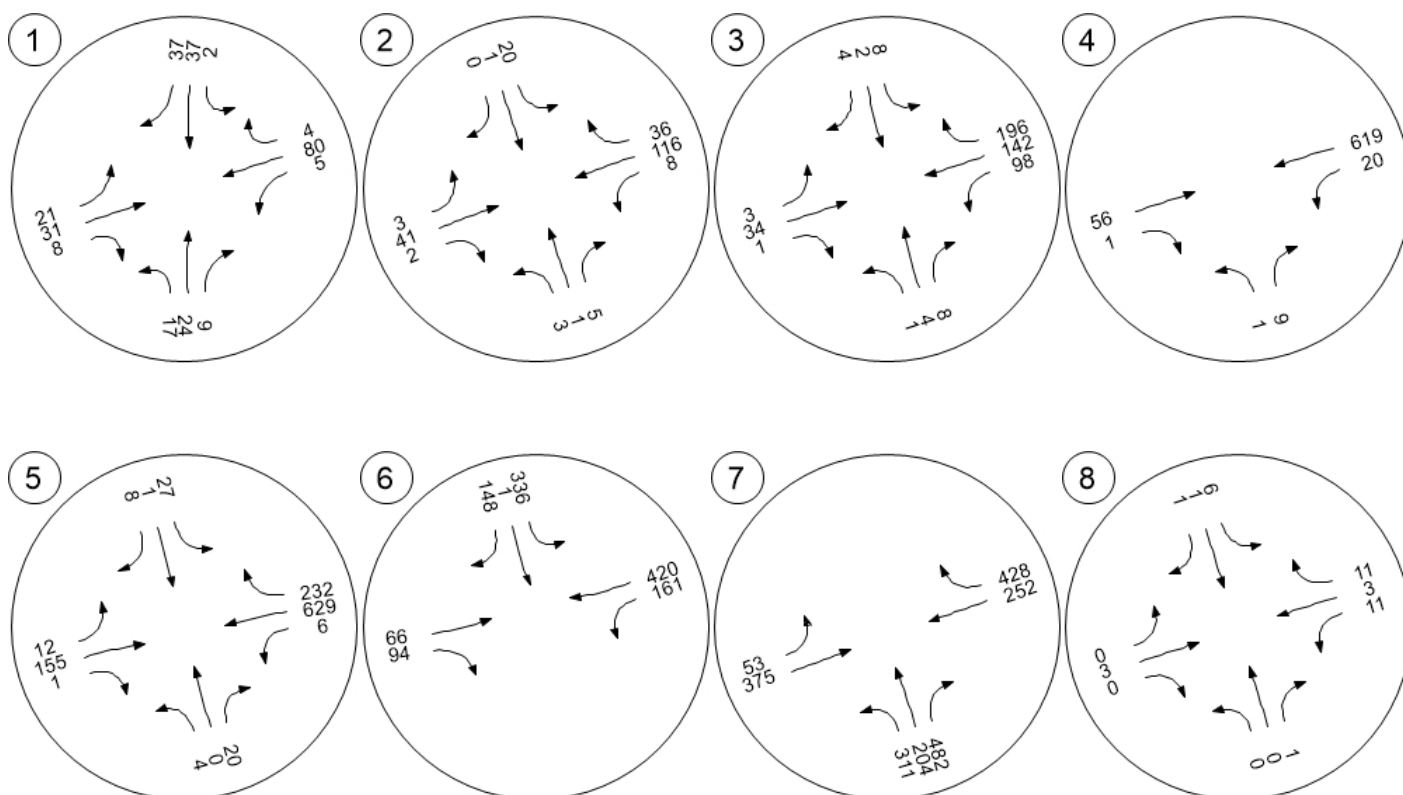




Traffic Volume - Other Volume

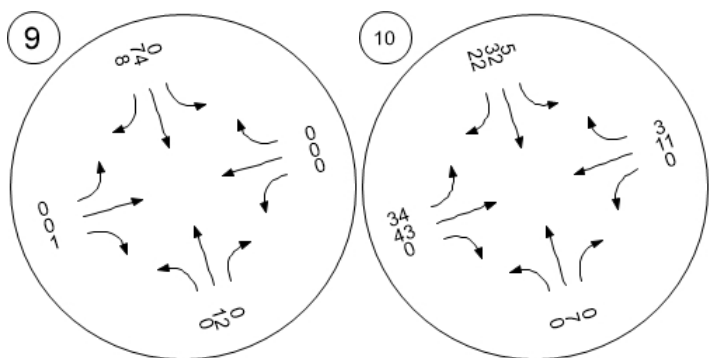


Traffic Volume - Future Total Volume

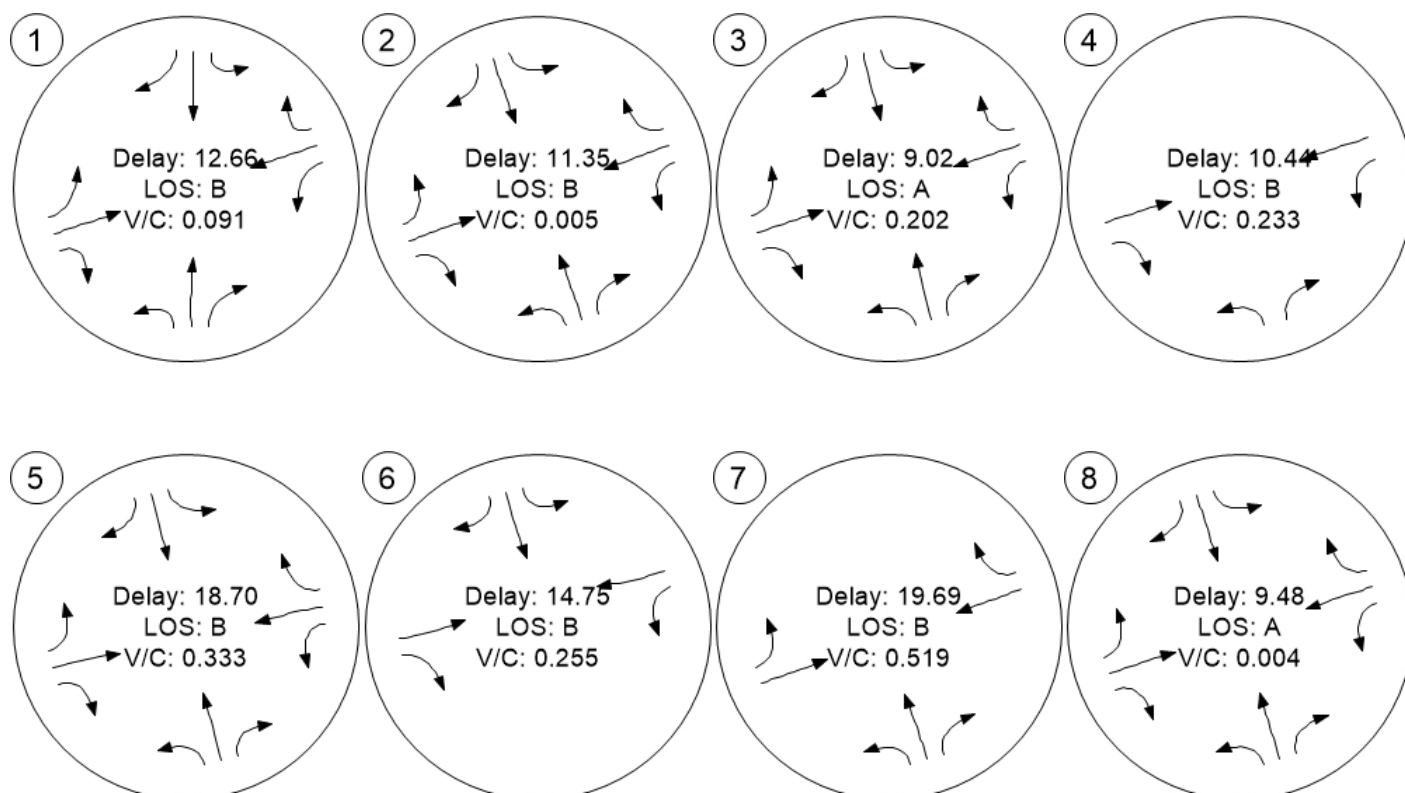




Traffic Volume - Future Total Volume

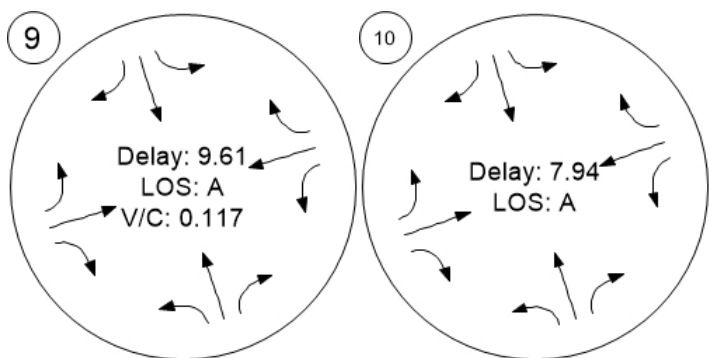


# Traffic Conditions



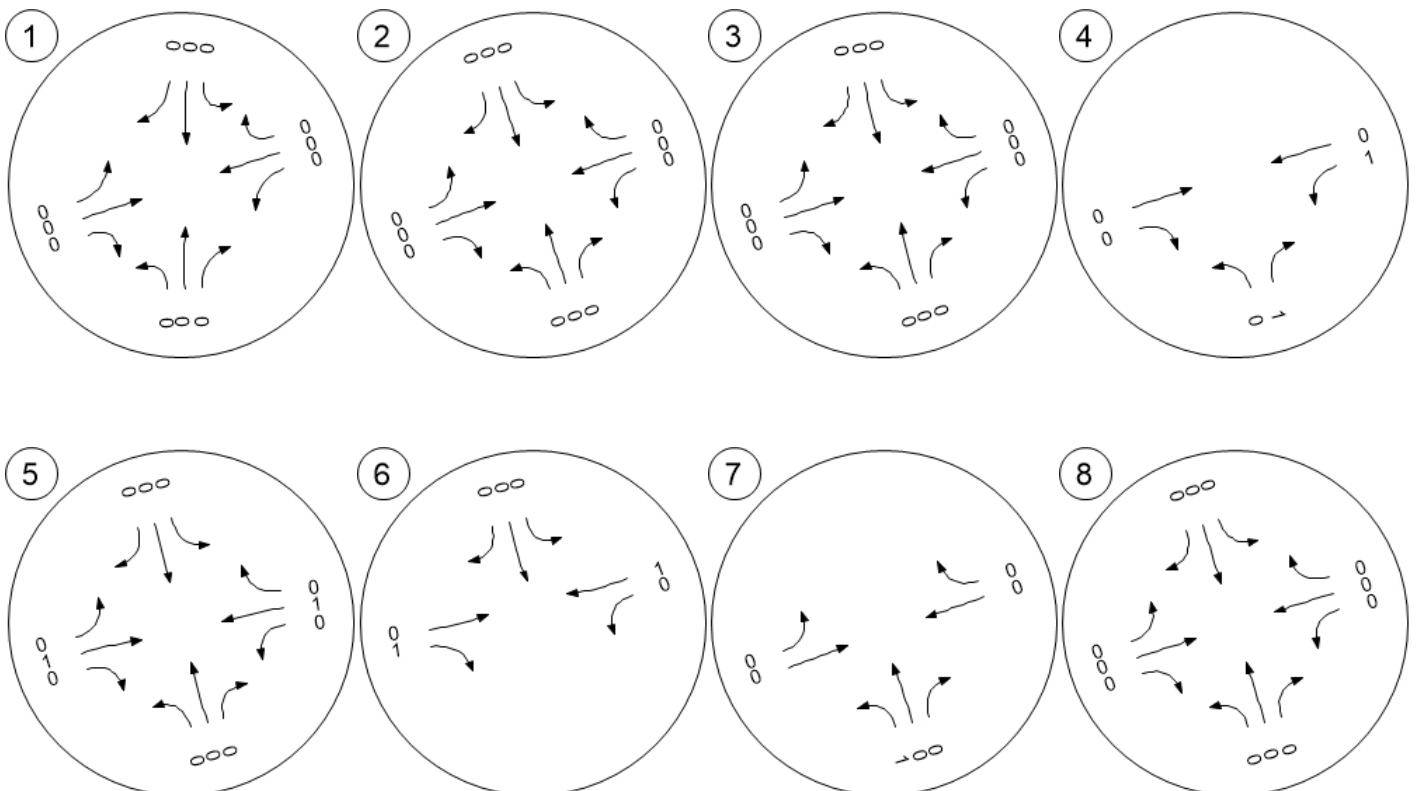


Traffic Conditions

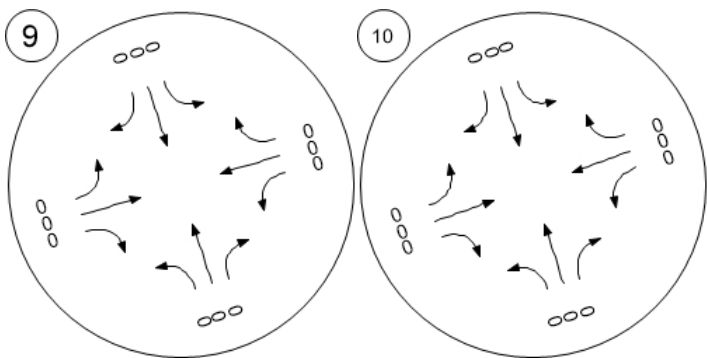




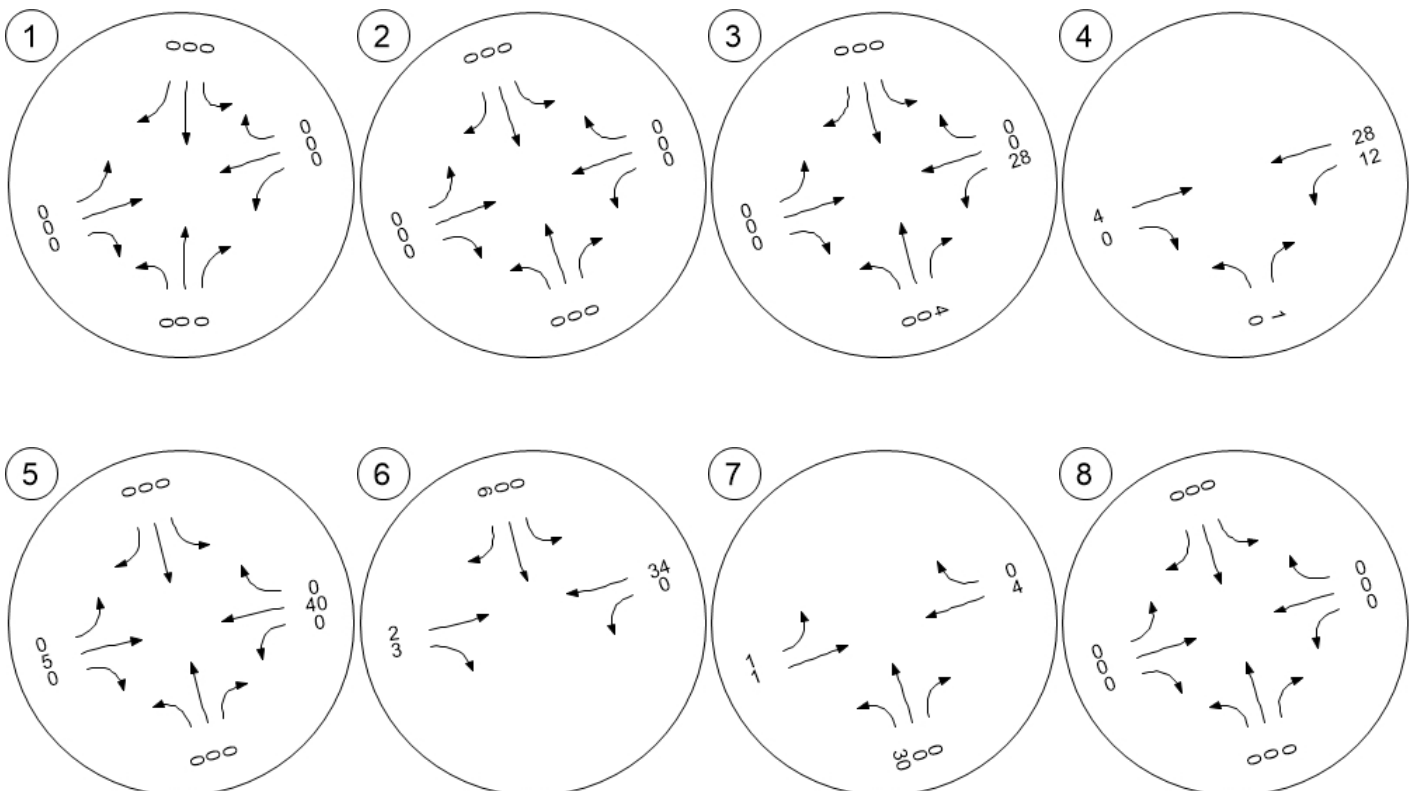
Fair Share - Fair Share Volumes - Zone 30



Fair Share - Fair Share Volumes - Zone 30

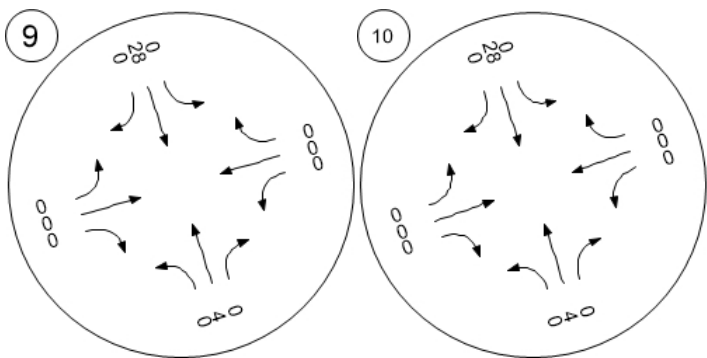


Fair Share - Fair Share Volumes - Zone 31

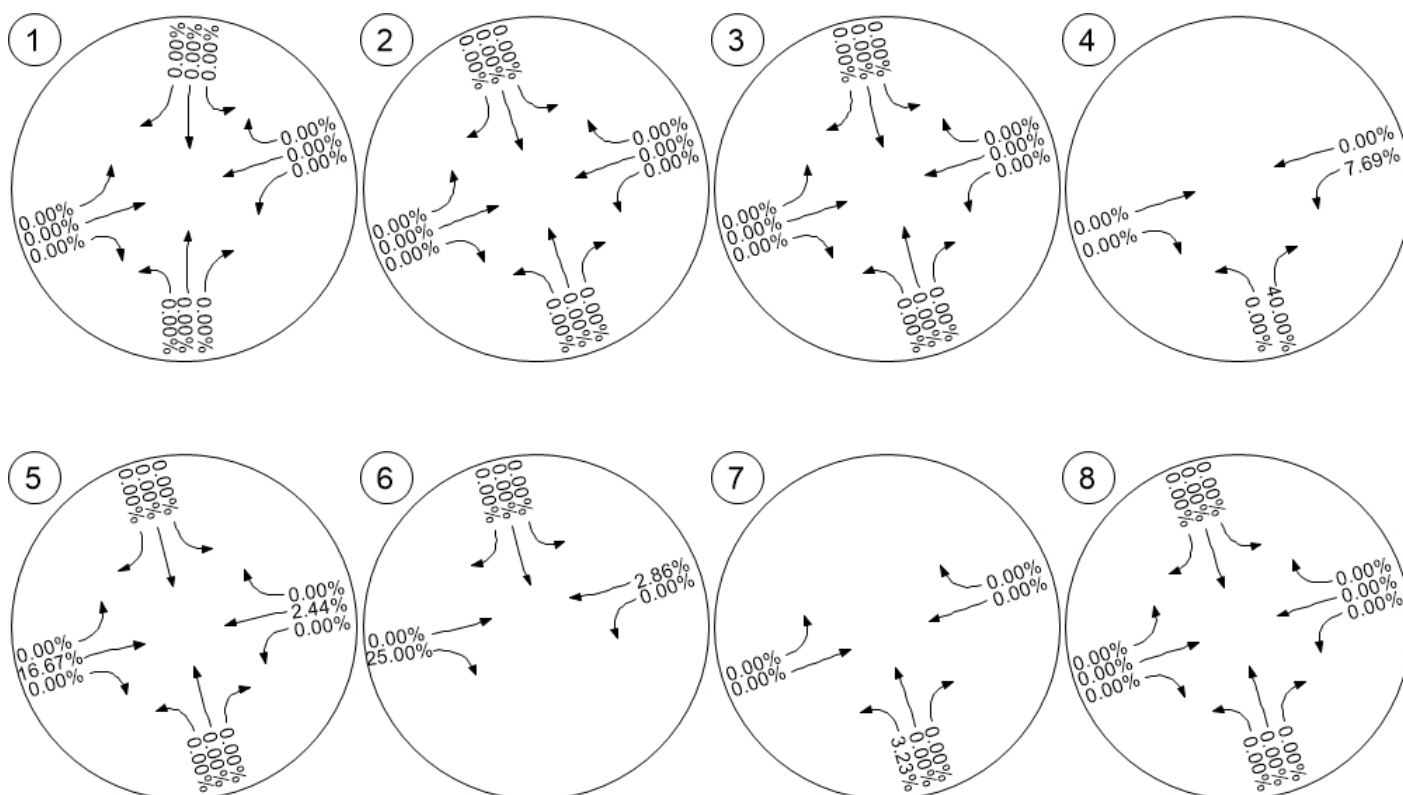




Fair Share - Fair Share Volumes - Zone 31

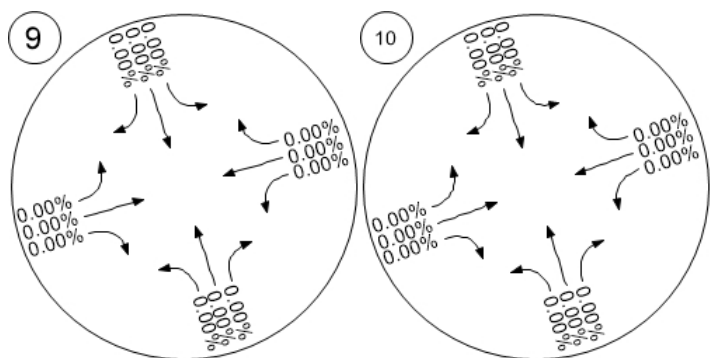
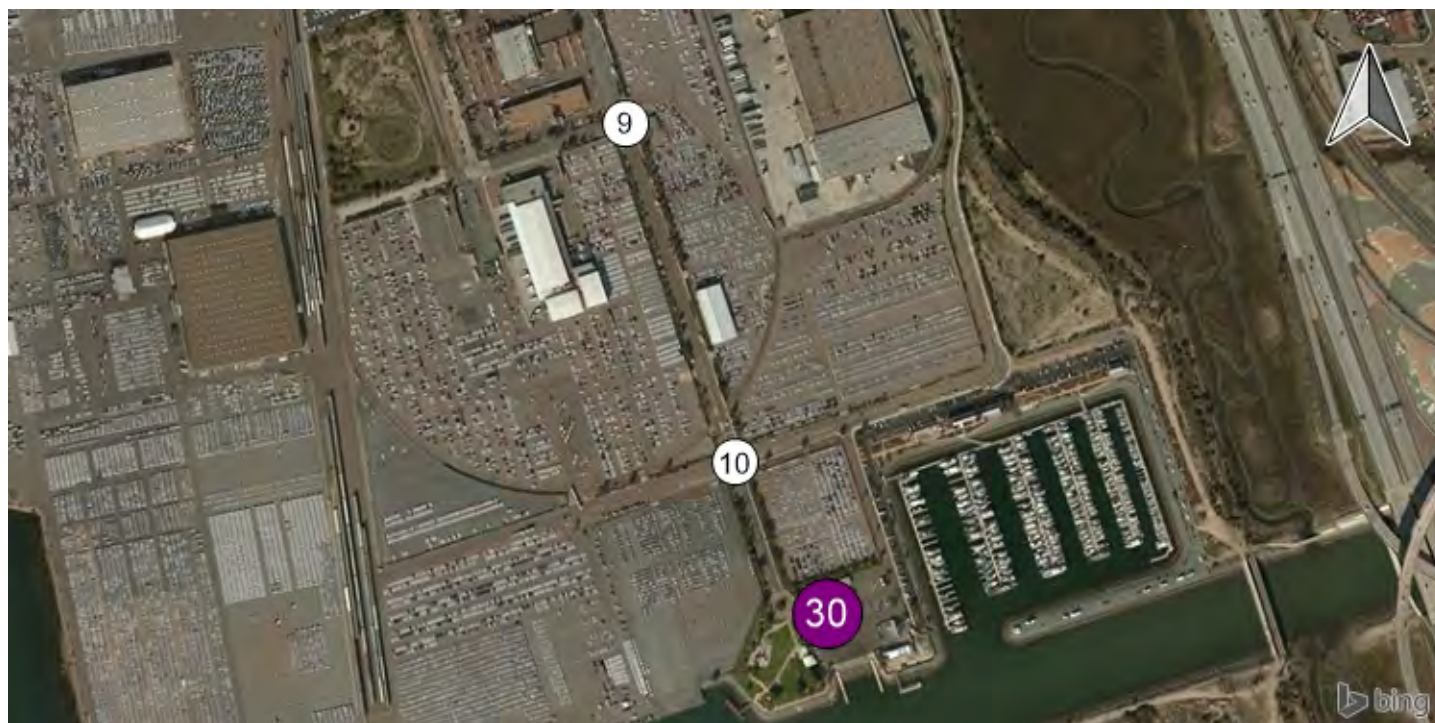


Fair Share - Fair Share % of Net New Site - Zone 30

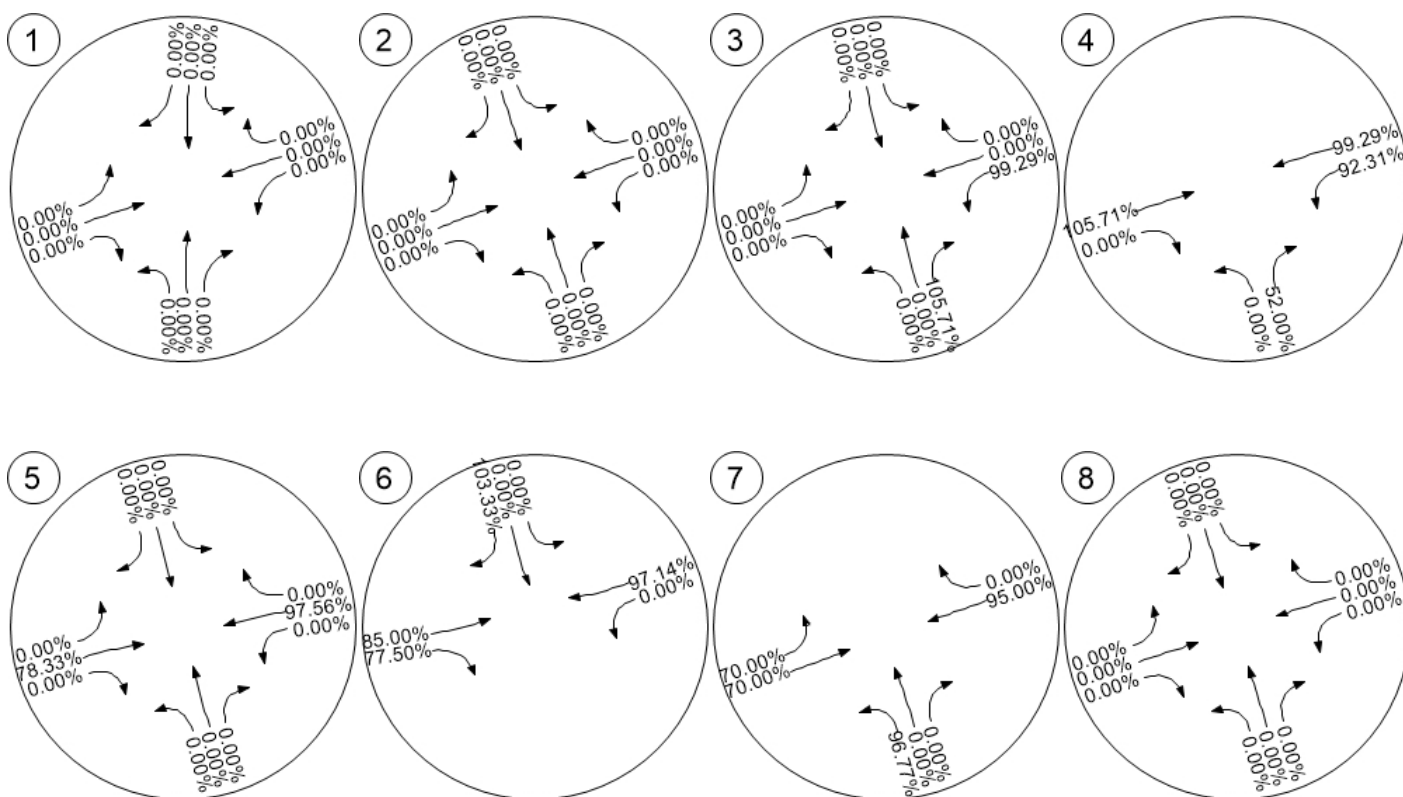




## Fair Share - Fair Share % of Net New Site - Zone 30

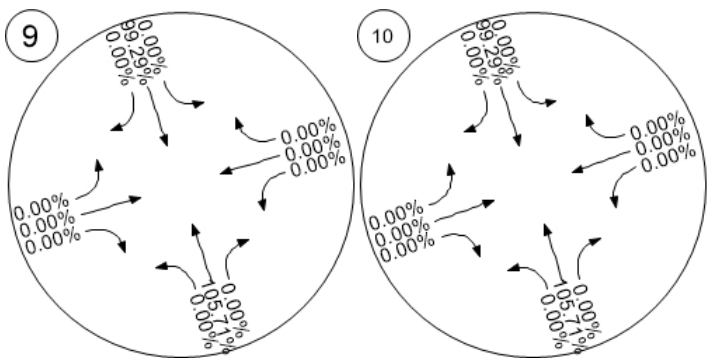
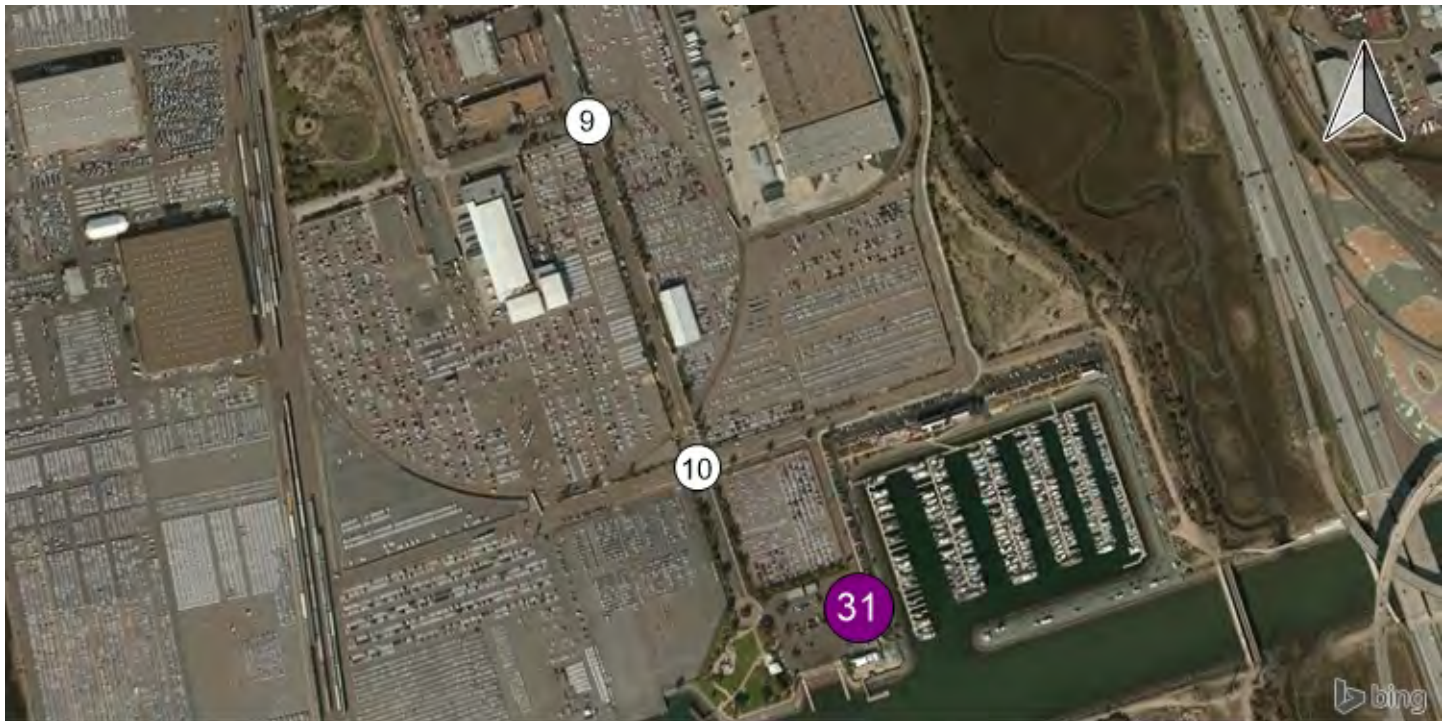


## Fair Share - Fair Share % of Net New Site - Zone 31

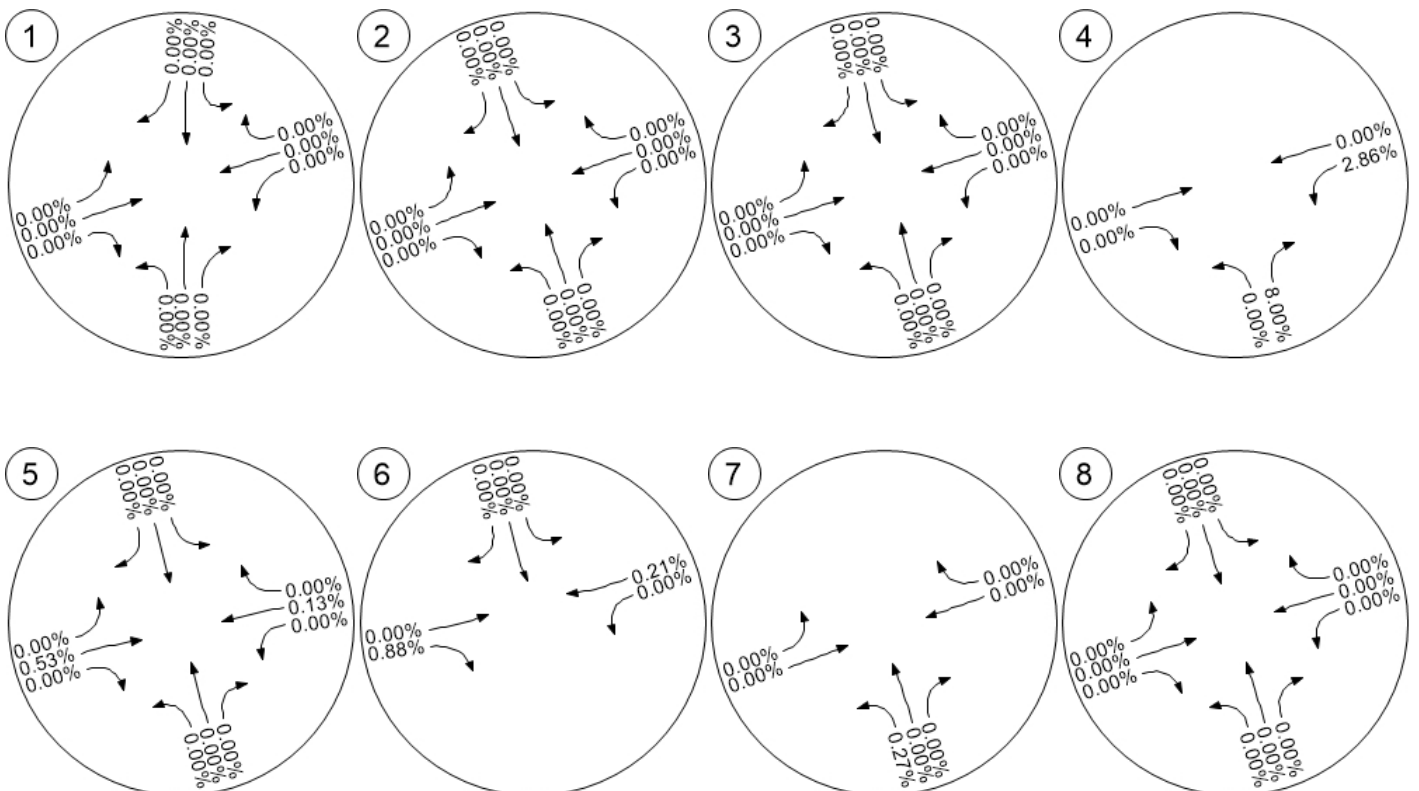




Fair Share - Fair Share % of Net New Site - Zone 31

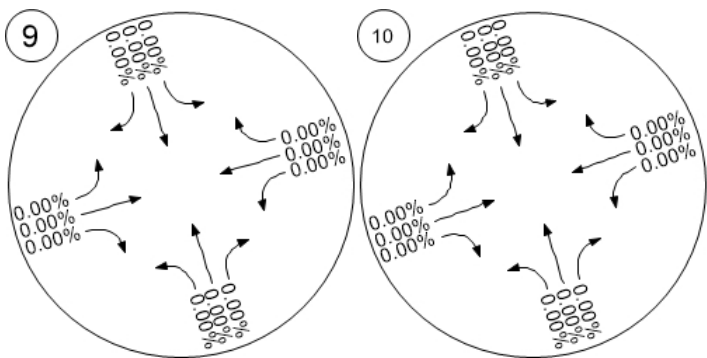


Fair Share - Fair Share % of Total Analysis - Zone 30



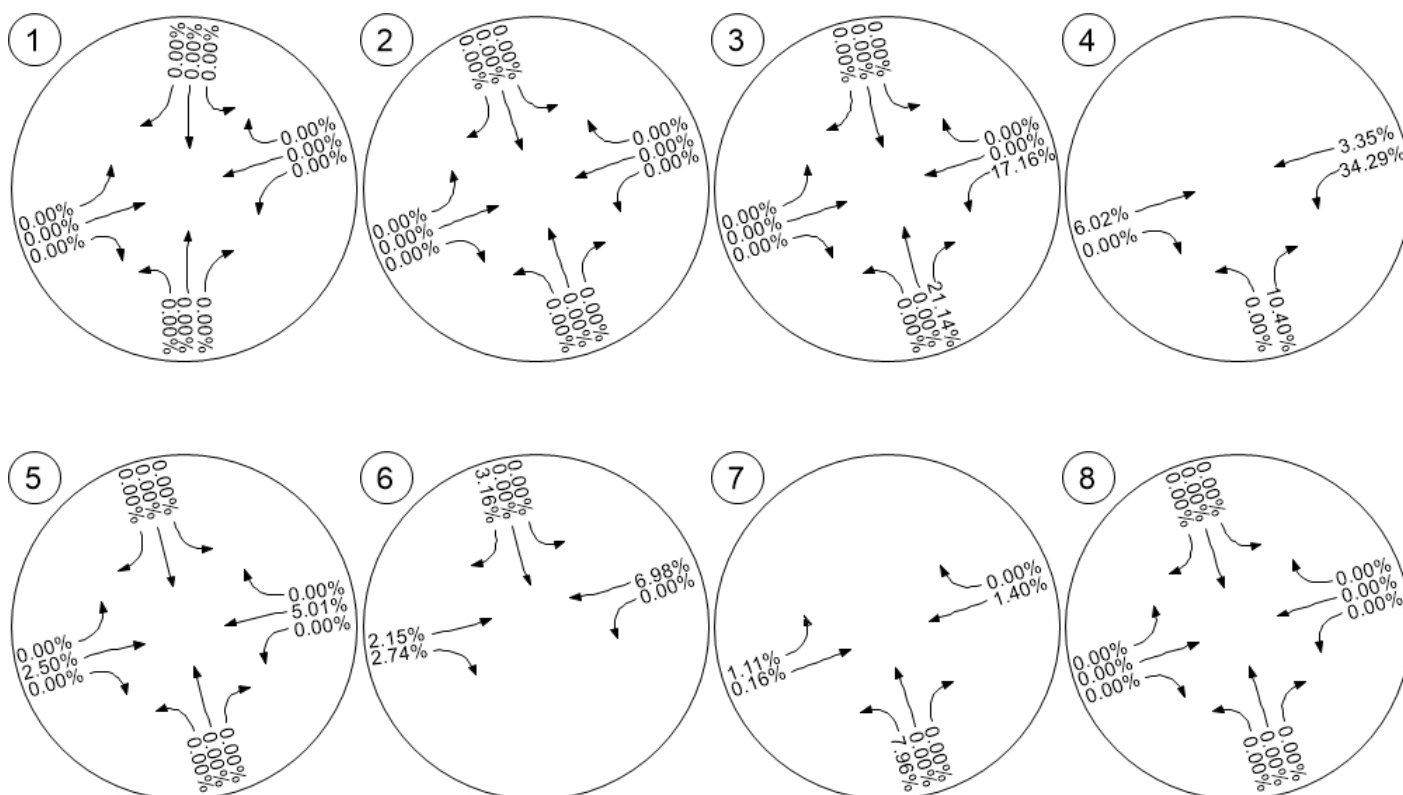


Fair Share - Fair Share % of Total Analysis - Zone 30

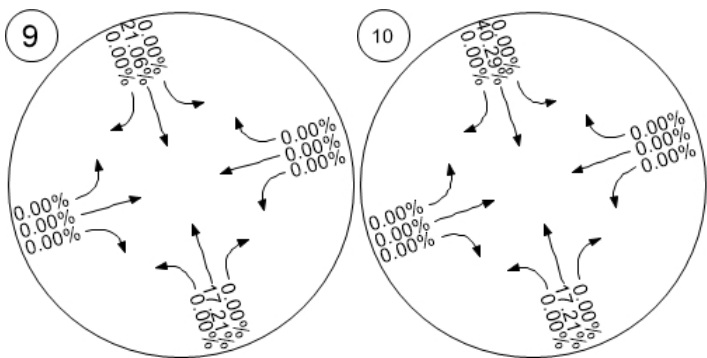




Fair Share - Fair Share % of Total Analysis - Zone 31



Fair Share - Fair Share % of Total Analysis - Zone 31



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 6: Near-Term PM

Report File: P:\...\6. Near-Term PM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.109	12.2	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	NBT	0.000	10.5	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	WBL	0.211	13.6	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.158	19.2	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	WBL	0.286	23.4	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.584	23.9	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.457	14.4	B
8	28th Street / Quay Avenue	Two-way stop	HCM2000	SBT	0.005	9.2	A
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	NBT	0.100	9.8	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.3	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.109

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	15	6	10	24	4	36	56	16	3	2	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	15	6	10	24	4	36	56	16	3	2	4
Peak Hour Factor	0.7900	0.7900	0.7900	0.5900	0.5900	0.5900	0.4400	0.4400	0.4400	0.5770	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	2	4	10	2	20	32	9	1	1	2
Total Analysis Volume [veh/h]	1	19	8	17	41	7	82	127	36	5	4	8
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	32	0	0	32	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	26	26	26	26	32	32
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.01	0.03	0.08	0.01
Total Saturation Flow Adjustment	0.71	0.94	0.73	0.96	0.78	0.78
s, saturation flow rate [veh/h]	1352	1780	1378	1822	2965	2967
c, Capacity [veh/h]	502	661	512	677	1355	1356
d1, Uniform Delay [s]	13.84	14.04	14.00	14.20	11.24	10.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.12	0.12	0.20	0.29	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.04	0.03	0.07	0.18	0.01
d, Delay for Lane Group [s/veh]	13.85	14.16	14.12	14.41	11.54	10.39
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.01	0.37	0.23	0.66	1.65	0.10
50th-Percentile Queue Length [ft]	0.34	9.14	5.77	16.45	41.17	2.61
95th-Percentile Queue Length [veh]	0.03	0.92	0.59	1.63	3.82	0.27
95th-Percentile Queue Length [ft]	0.87	23.12	14.75	40.75	95.49	6.73

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	13.85	14.16	14.16	14.12	14.41	14.41	11.54	11.54	11.54	10.39	10.39	10.39
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	14.15			14.33			11.54			10.39		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.20											
Intersection LOS	B											
Intersection V/C	0.109											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.000

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	6	0	43	25	0	0	1	45	6	13	13	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	43	25	0	0	1	45	6	13	13	2
Peak Hour Factor	0.3100	0.3100	0.3100	0.6900	0.6900	0.6900	0.6500	0.6500	0.6500	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	0	35	9	0	0	0	17	2	4	4	1
Total Analysis Volume [veh/h]	19	0	139	36	0	0	2	69	9	16	16	2
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.02	0.00	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.97	10.46	9.19	9.97	10.04	8.60	7.26	0.00	0.00	7.40	0.00	0.00
Movement LOS	A	B	A	A	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.56	0.56	0.56	0.15	0.15	0.15	0.08	0.04	0.00	0.03	0.02	0.00
95th-Percentile Queue Length [ft]	14.04	14.04	14.04	3.72	3.72	3.72	1.93	0.96	0.00	0.85	0.42	0.00
d_A, Approach Delay [s/veh]	9.29			9.97			0.18			3.48		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.36											
Intersection LOS	B											







### Intersection Level Of Service Report #3: Bay Marina Drive / Tideland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 13.6  
Level Of Service: B  
Volume to Capacity (v/c): 0.211

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	7	14	50	95	10	11	15	72	7	32	40	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	25	0	0	0	0	0	0	25	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	14	75	95	10	11	15	72	7	57	40	41
Peak Hour Factor	0.8100	0.8100	0.8100	0.4900	0.4900	0.4900	0.6700	0.6700	0.6700	0.7600	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	23	48	5	6	6	27	3	19	13	13
Total Analysis Volume [veh/h]	9	17	93	194	20	22	22	107	10	75	53	54
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	31	31	31	31	27	27	27	27	27
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.15	0.02	0.02	0.03	0.06	0.03	0.03
Total Saturation Flow Adjustment	0.72	0.86	0.67	0.90	0.71	0.92	0.66	0.98	0.83
s, saturation flow rate [veh/h]	1359	1627	1278	1716	1342	3501	1263	1863	1583
c, Capacity [veh/h]	602	720	566	760	518	1350	487	718	611
d1, Uniform Delay [s]	10.94	11.65	12.81	11.14	13.43	13.66	14.04	13.59	13.67
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.45	1.65	0.14	0.15	0.13	0.67	0.20	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.15	0.34	0.06	0.04	0.09	0.15	0.07	0.09
d, Delay for Lane Group [s/veh]	10.98	12.10	14.46	11.28	13.58	13.79	14.71	13.79	13.96
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	no	no	yes	no	no	no	yes	no	no
50th-Percentile Queue Length [veh]	0.11	1.42	2.81	0.51	0.29	0.83	1.06	0.71	0.73
50th-Percentile Queue Length [ft]	2.71	35.38	70.27	12.82	7.35	20.77	26.44	17.80	18.34
95th-Percentile Queue Length [veh]	0.28	3.33	6.10	1.28	0.75	2.03	2.55	1.76	1.81
95th-Percentile Queue Length [ft]	6.98	83.26	152.49	32.07	18.69	50.82	63.70	43.92	45.18

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	10.98	12.10	12.10	14.46	11.28	11.28	13.58	13.79	13.79	14.71	13.79	13.96
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.02			13.89			13.76			14.22		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.62											
Intersection LOS	B											
Intersection V/C	0.211											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 19.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.158

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	3	50	227	4	36	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	25	0	12	25
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	62	252	4	48	152
Peak Hour Factor	0.9200	0.9200	0.8370	0.9200	0.9200	0.7690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	17	75	1	13	49
Total Analysis Volume [veh/h]	3	67	301	4	52	198
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	38	0	15	53
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	32	11	47
g / C, Green / Cycle	0.34	0.34	0.36	0.12	0.52
(v / s)_i Volume / Saturation Flow Rate	0.00	0.04	0.09	0.03	0.06
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3540	1770	3547
c, Capacity [veh/h]	610	545	1259	216	1852
d1, Uniform Delay [s]	19.37	20.19	20.45	35.72	10.88
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.46	0.46	2.61	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.12	0.24	0.24	0.11
d, Delay for Lane Group [s/veh]	19.39	20.66	20.91	38.34	11.00
Lane Group LOS	B	C	C	D	B
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.05	1.25	3.10	1.30	1.45
50th-Percentile Queue Length [ft]	1.33	31.28	77.41	32.47	36.24
95th-Percentile Queue Length [veh]	0.14	2.98	6.62	3.08	3.40
95th-Percentile Queue Length [ft]	3.45	74.39	165.53	76.99	85.10

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	19.39	20.66	20.91	20.91	38.34	11.00
Movement LOS	B	C	C	C	D	B
d_A, Approach Delay [s/veh]	20.60		20.91		16.68	
Approach LOS	C		C		B	
d_I, Intersection Delay [s/veh]	19.18					
Intersection LOS	B					
Intersection V/C	0.158					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.4  
Level Of Service: C  
Volume to Capacity (v/c): 0.286

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	25	313	5	14	8	281	3	28	130	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	37	0	0	37	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	25	313	5	14	8	318	3	28	167	88
Peak Hour Factor	0.6900	0.6900	0.6900	0.5900	0.5900	0.5900	0.8600	0.8600	0.8600	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	133	2	6	2	92	1	8	50	27
Total Analysis Volume [veh/h]	0	0	36	531	8	24	9	370	3	34	201	106
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	27	0	9	19	0	9	19	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	23	5	15	5	15
g / C, Green / Cycle	0.16	0.16	0.33	0.07	0.21	0.07	0.21
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.17	0.01	0.07	0.02	0.09
Total Saturation Flow Adjustment	0.93	0.83	0.89	0.93	0.89	0.93	0.88
s, saturation flow rate [veh/h]	1770	1583	3365	1770	5068	1770	3363
c, Capacity [veh/h]	278	249	1106	126	1086	126	721
d1, Uniform Delay [s]	24.86	25.44	18.95	30.33	23.32	30.77	23.78
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.22	1.68	1.09	0.86	5.16	1.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.14	0.51	0.07	0.34	0.27	0.43
d, Delay for Lane Group [s/veh]	24.86	26.66	20.62	31.42	24.19	35.93	25.62
Lane Group LOS	C	C	C	C	C	D	C
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.00	0.66	5.30	0.18	2.52	0.71	3.07
50th-Percentile Queue Length [ft]	0.00	16.62	132.57	4.51	62.98	17.70	76.66
95th-Percentile Queue Length [veh]	0.00	1.65	10.32	0.46	5.55	1.75	6.57
95th-Percentile Queue Length [ft]	0.00	41.14	258.02	11.58	138.83	43.69	164.17

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	24.86	26.66	26.66	20.62	20.62	20.62	31.42	24.19	24.19	35.93	25.62	25.62
Movement LOS	C	C	C	C	C	C	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.66			20.62			24.36			26.65		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	23.42											
Intersection LOS	C											
Intersection V/C	0.286											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.9  
Level Of Service: C  
Volume to Capacity (v/c): 0.584

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T T T			T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	645	14	50	0	204	340	368	131	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	6	0	6	31	0	31	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	645	14	56	0	210	371	368	162	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100	1.0000	0.9400	0.9400	0.8900	0.8900	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	177	4	15	0	56	99	103	46	0
Total Analysis Volume [veh/h]	0	0	0	709	15	62	0	223	395	413	182	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	22	0	0	24	0	14	38	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		17	17	19	19	10	33
g / C, Green / Cycle		0.29	0.29	0.32	0.32	0.16	0.56
(v / s)_i Volume / Saturation Flow Rate		0.21	0.04	0.06	0.25	0.12	0.05
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3381	1583	3547	1583	3437	3547
c, Capacity [veh/h]		981	459	1147	512	561	1974
d1, Uniform Delay [s]		19.24	15.74	14.66	18.30	23.87	6.22
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		4.97	0.61	0.38	10.75	8.34	0.09
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.74	0.14	0.19	0.77	0.74	0.09
d, Delay for Lane Group [s/veh]		24.21	16.35	15.04	29.05	32.21	6.31
Lane Group LOS		C	B	B	C	C	A
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		7.13	0.84	1.55	7.57	4.29	0.83
50th-Percentile Queue Length [ft]		178.33	21.03	38.87	189.26	107.18	20.85
95th-Percentile Queue Length [veh]		13.13	2.06	3.63	13.78	8.68	2.04
95th-Percentile Queue Length [ft]		328.15	51.43	90.67	344.46	216.95	51.01



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	24.21	24.21	16.35	0.00	15.04	29.05	32.21	6.31	0.00
Movement LOS				C	C	B		B	C	C	A	
d_A, Approach Delay [s/veh]	0.00			23.59			24.00			24.29		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	23.93											
Intersection LOS	C											
Intersection V/C	0.584											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.4  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.457

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	75	3	374	0	0	0	133	704	0	0	427	439
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	0	0	0	0	6	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	3	374	0	0	0	139	704	0	0	427	439
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	1	99	0	0	0	37	189	0	0	115	118
Total Analysis Volume [veh/h]	113	3	398	0	0	0	149	757	0	0	459	472
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	16	0	0	0	0	10	44	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	11		6	39	29	29
g / C, Green / Cycle	0.19		0.10	0.66	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.12		0.04	0.21	0.25	0.30
Total Saturation Flow Adjustment	0.78		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4436		3437	3547	1863	1583
c, Capacity [veh/h]	843		332	2329	913	776
d1, Uniform Delay [s]	22.26		25.59	4.50	10.35	11.12
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.28		4.33	0.37	1.98	3.53
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.61		0.45	0.33	0.50	0.61
d, Delay for Lane Group [s/veh]	25.54		29.92	4.87	12.33	14.65
Lane Group LOS	C		C	A	B	B
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	3.45		1.41	3.37	5.98	6.80
50th-Percentile Queue Length [ft]	86.28		35.18	84.18	149.55	170.08
95th-Percentile Queue Length [veh]	7.25		3.31	7.10	11.38	12.63
95th-Percentile Queue Length [ft]	181.31		82.84	177.61	284.48	315.76

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	25.54	25.54	25.54	0.00	0.00	0.00	29.92	4.87	0.00	0.00	12.33	14.65
Movement LOS	C	C	C				C	A			B	B
d_A, Approach Delay [s/veh]	25.54			0.00			8.99			13.51		
Approach LOS	C			A			A			B		
d_I, Intersection Delay [s/veh]	14.40											
Intersection LOS	B											
Intersection V/C	0.457											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.2  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	3	0	9	2	0	0	2	0	2	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	3	0	9	2	0	0	2	0	2	0	1
Peak Hour Factor	0.3800	0.3800	0.3800	0.5500	0.5500	0.5500	0.2500	0.2500	0.2500	0.7500	0.7500	0.7500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	4	1	0	0	2	0	1	0	0
Total Analysis Volume [veh/h]	0	8	0	16	4	0	0	8	0	3	0	1
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.66	9.14	8.39	8.73	9.18	8.40	7.22	0.00	0.00	7.24	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.03	0.03	0.03	0.06	0.06	0.06	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft]	0.69	0.69	0.69	1.59	1.59	1.59	0.00	0.00	0.00	0.19	0.19	0.19
d_A, Approach Delay [s/veh]	9.14			8.82			0.00			5.43		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.78											
Intersection LOS	A											

**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.8  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.100

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	44	1	4	37	6	5	0	8	0	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	0	0	25	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	69	1	4	62	6	5	0	8	0	0	4
Peak Hour Factor	0.8200	0.8200	0.8200	0.9000	0.9000	0.9000	0.4600	0.4600	0.4600	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	21	0	1	17	2	3	0	4	0	0	4
Total Analysis Volume [veh/h]	1	84	1	4	69	7	11	0	17	0	0	16
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0



**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.10	0.00	0.00	0.08	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.74	9.78	8.84	9.76	9.73	8.79	7.26	0.00	0.00	7.25	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.34	0.34	0.34	0.31	0.31	0.31	0.05	0.05	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	8.51	8.51	8.51	7.72	7.72	7.72	1.33	1.33	1.33	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.76			9.65			2.85			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.05											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.3  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	3	6	13	9	54	4	0	6	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	0	0	25	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	33	3	6	38	9	54	4	0	6	1	2
Peak Hour Factor	0.6900	0.6900	0.9200	0.9200	0.7800	0.7800	0.6900	0.9200	0.6900	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	12	1	2	12	3	20	1	0	2	0	1
Total Analysis Volume [veh/h]	0	48	3	7	49	12	78	4	0	7	1	2
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.22	0.25	0.04	0.40	0.02	0.00	0.03	0.00	0.01
95th-Percentile Queue Length [ft]	5.60	6.27	1.07	9.90	0.41	0.00	0.82	0.11	0.18
Approach Delay [s/veh]	8.28	7.90		8.76			8.01		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.33								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 6: Near-Term PM

Report File: P:\...\6. Near-Term PM.pdf

4/27/2016

## Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	1	15	6	10	24	4	36	56	16	3	2	4	177

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	6	0	43	25	0	0	1	45	6	13	13	2	154

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	7	14	75	95	10	11	15	72	7	57	40	41	444

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	3	62	252	4	48	152	521

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	0	0	25	313	5	14	8	318	3	28	167	88	969

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	645	14	56	210	371	368	162	1826

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	106	3	374	139	704	427	439	2192

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	0	3	0	9	2	0	0	2	0	2	0	1	19

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	1	69	1	4	62	6	5	0	8	0	0	4	160

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	33	3	6	38	9	54	4	0	6	1	2	156



## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 6: Near-Term PM

Report File: P:\...16. Near-Term PM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	1	15	6	10	24	4	36	56	16	3	2	4	177
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>15</b>	<b>6</b>	<b>10</b>	<b>24</b>	<b>4</b>	<b>36</b>	<b>56</b>	<b>16</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>177</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	6	0	43	25	0	0	1	45	6	13	13	2	154
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>6</b>	<b>0</b>	<b>43</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>45</b>	<b>6</b>	<b>13</b>	<b>13</b>	<b>2</b>	<b>154</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	7	14	50	95	10	11	15	72	7	32	40	41	394
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	25	0	0	0	0	0	0	25	0	0	50
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>7</b>	<b>14</b>	<b>75</b>	<b>95</b>	<b>10</b>	<b>11</b>	<b>15</b>	<b>72</b>	<b>7</b>	<b>57</b>	<b>40</b>	<b>41</b>	<b>444</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	3	50	227	4	36	127	447
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	12	25	0	12	25	74
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>62</b>	<b>252</b>	<b>4</b>	<b>48</b>	<b>152</b>	<b>521</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	0	0	25	313	5	14	8	281	3	28	130	88	895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	37	0	0	37	0	74
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>313</b>	<b>5</b>	<b>14</b>	<b>8</b>	<b>318</b>	<b>3</b>	<b>28</b>	<b>167</b>	<b>88</b>	<b>969</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	645	14	50	204	340	368	131	1752
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	6	31	0	31	74
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>645</b>	<b>14</b>	<b>56</b>	<b>210</b>	<b>371</b>	<b>368</b>	<b>162</b>	<b>1826</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	75	3	374	133	704	427	439	2155
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	31	0	0	6	0	0	0	37
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>106</b>	<b>3</b>	<b>374</b>	<b>139</b>	<b>704</b>	<b>427</b>	<b>439</b>	<b>2192</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	Final Base	0	3	0	9	2	0	0	2	0	2	0	1	19
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>19</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	Final Base	1	44	1	4	37	6	5	0	8	0	0	4	110
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	25	0	0	25	0	0	0	0	0	0	0	50
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>69</b>	<b>1</b>	<b>4</b>	<b>62</b>	<b>6</b>	<b>5</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>160</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	8	3	6	13	9	54	4	0	6	1	2	106
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	25	0	0	25	0	0	0	0	0	0	0	50
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>33</b>	<b>3</b>	<b>6</b>	<b>38</b>	<b>9</b>	<b>54</b>	<b>4</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>156</b>

## NCMT Tank Farm Redevelopment

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appendices.vistro

Scenario 6: Near-Term PM

Report File: P:\...\6. Near-Term PM.pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	2	38	16	34	82	14	164	254	72	10	8	16	

Intersection 2: Bay Marina Drive / Quay Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	38	0	278	72	0	0	4	138	18	32	32	4	

Intersection 3: Bay Marina Drive / Tidlands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	25	0	0	0	0	0	0	25	0	0	50
Total Volume	0	0	25	0	0	0	0	0	0	25	0	0	
Total Analysis Volume	18	34	186	388	40	44	44	214	20	150	106	108	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
30: AC Students	0	1	0	0	1	0	2
31: AC Adults	0	11	25	0	11	25	72
Total Volume	0	12	25	0	12	25	
Total Analysis Volume	6	134	602	8	104	396	

## Intersection 5: Bay Marina Drive / Cleveland Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	1	0	0	1	0	2
31: AC Adults	0	0	0	0	0	0	0	36	0	0	36	0	72
Total Volume	0	0	0	0	0	0	0	37	0	0	37	0	
Total Analysis Volume	0	0	72	1062	16	48	18	740	6	68	402	212	

## Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive

Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
30: AC Students	0	0	0	0	1	0	1	2
31: AC Adults	0	0	6	6	30	0	30	72
Total Volume	0	0	6	6	31	0	31	
Total Analysis Volume	1418	30	124	446	790	826	364	

## Intersection 7: I-5 NB On-Ramp and Bay Marina

Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
30: AC Students	1	0	0	0	0	0	0	1
31: AC Adults	30	0	0	6	0	0	0	36
Total Volume	31	0	0	6	0	0	0	
Total Analysis Volume	226	6	796	298	1514	918	944	

## Intersection 8: 28th Street / Quay Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	0	16	0	32	8	0	0	16	0	6	0	2	

## Intersection 9: 28th Street / Tidelands Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	25	0	0	25	0	0	0	0	0	0	0	50
Total Volume	0	25	0	0	25	0	0	0	0	0	0	0	
Total Analysis Volume	2	168	2	8	138	14	22	0	34	0	0	32	



Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	25	0	0	25	0	0	0	0	0	0	0	50
Total Volume	0	25	0	0	25	0	0	0	0	0	0	0	
Total Analysis Volume	0	96	6	14	98	24	156	8	0	14	2	4	

## NCMT Tank Farm Redevelopment

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Scenario 6: Near-Term PM

Report File: P:\...\6. Near-Term PM.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidlands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0%	0	0	0	0	0	0	0%	0	0	0.00%
31: AC Adults	0	0	100%	0	0	0	0	0	0	100%	0	0	100.00%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
30: AC Students	0	8.47%	0%	0	8.47%	0%	4.24%
31: AC Adults	0	91.53%	100%	0	91.53%	100%	95.77%
Total	0.00%	100.00%	100.00%	0.00%	100.00%	100.00%	

## Intersection 5: Bay Marina Drive / Cleveland Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	2.7%	0	0	2.7%	0	2.69%
31: AC Adults	0	0	0	0	0	0	0	97.84%	0	0	97.84%	0	97.31%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.54%	0.00%	0.00%	100.54%	0.00%	

## Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive

Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
30: AC Students	0	0	0%	0%	3.23%	0	3.23%	1.59%
31: AC Adults	0	0	103.33%	103.33%	96.77%	0	96.77%	98.41%
Total	0.00%	0.00%	103.33%	103.33%	100.00%	0.00%	100.00%	

## Intersection 7: I-5 NB On-Ramp and Bay Marina

Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
30: AC Students	3.23%	0	0	0%	0	0	0	1.59%
31: AC Adults	96.77%	0	0	103.33%	0	0	0	98.41%
Total	100.00%	0.00%	0.00%	103.33%	0.00%	0.00%	0.00%	

## Intersection 8: 28th Street / Quay Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	NaN%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## Intersection 9: 28th Street / Tidelands Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	100%	0	0	100%	0	0	0	0	0	0	0	100.00%
Total	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	100%	0	0	100%	0	0	0	0	0	0	0	100.00%
Total	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

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Scenario 6: Near-Term PM

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4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 3: Bay Marina Drive / Tideland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0%	0	0	0	0	0	0	0%	0	0	0.00%
31: AC Adults	0	0	21.32%	0	0	0	0	0	0	25.15%	0	0	3.44%
Total	0.00%	0.00%	21.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.15%	0.00%	0.00%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
30: AC Students	0	1.27%	0%	0	1.57%	0%	0.23%
31: AC Adults	0	13.71%	7.73%	0	16.93%	11.29%	3.97%
Total	0.00%	14.98%	7.73%	0.00%	18.50%	11.29%	



## Intersection 5: Bay Marina Drive / Cleveland Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0.25%	0	0	0.42%	0	0.03%
31: AC Adults	0	0	0	0	0	0	0	8.89%	0	0	15.21%	0	0.91%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.14%	0.00%	0.00%	15.63%	0.00%	

## Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive

Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
30: AC Students	0	0	0%	0%	0.23%	0	0.47%	0.02%
31: AC Adults	0	0	9.12%	2.71%	7.04%	0	14.08%	0.82%
Total	0.00%	0.00%	9.12%	2.71%	7.27%	0.00%	14.55%	

## Intersection 7: I-5 NB On-Ramp and Bay Marina

Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
30: AC Students	0.69%	0	0	0%	0	0	0	0.01%
31: AC Adults	20.83%	0	0	4%	0	0	0	0.53%
Total	21.52%	0.00%	0.00%	4.00%	0.00%	0.00%	0.00%	

## Intersection 8: 28th Street / Quay Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## Intersection 9: 28th Street / Tidelands Avenue

Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	23.08%	0	0	26.75%	0	0	0	0	0	0	0	11.86%
Total	0.00%	23.08%	0.00%	0.00%	26.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	34.43%	0	0	33.96%	0	0	0	0	0	0	0	16.21%
Total	0.00%	34.43%	0.00%	0.00%	33.96%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	28	52	49	25
2	27	50	47	24
3	26	49	46	24
4	22	42	39	20
5	21	40	37	19
6	19	35	33	17
7	18	33	31	16
8	17	31	29	15
9	13	25	24	12
10	13	23	22	11
11	13	23	22	11
12	12	22	21	11
13	11	20	19	10
14	10	19	18	9
15	10	19	18	9
16	10	18	17	9
17	6	10	10	5
18	3	6	5	3
19	3	5	5	3
20	1	2	2	1
21	1	2	1	1
22	1	2	1	1
23	1	1	1	1
24	1	1	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	80	2	74	No	No	No	No	No	No	No	No	No	No
2	4	77	2	71	No	No	No	No	No	No	No	No	No	No
3	4	75	2	70	No	No	No	No	No	No	No	No	No	No
4	4	64	2	59	No	No	No	No	No	No	No	No	No	No
5	4	61	2	56	No	No	No	No	No	No	No	No	No	No
6	4	54	2	50	No	No	No	No	No	No	No	No	No	No
7	4	51	2	47	No	No	No	No	No	No	No	No	No	No
8	4	48	2	44	No	No	No	No	No	No	No	No	No	No
9	4	38	2	36	No	No	No	No	No	No	No	No	No	No
10	4	36	2	33	No	No	No	No	No	No	No	No	No	No
11	4	36	2	33	No	No	No	No	No	No	No	No	No	No
12	4	34	2	32	No	No	No	No	No	No	No	No	No	No
13	4	31	2	29	No	No	No	No	No	No	No	No	No	No
14	4	29	2	27	No	No	No	No	No	No	No	No	No	No
15	4	29	2	27	No	No	No	No	No	No	No	No	No	No
16	4	28	2	26	No	No	No	No	No	No	No	No	No	No
17	4	16	2	15	No	No	No	No	No	No	No	No	No	No
18	4	9	2	8	No	No	No	No	No	No	No	No	No	No
19	4	8	2	8	No	No	No	No	No	No	No	No	No	No
20	4	3	2	3	No	No	No	No	No	No	No	No	No	No
21	4	3	2	2	No	No	No	No	No	No	No	No	No	No
22	4	3	2	2	No	No	No	No	No	No	No	No	No	No
23	4	2	2	2	No	No	No	No	No	No	No	No	No	No
24	4	2	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.3	10
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07	0:04
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	49	25
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	154	154
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	3	2	3	11
2	3	2	3	11
3	3	2	3	10
4	2	2	2	9
5	2	2	2	8
6	2	1	2	7
7	2	1	2	7
8	2	1	2	7
9	1	1	1	5
10	1	1	1	5
11	1	1	1	5
12	1	1	1	5
13	1	1	1	4
14	1	1	1	4
15	1	1	1	4
16	1	1	1	4
17	1	0	1	2
18	0	0	0	1
19	0	0	0	1
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	5	2	14	No	No	No	No	No	No	No	No	No	No
2	2	5	2	14	No	No	No	No	No	No	No	No	No	No
3	2	5	2	13	No	No	No	No	No	No	No	No	No	No
4	2	4	2	11	No	No	No	No	No	No	No	No	No	No
5	2	4	2	10	No	No	No	No	No	No	No	No	No	No
6	2	3	2	9	No	No	No	No	No	No	No	No	No	No
7	2	3	2	9	No	No	No	No	No	No	No	No	No	No
8	2	3	2	9	No	No	No	No	No	No	No	No	No	No
9	2	2	2	6	No	No	No	No	No	No	No	No	No	No
10	2	2	2	6	No	No	No	No	No	No	No	No	No	No
11	2	2	2	6	No	No	No	No	No	No	No	No	No	No
12	2	2	2	6	No	No	No	No	No	No	No	No	No	No
13	2	2	2	5	No	No	No	No	No	No	No	No	No	No
14	2	2	2	5	No	No	No	No	No	No	No	No	No	No
15	2	2	2	5	No	No	No	No	No	No	No	No	No	No
16	2	2	2	5	No	No	No	No	No	No	No	No	No	No
17	2	1	2	3	No	No	No	No	No	No	No	No	No	No
18	2	0	2	1	No	No	No	No	No	No	No	No	No	No
19	2	0	2	1	No	No	No	No	No	No	No	No	No	No
20	2	0	2	0	No	No	No	No	No	No	No	No	No	No
21	2	0	2	0	No	No	No	No	No	No	No	No	No	No
22	2	0	2	0	No	No	No	No	No	No	No	No	No	No
23	2	0	2	0	No	No	No	No	No	No	No	No	No	No
24	2	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1	8.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:01
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	3	11
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	19	19
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	4	13	71	72
2	4	12	68	69
3	4	12	67	68
4	3	10	57	58
5	3	10	54	55
6	3	9	48	49
7	3	8	45	45
8	2	8	43	43
9	2	6	34	35
10	2	6	32	32
11	2	6	32	32
12	2	6	31	31
13	2	5	28	28
14	1	5	26	26
15	1	5	26	26
16	1	5	25	25
17	1	3	14	14
18	0	1	8	8
19	0	1	7	7
20	0	1	3	3
21	0	0	2	2
22	0	0	2	2
23	0	0	1	1
24	0	0	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	17	2	143	No	No	No	No	No	No	No	No	No	No
2	2	16	2	137	No	No	No	No	No	No	No	No	No	No
3	2	16	2	135	No	No	No	No	No	No	No	No	No	No
4	2	13	2	115	No	No	No	No	No	No	No	No	No	No
5	2	13	2	109	No	No	No	No	No	No	No	No	No	No
6	2	12	2	97	No	No	No	No	No	No	No	No	No	No
7	2	11	2	90	No	No	No	No	No	No	No	No	No	No
8	2	10	2	86	No	No	No	No	No	No	No	No	No	No
9	2	8	2	69	No	No	No	No	No	No	No	No	No	No
10	2	8	2	64	No	No	No	No	No	No	No	No	No	No
11	2	8	2	64	No	No	No	No	No	No	No	No	No	No
12	2	8	2	62	No	No	No	No	No	No	No	No	No	No
13	2	7	2	56	No	No	No	No	No	No	No	No	No	No
14	2	6	2	52	No	No	No	No	No	No	No	No	No	No
15	2	6	2	52	No	No	No	No	No	No	No	No	No	No
16	2	6	2	50	No	No	No	No	No	No	No	No	No	No
17	2	4	2	28	No	No	No	No	No	No	No	No	No	No
18	2	1	2	16	No	No	No	No	No	No	No	No	No	No
19	2	1	2	14	No	No	No	No	No	No	No	No	No	No
20	2	1	2	6	No	No	No	No	No	No	No	No	No	No
21	2	0	2	4	No	No	No	No	No	No	No	No	No	No
22	2	0	2	4	No	No	No	No	No	No	No	No	No	No
23	2	0	2	2	No	No	No	No	No	No	No	No	No	No
24	2	0	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.8	9.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:11	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	71	72
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	160	160
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	9	58	36	53
2	9	56	35	51
3	8	55	34	50
4	7	46	29	42
5	7	44	27	40
6	6	39	24	36
7	6	37	23	33
8	5	35	22	32
9	4	28	17	25
10	4	26	16	24
11	4	26	16	24
12	4	25	15	23
13	4	23	14	21
14	3	21	13	19
15	3	21	13	19
16	3	20	13	19
17	2	12	7	11
18	1	6	4	6
19	1	6	4	5
20	0	2	1	2
21	0	2	1	2
22	0	2	1	2
23	0	1	1	1
24	0	1	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	67	3	89	No	No	No	No	No	No	No	No	No	No
2	6	65	3	86	No	No	No	No	No	No	No	No	No	No
3	6	63	3	84	No	No	No	No	No	No	No	No	No	No
4	6	53	3	71	No	No	No	No	No	No	No	No	No	No
5	6	51	3	67	No	No	No	No	No	No	No	No	No	No
6	6	45	3	60	No	No	No	No	No	No	No	No	No	No
7	6	43	3	56	No	No	No	No	No	No	No	No	No	No
8	6	40	3	54	No	No	No	No	No	No	No	No	No	No
9	6	32	3	42	No	No	No	No	No	No	No	No	No	No
10	6	30	3	40	No	No	No	No	No	No	No	No	No	No
11	6	30	3	40	No	No	No	No	No	No	No	No	No	No
12	6	29	3	38	No	No	No	No	No	No	No	No	No	No
13	6	27	3	35	No	No	No	No	No	No	No	No	No	No
14	6	24	3	32	No	No	No	No	No	No	No	No	No	No
15	6	24	3	32	No	No	No	No	No	No	No	No	No	No
16	6	23	3	32	No	No	No	No	No	No	No	No	No	No
17	6	14	3	18	No	No	No	No	No	No	No	No	No	No
18	6	7	3	10	No	No	No	No	No	No	No	No	No	No
19	6	7	3	9	No	No	No	No	No	No	No	No	No	No
20	6	2	3	3	No	No	No	No	No	No	No	No	No	No
21	6	2	3	3	No	No	No	No	No	No	No	No	No	No
22	6	2	3	3	No	No	No	No	No	No	No	No	No	No
23	6	1	3	2	No	No	No	No	No	No	No	No	No	No
24	6	1	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.3	7.9
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:06
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	36	53
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	156	156
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 6: Near-Term PM

Report File: P:\...\6. Near-Term PM.pdf

4/27/2016

**Trip generation summary****Added Trips**

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
30: AC Students				1.000	2.000	50.00	50.00	1	1	2	2.44
31: AC Adults				1.000	80.000	50.00	50.00	40	40	80	97.56
<b>Added Trips Total</b>								<b>41</b>	<b>41</b>	<b>82</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 6: Near-Term PM

Report File: P:\...16. Near-Term PM.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 30: AC Students			
	To AC Students:		From AC Students:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	100.00	1	100.00	1
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>1</b>	<b>100.00</b>	<b>1</b>

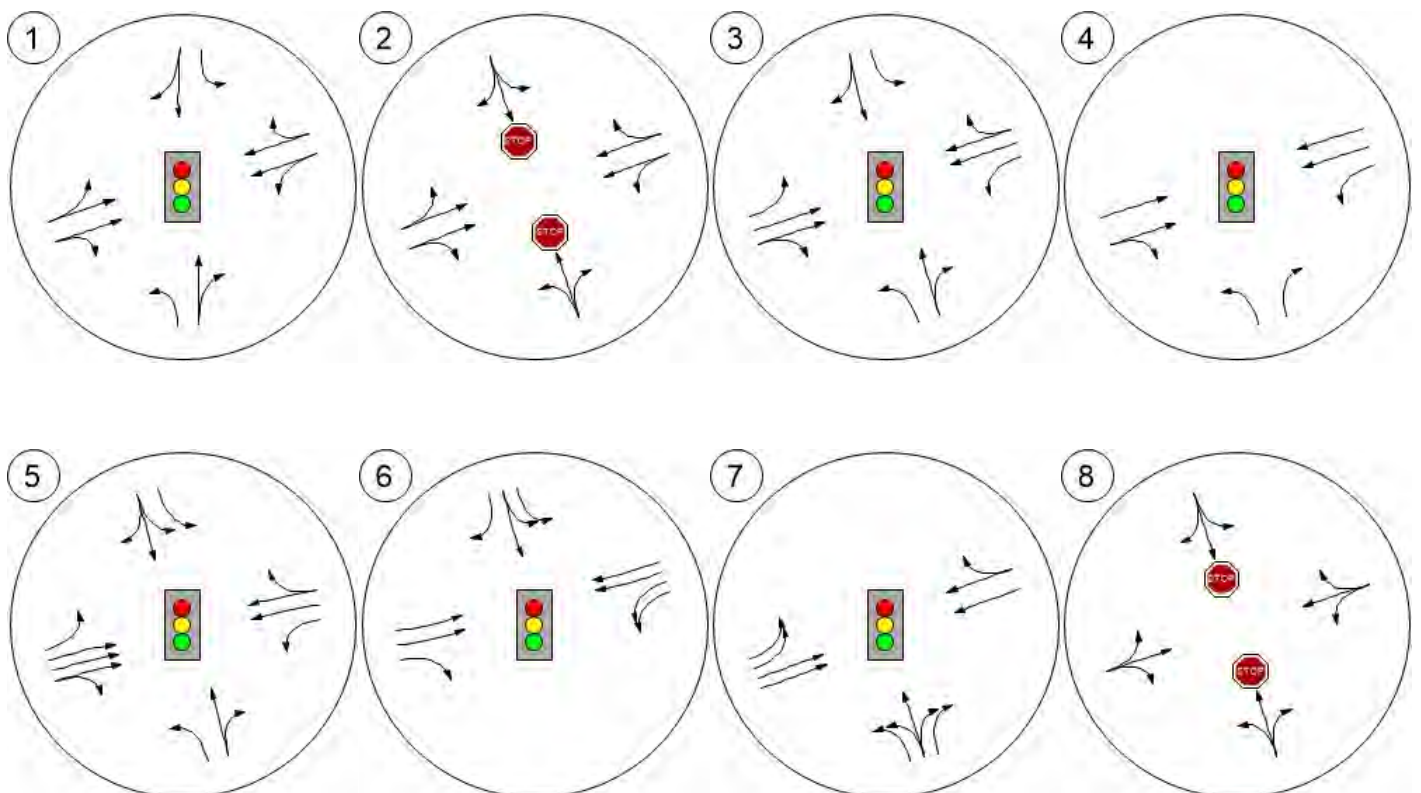
Zone / Gate	Zone 31: AC Adults			
	To AC Adults:		From AC Adults:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	15.00	6	15.00	6
3: Gate	75.00	30	75.00	30
4: Gate	10.00	4	10.00	4
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>40</b>	<b>100.00</b>	<b>40</b>

Study Intersections

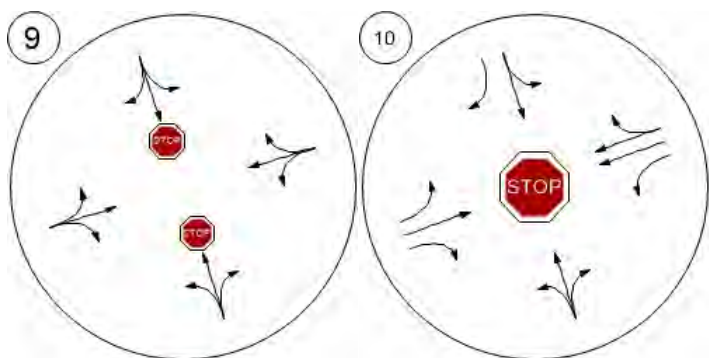




# Lane Configuration and Traffic Control

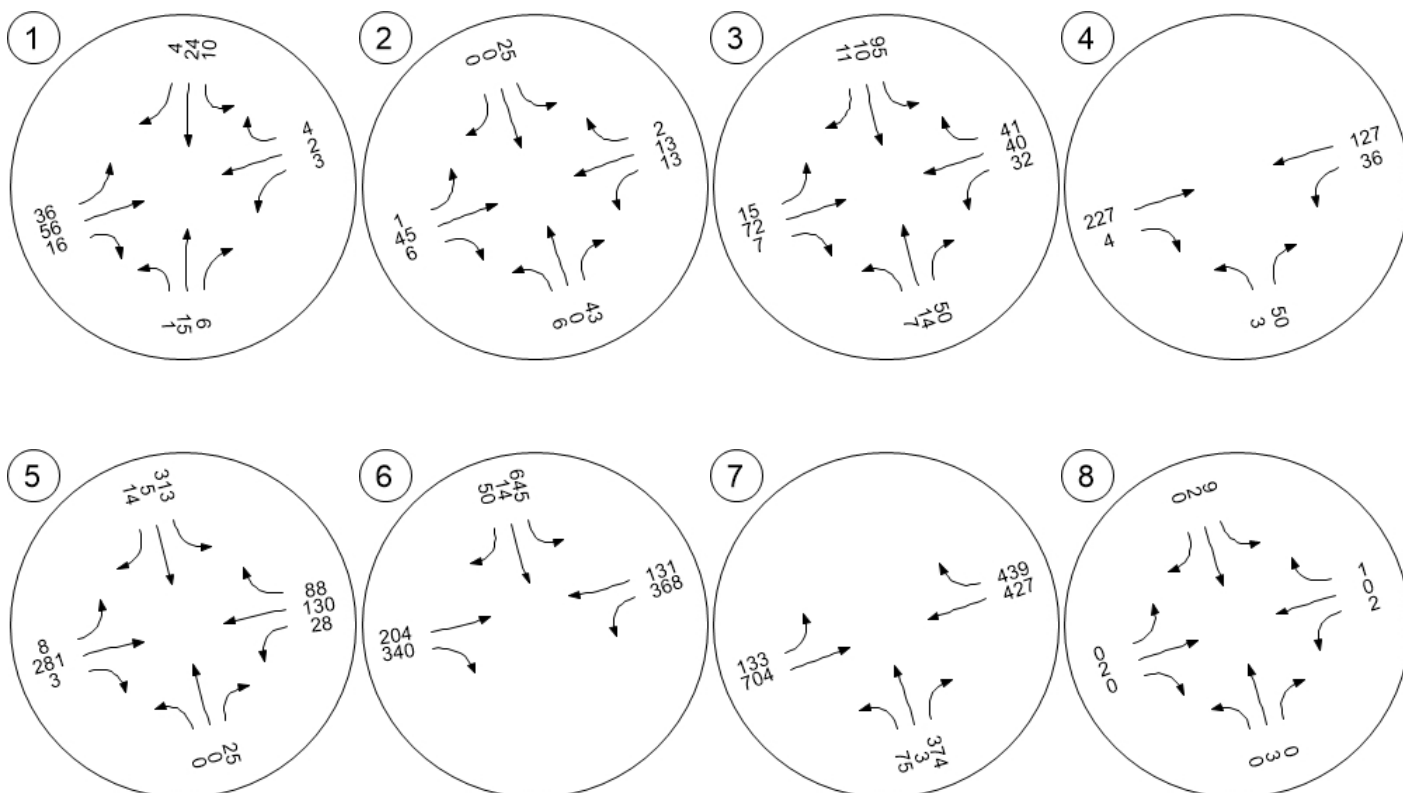


## Lane Configuration and Traffic Control

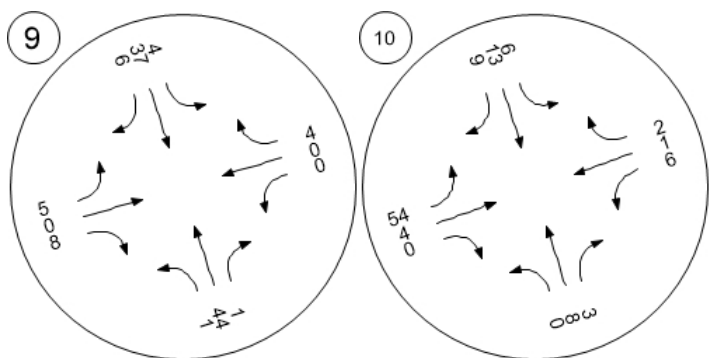




Traffic Volume - Base Volume

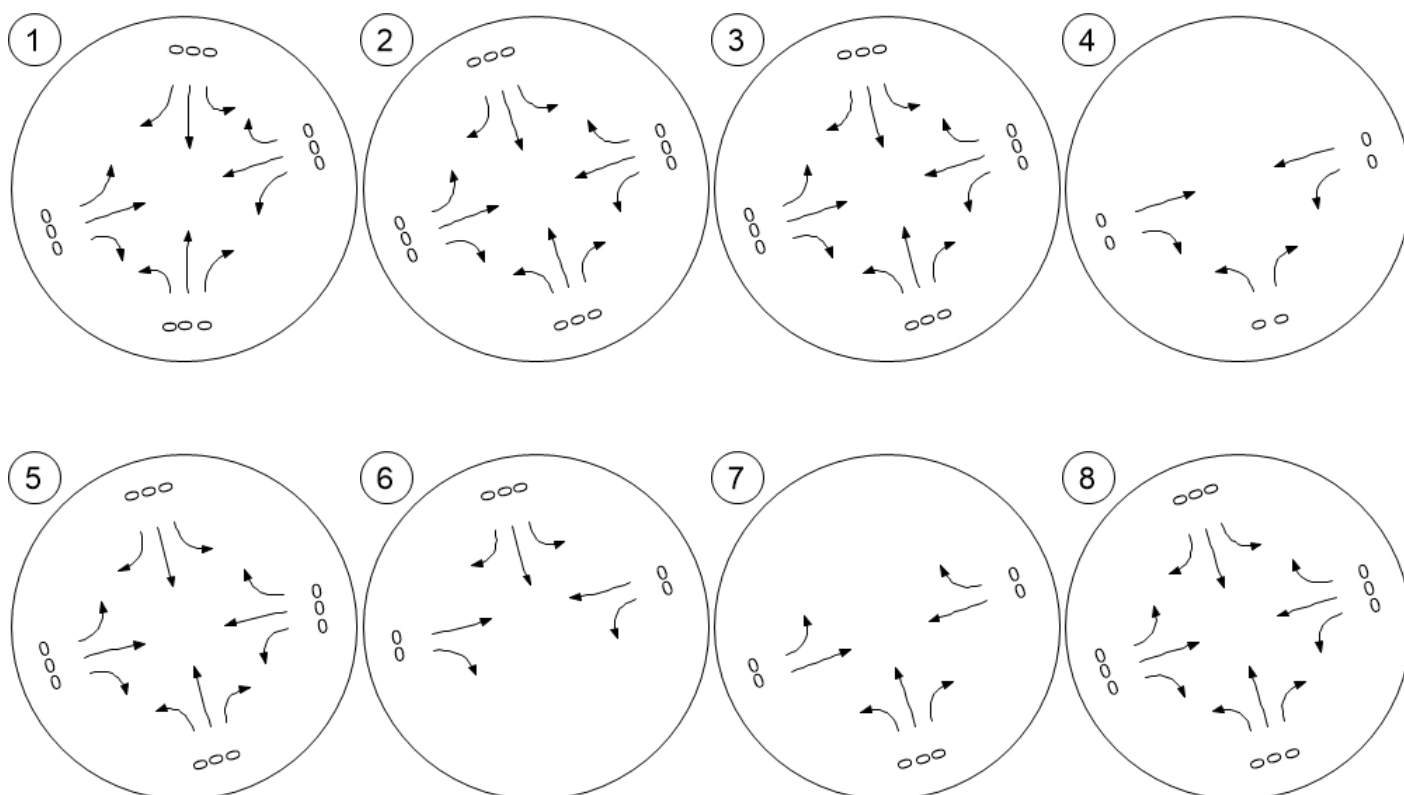


Traffic Volume - Base Volume

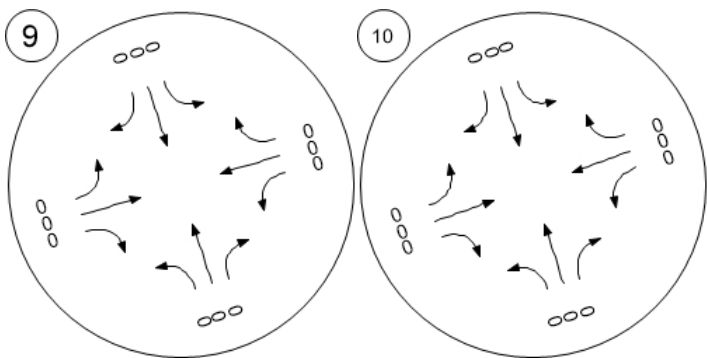




Traffic Volume - In-Process Volume

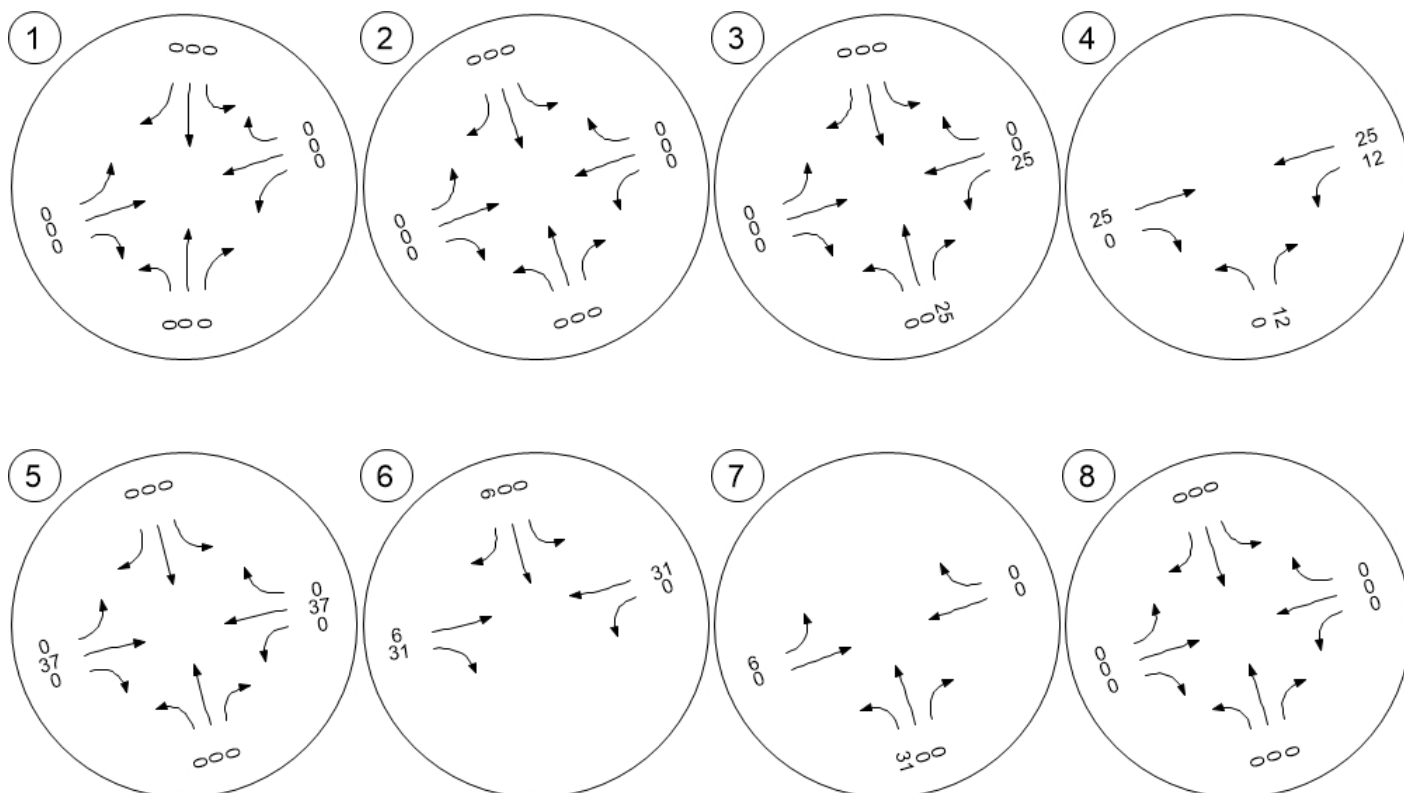


Traffic Volume - In-Process Volume



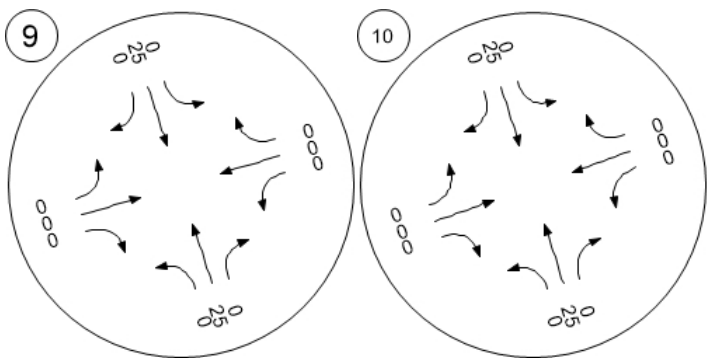


Traffic Volume - Net New Site Trips

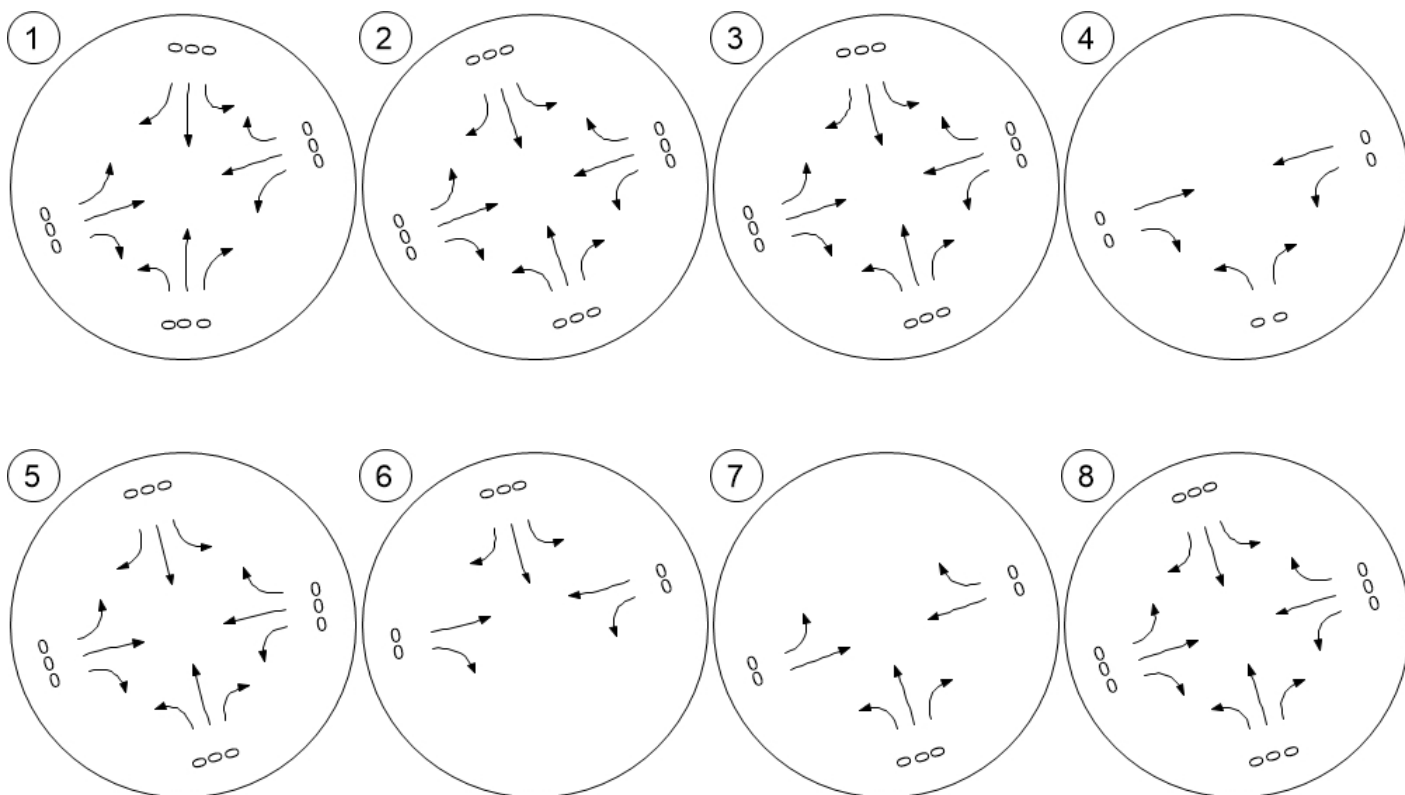




Traffic Volume - Net New Site Trips

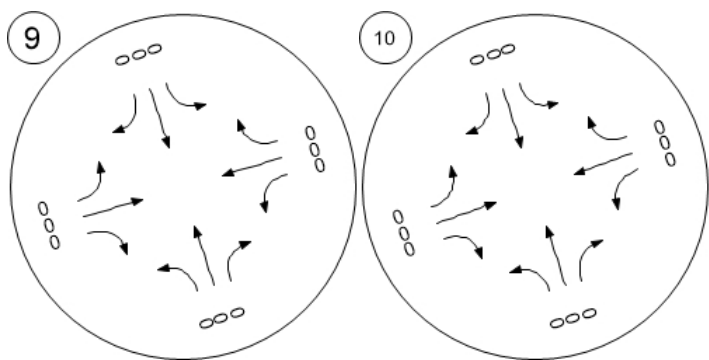


Traffic Volume - Other Volume

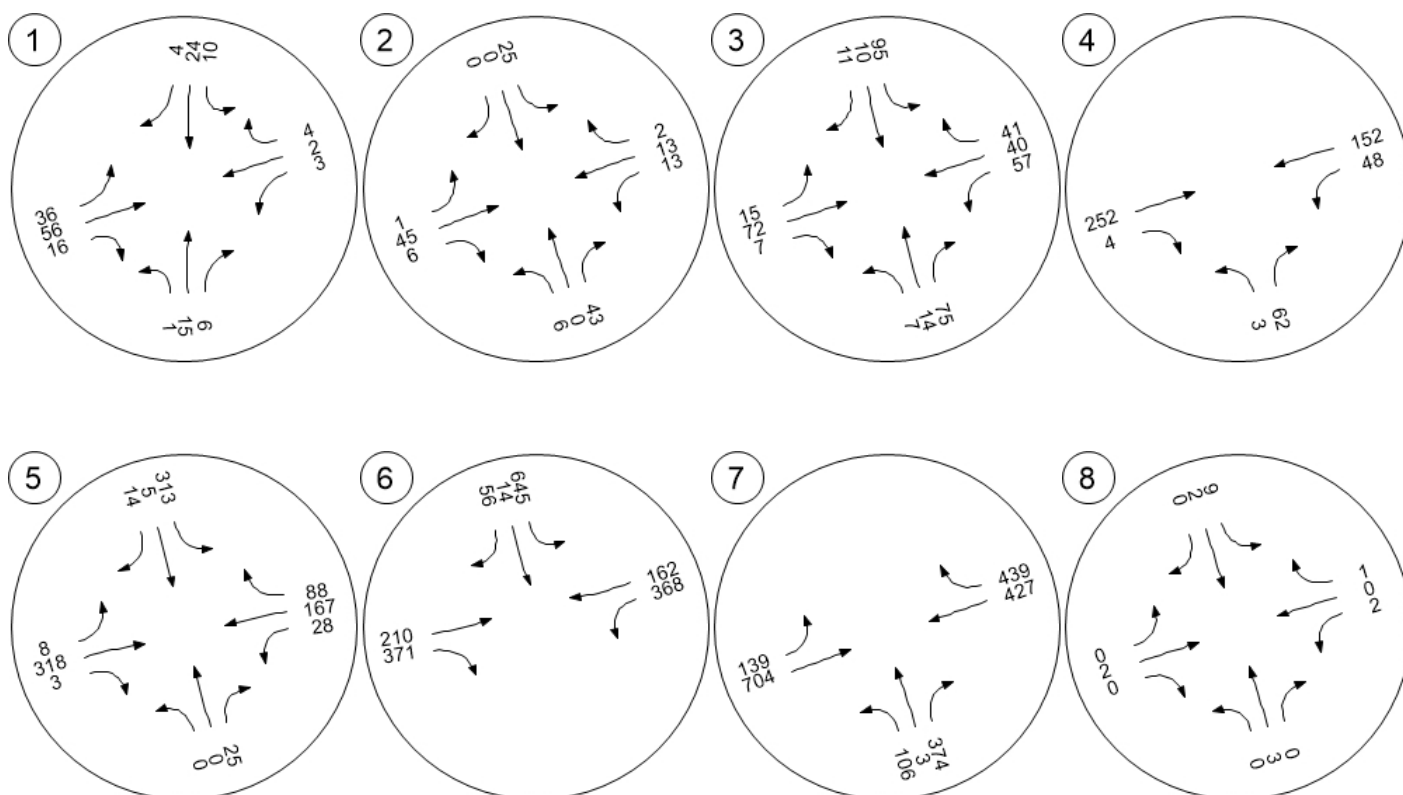




Traffic Volume - Other Volume

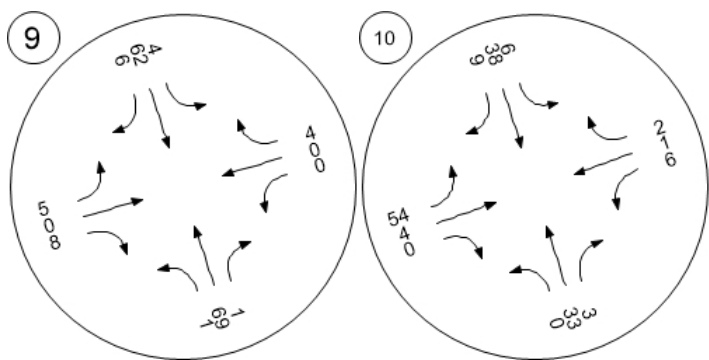


Traffic Volume - Future Total Volume



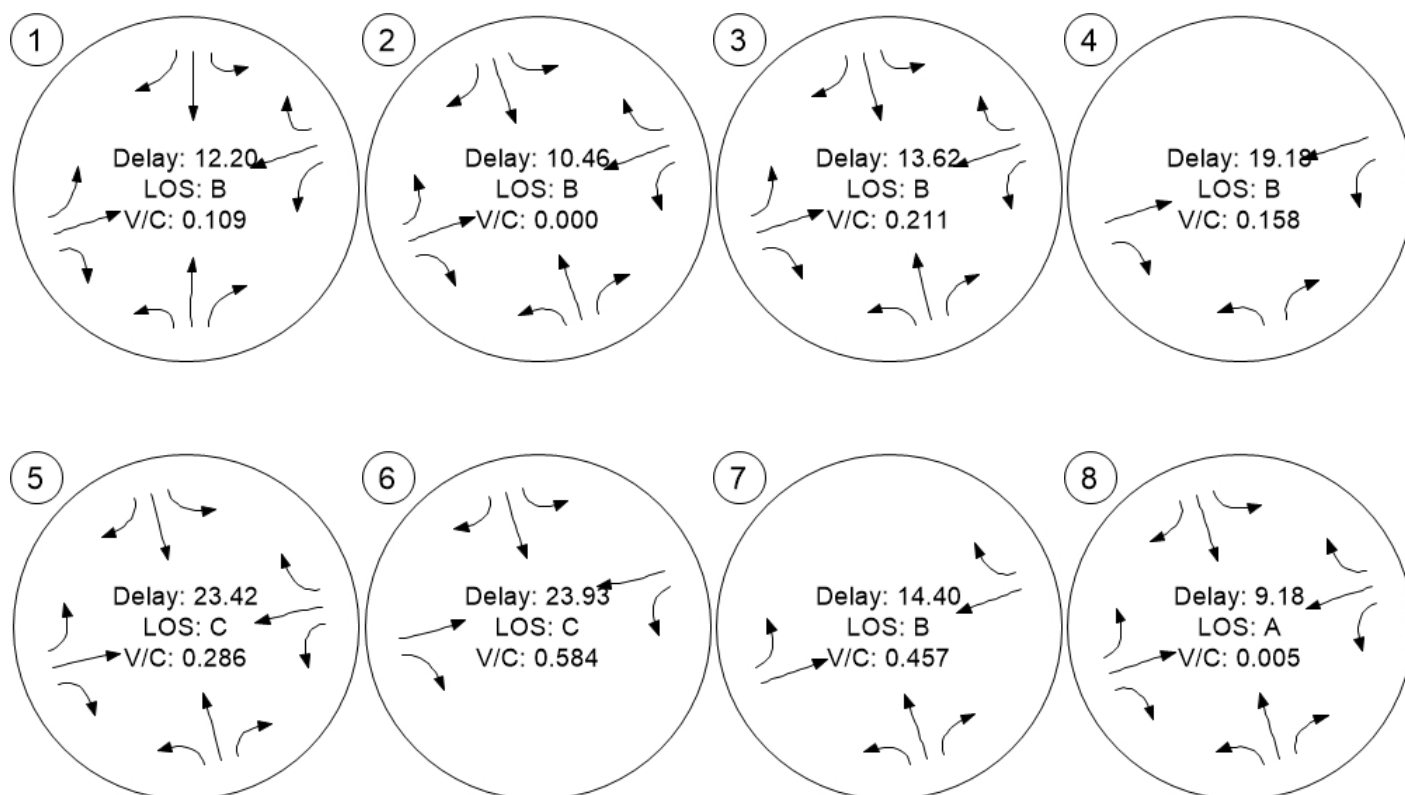


Traffic Volume - Future Total Volume

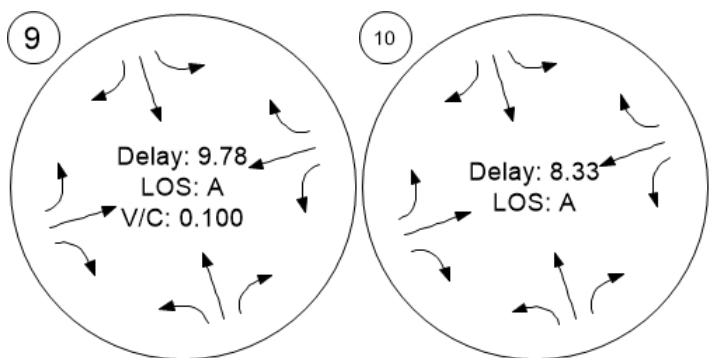




# Traffic Conditions

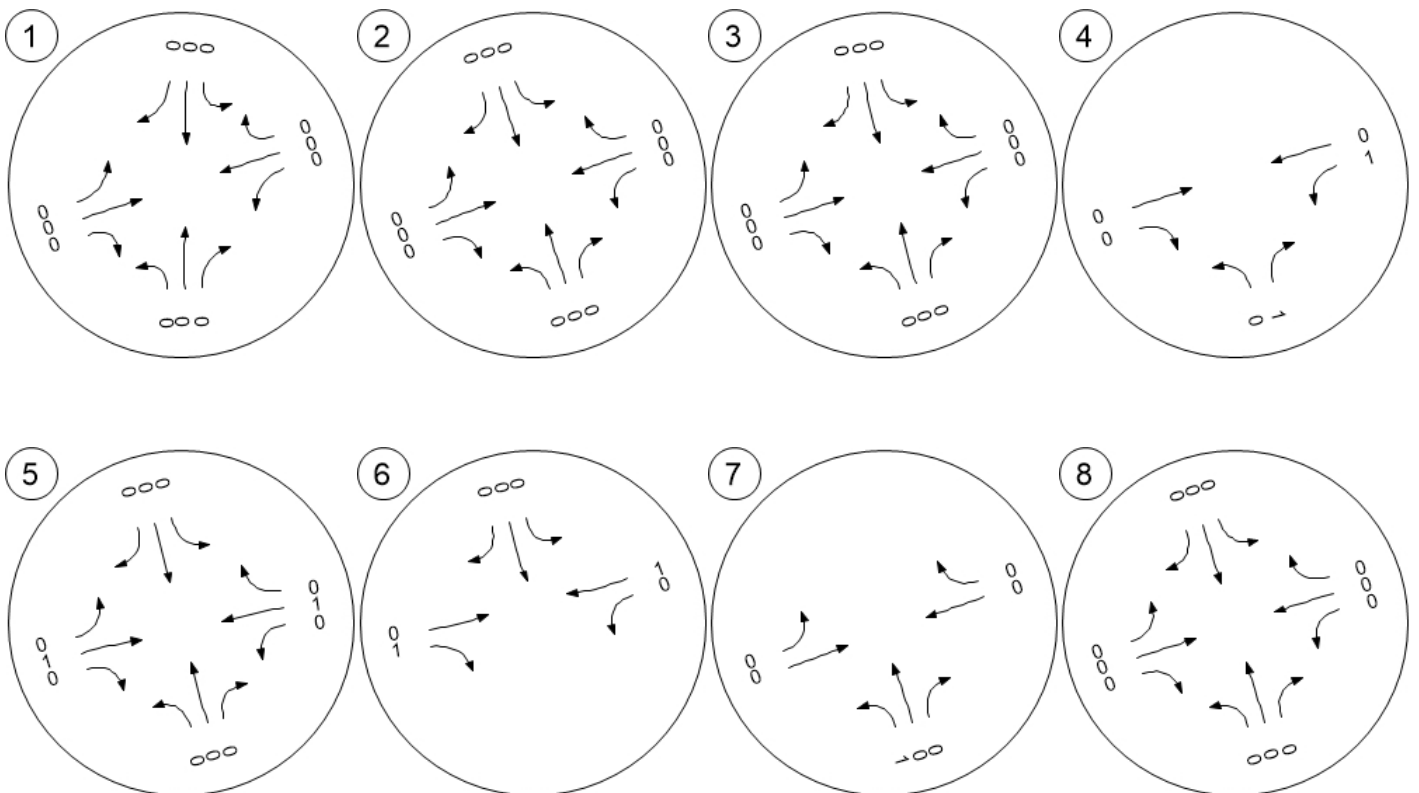


Traffic Conditions

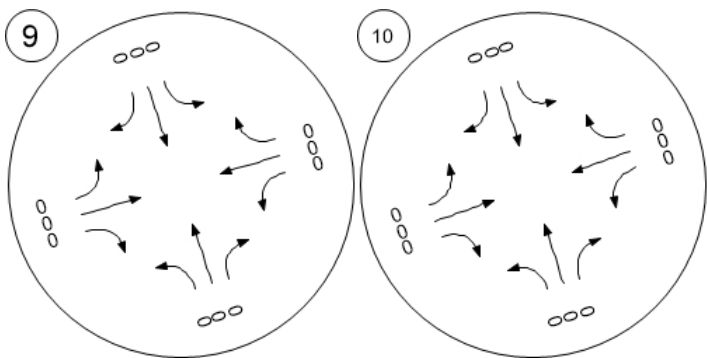




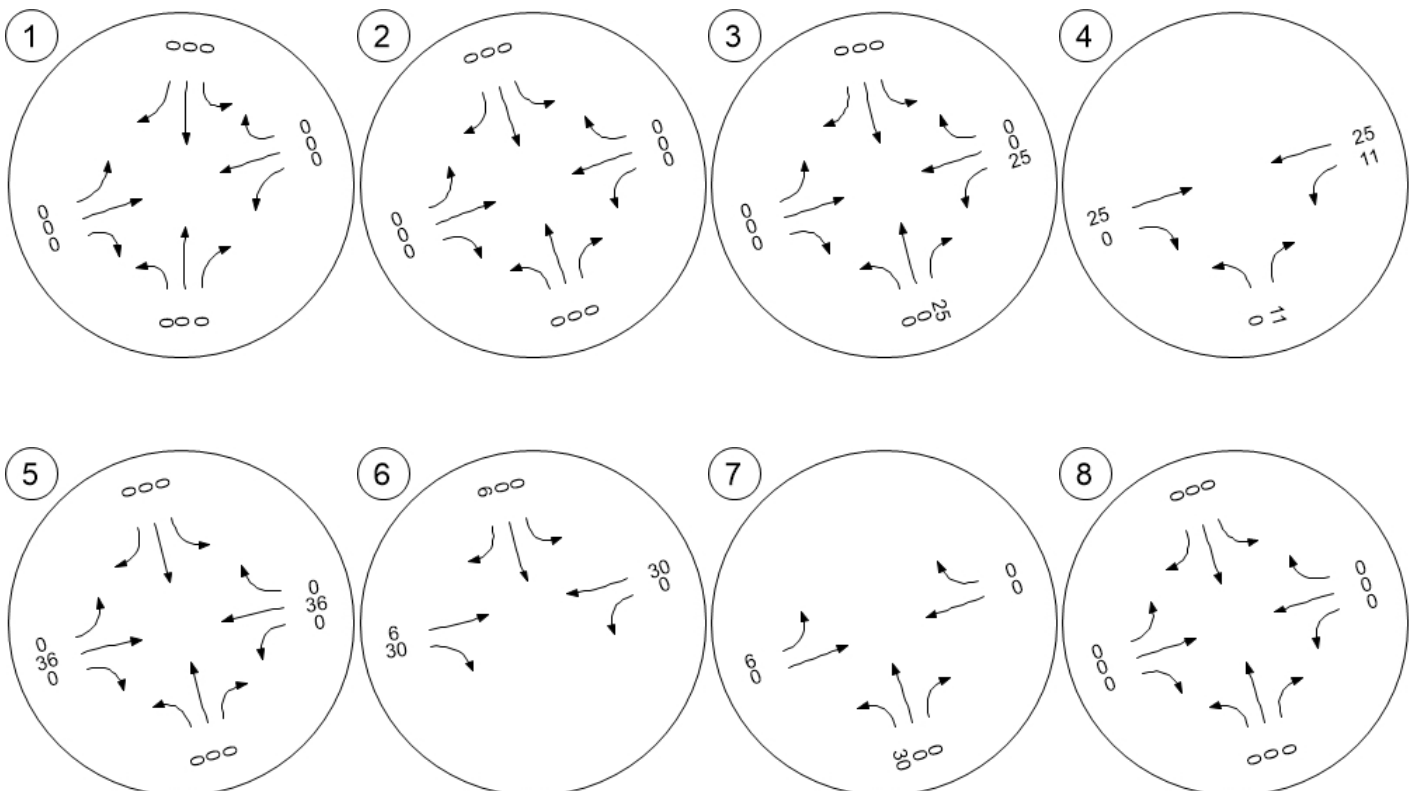
Fair Share - Fair Share Volumes - Zone 30



Fair Share - Fair Share Volumes - Zone 30

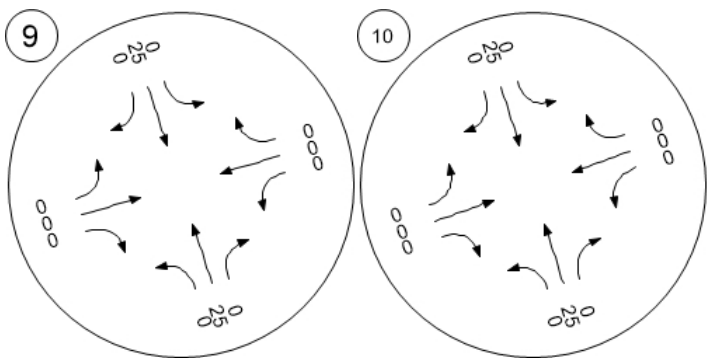


Fair Share - Fair Share Volumes - Zone 31

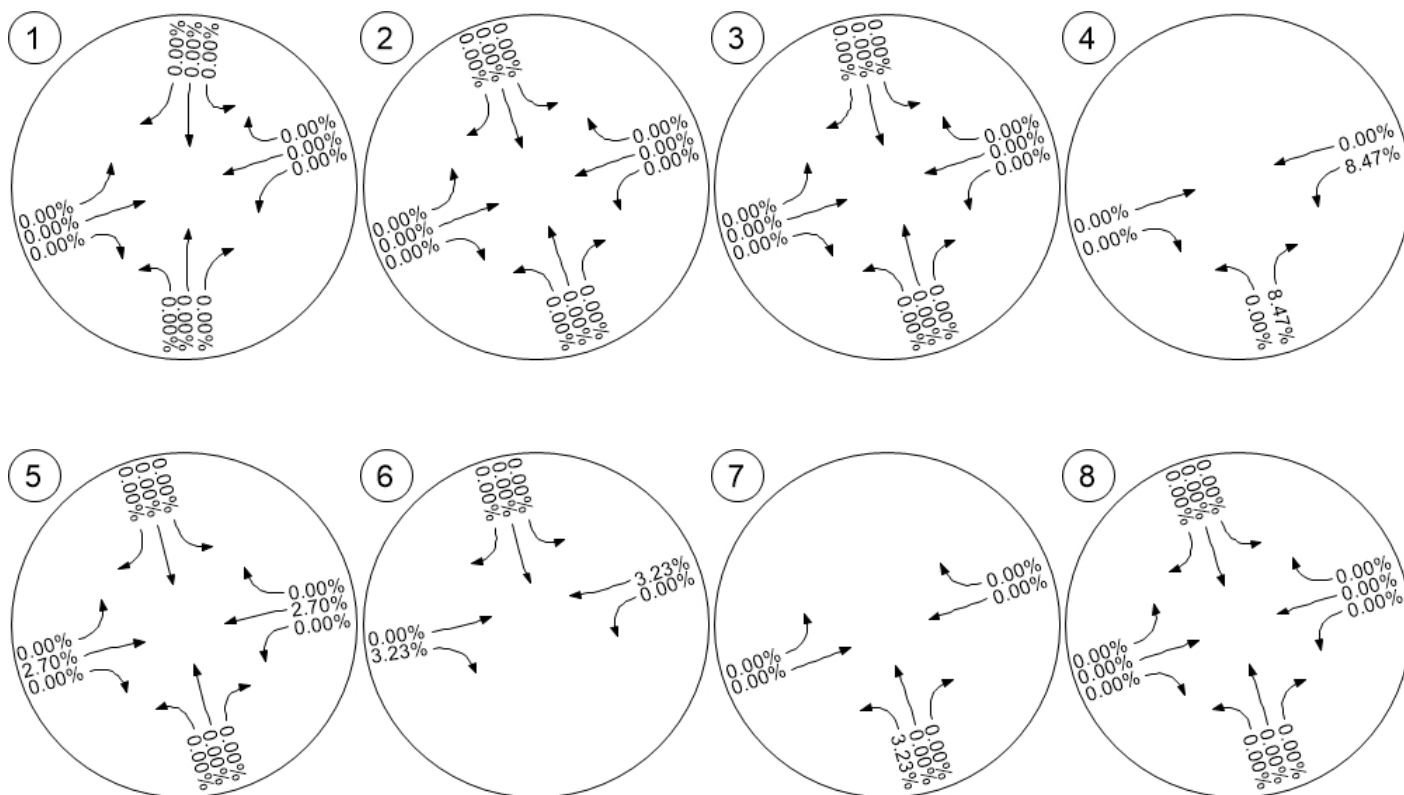




Fair Share - Fair Share Volumes - Zone 31

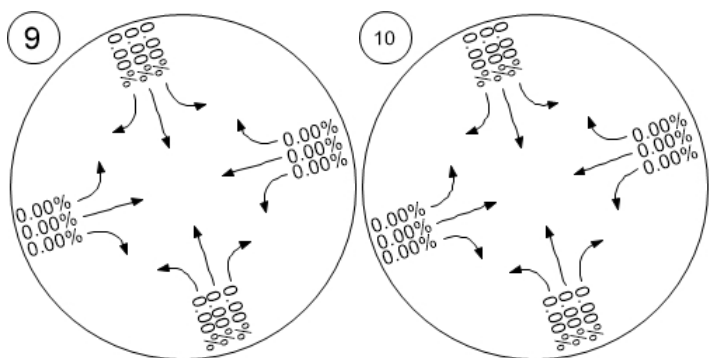


Fair Share - Fair Share % of Net New Site - Zone 30

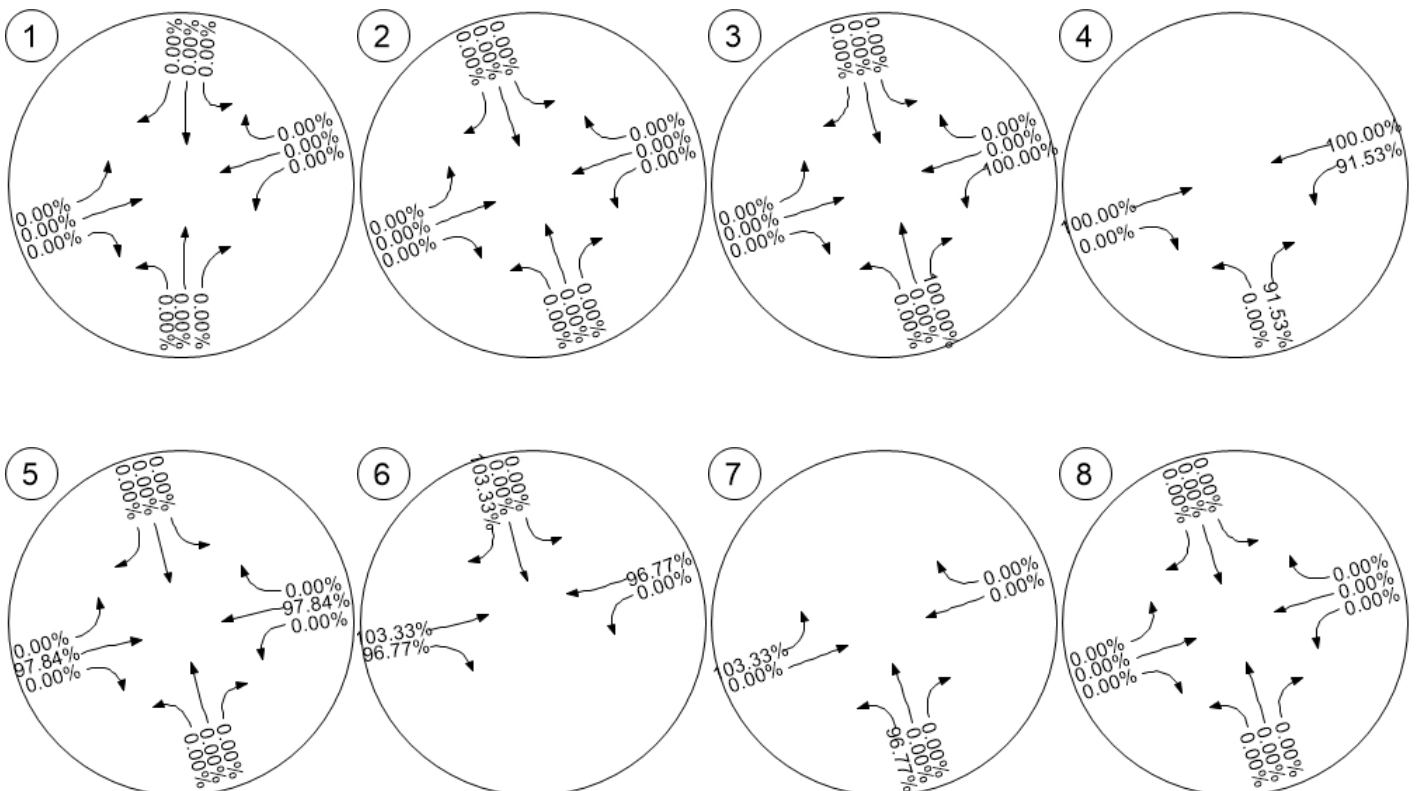




## Fair Share - Fair Share % of Net New Site - Zone 30

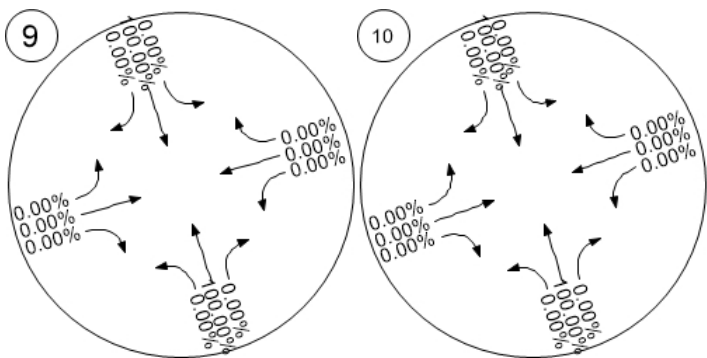
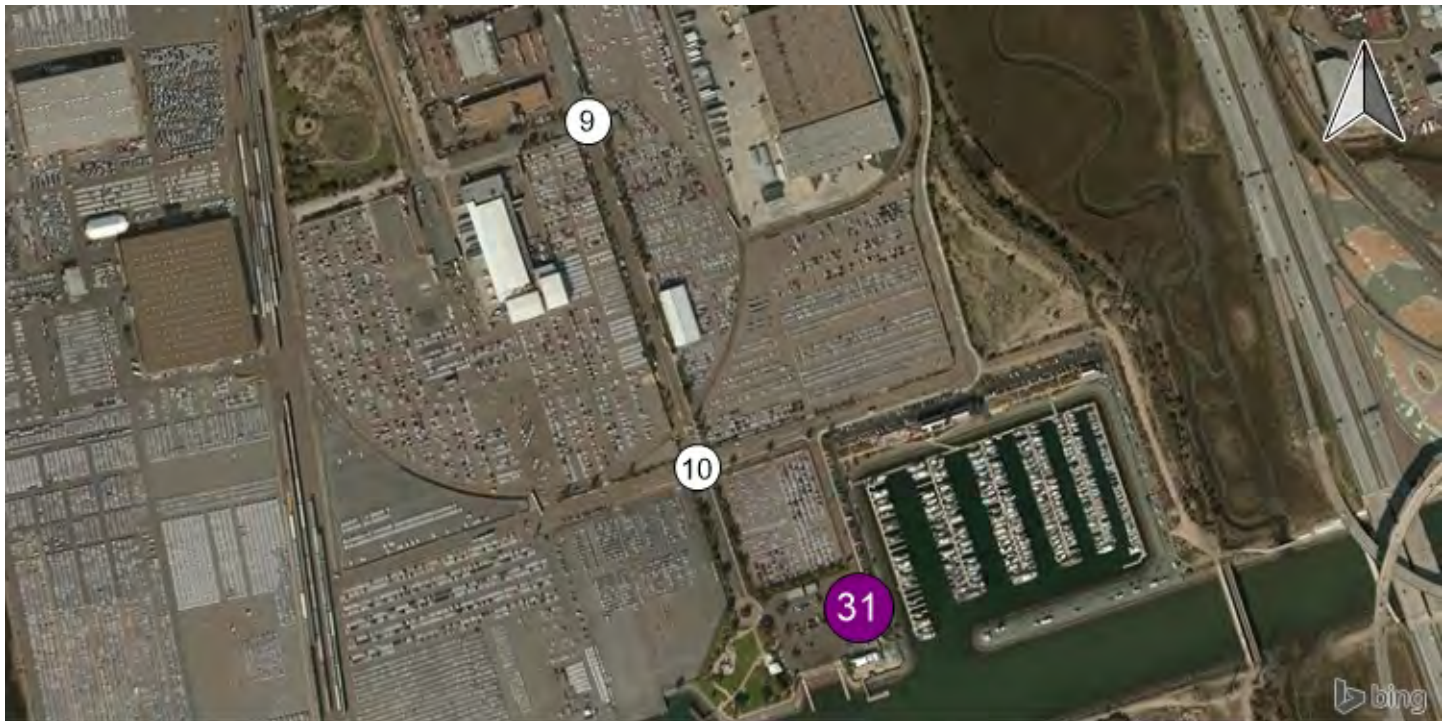


Fair Share - Fair Share % of Net New Site - Zone 31



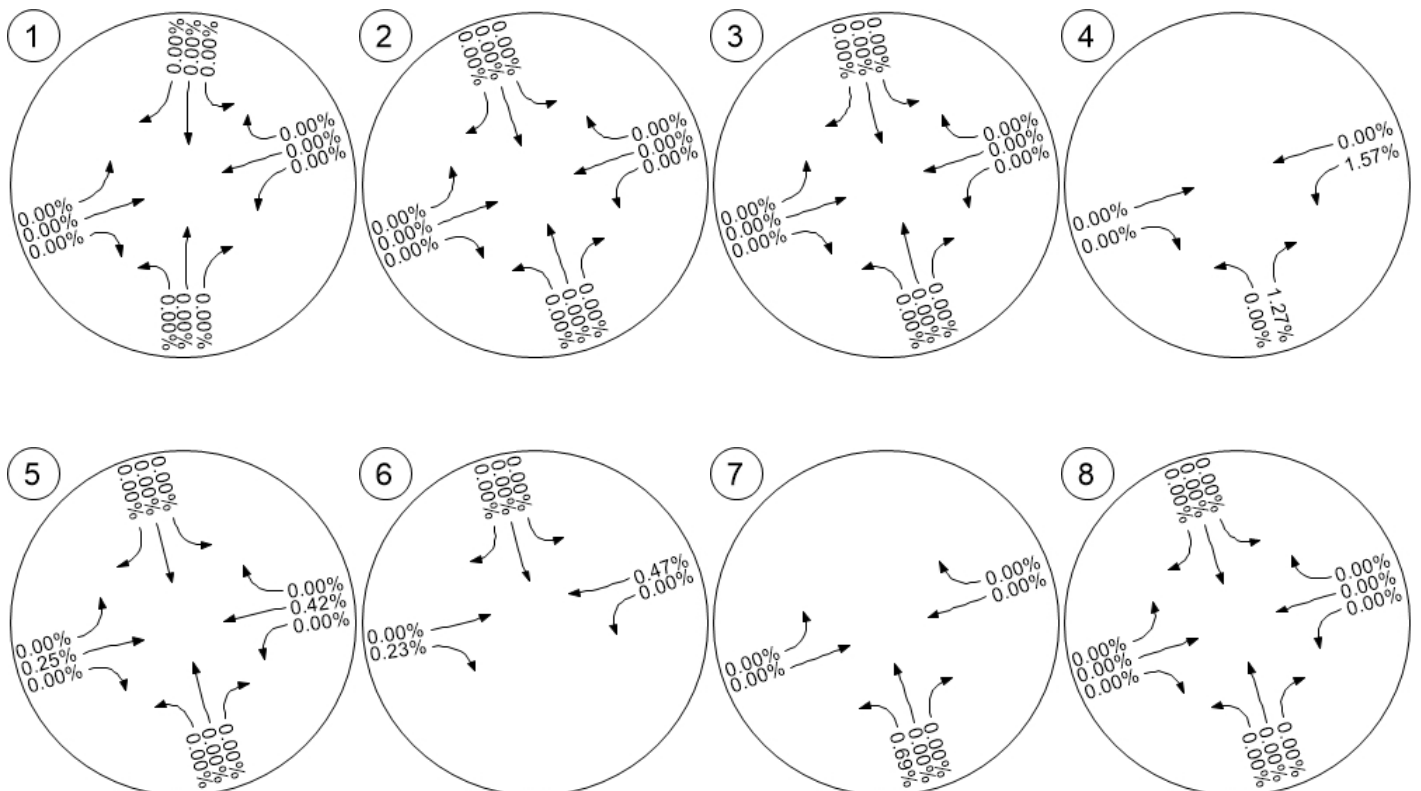


Fair Share - Fair Share % of Net New Site - Zone 31

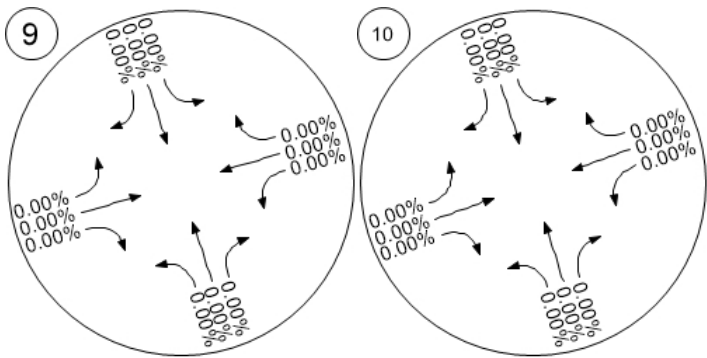




Fair Share - Fair Share % of Total Analysis - Zone 30

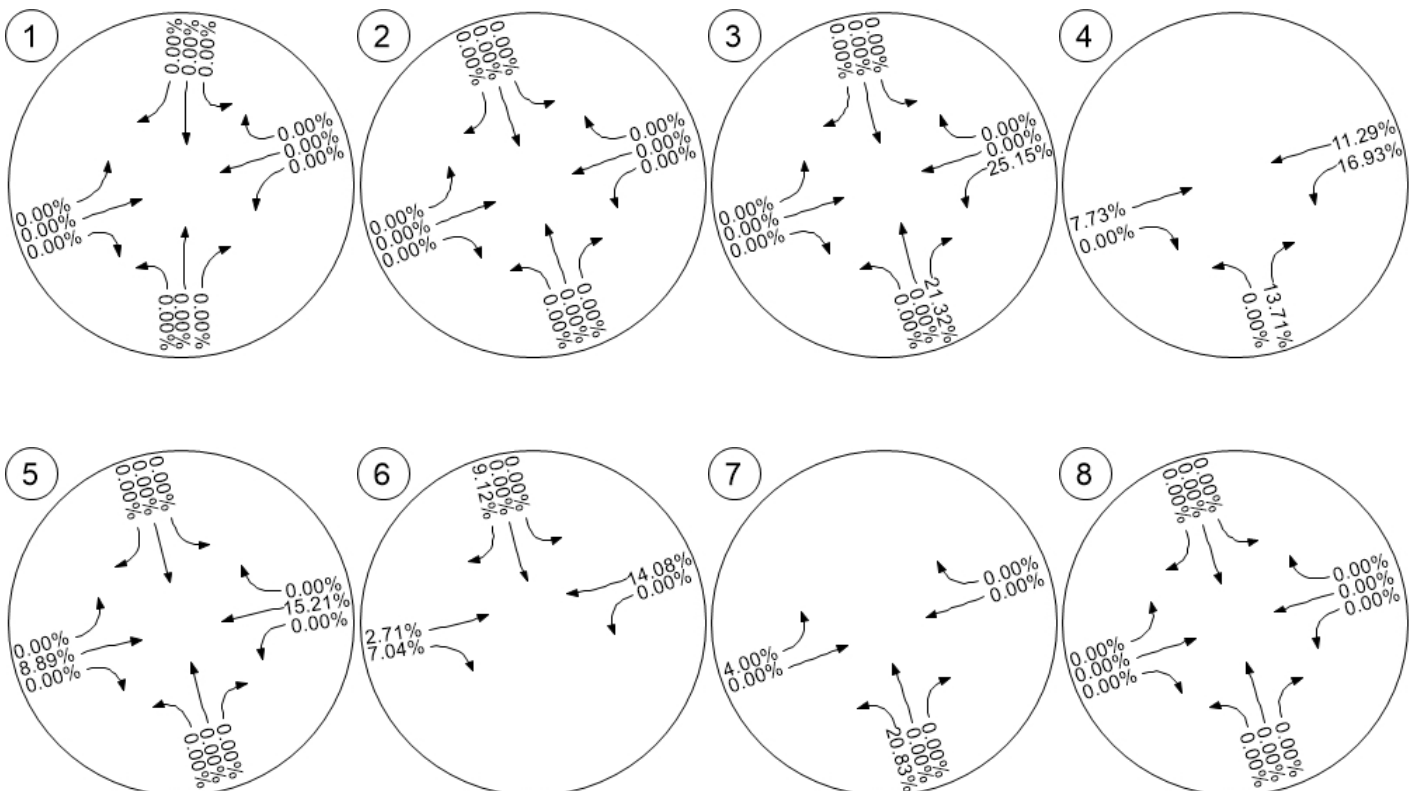


Fair Share - Fair Share % of Total Analysis - Zone 30

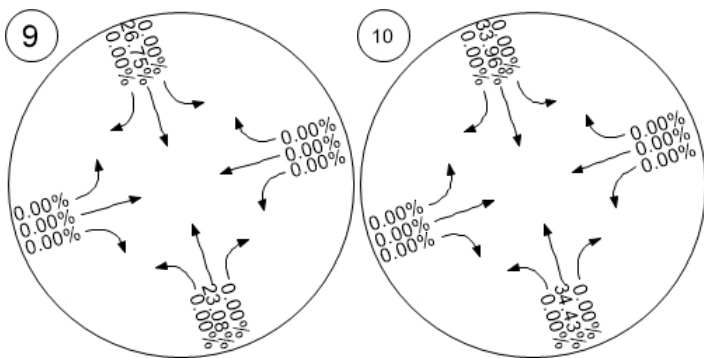




Fair Share - Fair Share % of Total Analysis - Zone 31



Fair Share - Fair Share % of Total Analysis - Zone 31

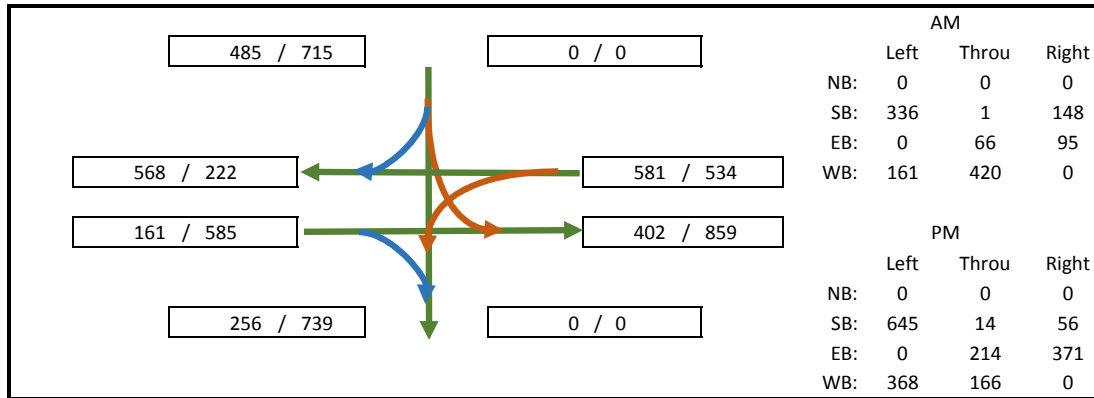


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

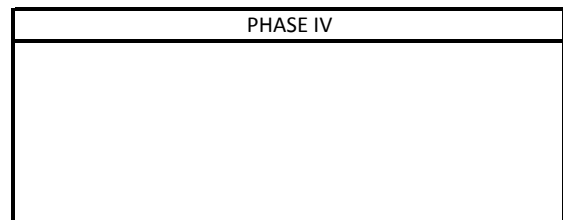
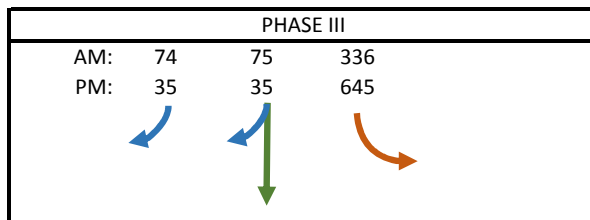
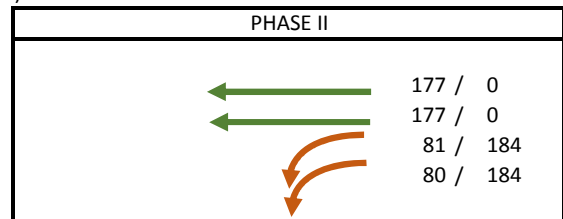
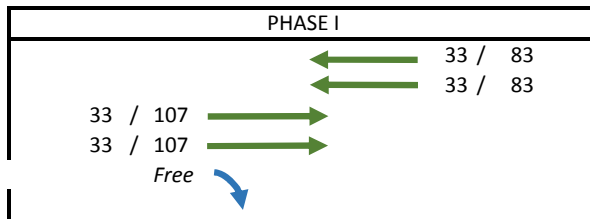
INTERSECTION: I-5 SB / Bay Marina Drive  
 ALTERNATIVE: Near-Term Year 2015 Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

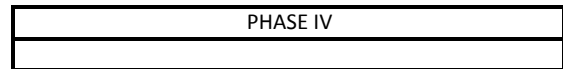
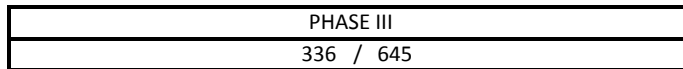
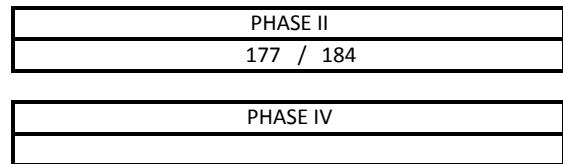
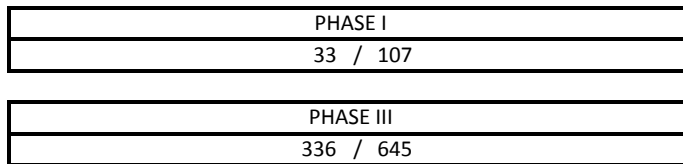
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

AM:	546	UNDER CAPACITY
PM:	936	UNDER CAPACITY

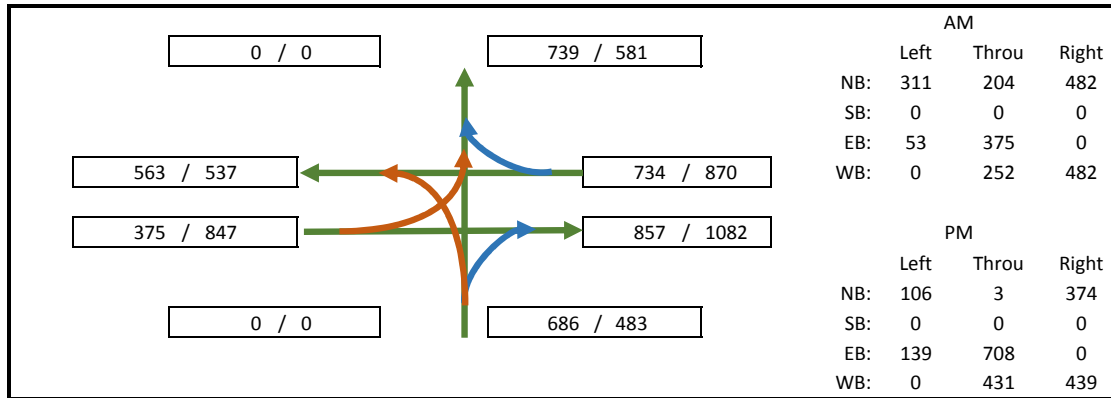


## SIGNALIZED INTERSECTION CAPACITY ANALYSIS

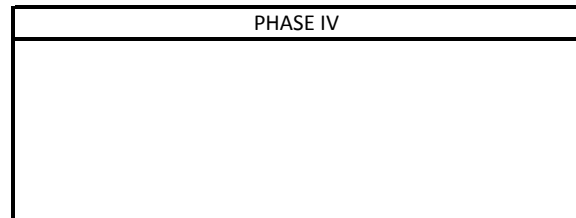
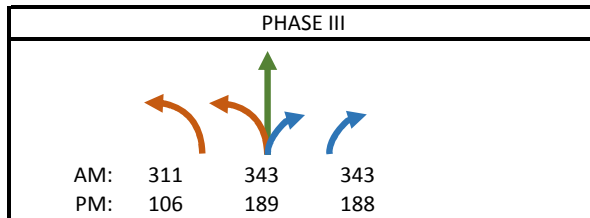
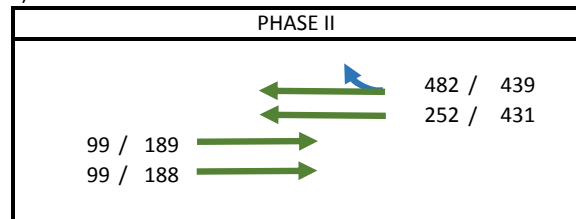
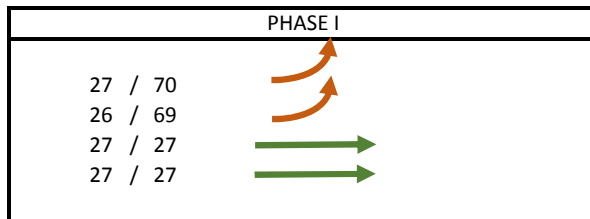
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Near-Term Year 2015 Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME: \_\_\_\_\_

### DEMAND TRAFFIC FLOWS



### LANE VOLUMES (ILV/HR)



### CRITICAL LANE VOLUMES PER HOUR

PHASE I
27 / 70

PHASE III
343 / 189

PHASE II
482 / 439

PHASE IV
/

TOTAL OPERATING LEVEL (ILV/HR):

AM: 852	UNDER CAPACITY
PM: 698	UNDER CAPACITY

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**Appendix I**  
**Peak Hour Intersection LOS Worksheets, ILV, and Queueing**  
**Worksheets – Near-Term Year Plus Project Conditions**

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 7: Near-Term + Project AM

Report File: P:\...\7. Near-Term AM + Project.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.091	12.7	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.044	12.0	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	NBR	0.199	9.4	A
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.270	10.6	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.386	21.2	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.302	15.3	B
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.569	21.6	C
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBT	0.131	9.7	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.1	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.091

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	17	24	9	2	37	37	21	31	8	5	80	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	33	9	2	37	37	21	31	8	5	80	4
Peak Hour Factor	0.7400	0.7400	0.7400	0.7600	0.7600	0.7600	0.7100	0.7100	0.7100	0.7700	0.7700	0.7700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	11	3	1	12	12	7	11	3	2	26	1
Total Analysis Volume [veh/h]	23	45	12	3	49	49	30	44	11	6	104	5
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.00	0.06	0.03	0.03
Total Saturation Flow Adjustment	0.68	0.95	0.71	0.91	0.79	0.88
s, saturation flow rate [veh/h]	1292	1804	1341	1723	2984	3331
c, Capacity [veh/h]	535	747	556	714	1236	1380
d1, Uniform Delay [s]	12.22	12.40	12.03	12.73	12.36	12.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.15	0.20	0.02	0.40	0.11	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

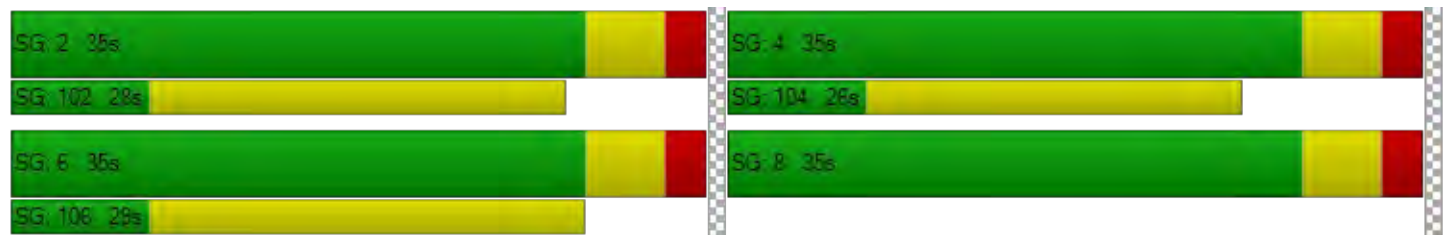
X, volume / capacity	0.04	0.08	0.01	0.14	0.07	0.08
d, Delay for Lane Group [s/veh]	12.38	12.60	12.05	13.13	12.47	12.55
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.29	0.73	0.04	1.30	0.58	0.78
50th-Percentile Queue Length [ft]	7.36	18.37	0.94	32.59	14.39	19.55
95th-Percentile Queue Length [veh]	0.75	1.81	0.10	3.09	1.43	1.92
95th-Percentile Queue Length [ft]	18.72	45.25	2.44	77.26	35.85	48.00

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.38	12.60	12.60	12.05	13.13	13.13	12.47	12.47	12.47	12.55	12.55	12.55
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.53			13.10			12.47			12.55		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.68											
Intersection LOS	B											
Intersection V/C	0.091											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.0  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.044

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	21	0	3	43	119	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	0	3	127	199	37
Peak Hour Factor	0.8600	0.8600	0.6400	0.6400	0.6500	0.6500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	0	1	50	77	14
Total Analysis Volume [veh/h]	24	0	5	198	306	57
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.97	9.65	8.03	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.14	0.14	0.28	0.14	0.00	0.00
95th-Percentile Queue Length [ft]	3.48	3.48	6.97	3.48	0.00	0.00
d_A, Approach Delay [s/veh]	11.97		0.20		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	B					







### Intersection Level Of Service Report #3: Bay Marina Drive / Tidelands Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 9.4  
Level Of Service: A  
Volume to Capacity (v/c): 0.199

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	5	4	9	8	2	4	3	29	4	78	136	196
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	9	0	0	0	10	74	0	43	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	4	18	8	2	4	13	103	4	121	216	205
Peak Hour Factor	0.5600	0.5600	0.5600	0.7000	0.7000	0.7000	0.7300	0.7300	0.7300	0.7300	0.7300	0.7300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	8	3	1	1	4	35	1	41	74	70
Total Analysis Volume [veh/h]	9	7	32	11	3	6	18	141	5	166	296	281
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	117	0	0	117	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	111	111	111	111
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.74	0.74	0.74	0.74
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.01	0.01	0.02	0.04	0.14	0.18
Total Saturation Flow Adjustment	0.74	0.86	0.72	0.88	0.42	0.93	0.65	0.87
s, saturation flow rate [veh/h]	1400	1633	1363	1676	797	3528	1229	3288
c, Capacity [veh/h]	252	294	245	302	590	2611	909	2433
d1, Uniform Delay [s]	50.76	51.66	50.84	50.70	5.19	5.29	5.86	6.15
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.93	0.34	0.18	0.10	0.04	0.44	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.13	0.04	0.03	0.03	0.06	0.18	0.24
d, Delay for Lane Group [s/veh]	51.02	52.60	51.18	50.89	5.28	5.33	6.30	6.38
Lane Group LOS	D	D	D	D	A	A	A	A
Critical Lane Group	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.33	1.47	0.41	0.33	0.24	0.99	2.42	4.58
50th-Percentile Queue Length [ft]	8.31	36.77	10.19	8.27	5.88	24.68	60.48	114.54
95th-Percentile Queue Length [veh]	0.84	3.45	1.03	0.84	0.60	2.39	5.36	9.16
95th-Percentile Queue Length [ft]	21.08	86.23	25.69	20.98	15.01	59.74	134.05	229.08

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	51.02	52.60	52.60	51.18	50.89	50.89	5.28	5.33	5.33	6.30	6.38	6.38
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	52.30			51.05			5.32			6.36		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	9.37											
Intersection LOS	A											
Intersection V/C	0.199											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.270

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	1	6	52	1	7	591
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	83	0	12	132
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	8	135	1	19	723
Peak Hour Factor	0.9200	0.9200	0.9640	0.9200	0.9200	0.7710
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	35	0	5	234
Total Analysis Volume [veh/h]	1	9	140	1	21	938
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	101	0	12	113
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	95	8	107
g / C, Green / Cycle	0.21	0.21	0.63	0.05	0.71
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.04	0.01	0.26
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3543	1770	3547
c, Capacity [veh/h]	366	327	2244	94	2530
d1, Uniform Delay [s]	47.23	47.47	10.50	68.02	8.38
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.16	0.05	5.38	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.03	0.06	0.22	0.37
d, Delay for Lane Group [s/veh]	47.24	47.63	10.56	73.40	8.80
Lane Group LOS	D	D	B	E	A
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.04	0.32	1.30	0.93	9.16
50th-Percentile Queue Length [ft]	0.88	8.01	32.53	23.17	229.04
95th-Percentile Queue Length [veh]	0.09	0.81	3.08	2.25	16.12
95th-Percentile Queue Length [ft]	2.29	20.32	77.11	56.33	403.12

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	47.24	47.63	10.56	10.56	73.40	8.80
Movement LOS	D	D	B	B	E	A
d_A, Approach Delay [s/veh]	47.59		10.56		10.21	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	10.59					
Intersection LOS	B					
Intersection V/C	0.270					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#5: Bay Marina Drive / Cleveland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 21.2  
Level Of Service: C  
Volume to Capacity (v/c): 0.386

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

**Volumes**

Name												
Base Volume Input [veh/h]	4	0	20	27	1	8	12	149	1	6	588	232
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	85	0	0	144	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	0	20	27	1	8	12	234	1	6	732	232
Peak Hour Factor	0.5500	0.5500	0.5500	0.6900	0.6900	0.6900	0.8500	0.8500	0.8500	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	9	10	0	3	4	69	0	2	220	70
Total Analysis Volume [veh/h]	7	0	36	39	1	12	14	275	1	7	882	280
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	20	0	10	95	0	10	95	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	16	6	91	6	91
g / C, Green / Cycle	0.07	0.07	0.11	0.04	0.61	0.04	0.61
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.02	0.01	0.05	0.00	0.34
Total Saturation Flow Adjustment	0.93	0.83	0.87	0.93	0.89	0.93	0.90
s, saturation flow rate [veh/h]	1770	1583	3300	1770	5071	1770	3418
c, Capacity [veh/h]	130	116	352	71	3077	71	2074
d1, Uniform Delay [s]	64.66	65.90	60.81	69.67	12.27	69.39	17.58
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.79	6.82	0.88	6.16	0.06	2.77	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.05	0.31	0.15	0.20	0.09	0.10	0.56
d, Delay for Lane Group [s/veh]	65.45	72.72	61.70	75.84	12.33	72.17	18.68
Lane Group LOS	E	E	E	E	B	E	B
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.29	1.58	1.12	0.63	1.93	0.31	17.29
50th-Percentile Queue Length [ft]	7.34	39.56	27.98	15.67	48.28	7.73	432.15
95th-Percentile Queue Length [veh]	0.75	3.68	2.69	1.56	4.40	0.79	28.20
95th-Percentile Queue Length [ft]	18.67	92.12	67.14	38.91	110.06	19.63	705.07

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	65.45	72.72	72.72	61.70	61.70	61.70	75.84	12.33	12.33	72.17	18.68	18.68
Movement LOS	E	E	E	E	E	E	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	71.53			61.70			15.39			19.00		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	21.21											
Intersection LOS	C											
Intersection V/C	0.386											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 15.3  
Level Of Service: B  
Volume to Capacity (v/c): 0.302

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	336	1	142	0	64	90	161	385	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	43	0	36	49	0	101	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	336	1	185	0	100	139	161	486	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.7800	0.7800	0.7800	1.0000	0.8600	0.8600	0.9300	0.9300	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	108	0	59	0	29	40	43	131	0
Total Analysis Volume [veh/h]	0	0	0	431	1	237	0	116	162	173	523	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	28	0	0	20	0	12	32	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		23	23	15	15	8	27
g / C, Green / Cycle		0.39	0.39	0.26	0.26	0.13	0.46
(v / s)_i Volume / Saturation Flow Rate		0.13	0.15	0.03	0.10	0.05	0.15
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3378	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1317	617	910	406	447	1620
d1, Uniform Delay [s]		12.80	13.13	17.14	18.47	23.91	10.39
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.67	1.80	0.29	2.90	2.52	0.53
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.33	0.38	0.13	0.40	0.39	0.32
d, Delay for Lane Group [s/veh]		13.46	14.93	17.43	21.37	26.43	10.92
Lane Group LOS		B	B	B	C	C	B
Critical Lane Group		no	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]		2.97	3.21	0.86	2.54	1.55	3.28
50th-Percentile Queue Length [ft]		74.18	80.32	21.38	63.41	38.81	82.05
95th-Percentile Queue Length [veh]		6.39	6.83	2.09	5.59	3.62	6.95
95th-Percentile Queue Length [ft]		159.68	170.76	52.22	139.63	90.55	173.84



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	13.46	13.46	14.93	0.00	17.43	21.37	26.43	10.92	0.00
Movement LOS				B	B	B		B	C	C	B	
d_A, Approach Delay [s/veh]	0.00			13.98			19.72			14.77		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	15.29											
Intersection LOS	B											
Intersection V/C	0.302											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 21.6  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.569

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	280	204	482	0	0	0	52	374	0	0	248	428
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	94	0	0	0	0	0	29	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	374	204	482	0	0	0	81	381	0	0	255	428
Peak Hour Factor	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	0.8500	0.8500	1.0000	1.0000	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	104	57	134	0	0	0	24	112	0	0	68	114
Total Analysis Volume [veh/h]	416	227	536	0	0	0	95	448	0	0	271	455
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	27	0	0	0	0	10	43	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	22		6	38	28	28
g / C, Green / Cycle	0.32		0.08	0.55	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.25		0.03	0.13	0.15	0.29
Total Saturation Flow Adjustment	0.82		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4646		3437	3547	1863	1583
c, Capacity [veh/h]	1487		285	1946	756	642
d1, Uniform Delay [s]	21.69		30.28	8.16	14.47	17.35
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.43		3.13	0.28	1.33	6.48
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

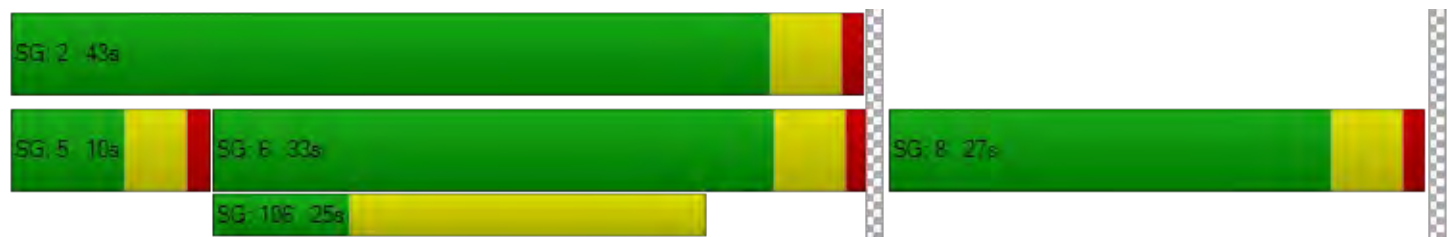
X, volume / capacity	0.79		0.33	0.23	0.36	0.71
d, Delay for Lane Group [s/veh]	26.11		33.41	8.44	15.79	23.83
Lane Group LOS	C		C	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	9.76		1.02	2.65	4.10	8.98
50th-Percentile Queue Length [ft]	244.02		25.53	66.35	102.54	224.39
95th-Percentile Queue Length [veh]	17.00		2.47	5.81	8.37	15.85
95th-Percentile Queue Length [ft]	425.08		61.65	145.18	209.22	396.29

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	26.11	26.11	26.11	0.00	0.00	0.00	33.41	8.44	0.00	0.00	15.79	23.83
Movement LOS	C	C	C				C	A			B	C
d_A, Approach Delay [s/veh]	26.11			0.00			12.81			20.83		
Approach LOS	C			A			B			C		
d_I, Intersection Delay [s/veh]	21.60											
Intersection LOS	C											
Intersection V/C	0.569											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.7  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.131

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	0	0	46	12	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	0	6	37	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	0	6	83	12	0	0	0	0	0	3
Peak Hour Factor	0.6700	0.6700	0.6700	0.7100	0.7100	0.7100	0.2500	0.2500	0.2500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	0	2	29	4	0	0	0	0	0	1
Total Analysis Volume [veh/h]	0	21	0	8	117	17	0	0	0	0	0	3
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.00	0.02	0.00	0.01	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.50	9.13	8.42	9.36	9.74	9.04	7.22	0.00	0.00	7.22	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.07	0.07	0.07	0.55	0.55	0.55	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.81	1.81	1.81	13.64	13.64	13.64	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.13			9.64			2.41			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	9.40											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	3	0	5	4	22	34	43	0	0	11	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	6	25	6	3	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	6	0	11	29	28	37	74	0	0	11	3
Peak Hour Factor	0.3800	0.3800	0.9200	0.9200	0.7800	0.7800	0.6200	0.9200	0.6200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	0	3	9	9	15	20	0	0	3	1
Total Analysis Volume [veh/h]	0	16	0	12	37	36	60	80	0	0	12	3
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.07	0.22	0.13	0.29	0.36	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	1.75	5.60	3.36	7.31	9.01	0.00	0.00	0.81	0.76
Approach Delay [s/veh]	8.25	7.77		8.32			7.71		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.10								
Intersection LOS	A								



## NCMT Tank Farm Redevelopment

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appendices.vistro

Scenario 7: Near-Term + Project AM

Report File: P:\...\7. Near-Term AM + Project.pdf

4/27/2016

## Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	17	33	9	2	37	37	21	31	8	5	80	4	284

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	21	0	3	127	199	37	387

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	5	4	18	8	2	4	13	103	4	121	216	205	703

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	1	8	135	1	19	723	887

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	4	0	20	27	1	8	12	234	1	6	732	232	1277

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	336	1	185	100	139	161	486	1408

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	374	204	482	81	381	255	428	2205

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	0	14	0	6	83	12	0	0	0	0	0	3	118

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	6	0	11	29	28	37	74	0	0	11	3	199

## NCMT Tank Farm Redevelopment

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Scenario 7: Near-Term + Project AM

Report File: P:\...\7. Near-Term AM + Project.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	17	24	9	2	37	37	21	31	8	5	80	4	275
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>17</b>	<b>33</b>	<b>9</b>	<b>2</b>	<b>37</b>	<b>37</b>	<b>21</b>	<b>31</b>	<b>8</b>	<b>5</b>	<b>80</b>	<b>4</b>	<b>284</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	21	0	3	43	119	37	223
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>21</b>	<b>0</b>	<b>3</b>	<b>127</b>	<b>199</b>	<b>37</b>	<b>387</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	5	4	9	8	2	4	3	29	4	78	136	196	478
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	9	0	0	0	10	74	0	43	80	9	225
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>4</b>	<b>18</b>	<b>8</b>	<b>2</b>	<b>4</b>	<b>13</b>	<b>103</b>	<b>4</b>	<b>121</b>	<b>216</b>	<b>205</b>	<b>703</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	1	6	52	1	7	591	658
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	2	83	0	12	132	229
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>8</b>	<b>135</b>	<b>1</b>	<b>19</b>	<b>723</b>	<b>887</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	4	0	20	27	1	8	12	149	1	6	588	232	1048
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	85	0	0	144	0	229
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>4</b>	<b>0</b>	<b>20</b>	<b>27</b>	<b>1</b>	<b>8</b>	<b>12</b>	<b>234</b>	<b>1</b>	<b>6</b>	<b>732</b>	<b>232</b>	<b>1277</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	336	1	142	64	90	161	385	1179
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	43	36	49	0	101	229
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>336</b>	<b>1</b>	<b>185</b>	<b>100</b>	<b>139</b>	<b>161</b>	<b>486</b>	<b>1408</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	280	204	482	52	374	248	428	2068
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	94	0	0	29	7	7	0	137
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>374</b>	<b>204</b>	<b>482</b>	<b>81</b>	<b>381</b>	<b>255</b>	<b>428</b>	<b>2205</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tideland Avenue	Final Base	0	8	0	0	46	12	0	0	0	0	0	0	66
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	6	0	6	37	0	0	0	0	0	0	3	52
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>6</b>	<b>83</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>118</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	3	0	5	4	22	34	43	0	0	11	3	125
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	3	0	6	25	6	3	31	0	0	0	0	74
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>11</b>	<b>29</b>	<b>28</b>	<b>37</b>	<b>74</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>3</b>	<b>199</b>



## NCMT Tank Farm Redevelopment

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Scenario 7: Near-Term + Project AM

Report File: P:\...\7. Near-Term AM + Project.pdf

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## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	414	810	216	54	882	882	540	792	198	108	1872	90	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
30: AC Students	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	432	0	90	3564	5508	1026	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	3	0	0	0	0	0	0	25	0	0	28
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	9	0	0	0	10	74	0	43	80	9	
Total Analysis Volume	162	126	576	198	54	108	324	2538	90	2988	5328	5058	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
30: AC Students	0	1	0	0	1	0	2
31: AC Adults	0	1	3	0	11	25	40
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	2	83	0	12	132	
Total Analysis Volume	18	162	2520	18	378	16884	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
30: AC Students	0	0	0	0	0	0	0	1	0	0	1	0	2
31: AC Adults	0	0	0	0	0	0	0	4	0	0	36	0	40
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	85	0	0	144	0	
Total Analysis Volume	126	0	648	702	18	216	252	4950	18	126	15876	5040	



Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
30: AC Students	0	0	0	0	1	0	1	2
31: AC Adults	0	0	6	1	3	0	30	40
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	43	36	49	0	101	
Total Analysis Volume	7758	18	4266	2088	2916	3114	9414	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
30: AC Students	1	0	0	0	0	0	0	1
31: AC Adults	30	0	0	1	0	0	0	31
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	94	0	0	29	7	7	0	
Total Analysis Volume	7488	4086	9648	1710	8064	4878	8190	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	3	0	0	3	0	0	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	3	0	0	0	0	0	0	0	3
28: 028-007	0	0	0	0	3	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	0	3	0	0	0	0	0	0	0	3
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	3	0	0	25	0	0	0	0	0	0	0	28
32: 027-029	0	0	0	3	0	0	0	0	0	0	0	3	6
33: 027-042	0	0	0	3	0	0	0	0	0	0	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	6	0	6	37	0	0	0	0	0	0	3	
Total Analysis Volume	0	378	0	144	2106	306	0	0	0	0	0	54	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	3	3	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	3	0	0	0	0	0	0	3
28: 028-007	0	0	0	3	0	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	3	0	0	0	0	0	0	0	0	3
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	3	0	0	25	0	0	0	0	0	0	0	28
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	6	25	6	3	31	0	0	0	0	
Total Analysis Volume	0	288	0	216	666	648	1080	1440	0	0	216	54	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 7: Near-Term + Project AM

Report File: P:\...\7. Near-Term AM + Project.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
30: AC Students	0	0	0	0%	0%	0	0.00%
31: AC Adults	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.57%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.57%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.57%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.84%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	34.09%	0%	0	0	0%	0%	0	6.94%	0%	0%	6.85%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.70%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
30: AC Students	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
31: AC Adults	0	0	30.68%	0%	0	0	0%	0%	0	58.33%	0%	0%	14.86%
32: 027-029	0	0	34.09%	0%	0	0	0%	0%	0	6.94%	0%	0%	6.85%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.63%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.63%
Total	0.00%	0.00%	98.86%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	99.97%	100.00%	99.99%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0%	0%	0	0%	2.27%	0.56%
19: 025-010 B	0	0%	0%	0	0%	2.27%	0.56%
20: 025-010 C	0	0%	0%	0	0%	2.27%	0.56%
21: 027-043	0	0%	0%	0	0%	0%	0.00%
22: NCMT Employees	0	0%	85.75%	0	0%	53.71%	34.48%
23: NCTF Trucks	0	0%	3.62%	0	0%	2.27%	1.46%
24: 027-016	0	0%	3.62%	0	0%	2.27%	1.46%
25: Vehicle Movement External	0	0%	0%	0	0%	0%	0.00%
26: Vehicle Movement Internal	0	0%	0%	0	0%	0%	0.00%
27: 028-003	0	0%	0%	0	0%	2.27%	0.56%
28: 028-007	0	0%	0%	0	0%	2.27%	0.56%
29: 025-010 D	0	0%	0%	0	0%	2.27%	0.56%
30: AC Students	0	45.45%	0%	0	8.47%	0%	13.33%
31: AC Adults	0	59.09%	3.26%	0	91.53%	19.06%	42.76%
32: 027-029	0	0%	3.62%	0	0%	2.27%	1.46%
33: 027-042	0	0%	0%	0	0%	2.27%	0.56%
34: 026-009 & 027-011	0	0%	0%	0	0%	2.27%	0.56%
35: 027-014 & 027-016	0	0%	0%	0	0%	2.27%	0.56%
Total	0.00%	104.54%	99.87%	0.00%	100.00%	100.01%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	83.53%	0	0	49.31%	0	66.50%
23: NCTF Trucks	0	0	0	0	0	0	0	3.53%	0	0	2.08%	0	2.81%
24: 027-016	0	0	0	0	0	0	0	3.53%	0	0	2.08%	0	2.81%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
30: AC Students	0	0	0	0	0	0	0	1.18%	0	0	0.69%	0	0.94%
31: AC Adults	0	0	0	0	0	0	0	4.35%	0	0	25.14%	0	14.76%
32: 027-029	0	0	0	0	0	0	0	3.53%	0	0	2.08%	0	2.81%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.65%	0.00%	0.00%	100.10%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.33%	0%	0%	0	1.98%	1.08%
19: 025-010 B	0	0	2.33%	0%	0%	0	1.98%	1.08%
20: 025-010 C	0	0	2.33%	0%	0%	0	1.98%	1.08%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	58.14%	88.89%	79.59%	0	45.54%	68.06%
23: NCTF Trucks	0	0	2.33%	2.78%	4.08%	0	1.98%	2.79%
24: 027-016	0	0	2.33%	2.78%	4.08%	0	1.98%	2.79%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.33%	0%	0%	0	1.98%	1.08%
28: 028-007	0	0	2.33%	0%	0%	0	1.98%	1.08%
29: 025-010 D	0	0	2.33%	0%	0%	0	1.98%	1.08%
30: AC Students	0	0	0%	0%	2.04%	0	0.99%	0.76%
31: AC Adults	0	0	14.42%	1.94%	6.33%	0	29.7%	13.10%
32: 027-029	0	0	2.33%	2.78%	4.08%	0	1.98%	2.79%
33: 027-042	0	0	2.33%	0%	0%	0	1.98%	1.08%
34: 026-009 & 027-011	0	0	2.33%	0%	0%	0	1.98%	1.08%
35: 027-014 & 027-016	0	0	2.33%	0%	0%	0	1.98%	1.08%
Total	0.00%	0.00%	100.52%	99.17%	100.20%	0.00%	99.99%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2.13%	0	0	0%	0%	0%	0	0.53%
19: 025-010 B	2.13%	0	0	0%	0%	0%	0	0.53%
20: 025-010 C	2.13%	0	0	0%	0%	0%	0	0.53%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	41.49%	0	0	86.21%	100%	100%	0	82.13%
23: NCTF Trucks	2.13%	0	0	3.45%	0%	0%	0	1.40%
24: 027-016	2.13%	0	0	3.45%	0%	0%	0	1.40%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	2.13%	0	0	0%	0%	0%	0	0.53%
28: 028-007	2.13%	0	0	0%	0%	0%	0	0.53%
29: 025-010 D	2.13%	0	0	0%	0%	0%	0	0.53%
30: AC Students	1.06%	0	0	0%	0%	0%	0	0.27%
31: AC Adults	31.91%	0	0	2.41%	0%	0%	0	8.60%
32: 027-029	2.13%	0	0	3.45%	0%	0%	0	1.40%
33: 027-042	2.13%	0	0	0%	0%	0%	0	0.53%
34: 026-009 & 027-011	2.13%	0	0	0%	0%	0%	0	0.53%
35: 027-014 & 027-016	2.13%	0	0	0%	0%	0%	0	0.53%
Total	100.02%	0.00%	0.00%	98.97%	100.00%	100.00%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	51.72%	0	0%	8.06%	0	0	0	0	0	0	0%	15.01%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	8.06%	0	0	0	0	0	0	0%	2.02%
28: 028-007	0	0%	0	0%	8.06%	0	0	0	0	0	0	0%	2.02%
29: 025-010 D	0	0%	0	0%	8.06%	0	0	0	0	0	0	0%	2.02%
30: AC Students	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
31: AC Adults	0	46.55%	0	0%	67.74%	0	0	0	0	0	0	0%	28.70%
32: 027-029	0	0%	0	50%	0%	0	0	0	0	0	0	100%	37.66%
33: 027-042	0	0%	0	50%	0%	0	0	0	0	0	0	0%	12.55%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	98.27%	0.00%	100.00%	99.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0%	0	0%	0%	50%	100%	0%	0	0	0	0%	25.15%
25: Vehicle Movement External	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0%	0%	100%	0	0	0	0%	16.77%
27: 028-003	0	0%	0	0%	0%	50%	0%	0%	0	0	0	0%	8.38%
28: 028-007	0	0%	0	50%	0%	0%	0%	0%	0	0	0	0%	8.38%
29: 025-010 D	0	0%	0	50%	0%	0%	0%	0%	0	0	0	0%	8.38%
30: AC Students	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
31: AC Adults	0	96.43%	0	0%	100%	0%	0%	0%	0	0	0	0%	32.93%
32: 027-029	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	96.43%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 7: Near-Term + Project AM

Report File: P:\...\7. Near-Term AM + Project.pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	5.56%	0	0	0%	0	0	0	0	0	0	0	0.08%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	11.11%	0	0	0%	0	0	0	0	0	0	0	0.16%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	25.18%	18.39%	0	0.41%
23: NCTF Trucks	0	0	0	1.06%	0.78%	0	0.02%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.55%	0%	0	0.03%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
30: AC Students	0	0	0	0%	0%	0	0.00%
31: AC Adults	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	0.78%	0	0.01%
35: 027-014 & 027-016	0	0	0	0%	0.78%	0	0.01%
Total	0.00%	0.00%	0.00%	29.79%	20.73%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	1.03%	0.01%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	1.03%	0.01%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	1.03%	0.01%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	33.02%	0	0%	18.88%	0%	0.30%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.4%	0	0%	0.8%	0%	0.01%
24: 027-016	0	0	7.35%	0%	0	0	0%	0%	0	1.43%	0%	0%	0.05%
25: Vehicle Movement External	0	0	0%	0%	0	0	35.71%	0%	0	0%	0%	0%	0.20%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	1.43%	0%	0%	0.01%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	1.43%	0%	0%	0.01%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	1.43%	0%	0%	0.01%
30: AC Students	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
31: AC Adults	0	0	6.62%	0%	0	0	0%	0%	0	12.05%	0%	0%	0.11%
32: 027-029	0	0	7.35%	0%	0	0	0%	0%	0	1.43%	0%	0%	0.05%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	1.43%	0%	0%	0.01%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	0.8%	0%	0.00%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	0.8%	0%	0.00%
Total	0.00%	0.00%	21.32%	0.00%	0.00%	0.00%	35.71%	34.42%	0.00%	20.63%	21.28%	3.09%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0%	0%	0	0%	0.28%	0.00%
19: 025-010 B	0	0%	0%	0	0%	0.28%	0.00%
20: 025-010 C	0	0%	0%	0	0%	0.28%	0.00%
21: 027-043	0	0%	0%	0	0%	0%	0.00%
22: NCMT Employees	0	0%	31.87%	0	0%	6.63%	0.19%
23: NCTF Trucks	0	0%	1.35%	0	0%	0.28%	0.01%
24: 027-016	0	0%	1.35%	0	0%	0.28%	0.01%
25: Vehicle Movement External	0	0%	0%	0	0%	0%	0.00%
26: Vehicle Movement Internal	0	0%	0%	0	0%	0%	0.00%
27: 028-003	0	0%	0%	0	0%	0.28%	0.00%
28: 028-007	0	0%	0%	0	0%	0.28%	0.00%
29: 025-010 D	0	0%	0%	0	0%	0.28%	0.00%
30: AC Students	0	8.93%	0%	0	3.05%	0%	0.06%
31: AC Adults	0	11.61%	1.21%	0	32.93%	2.35%	0.24%
32: 027-029	0	0%	1.35%	0	0%	0.28%	0.01%
33: 027-042	0	0%	0%	0	0%	0.28%	0.00%
34: 026-009 & 027-011	0	0%	0%	0	0%	0.28%	0.00%
35: 027-014 & 027-016	0	0%	0%	0	0%	0.28%	0.00%
Total	0.00%	20.54%	37.13%	0.00%	35.98%	12.34%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	19.72%	0	0	6.92%	0	0.10%
23: NCTF Trucks	0	0	0	0	0	0	0	0.83%	0	0	0.29%	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0.83%	0	0	0.29%	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
30: AC Students	0	0	0	0	0	0	0	0.28%	0	0	0.1%	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	1.03%	0	0	3.53%	0	0.02%
32: 027-029	0	0	0	0	0	0	0	0.83%	0	0	0.29%	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.29%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	23.52%	0.00%	0.00%	14.03%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.36%	0%	0%	0	0.32%	0.00%
19: 025-010 B	0	0	0.36%	0%	0%	0	0.32%	0.00%
20: 025-010 C	0	0	0.36%	0%	0%	0	0.32%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	8.93%	21.05%	18.48%	0	7.37%	0.19%
23: NCTF Trucks	0	0	0.36%	0.66%	0.95%	0	0.32%	0.01%
24: 027-016	0	0	0.36%	0.66%	0.95%	0	0.32%	0.01%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.36%	0%	0%	0	0.32%	0.00%
28: 028-007	0	0	0.36%	0%	0%	0	0.32%	0.00%
29: 025-010 D	0	0	0.36%	0%	0%	0	0.32%	0.00%
30: AC Students	0	0	0%	0%	0.47%	0	0.16%	0.00%
31: AC Adults	0	0	2.21%	0.46%	1.47%	0	4.81%	0.03%
32: 027-029	0	0	0.36%	0.66%	0.95%	0	0.32%	0.01%
33: 027-042	0	0	0.36%	0%	0%	0	0.32%	0.00%
34: 026-009 & 027-011	0	0	0.36%	0%	0%	0	0.32%	0.00%
35: 027-014 & 027-016	0	0	0.36%	0%	0%	0	0.32%	0.00%
Total	0.00%	0.00%	15.46%	23.49%	23.27%	0.00%	16.18%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.39%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.39%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.39%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	7.65%	0	0	20.16%	1.54%	2.52%	0	0.07%
23: NCTF Trucks	0.39%	0	0	0.81%	0%	0%	0	0.00%
24: 027-016	0.39%	0	0	0.81%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.39%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.39%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.39%	0	0	0%	0%	0%	0	0.00%
30: AC Students	0.2%	0	0	0%	0%	0%	0	0.00%
31: AC Adults	5.88%	0	0	0.56%	0%	0%	0	0.01%
32: 027-029	0.39%	0	0	0.81%	0%	0%	0	0.00%
33: 027-042	0.39%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.39%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.39%	0	0	0%	0%	0%	0	0.00%
Total	18.41%	0.00%	0.00%	23.15%	1.54%	2.52%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	11.19%	0	0%	1.95%	0	0	0	0	0	0	0%	0.44%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	1.95%	0	0	0	0	0	0	0%	0.07%
28: 028-007	0	0%	0	0%	1.95%	0	0	0	0	0	0	0%	0.07%
29: 025-010 D	0	0%	0	0%	1.95%	0	0	0	0	0	0	0%	0.07%
30: AC Students	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
31: AC Adults	0	10.07%	0	0%	16.34%	0	0	0	0	0	0	0%	0.88%
32: 027-029	0	0%	0	21.43%	0%	0	0	0	0	0	0	50%	2.39%
33: 027-042	0	0%	0	21.43%	0%	0	0	0	0	0	0	0%	0.72%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	21.26%	0.00%	42.86%	24.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0%	0	0%	0%	7.14%	4.76%	0%	0	0	0	0%	0.26%
25: Vehicle Movement External	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0%	0%	27.93%	0	0	0	0%	0.61%
27: 028-003	0	0%	0	0%	0%	7.14%	0%	0%	0	0	0	0%	0.15%
28: 028-007	0	0%	0	16.67%	0%	0%	0%	0%	0	0	0	0%	0.36%
29: 025-010 D	0	0%	0	16.67%	0%	0%	0%	0%	0	0	0	0%	0.36%
30: AC Students	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
31: AC Adults	0	14.36%	0	0%	40.51%	0%	0%	0%	0	0	0	0%	1.19%
32: 027-029	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	14.36%	0.00%	33.34%	40.51%	14.28%	4.76%	27.93%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	236	130	21
2	227	125	20
3	222	122	20
4	189	104	17
5	179	99	16
6	160	88	14
7	149	82	13
8	142	78	13
9	113	62	10
10	106	59	9
11	106	59	9
12	101	56	9
13	92	51	8
14	85	47	8
15	85	47	8
16	83	46	7
17	47	26	4
18	26	14	2
19	24	13	2
20	9	5	1
21	7	4	1
22	7	4	1
23	5	3	0
24	5	3	0



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	366	1	21	No	No	No	No	No	No	No	No	No	No
2	4	352	1	20	No	No	No	No	No	No	No	No	No	No
3	4	344	1	20	No	No	No	No	No	No	No	No	No	No
4	4	293	1	17	No	No	No	No	No	No	No	No	No	No
5	4	278	1	16	No	No	No	No	No	No	No	No	No	No
6	4	248	1	14	No	No	No	No	No	No	No	No	No	No
7	4	231	1	13	No	No	No	No	No	No	No	No	No	No
8	4	220	1	13	No	No	No	No	No	No	No	No	No	No
9	4	175	1	10	No	No	No	No	No	No	No	No	No	No
10	4	165	1	9	No	No	No	No	No	No	No	No	No	No
11	4	165	1	9	No	No	No	No	No	No	No	No	No	No
12	4	157	1	9	No	No	No	No	No	No	No	No	No	No
13	4	143	1	8	No	No	No	No	No	No	No	No	No	No
14	4	132	1	8	No	No	No	No	No	No	No	No	No	No
15	4	132	1	8	No	No	No	No	No	No	No	No	No	No
16	4	129	1	7	No	No	No	No	No	No	No	No	No	No
17	4	73	1	4	No	No	No	No	No	No	No	No	No	No
18	4	40	1	2	No	No	No	No	No	No	No	No	No	No
19	4	37	1	2	No	No	No	No	No	No	No	No	No	No
20	4	14	1	1	No	No	No	No	No	No	No	No	No	No
21	4	11	1	1	No	No	No	No	No	No	No	No	No	No
22	4	11	1	1	No	No	No	No	No	No	No	No	No	No
23	4	8	1	0	No	No	No	No	No	No	No	No	No	No
24	4	8	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	12
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	21
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	387
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	3	0	14	101
2	3	0	13	97
3	3	0	13	95
4	2	0	11	81
5	2	0	11	77
6	2	0	10	69
7	2	0	9	64
8	2	0	8	61
9	1	0	7	48
10	1	0	6	45
11	1	0	6	45
12	1	0	6	43
13	1	0	5	39
14	1	0	5	36
15	1	0	5	36
16	1	0	5	35
17	1	0	3	20
18	0	0	2	11
19	0	0	1	10
20	0	0	1	4
21	0	0	0	3
22	0	0	0	3
23	0	0	0	2
24	0	0	0	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	3	2	115	No	No	No	No	No	No	No	No	No	No
2	2	3	2	110	No	No	No	No	No	No	No	No	No	No
3	2	3	2	108	No	No	No	No	No	No	No	No	No	No
4	2	2	2	92	No	No	No	No	No	No	No	No	No	No
5	2	2	2	88	No	No	No	No	No	No	No	No	No	No
6	2	2	2	79	No	No	No	No	No	No	No	No	No	No
7	2	2	2	73	No	No	No	No	No	No	No	No	No	No
8	2	2	2	69	No	No	No	No	No	No	No	No	No	No
9	2	1	2	55	No	No	No	No	No	No	No	No	No	No
10	2	1	2	51	No	No	No	No	No	No	No	No	No	No
11	2	1	2	51	No	No	No	No	No	No	No	No	No	No
12	2	1	2	49	No	No	No	No	No	No	No	No	No	No
13	2	1	2	44	No	No	No	No	No	No	No	No	No	No
14	2	1	2	41	No	No	No	No	No	No	No	No	No	No
15	2	1	2	41	No	No	No	No	No	No	No	No	No	No
16	2	1	2	40	No	No	No	No	No	No	No	No	No	No
17	2	1	2	23	No	No	No	No	No	No	No	No	No	No
18	2	0	2	13	No	No	No	No	No	No	No	No	No	No
19	2	0	2	11	No	No	No	No	No	No	No	No	No	No
20	2	0	2	5	No	No	No	No	No	No	No	No	No	No
21	2	0	2	3	No	No	No	No	No	No	No	No	No	No
22	2	0	2	3	No	No	No	No	No	No	No	No	No	No
23	2	0	2	2	No	No	No	No	No	No	No	No	No	No
24	2	0	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.1	9.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:16
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	14	101
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	118	118
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	14	111	6	68
2	13	107	6	65
3	13	104	6	64
4	11	89	5	54
5	11	84	5	52
6	10	75	4	46
7	9	70	4	43
8	8	67	4	41
9	7	53	3	33
10	6	50	3	31
11	6	50	3	31
12	6	48	3	29
13	5	43	2	27
14	5	40	2	24
15	5	40	2	24
16	5	39	2	24
17	3	22	1	14
18	2	12	1	7
19	1	11	1	7
20	1	4	0	3
21	0	3	0	2
22	0	3	0	2
23	0	2	0	1
24	0	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	125	3	74	No	No	No	No	No	No	No	No	No	No
2	6	120	3	71	No	No	No	No	No	No	No	No	No	No
3	6	117	3	70	No	No	No	No	No	No	No	No	No	No
4	6	100	3	59	No	No	No	No	No	No	No	No	No	No
5	6	95	3	57	No	No	No	No	No	No	No	No	No	No
6	6	85	3	50	No	No	No	No	No	No	No	No	No	No
7	6	79	3	47	No	No	No	No	No	No	No	No	No	No
8	6	75	3	45	No	No	No	No	No	No	No	No	No	No
9	6	60	3	36	No	No	No	No	No	No	No	No	No	No
10	6	56	3	34	No	No	No	No	No	No	No	No	No	No
11	6	56	3	34	No	No	No	No	No	No	No	No	No	No
12	6	54	3	32	No	No	No	No	No	No	No	No	No	No
13	6	48	3	29	No	No	No	No	No	No	No	No	No	No
14	6	45	3	26	No	No	No	No	No	No	No	No	No	No
15	6	45	3	26	No	No	No	No	No	No	No	No	No	No
16	6	44	3	26	No	No	No	No	No	No	No	No	No	No
17	6	25	3	15	No	No	No	No	No	No	No	No	No	No
18	6	14	3	8	No	No	No	No	No	No	No	No	No	No
19	6	12	3	8	No	No	No	No	No	No	No	No	No	No
20	6	5	3	3	No	No	No	No	No	No	No	No	No	No
21	6	3	3	2	No	No	No	No	No	No	No	No	No	No
22	6	3	3	2	No	No	No	No	No	No	No	No	No	No
23	6	2	3	1	No	No	No	No	No	No	No	No	No	No
24	6	2	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.3	7.8
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	0:08
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	6	68
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	199	199
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	



## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
 appendices.vistro

Scenario 7: Near-Term + Project AM

Report File: P:\...7. Near-Term AM + Project.pdf

4/27/2016

### Trip generation summary

#### Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.03
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.03
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.03
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	48.63
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.05
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.05
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	3.42
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	16.44
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.03
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.03
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.03
30: AC Students				1.000	2.000	50.00	50.00	1	1	2	0.68
31: AC Adults				1.000	45.000	90.00	10.00	40	5	45	15.41
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.05
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.03
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.03
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.03
<b>Added Trips Total</b>								<b>148</b>	<b>144</b>	<b>292</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 7: Near-Term + Project AM

Report File: P:\...7. Near-Term AM + Project.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0

33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 28: 028-007			
	To 028-007:		From 028-007:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

Zone / Gate	Zone 29: 025-010 D			
	To 025-010 D:		From 025-010 D:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 30: AC Students			
	To AC Students:		From AC Students:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	100.00	1	100.00	1
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>1</b>	<b>100.00</b>	<b>1</b>

Zone / Gate	Zone 31: AC Adults			
	To AC Adults:		From AC Adults:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	15.00	6	15.00	1
3: Gate	75.00	30	75.00	3
4: Gate	10.00	4	10.00	1
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>40</b>	<b>100.00</b>	<b>5</b>



Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0

Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0

14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

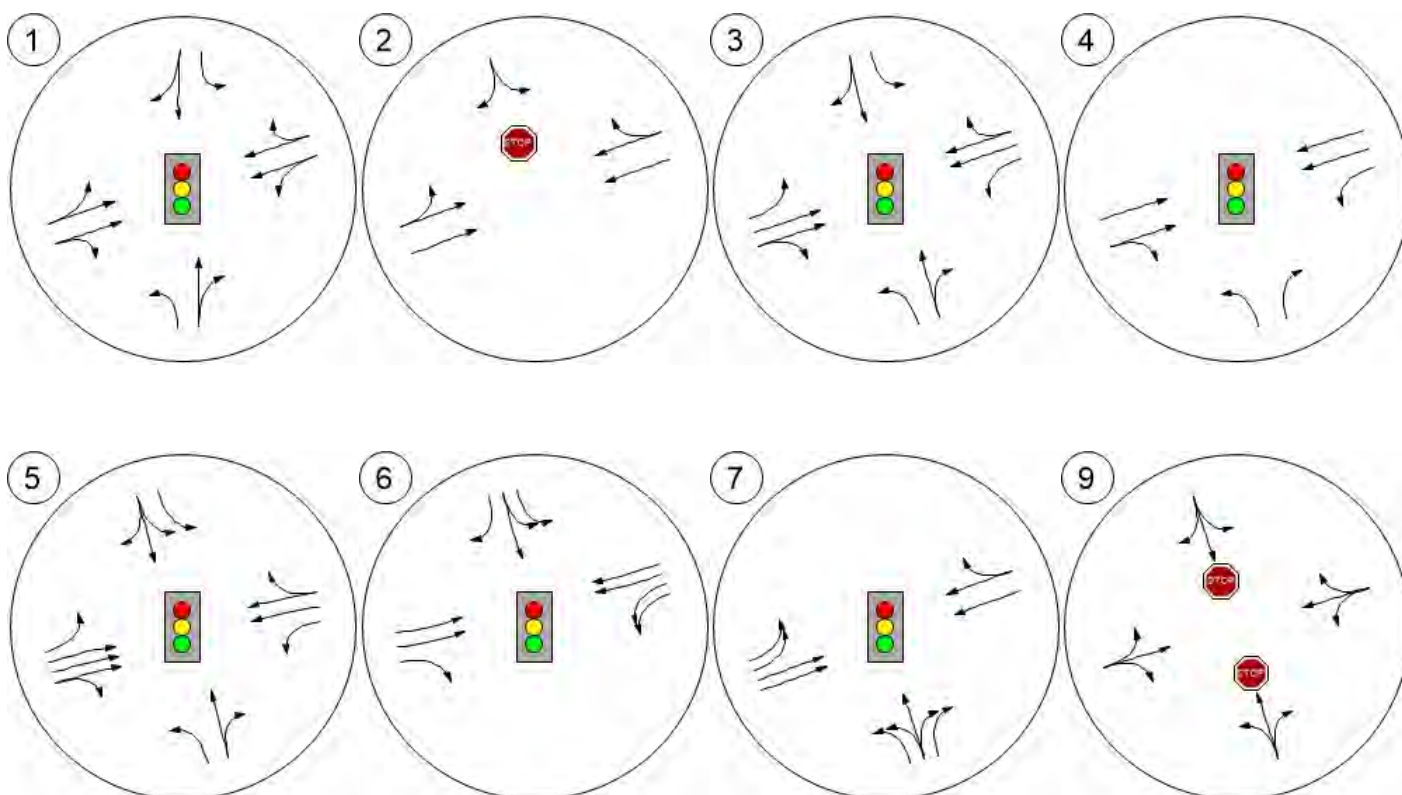
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

## Study Intersections

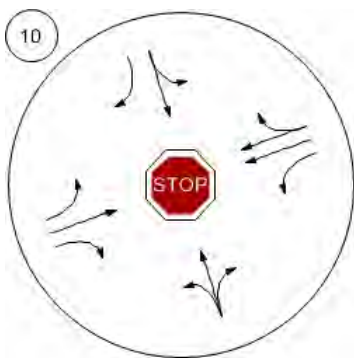




# Lane Configuration and Traffic Control

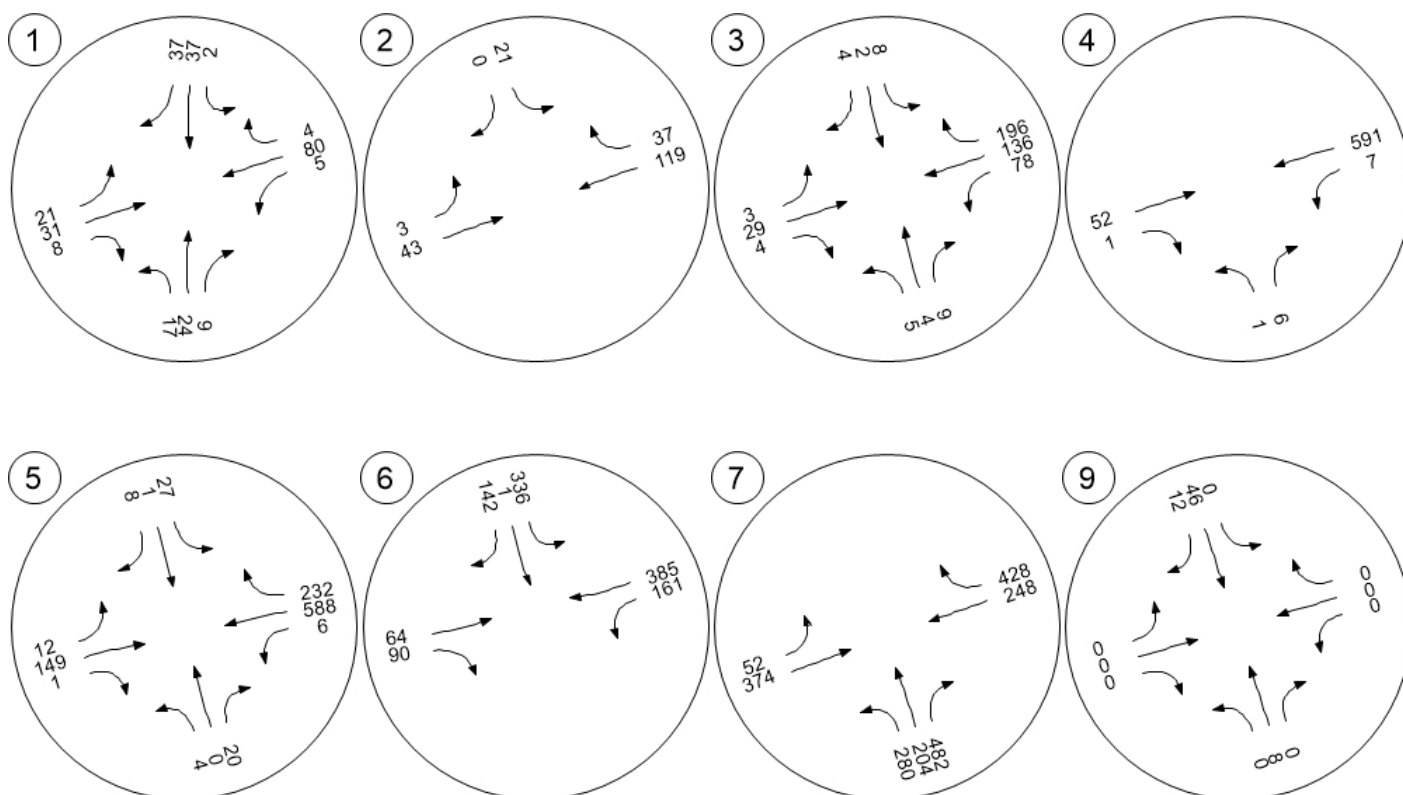


## Lane Configuration and Traffic Control

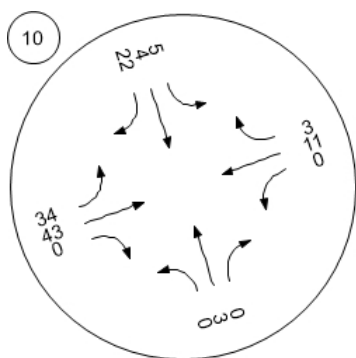




Traffic Volume - Base Volume

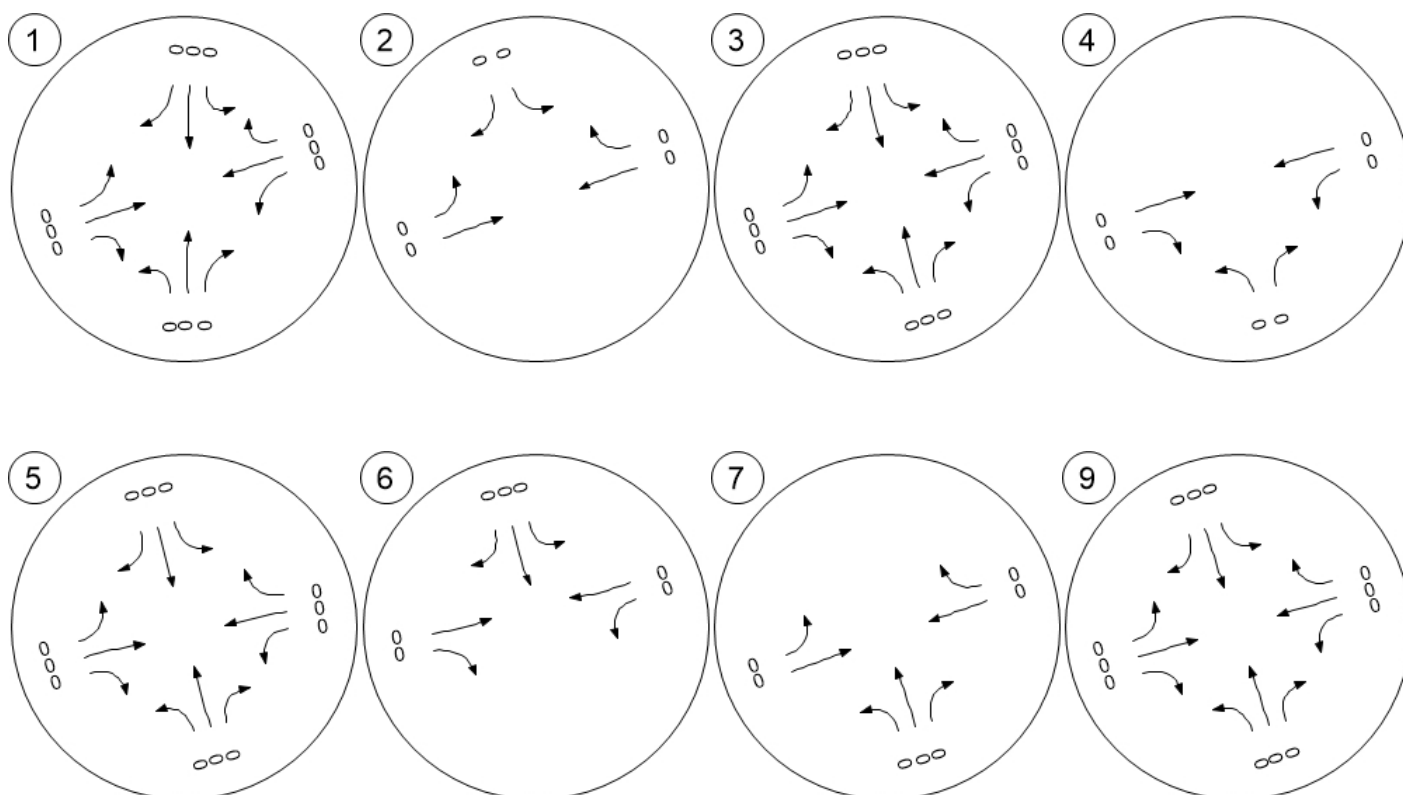


Traffic Volume - Base Volume

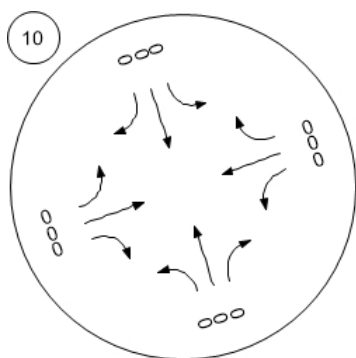




Traffic Volume - In-Process Volume

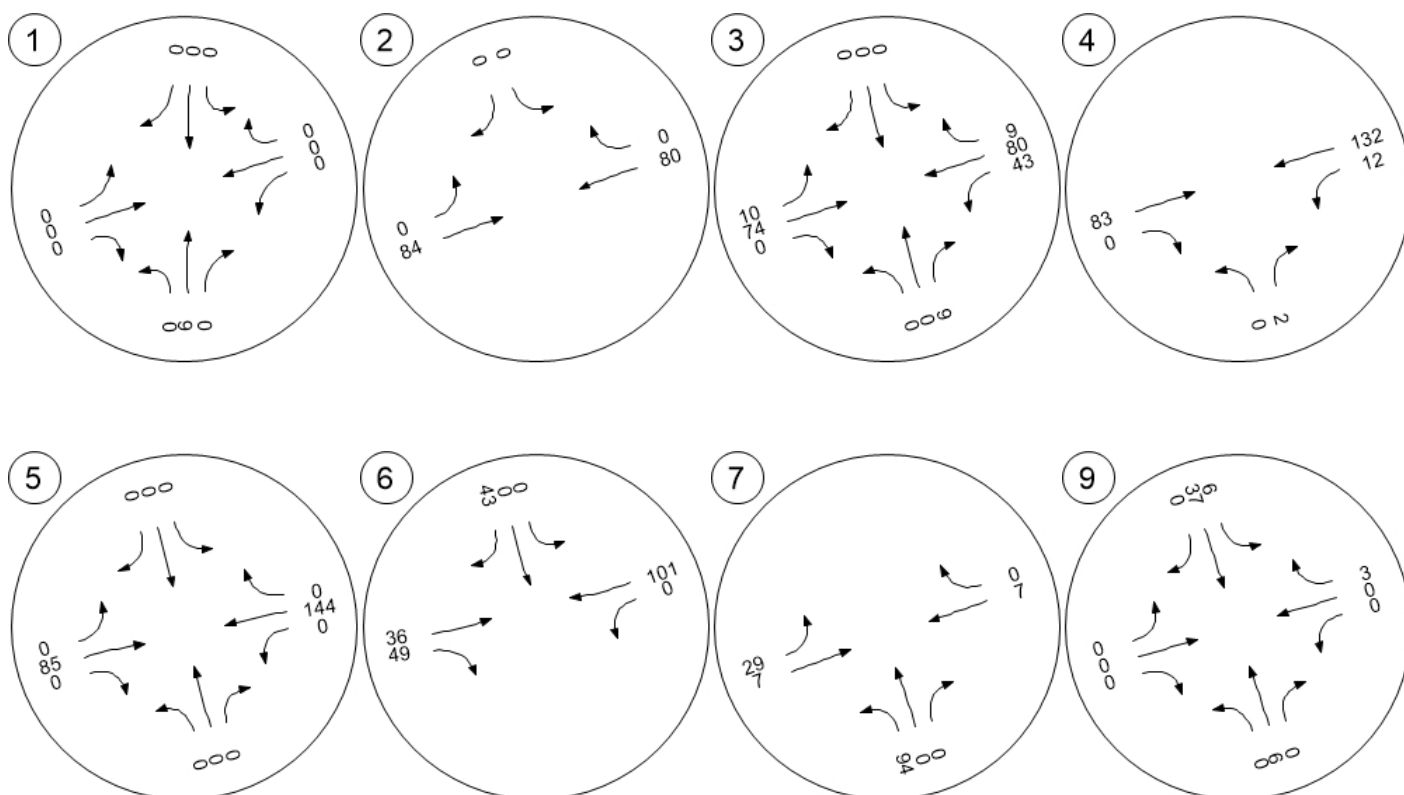


Traffic Volume - In-Process Volume



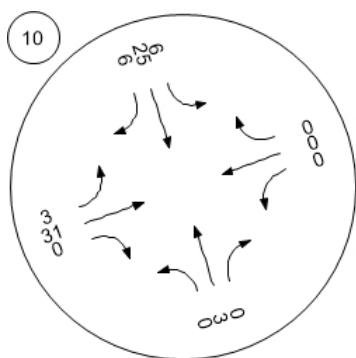


# Traffic Volume - Net New Site Trips

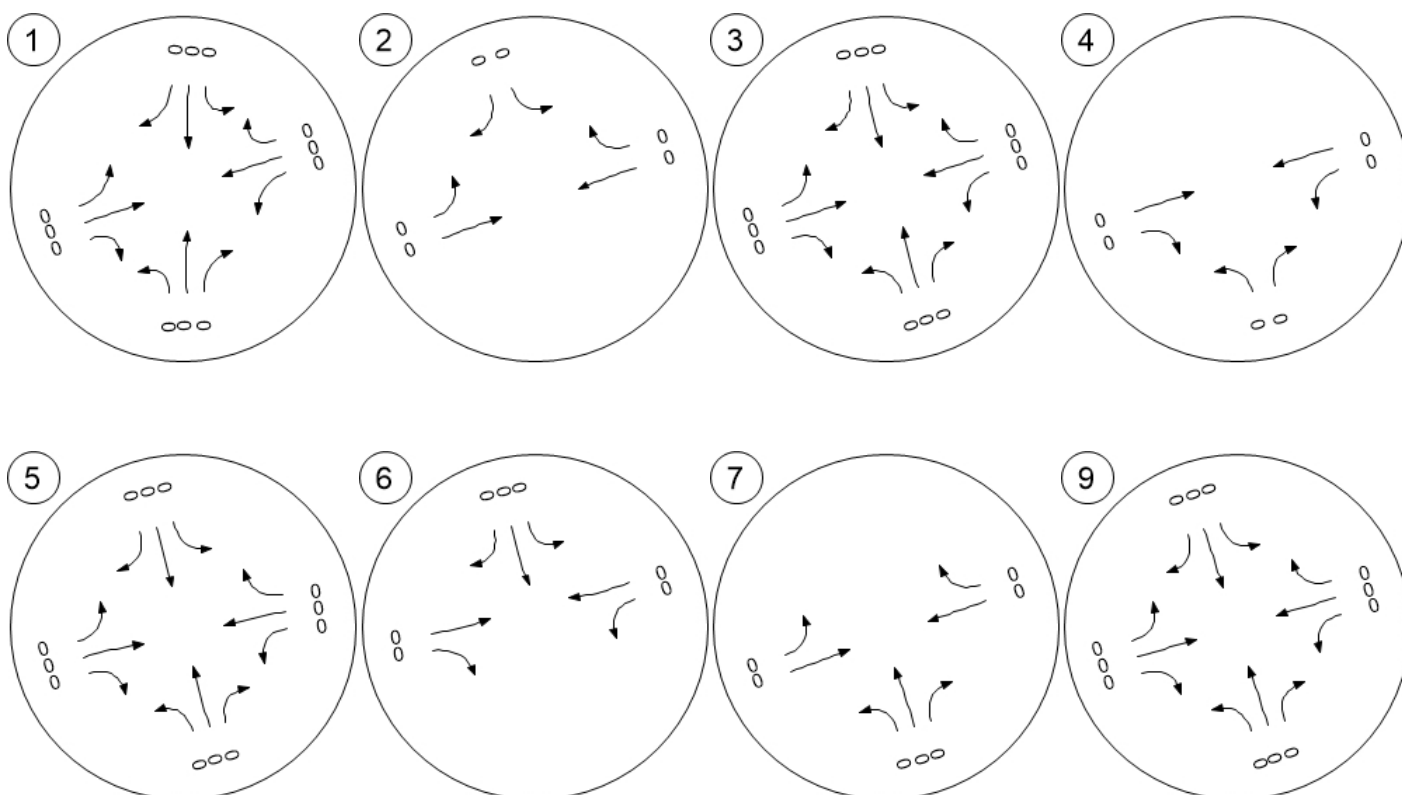




Traffic Volume - Net New Site Trips

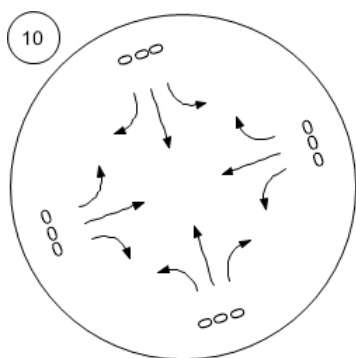


Traffic Volume - Other Volume

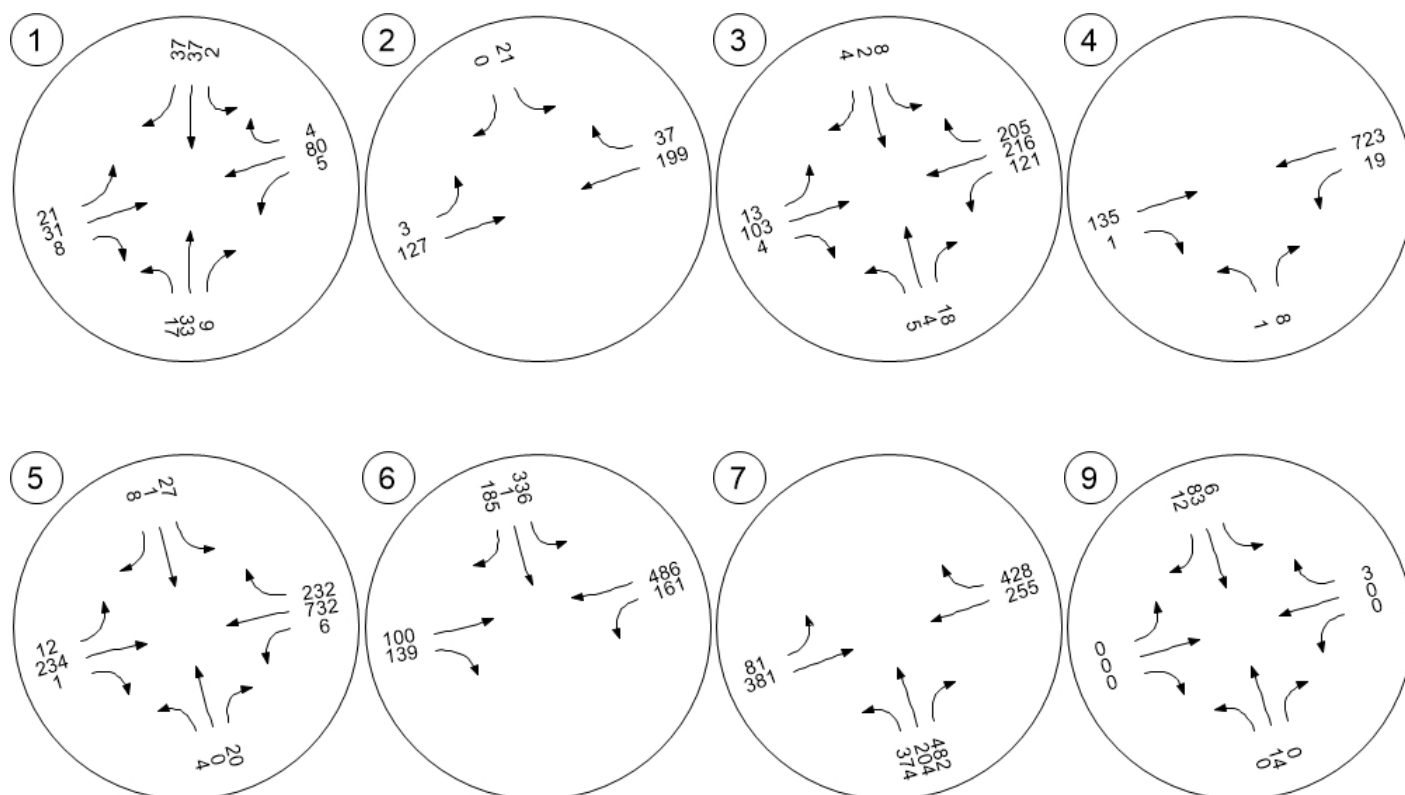




Traffic Volume - Other Volume

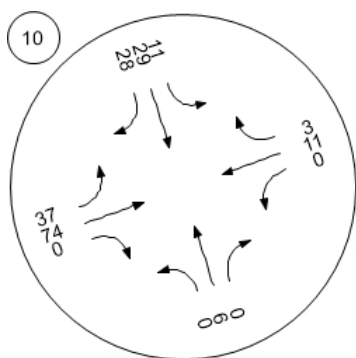


Traffic Volume - Future Total Volume



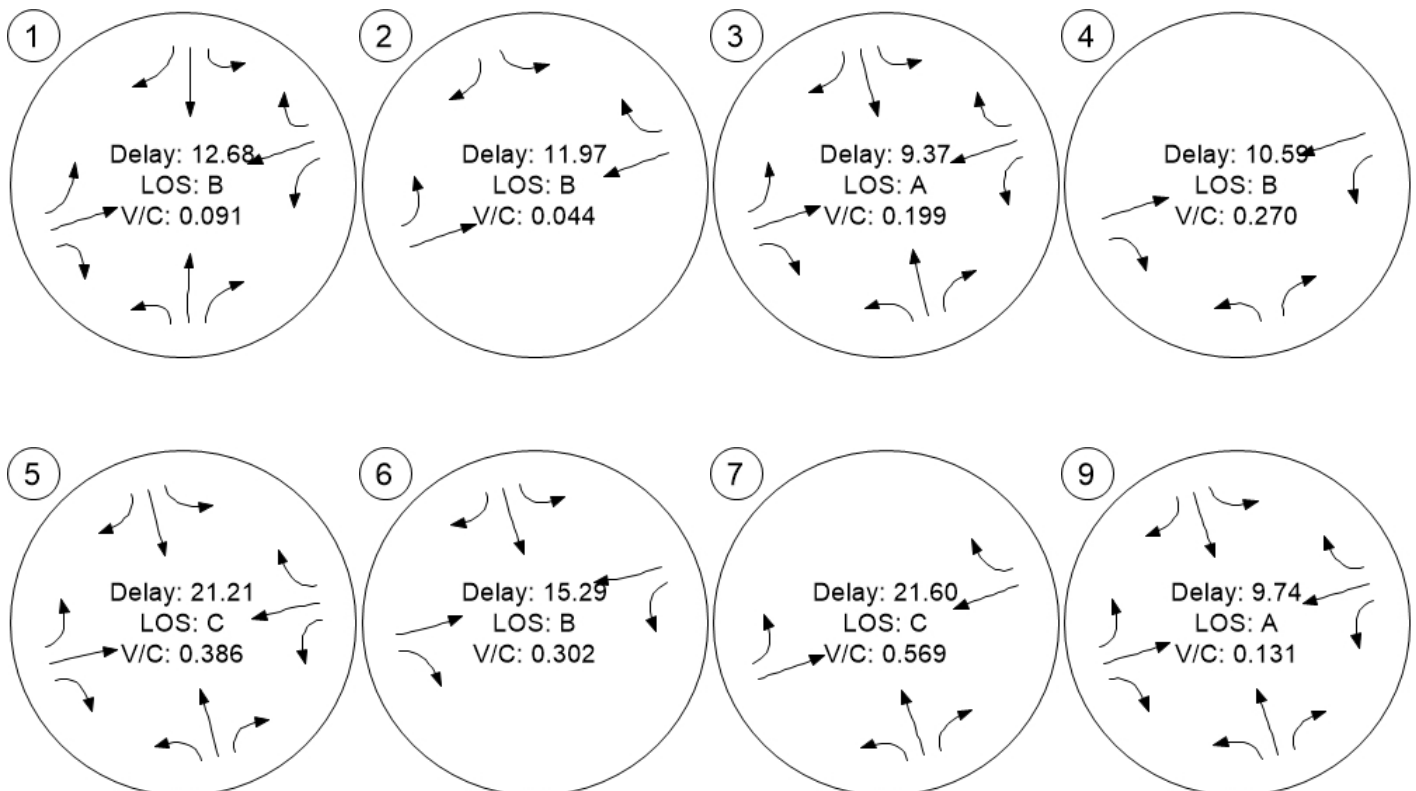


Traffic Volume - Future Total Volume

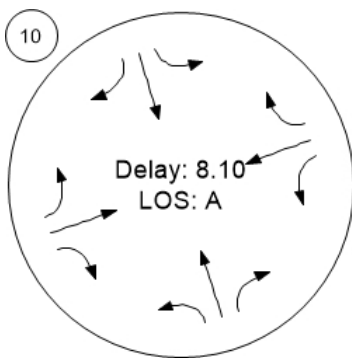




## Traffic Conditions

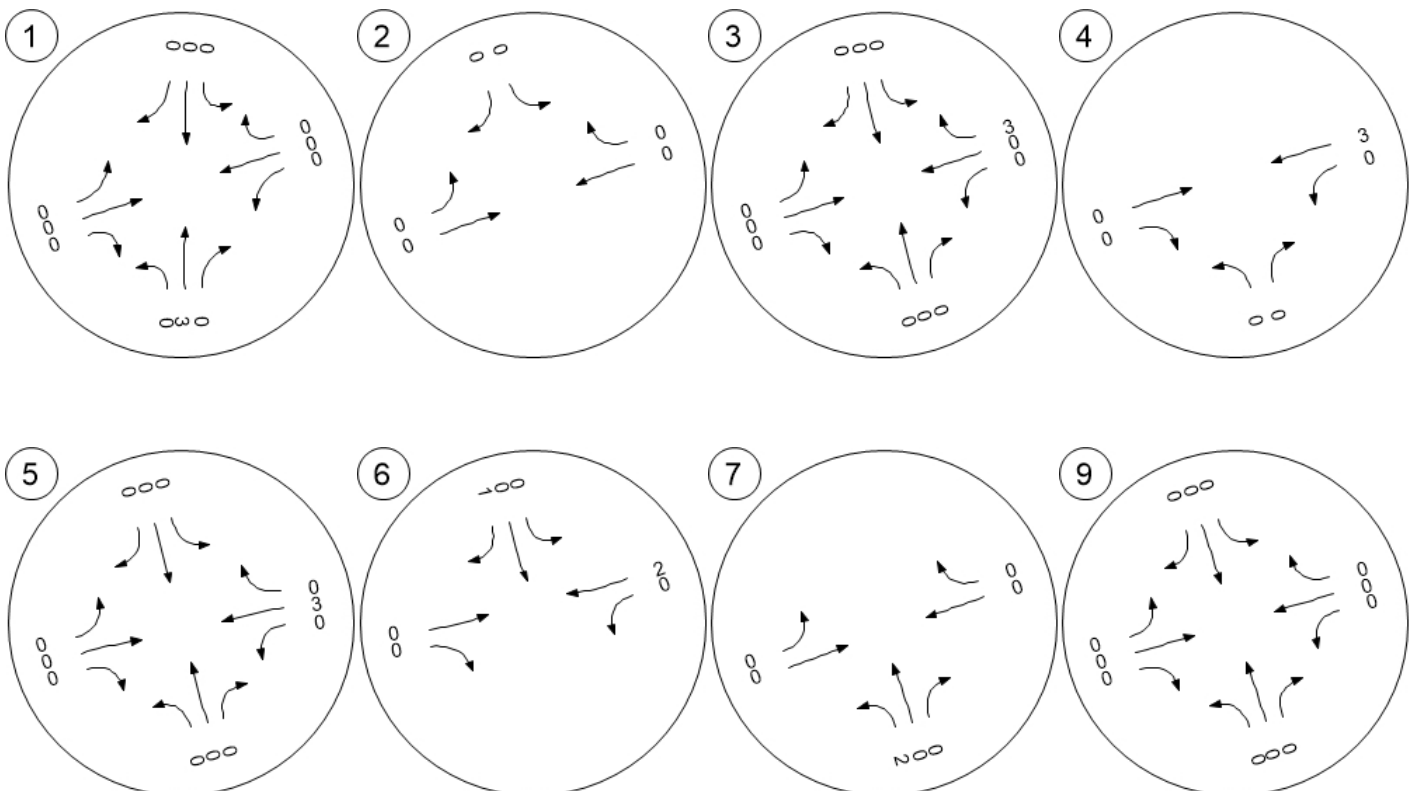


## Traffic Conditions

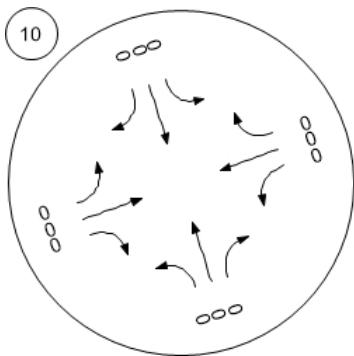




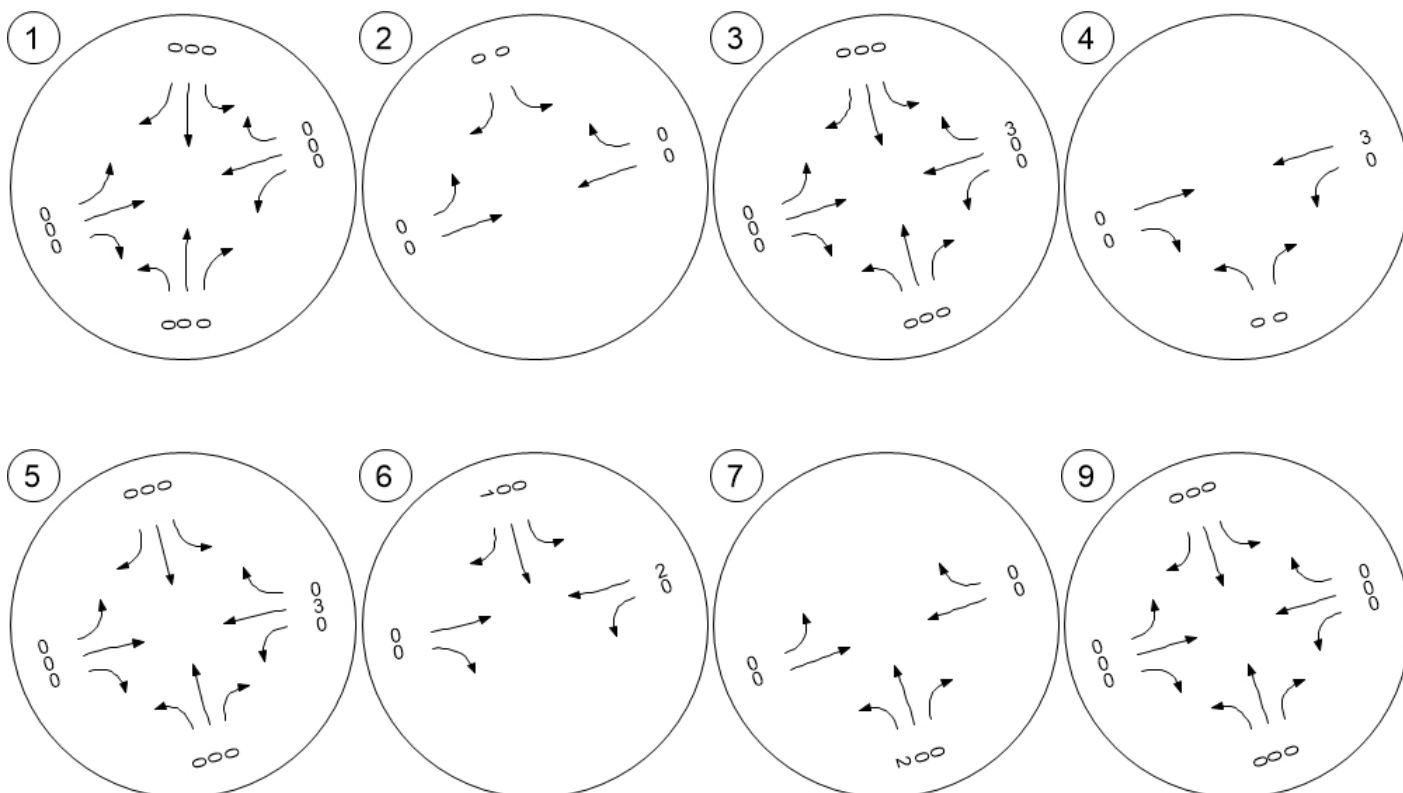
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 18

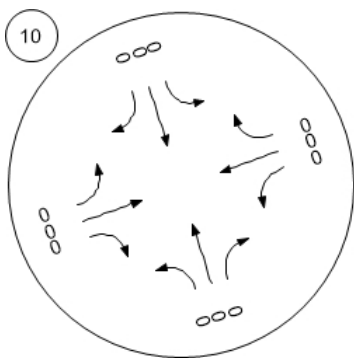


Fair Share - Fair Share Volumes - Zone 19

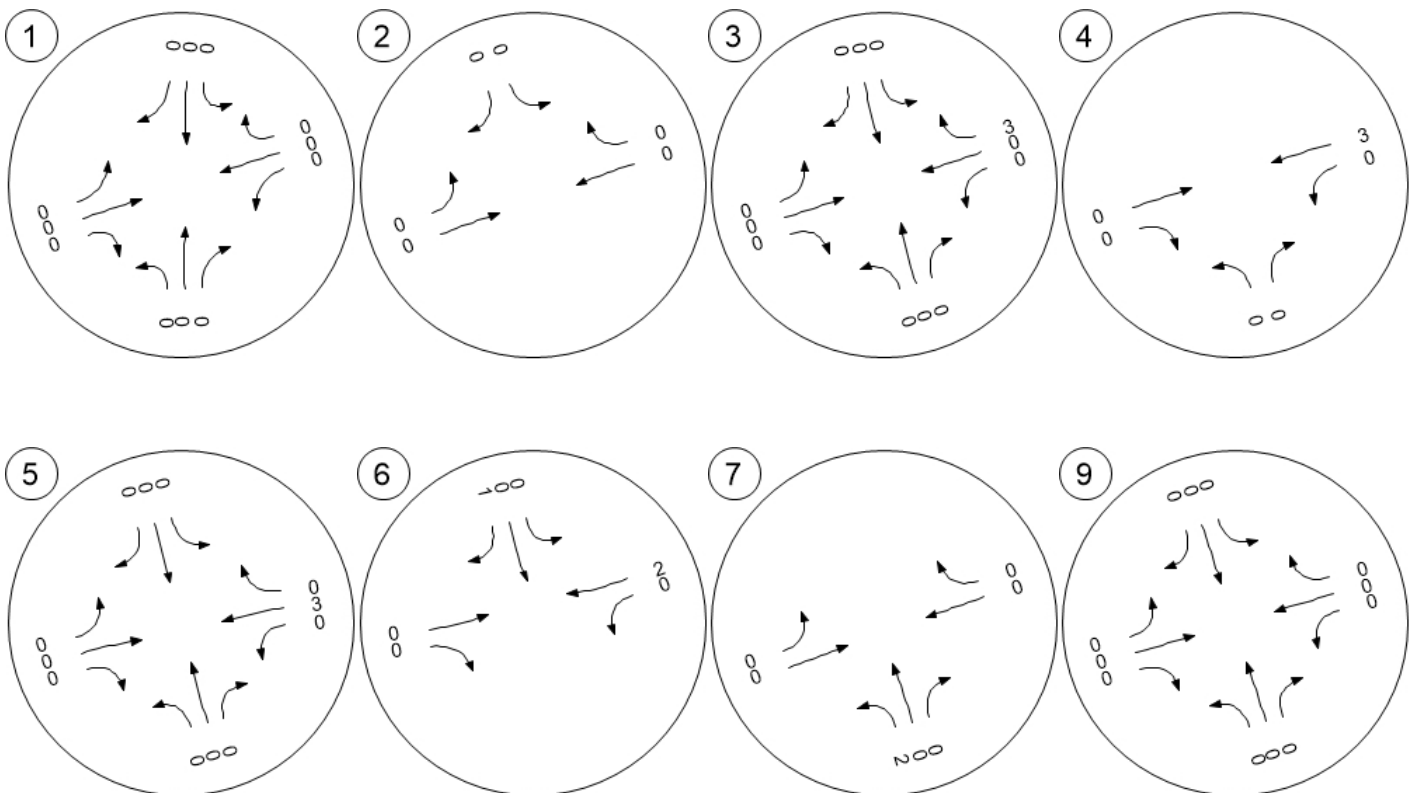




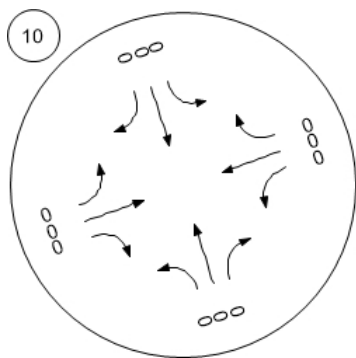
Fair Share - Fair Share Volumes - Zone 19



Fair Share - Fair Share Volumes - Zone 20

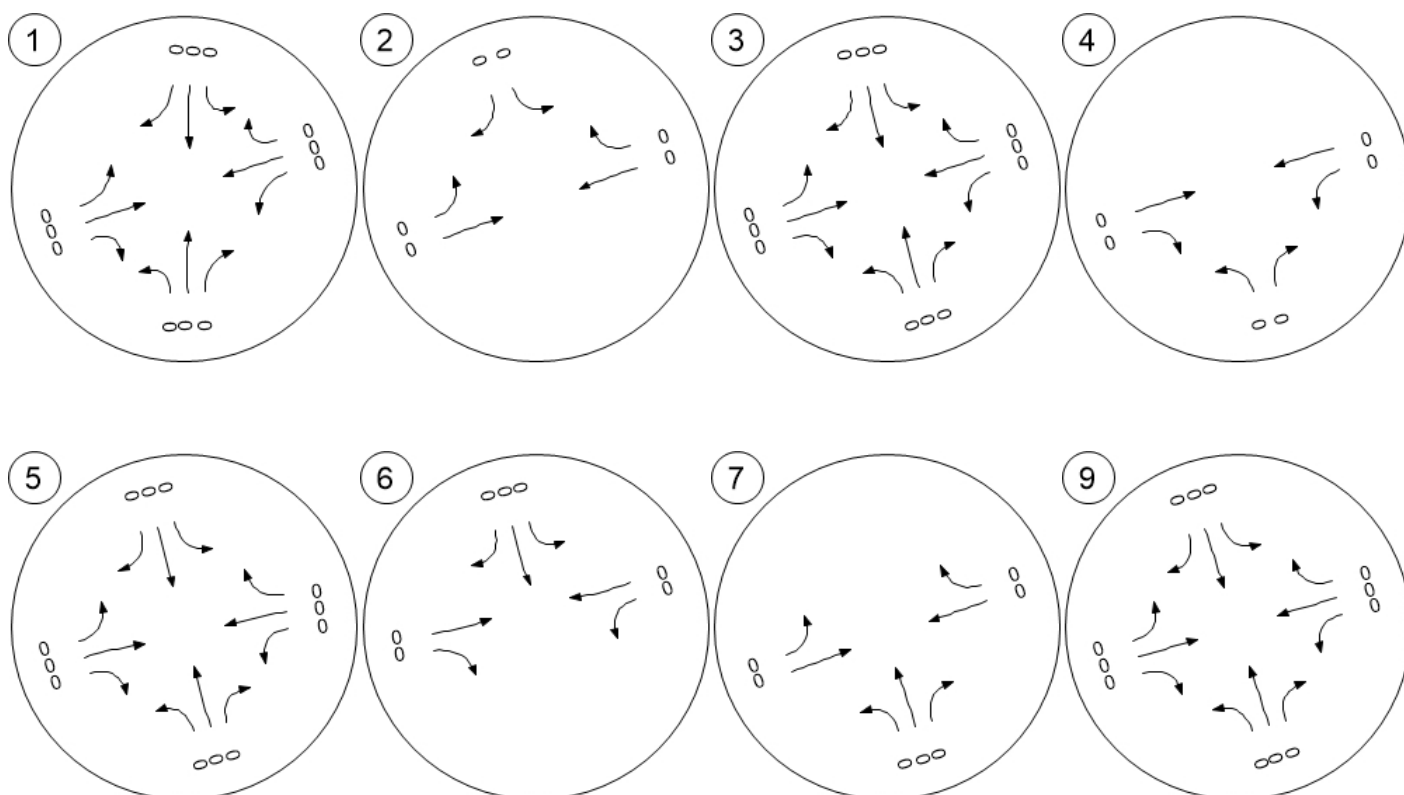


Fair Share - Fair Share Volumes - Zone 20

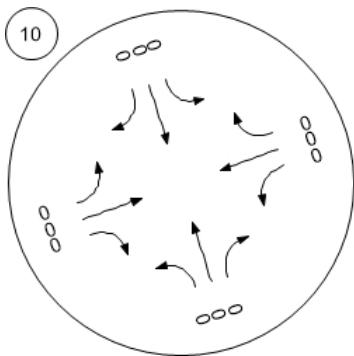




Fair Share - Fair Share Volumes - Zone 21

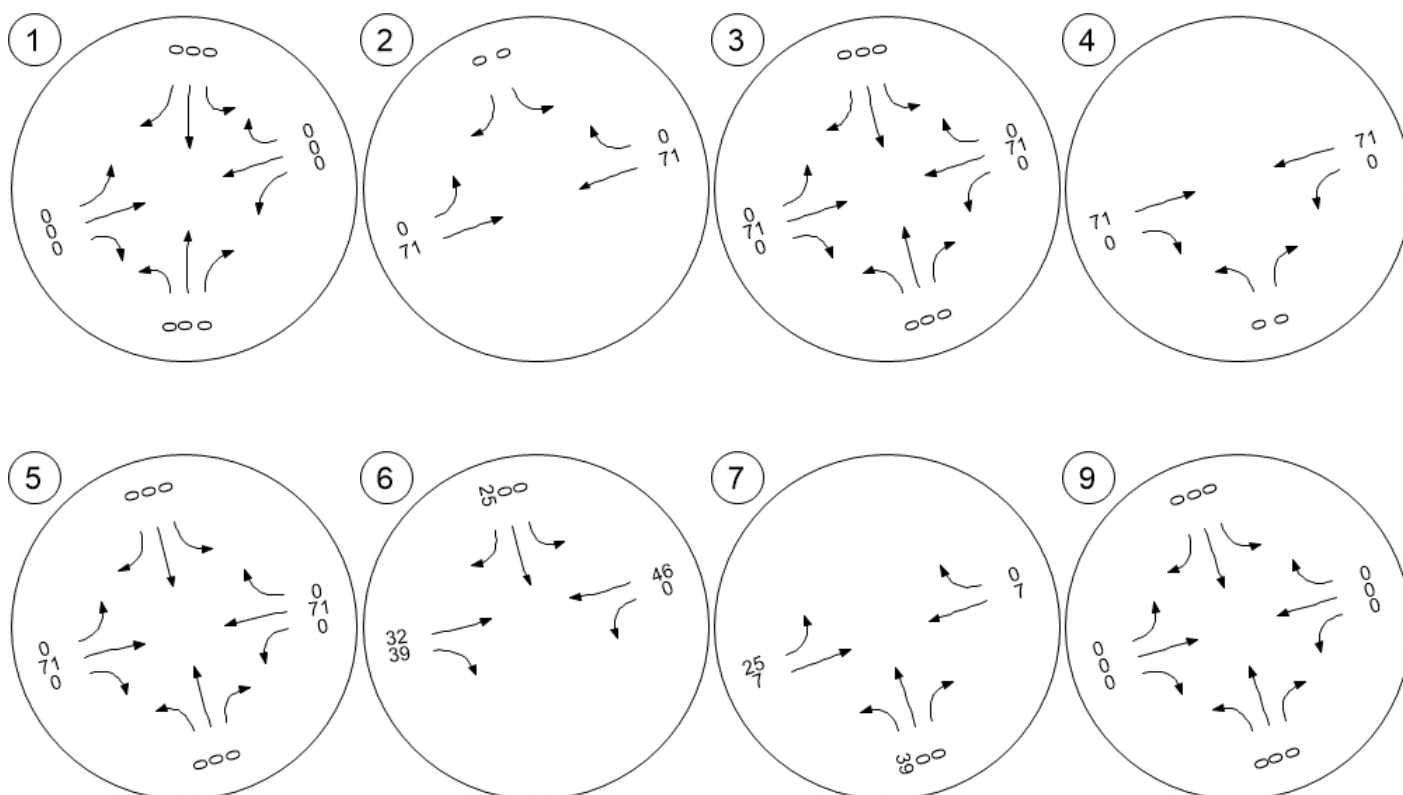


Fair Share - Fair Share Volumes - Zone 21

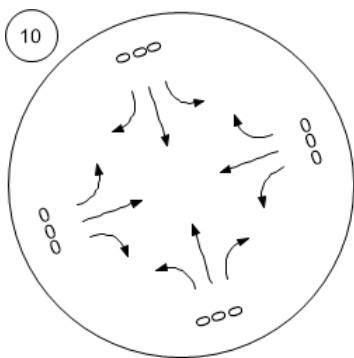




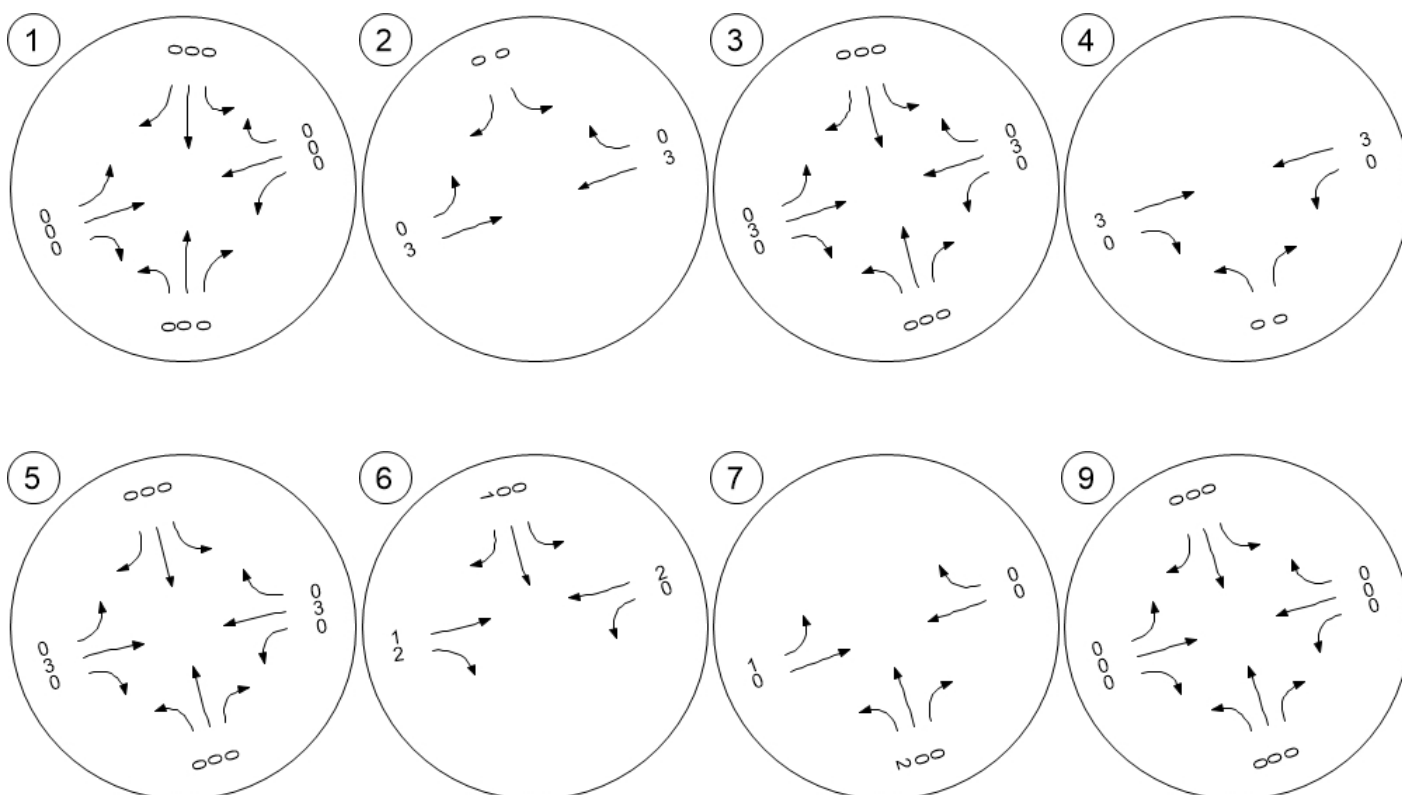
Fair Share - Fair Share Volumes - Zone 22



Fair Share - Fair Share Volumes - Zone 22

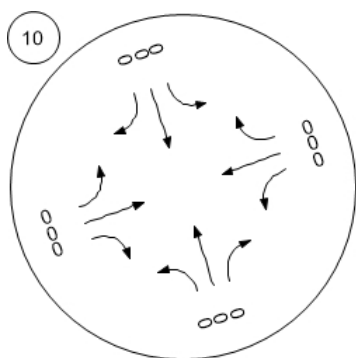


Fair Share - Fair Share Volumes - Zone 23

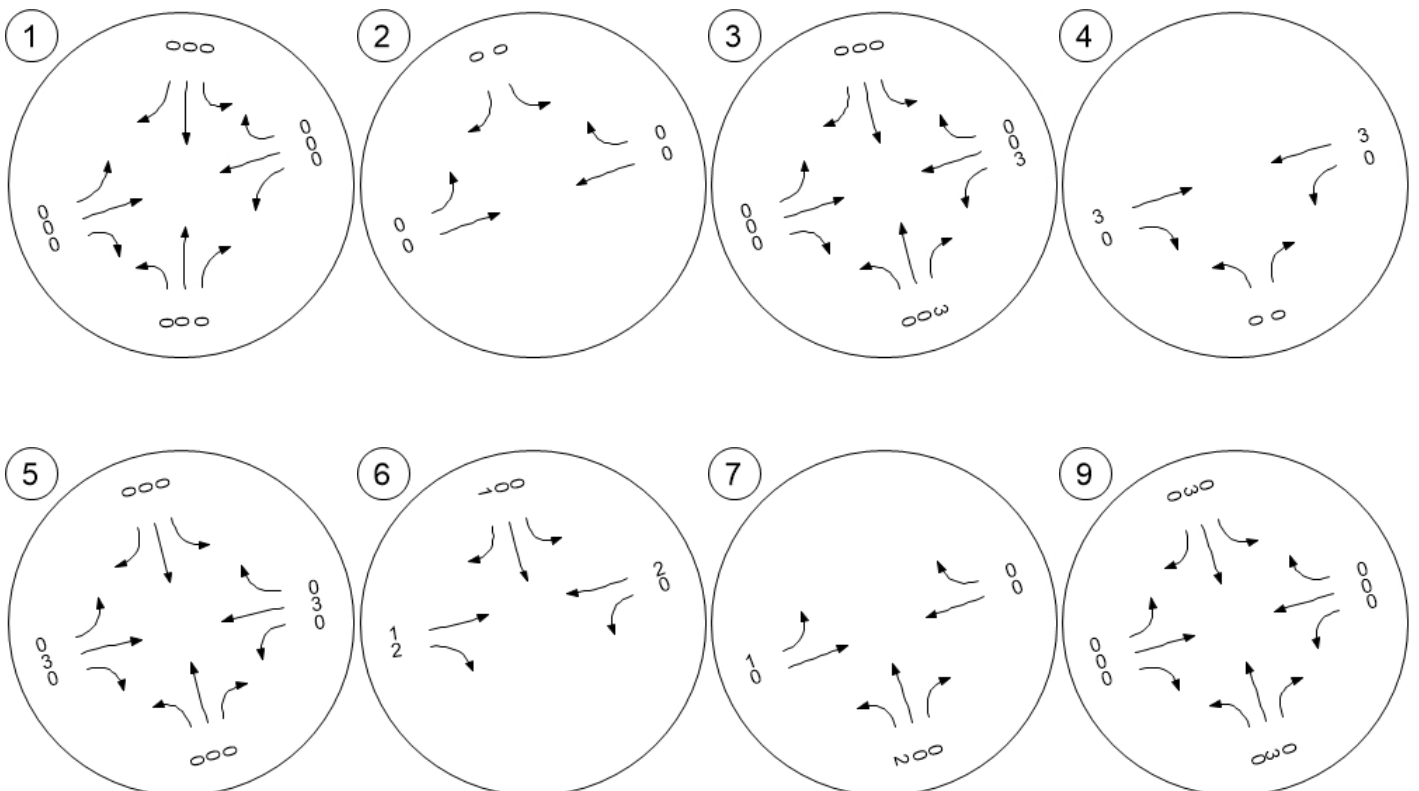




Fair Share - Fair Share Volumes - Zone 23

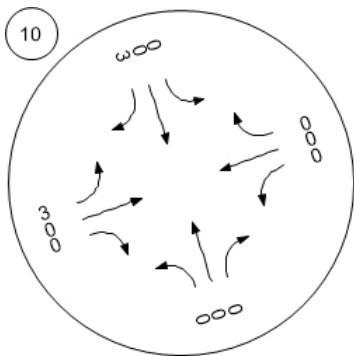


Fair Share - Fair Share Volumes - Zone 24

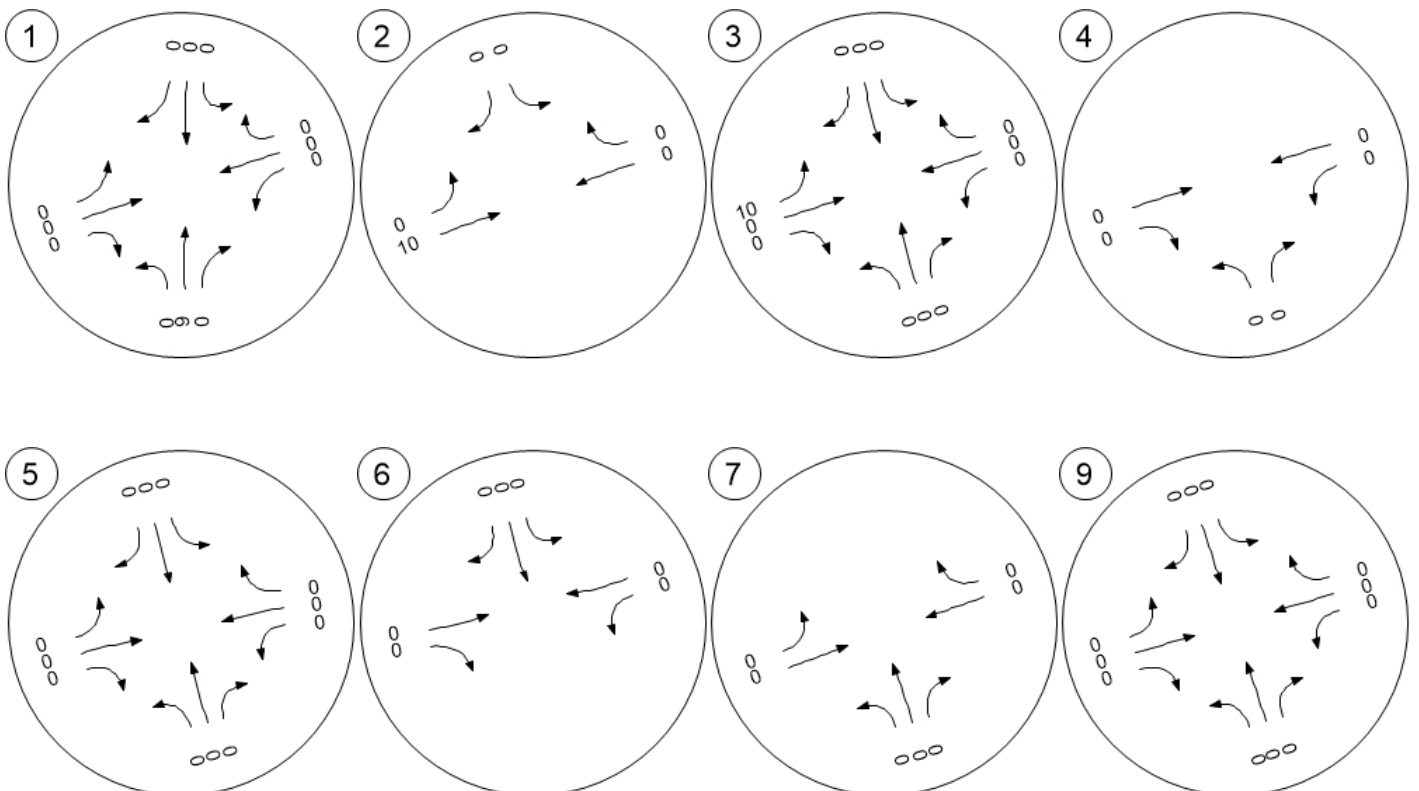




Fair Share - Fair Share Volumes - Zone 24

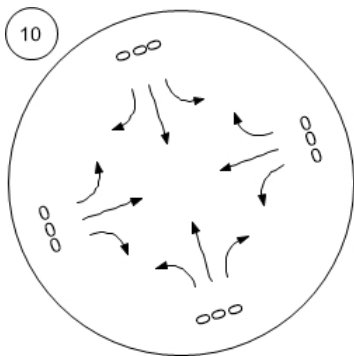


Fair Share - Fair Share Volumes - Zone 25

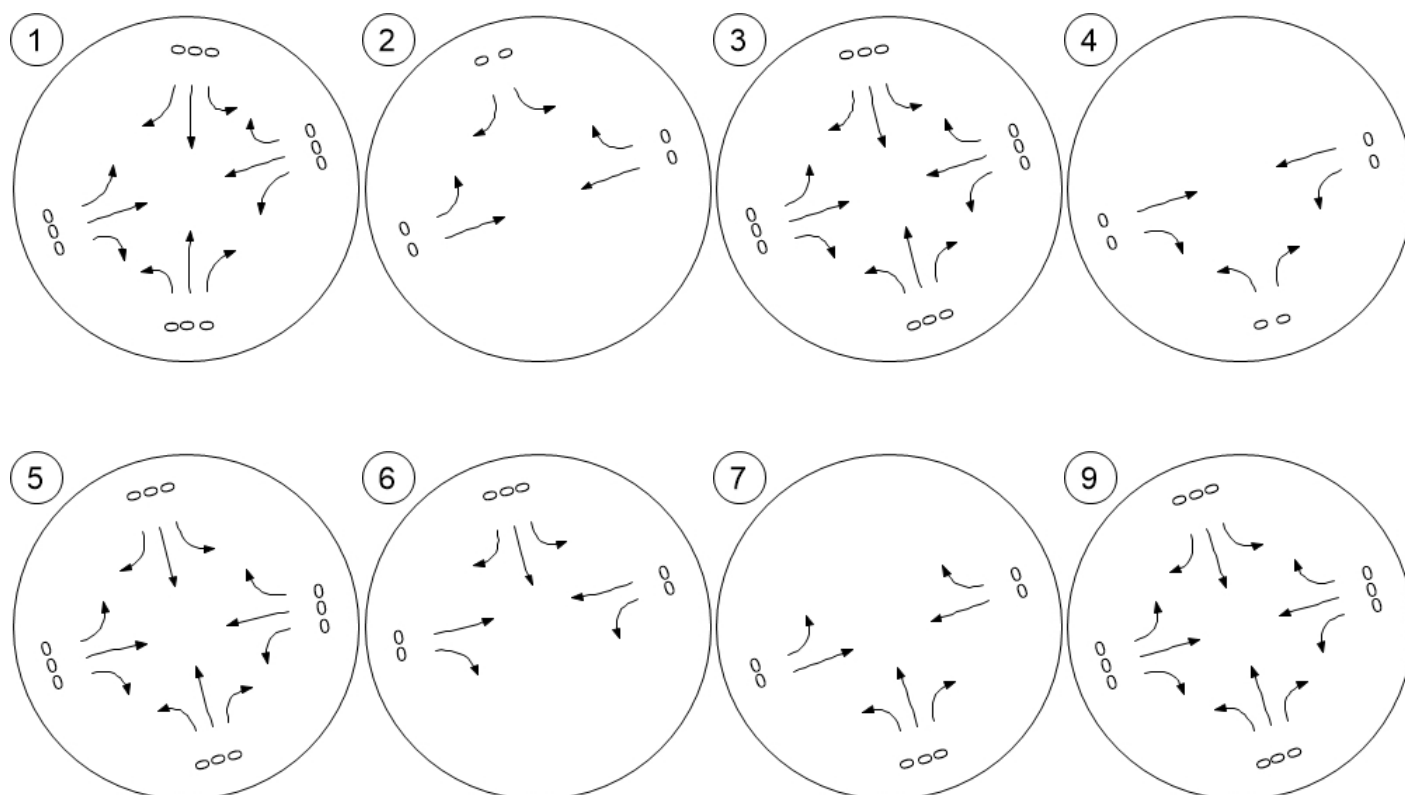




Fair Share - Fair Share Volumes - Zone 25

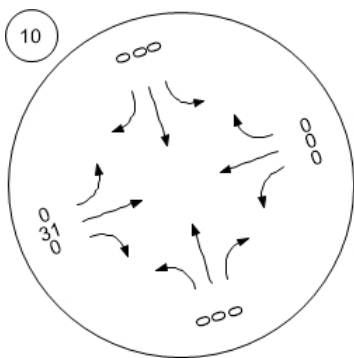


Fair Share - Fair Share Volumes - Zone 26



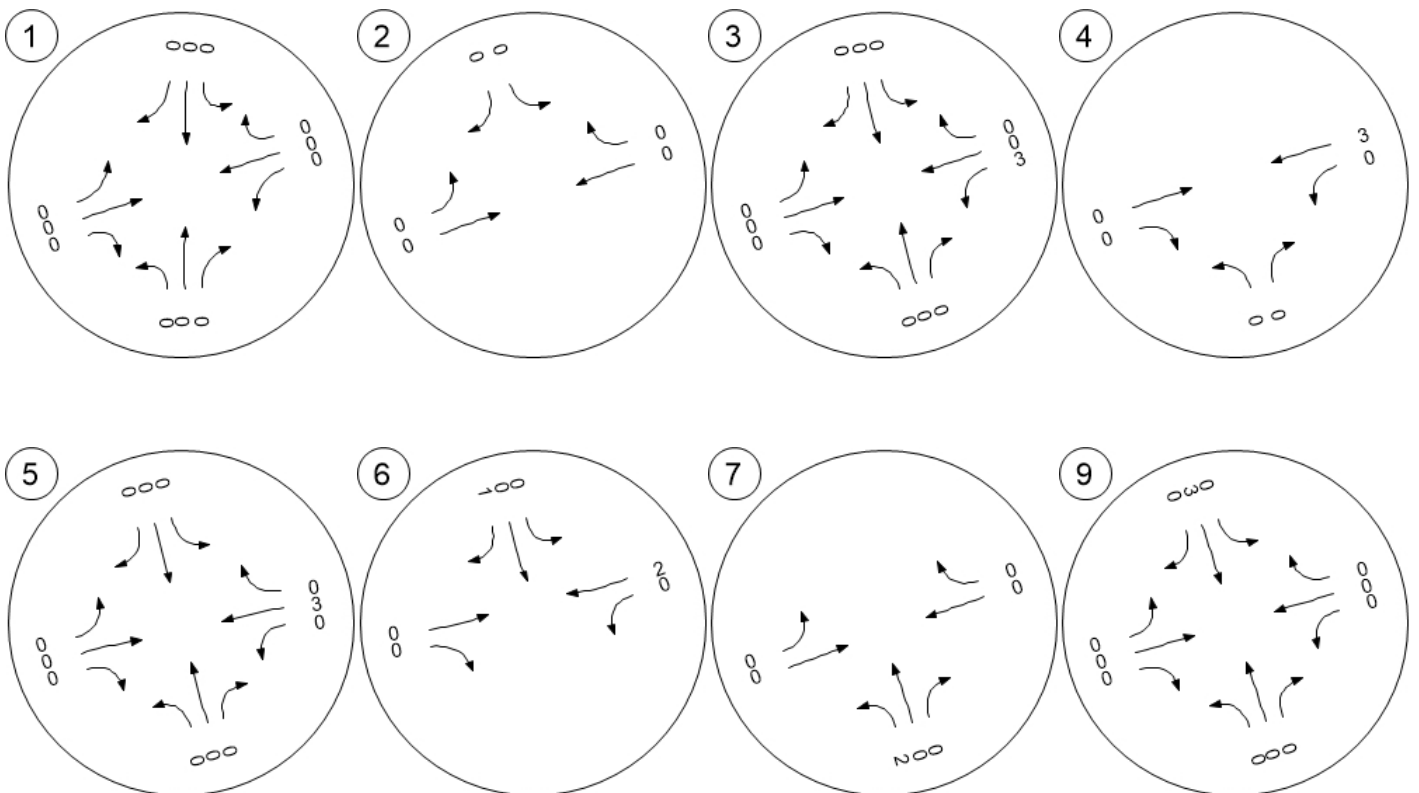


Fair Share - Fair Share Volumes - Zone 26

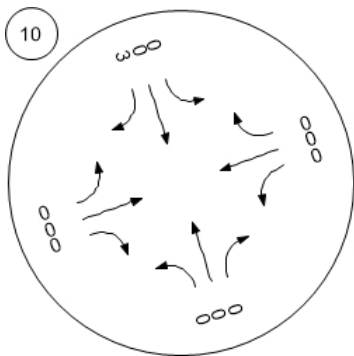




Fair Share - Fair Share Volumes - Zone 27

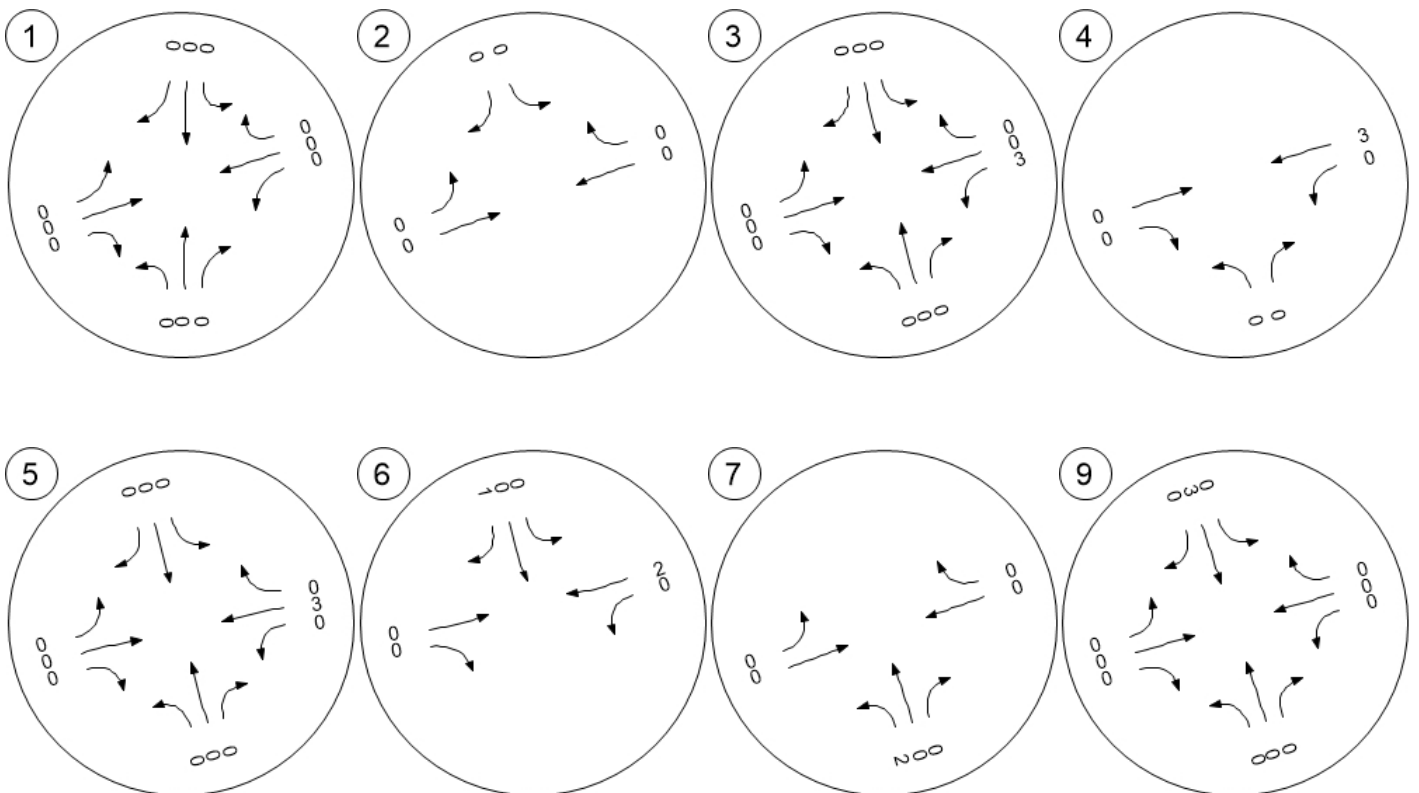


Fair Share - Fair Share Volumes - Zone 27

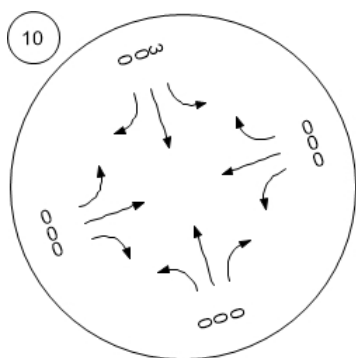




Fair Share - Fair Share Volumes - Zone 28

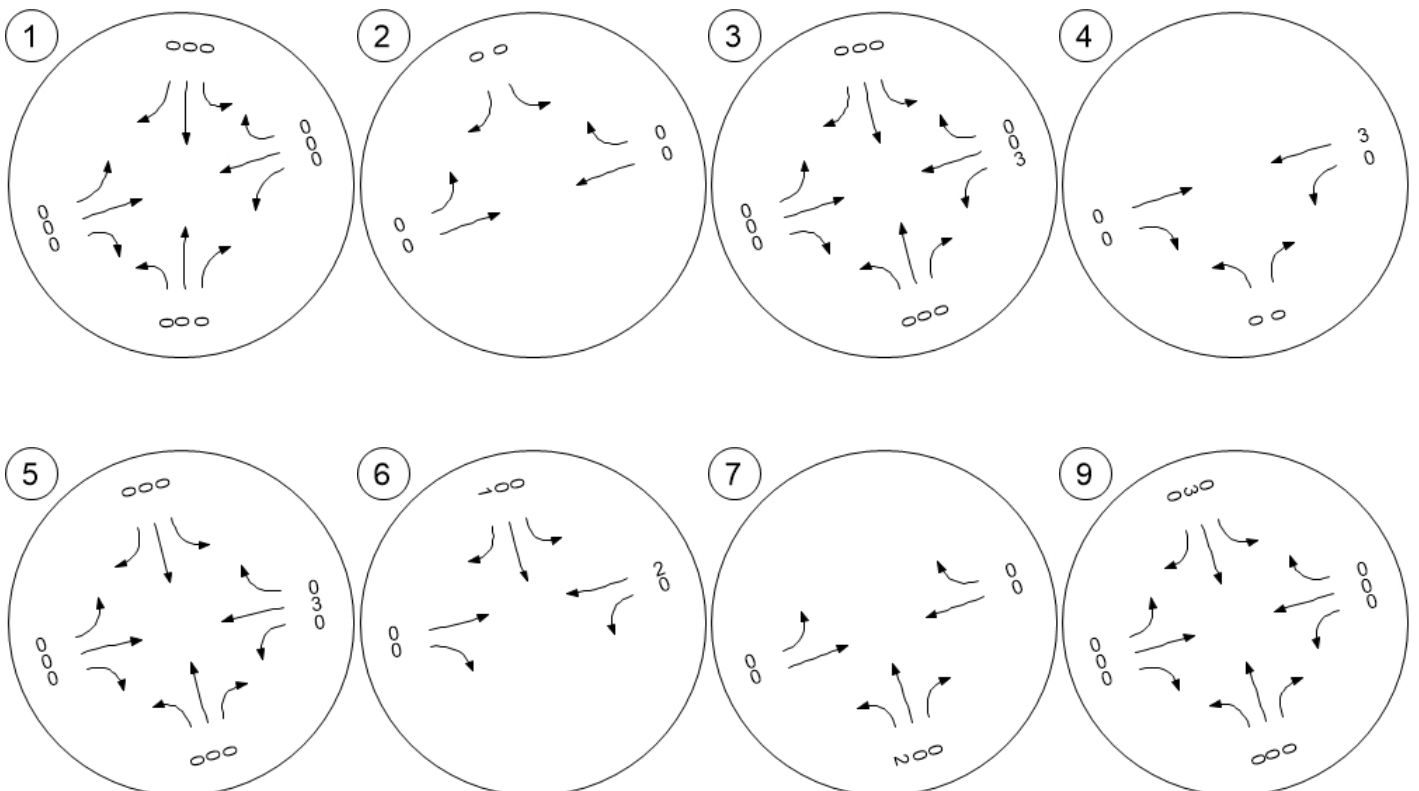


Fair Share - Fair Share Volumes - Zone 28



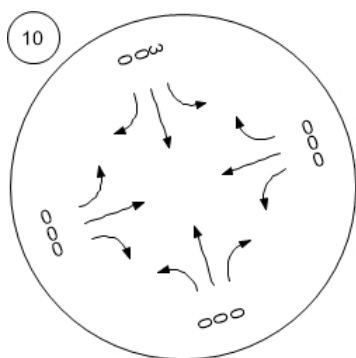
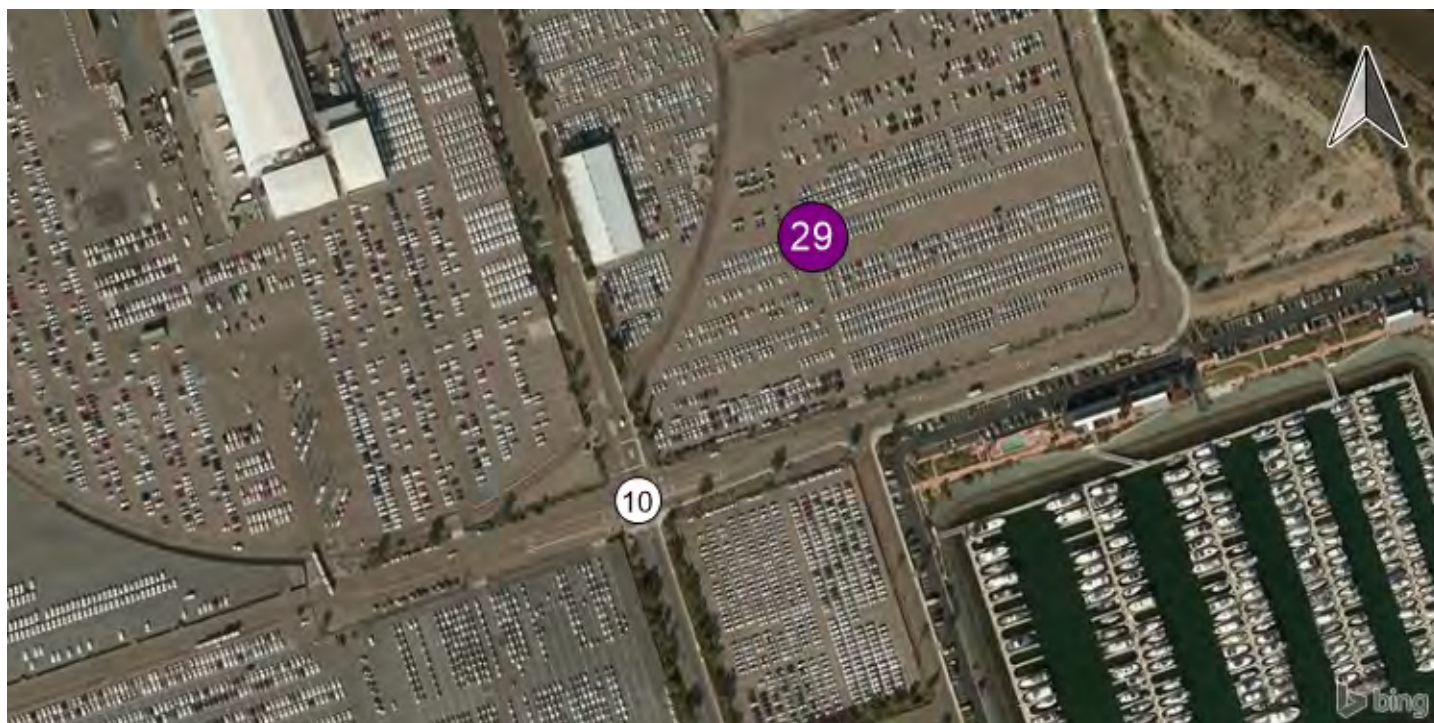


Fair Share - Fair Share Volumes - Zone 29

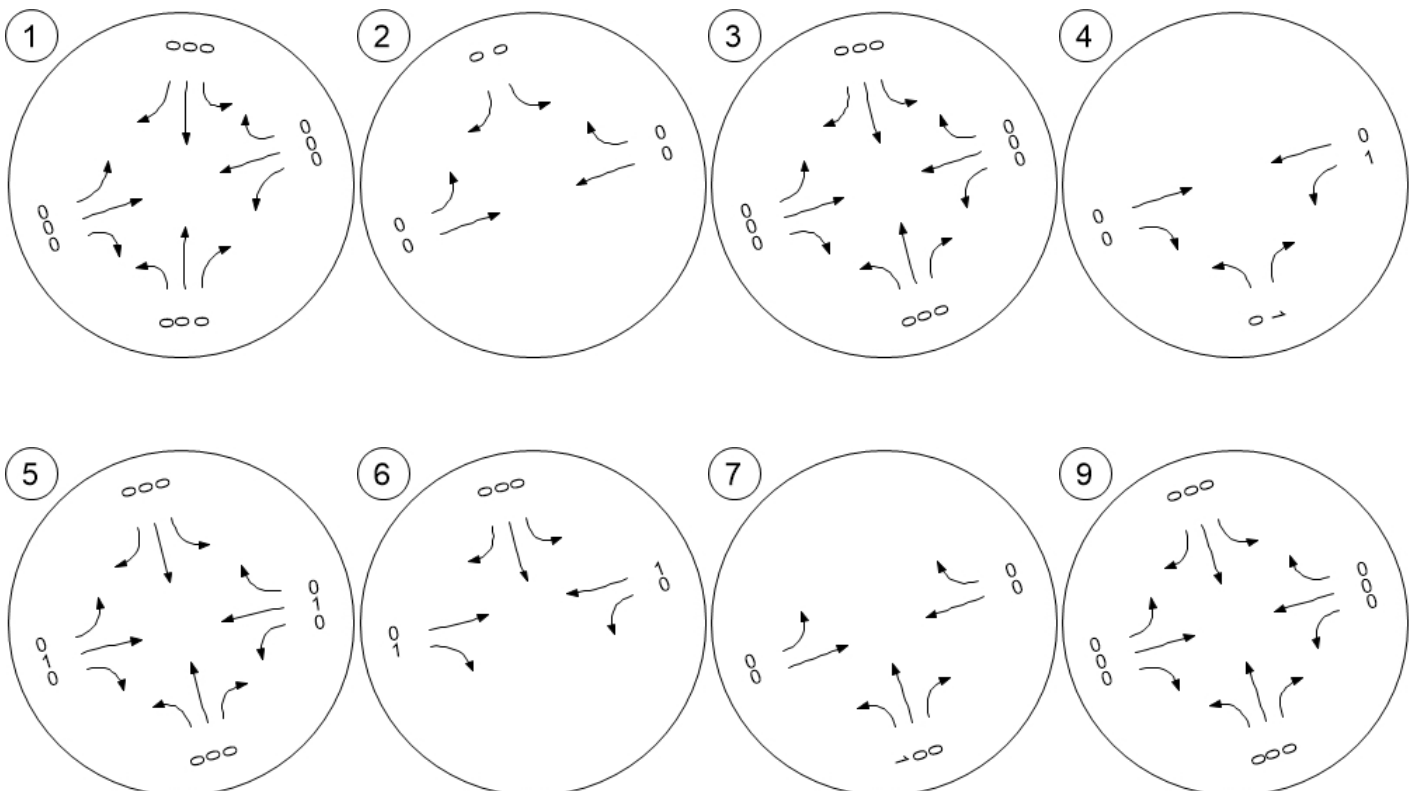




Fair Share - Fair Share Volumes - Zone 29

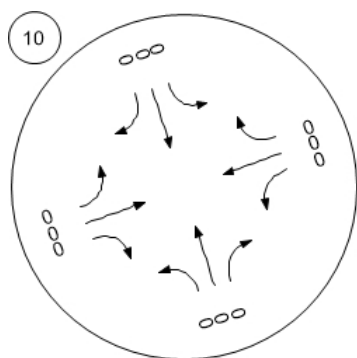
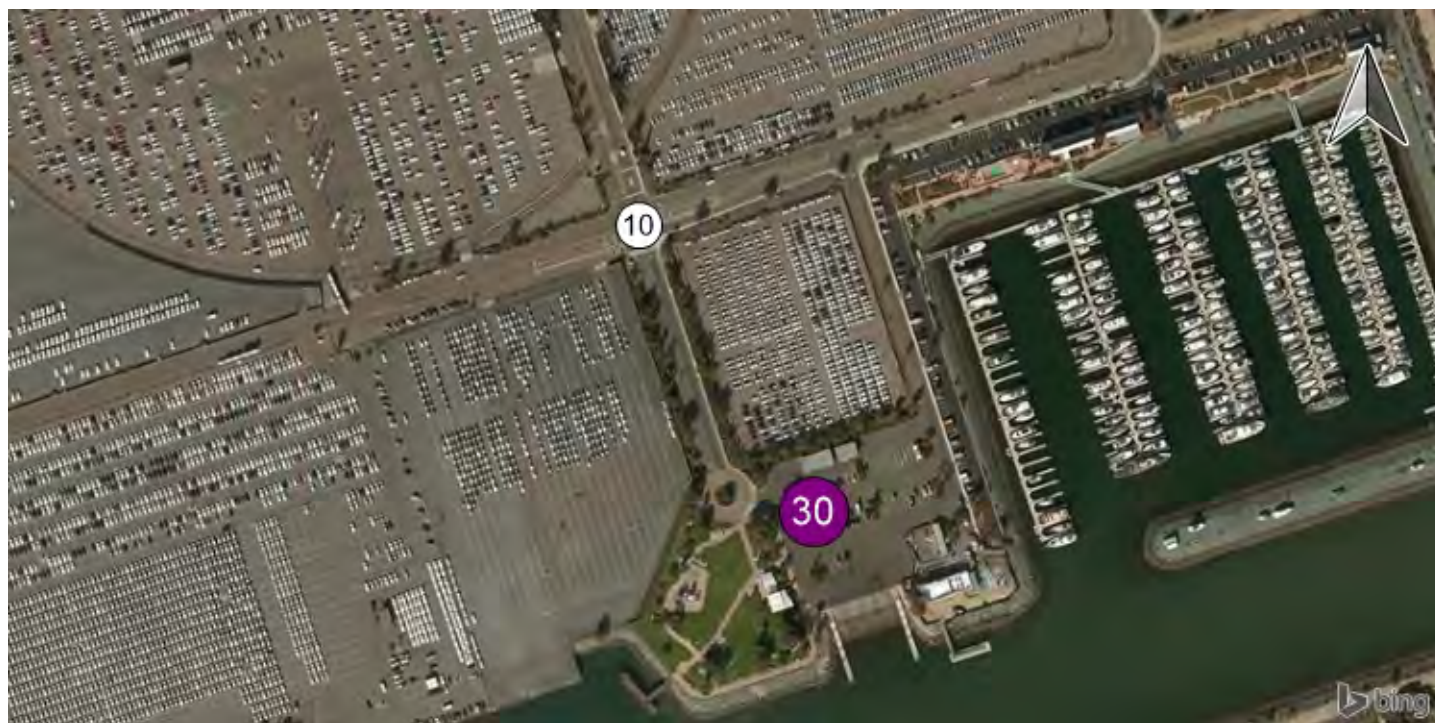


Fair Share - Fair Share Volumes - Zone 30

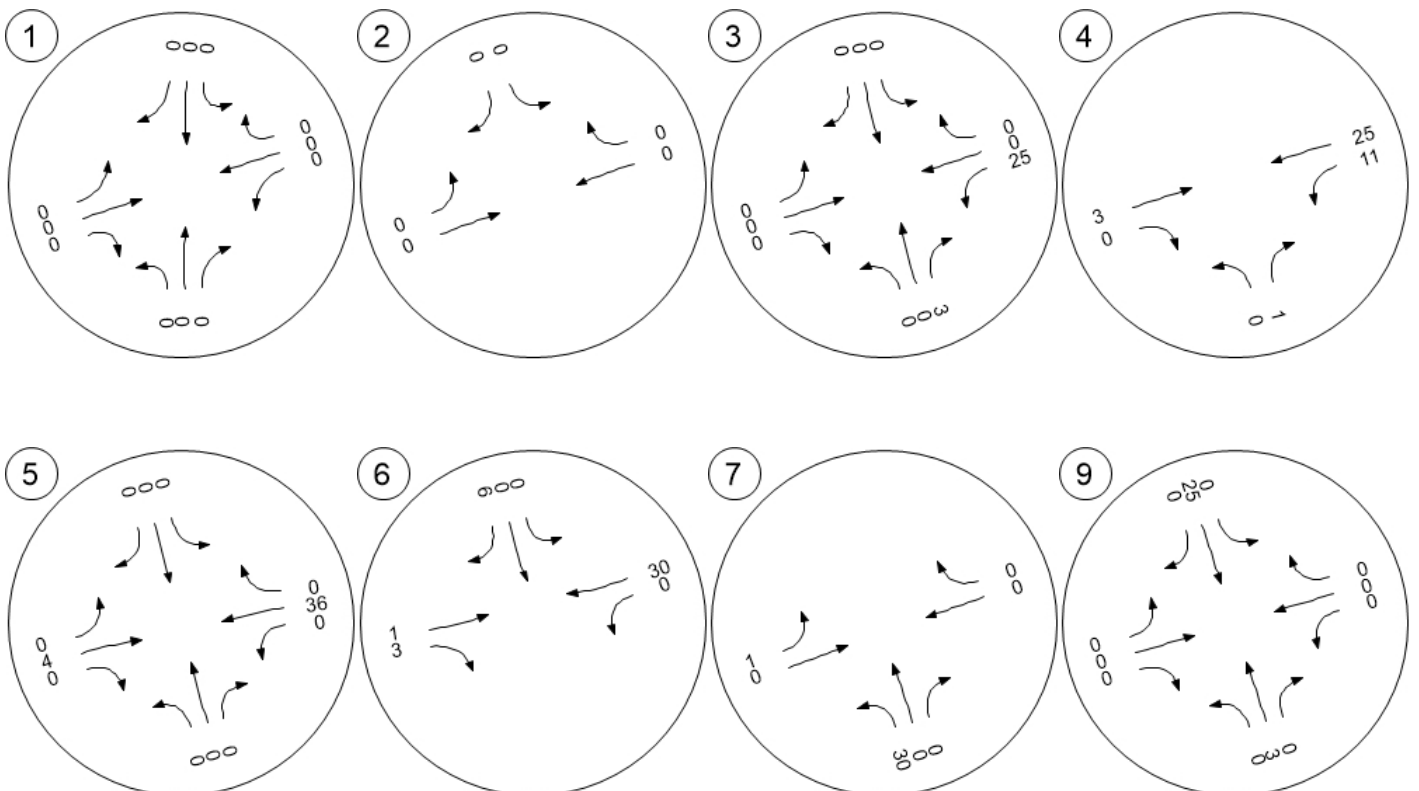




Fair Share - Fair Share Volumes - Zone 30

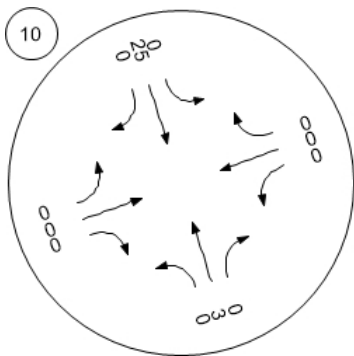
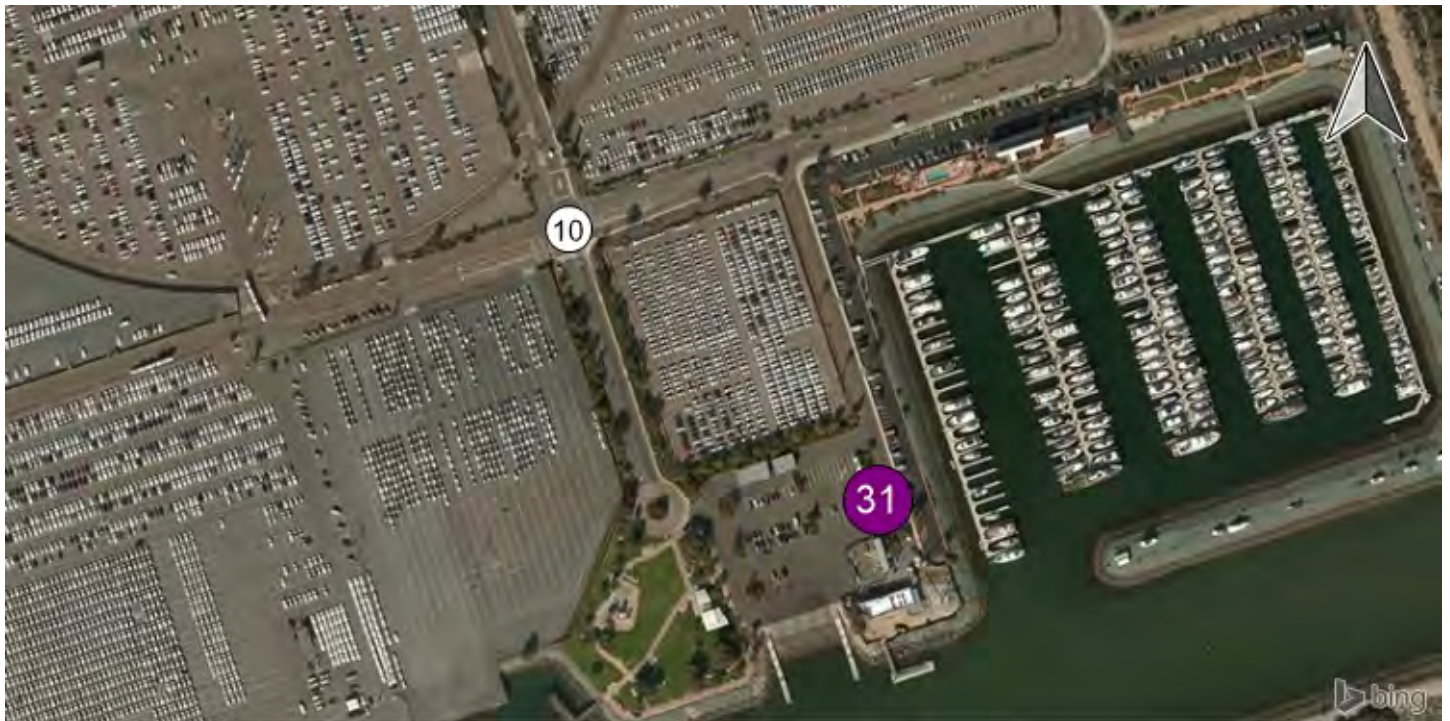


Fair Share - Fair Share Volumes - Zone 31



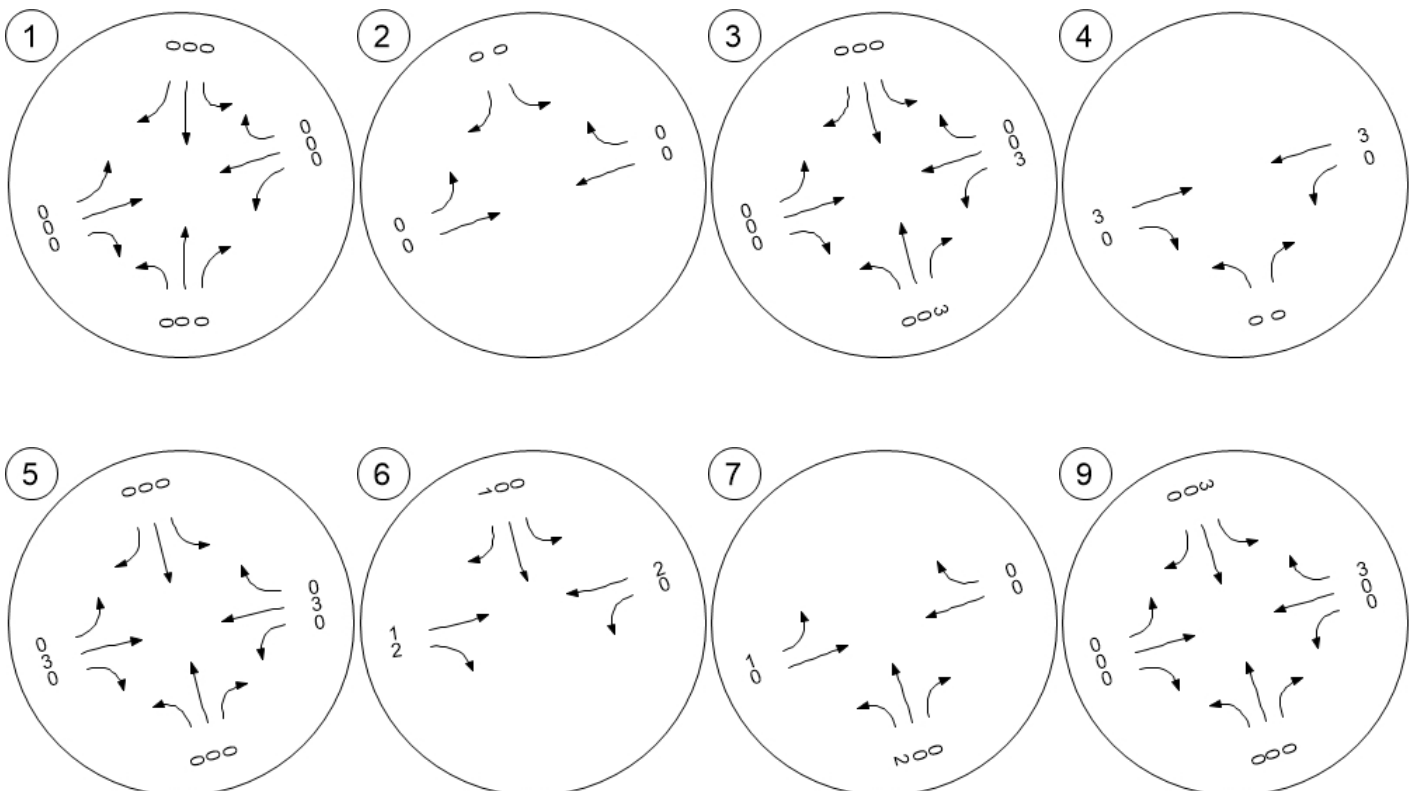


Fair Share - Fair Share Volumes - Zone 31

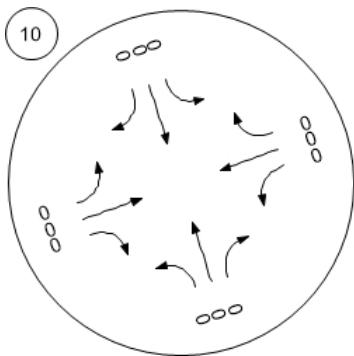




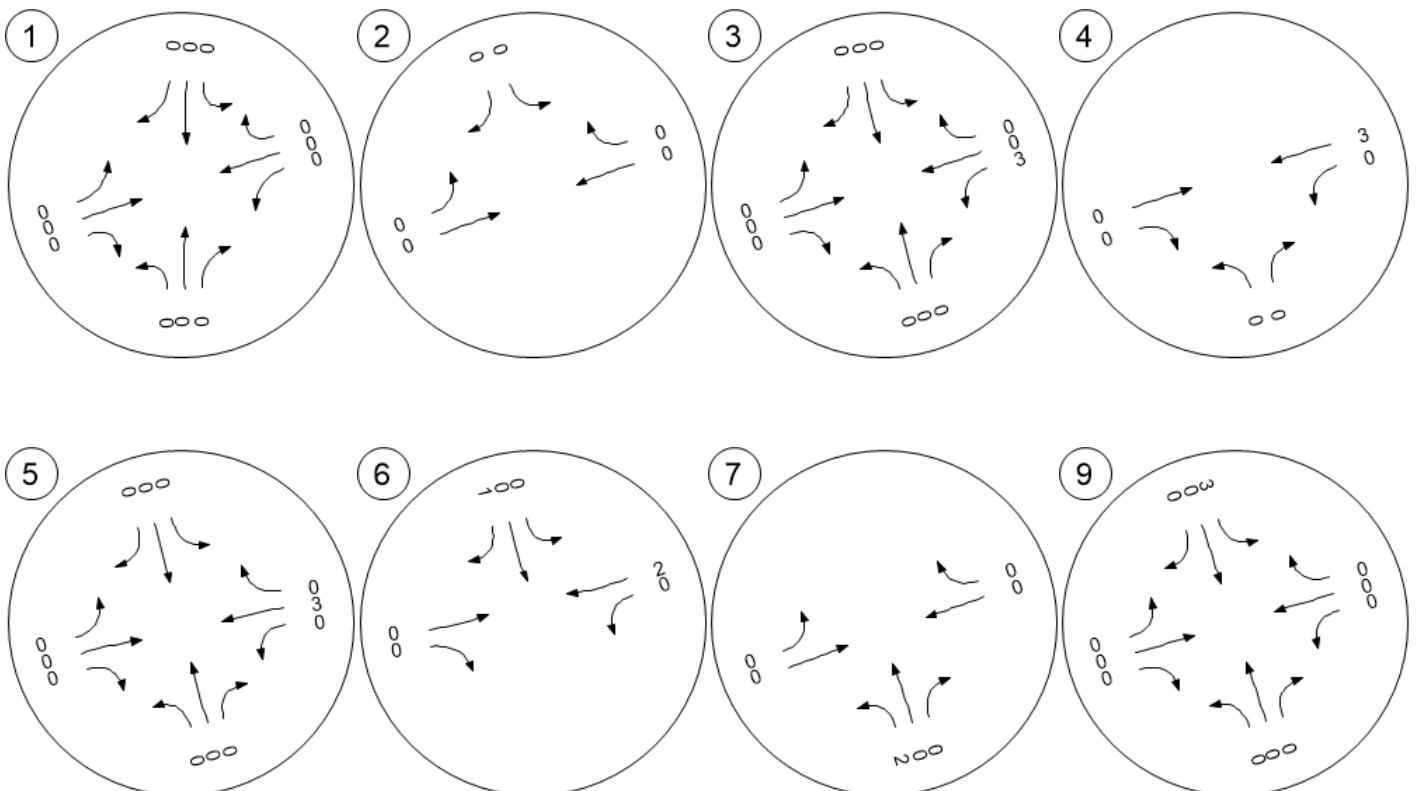
Fair Share - Fair Share Volumes - Zone 32



Fair Share - Fair Share Volumes - Zone 32

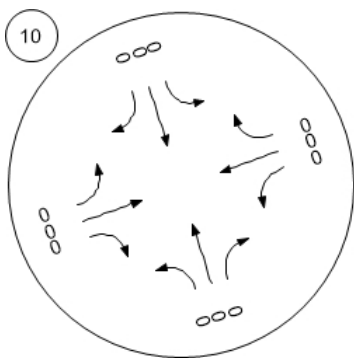


Fair Share - Fair Share Volumes - Zone 33

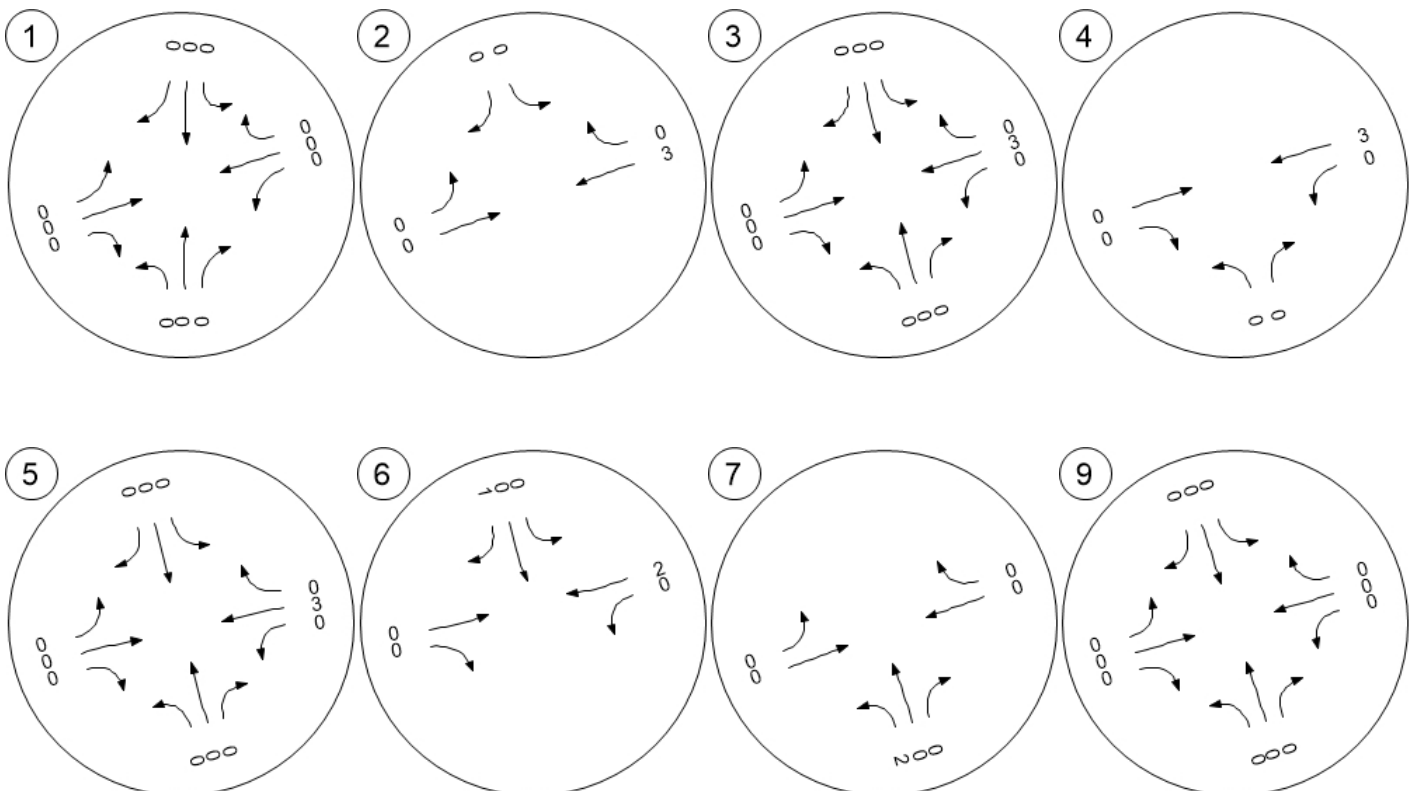




Fair Share - Fair Share Volumes - Zone 33

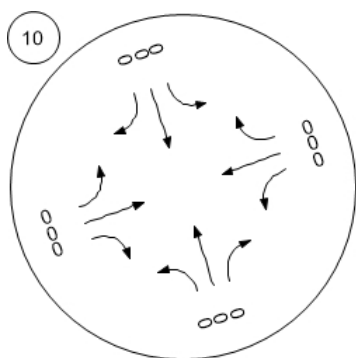


Fair Share - Fair Share Volumes - Zone 34

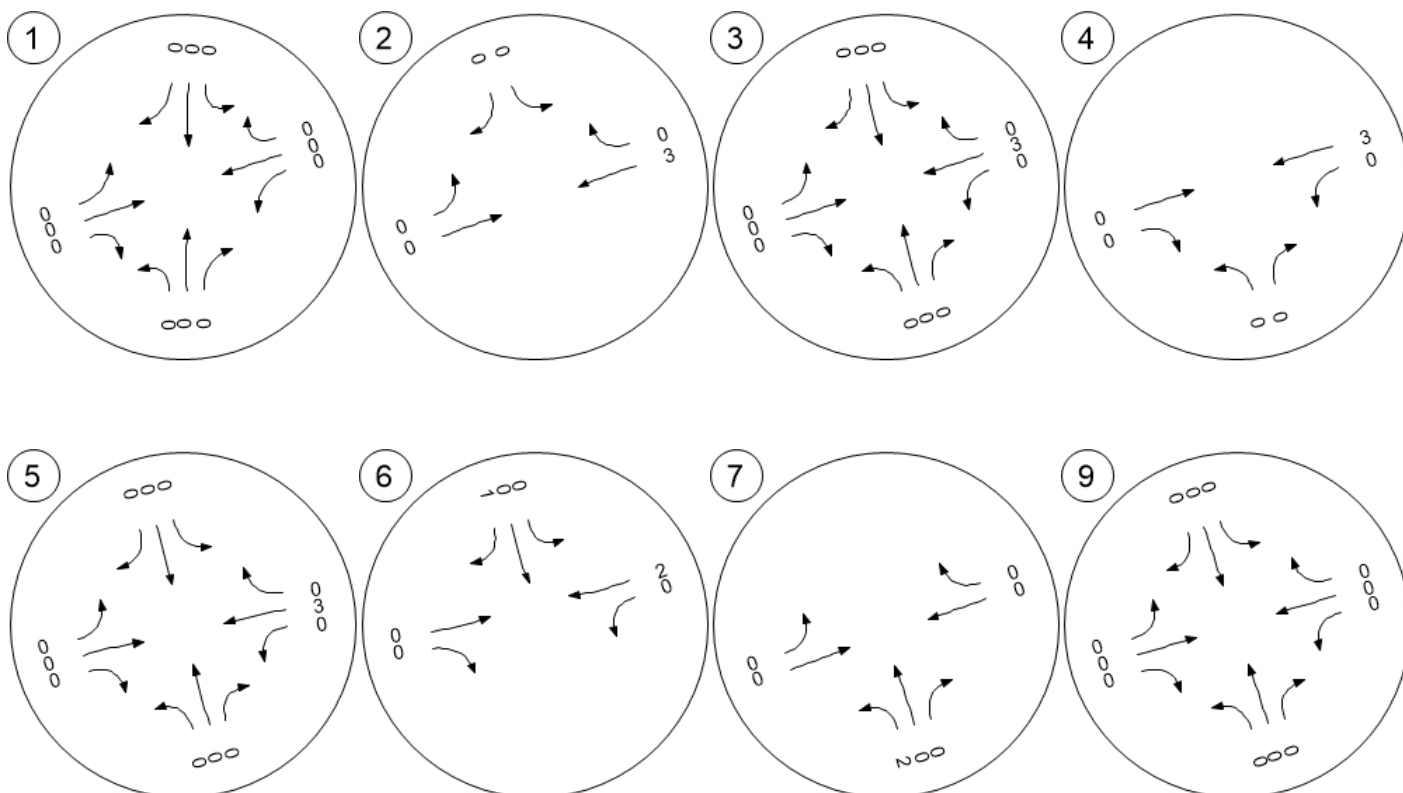




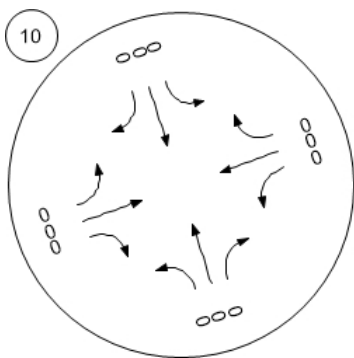
Fair Share - Fair Share Volumes - Zone 34



Fair Share - Fair Share Volumes - Zone 35

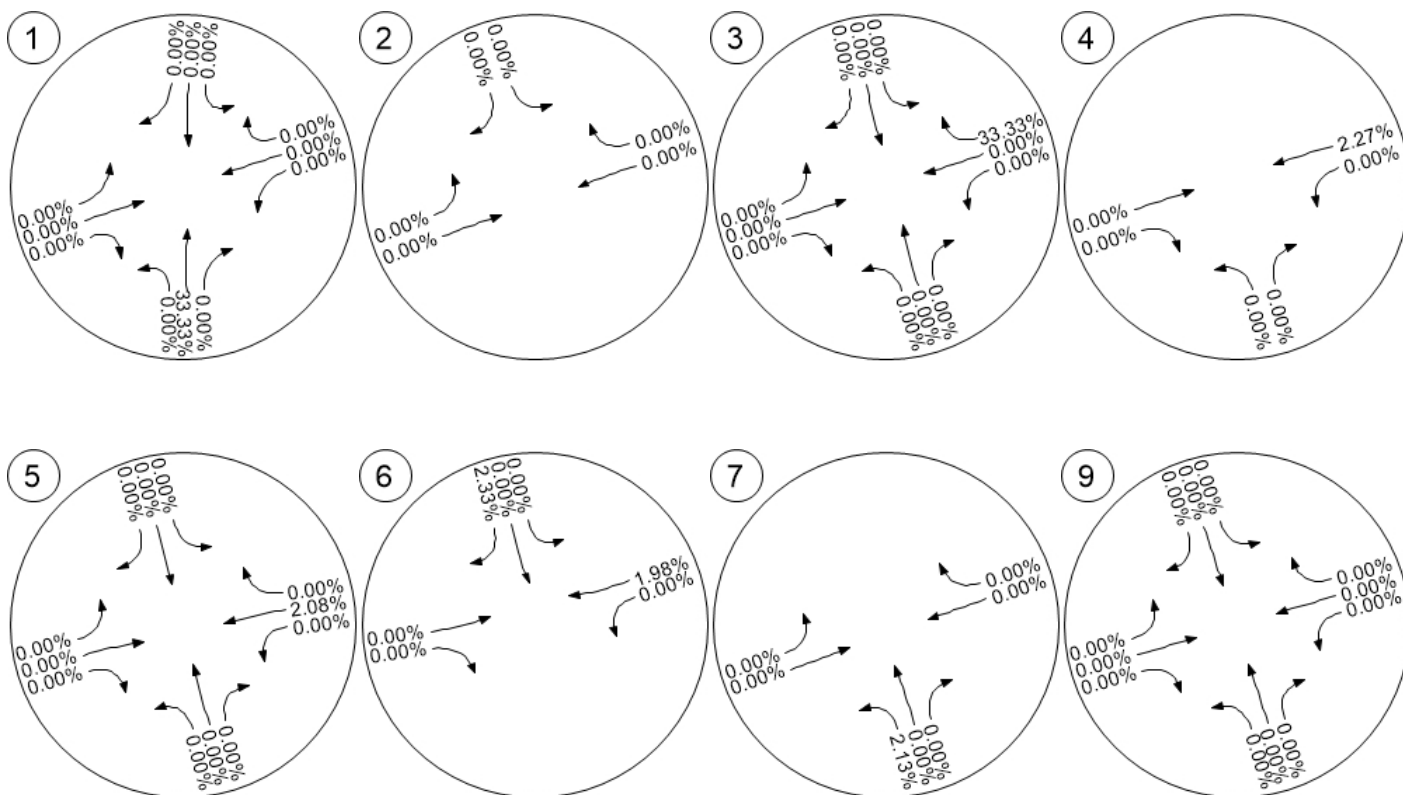


Fair Share - Fair Share Volumes - Zone 35





## Fair Share - Fair Share % of Net New Site - Zone 18

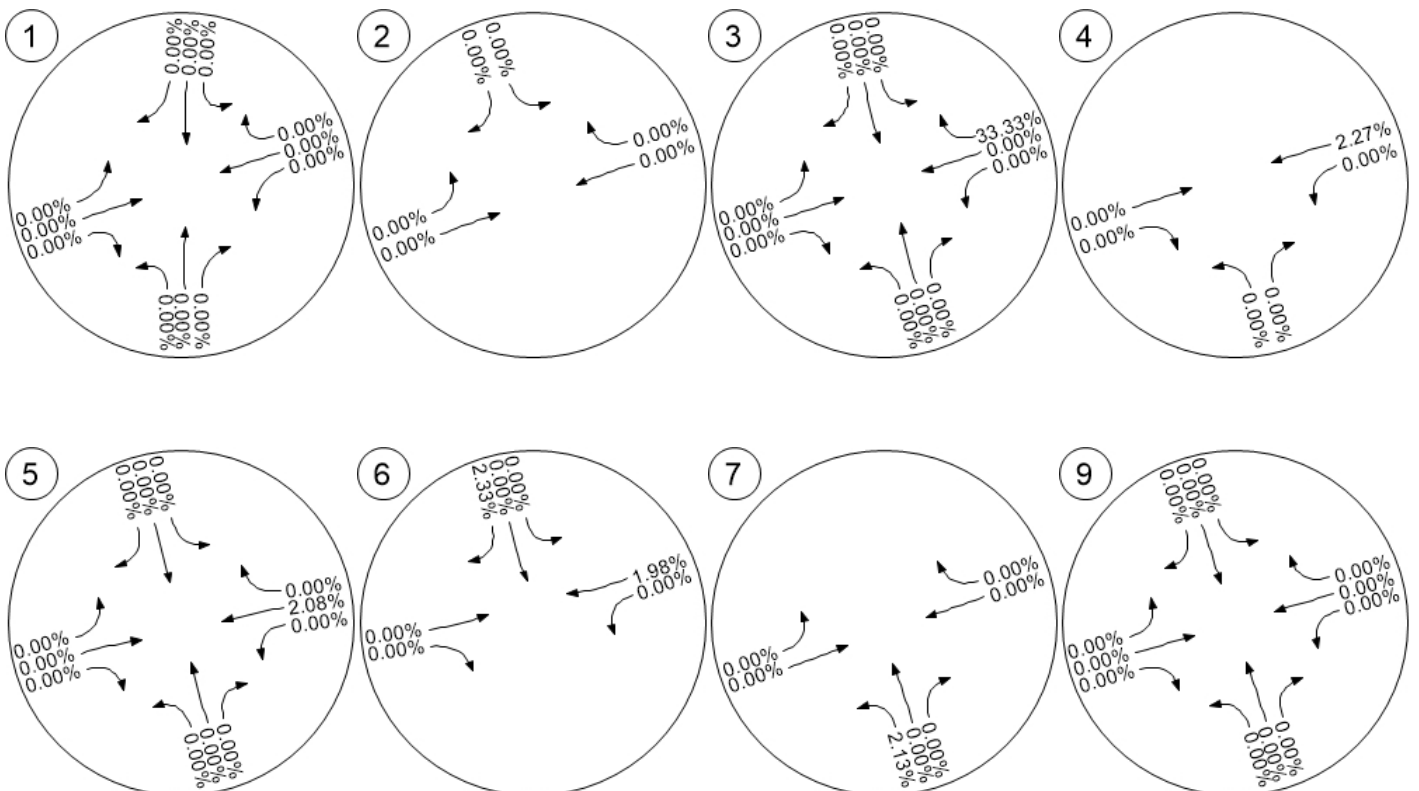


Fair Share - Fair Share % of Net New Site - Zone 18





Fair Share - Fair Share % of Net New Site - Zone 19

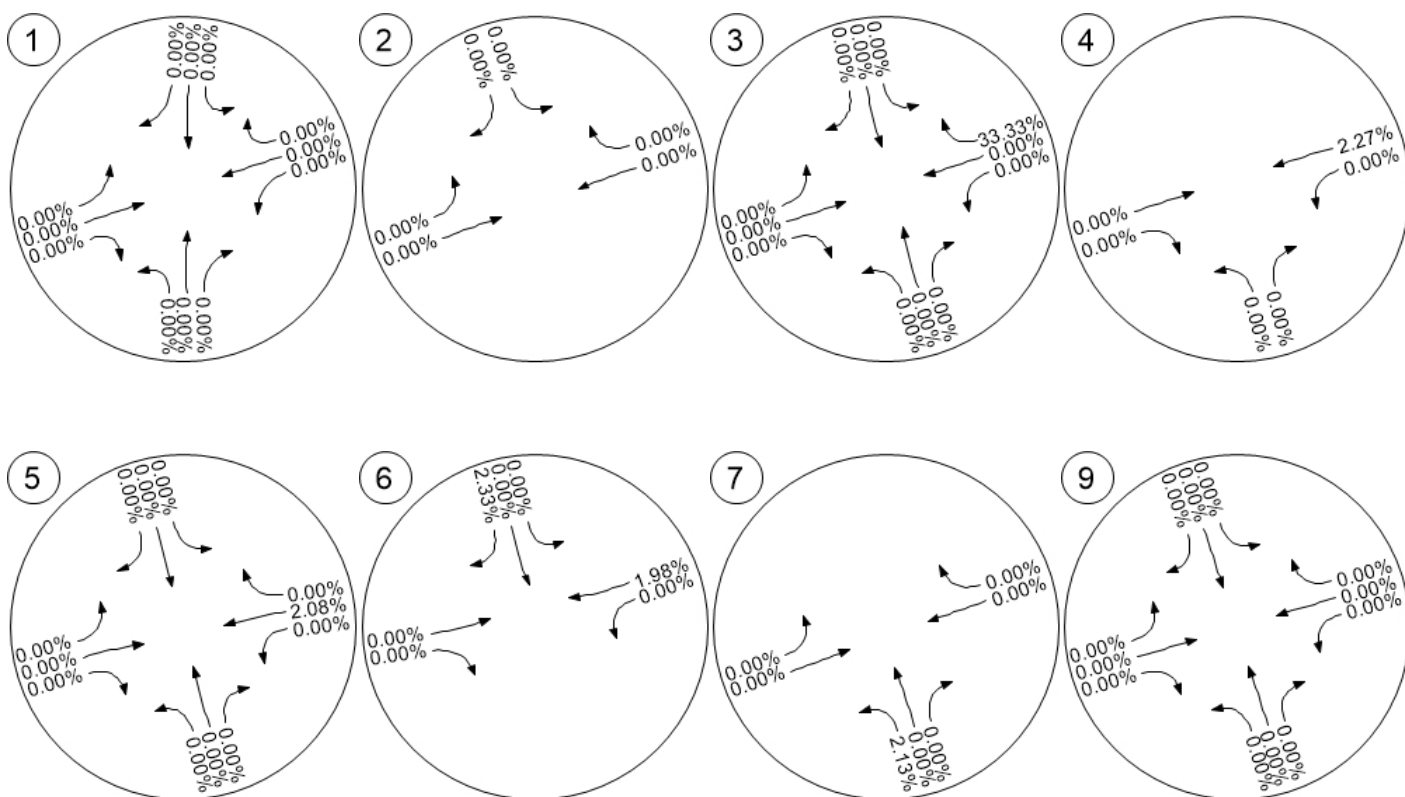


Fair Share - Fair Share % of Net New Site - Zone 19





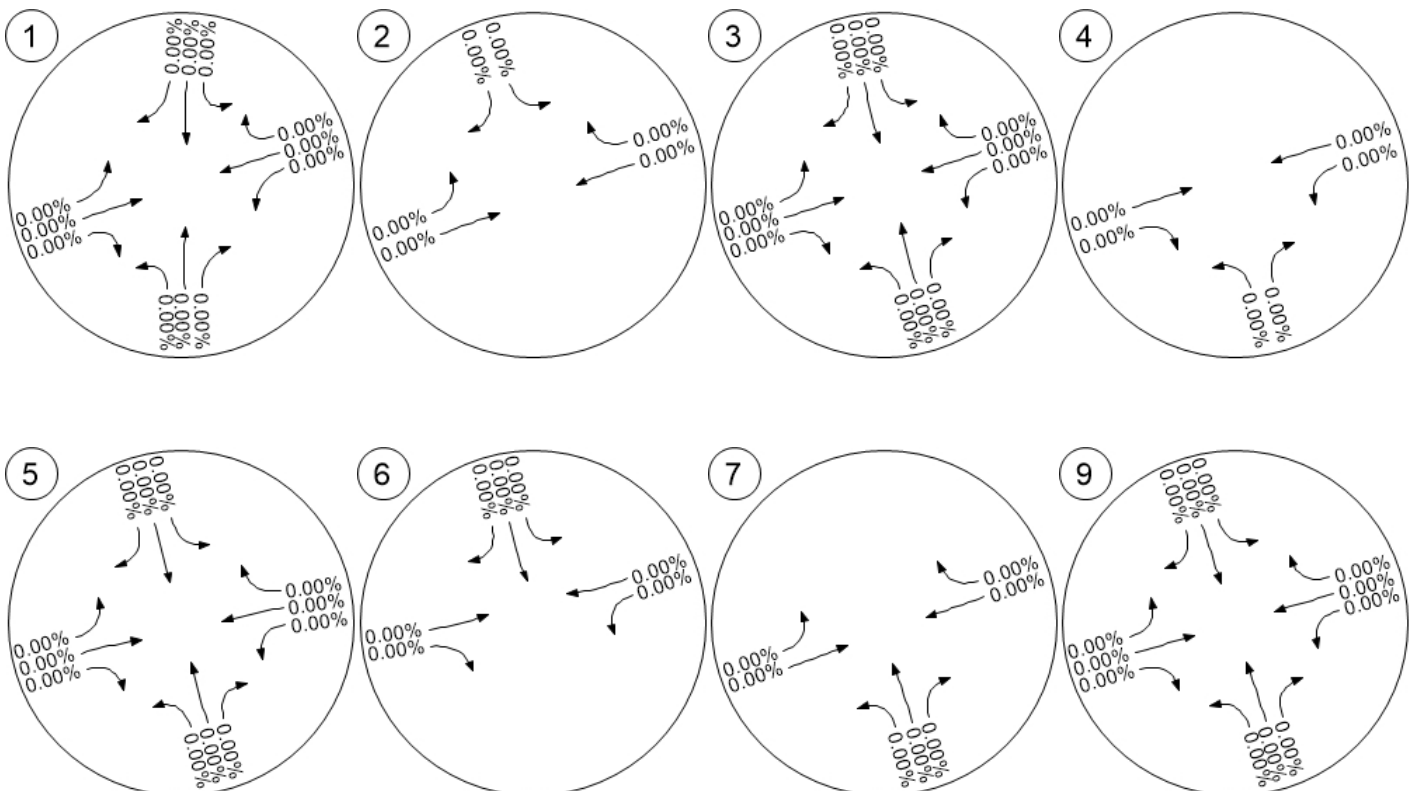
## Fair Share - Fair Share % of Net New Site - Zone 20



Fair Share - Fair Share % of Net New Site - Zone 20

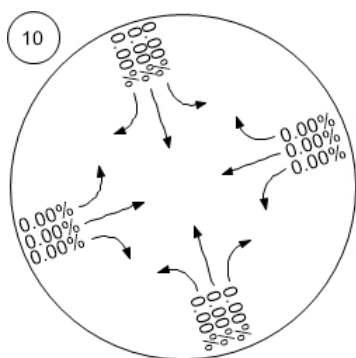


Fair Share - Fair Share % of Net New Site - Zone 21

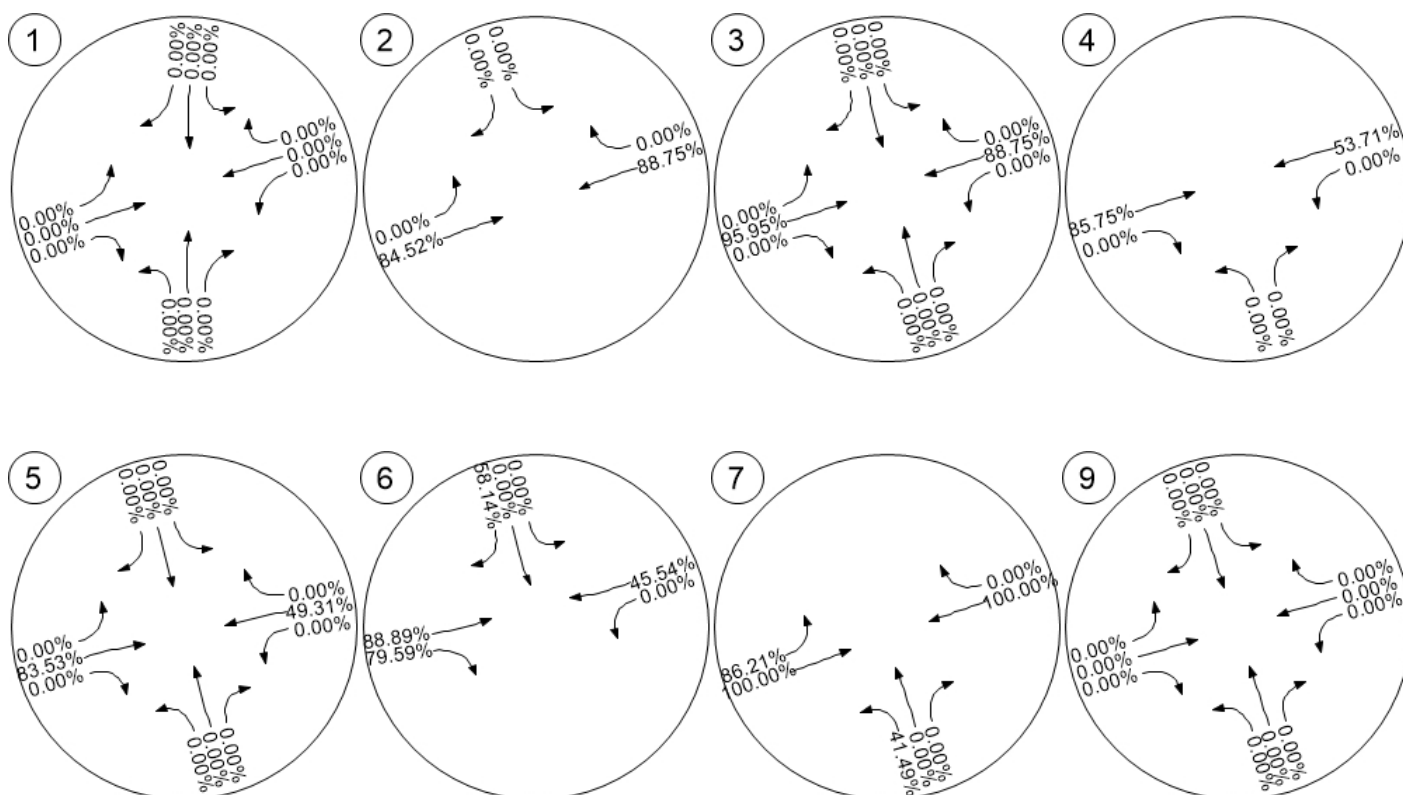




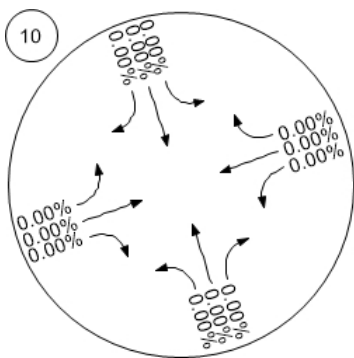
Fair Share - Fair Share % of Net New Site - Zone 21



Fair Share - Fair Share % of Net New Site - Zone 22

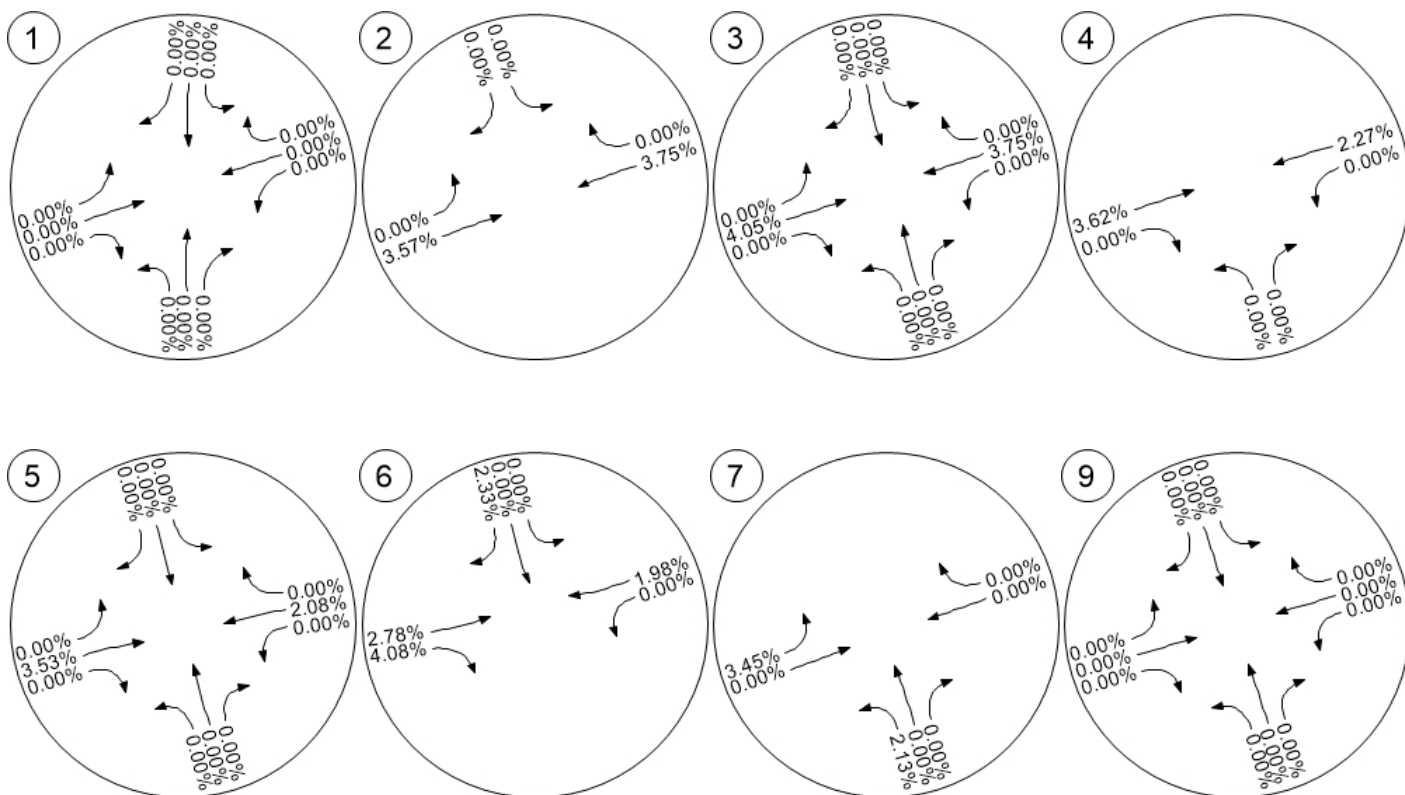


Fair Share - Fair Share % of Net New Site - Zone 22

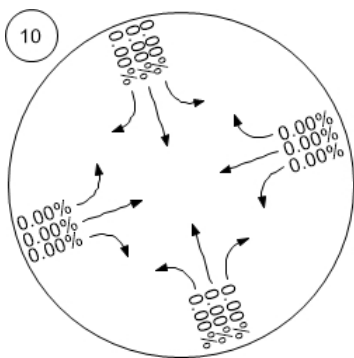




## Fair Share - Fair Share % of Net New Site - Zone 23

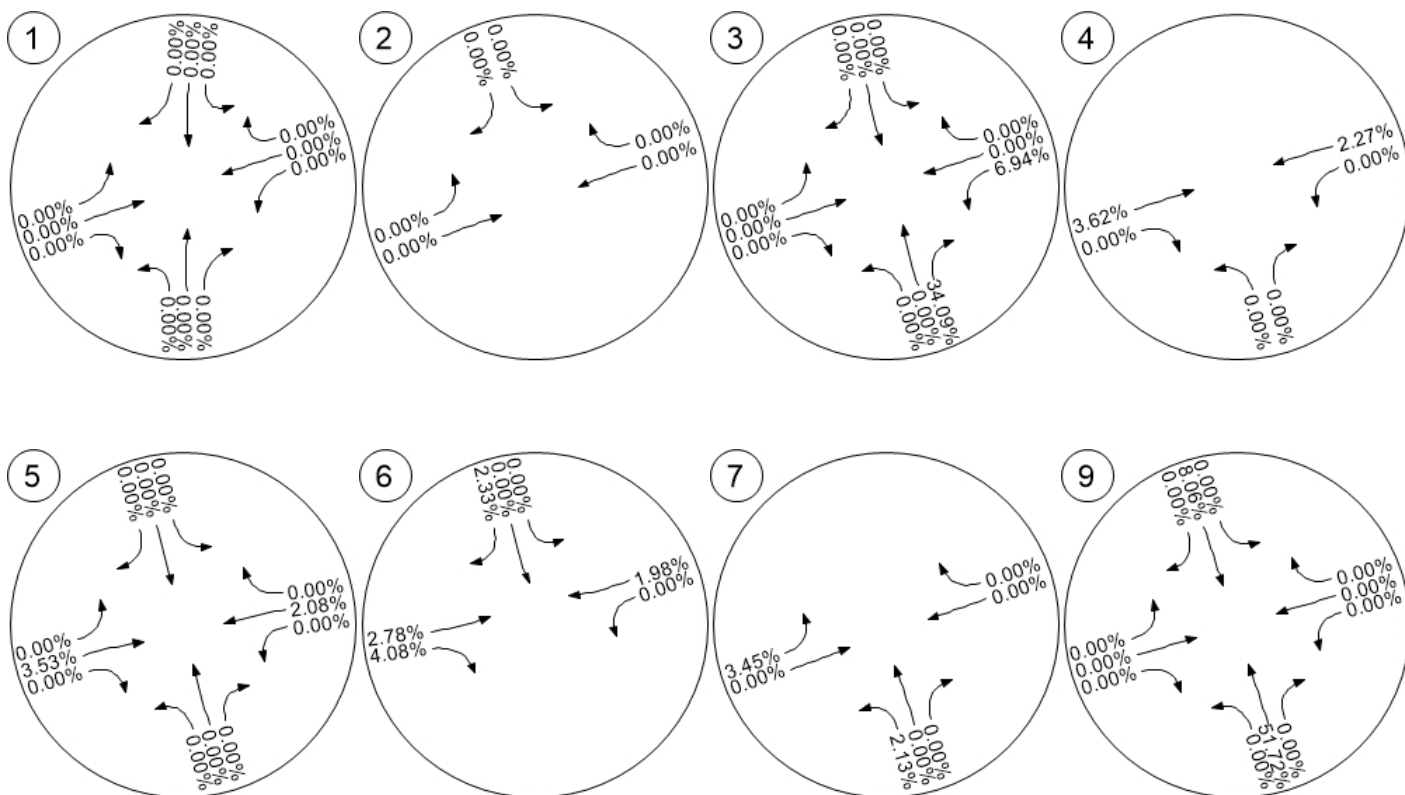


Fair Share - Fair Share % of Net New Site - Zone 23

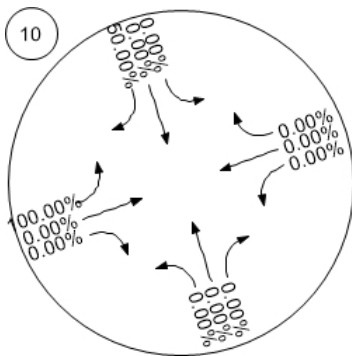




## Fair Share - Fair Share % of Net New Site - Zone 24

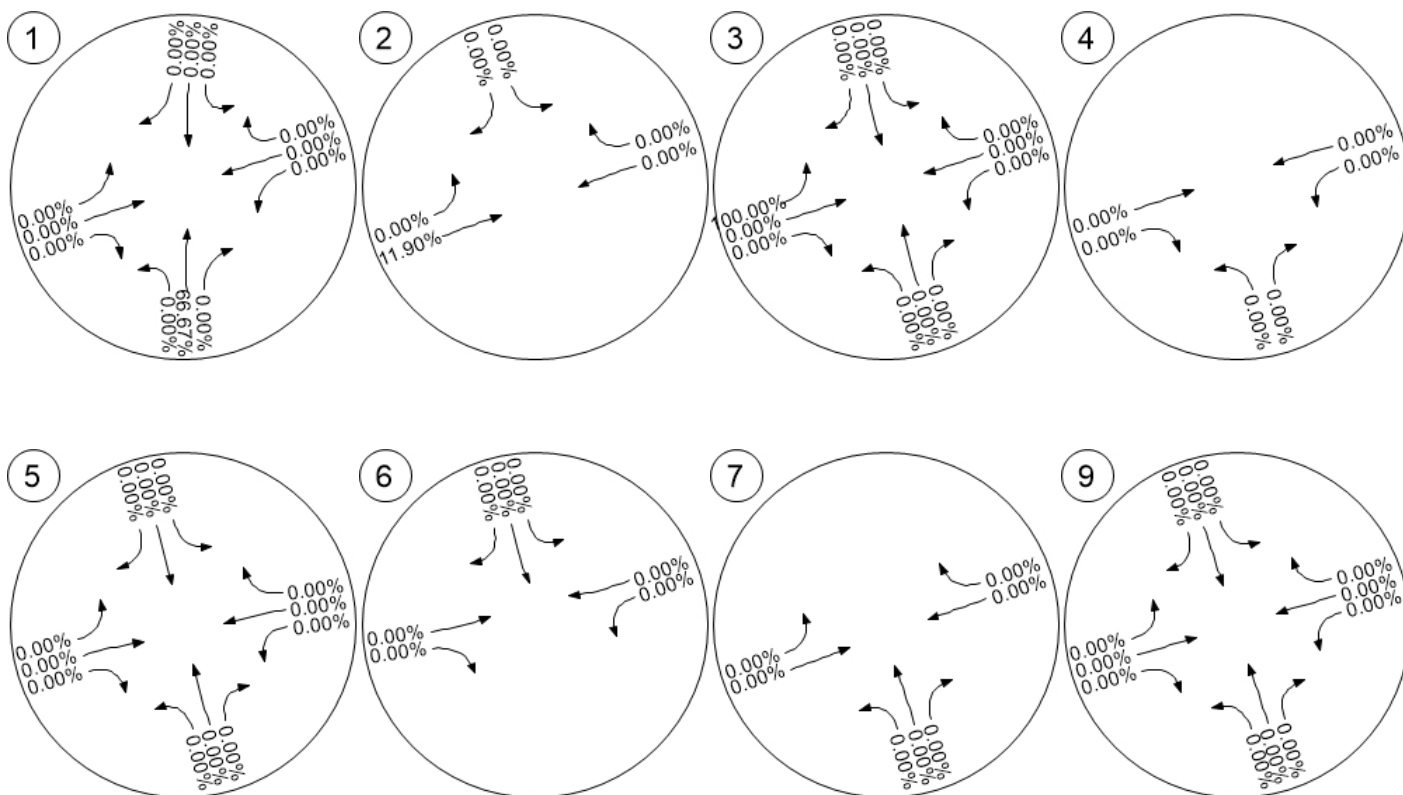


Fair Share - Fair Share % of Net New Site - Zone 24





## Fair Share - Fair Share % of Net New Site - Zone 25

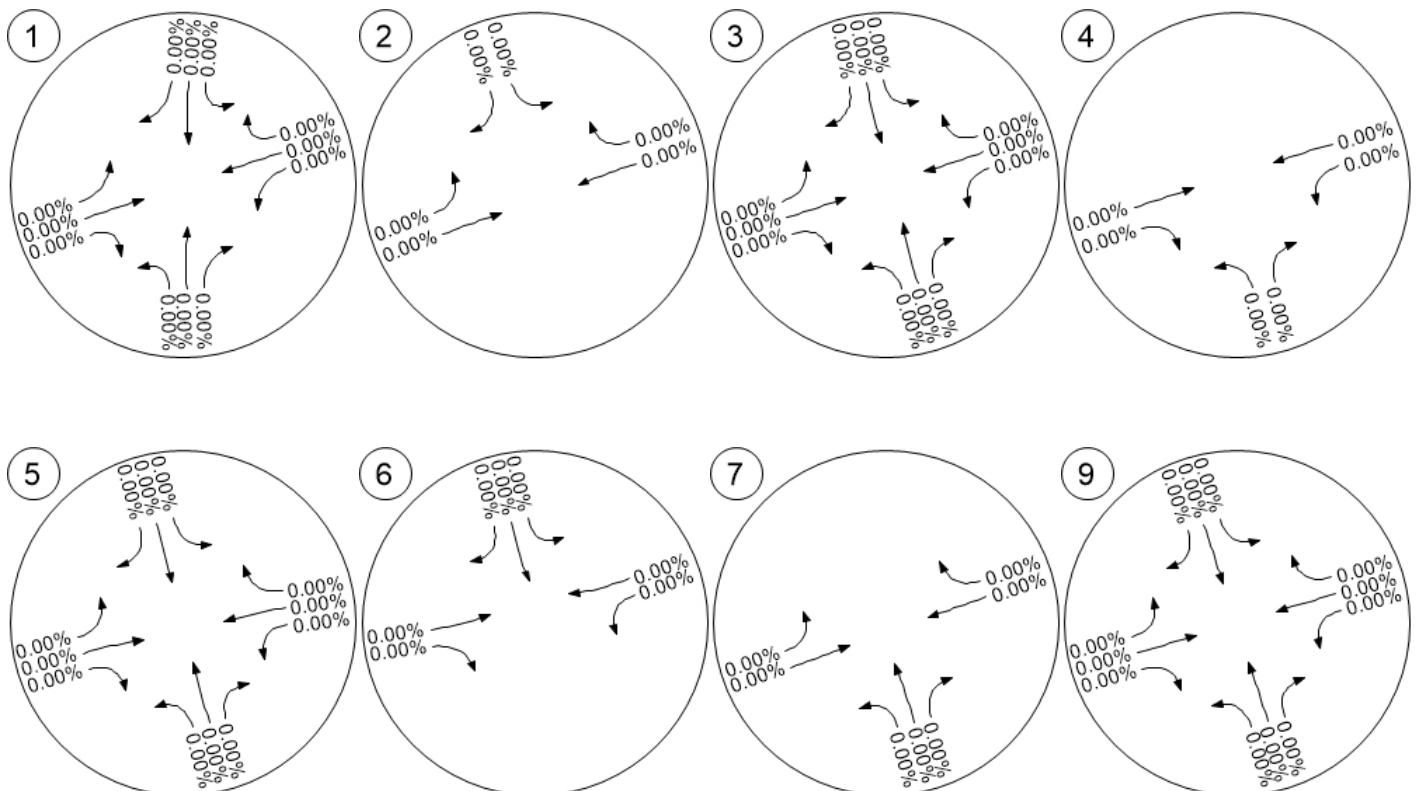


Fair Share - Fair Share % of Net New Site - Zone 25



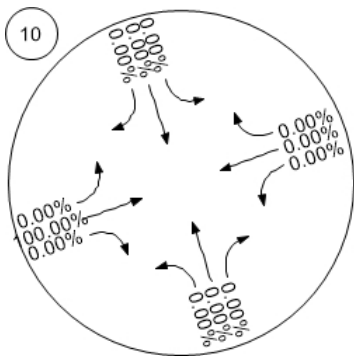


Fair Share - Fair Share % of Net New Site - Zone 26

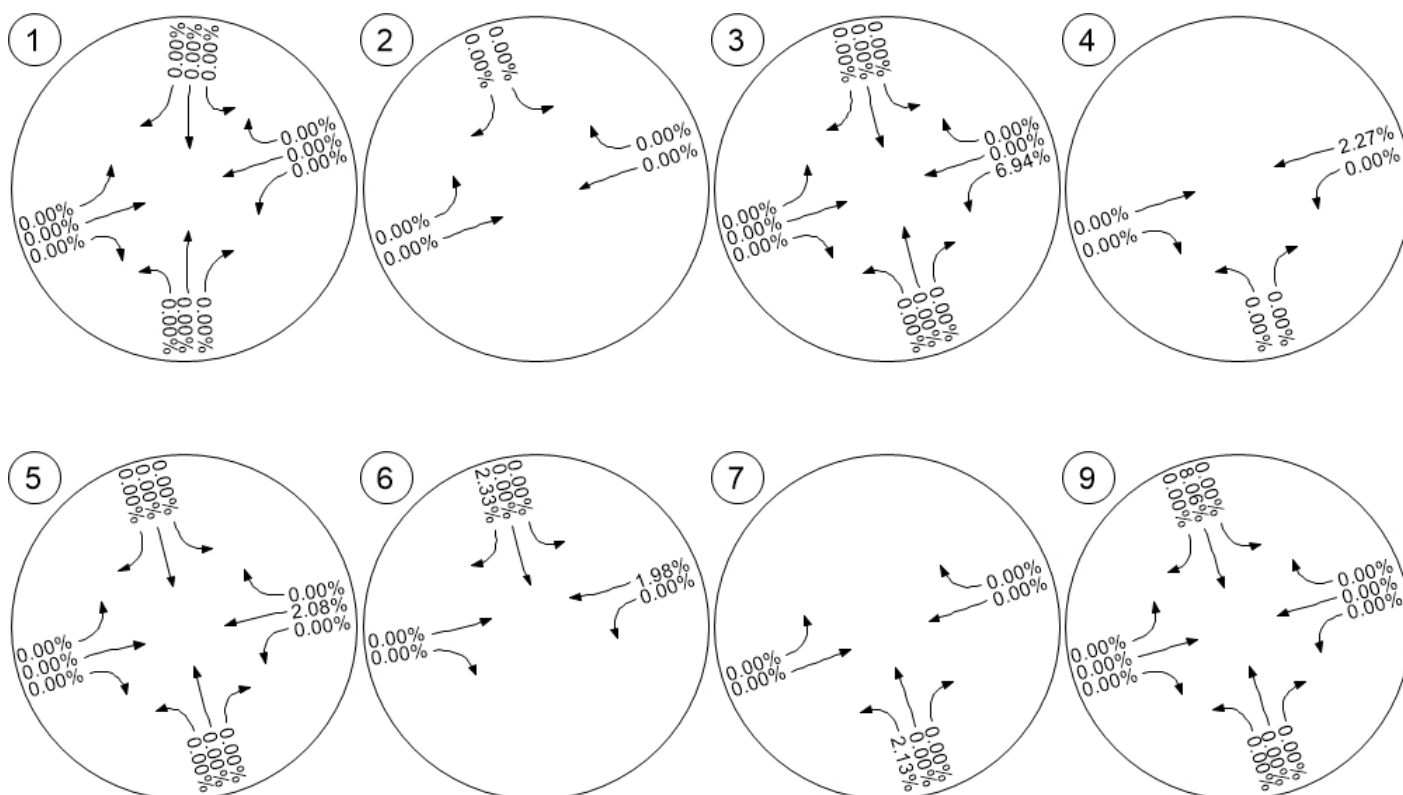




Fair Share - Fair Share % of Net New Site - Zone 26

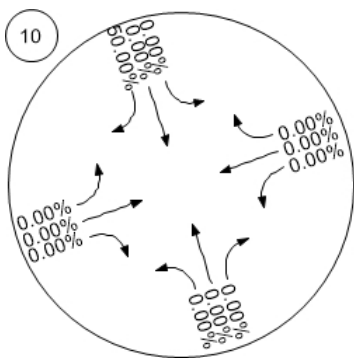


Fair Share - Fair Share % of Net New Site - Zone 27

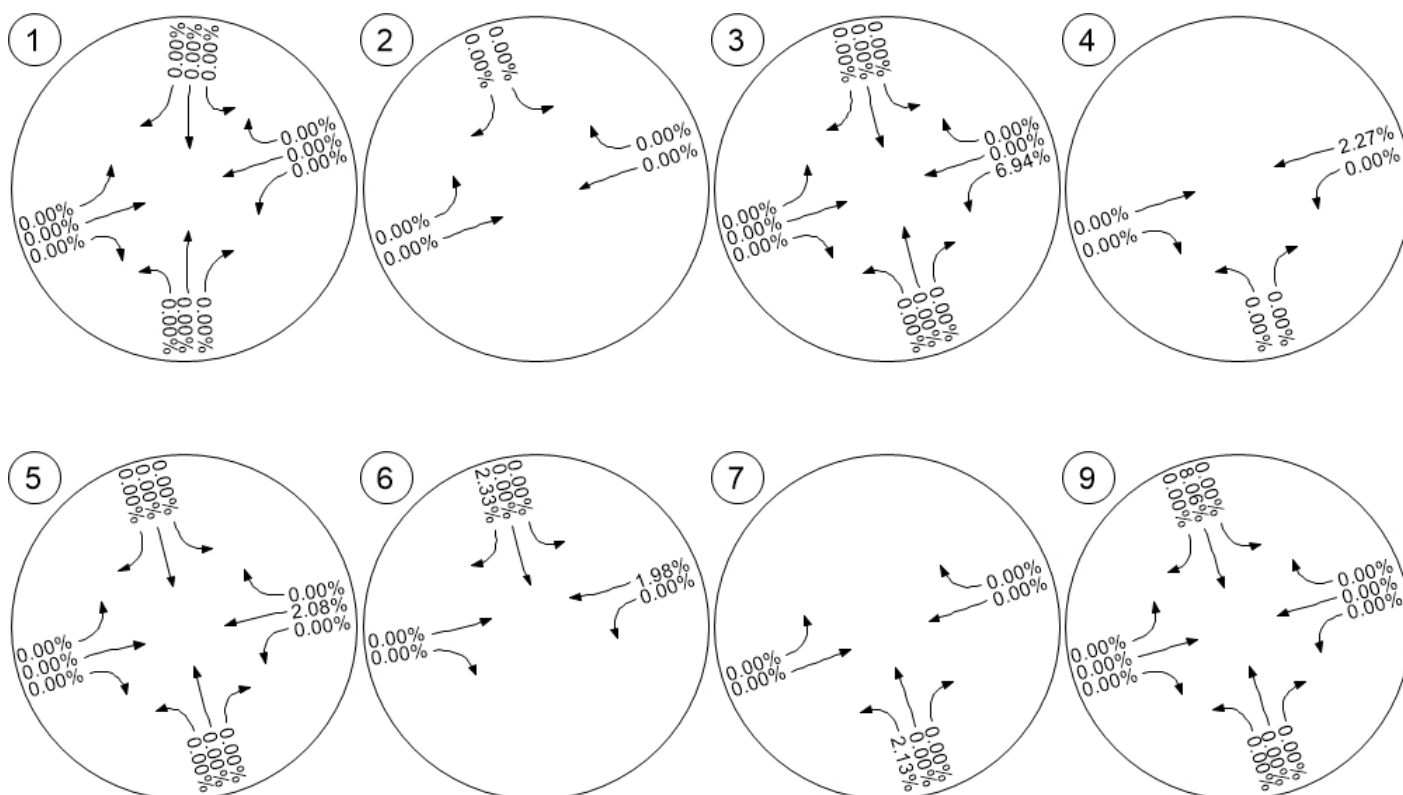




Fair Share - Fair Share % of Net New Site - Zone 27

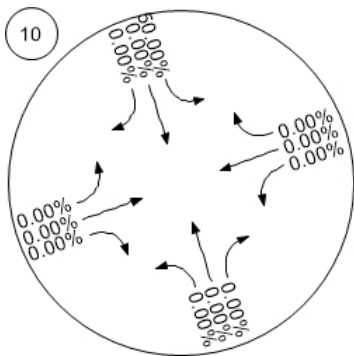


Fair Share - Fair Share % of Net New Site - Zone 28



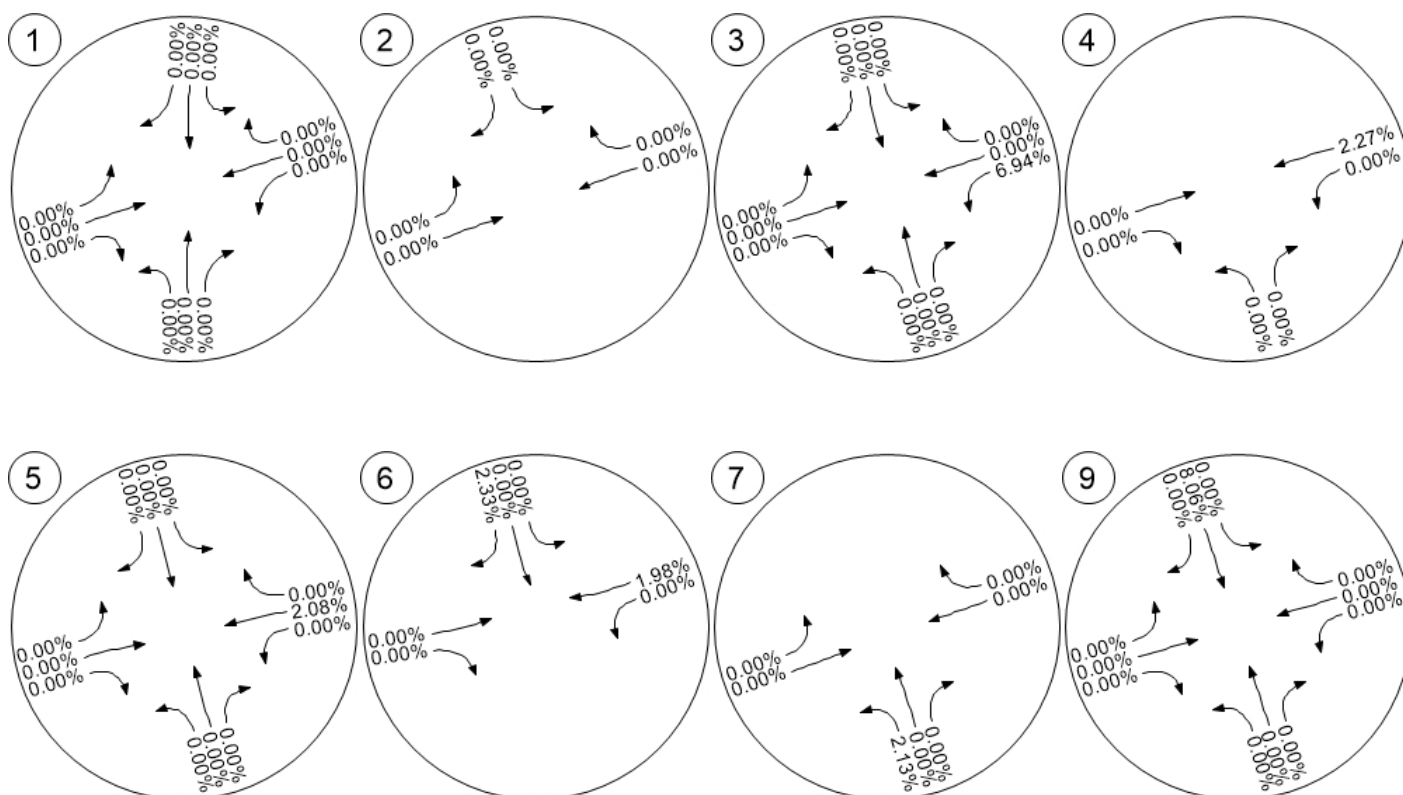


Fair Share - Fair Share % of Net New Site - Zone 28

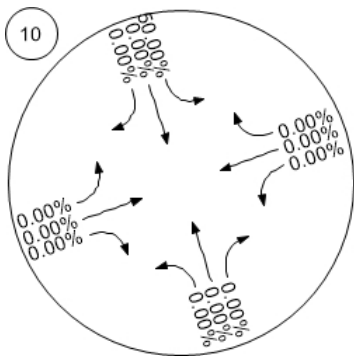




Fair Share - Fair Share % of Net New Site - Zone 29

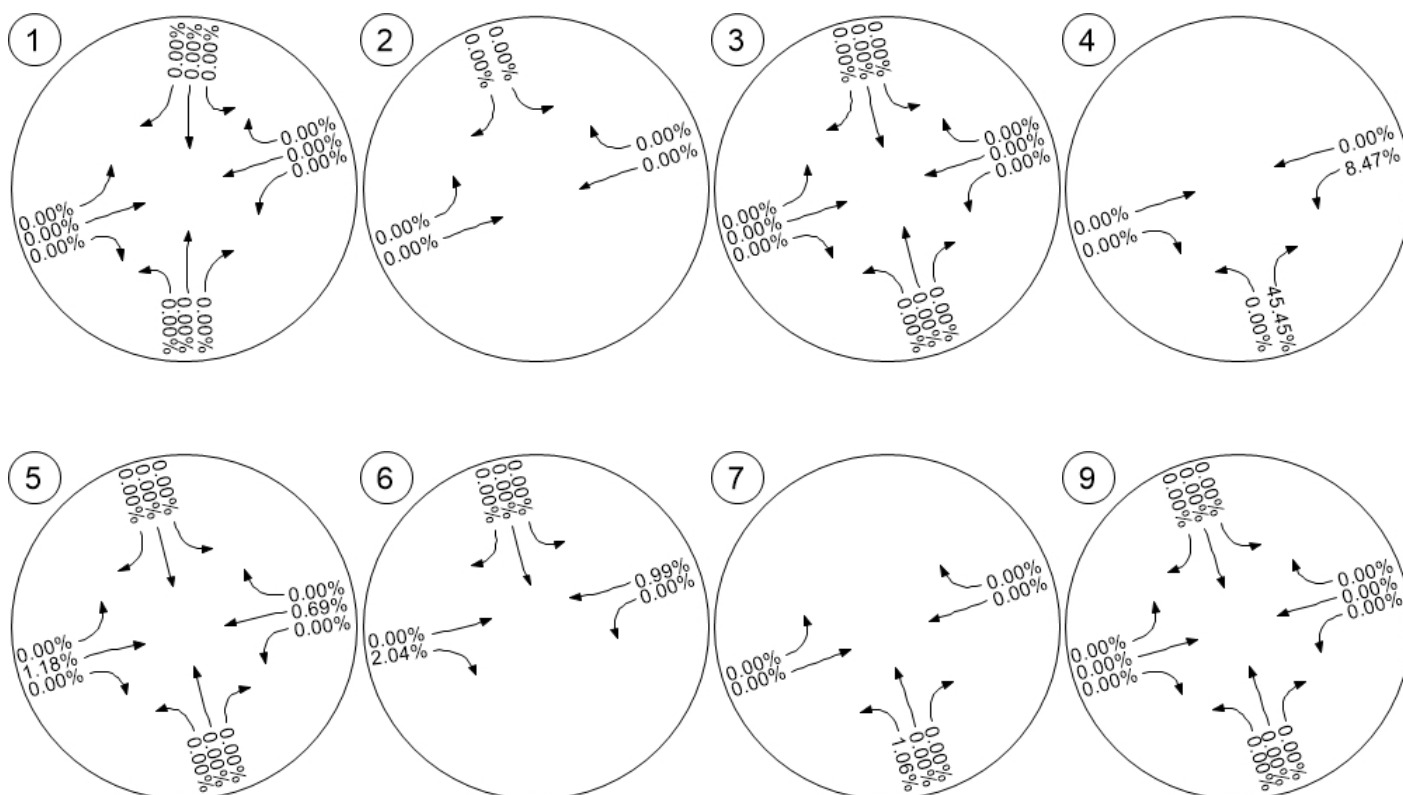


Fair Share - Fair Share % of Net New Site - Zone 29





Fair Share - Fair Share % of Net New Site - Zone 30

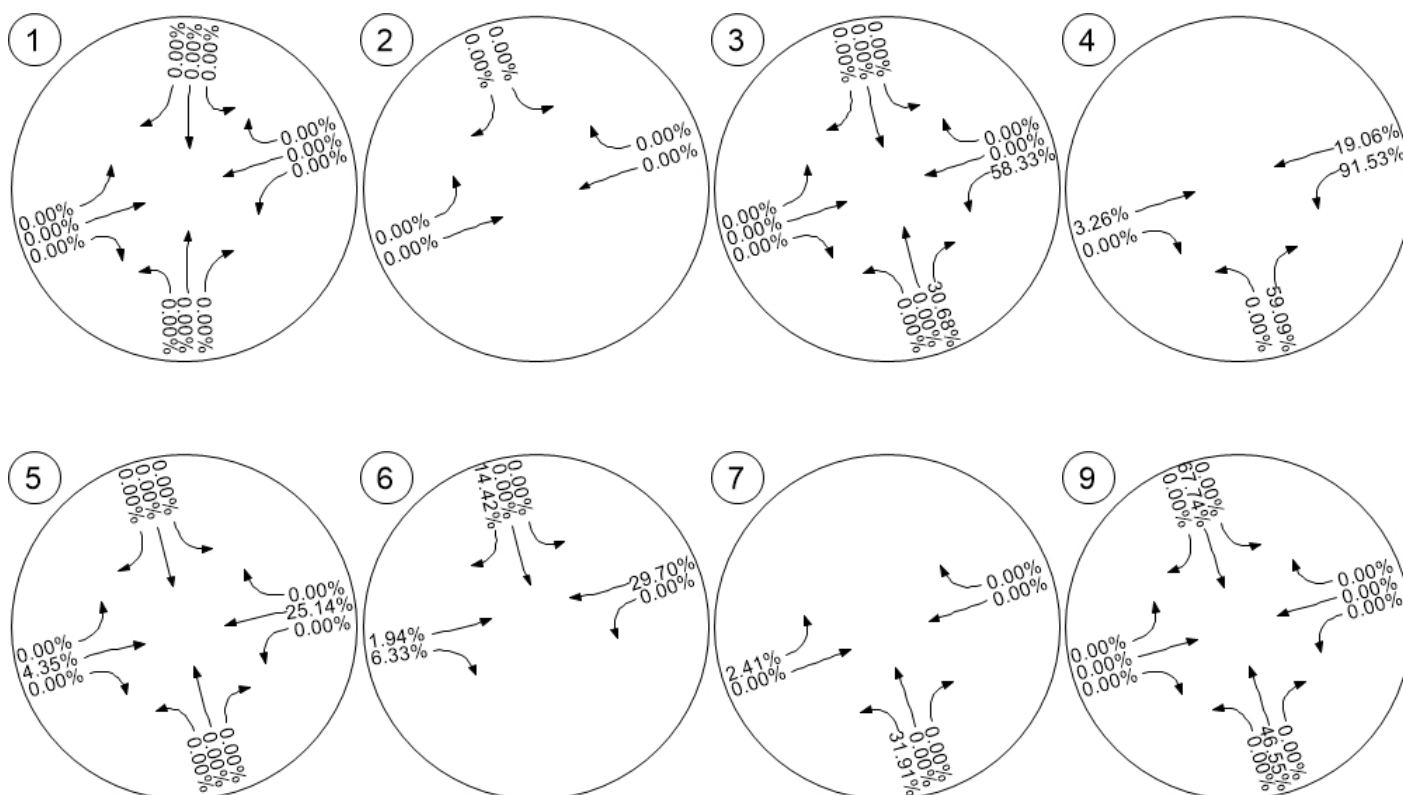


Fair Share - Fair Share % of Net New Site - Zone 30



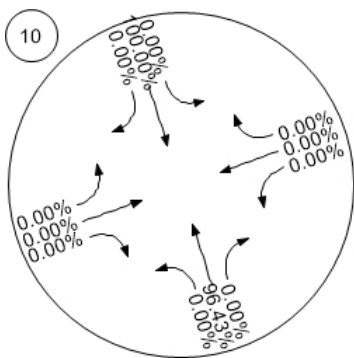
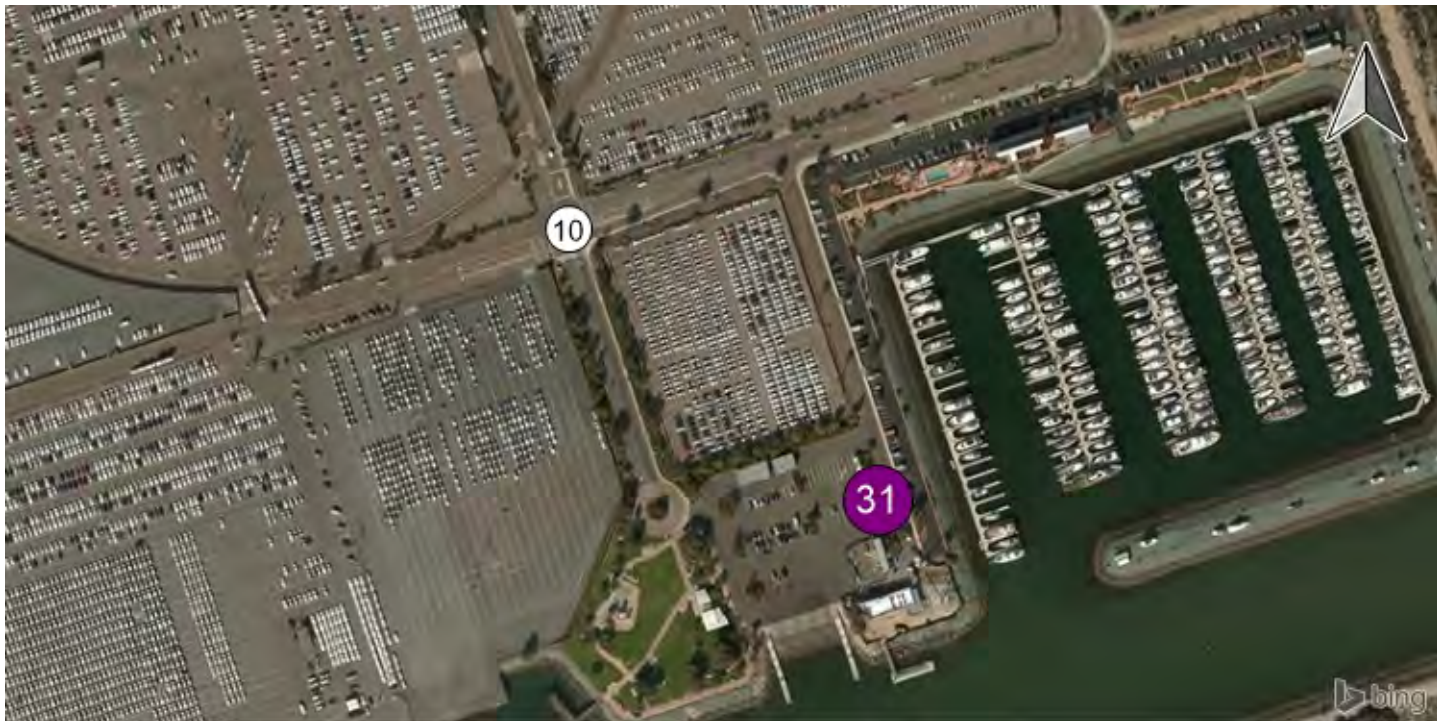


Fair Share - Fair Share % of Net New Site - Zone 31

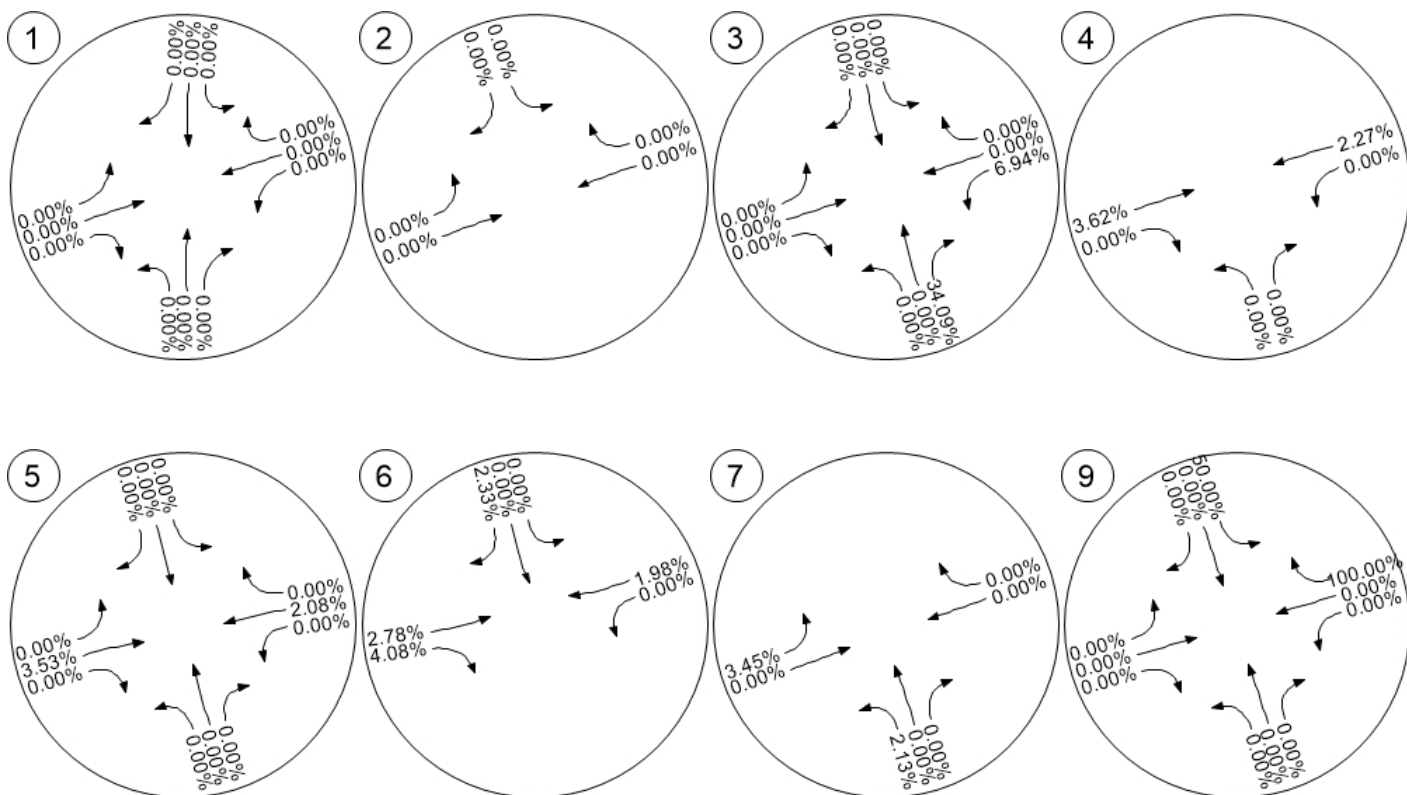




Fair Share - Fair Share % of Net New Site - Zone 31

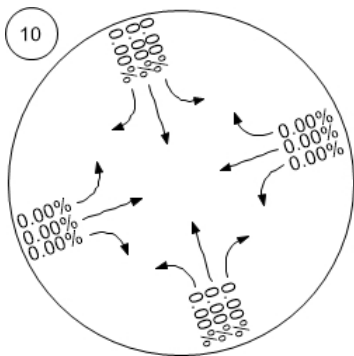


## Fair Share - Fair Share % of Net New Site - Zone 32

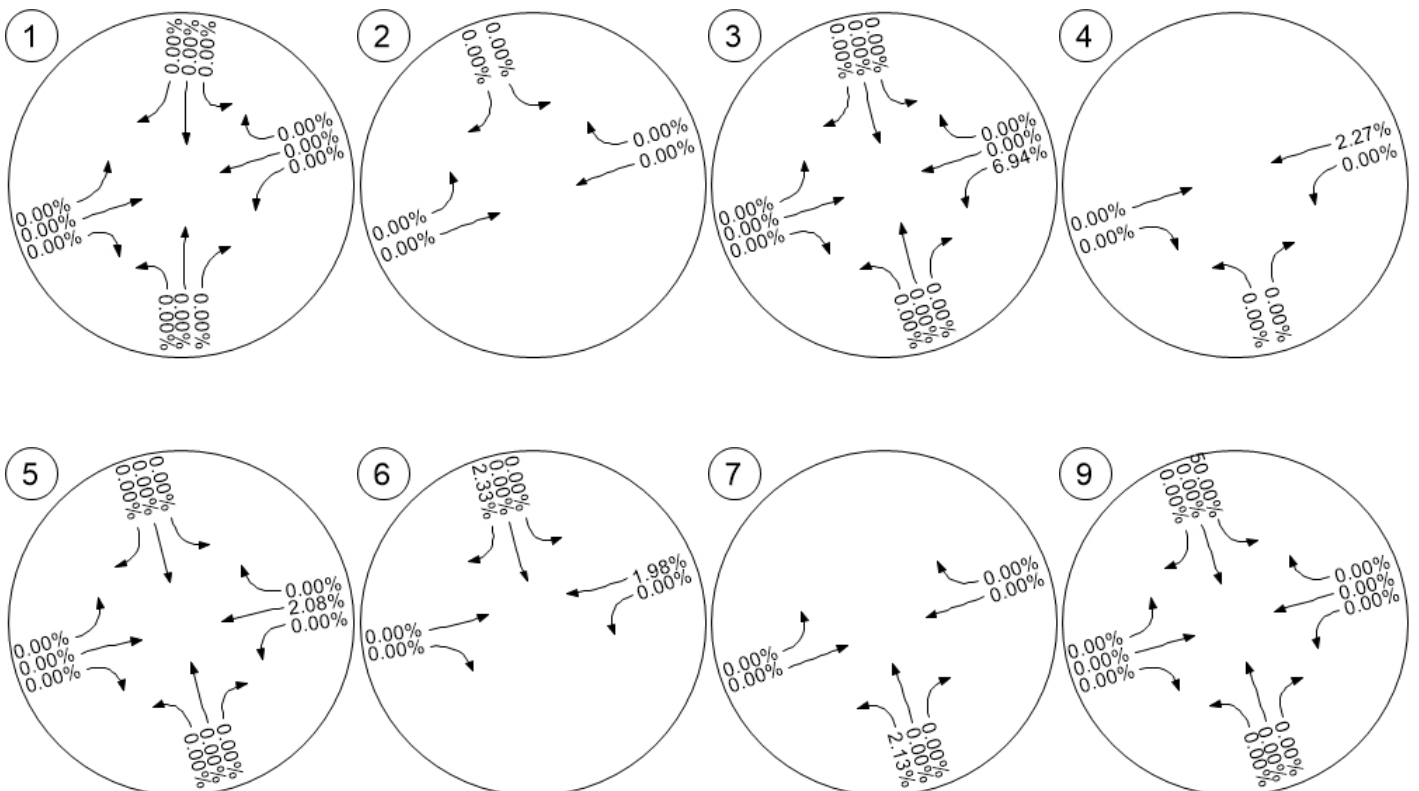




Fair Share - Fair Share % of Net New Site - Zone 32

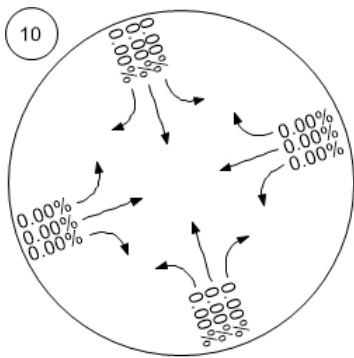


Fair Share - Fair Share % of Net New Site - Zone 33



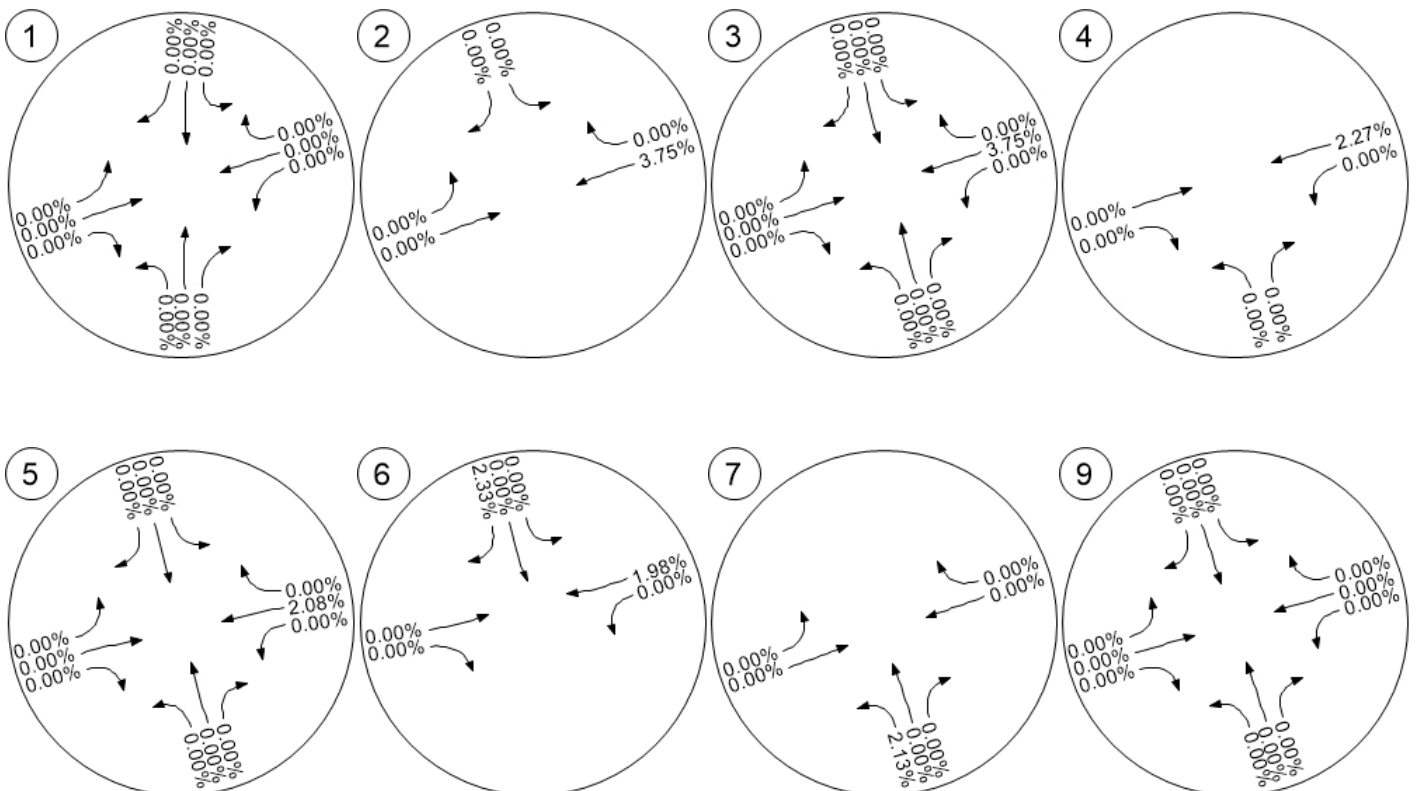


Fair Share - Fair Share % of Net New Site - Zone 33

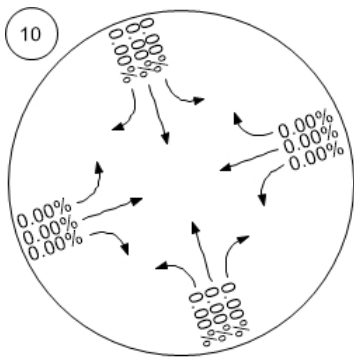




Fair Share - Fair Share % of Net New Site - Zone 34

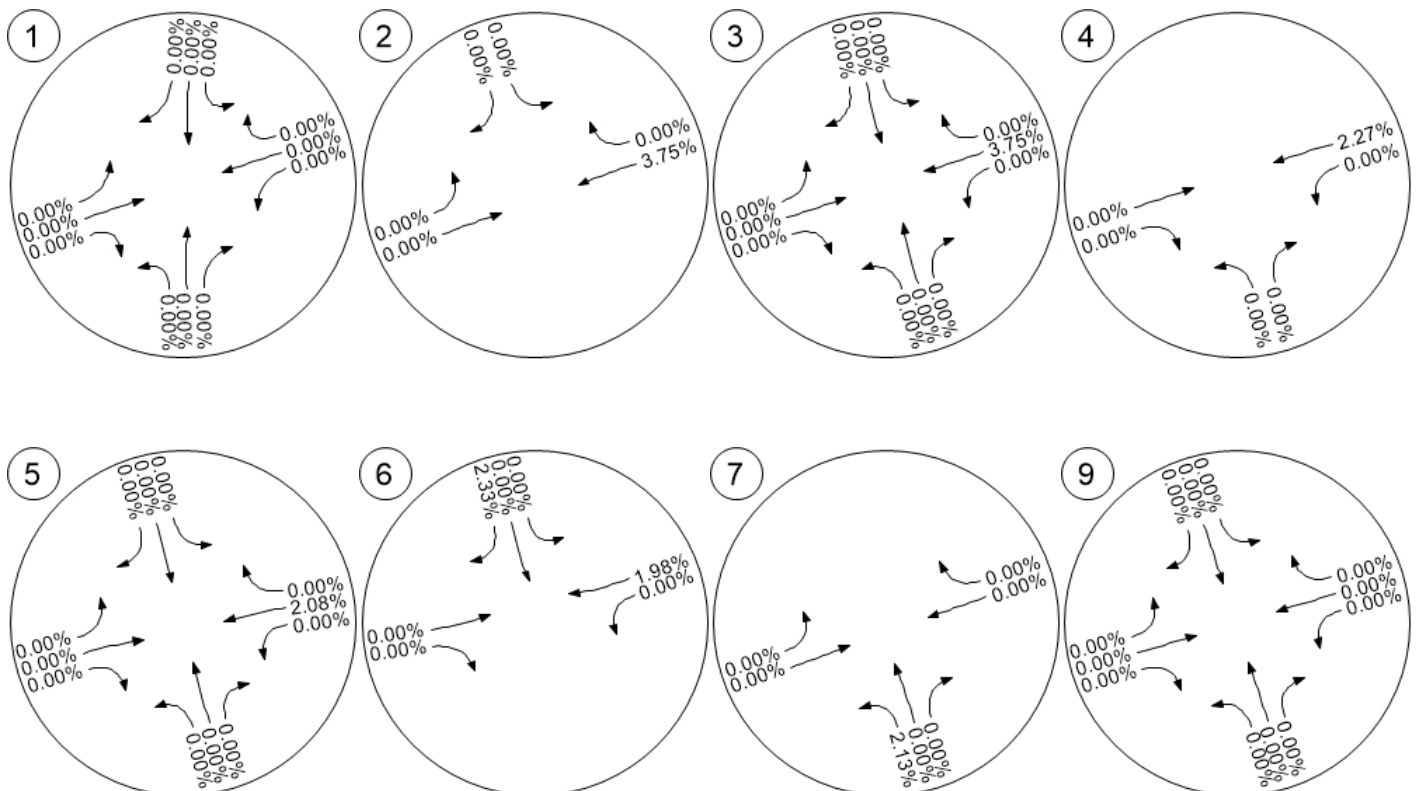


Fair Share - Fair Share % of Net New Site - Zone 34

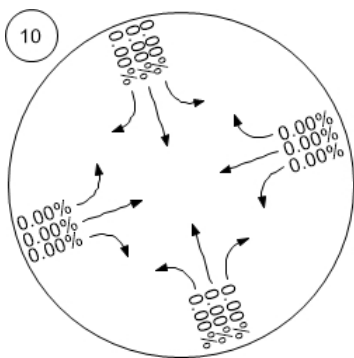




Fair Share - Fair Share % of Net New Site - Zone 35

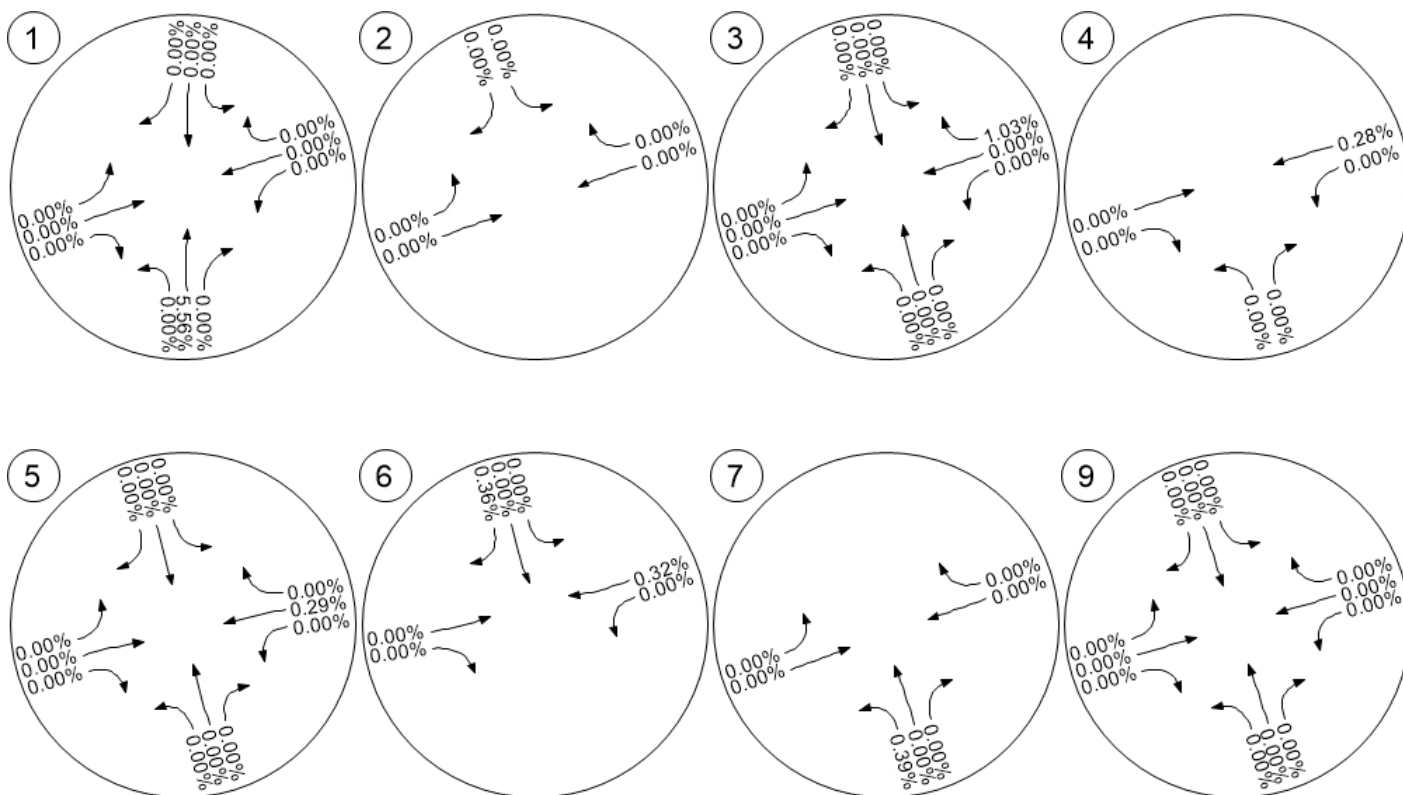


Fair Share - Fair Share % of Net New Site - Zone 35



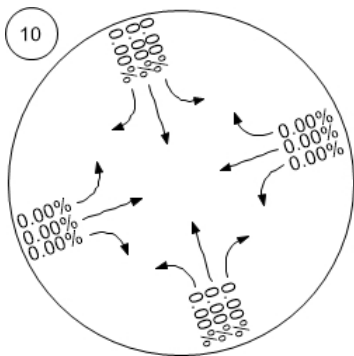


## Fair Share - Fair Share % of Total Analysis - Zone 18

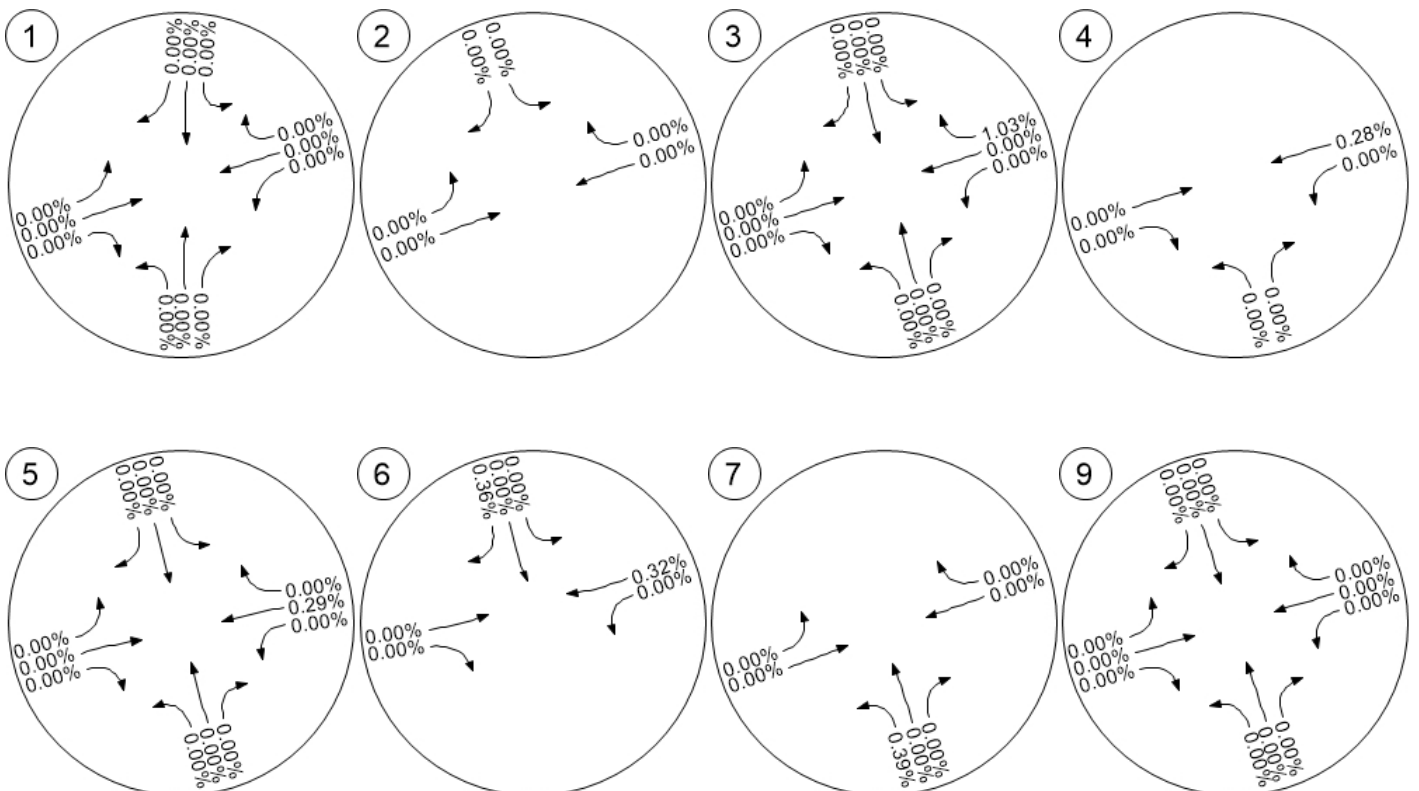




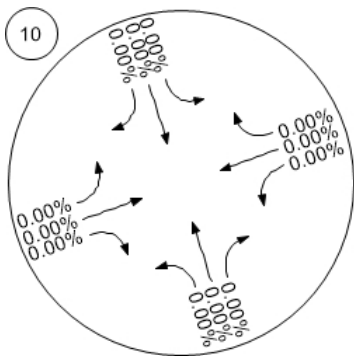
Fair Share - Fair Share % of Total Analysis - Zone 18



Fair Share - Fair Share % of Total Analysis - Zone 19

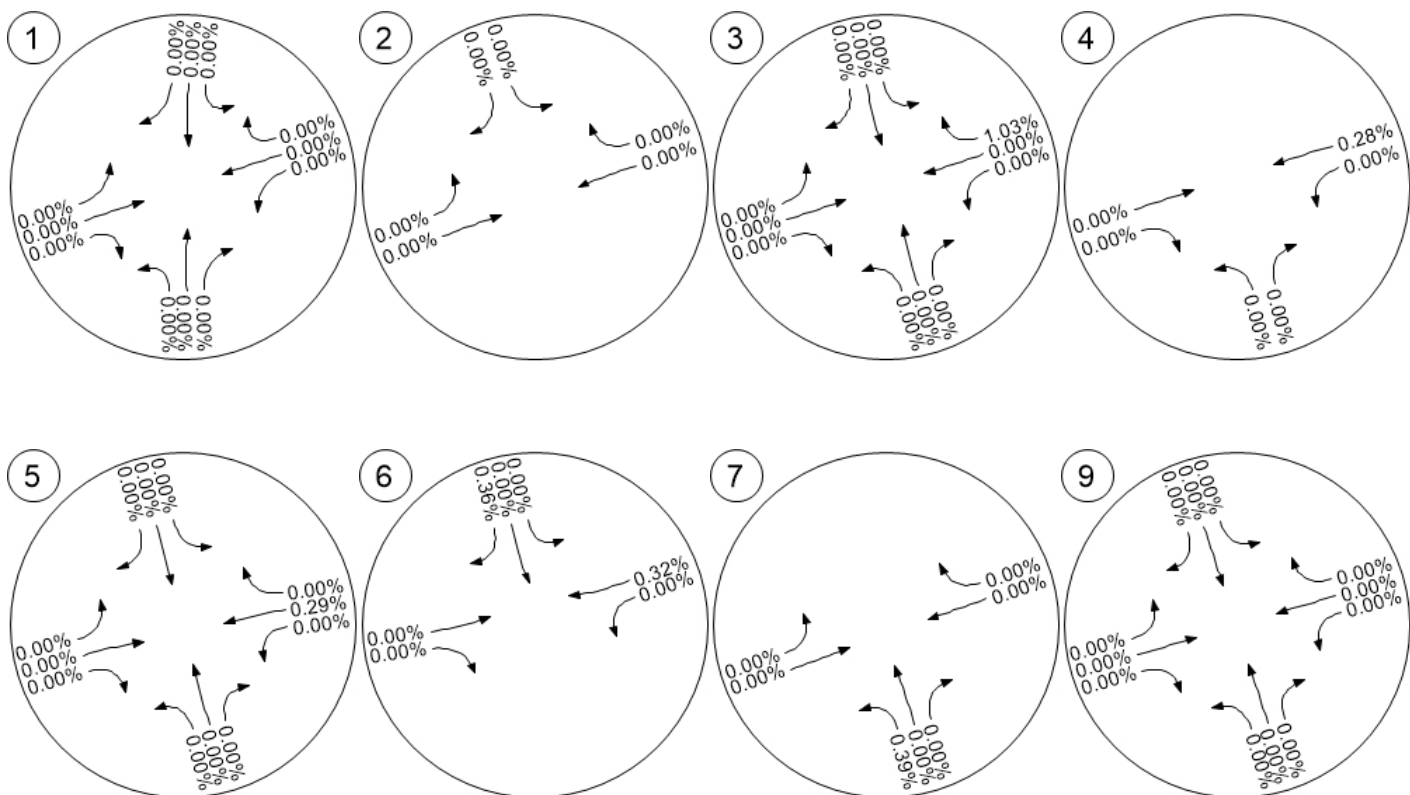


Fair Share - Fair Share % of Total Analysis - Zone 19

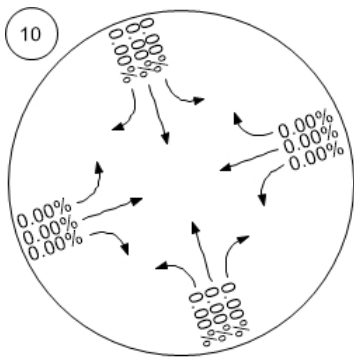




## Fair Share - Fair Share % of Total Analysis - Zone 20

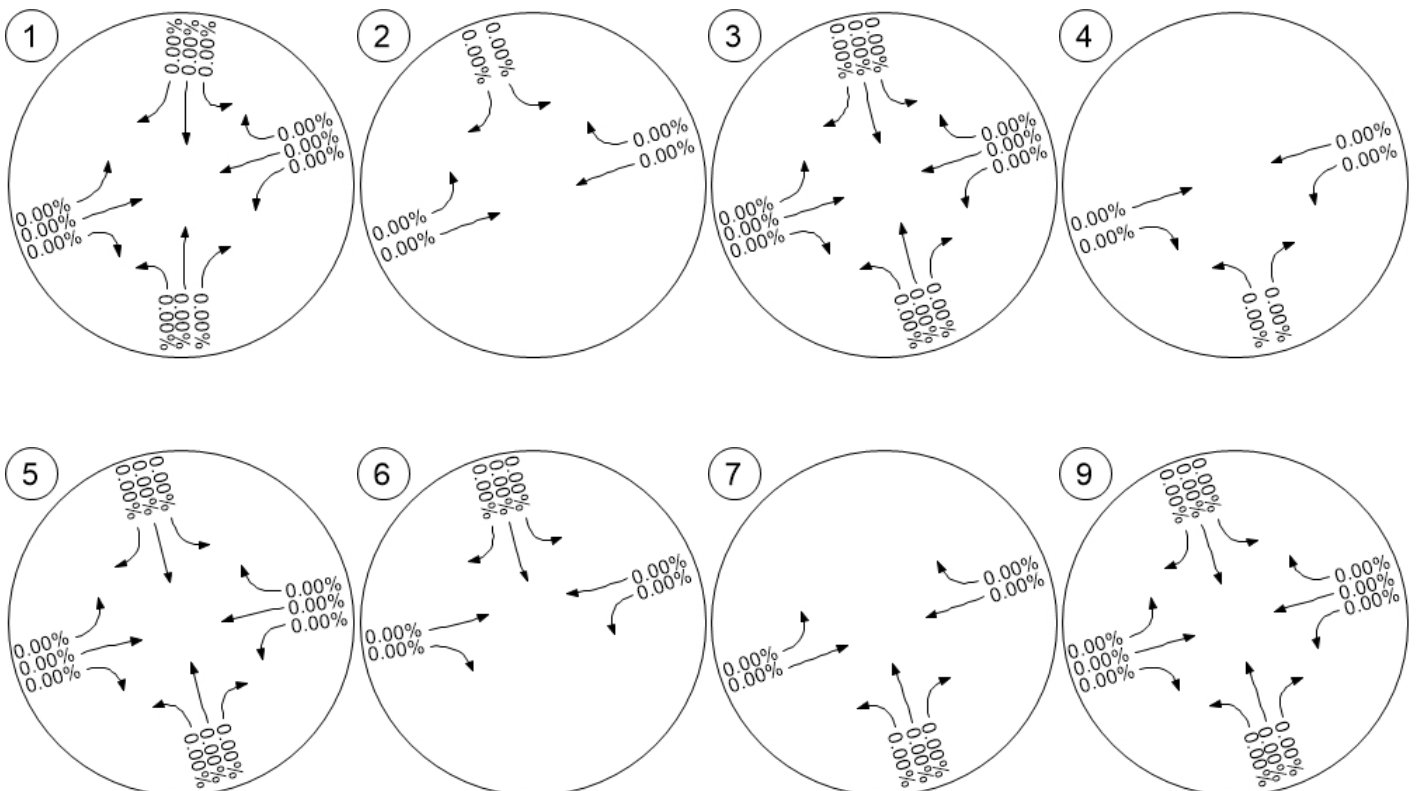


Fair Share - Fair Share % of Total Analysis - Zone 20

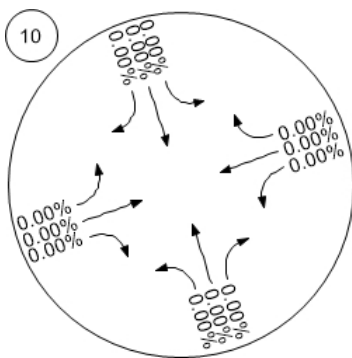
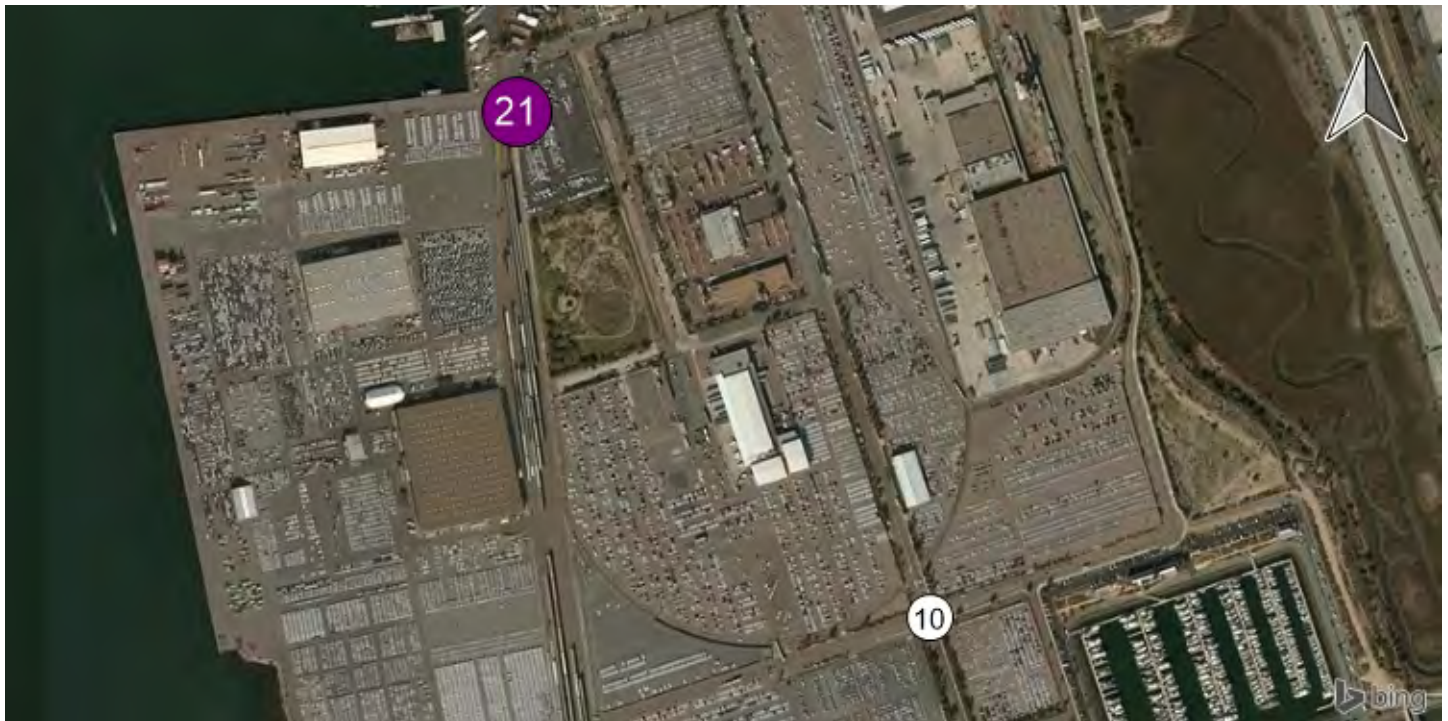




Fair Share - Fair Share % of Total Analysis - Zone 21

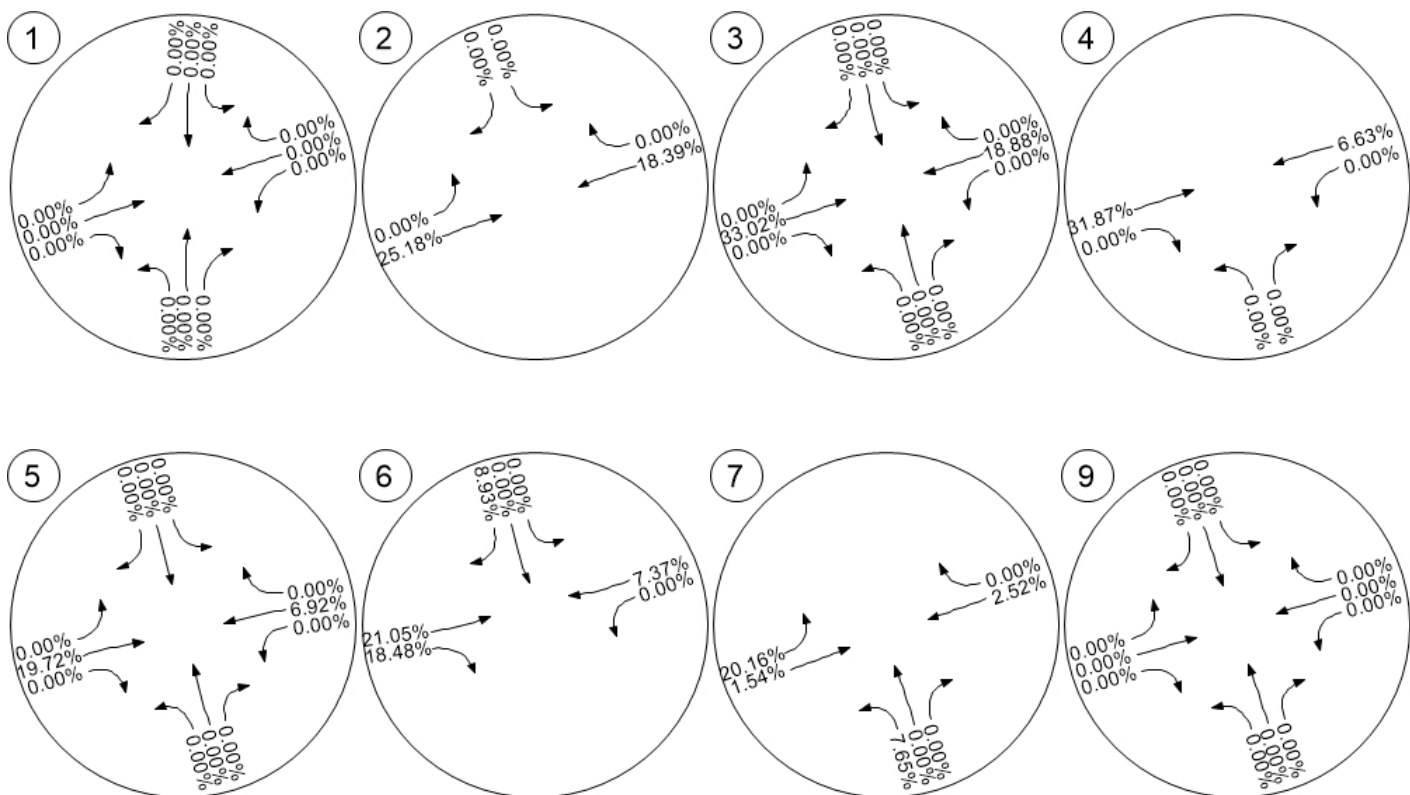


Fair Share - Fair Share % of Total Analysis - Zone 21

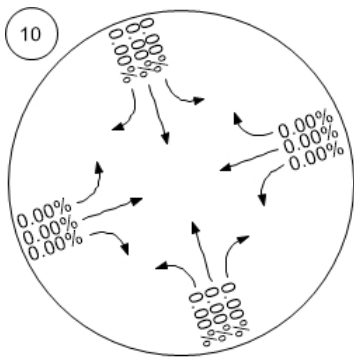




## Fair Share - Fair Share % of Total Analysis - Zone 22

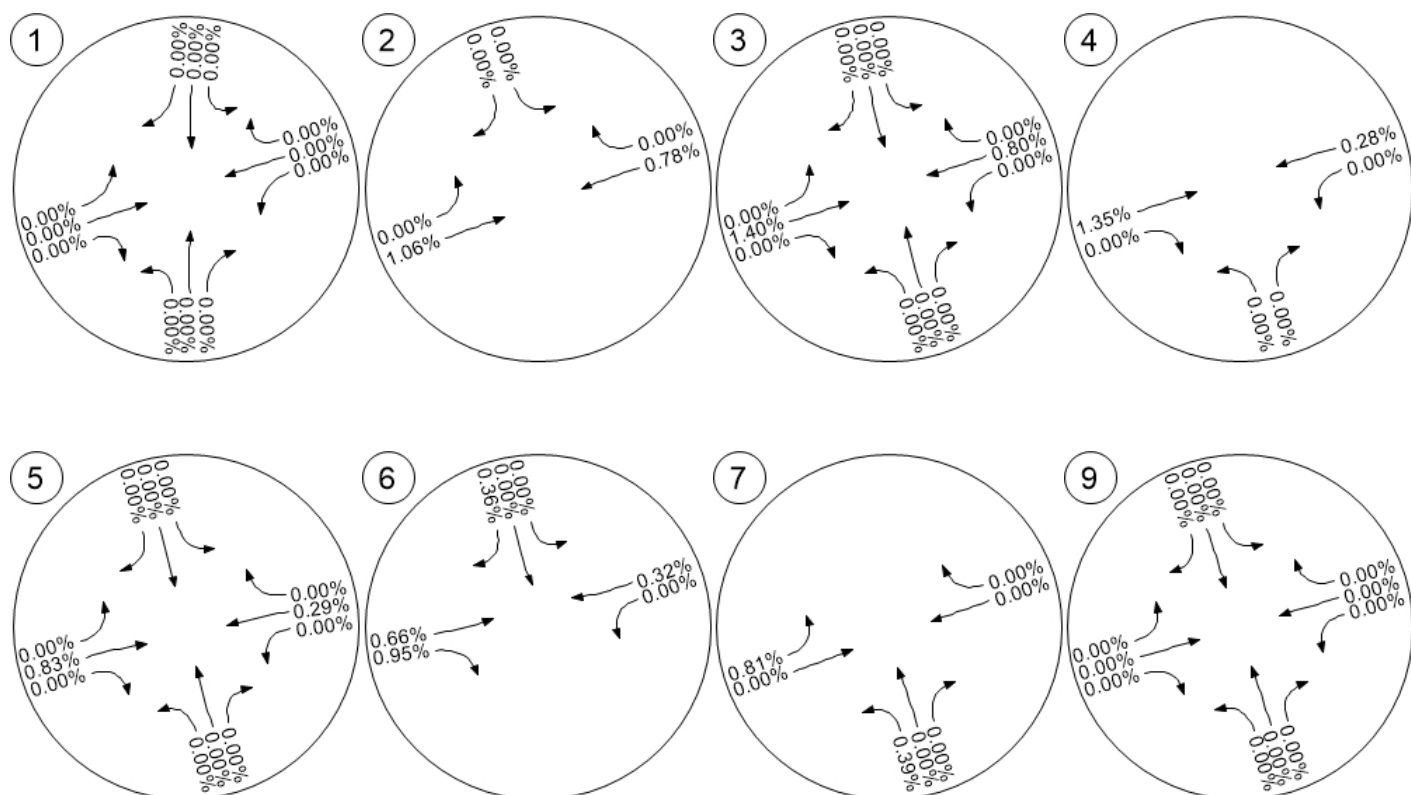


Fair Share - Fair Share % of Total Analysis - Zone 22



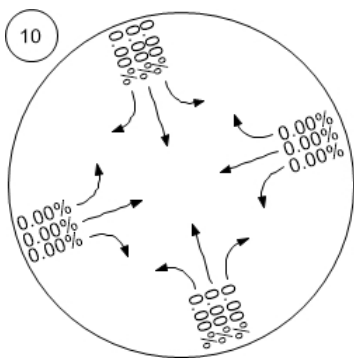


## Fair Share - Fair Share % of Total Analysis - Zone 23

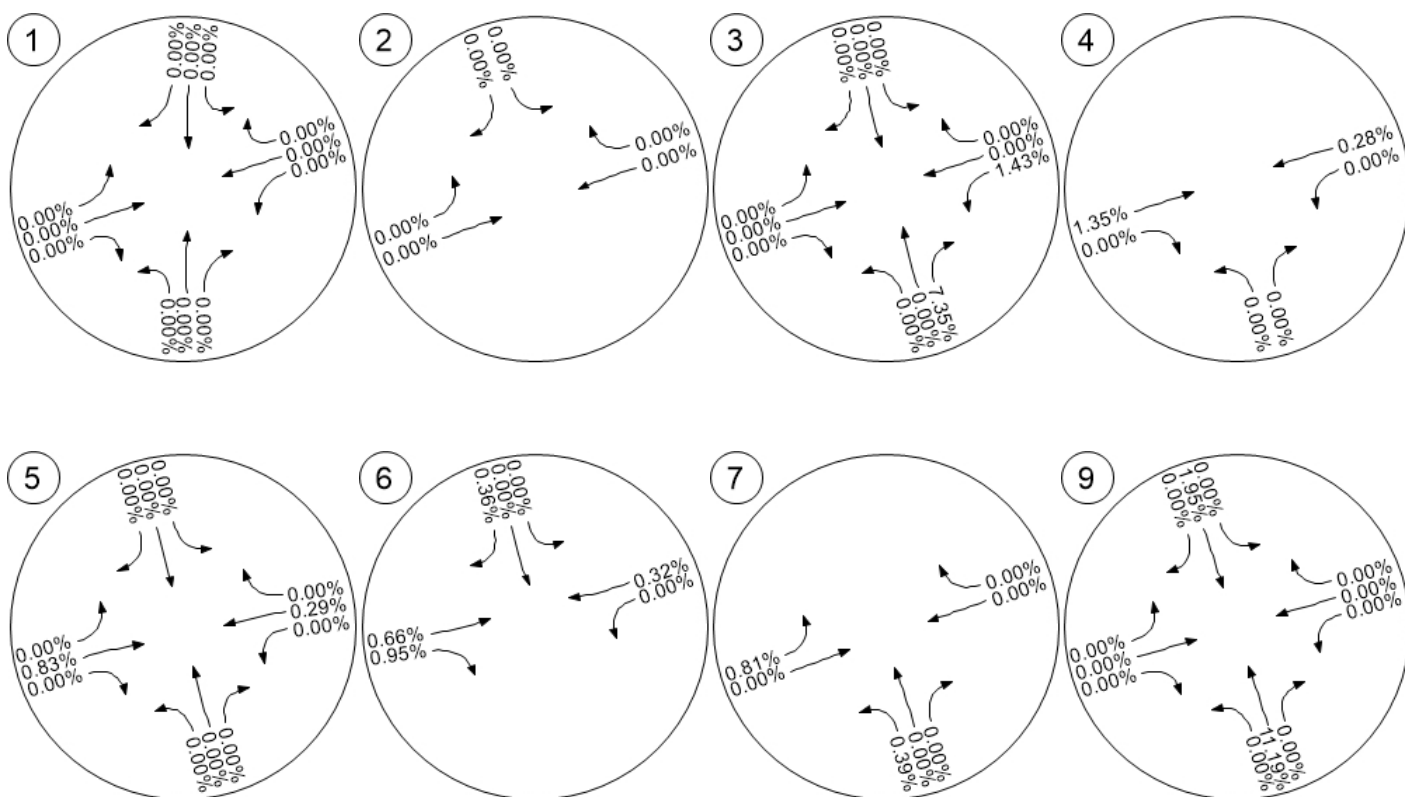




Fair Share - Fair Share % of Total Analysis - Zone 23

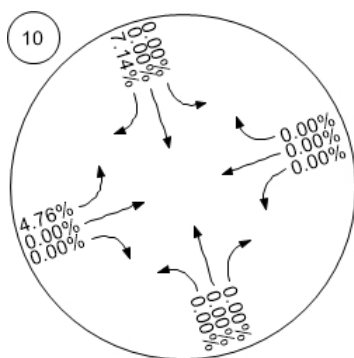


## Fair Share - Fair Share % of Total Analysis - Zone 24

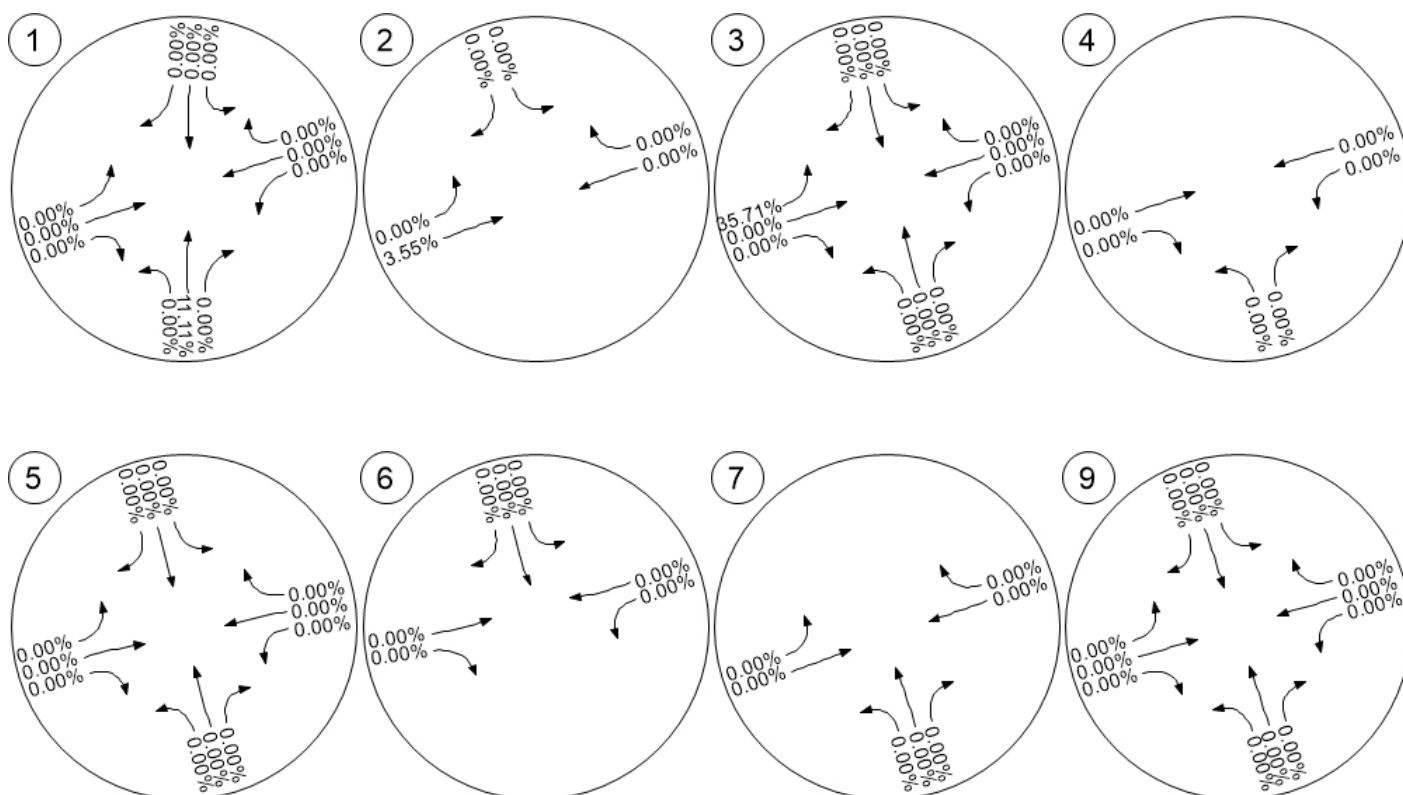




## Fair Share - Fair Share % of Total Analysis - Zone 24

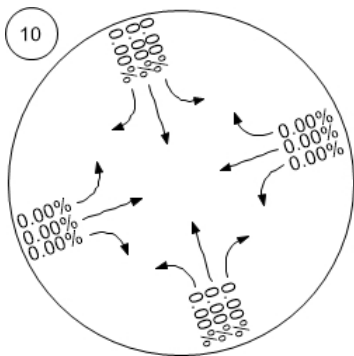


## Fair Share - Fair Share % of Total Analysis - Zone 25



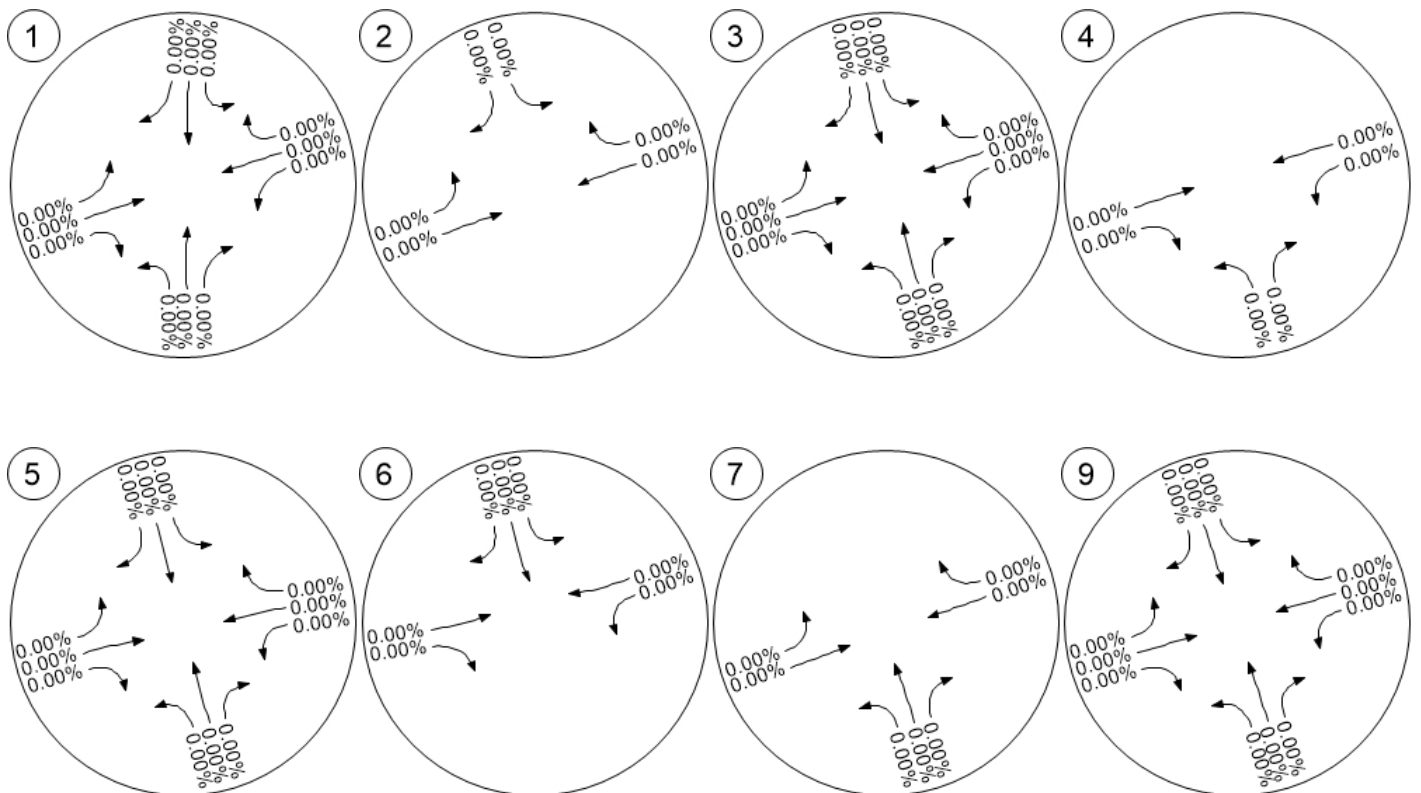


Fair Share - Fair Share % of Total Analysis - Zone 25

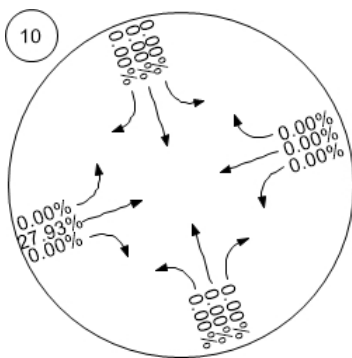




Fair Share - Fair Share % of Total Analysis - Zone 26

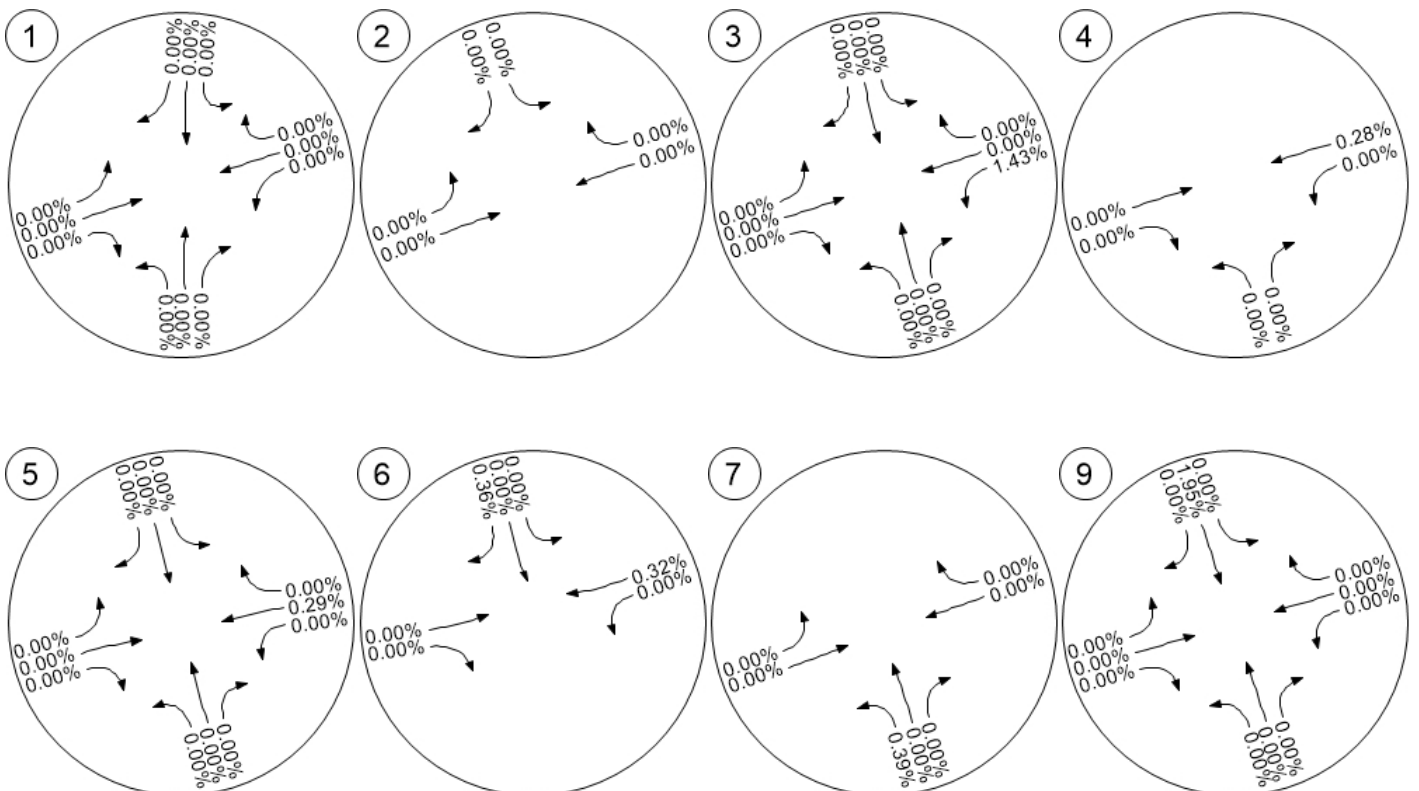


Fair Share - Fair Share % of Total Analysis - Zone 26

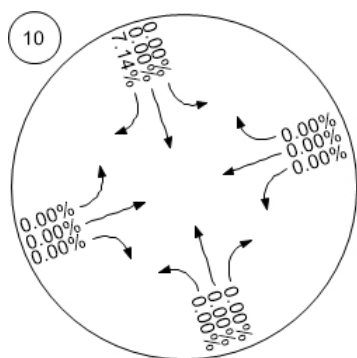




Fair Share - Fair Share % of Total Analysis - Zone 27

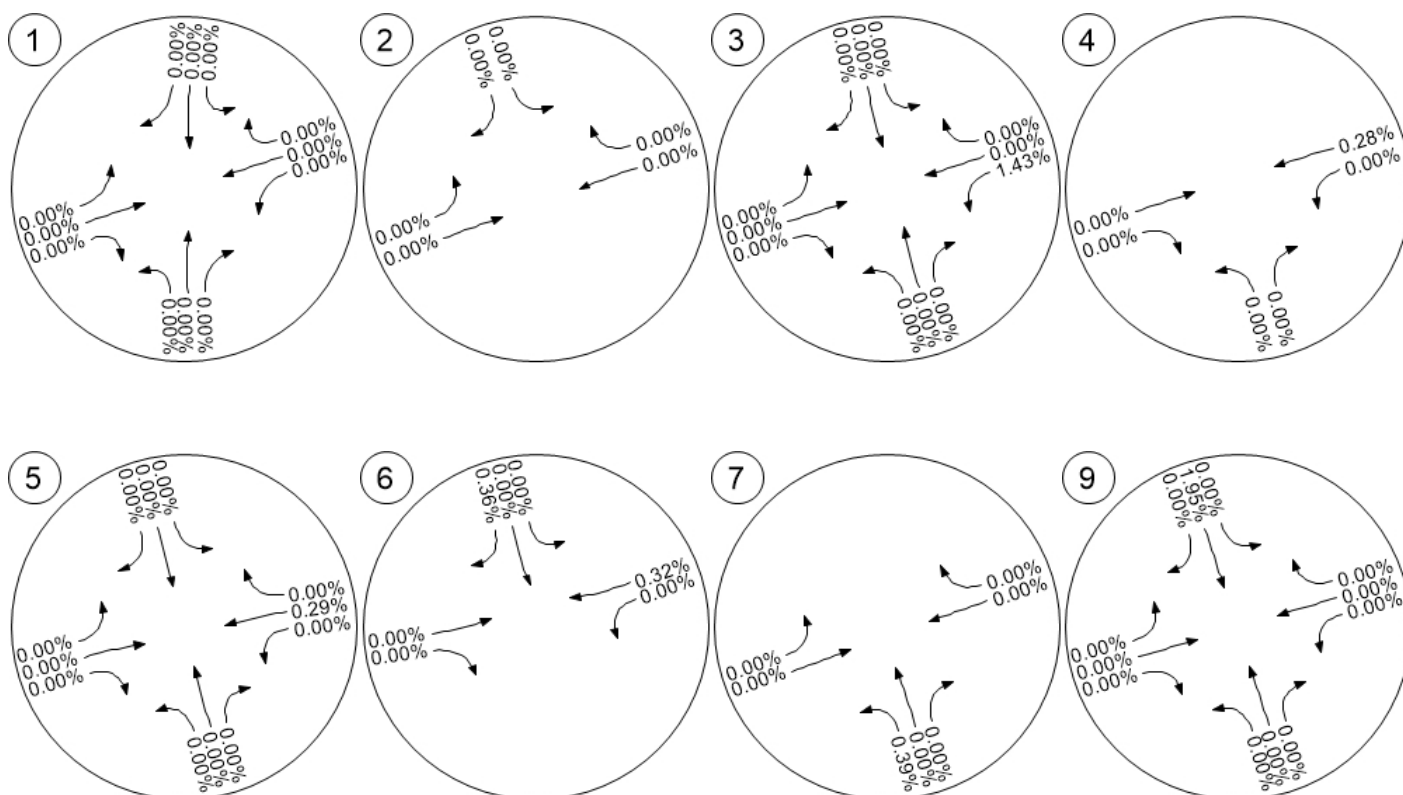


## Fair Share - Fair Share % of Total Analysis - Zone 27



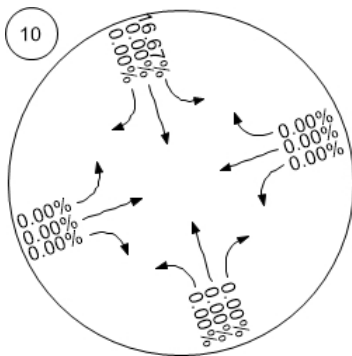


Fair Share - Fair Share % of Total Analysis - Zone 28

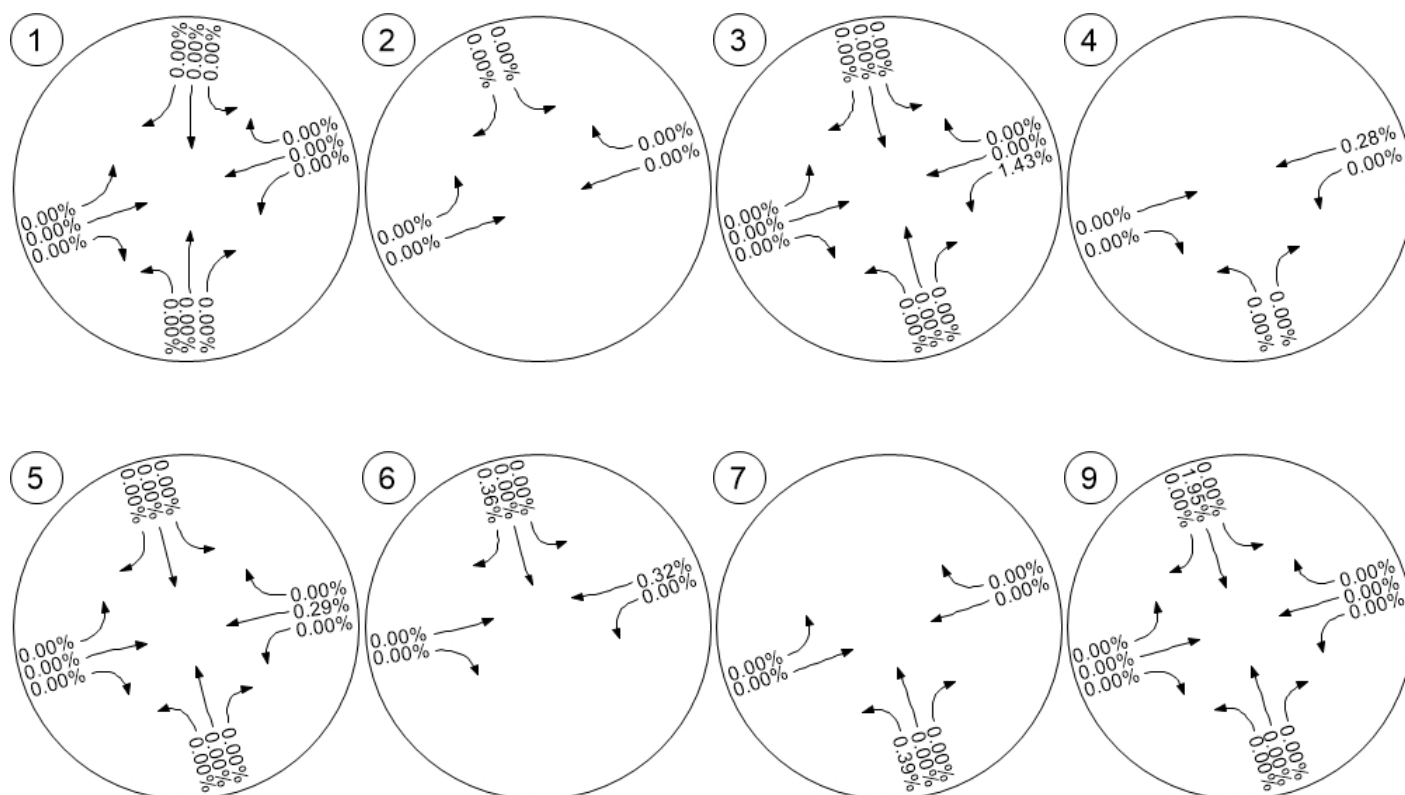




### Fair Share - Fair Share % of Total Analysis - Zone 28

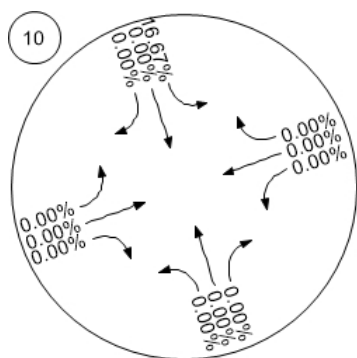
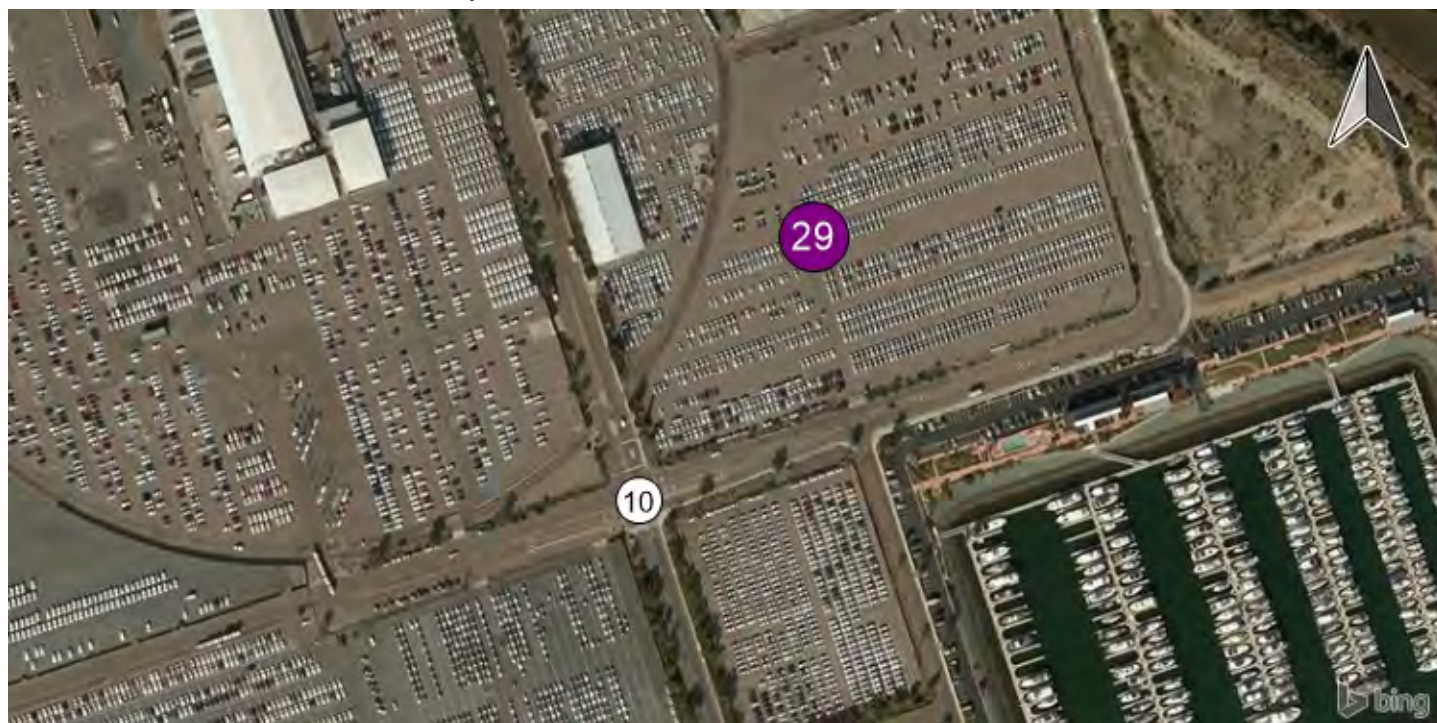


## Fair Share - Fair Share % of Total Analysis - Zone 29

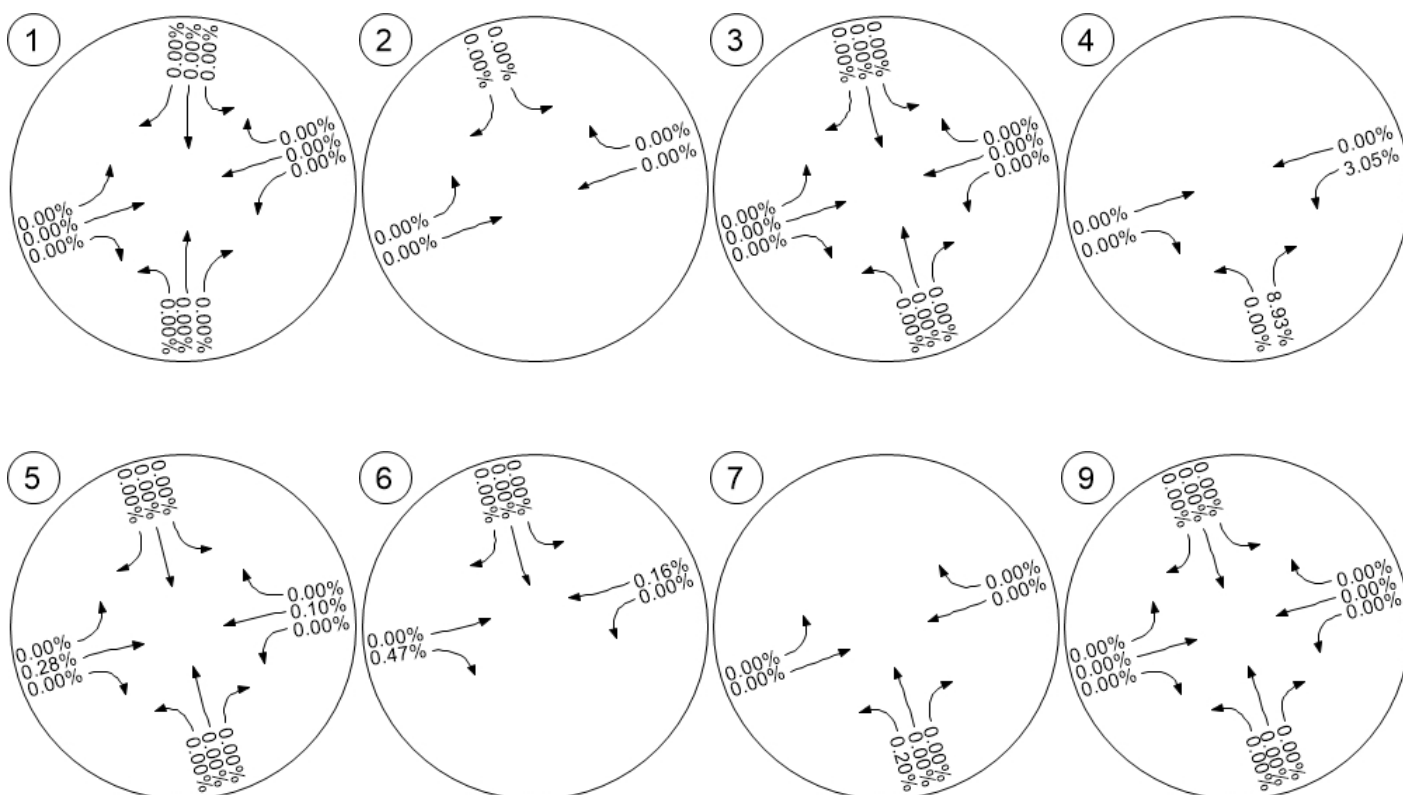




## Fair Share - Fair Share % of Total Analysis - Zone 29

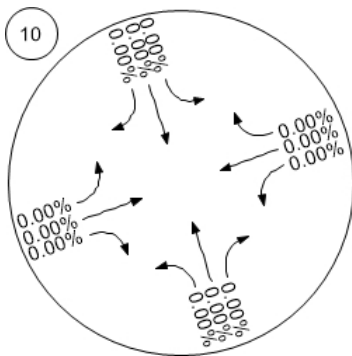


## Fair Share - Fair Share % of Total Analysis - Zone 30



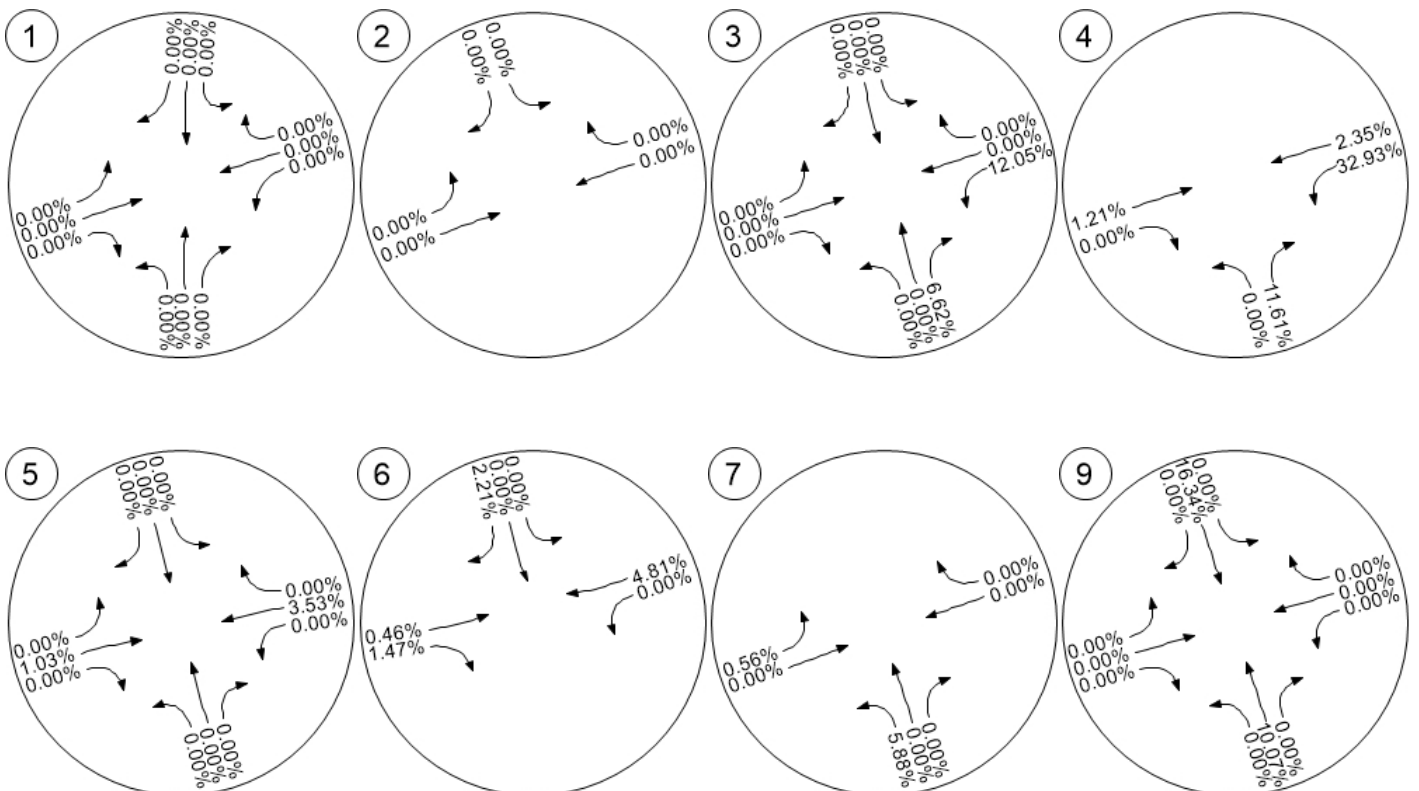


Fair Share - Fair Share % of Total Analysis - Zone 30

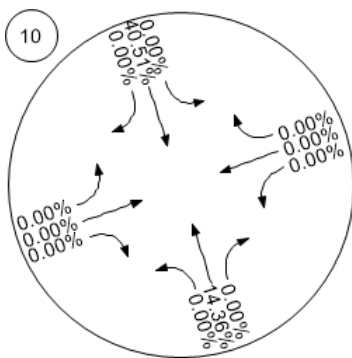
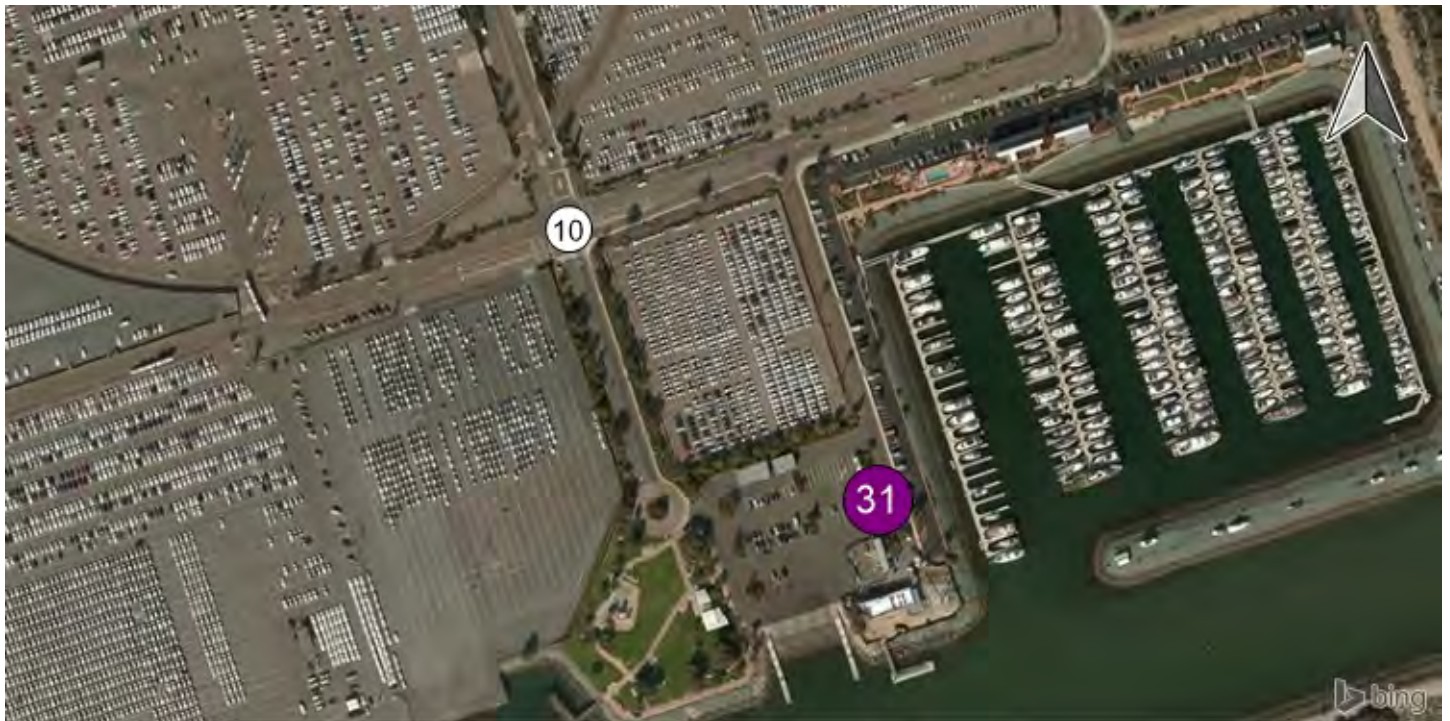




Fair Share - Fair Share % of Total Analysis - Zone 31

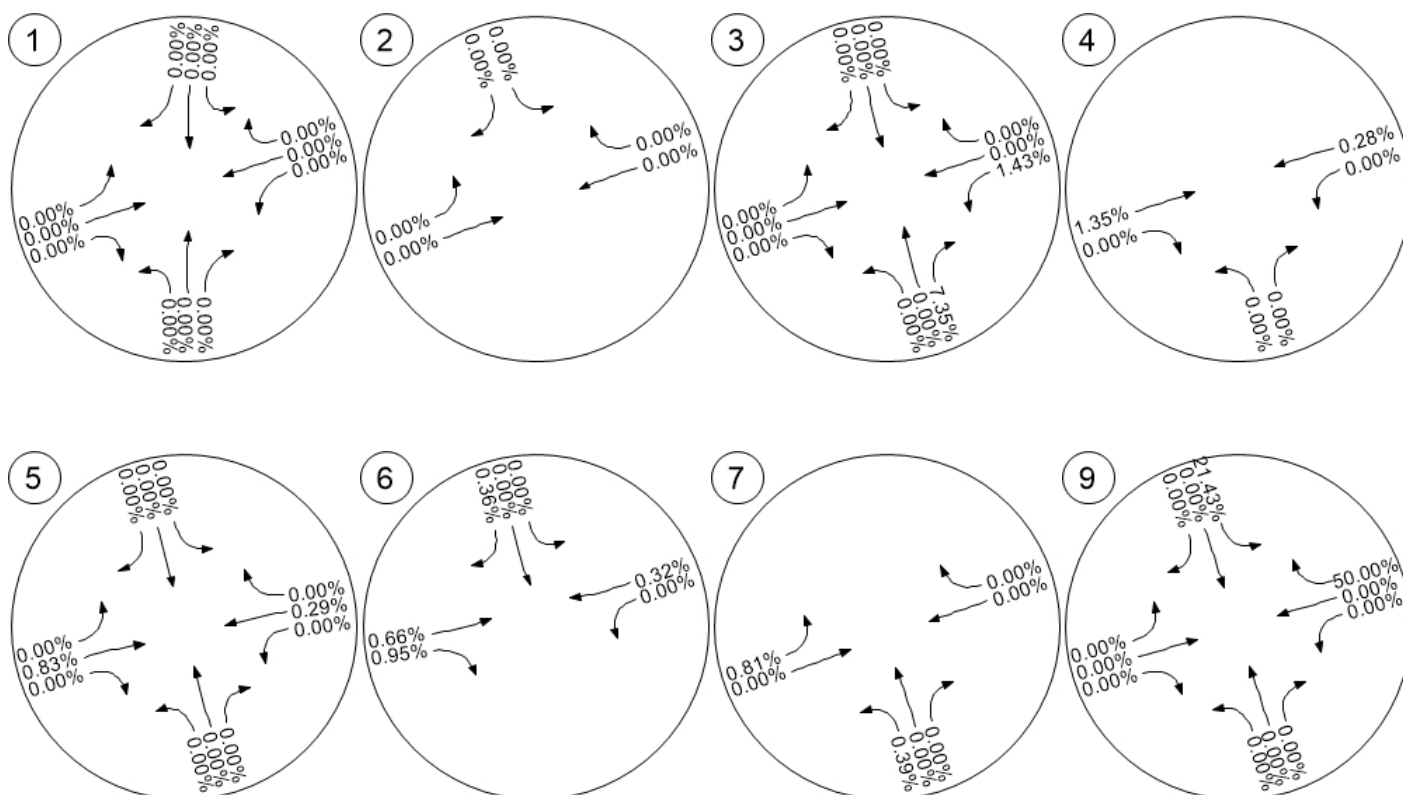


## Fair Share - Fair Share % of Total Analysis - Zone 31





Fair Share - Fair Share % of Total Analysis - Zone 32

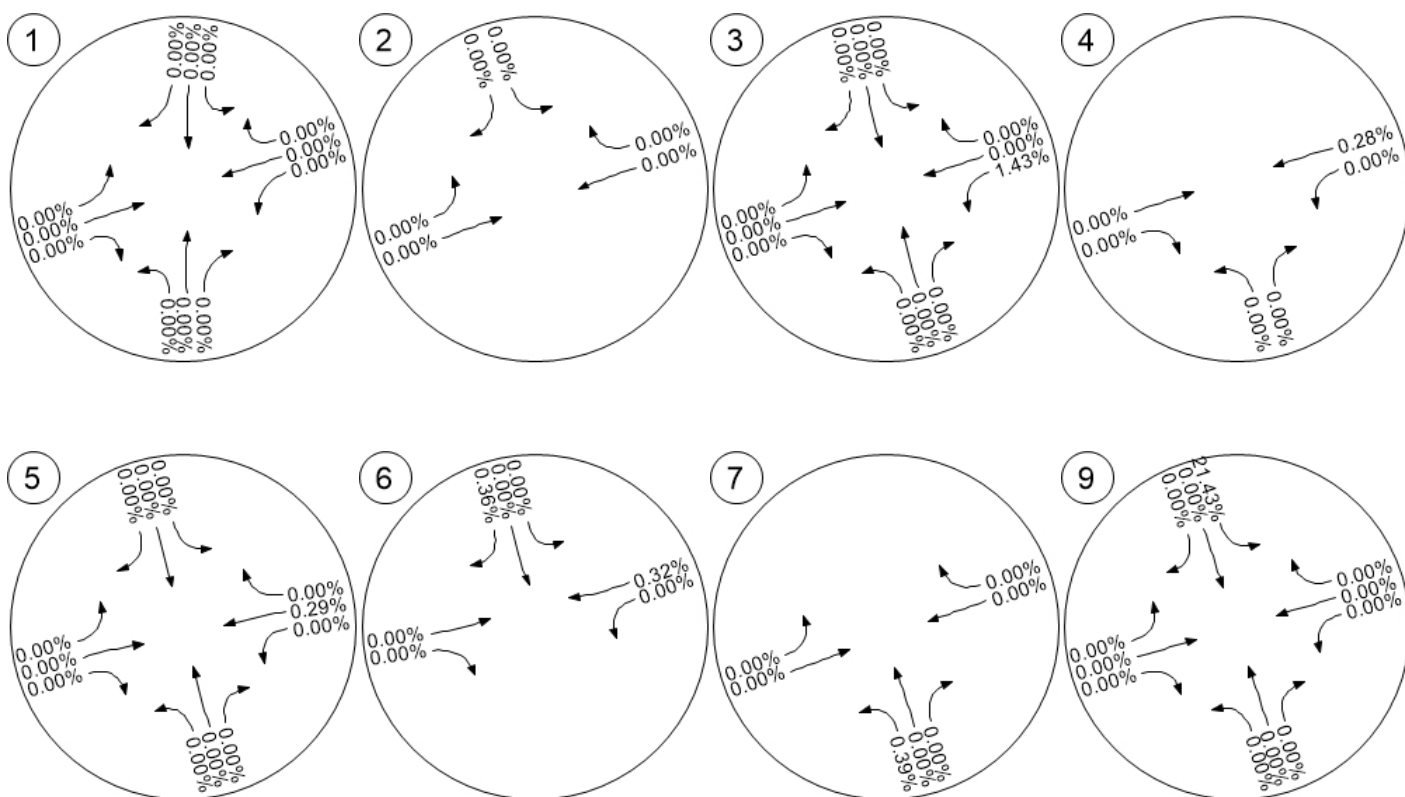


Fair Share - Fair Share % of Total Analysis - Zone 32



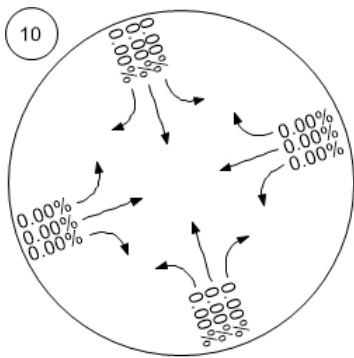


## Fair Share - Fair Share % of Total Analysis - Zone 33

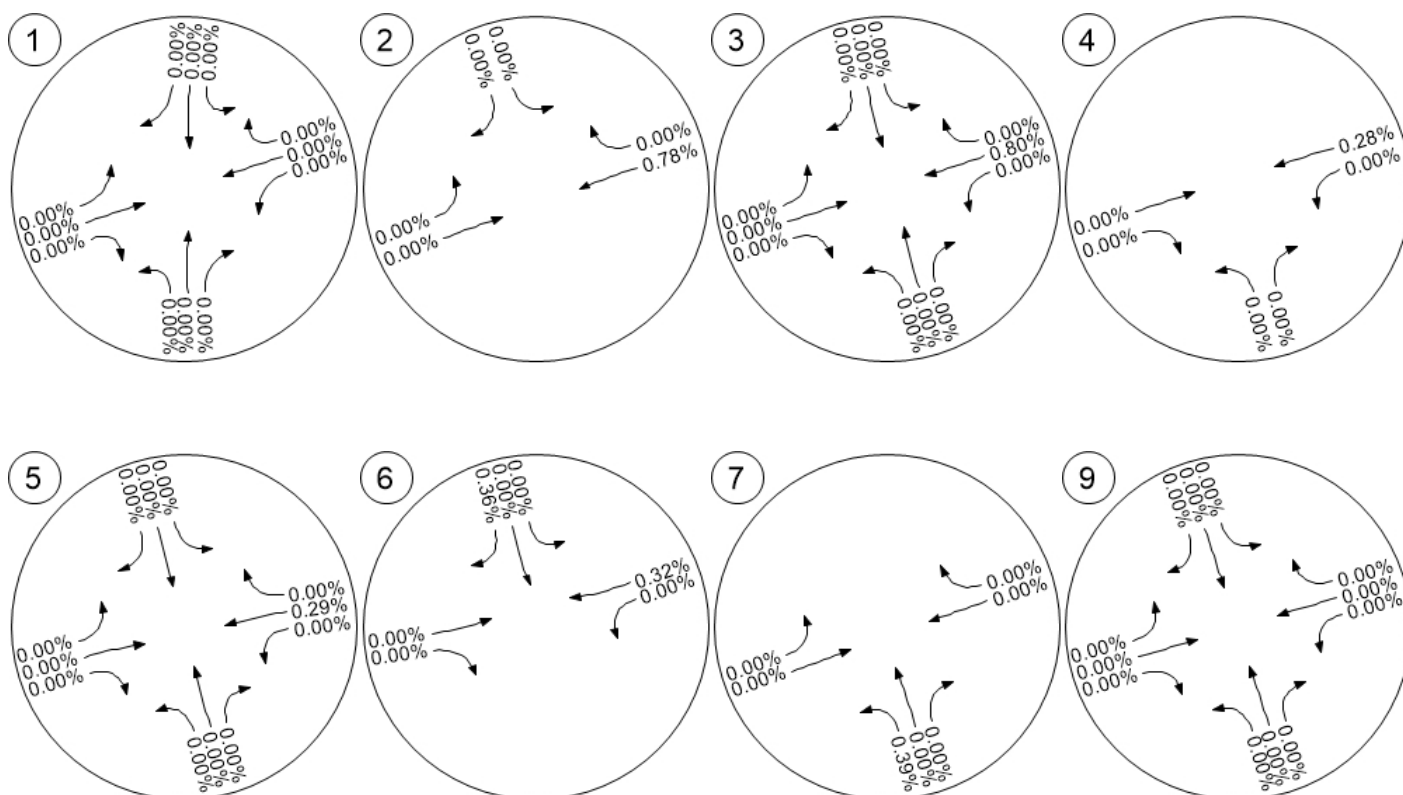




Fair Share - Fair Share % of Total Analysis - Zone 33

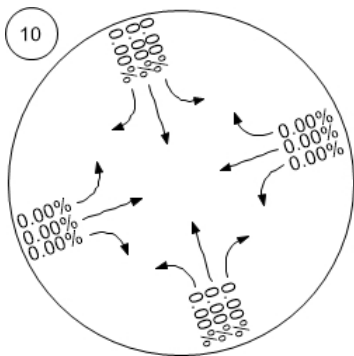


Fair Share - Fair Share % of Total Analysis - Zone 34

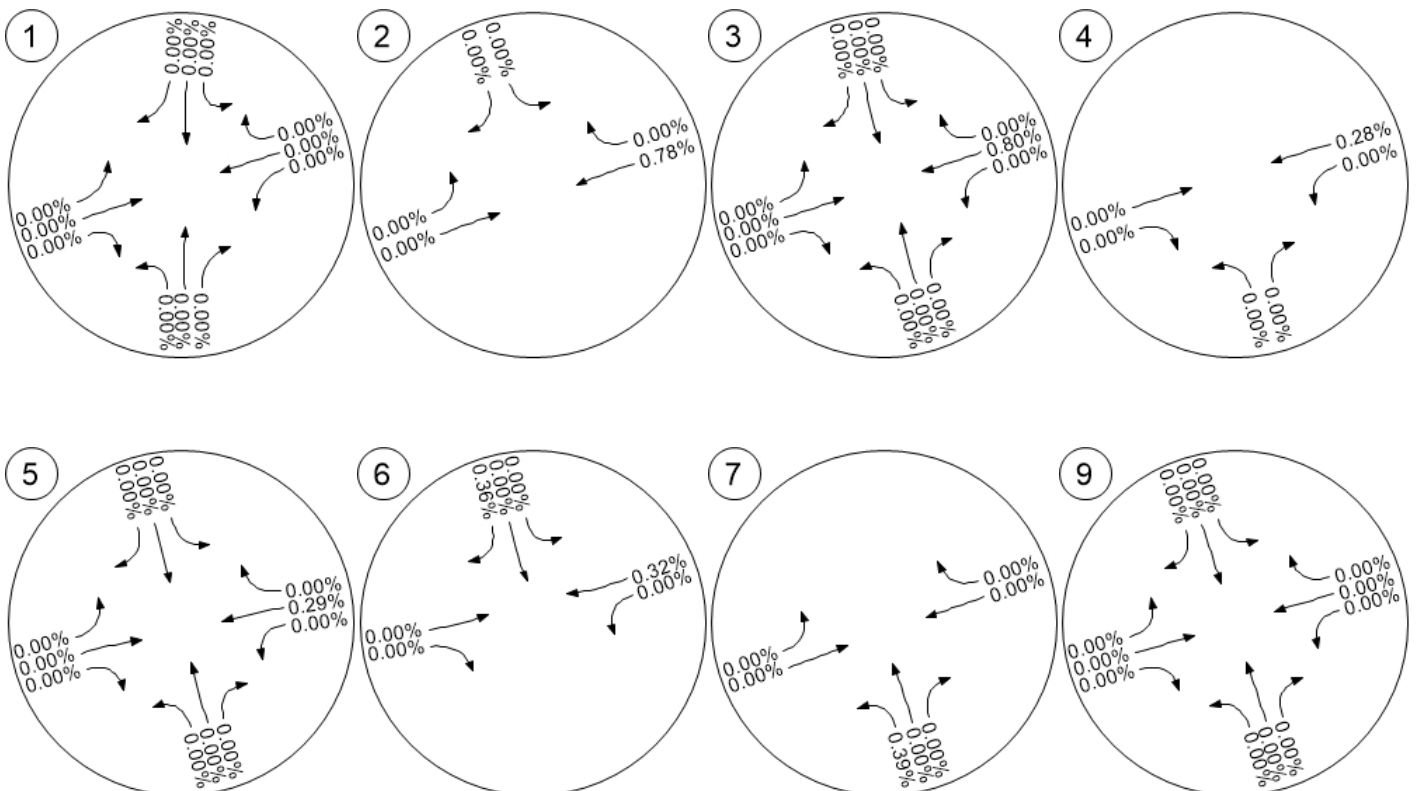




Fair Share - Fair Share % of Total Analysis - Zone 34

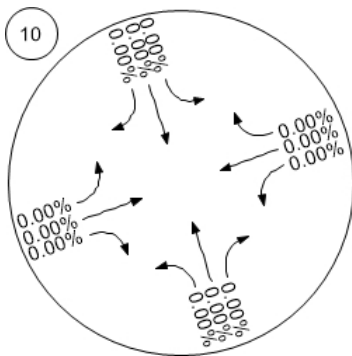


Fair Share - Fair Share % of Total Analysis - Zone 35





Fair Share - Fair Share % of Total Analysis - Zone 35





## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.109	12.3	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.049	10.1	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	WBL	0.263	14.3	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.185	19.5	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	WBL	0.323	24.0	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.614	30.3	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.480	15.4	B
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBL	0.013	9.8	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.4	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.109

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	15	6	10	24	4	36	56	16	3	2	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	24	6	10	24	4	36	56	16	3	2	4
Peak Hour Factor	0.7900	0.7900	0.7900	0.5900	0.5900	0.5900	0.4400	0.4400	0.4400	0.5770	0.5000	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	8	2	4	10	2	20	32	9	1	1	2
Total Analysis Volume [veh/h]	1	30	8	17	41	7	82	127	36	5	4	8
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	32	0	0	32	0	0	38	0	0	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	26	26	26	26	32	32
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.01	0.03	0.08	0.01
Total Saturation Flow Adjustment	0.71	0.95	0.72	0.96	0.78	0.78
s, saturation flow rate [veh/h]	1352	1804	1364	1822	2965	2967
c, Capacity [veh/h]	502	670	507	677	1355	1356
d1, Uniform Delay [s]	13.84	14.13	14.00	14.20	11.24	10.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.01	0.16	0.12	0.20	0.29	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.06	0.03	0.07	0.18	0.01
d, Delay for Lane Group [s/veh]	13.85	14.29	14.13	14.41	11.54	10.39
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.01	0.52	0.23	0.66	1.65	0.10
50th-Percentile Queue Length [ft]	0.34	12.95	5.78	16.45	41.17	2.61
95th-Percentile Queue Length [veh]	0.03	1.30	0.59	1.63	3.82	0.27
95th-Percentile Queue Length [ft]	0.87	32.39	14.76	40.75	95.49	6.73

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	13.85	14.29	14.29	14.13	14.41	14.41	11.54	11.54	11.54	10.39	10.39	10.39
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	14.28			14.33			11.54			10.39		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.27											
Intersection LOS	B											
Intersection V/C	0.109											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-








**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.049

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	25	0	1	51	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	0	1	135	99	2
Peak Hour Factor	0.6900	0.6900	0.6500	0.6500	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	0	0	52	31	1
Total Analysis Volume [veh/h]	36	0	2	208	122	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.15	8.89	7.47	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.15	0.23	0.12	0.00	0.00
95th-Percentile Queue Length [ft]	3.85	3.85	5.80	2.90	0.00	0.00
d_A, Approach Delay [s/veh]	10.15		0.07		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.03					
Intersection LOS	B					

**Intersection Level Of Service Report**  
**#3: Bay Marina Drive / Tideland Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.263

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	75.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	13	14	93	95	10	11	15	72	13	45	27	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	31	0	0	0	10	74	0	43	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	14	124	95	10	11	25	146	13	88	107	50
Peak Hour Factor	0.8100	0.8100	0.8100	0.4900	0.4900	0.4900	0.6700	0.6700	0.6700	0.7600	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	38	48	5	6	9	54	5	29	35	16
Total Analysis Volume [veh/h]	16	17	153	194	20	22	37	218	19	116	141	66
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	31	31	31	31	27	27	27	27
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.01	0.12	0.16	0.03	0.03	0.07	0.10	0.06
Total Saturation Flow Adjustment	0.72	0.76	0.64	0.81	0.61	0.92	0.59	0.84
s, saturation flow rate [veh/h]	1359	1450	1210	1545	1159	3504	1126	3208
c, Capacity [veh/h]	602	642	536	684	447	1352	434	1237
d1, Uniform Delay [s]	10.99	12.31	12.94	11.17	13.64	14.17	14.72	14.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	1.01	1.89	0.17	0.36	0.28	1.50	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

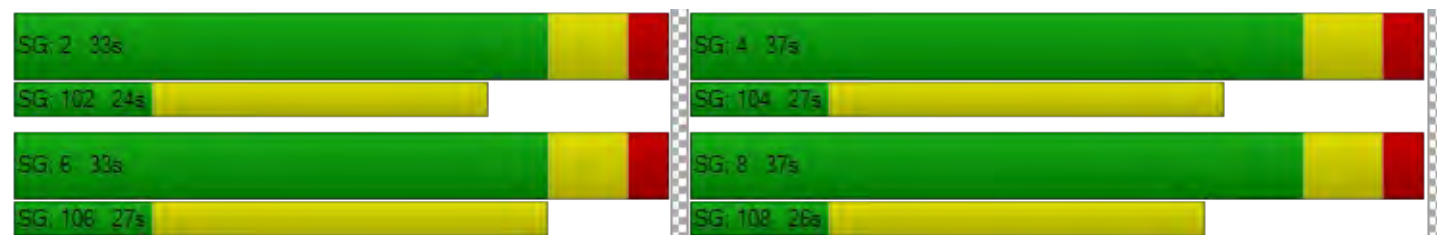
X, volume / capacity	0.03	0.26	0.36	0.06	0.08	0.18	0.27	0.17
d, Delay for Lane Group [s/veh]	11.08	13.31	14.83	11.34	14.01	14.45	16.23	14.41
Lane Group LOS	B	B	B	B	B	B	B	B
Critical Lane Group	no	no	yes	no	no	no	yes	no
50th-Percentile Queue Length [veh]	0.19	2.34	2.85	0.52	0.51	1.75	1.74	1.53
50th-Percentile Queue Length [ft]	4.84	58.45	71.28	12.89	12.64	43.86	43.46	38.25
95th-Percentile Queue Length [veh]	0.50	5.21	6.17	1.29	1.27	4.04	4.01	3.58
95th-Percentile Queue Length [ft]	12.41	130.14	154.35	32.26	31.65	101.06	100.23	89.38

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	11.08	13.31	13.31	14.83	11.34	11.34	14.01	14.45	14.45	16.23	14.41	14.41
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	13.12			14.21			14.39			15.06		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.33											
Intersection LOS	B											
Intersection V/C	0.263											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 19.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.185

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	3	50	227	4	36	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	12	105	0	12	132
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	62	332	4	48	259
Peak Hour Factor	0.9200	0.9200	0.8370	0.9200	0.9200	0.7690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	17	99	1	13	84
Total Analysis Volume [veh/h]	3	67	397	4	52	337
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	52	0	25	77
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	46	21	71
g / C, Green / Cycle	0.27	0.27	0.40	0.18	0.62
(v / s)_i Volume / Saturation Flow Rate	0.00	0.04	0.11	0.03	0.10
Total Saturation Flow Adjustment	0.93	0.83	0.93	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3541	1770	3547
c, Capacity [veh/h]	481	431	1429	326	2209
d1, Uniform Delay [s]	30.27	31.55	22.87	39.08	8.96
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.77	0.49	1.05	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.16	0.28	0.16	0.15
d, Delay for Lane Group [s/veh]	30.29	32.32	23.36	40.13	9.11
Lane Group LOS	C	C	C	D	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.07	1.75	4.91	1.50	2.60
50th-Percentile Queue Length [ft]	1.86	43.76	122.84	37.51	65.12
95th-Percentile Queue Length [veh]	0.19	4.03	9.70	3.51	5.71
95th-Percentile Queue Length [ft]	4.81	100.84	242.52	87.80	142.87

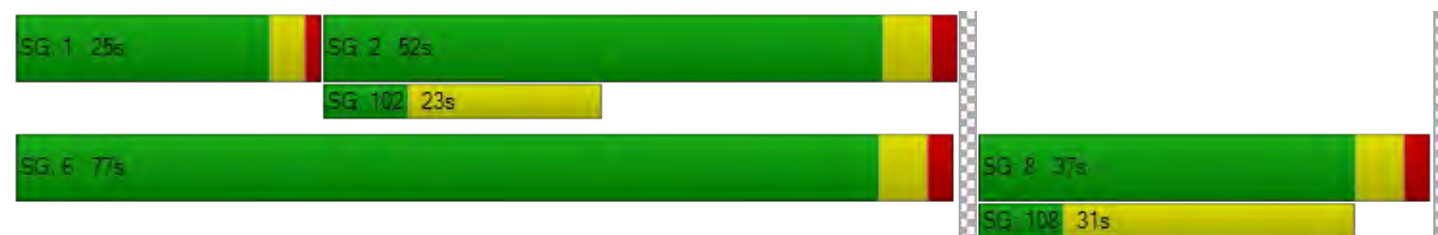


**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	30.29	32.32	23.36	23.36	40.13	9.11
Movement LOS	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	32.23		23.36		13.25	
Approach LOS	C		C		B	
d_I, Intersection Delay [s/veh]	19.51					
Intersection LOS	B					
Intersection V/C	0.185					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#5: Bay Marina Drive / Cleveland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 24.0  
Level Of Service: C  
Volume to Capacity (v/c): 0.323

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	25	313	5	14	8	281	3	28	130	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	117	0	0	144	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	25	313	5	14	8	398	3	28	274	88
Peak Hour Factor	0.6900	0.6900	0.6900	0.5900	0.5900	0.5900	0.8600	0.8600	0.8600	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	9	133	2	6	2	116	1	8	83	27
Total Analysis Volume [veh/h]	0	0	36	531	8	24	9	463	3	34	330	106
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	25	0	9	21	0	9	21	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	21	5	17	5	17
g / C, Green / Cycle	0.16	0.16	0.30	0.07	0.24	0.07	0.24
(v / s)_i Volume / Saturation Flow Rate	0.00	0.02	0.17	0.01	0.09	0.02	0.13
Total Saturation Flow Adjustment	0.93	0.83	0.89	0.93	0.89	0.93	0.90
s, saturation flow rate [veh/h]	1770	1583	3365	1770	5069	1770	3417
c, Capacity [veh/h]	278	249	1010	126	1231	126	830
d1, Uniform Delay [s]	24.86	25.44	20.60	30.33	22.10	30.77	23.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	1.22	2.22	1.09	0.89	5.16	2.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.00	0.14	0.56	0.07	0.38	0.27	0.53
d, Delay for Lane Group [s/veh]	24.86	26.66	22.82	31.42	22.98	35.93	25.37
Lane Group LOS	C	C	C	C	C	D	C
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.00	0.66	5.59	0.18	3.11	0.71	4.44
50th-Percentile Queue Length [ft]	0.00	16.62	139.71	4.51	77.63	17.70	111.10
95th-Percentile Queue Length [veh]	0.00	1.65	10.77	0.46	6.64	1.75	8.94
95th-Percentile Queue Length [ft]	0.00	41.14	269.23	11.58	165.92	43.69	223.45

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	24.86	26.66	26.66	22.82	22.82	22.82	31.42	22.98	22.98	35.93	25.37	25.37
Movement LOS	C	C	C	C	C	C	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.66			22.82			23.14			26.14		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.02											
Intersection LOS	C											
Intersection V/C	0.323											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 30.3  
Level Of Service: C  
Volume to Capacity (v/c): 0.614

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	645	14	50	0	204	340	368	131	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	43	0	41	76	0	101	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	645	14	93	0	245	416	368	232	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9100	0.9100	0.9100	1.0000	0.9400	0.9400	0.8900	0.8900	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	177	4	26	0	65	111	103	65	0
Total Analysis Volume [veh/h]	0	0	0	709	15	102	0	261	443	413	261	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	35	0	0	40	0	20	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		30	30	35	35	16	55
g / C, Green / Cycle		0.32	0.32	0.37	0.37	0.17	0.58
(v / s)_i Volume / Saturation Flow Rate		0.21	0.06	0.07	0.28	0.12	0.07
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3381	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1082	507	1322	590	572	2068
d1, Uniform Delay [s]		27.95	23.48	20.18	25.96	37.52	8.91
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		3.29	0.89	0.33	8.54	7.73	0.13
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

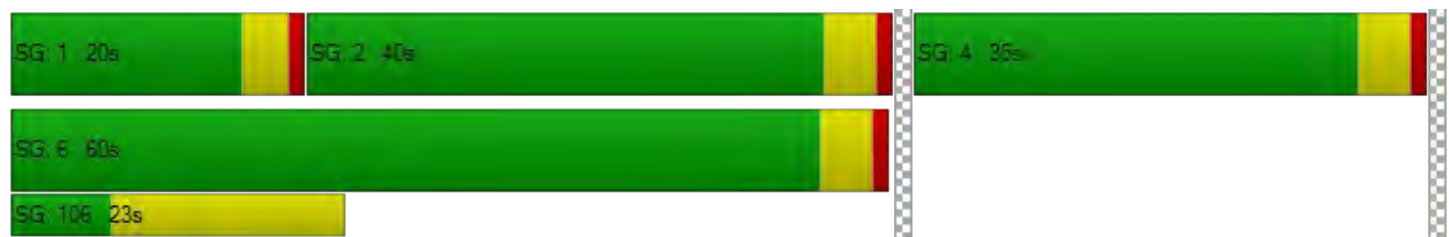
X, volume / capacity		0.67	0.20	0.20	0.75	0.72	0.13
d, Delay for Lane Group [s/veh]		31.24	24.37	20.52	34.50	45.25	9.03
Lane Group LOS		C	C	C	C	D	A
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		10.20	2.14	2.68	12.39	6.49	1.81
50th-Percentile Queue Length [ft]		255.00	53.54	66.88	309.73	162.36	45.22
95th-Percentile Queue Length [veh]		17.65	4.82	5.85	20.86	12.16	4.15
95th-Percentile Queue Length [ft]		441.16	120.54	146.17	521.57	304.08	103.85

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	31.24	31.24	24.37	0.00	20.52	34.50	45.25	9.03	0.00
Movement LOS				C	C	C		C	C	D	A	
d_A, Approach Delay [s/veh]	0.00			30.39			29.32			31.23		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	30.30											
Intersection LOS	C											
Intersection V/C	0.614											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 15.4  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.480

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	75	3	374	0	0	0	133	704	0	0	427	439
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	94	0	0	0	0	0	34	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	169	3	374	0	0	0	167	711	0	0	434	439
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	1	99	0	0	0	45	191	0	0	117	118
Total Analysis Volume [veh/h]	180	3	398	0	0	0	180	765	0	0	467	472
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	17	0	0	0	0	10	43	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	12		6	38	28	28
g / C, Green / Cycle	0.21		0.10	0.64	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.13		0.05	0.22	0.25	0.30
Total Saturation Flow Adjustment	0.79		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4483		3437	3547	1863	1583
c, Capacity [veh/h]	927		332	2270	882	749
d1, Uniform Delay [s]	21.69		25.83	4.96	11.11	11.86
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.21		6.22	0.40	2.27	3.99
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

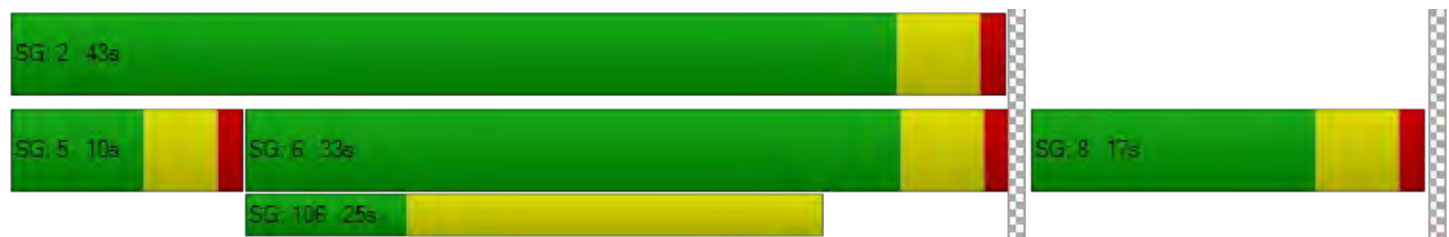
X, volume / capacity	0.63		0.54	0.34	0.53	0.63
d, Delay for Lane Group [s/veh]	24.90		32.05	5.36	13.38	15.85
Lane Group LOS	C		C	A	B	B
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	3.89		1.76	3.57	6.34	7.06
50th-Percentile Queue Length [ft]	97.32		43.99	89.14	158.57	176.49
95th-Percentile Queue Length [veh]	8.02		4.05	7.45	11.93	13.02
95th-Percentile Queue Length [ft]	200.39		101.33	186.31	298.31	325.39

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	24.90	24.90	24.90	0.00	0.00	0.00	32.05	5.36	0.00	0.00	13.38	15.85
Movement LOS	C	C	C				C	A			B	B
d_A, Approach Delay [s/veh]	24.90			0.00			10.44			14.62		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	15.44											
Intersection LOS	B											
Intersection V/C	0.480											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.8  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.013

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	1	44	1	4	37	7	1	0	3	0	0	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	0	6	37	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	72	1	10	74	7	1	0	3	0	0	7
Peak Hour Factor	0.8200	0.8200	0.8200	0.9000	0.9000	0.9000	0.4600	0.4600	0.4600	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	22	0	3	21	2	1	0	2	0	0	7
Total Analysis Volume [veh/h]	1	88	1	11	82	8	2	0	7	0	0	28
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0



**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.10	0.00	0.01	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.72	9.70	8.82	9.75	9.68	8.91	7.27	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.35	0.35	0.35	0.39	0.39	0.39	0.02	0.02	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	8.76	8.76	8.76	9.70	9.70	9.70	0.43	0.43	0.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.69			9.63			1.62			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.15											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.4  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	0	8	3	6	13	9	54	4	0	6	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	25	0	6	25	6	3	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	33	3	12	38	15	57	35	0	6	1	2
Peak Hour Factor	0.6900	0.6900	0.9200	0.9200	0.7800	0.7800	0.6900	0.9200	0.6900	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	12	1	3	12	5	21	10	0	2	0	1
Total Analysis Volume [veh/h]	0	48	3	13	49	19	83	38	0	7	1	2
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.23	0.29	0.07	0.43	0.17	0.00	0.03	0.00	0.01
95th-Percentile Queue Length [ft]	5.76	7.23	1.75	10.72	4.13	0.00	0.84	0.11	0.19
Approach Delay [s/veh]	8.43	8.04		8.62			8.13		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.38								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	1	24	6	10	24	4	36	56	16	3	2	4	186

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	25	0	1	135	99	2	262

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	13	14	124	95	10	11	25	146	13	88	107	50	696

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	3	62	332	4	48	259	708

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	0	0	25	313	5	14	8	398	3	28	274	88	1156

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	645	14	93	245	416	368	232	2013

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	169	3	374	167	711	434	439	2297

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	1	72	1	10	74	7	1	0	3	0	0	7	176

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	0	33	3	12	38	15	57	35	0	6	1	2	202



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	1	15	6	10	24	4	36	56	16	3	2	4	177
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>24</b>	<b>6</b>	<b>10</b>	<b>24</b>	<b>4</b>	<b>36</b>	<b>56</b>	<b>16</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>186</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	25	0	1	51	19	2	98
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>25</b>	<b>0</b>	<b>1</b>	<b>135</b>	<b>99</b>	<b>2</b>	<b>262</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	13	14	93	95	10	11	15	72	13	45	27	41	449
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	31	0	0	0	10	74	0	43	80	9	247
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>13</b>	<b>14</b>	<b>124</b>	<b>95</b>	<b>10</b>	<b>11</b>	<b>25</b>	<b>146</b>	<b>13</b>	<b>88</b>	<b>107</b>	<b>50</b>	<b>696</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	3	50	227	4	36	127	447
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	12	105	0	12	132	261
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>3</b>	<b>62</b>	<b>332</b>	<b>4</b>	<b>48</b>	<b>259</b>	<b>708</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	0	0	25	313	5	14	8	281	3	28	130	88	895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	117	0	0	144	0	261
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>313</b>	<b>5</b>	<b>14</b>	<b>8</b>	<b>398</b>	<b>3</b>	<b>28</b>	<b>274</b>	<b>88</b>	<b>1156</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	645	14	50	204	340	368	131	1752
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	43	41	76	0	101	261
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>645</b>	<b>14</b>	<b>93</b>	<b>245</b>	<b>416</b>	<b>368</b>	<b>232</b>	<b>2013</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	75	3	374	133	704	427	439	2155
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	94	0	0	34	7	7	0	142
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>169</b>	<b>3</b>	<b>374</b>	<b>167</b>	<b>711</b>	<b>434</b>	<b>439</b>	<b>2297</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tideland Avenue	Final Base	1	44	1	4	37	7	1	0	3	0	0	4	102
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	28	0	6	37	0	0	0	0	0	0	3	74
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>1</b>	<b>72</b>	<b>1</b>	<b>10</b>	<b>74</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>176</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	0	8	3	6	13	9	54	4	0	6	1	2	106
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	25	0	6	25	6	3	31	0	0	0	0	96
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>0</b>	<b>33</b>	<b>3</b>	<b>12</b>	<b>38</b>	<b>15</b>	<b>57</b>	<b>35</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>202</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	18	540	144	306	738	126	1476	2286	648	90	72	144	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
30: AC Students	0	0	0	0	0	0	0
31: AC Adults	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	648	0	36	3744	2196	36	



Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	0	25	0	0	0	0	0	0	25	0	0	50
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	31	0	0	0	10	74	0	43	80	9	
Total Analysis Volume	288	306	2754	3492	360	396	666	3924	342	2088	2538	1188	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
30: AC Students	0	1	0	0	1	0	2
31: AC Adults	0	11	25	0	11	25	72
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	12	105	0	12	132	
Total Analysis Volume	54	1206	7146	72	936	6066	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
30: AC Students	0	0	0	0	0	0	0	1	0	0	1	0	2
31: AC Adults	0	0	0	0	0	0	0	36	0	0	36	0	72
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	117	0	0	144	0	
Total Analysis Volume	0	0	648	9558	144	432	162	8334	54	612	5940	1908	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
30: AC Students	0	0	0	0	1	0	1	2
31: AC Adults	0	0	6	6	30	0	30	72
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	43	41	76	0	101	
Total Analysis Volume	12762	270	1836	4698	7974	7434	4698	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
30: AC Students	1	0	0	0	0	0	0	1
31: AC Adults	30	0	0	6	0	0	0	36
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	94	0	0	34	7	7	0	
Total Analysis Volume	3240	54	7164	3240	13770	8406	8496	



Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	3	0	0	3	0	0	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	3	0	0	0	0	0	0	0	3
28: 028-007	0	0	0	0	3	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	0	3	0	0	0	0	0	0	0	3
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	25	0	0	25	0	0	0	0	0	0	0	50
32: 027-029	0	0	0	3	0	0	0	0	0	0	0	3	6
33: 027-042	0	0	0	3	0	0	0	0	0	0	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	28	0	6	37	0	0	0	0	0	0	3	
Total Analysis Volume	18	1584	18	198	1476	144	36	0	126	0	0	504	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	3	3	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	3	0	0	0	0	0	0	3
28: 028-007	0	0	0	3	0	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	3	0	0	0	0	0	0	0	0	3
30: AC Students	0	0	0	0	0	0	0	0	0	0	0	0	0
31: AC Adults	0	25	0	0	25	0	0	0	0	0	0	0	50
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	25	0	6	25	6	3	31	0	0	0	0	
Total Analysis Volume	0	864	54	234	882	342	1494	684	0	126	18	36	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
30: AC Students	0	0	0	0%	0%	0	0.00%
31: AC Adults	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.56%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.56%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.56%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	9.62%	0%	0	0	0%	0%	0	6.94%	0%	0%	2.76%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
30: AC Students	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
31: AC Adults	0	0	80.77%	0%	0	0	0%	0%	0	58.33%	0%	0%	23.18%
32: 027-029	0	0	9.62%	0%	0	0	0%	0%	0	6.94%	0%	0%	2.76%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	6.94%	0%	0%	1.16%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.63%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.63%
Total	0.00%	0.00%	100.01%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	99.97%	100.00%	99.99%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0%	0%	0	0%	2.27%	0.57%
19: 025-010 B	0	0%	0%	0	0%	2.27%	0.57%
20: 025-010 C	0	0%	0%	0	0%	2.27%	0.57%
21: 027-043	0	0%	0%	0	0%	0%	0.00%
22: NCMT Employees	0	0%	67.49%	0	0%	53.71%	30.30%
23: NCTF Trucks	0	0%	2.85%	0	0%	2.27%	1.28%
24: 027-016	0	0%	2.85%	0	0%	2.27%	1.28%
25: Vehicle Movement External	0	0%	0%	0	0%	0%	0.00%
26: Vehicle Movement Internal	0	0%	0%	0	0%	0%	0.00%
27: 028-003	0	0%	0%	0	0%	2.27%	0.57%
28: 028-007	0	0%	0%	0	0%	2.27%	0.57%
29: 025-010 D	0	0%	0%	0	0%	2.27%	0.57%
30: AC Students	0	8.47%	0%	0	8.47%	0%	4.24%
31: AC Adults	0	91.53%	23.95%	0	91.53%	19.06%	56.52%
32: 027-029	0	0%	2.85%	0	0%	2.27%	1.28%
33: 027-042	0	0%	0%	0	0%	2.27%	0.57%
34: 026-009 & 027-011	0	0%	0%	0	0%	2.27%	0.57%
35: 027-014 & 027-016	0	0%	0%	0	0%	2.27%	0.57%
Total	0.00%	100.00%	99.99%	0.00%	100.00%	100.01%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	60.68%	0	0	49.31%	0	54.93%
23: NCTF Trucks	0	0	0	0	0	0	0	2.56%	0	0	2.08%	0	2.32%
24: 027-016	0	0	0	0	0	0	0	2.56%	0	0	2.08%	0	2.32%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
30: AC Students	0	0	0	0	0	0	0	0.85%	0	0	0.69%	0	0.77%
31: AC Adults	0	0	0	0	0	0	0	30.94%	0	0	25.14%	0	28.00%
32: 027-029	0	0	0	0	0	0	0	2.56%	0	0	2.08%	0	2.32%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.08%	0	1.04%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.15%	0.00%	0.00%	100.10%	0.00%	



Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.33%	0%	0%	0	1.98%	1.07%
19: 025-010 B	0	0	2.33%	0%	0%	0	1.98%	1.07%
20: 025-010 C	0	0	2.33%	0%	0%	0	1.98%	1.07%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	58.14%	78.05%	51.32%	0	45.54%	58.12%
23: NCTF Trucks	0	0	2.33%	2.44%	2.63%	0	1.98%	2.34%
24: 027-016	0	0	2.33%	2.44%	2.63%	0	1.98%	2.34%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.33%	0%	0%	0	1.98%	1.07%
28: 028-007	0	0	2.33%	0%	0%	0	1.98%	1.07%
29: 025-010 D	0	0	2.33%	0%	0%	0	1.98%	1.07%
30: AC Students	0	0	0%	0%	1.32%	0	0.99%	0.58%
31: AC Adults	0	0	14.42%	15.12%	39.47%	0	29.7%	24.62%
32: 027-029	0	0	2.33%	2.44%	2.63%	0	1.98%	2.34%
33: 027-042	0	0	2.33%	0%	0%	0	1.98%	1.07%
34: 026-009 & 027-011	0	0	2.33%	0%	0%	0	1.98%	1.07%
35: 027-014 & 027-016	0	0	2.33%	0%	0%	0	1.98%	1.07%
Total	0.00%	0.00%	100.52%	100.49%	100.00%	0.00%	99.99%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2.13%	0	0	0%	0%	0%	0	0.53%
19: 025-010 B	2.13%	0	0	0%	0%	0%	0	0.53%
20: 025-010 C	2.13%	0	0	0%	0%	0%	0	0.53%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	41.49%	0	0	73.53%	100%	100%	0	78.64%
23: NCTF Trucks	2.13%	0	0	2.94%	0%	0%	0	1.27%
24: 027-016	2.13%	0	0	2.94%	0%	0%	0	1.27%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	2.13%	0	0	0%	0%	0%	0	0.53%
28: 028-007	2.13%	0	0	0%	0%	0%	0	0.53%
29: 025-010 D	2.13%	0	0	0%	0%	0%	0	0.53%
30: AC Students	1.06%	0	0	0%	0%	0%	0	0.26%
31: AC Adults	31.91%	0	0	18.24%	0%	0%	0	12.52%
32: 027-029	2.13%	0	0	2.94%	0%	0%	0	1.27%
33: 027-042	2.13%	0	0	0%	0%	0%	0	0.53%
34: 026-009 & 027-011	2.13%	0	0	0%	0%	0%	0	0.53%
35: 027-014 & 027-016	2.13%	0	0	0%	0%	0%	0	0.53%
Total	100.02%	0.00%	0.00%	100.59%	100.00%	100.00%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	10.64%	0	0%	8.06%	0	0	0	0	0	0	0%	4.68%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	8.06%	0	0	0	0	0	0	0%	2.02%
28: 028-007	0	0%	0	0%	8.06%	0	0	0	0	0	0	0%	2.02%
29: 025-010 D	0	0%	0	0%	8.06%	0	0	0	0	0	0	0%	2.02%
30: AC Students	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
31: AC Adults	0	89.36%	0	0%	67.74%	0	0	0	0	0	0	0%	39.28%
32: 027-029	0	0%	0	50%	0%	0	0	0	0	0	0	100%	37.50%
33: 027-042	0	0%	0	50%	0%	0	0	0	0	0	0	0%	12.50%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	100.00%	0.00%	100.00%	99.98%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0%	0	0%	0%	50%	100%	0%	0	0	0	0%	25.00%
25: Vehicle Movement External	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0%	0%	100%	0	0	0	0%	16.67%
27: 028-003	0	0%	0	0%	0%	50%	0%	0%	0	0	0	0%	8.33%
28: 028-007	0	0%	0	50%	0%	0%	0%	0%	0	0	0	0%	8.33%
29: 025-010 D	0	0%	0	50%	0%	0%	0%	0%	0	0	0	0%	8.33%
30: AC Students	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
31: AC Adults	0	100%	0	0%	100%	0%	0%	0%	0	0	0	0%	33.33%
32: 027-029	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	100.00%	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	7.69%	0	0	0%	0	0	0	0	0	0	0	0.12%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	15.38%	0	0	0%	0	0	0	0	0	0	0	0.23%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
30: AC Students	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
31: AC Adults	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	23.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	24.32%	35.15%	0	0.89%
23: NCTF Trucks	0	0	0	1.03%	1.49%	0	0.04%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.42%	0%	0	0.05%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
30: AC Students	0	0	0	0%	0%	0	0.00%
31: AC Adults	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	1.49%	0	0.02%
35: 027-014 & 027-016	0	0	0	0%	1.49%	0	0.02%
Total	0.00%	0.00%	0.00%	28.77%	39.62%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	4%	0.02%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	4%	0.02%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	4%	0.02%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	24.32%	0	0%	32.13%	0%	0.31%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.03%	0	0%	1.36%	0%	0.01%
24: 027-016	0	0	1.63%	0%	0	0	0%	0%	0	1.88%	0%	0%	0.02%
25: Vehicle Movement External	0	0	0%	0%	0	0	21.28%	0%	0	0%	0%	0%	0.12%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	1.88%	0%	0%	0.01%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	1.88%	0%	0%	0.01%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	1.88%	0%	0%	0.01%
30: AC Students	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
31: AC Adults	0	0	13.68%	0%	0	0	0%	0%	0	15.83%	0%	0%	0.16%
32: 027-029	0	0	1.63%	0%	0	0	0%	0%	0	1.88%	0%	0%	0.02%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	1.88%	0%	0%	0.01%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	1.36%	0%	0.01%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	1.36%	0%	0.01%
Total	0.00%	0.00%	16.94%	0.00%	0.00%	0.00%	21.28%	25.35%	0.00%	27.11%	36.21%	12.00%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0%	0%	0	0%	0.64%	0.00%
19: 025-010 B	0	0%	0%	0	0%	0.64%	0.00%
20: 025-010 C	0	0%	0%	0	0%	0.64%	0.00%
21: 027-043	0	0%	0%	0	0%	0%	0.00%
22: NCMT Employees	0	0%	14.14%	0	0%	15.13%	0.19%
23: NCTF Trucks	0	0%	0.6%	0	0%	0.64%	0.01%
24: 027-016	0	0%	0.6%	0	0%	0.64%	0.01%
25: Vehicle Movement External	0	0%	0%	0	0%	0%	0.00%
26: Vehicle Movement Internal	0	0%	0%	0	0%	0%	0.00%
27: 028-003	0	0%	0%	0	0%	0.64%	0.00%
28: 028-007	0	0%	0%	0	0%	0.64%	0.00%
29: 025-010 D	0	0%	0%	0	0%	0.64%	0.00%
30: AC Students	0	1.27%	0%	0	1.57%	0%	0.02%
31: AC Adults	0	13.71%	5.02%	0	16.93%	5.37%	0.27%
32: 027-029	0	0%	0.6%	0	0%	0.64%	0.01%
33: 027-042	0	0%	0%	0	0%	0.64%	0.00%
34: 026-009 & 027-011	0	0%	0%	0	0%	0.64%	0.00%
35: 027-014 & 027-016	0	0%	0%	0	0%	0.64%	0.00%
Total	0.00%	14.98%	20.96%	0.00%	18.50%	28.18%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	12.24%	0	0	14.98%	0	0.10%
23: NCTF Trucks	0	0	0	0	0	0	0	0.52%	0	0	0.63%	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0.52%	0	0	0.63%	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
30: AC Students	0	0	0	0	0	0	0	0.17%	0	0	0.21%	0	0.00%
31: AC Adults	0	0	0	0	0	0	0	6.24%	0	0	7.64%	0	0.05%
32: 027-029	0	0	0	0	0	0	0	0.52%	0	0	0.63%	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.63%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.21%	0.00%	0.00%	30.39%	0.00%	



Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.69%	0%	0%	0	0.55%	0.00%
19: 025-010 B	0	0	0.69%	0%	0%	0	0.55%	0.00%
20: 025-010 C	0	0	0.69%	0%	0%	0	0.55%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	17.24%	10.6%	7.51%	0	12.71%	0.12%
23: NCTF Trucks	0	0	0.69%	0.33%	0.39%	0	0.55%	0.00%
24: 027-016	0	0	0.69%	0.33%	0.39%	0	0.55%	0.00%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.69%	0%	0%	0	0.55%	0.00%
28: 028-007	0	0	0.69%	0%	0%	0	0.55%	0.00%
29: 025-010 D	0	0	0.69%	0%	0%	0	0.55%	0.00%
30: AC Students	0	0	0%	0%	0.19%	0	0.28%	0.00%
31: AC Adults	0	0	4.28%	2.05%	5.78%	0	8.29%	0.05%
32: 027-029	0	0	0.69%	0.33%	0.39%	0	0.55%	0.00%
33: 027-042	0	0	0.69%	0%	0%	0	0.55%	0.00%
34: 026-009 & 027-011	0	0	0.69%	0%	0%	0	0.55%	0.00%
35: 027-014 & 027-016	0	0	0.69%	0%	0%	0	0.55%	0.00%
Total	0.00%	0.00%	29.80%	13.64%	14.65%	0.00%	27.88%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.73%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.73%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.73%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	14.23%	0	0	11.68%	0.91%	1.48%	0	0.06%
23: NCTF Trucks	0.73%	0	0	0.47%	0%	0%	0	0.00%
24: 027-016	0.73%	0	0	0.47%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.73%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.73%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.73%	0	0	0%	0%	0%	0	0.00%
30: AC Students	0.36%	0	0	0%	0%	0%	0	0.00%
31: AC Adults	10.95%	0	0	2.9%	0%	0%	0	0.03%
32: 027-029	0.73%	0	0	0.47%	0%	0%	0	0.00%
33: 027-042	0.73%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.73%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.73%	0	0	0%	0%	0%	0	0.00%
Total	34.30%	0.00%	0.00%	15.99%	0.91%	1.48%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	2.58%	0	0%	2.52%	0	0	0	0	0	0	0%	0.12%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	2.52%	0	0	0	0	0	0	0%	0.06%
28: 028-007	0	0%	0	0%	2.52%	0	0	0	0	0	0	0%	0.06%
29: 025-010 D	0	0%	0	0%	2.52%	0	0	0	0	0	0	0%	0.06%
30: AC Students	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
31: AC Adults	0	21.69%	0	0%	21.14%	0	0	0	0	0	0	0%	1.04%
32: 027-029	0	0%	0	17.65%	0%	0	0	0	0	0	0	9.68%	0.67%
33: 027-042	0	0%	0	17.65%	0%	0	0	0	0	0	0	0%	0.43%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	24.27%	0.00%	35.30%	31.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.68%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0%	0	0%	0%	12%	3.49%	0%	0	0	0	0%	0.33%
25: Vehicle Movement External	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0%	0%	44.93%	0	0	0	0%	0.95%
27: 028-003	0	0%	0	0%	0%	12%	0%	0%	0	0	0	0%	0.25%
28: 028-007	0	0%	0	15.79%	0%	0%	0%	0%	0	0	0	0%	0.33%
29: 025-010 D	0	0%	0	15.79%	0%	0%	0%	0%	0	0	0	0%	0.33%
30: AC Students	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
31: AC Adults	0	34.43%	0	0%	33.96%	0%	0%	0%	0	0	0	0%	1.44%
32: 027-029	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	34.43%	0.00%	31.58%	33.96%	24.00%	3.49%	44.93%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	101	136	25
2	97	131	24
3	95	128	24
4	81	109	20
5	77	103	19
6	69	92	17
7	64	86	16
8	61	82	15
9	48	65	12
10	45	61	11
11	45	61	11
12	43	58	11
13	39	53	10
14	36	49	9
15	36	49	9
16	35	48	9
17	20	27	5
18	11	15	3
19	10	14	3
20	4	5	1
21	3	4	1
22	3	4	1
23	2	3	1
24	2	3	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	237	1	25	No	No	No	No	No	No	No	No	No	No
2	4	228	1	24	No	No	No	No	No	No	No	No	No	No
3	4	223	1	24	No	No	No	No	No	No	No	No	No	No
4	4	190	1	20	No	No	No	No	No	No	No	No	No	No
5	4	180	1	19	No	No	No	No	No	No	No	No	No	No
6	4	161	1	17	No	No	No	No	No	No	No	No	No	No
7	4	150	1	16	No	No	No	No	No	No	No	No	No	No
8	4	143	1	15	No	No	No	No	No	No	No	No	No	No
9	4	113	1	12	No	No	No	No	No	No	No	No	No	No
10	4	106	1	11	No	No	No	No	No	No	No	No	No	No
11	4	106	1	11	No	No	No	No	No	No	No	No	No	No
12	4	101	1	11	No	No	No	No	No	No	No	No	No	No
13	4	92	1	10	No	No	No	No	No	No	No	No	No	No
14	4	85	1	9	No	No	No	No	No	No	No	No	No	No
15	4	85	1	9	No	No	No	No	No	No	No	No	No	No
16	4	83	1	9	No	No	No	No	No	No	No	No	No	No
17	4	47	1	5	No	No	No	No	No	No	No	No	No	No
18	4	26	1	3	No	No	No	No	No	No	No	No	No	No
19	4	24	1	3	No	No	No	No	No	No	No	No	No	No
20	4	9	1	1	No	No	No	No	No	No	No	No	No	No
21	4	7	1	1	No	No	No	No	No	No	No	No	No	No
22	4	7	1	1	No	No	No	No	No	No	No	No	No	No
23	4	5	1	1	No	No	No	No	No	No	No	No	No	No
24	4	5	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.1
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	25
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	262
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	7	4	74	91
2	7	4	71	87
3	7	4	70	86
4	6	3	59	73
5	5	3	56	69
6	5	3	50	62
7	4	3	47	57
8	4	2	44	55
9	3	2	36	44
10	3	2	33	41
11	3	2	33	41
12	3	2	32	39
13	3	2	29	35
14	3	1	27	33
15	3	1	27	33
16	2	1	26	32
17	1	1	15	18
18	1	0	8	10
19	1	0	7	9
20	0	0	3	4
21	0	0	2	3
22	0	0	2	3
23	0	0	1	2
24	0	0	1	2



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	11	2	165	No	No	No	No	No	No	No	No	No	No
2	2	11	2	158	No	No	No	No	No	No	No	No	No	No
3	2	11	2	156	No	No	No	No	No	No	No	No	No	No
4	2	9	2	132	No	No	No	No	No	No	No	No	No	No
5	2	8	2	125	No	No	No	No	No	No	No	No	No	No
6	2	8	2	112	No	No	No	No	No	No	No	No	No	No
7	2	7	2	104	No	No	No	No	No	No	No	No	No	No
8	2	6	2	99	No	No	No	No	No	No	No	No	No	No
9	2	5	2	80	No	No	No	No	No	No	No	No	No	No
10	2	5	2	74	No	No	No	No	No	No	No	No	No	No
11	2	5	2	74	No	No	No	No	No	No	No	No	No	No
12	2	5	2	71	No	No	No	No	No	No	No	No	No	No
13	2	5	2	64	No	No	No	No	No	No	No	No	No	No
14	2	4	2	60	No	No	No	No	No	No	No	No	No	No
15	2	4	2	60	No	No	No	No	No	No	No	No	No	No
16	2	3	2	58	No	No	No	No	No	No	No	No	No	No
17	2	2	2	33	No	No	No	No	No	No	No	No	No	No
18	2	1	2	18	No	No	No	No	No	No	No	No	No	No
19	2	1	2	16	No	No	No	No	No	No	No	No	No	No
20	2	0	2	7	No	No	No	No	No	No	No	No	No	No
21	2	0	2	5	No	No	No	No	No	No	No	No	No	No
22	2	0	2	5	No	No	No	No	No	No	No	No	No	No
23	2	0	2	3	No	No	No	No	No	No	No	No	No	No
24	2	0	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.7	9.6
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:11	0:14
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	74	91
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	176	176
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	9	92	36	65
2	9	88	35	62
3	8	86	34	61
4	7	74	29	52
5	7	70	27	49
6	6	63	24	44
7	6	58	23	41
8	5	55	22	39
9	4	44	17	31
10	4	41	16	29
11	4	41	16	29
12	4	40	15	28
13	4	36	14	25
14	3	33	13	23
15	3	33	13	23
16	3	32	13	23
17	2	18	7	13
18	1	10	4	7
19	1	9	4	7
20	0	4	1	3
21	0	3	1	2
22	0	3	1	2
23	0	2	1	1
24	0	2	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	101	3	101	No	No	No	No	No	No	No	No	No	No
2	6	97	3	97	No	No	No	No	No	No	No	No	No	No
3	6	94	3	95	No	No	No	No	No	No	No	No	No	No
4	6	81	3	81	No	No	No	No	No	No	No	No	No	No
5	6	77	3	76	No	No	No	No	No	No	No	No	No	No
6	6	69	3	68	No	No	No	No	No	No	No	No	No	No
7	6	64	3	64	No	No	No	No	No	No	No	No	No	No
8	6	60	3	61	No	No	No	No	No	No	No	No	No	No
9	6	48	3	48	No	No	No	No	No	No	No	No	No	No
10	6	45	3	45	No	No	No	No	No	No	No	No	No	No
11	6	45	3	45	No	No	No	No	No	No	No	No	No	No
12	6	44	3	43	No	No	No	No	No	No	No	No	No	No
13	6	40	3	39	No	No	No	No	No	No	No	No	No	No
14	6	36	3	36	No	No	No	No	No	No	No	No	No	No
15	6	36	3	36	No	No	No	No	No	No	No	No	No	No
16	6	35	3	36	No	No	No	No	No	No	No	No	No	No
17	6	20	3	20	No	No	No	No	No	No	No	No	No	No
18	6	11	3	11	No	No	No	No	No	No	No	No	No	No
19	6	10	3	11	No	No	No	No	No	No	No	No	No	No
20	6	4	3	4	No	No	No	No	No	No	No	No	No	No
21	6	3	3	3	No	No	No	No	No	No	No	No	No	No
22	6	3	3	3	No	No	No	No	No	No	No	No	No	No
23	6	2	3	2	No	No	No	No	No	No	No	No	No	No
24	6	2	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	8
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05	0:08
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	36	65
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	202	202
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...\8. Near-Term PM + Project.pdf

4/27/2016

### Trip generation summary

#### Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	0.92
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	0.92
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	0.92
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	43.43
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	1.83
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	1.83
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	3.06
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	14.68
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	0.92
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	0.92
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	0.92
30: AC Students				1.000	2.000	50.00	50.00	1	1	2	0.61
31: AC Adults				1.000	80.000	50.00	50.00	40	40	80	24.46
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	1.83
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	0.92
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	0.92
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	0.92
<b>Added Trips Total</b>								<b>148</b>	<b>179</b>	<b>327</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 8: Near-Term + Project PM

Report File: P:\...8. Near-Term PM + Project.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0



33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 28: 028-007			
	To 028-007:		From 028-007:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

Zone / Gate	Zone 29: 025-010 D			
	To 025-010 D:		From 025-010 D:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 30: AC Students			
	To AC Students:		From AC Students:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	100.00	1	100.00	1
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>1</b>	<b>100.00</b>	<b>1</b>

Zone / Gate	Zone 31: AC Adults			
	To AC Adults:		From AC Adults:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	15.00	6	15.00	6
3: Gate	75.00	30	75.00	30
4: Gate	10.00	4	10.00	4
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>40</b>	<b>100.00</b>	<b>40</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0

Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0

14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

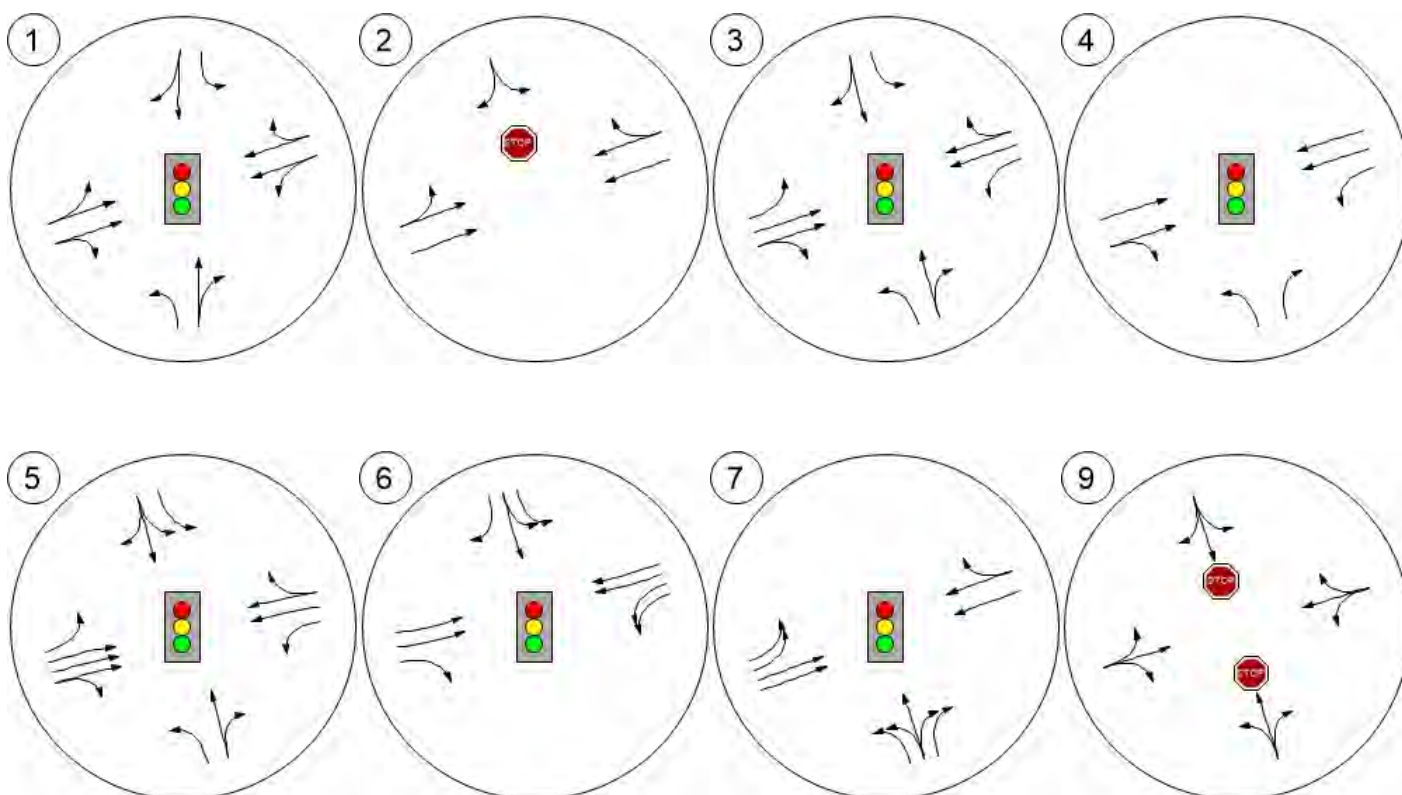


## Study Intersections

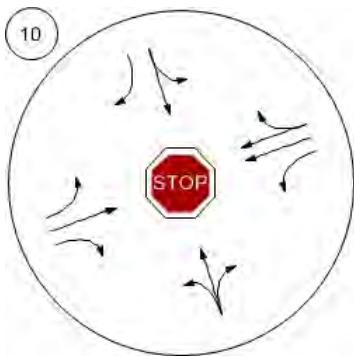




# Lane Configuration and Traffic Control

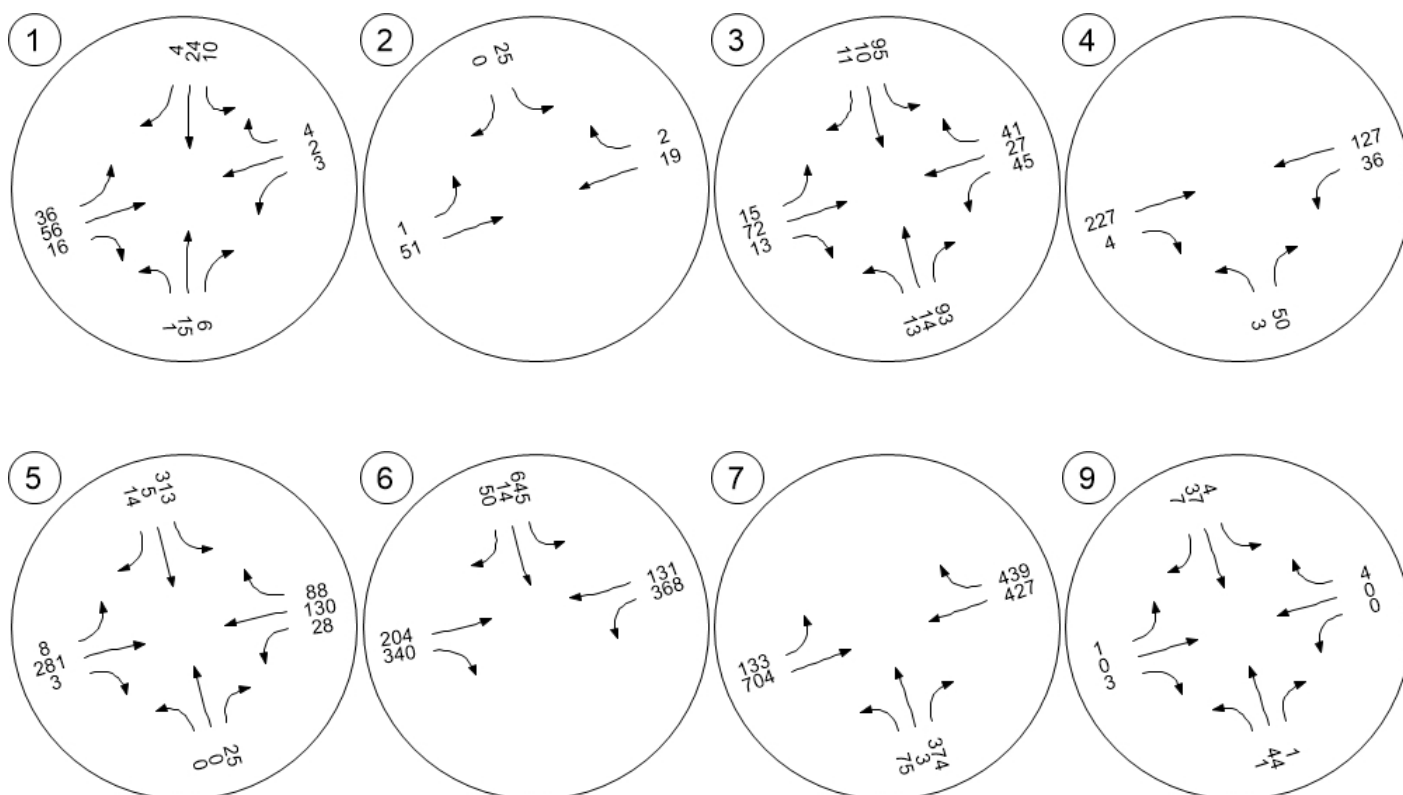


## Lane Configuration and Traffic Control

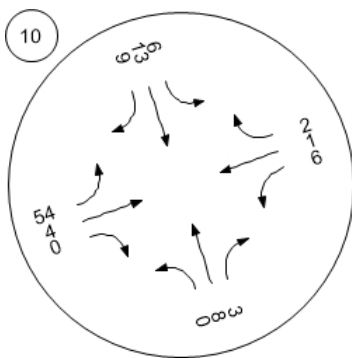




Traffic Volume - Base Volume

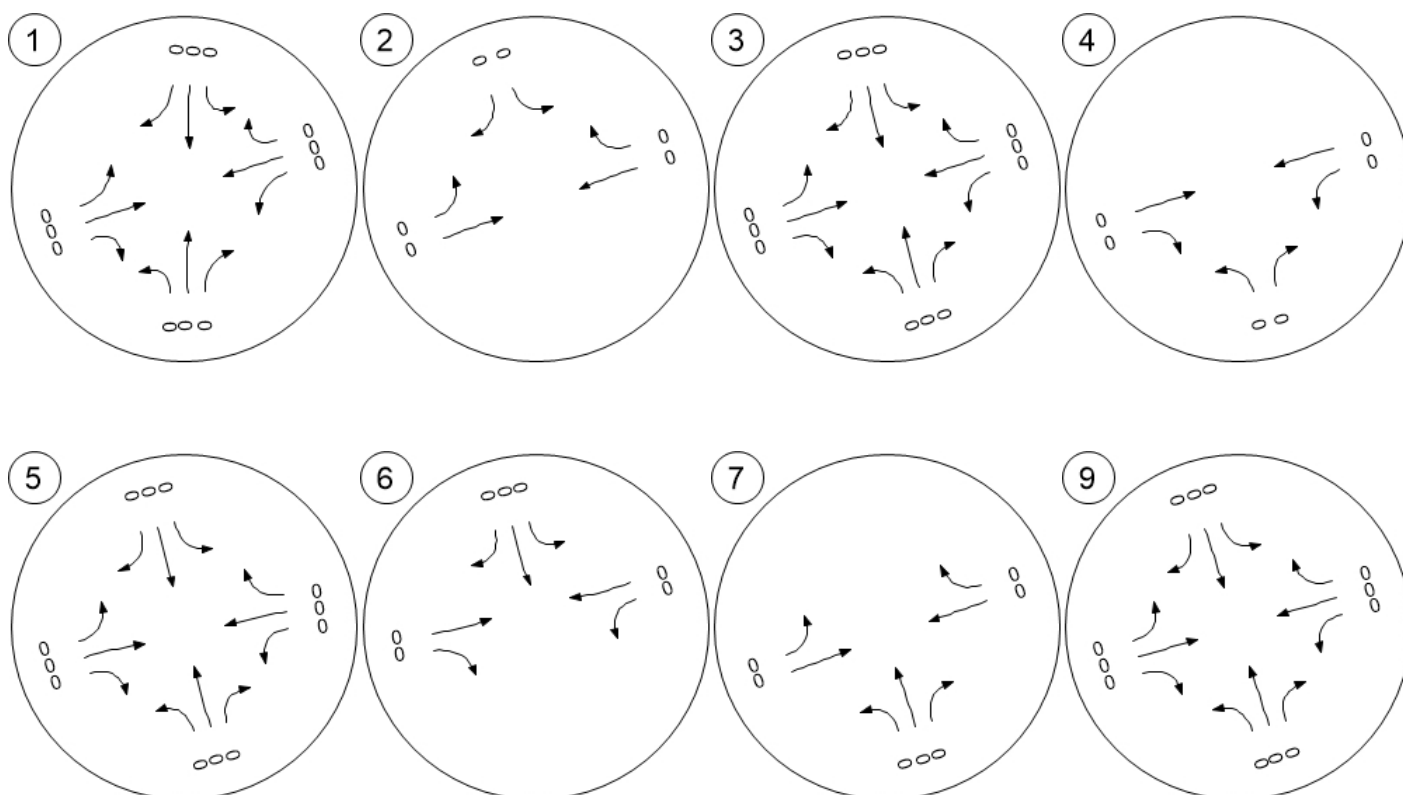


Traffic Volume - Base Volume

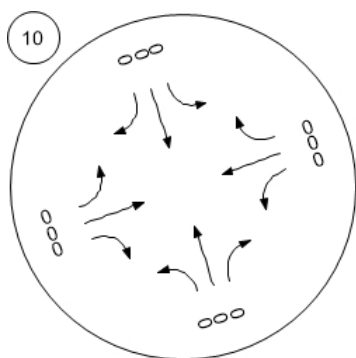




Traffic Volume - In-Process Volume

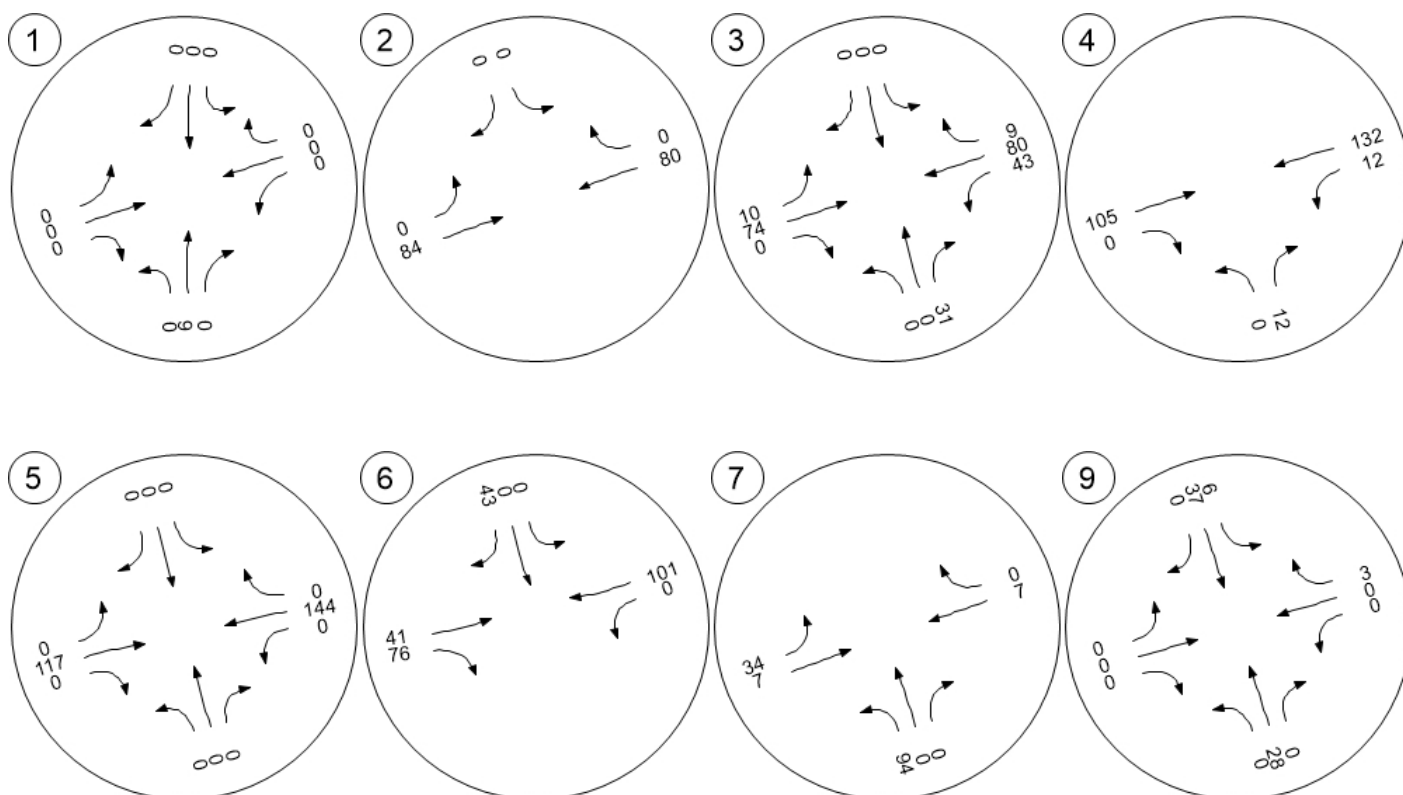


Traffic Volume - In-Process Volume

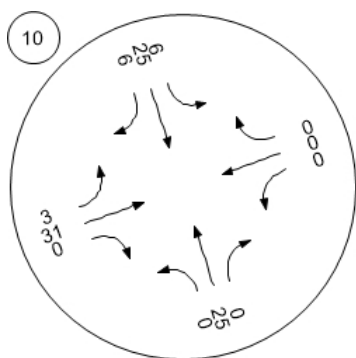




# Traffic Volume - Net New Site Trips

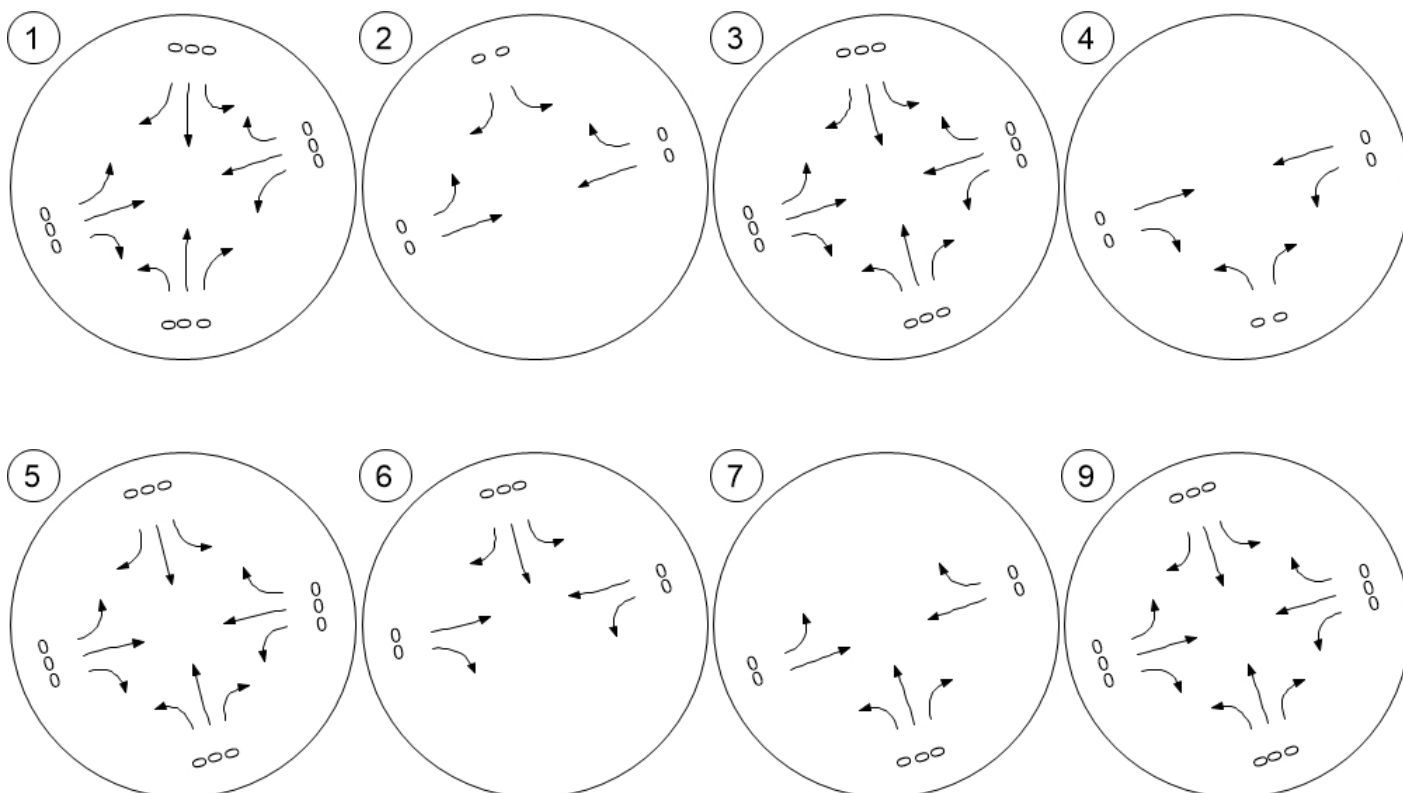


Traffic Volume - Net New Site Trips



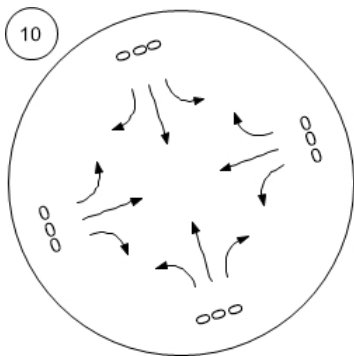


Traffic Volume - Other Volume

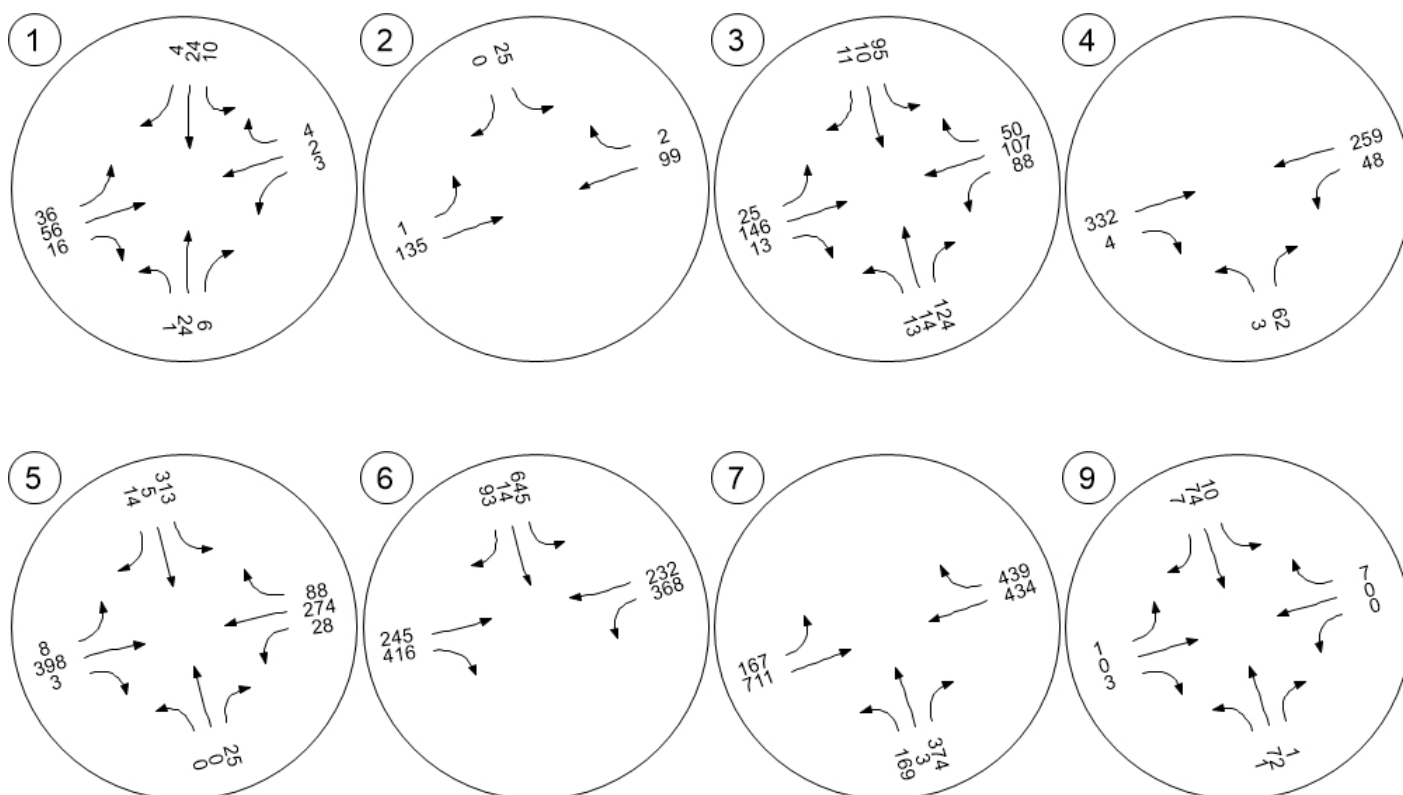




Traffic Volume - Other Volume

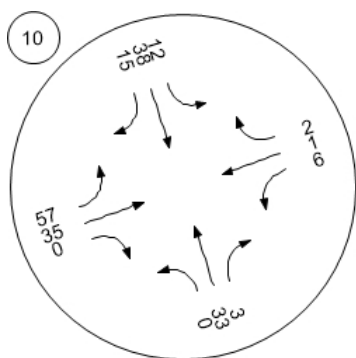


Traffic Volume - Future Total Volume

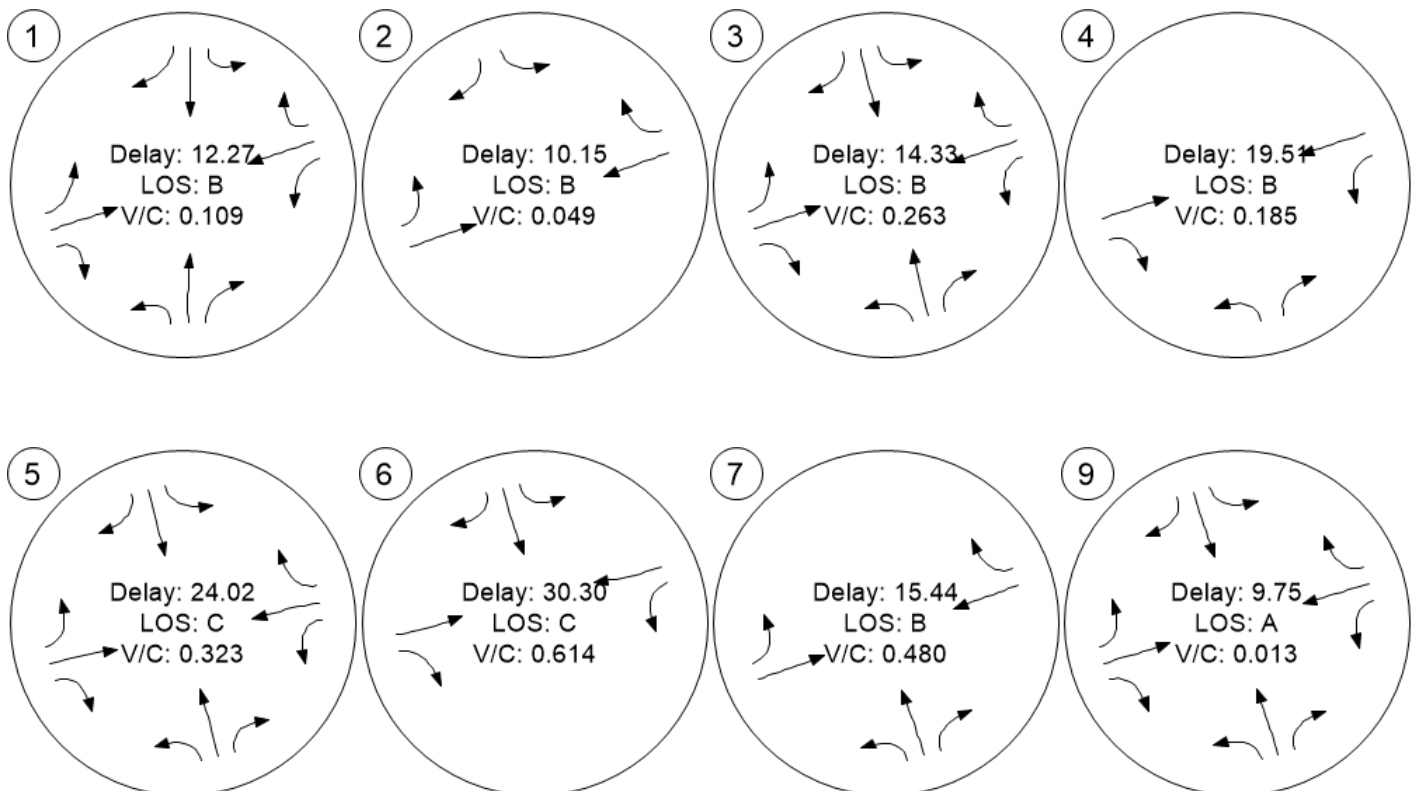




Traffic Volume - Future Total Volume

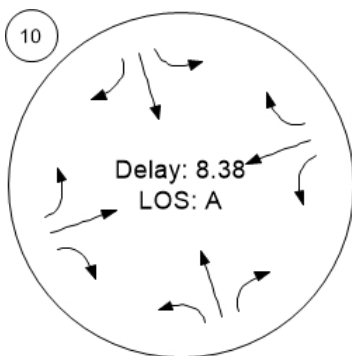


## Traffic Conditions



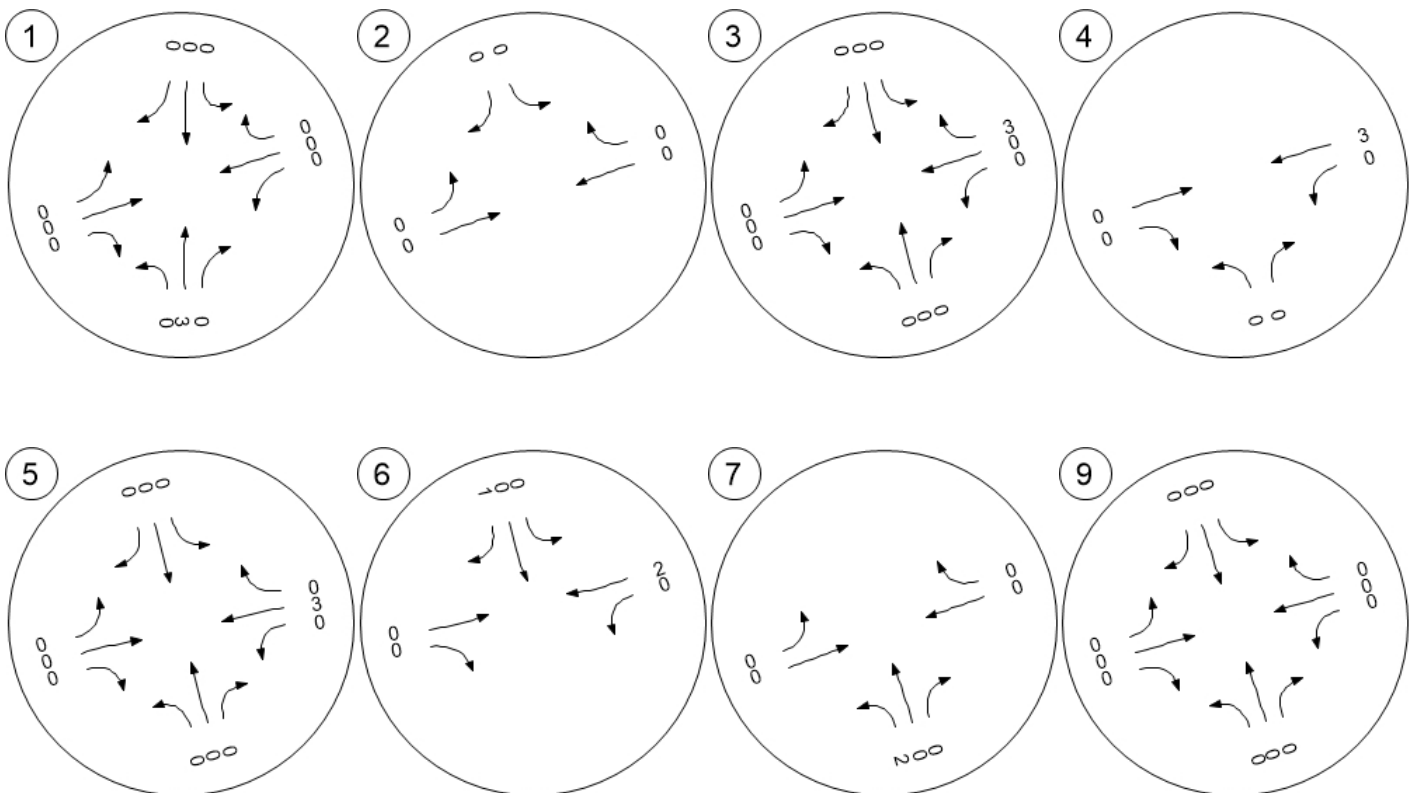


### Traffic Conditions

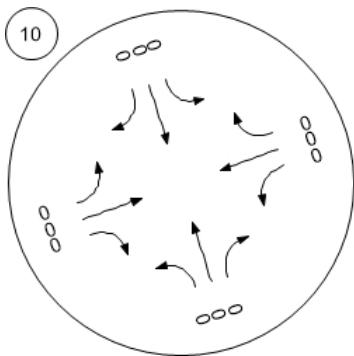




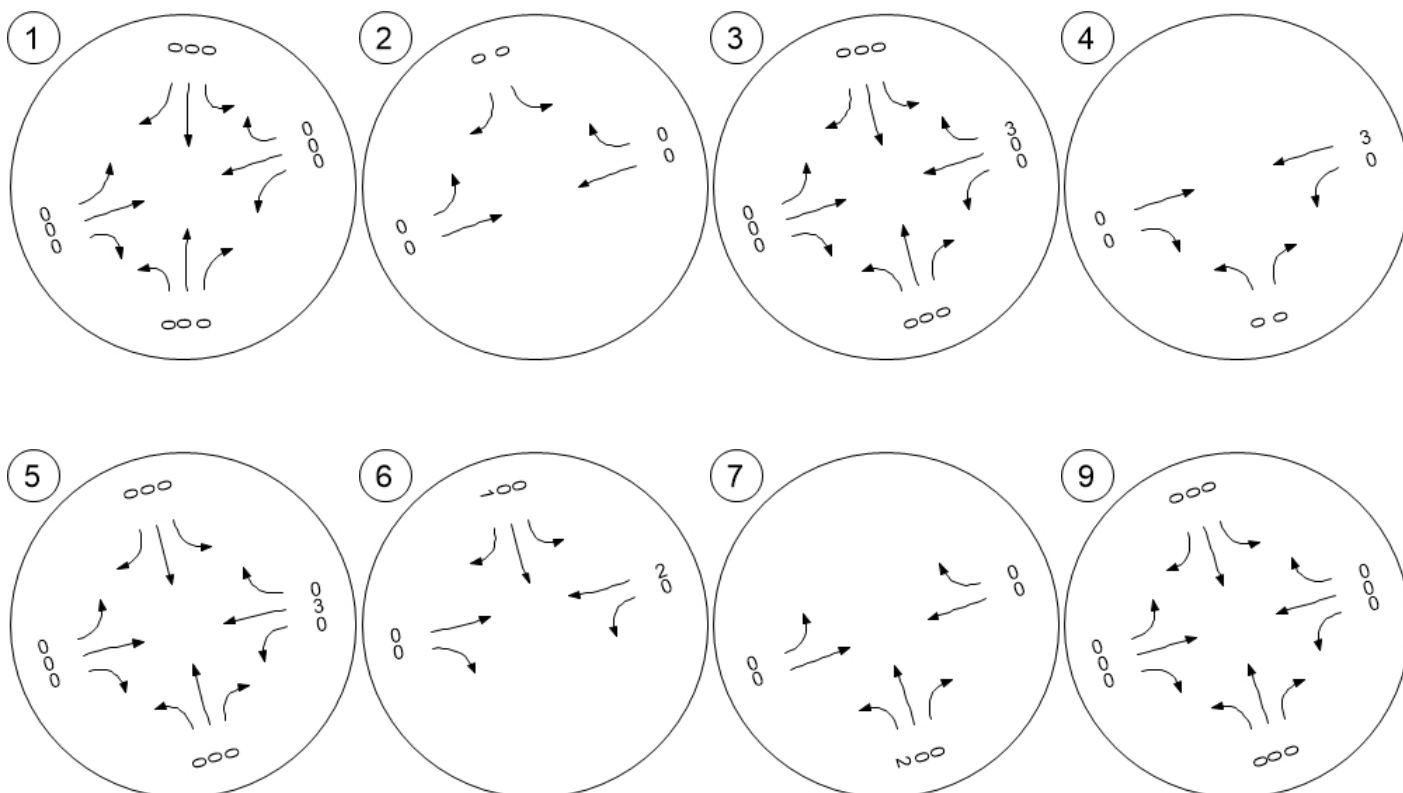
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 18

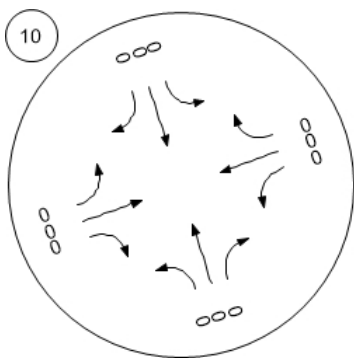


Fair Share - Fair Share Volumes - Zone 19

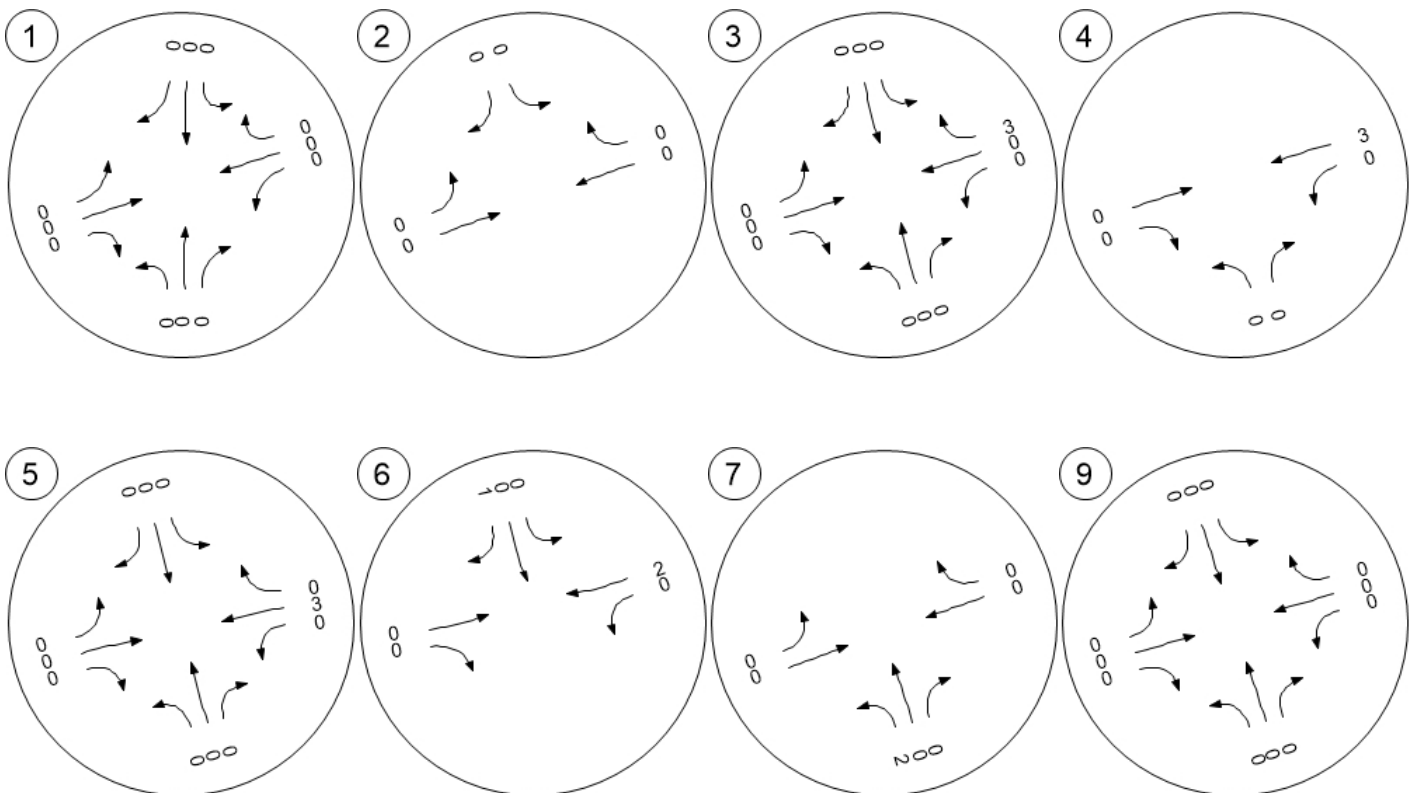




Fair Share - Fair Share Volumes - Zone 19

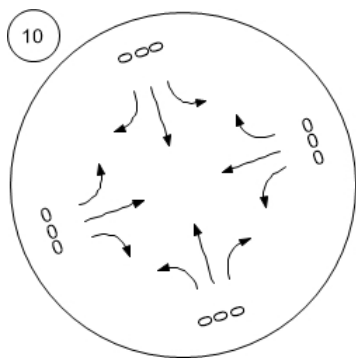


Fair Share - Fair Share Volumes - Zone 20

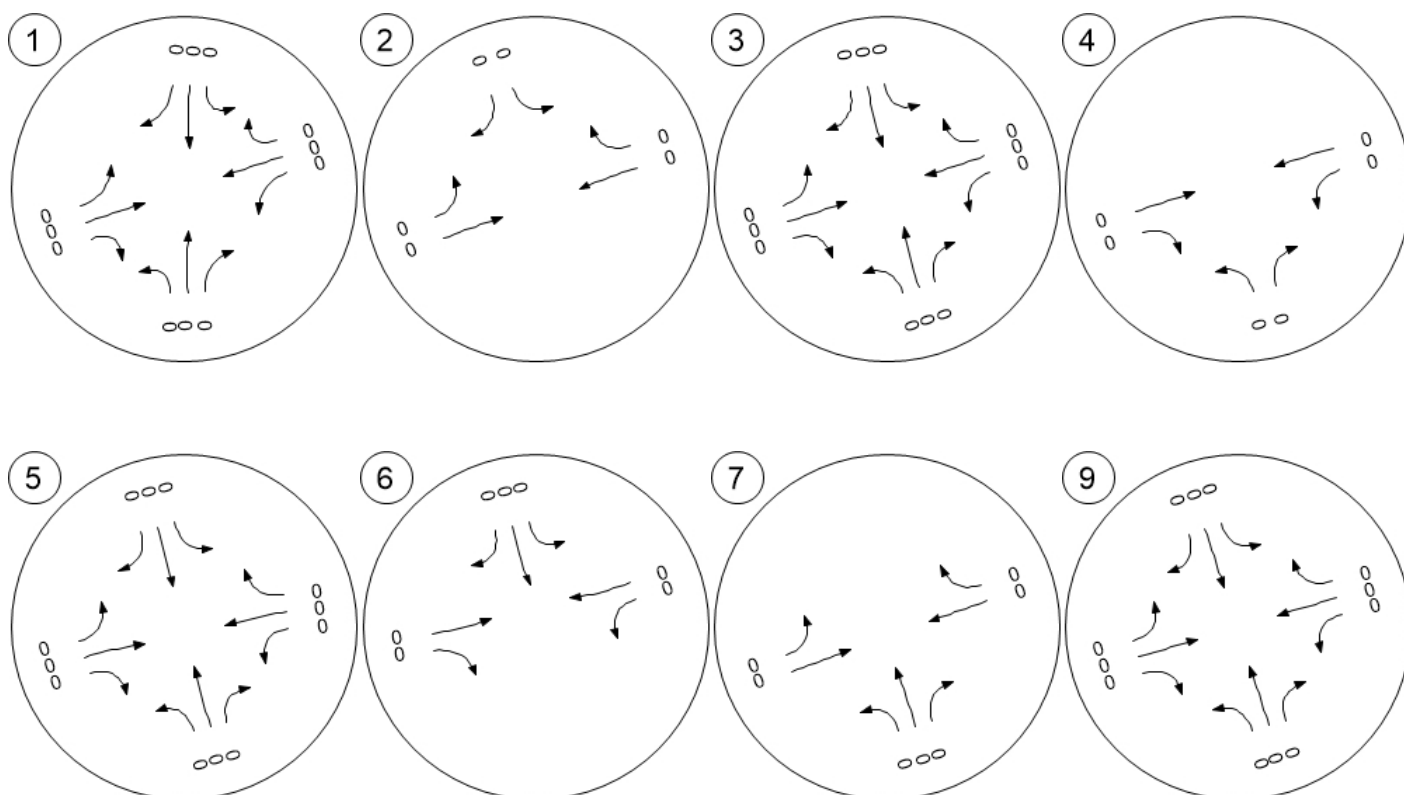




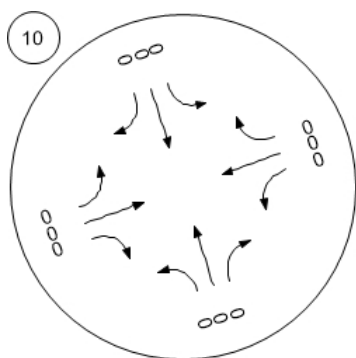
Fair Share - Fair Share Volumes - Zone 20



Fair Share - Fair Share Volumes - Zone 21

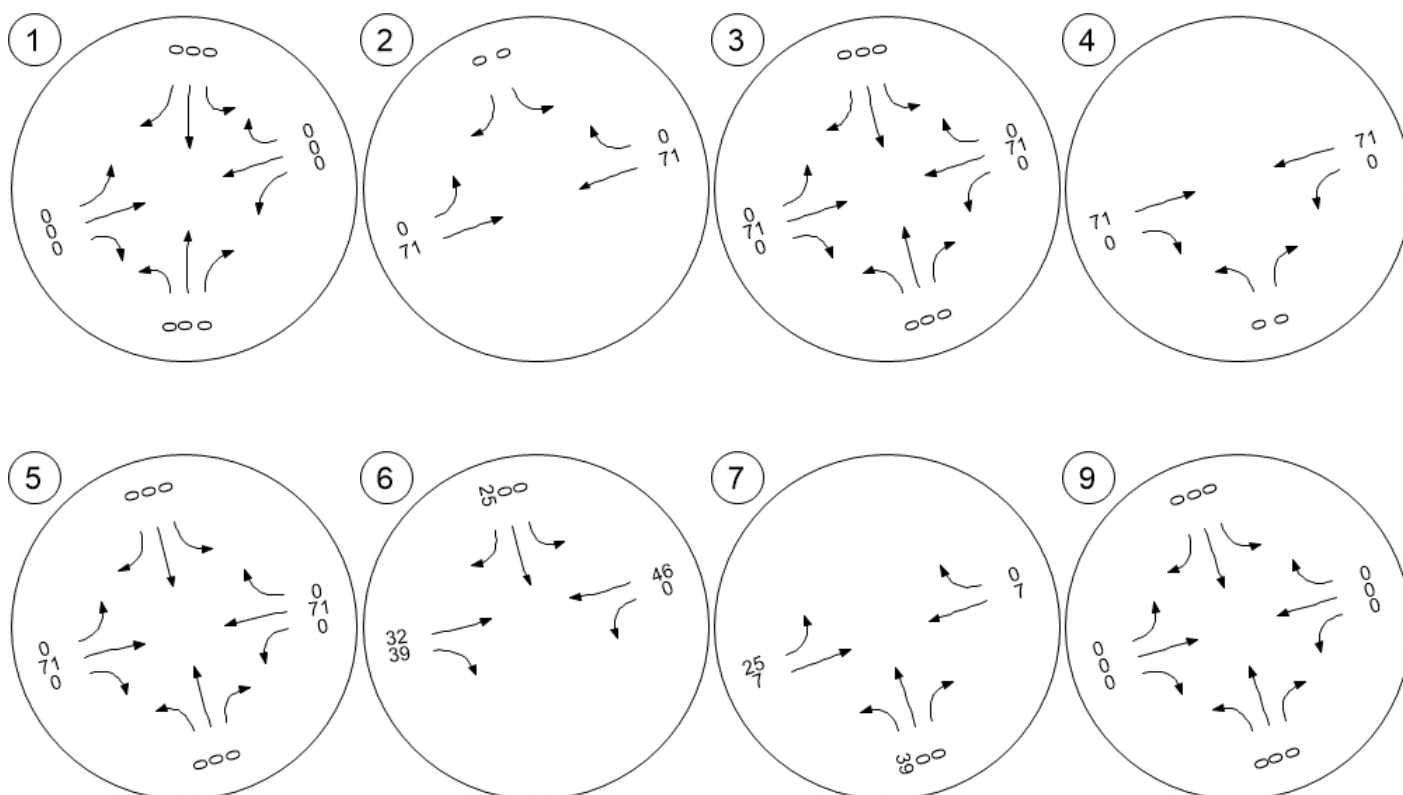


Fair Share - Fair Share Volumes - Zone 21

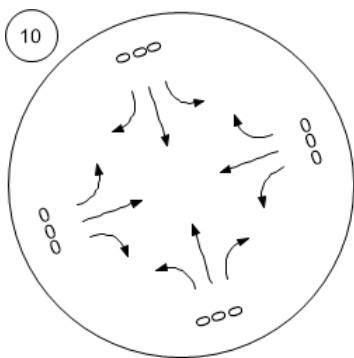




Fair Share - Fair Share Volumes - Zone 22

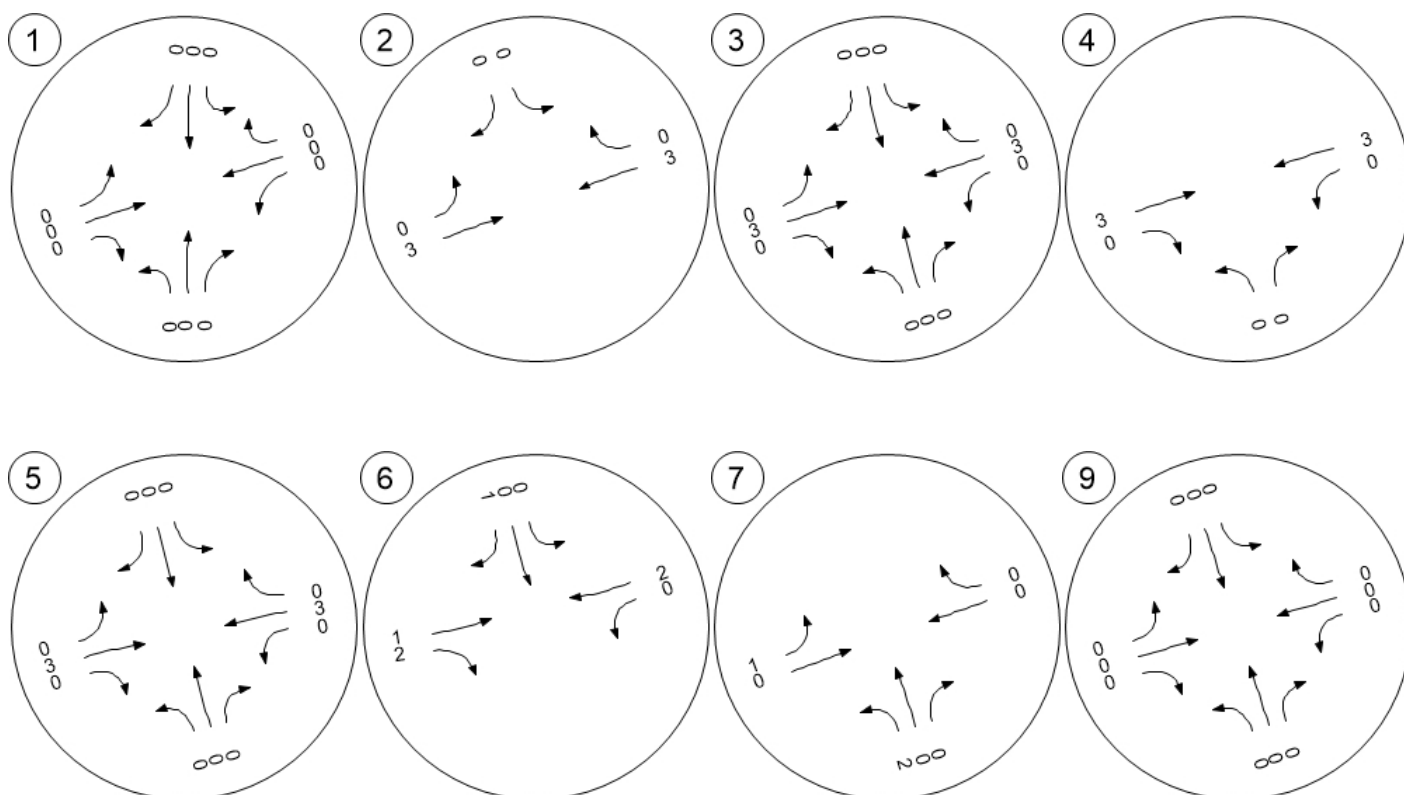


Fair Share - Fair Share Volumes - Zone 22

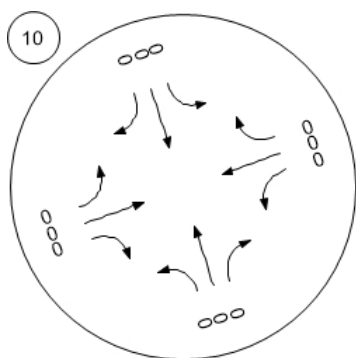




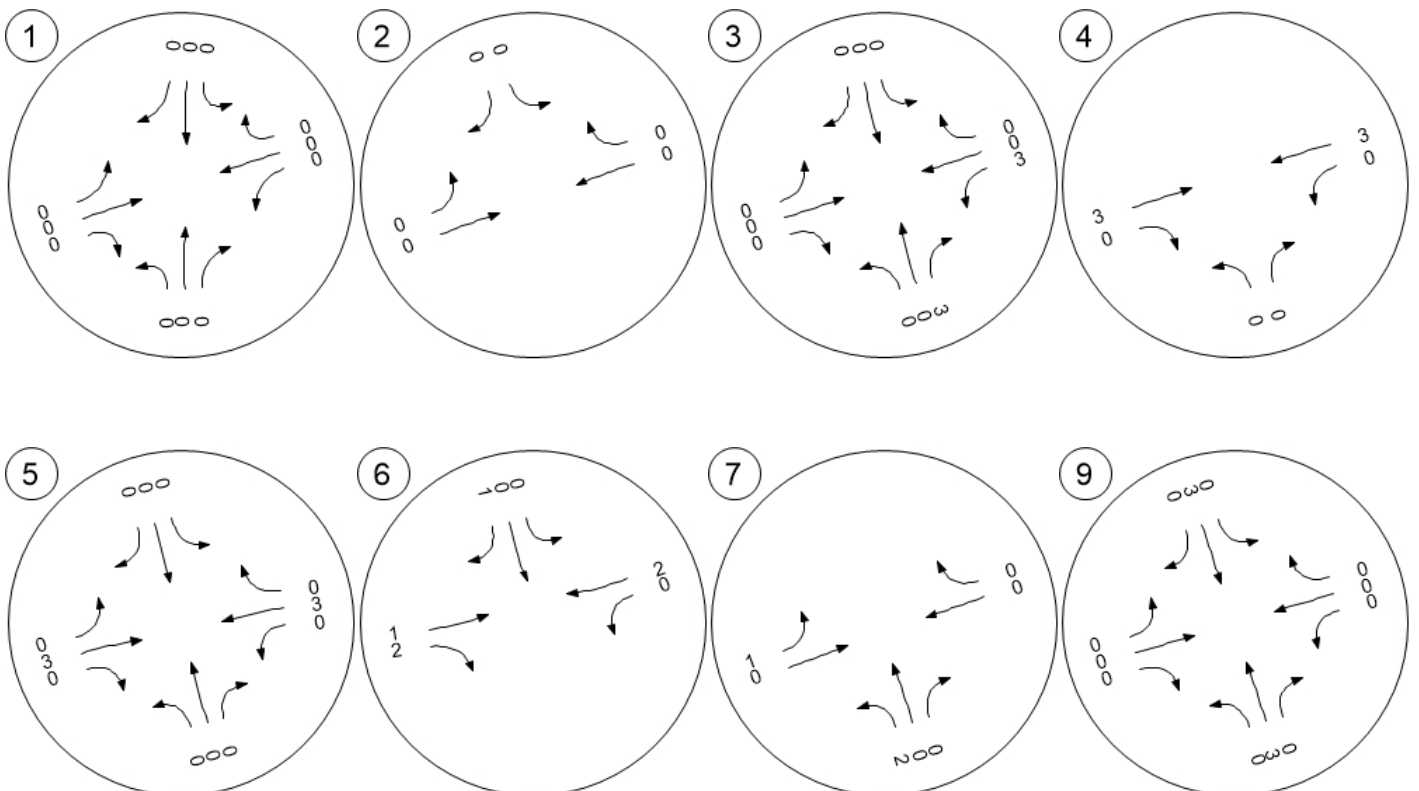
Fair Share - Fair Share Volumes - Zone 23



Fair Share - Fair Share Volumes - Zone 23

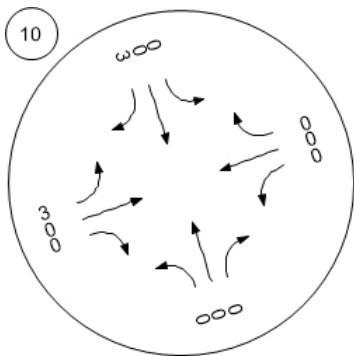


Fair Share - Fair Share Volumes - Zone 24

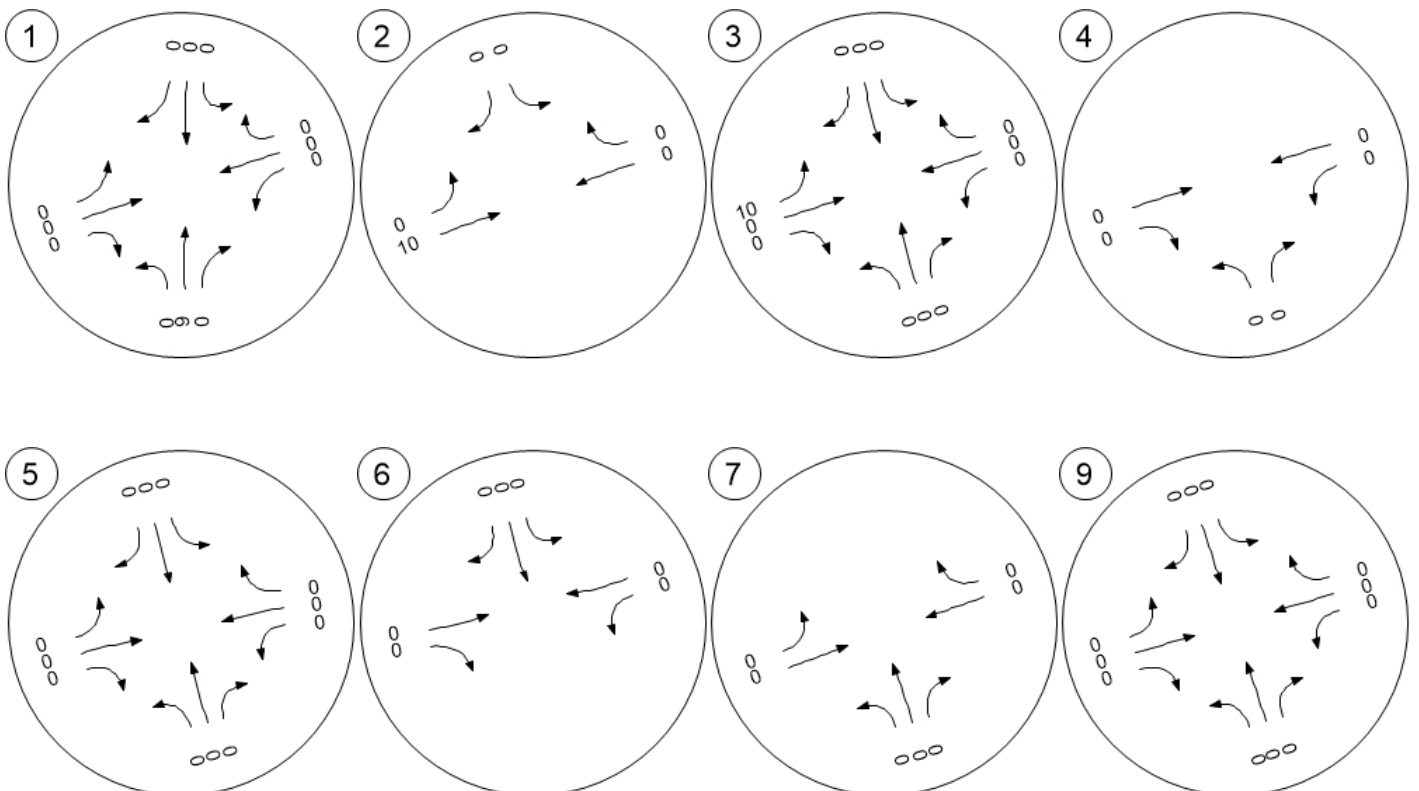




Fair Share - Fair Share Volumes - Zone 24

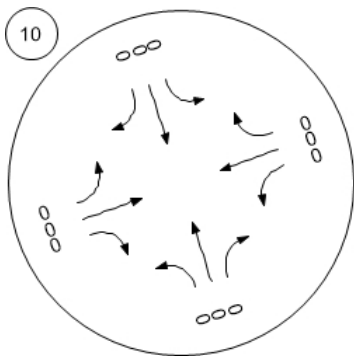


Fair Share - Fair Share Volumes - Zone 25

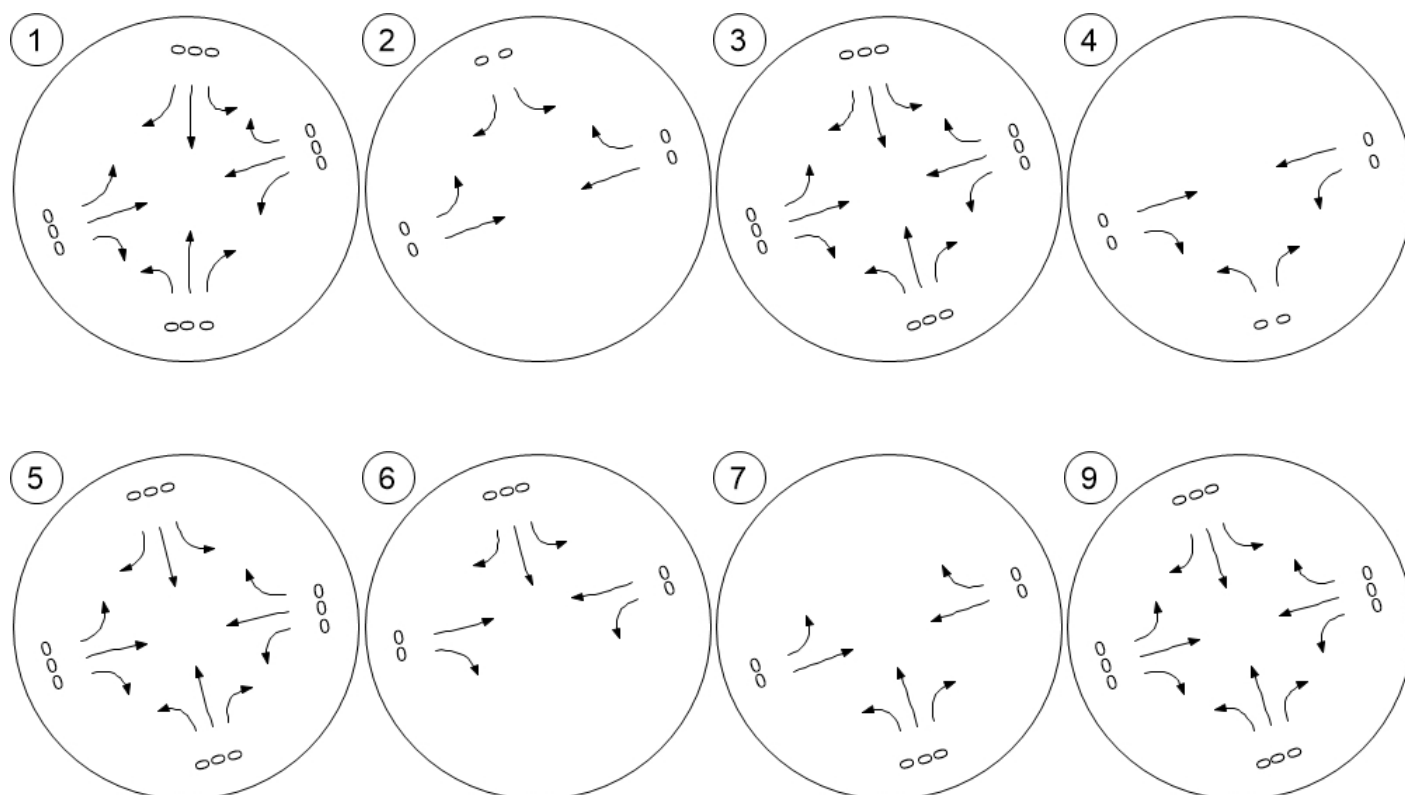




Fair Share - Fair Share Volumes - Zone 25

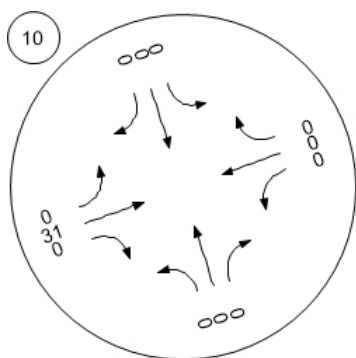


Fair Share - Fair Share Volumes - Zone 26

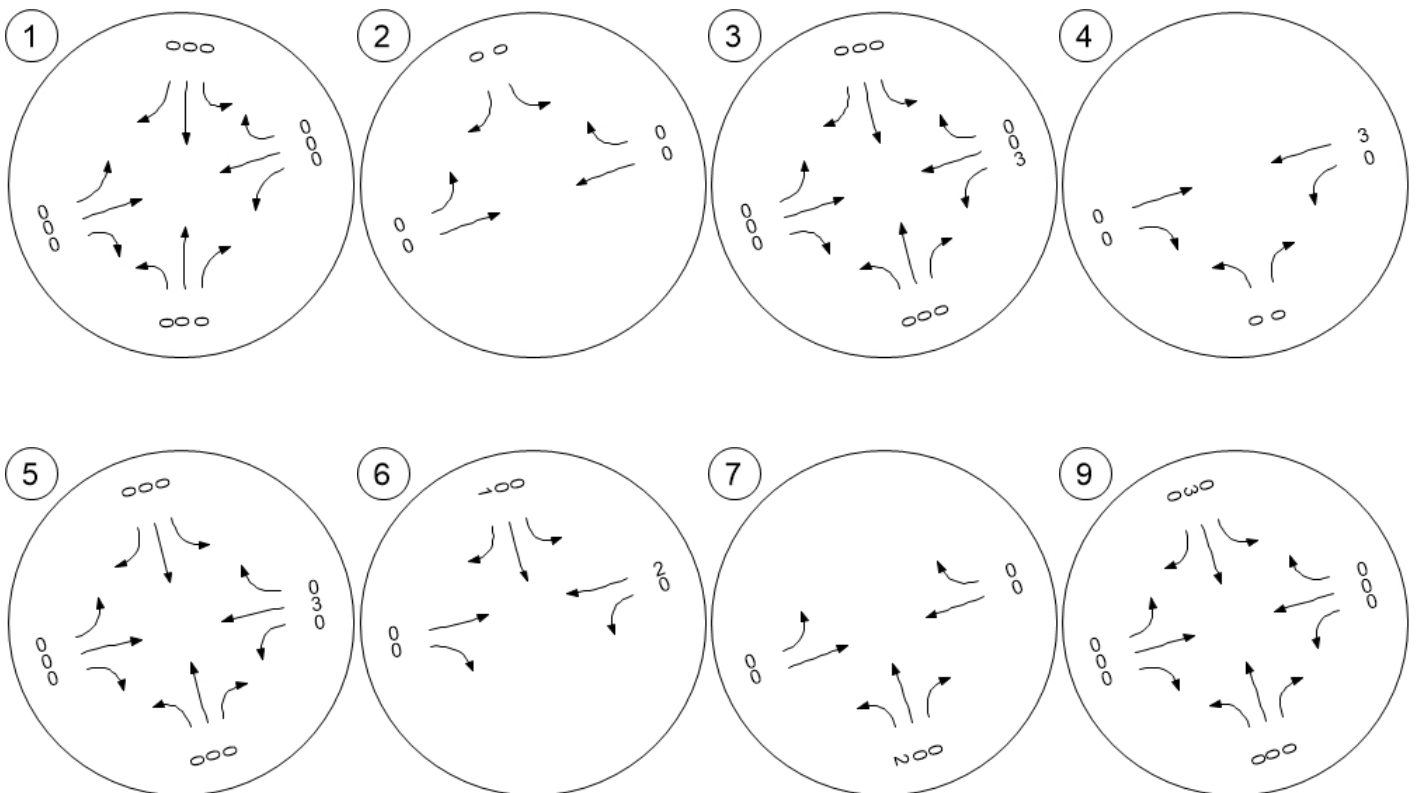




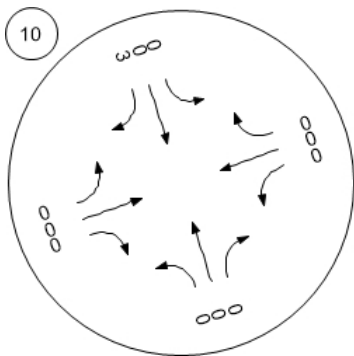
Fair Share - Fair Share Volumes - Zone 26



Fair Share - Fair Share Volumes - Zone 27

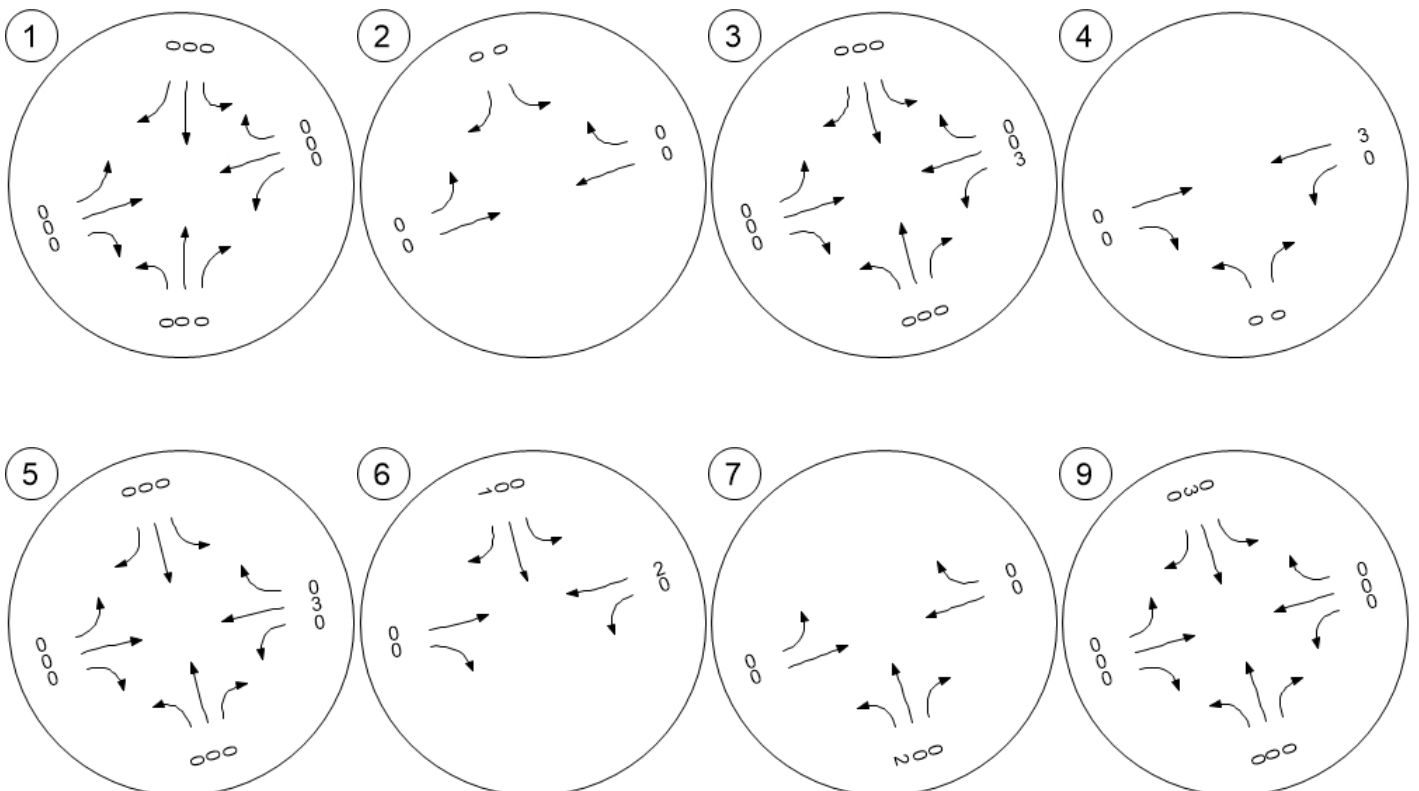


Fair Share - Fair Share Volumes - Zone 27

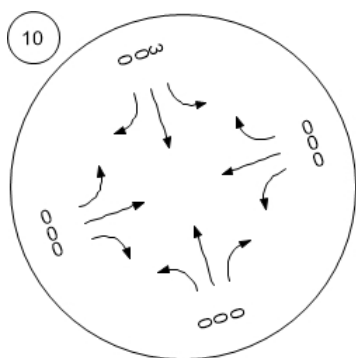




Fair Share - Fair Share Volumes - Zone 28

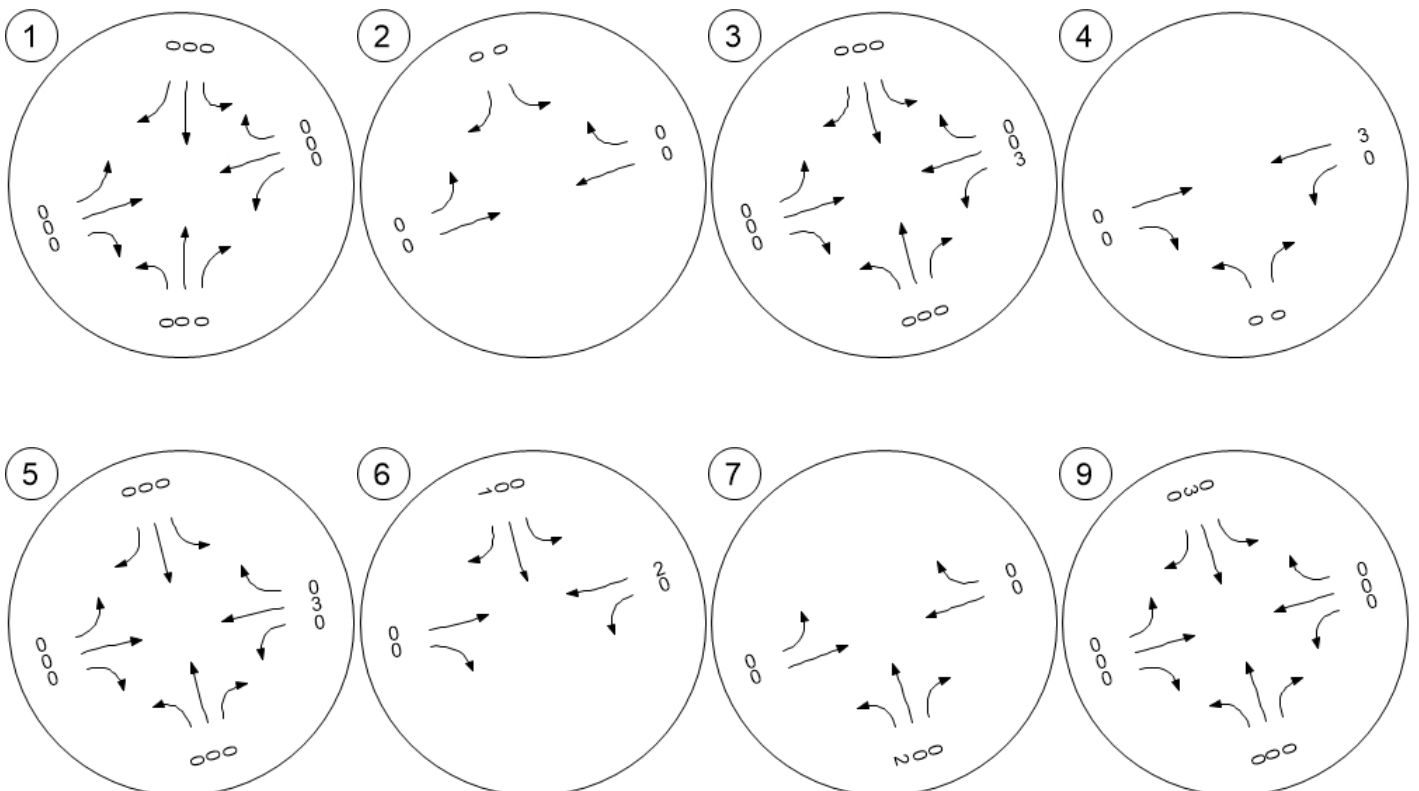


Fair Share - Fair Share Volumes - Zone 28

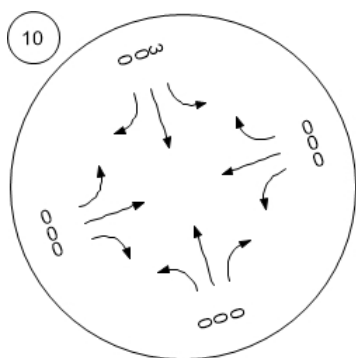
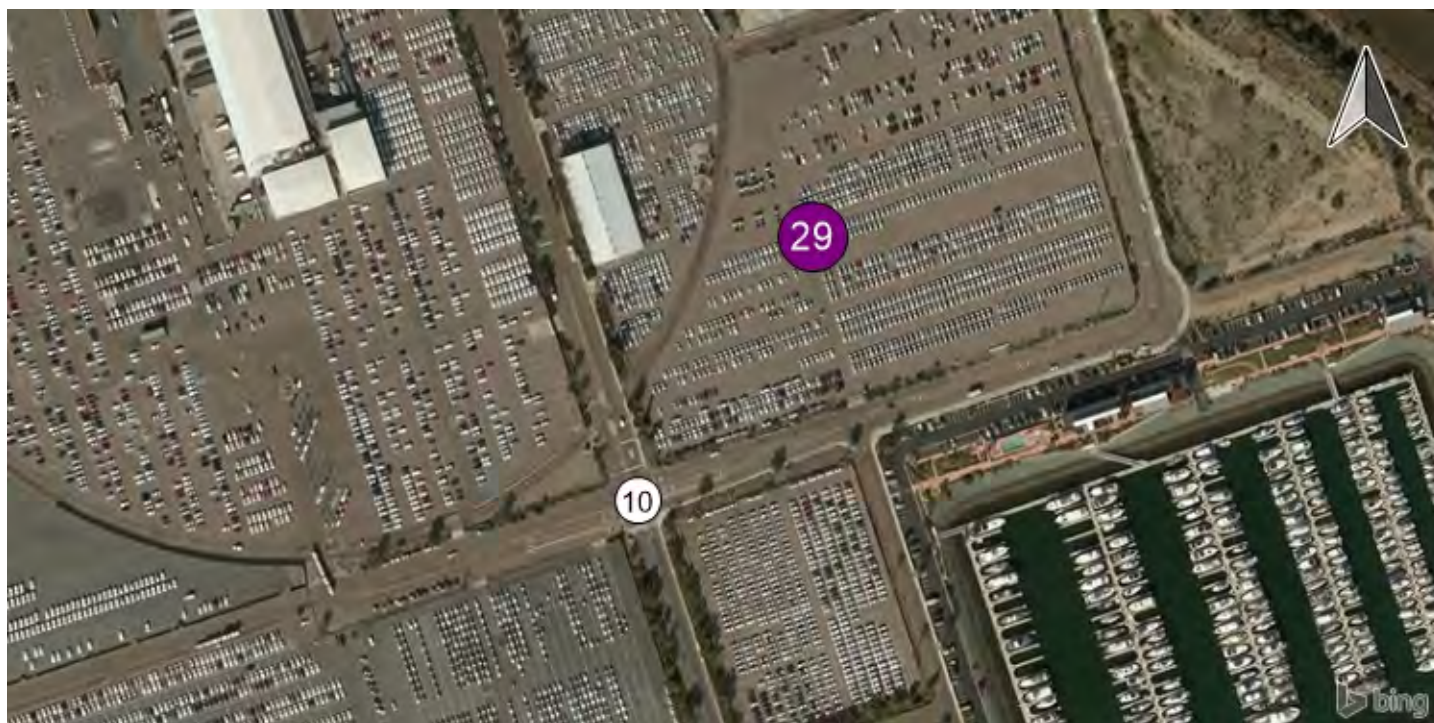




Fair Share - Fair Share Volumes - Zone 29

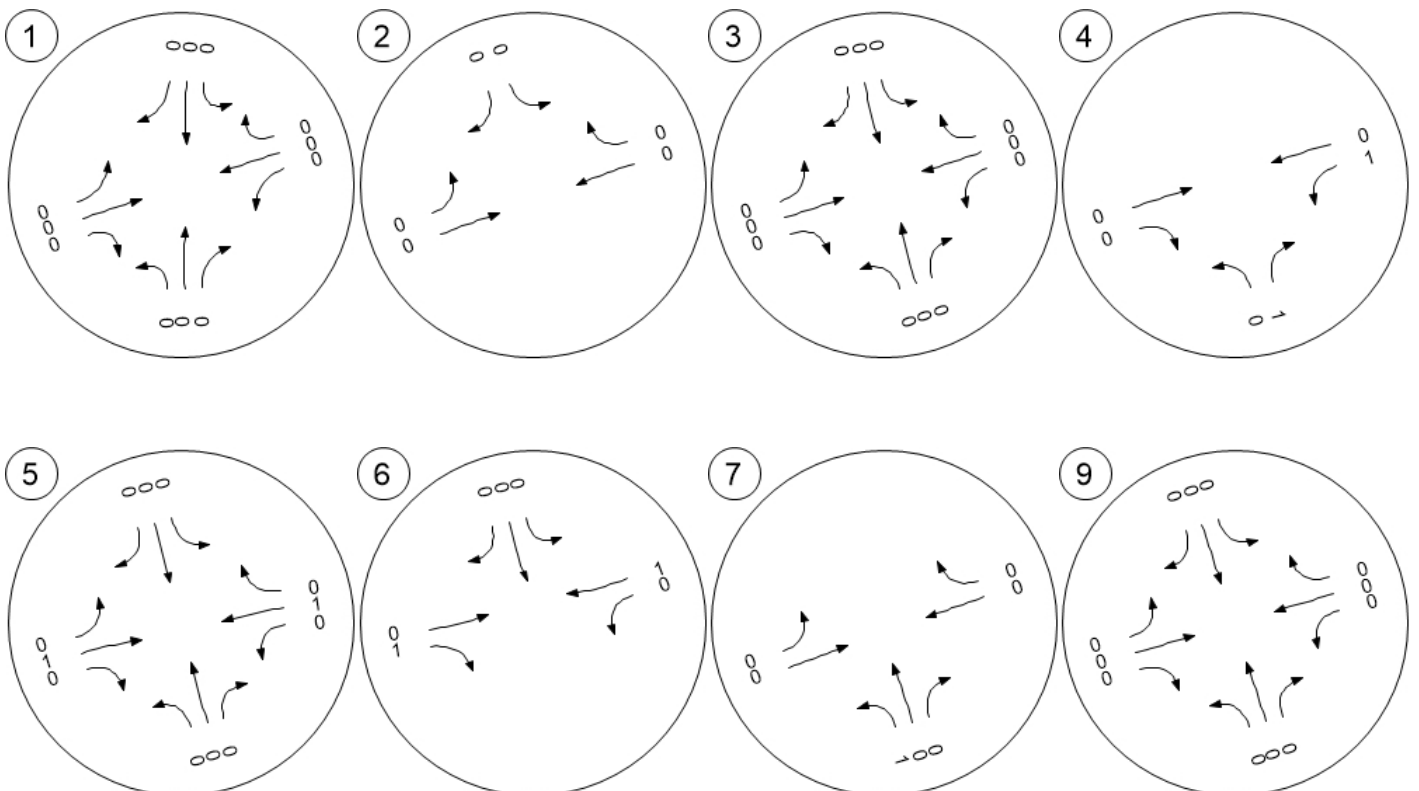


Fair Share - Fair Share Volumes - Zone 29



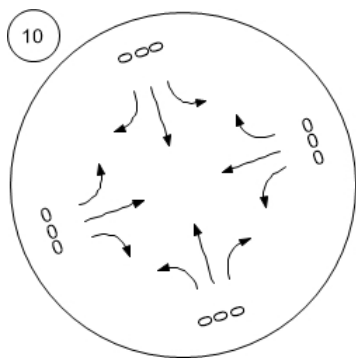


Fair Share - Fair Share Volumes - Zone 30

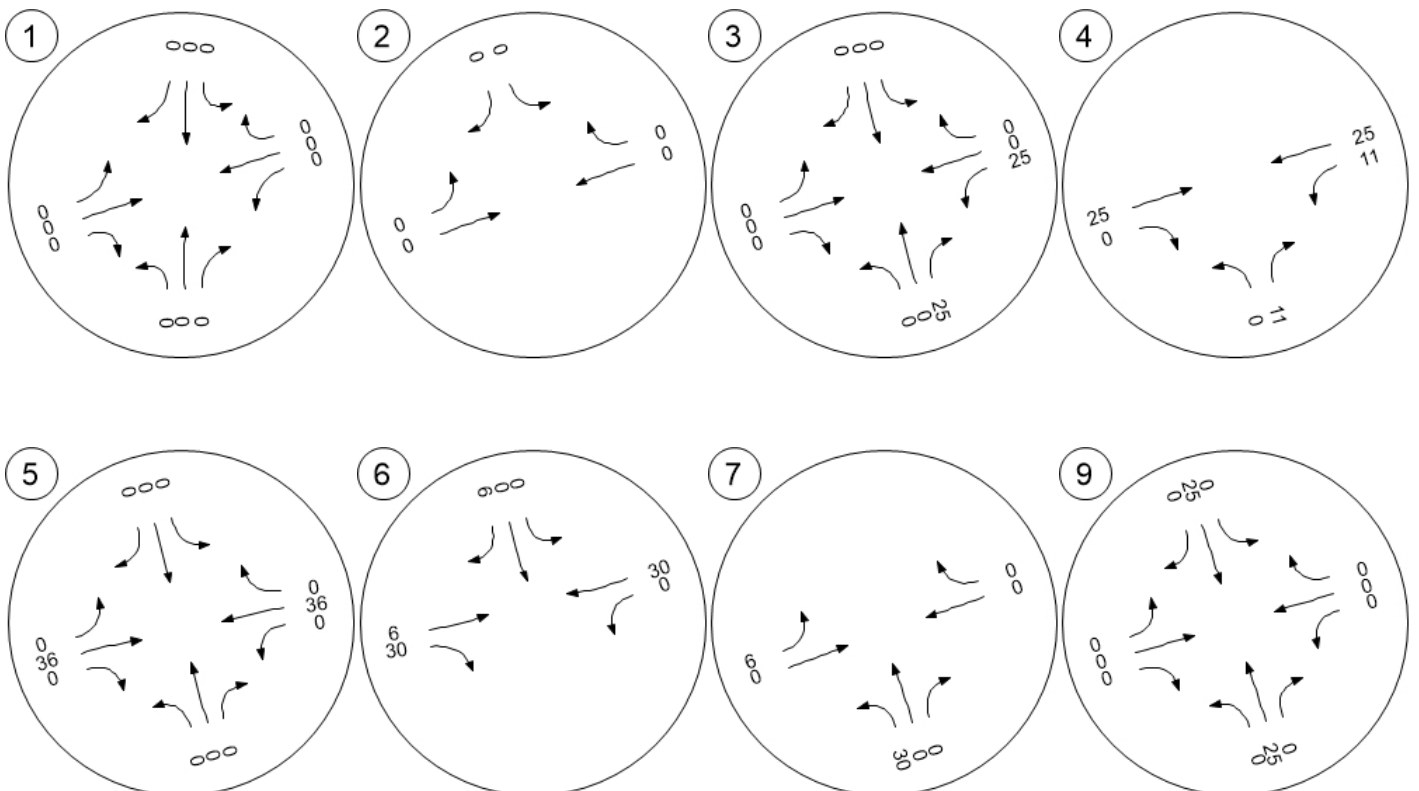




Fair Share - Fair Share Volumes - Zone 30

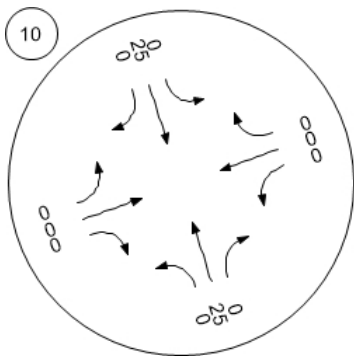
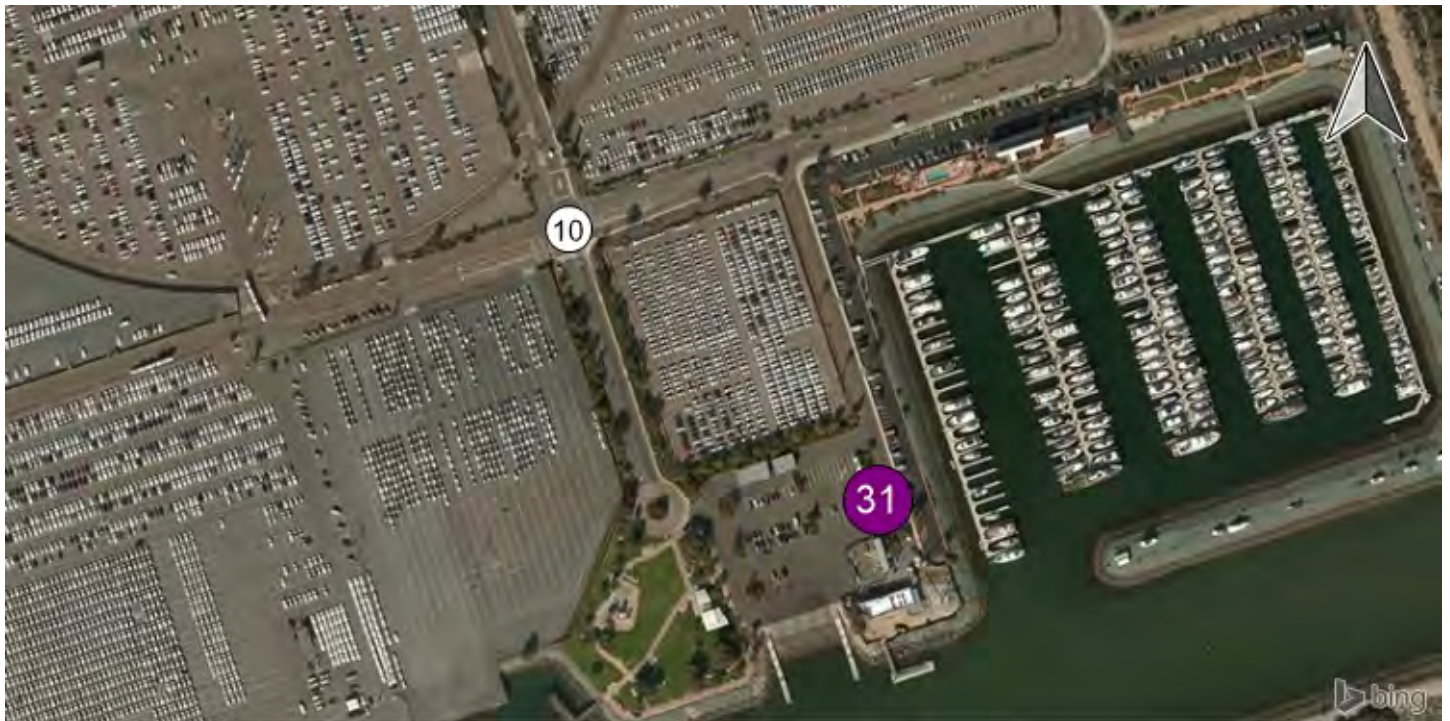


Fair Share - Fair Share Volumes - Zone 31

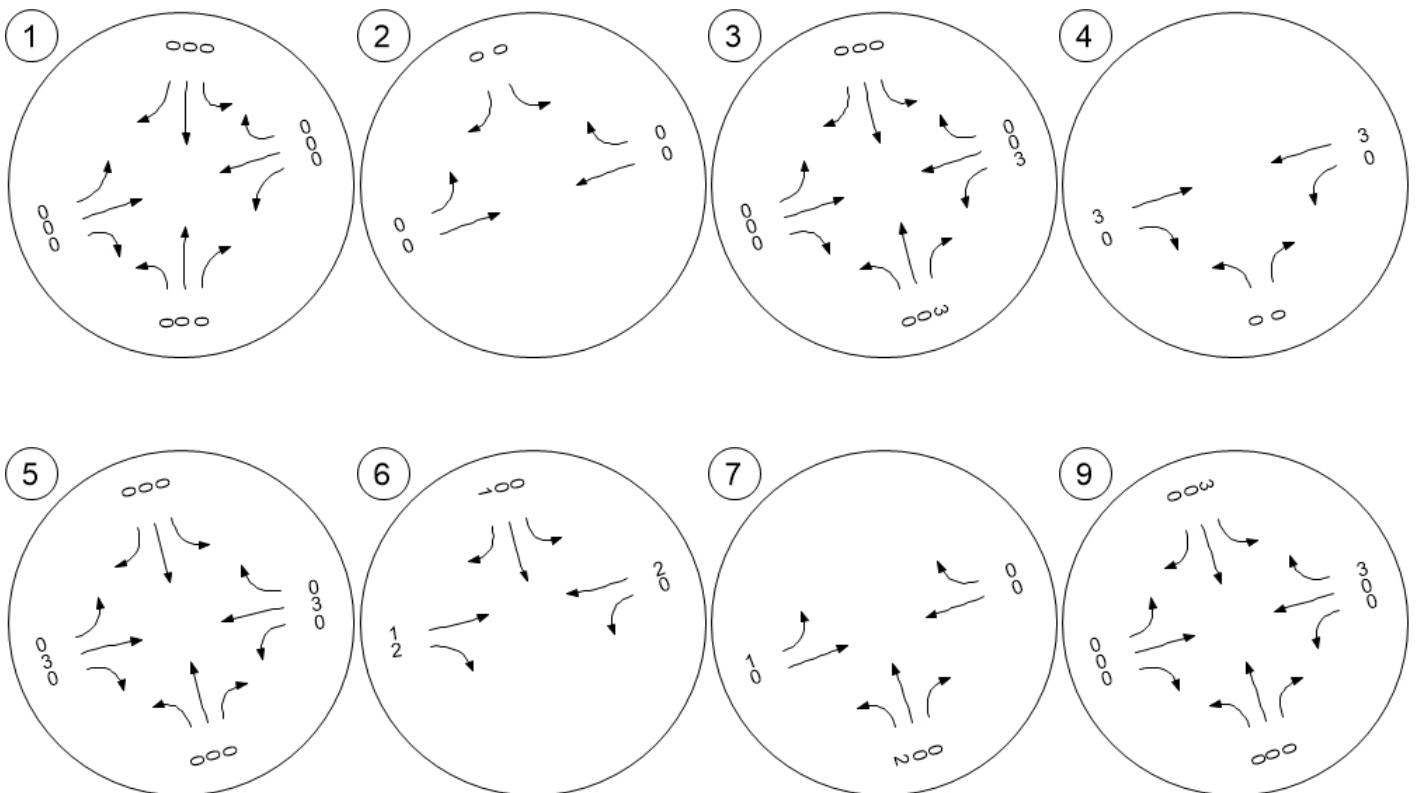




Fair Share - Fair Share Volumes - Zone 31

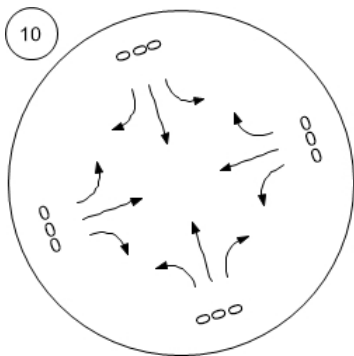


Fair Share - Fair Share Volumes - Zone 32



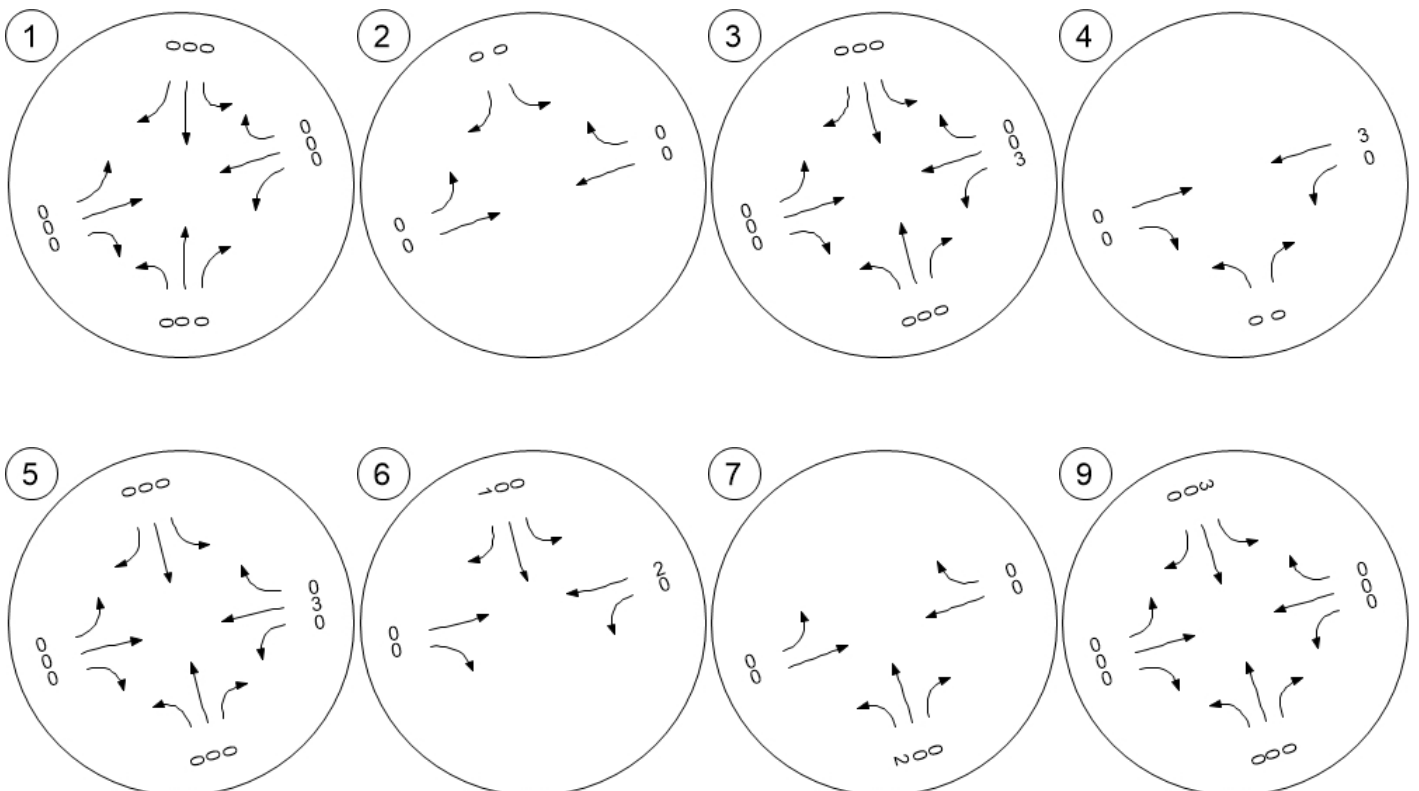


Fair Share - Fair Share Volumes - Zone 32

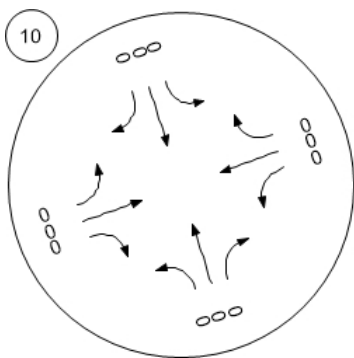




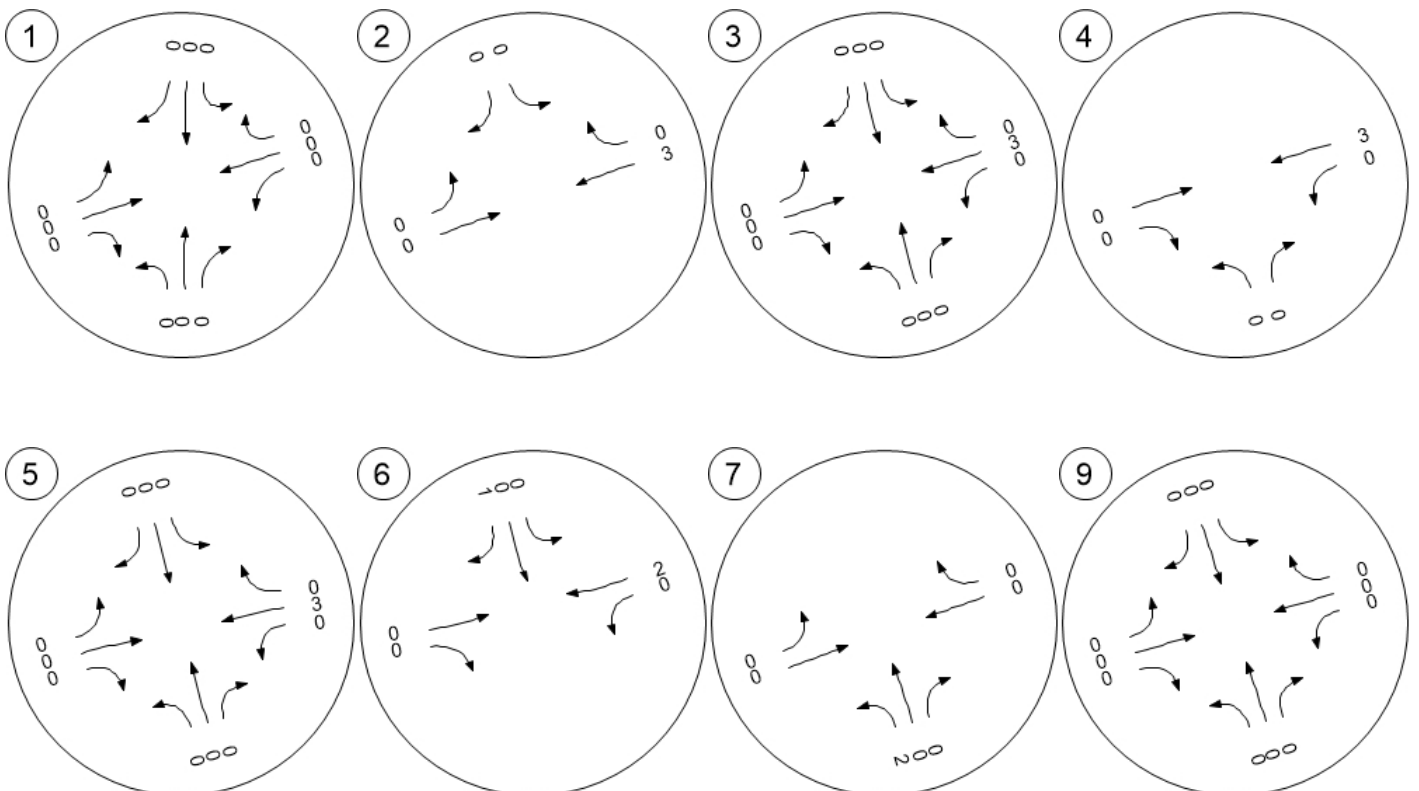
Fair Share - Fair Share Volumes - Zone 33



Fair Share - Fair Share Volumes - Zone 33

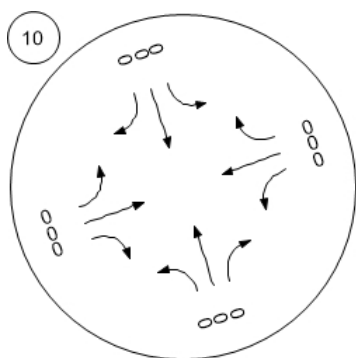


Fair Share - Fair Share Volumes - Zone 34

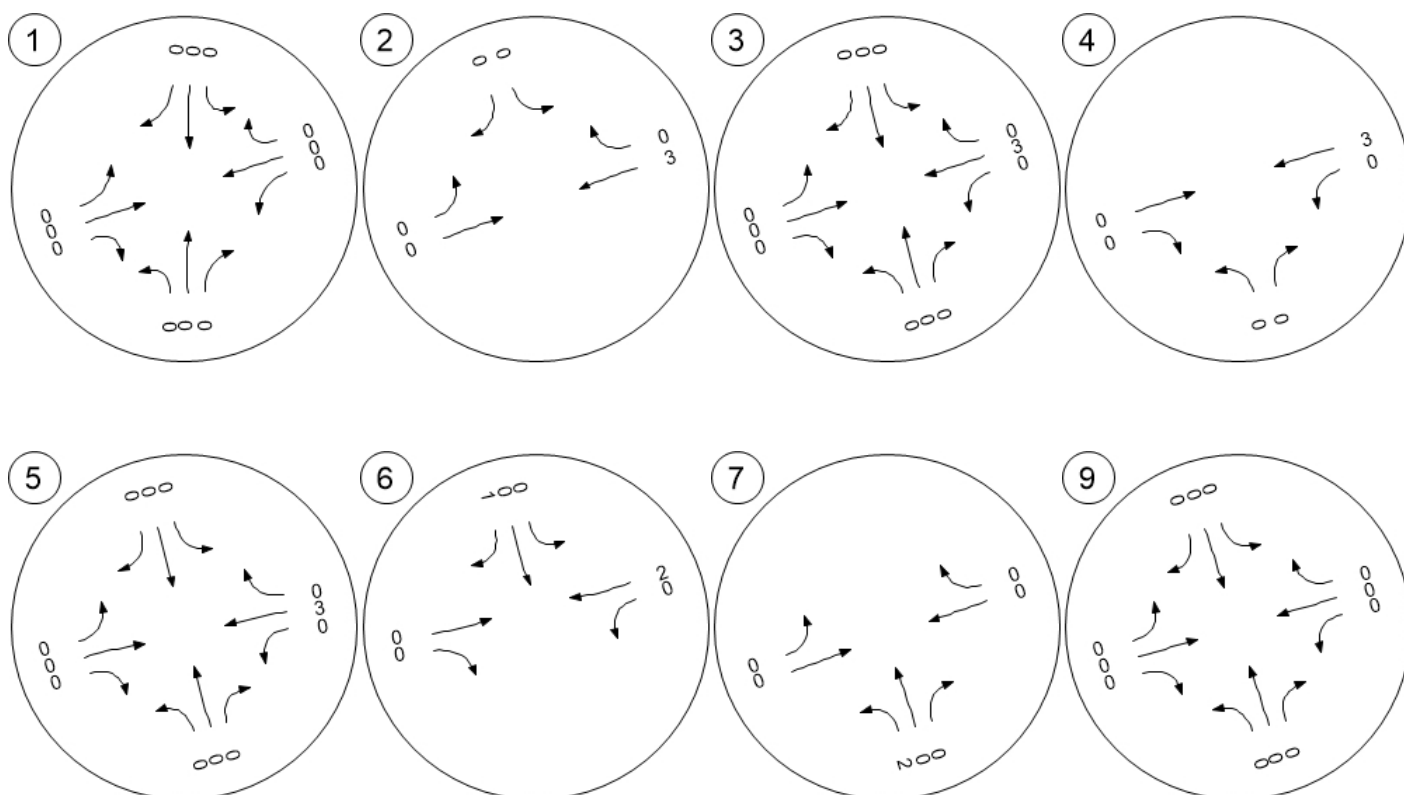




Fair Share - Fair Share Volumes - Zone 34

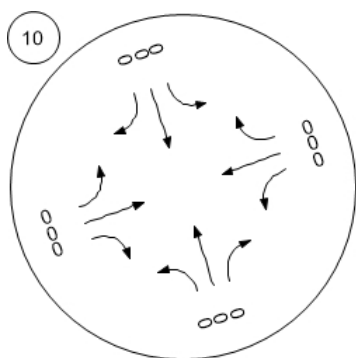


Fair Share - Fair Share Volumes - Zone 35

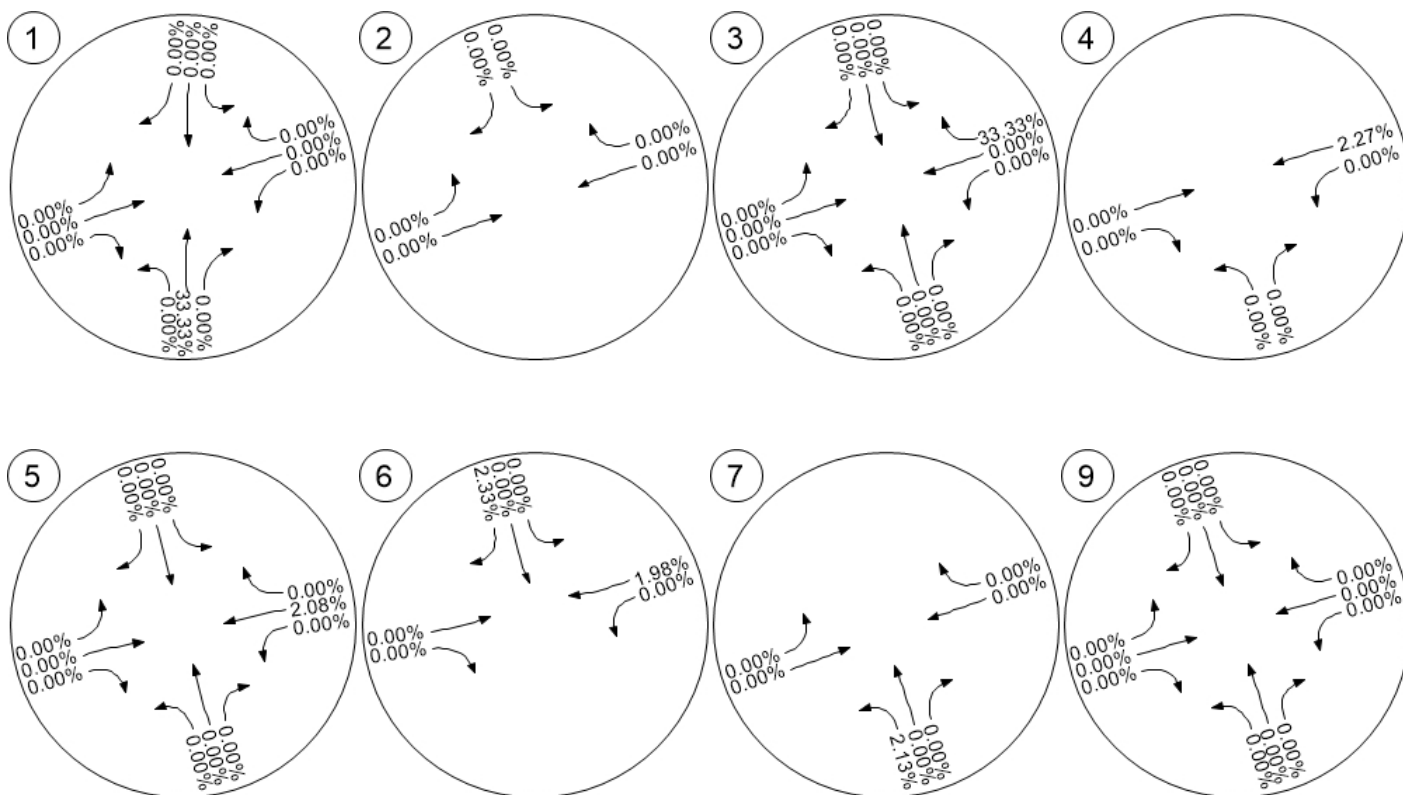




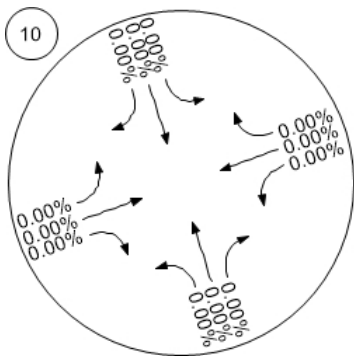
Fair Share - Fair Share Volumes - Zone 35



## Fair Share - Fair Share % of Net New Site - Zone 18

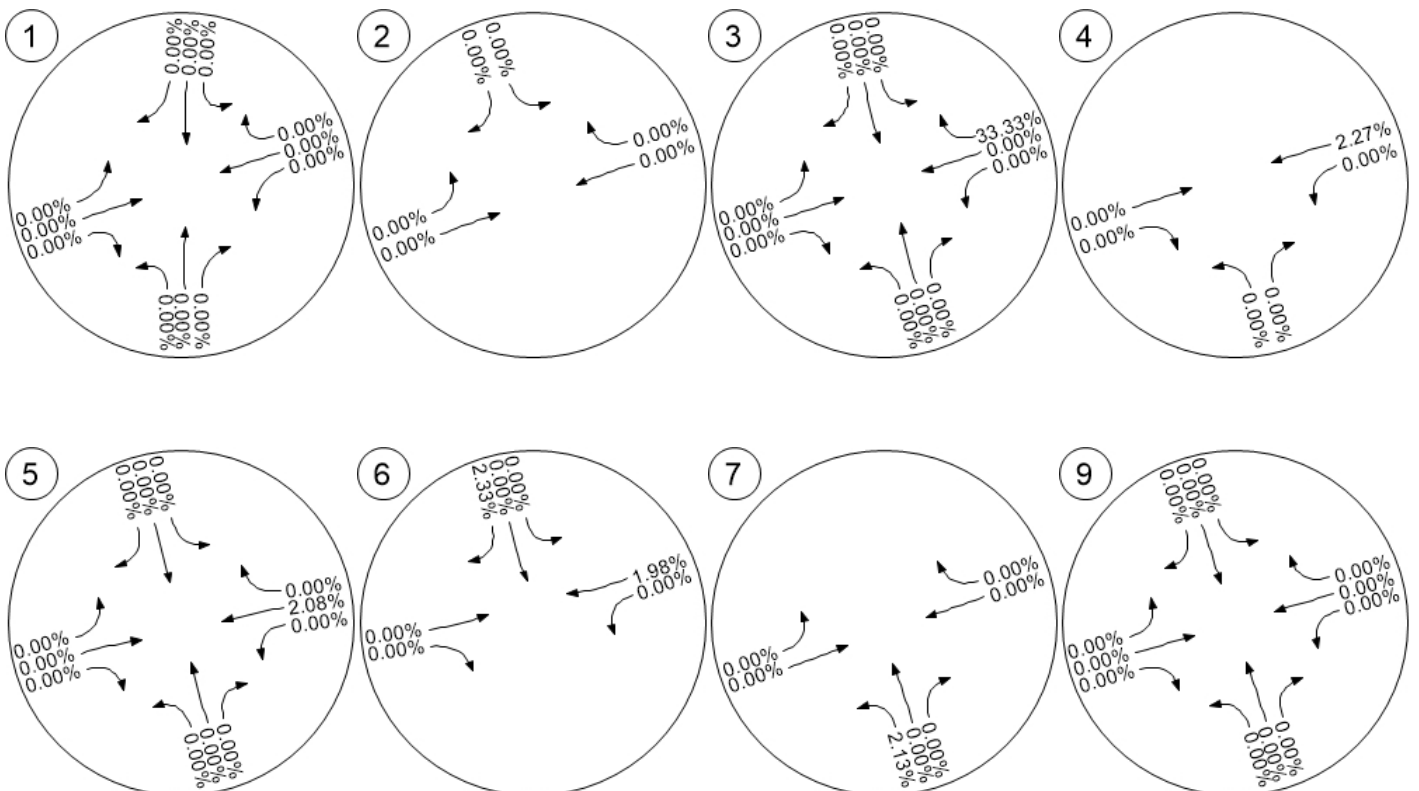


Fair Share - Fair Share % of Net New Site - Zone 18





Fair Share - Fair Share % of Net New Site - Zone 19

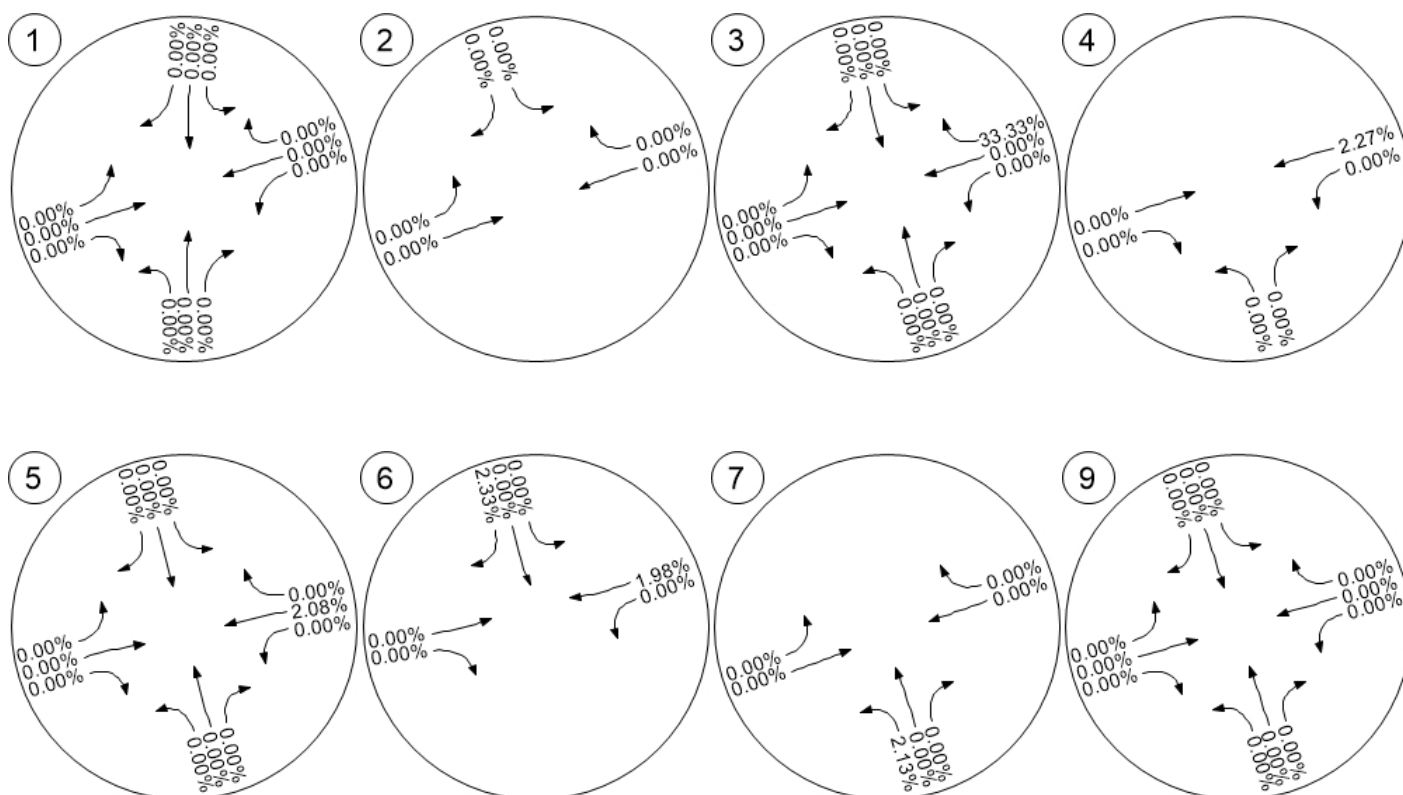


Fair Share - Fair Share % of Net New Site - Zone 19





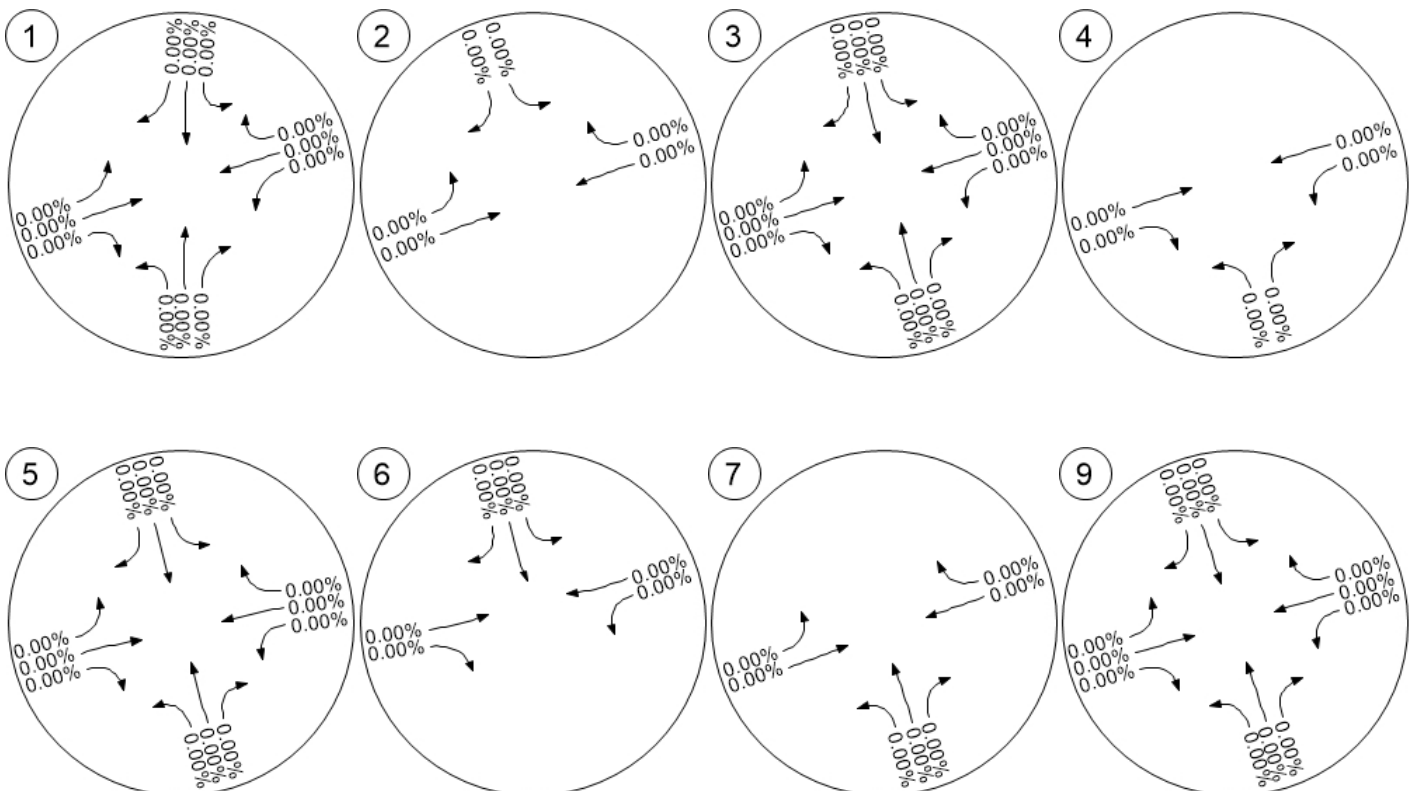
Fair Share - Fair Share % of Net New Site - Zone 20



Fair Share - Fair Share % of Net New Site - Zone 20

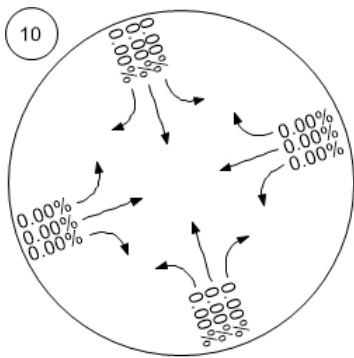


Fair Share - Fair Share % of Net New Site - Zone 21

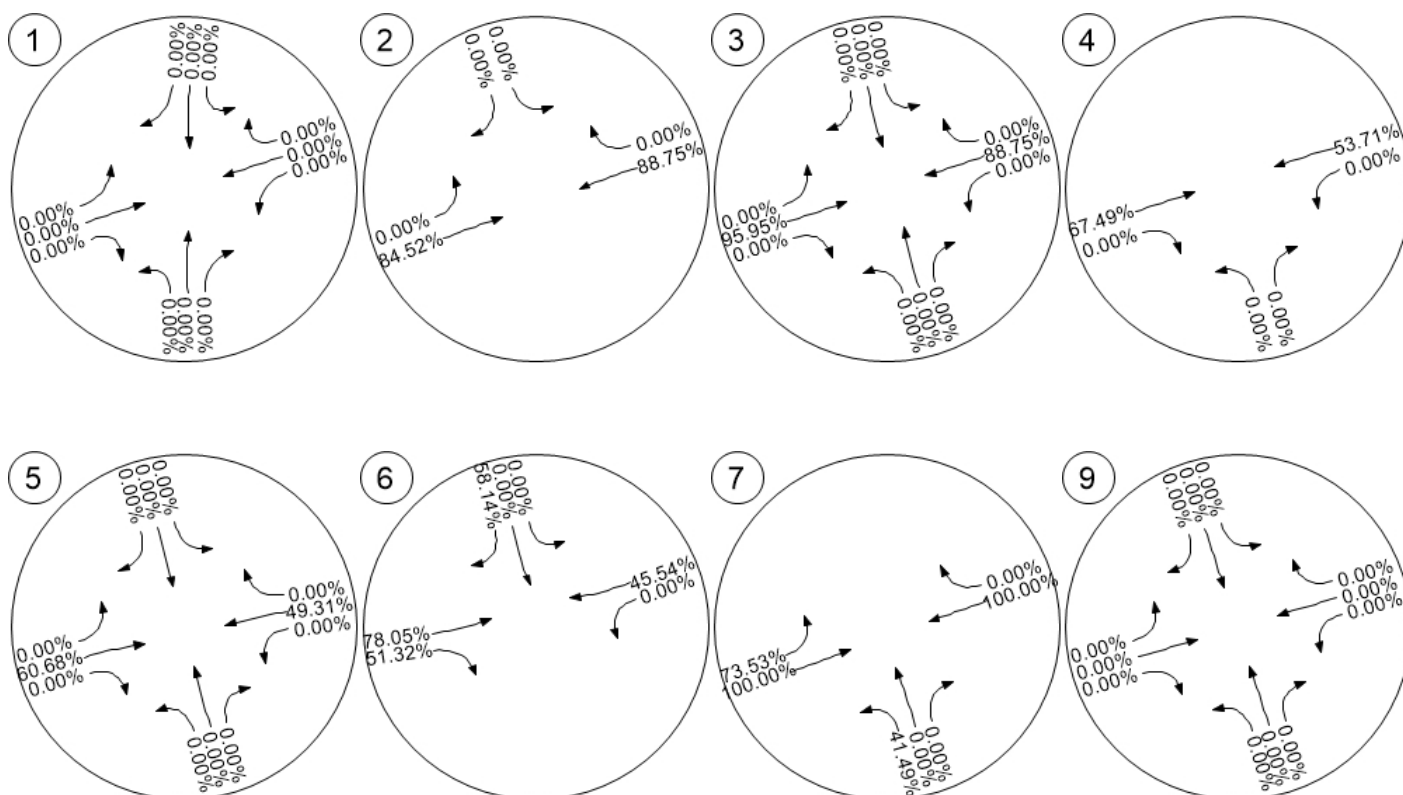




Fair Share - Fair Share % of Net New Site - Zone 21

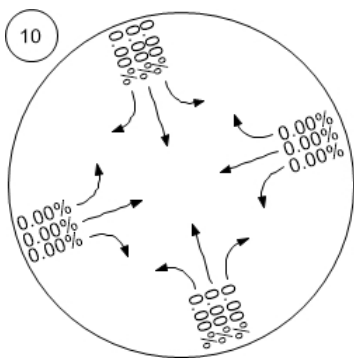


Fair Share - Fair Share % of Net New Site - Zone 22

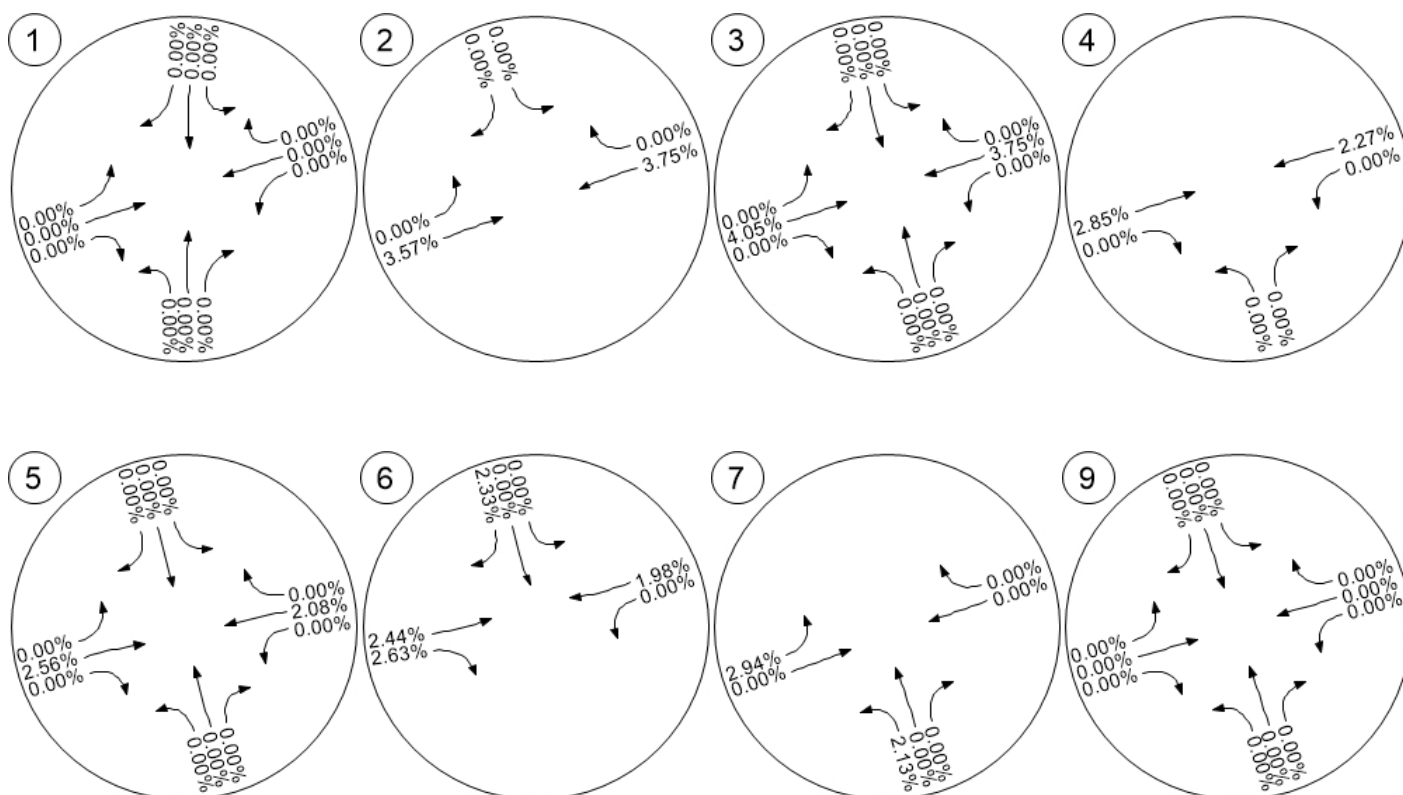




Fair Share - Fair Share % of Net New Site - Zone 22

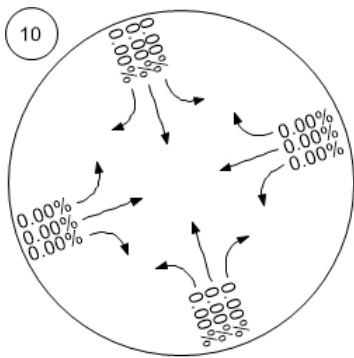


Fair Share - Fair Share % of Net New Site - Zone 23

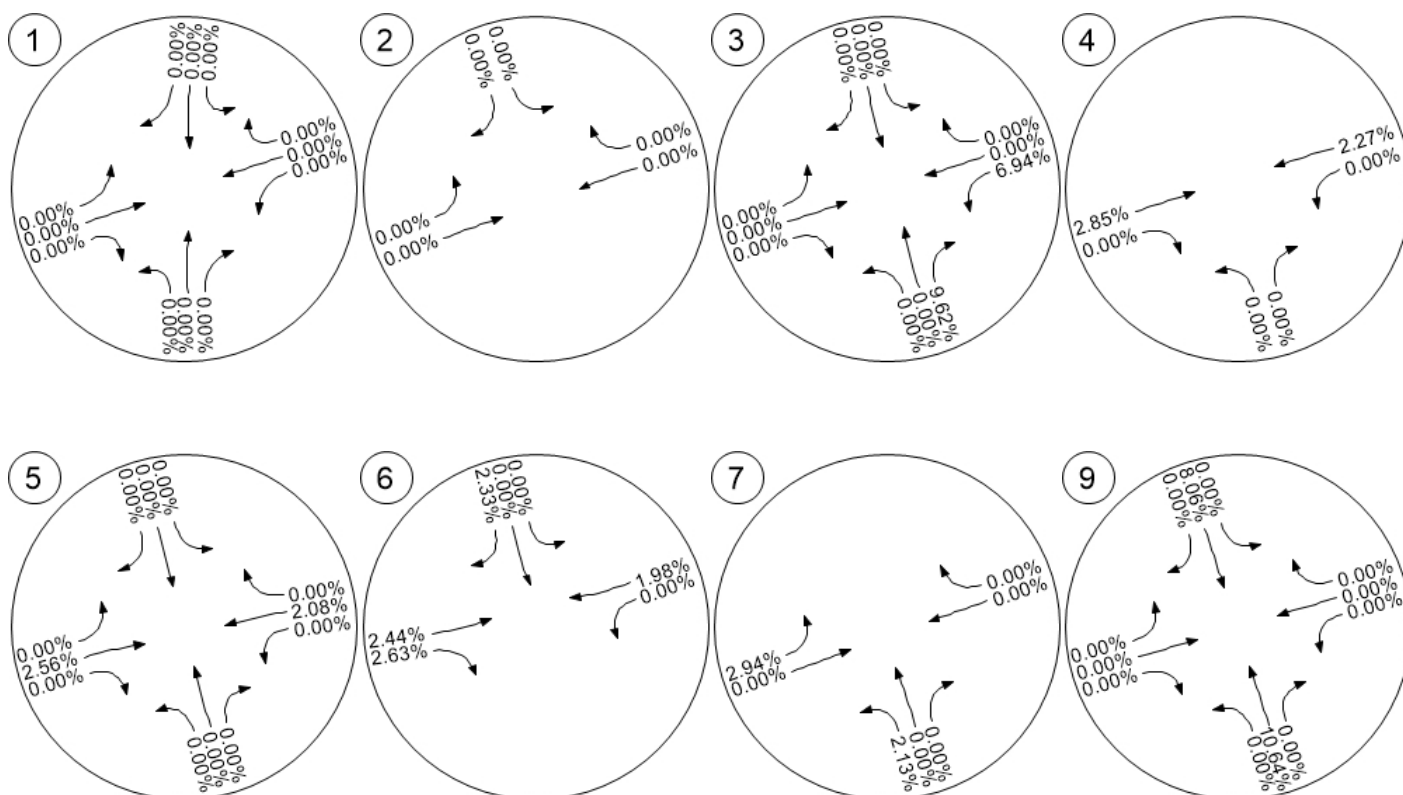




Fair Share - Fair Share % of Net New Site - Zone 23

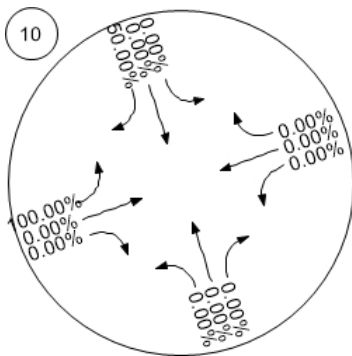


Fair Share - Fair Share % of Net New Site - Zone 24



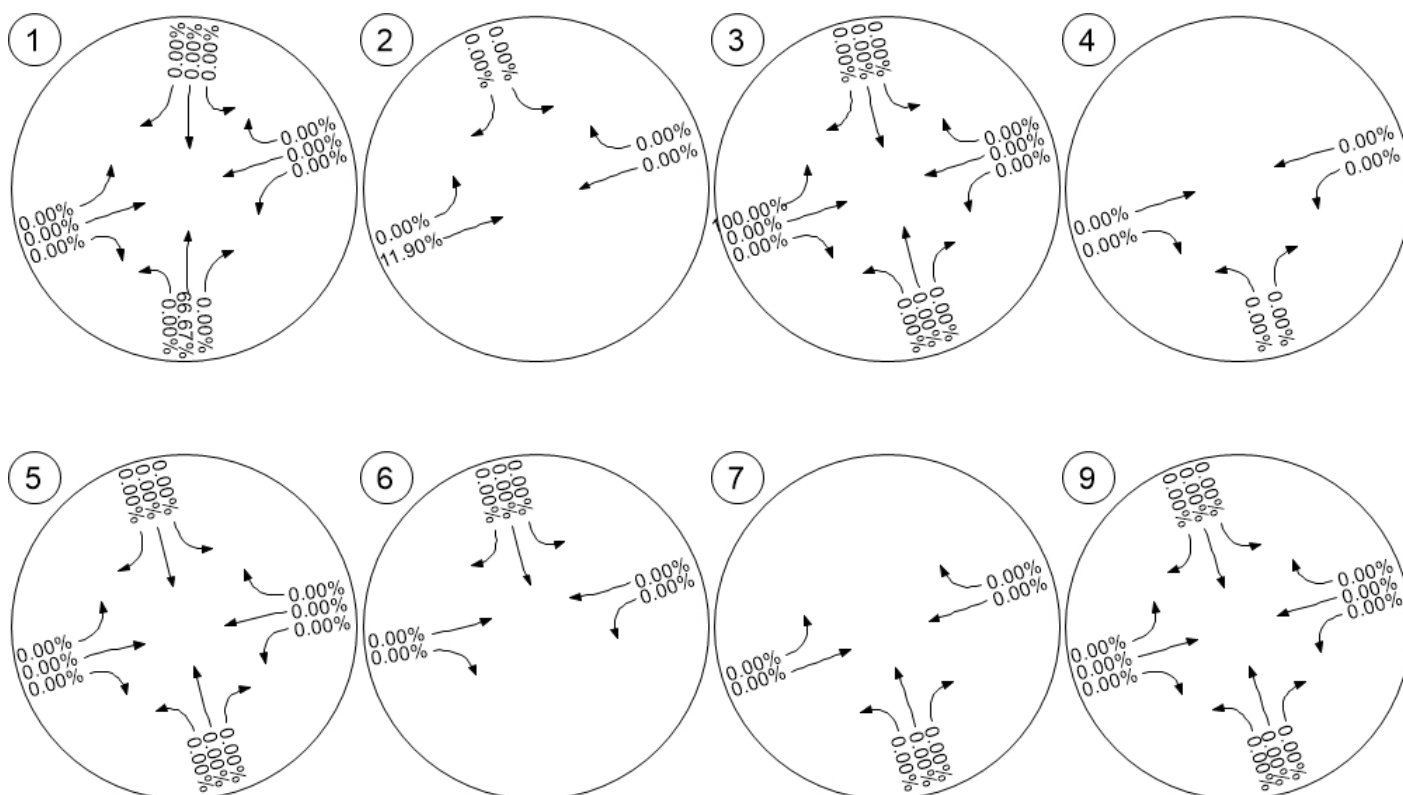


### Fair Share - Fair Share % of Net New Site - Zone 24

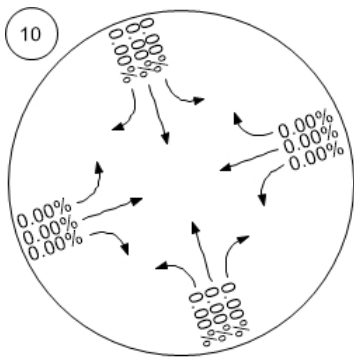




## Fair Share - Fair Share % of Net New Site - Zone 25

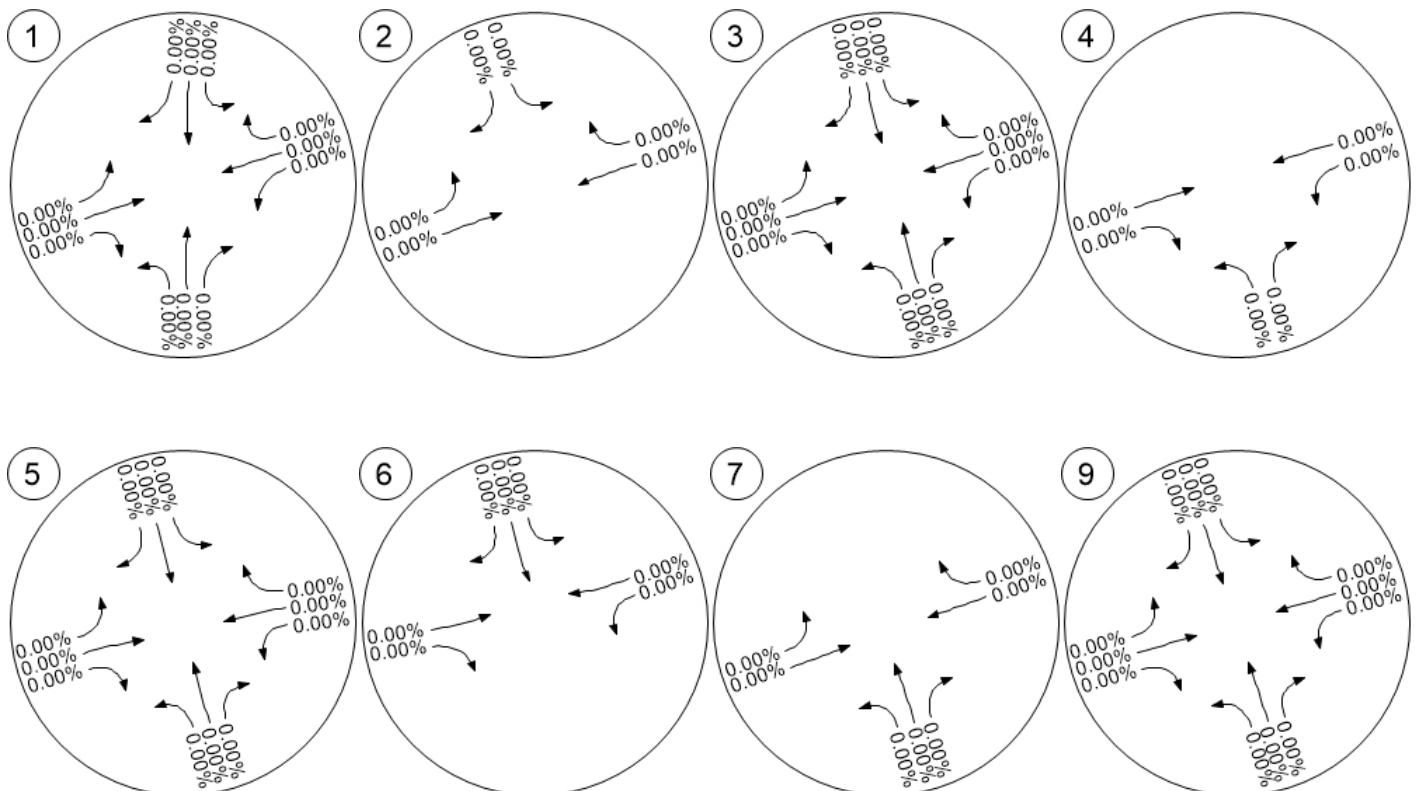


Fair Share - Fair Share % of Net New Site - Zone 25

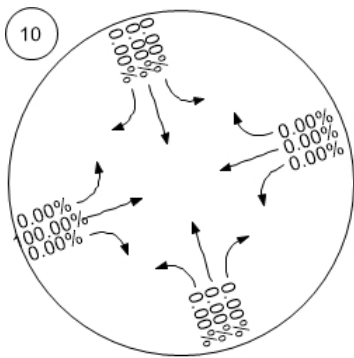




Fair Share - Fair Share % of Net New Site - Zone 26

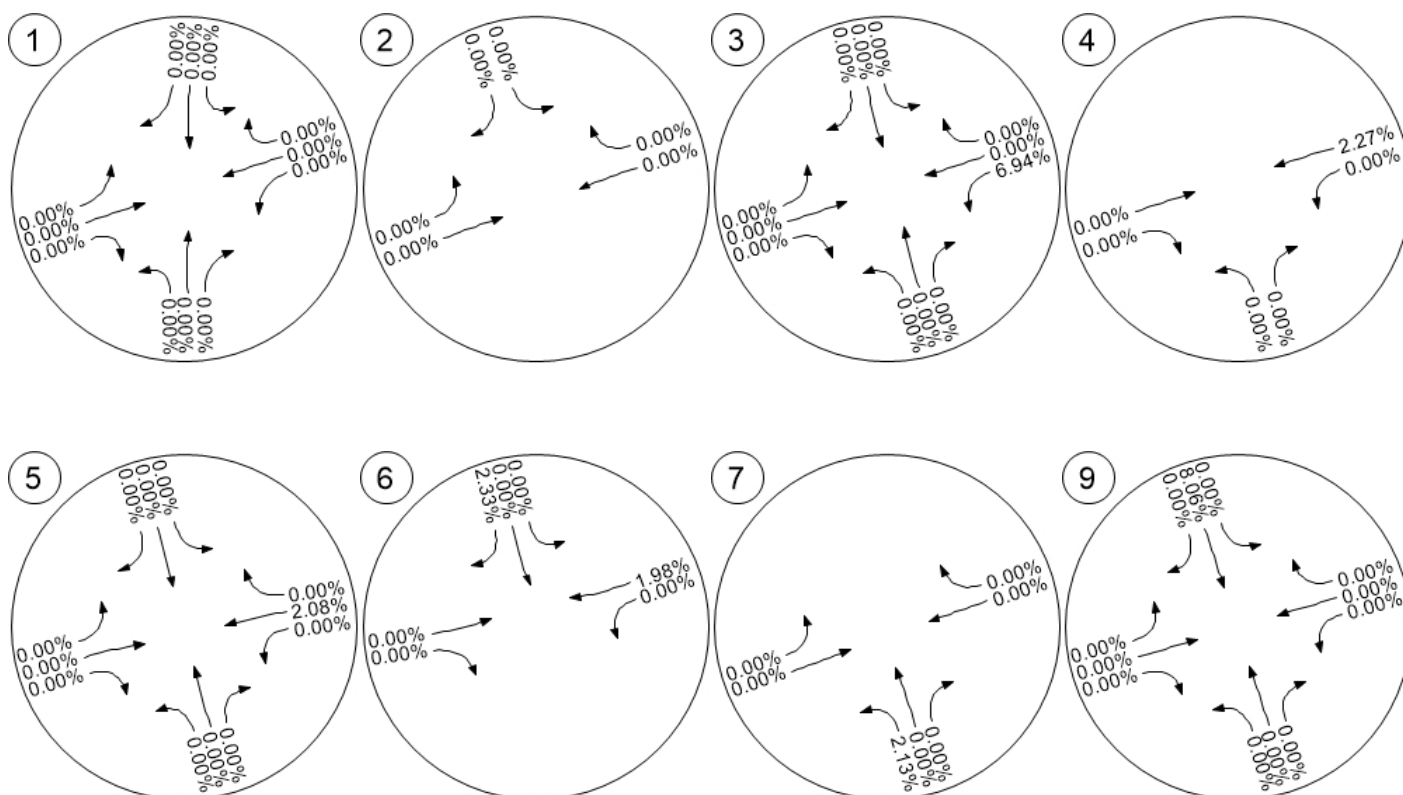


Fair Share - Fair Share % of Net New Site - Zone 26



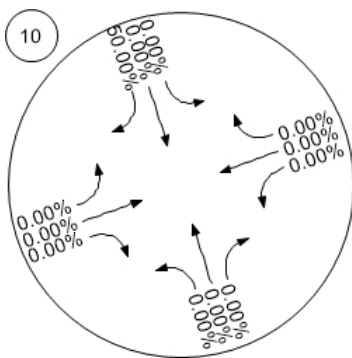


Fair Share - Fair Share % of Net New Site - Zone 27

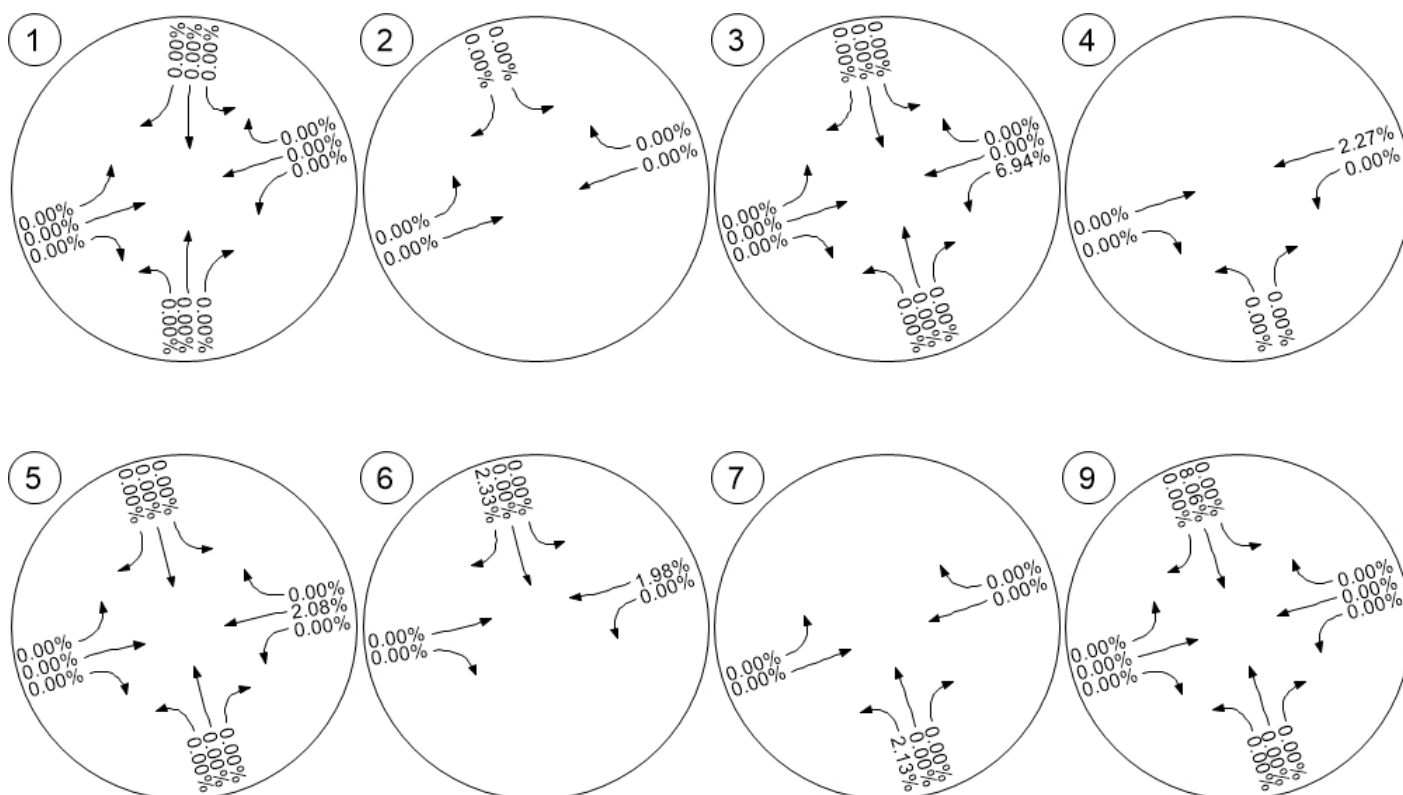




Fair Share - Fair Share % of Net New Site - Zone 27

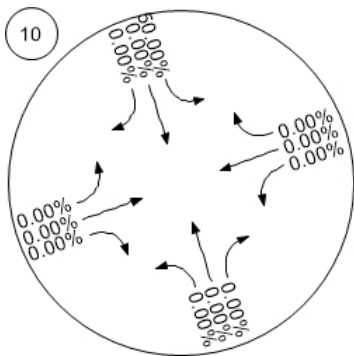


Fair Share - Fair Share % of Net New Site - Zone 28

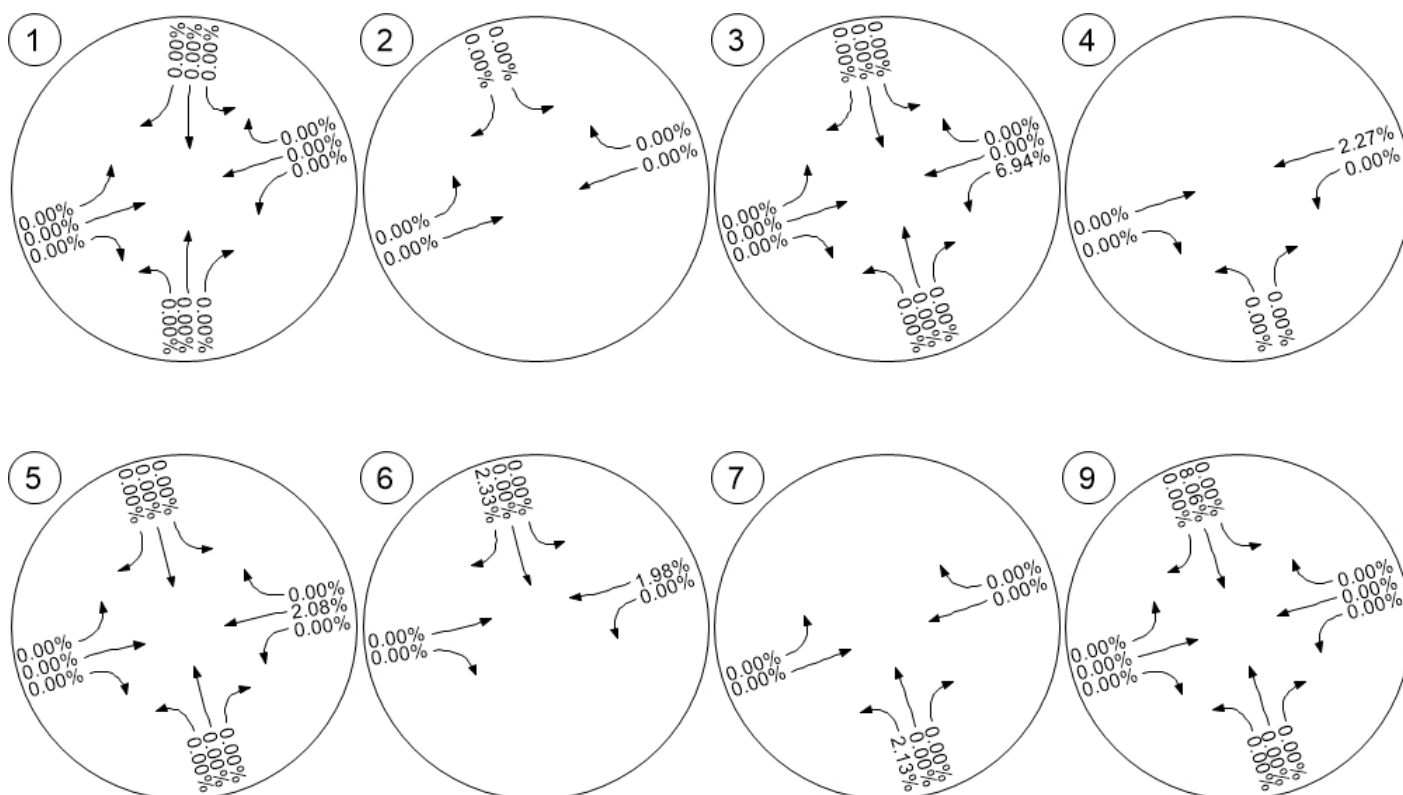




Fair Share - Fair Share % of Net New Site - Zone 28

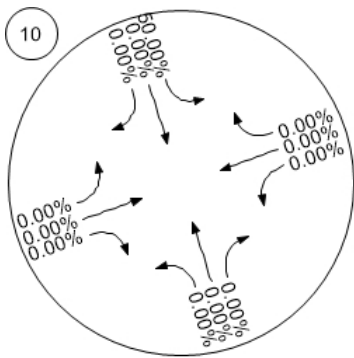


Fair Share - Fair Share % of Net New Site - Zone 29



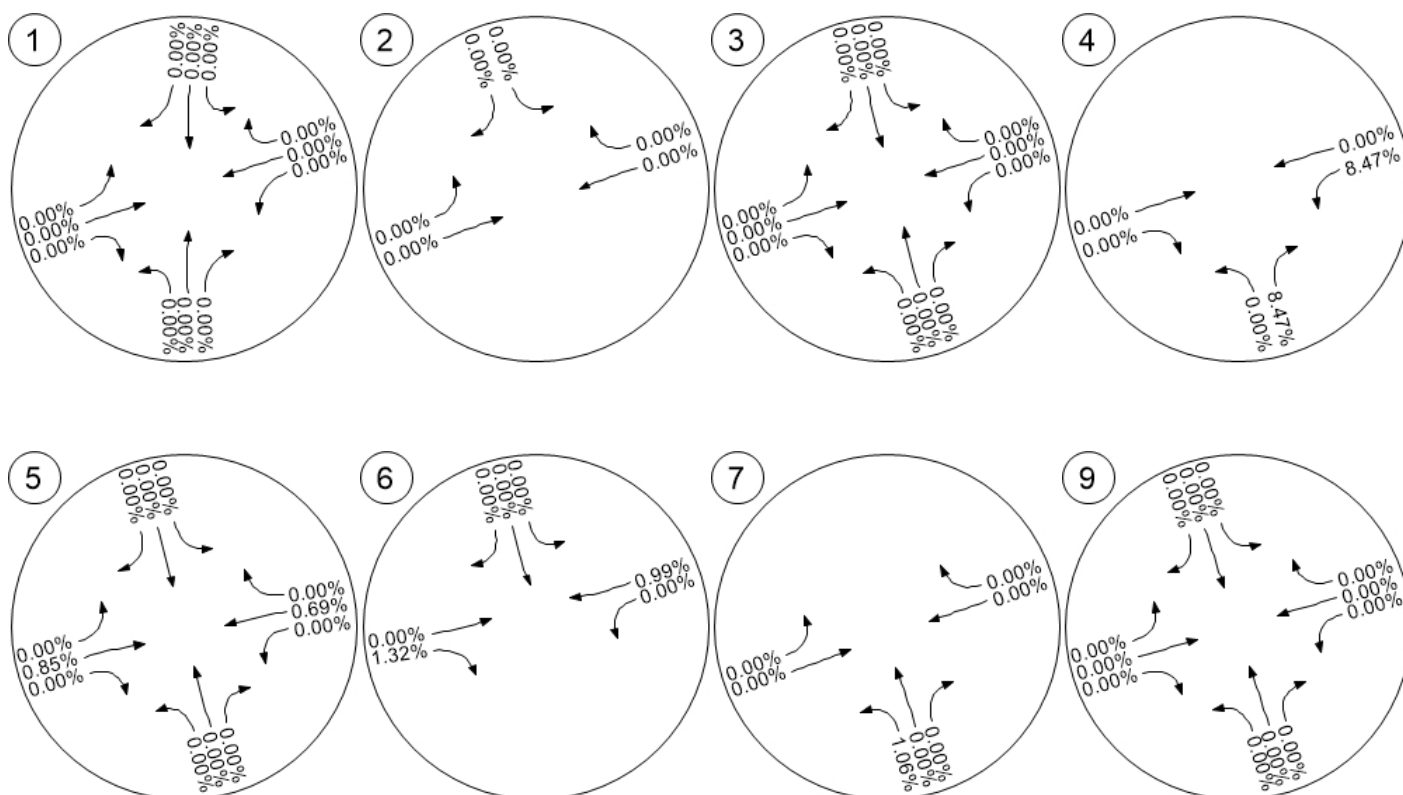


Fair Share - Fair Share % of Net New Site - Zone 29





Fair Share - Fair Share % of Net New Site - Zone 30

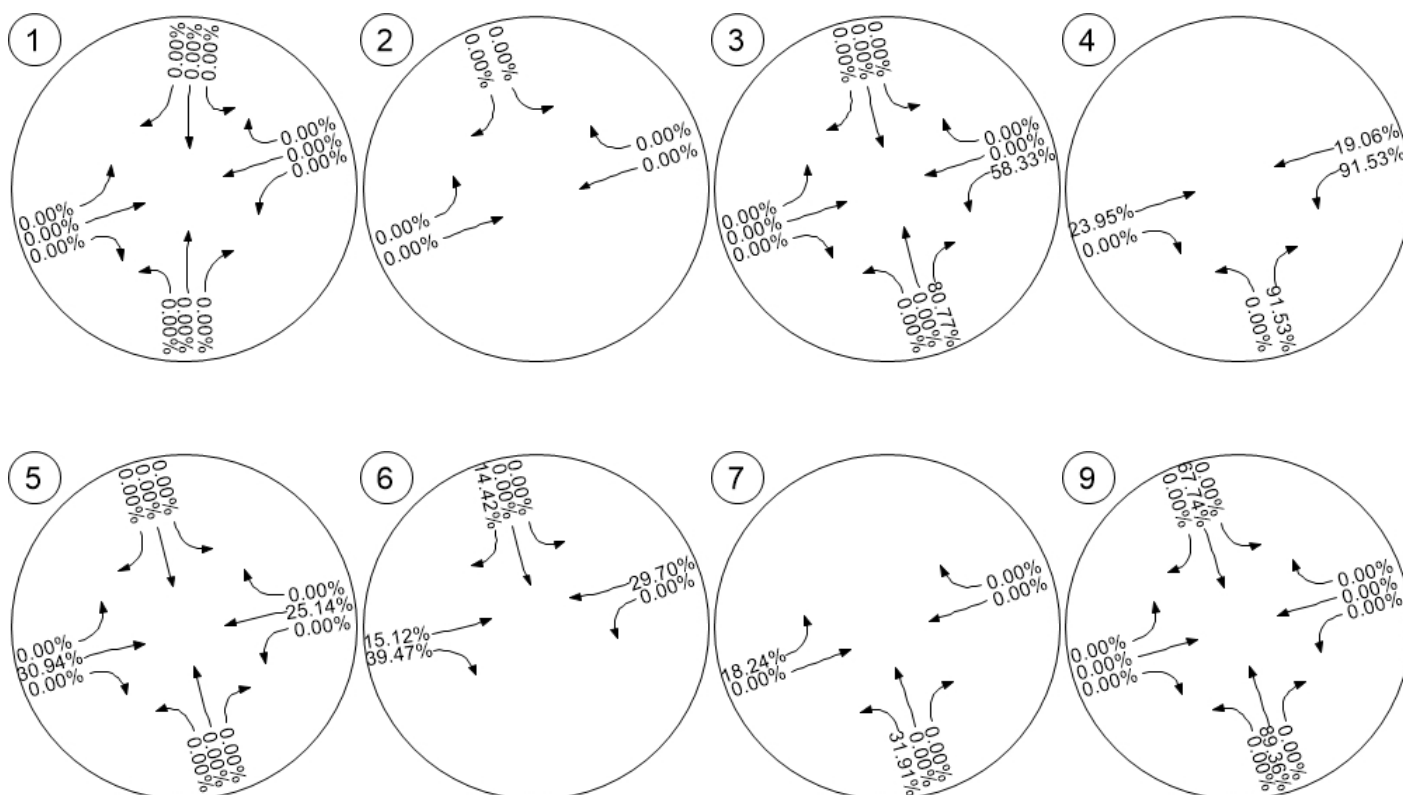


Fair Share - Fair Share % of Net New Site - Zone 30

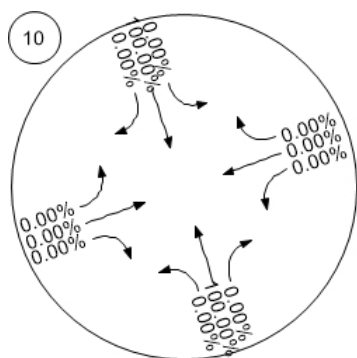
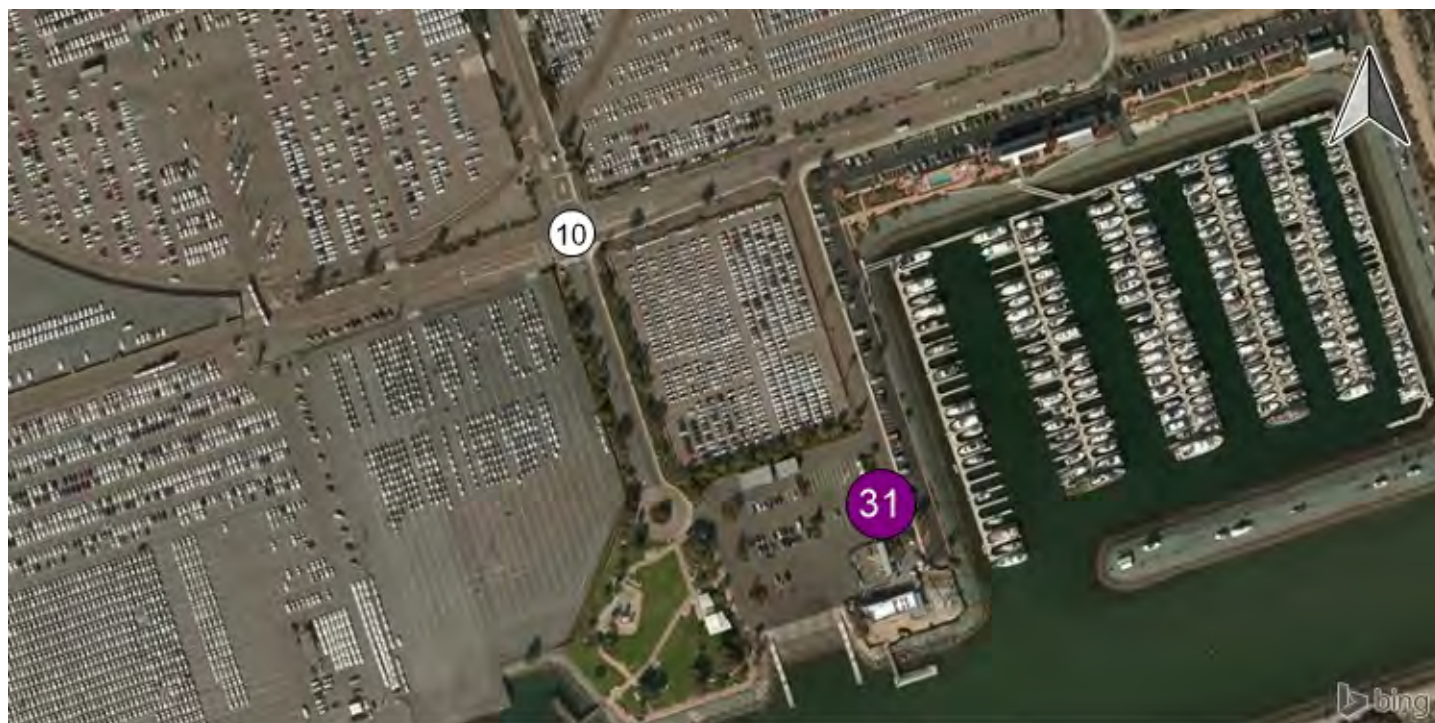




Fair Share - Fair Share % of Net New Site - Zone 31

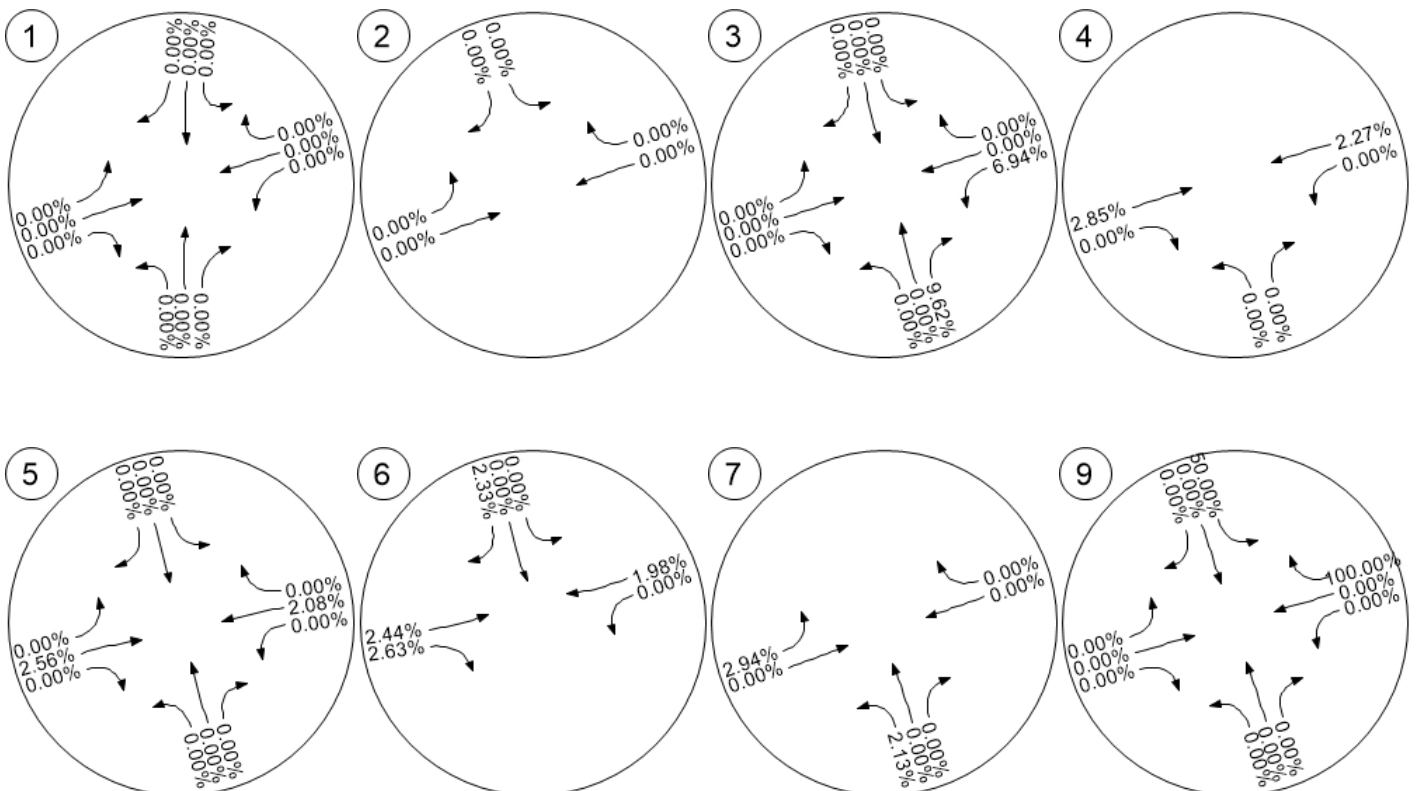


## Fair Share - Fair Share % of Net New Site - Zone 31



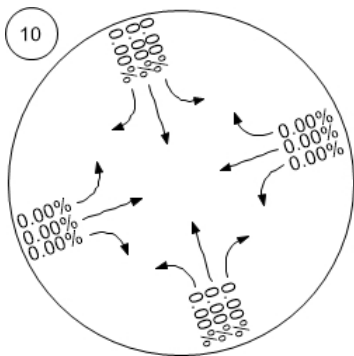


Fair Share - Fair Share % of Net New Site - Zone 32

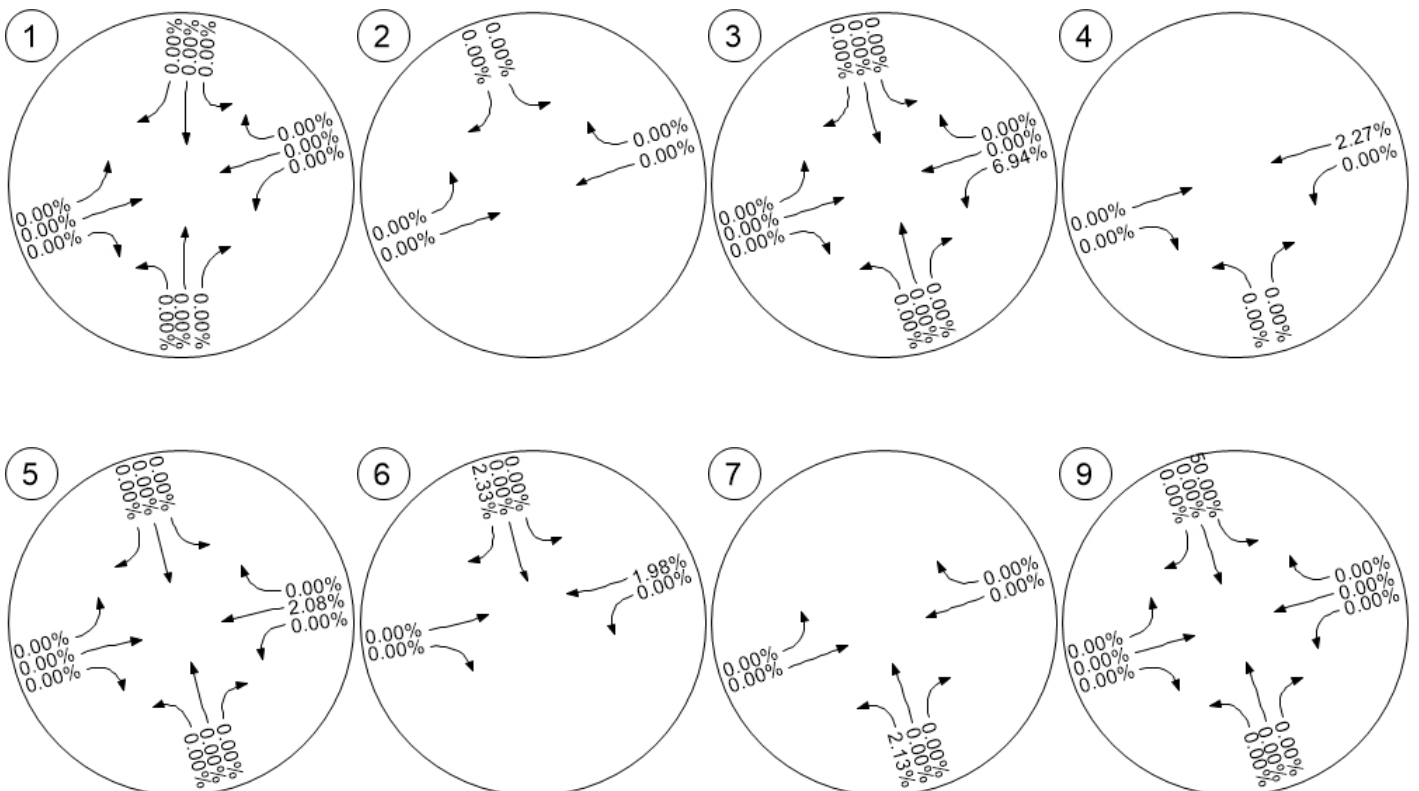




Fair Share - Fair Share % of Net New Site - Zone 32

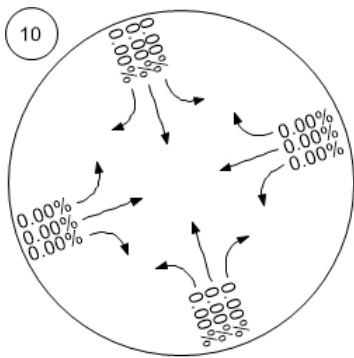


Fair Share - Fair Share % of Net New Site - Zone 33

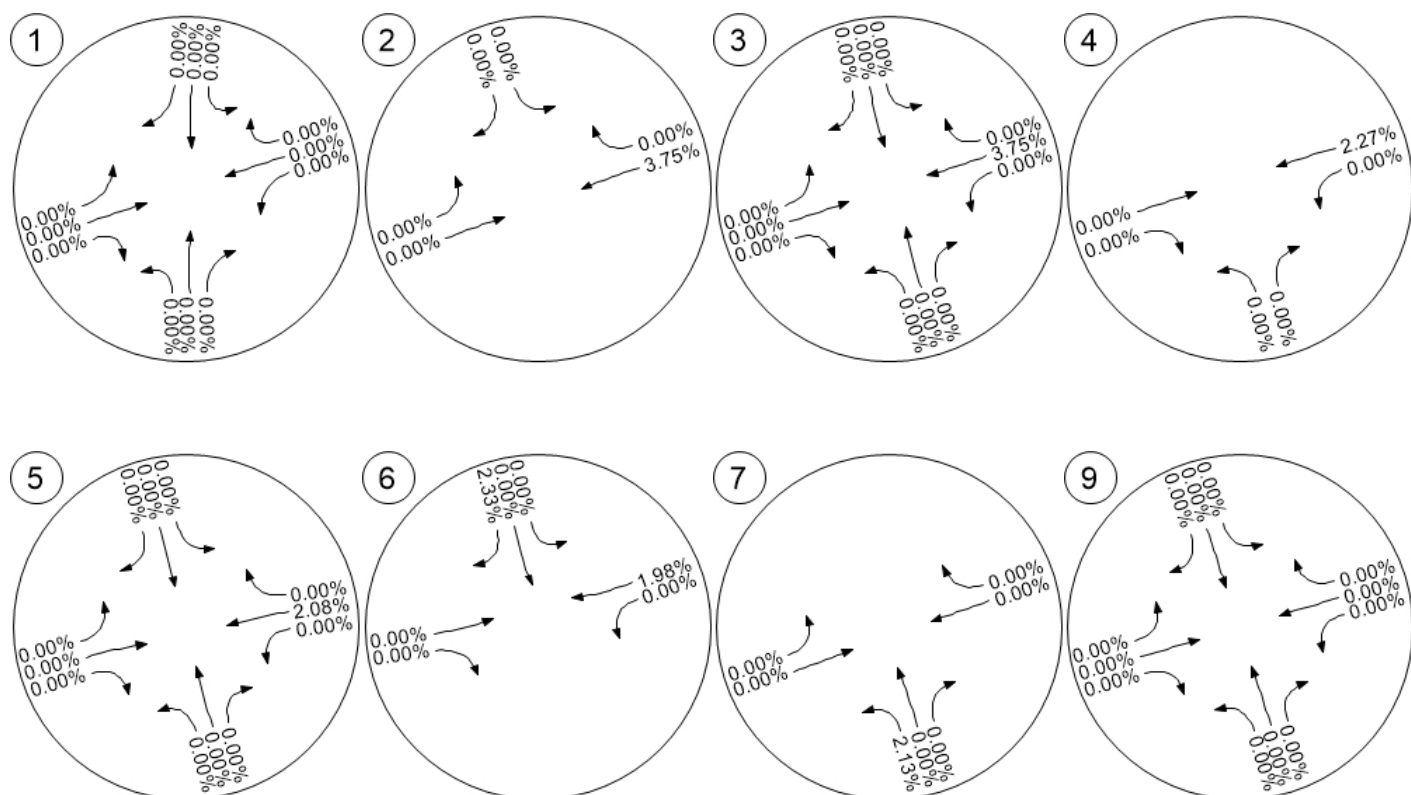




Fair Share - Fair Share % of Net New Site - Zone 33

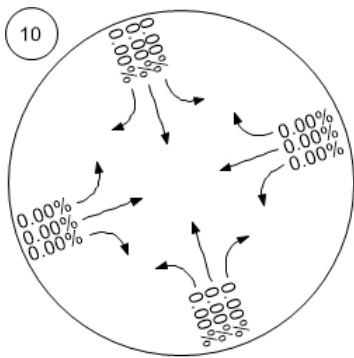


## Fair Share - Fair Share % of Net New Site - Zone 34



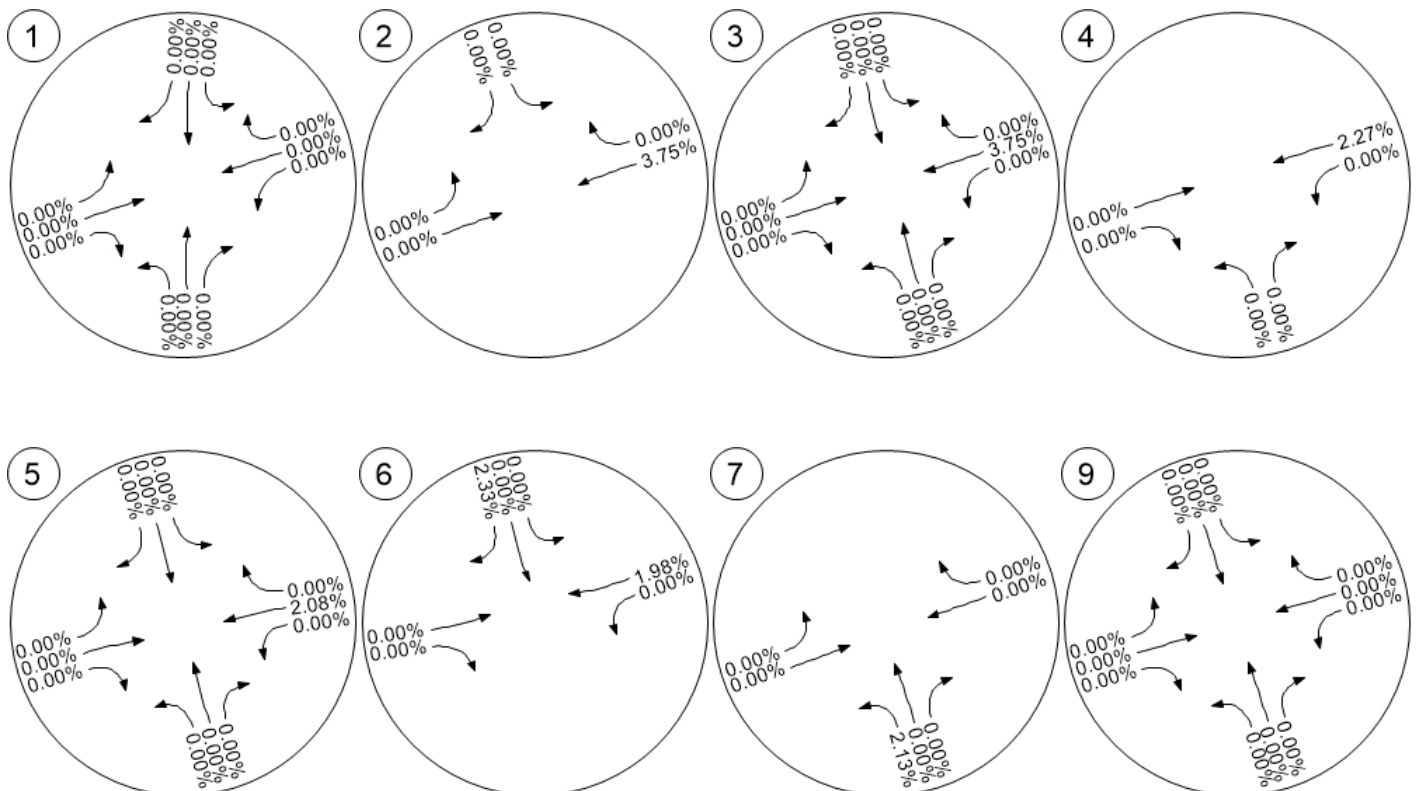


Fair Share - Fair Share % of Net New Site - Zone 34

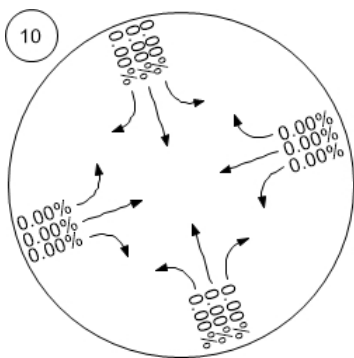




Fair Share - Fair Share % of Net New Site - Zone 35

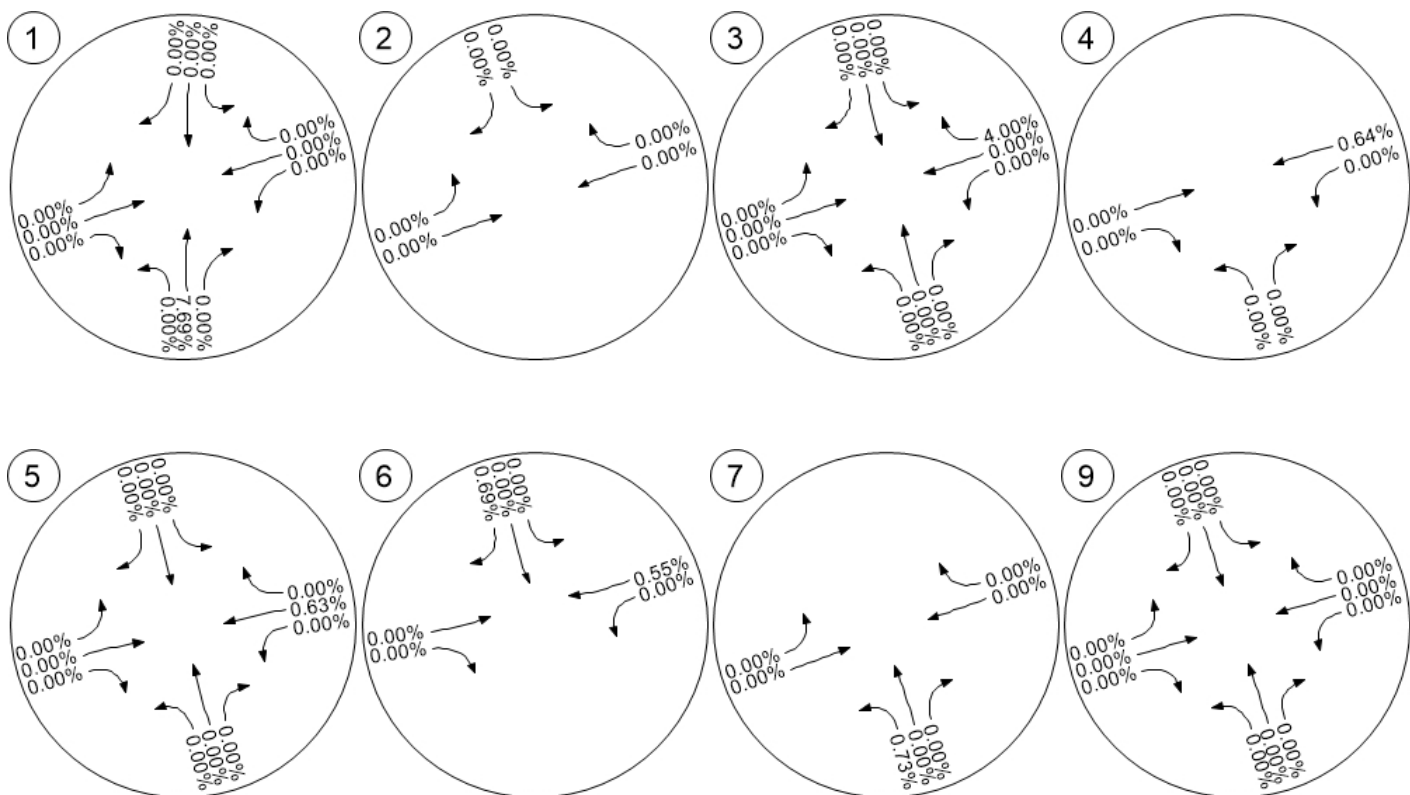


Fair Share - Fair Share % of Net New Site - Zone 35





## Fair Share - Fair Share % of Total Analysis - Zone 18

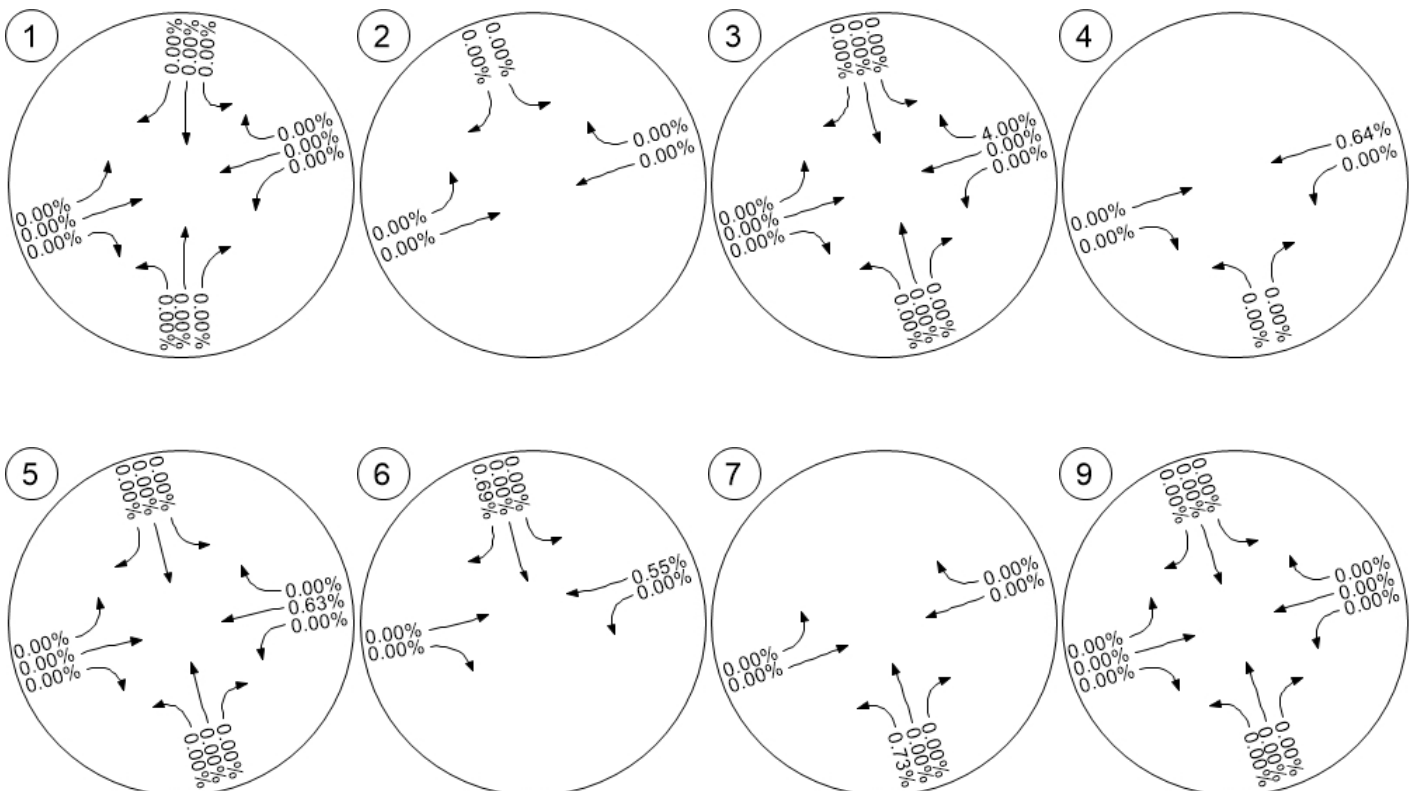


Fair Share - Fair Share % of Total Analysis - Zone 18



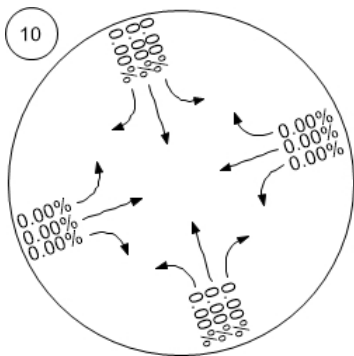


Fair Share - Fair Share % of Total Analysis - Zone 19

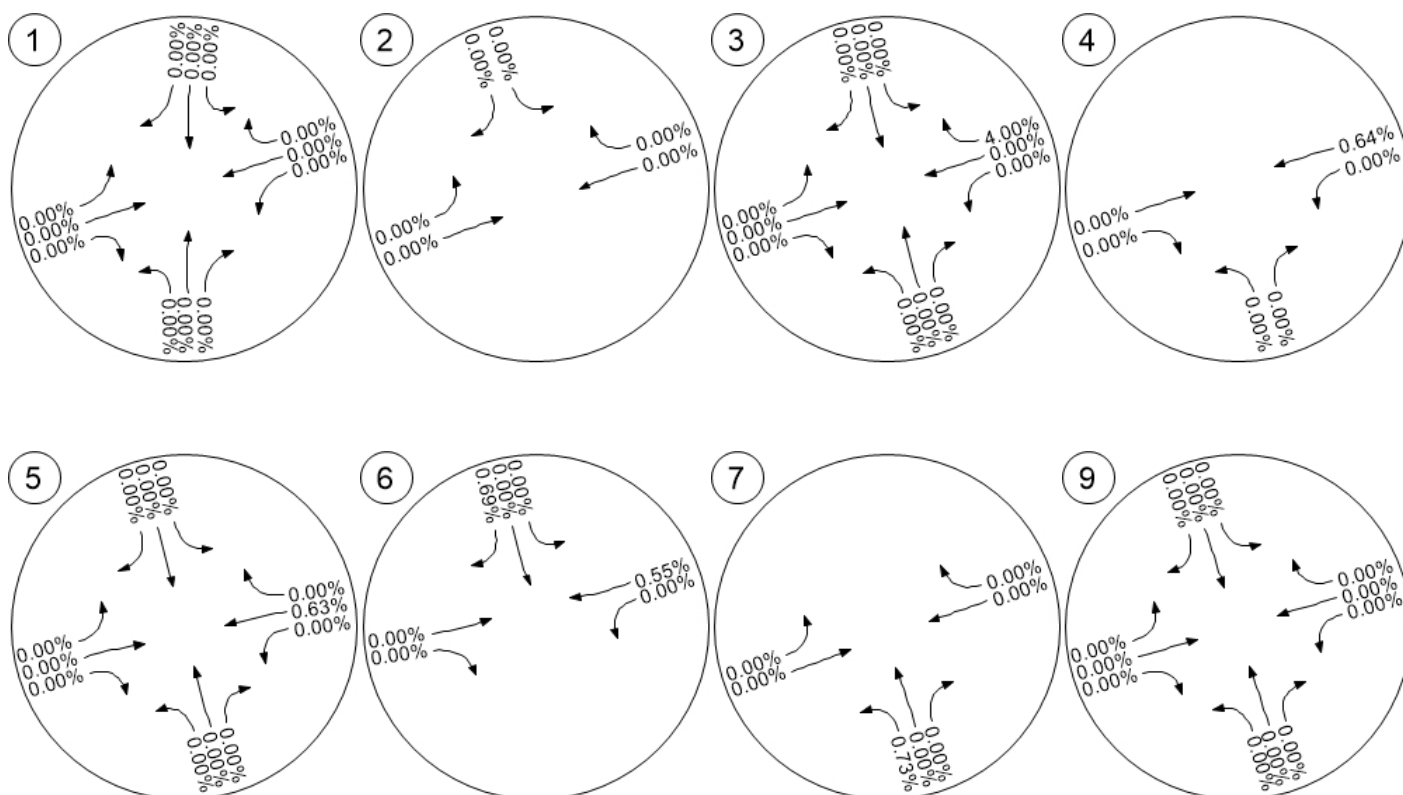




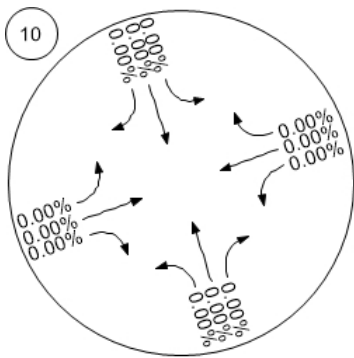
Fair Share - Fair Share % of Total Analysis - Zone 19



Fair Share - Fair Share % of Total Analysis - Zone 20

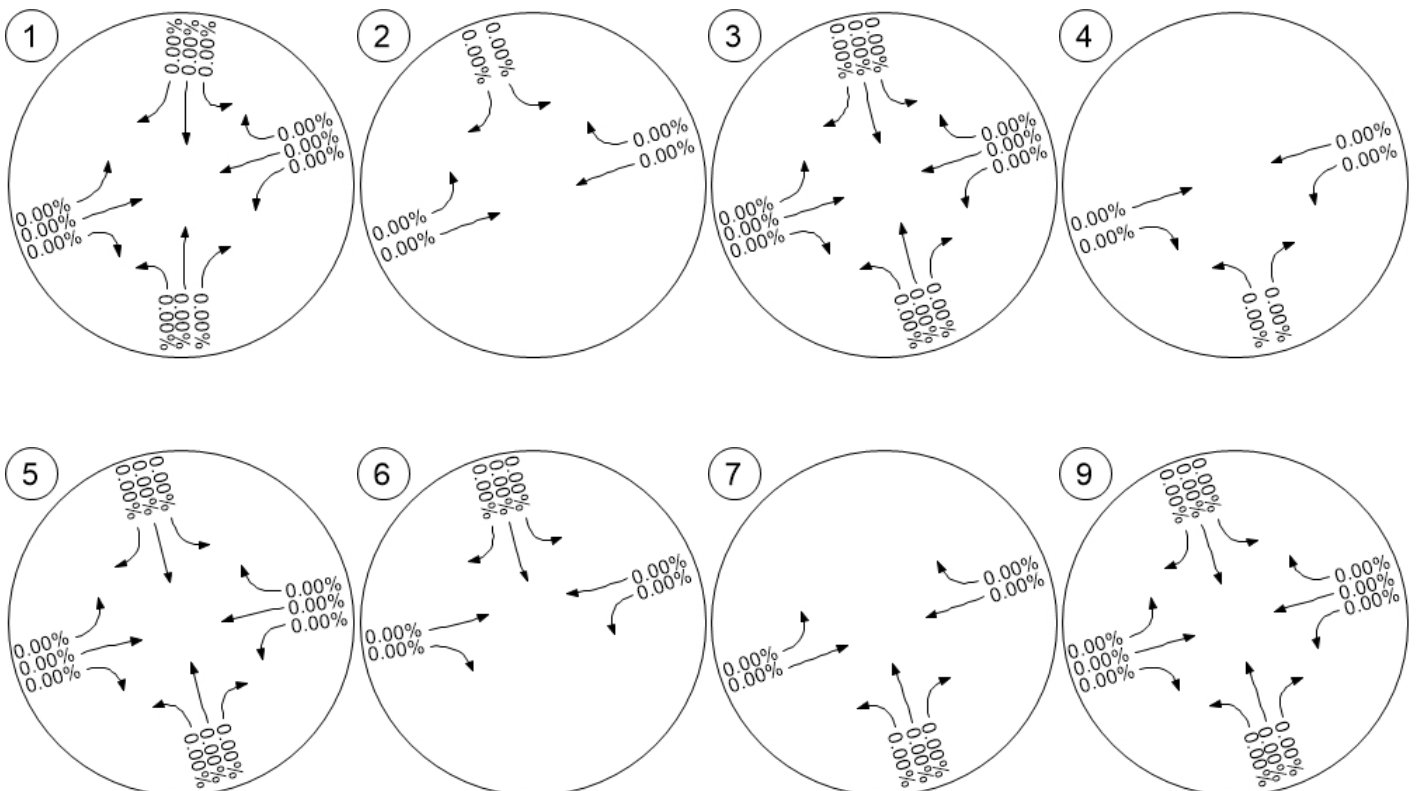


Fair Share - Fair Share % of Total Analysis - Zone 20

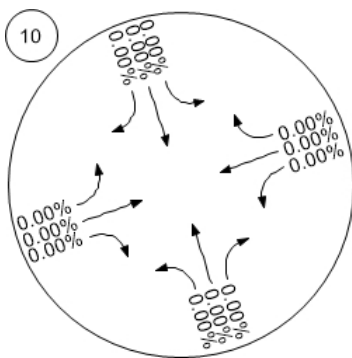
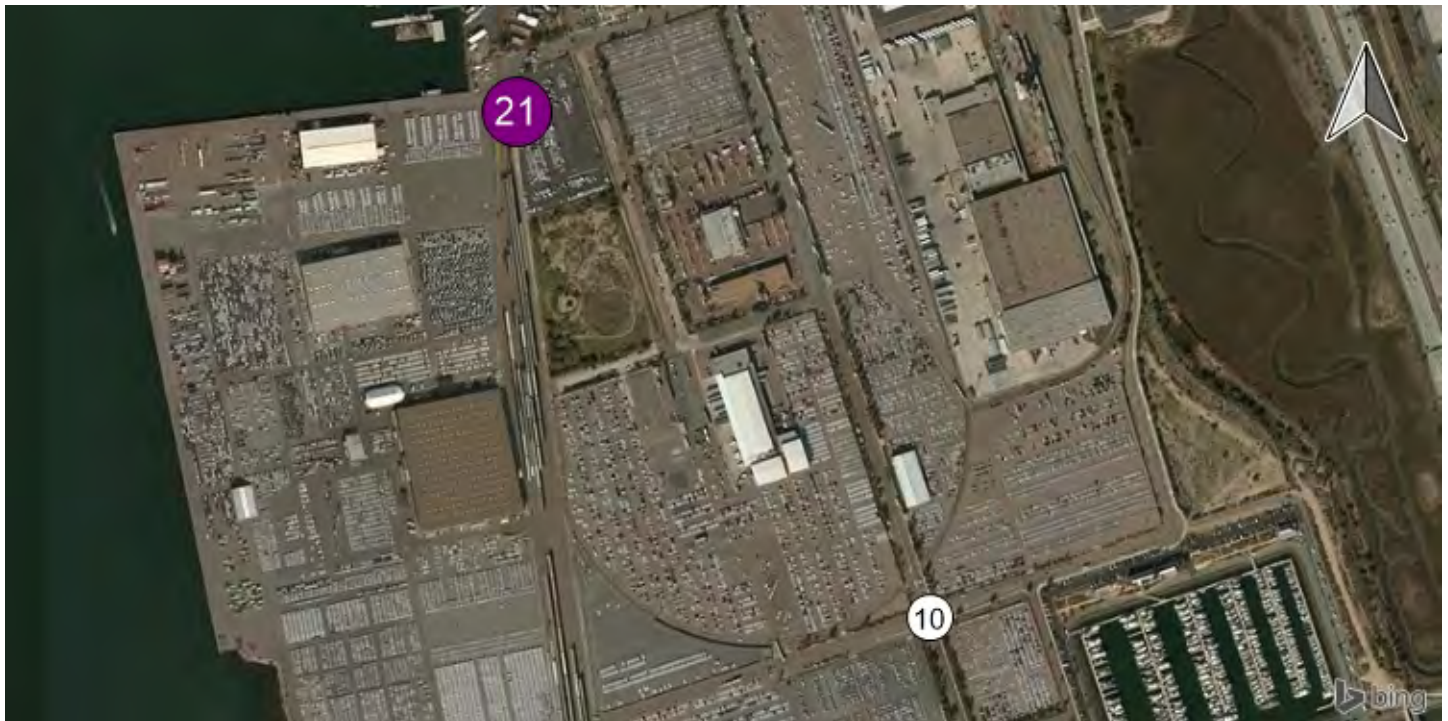




Fair Share - Fair Share % of Total Analysis - Zone 21

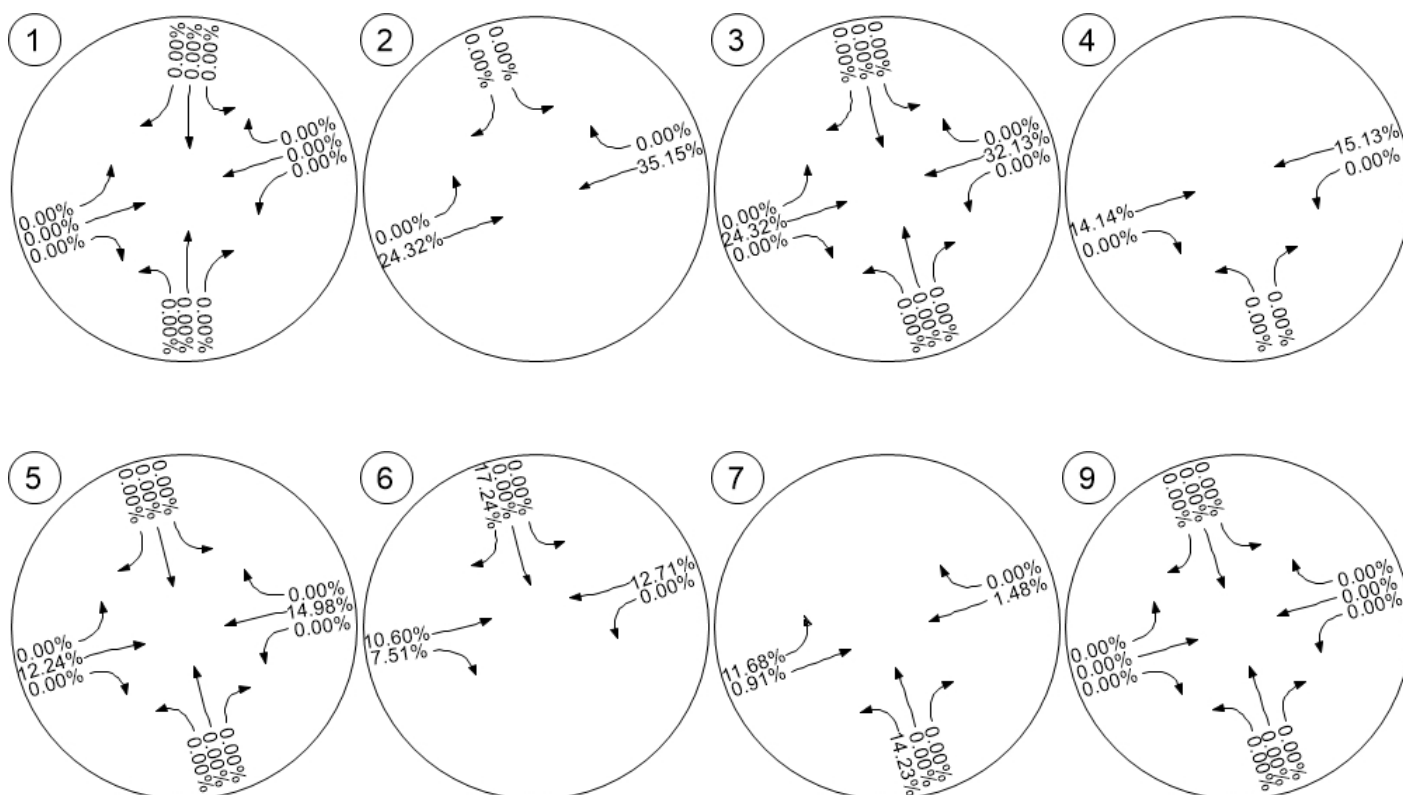


Fair Share - Fair Share % of Total Analysis - Zone 21

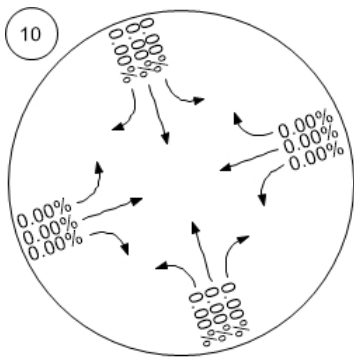




Fair Share - Fair Share % of Total Analysis - Zone 22

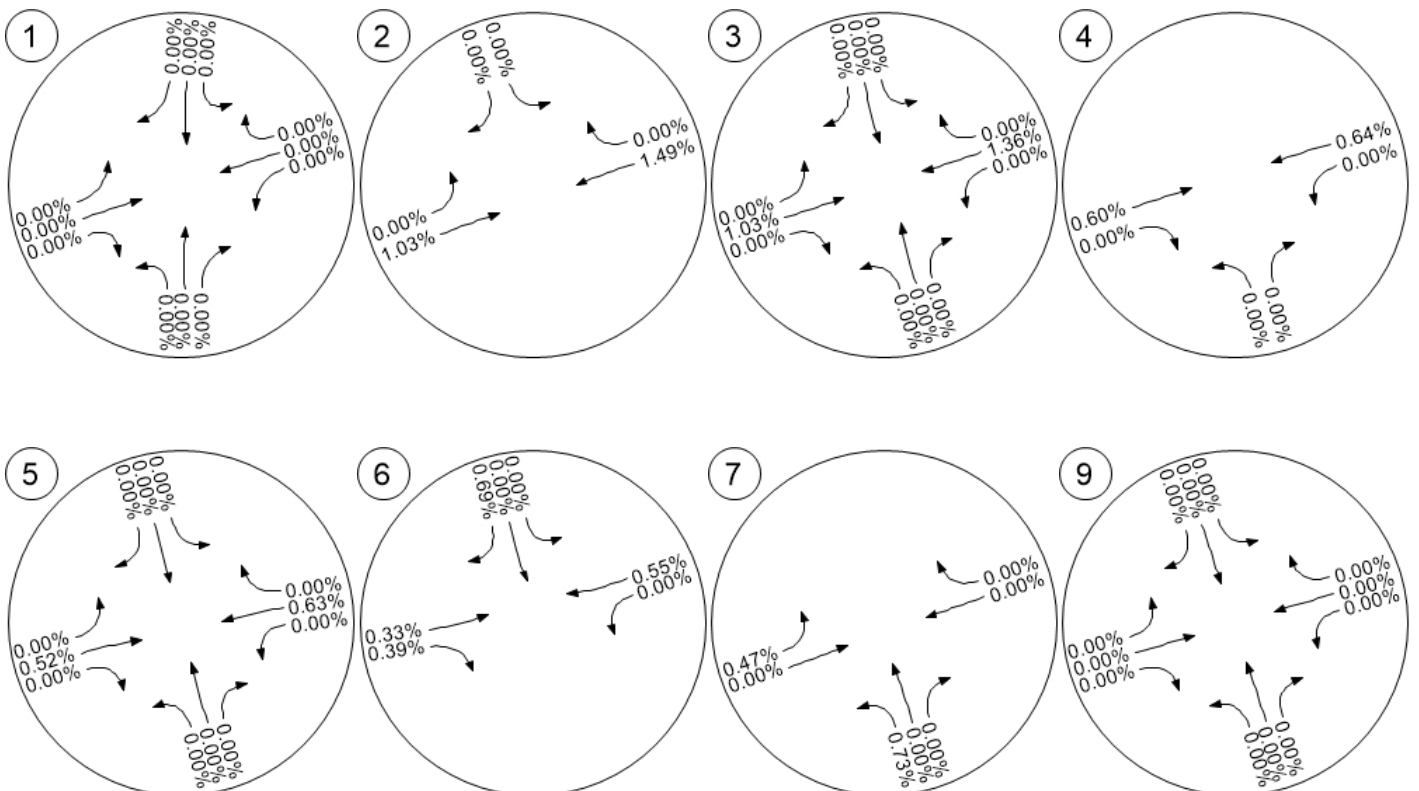


Fair Share - Fair Share % of Total Analysis - Zone 22

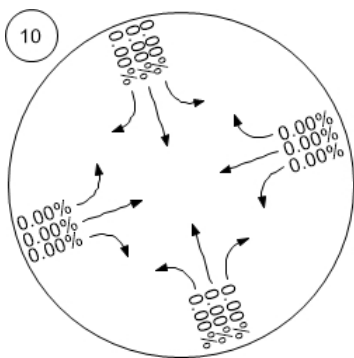




Fair Share - Fair Share % of Total Analysis - Zone 23

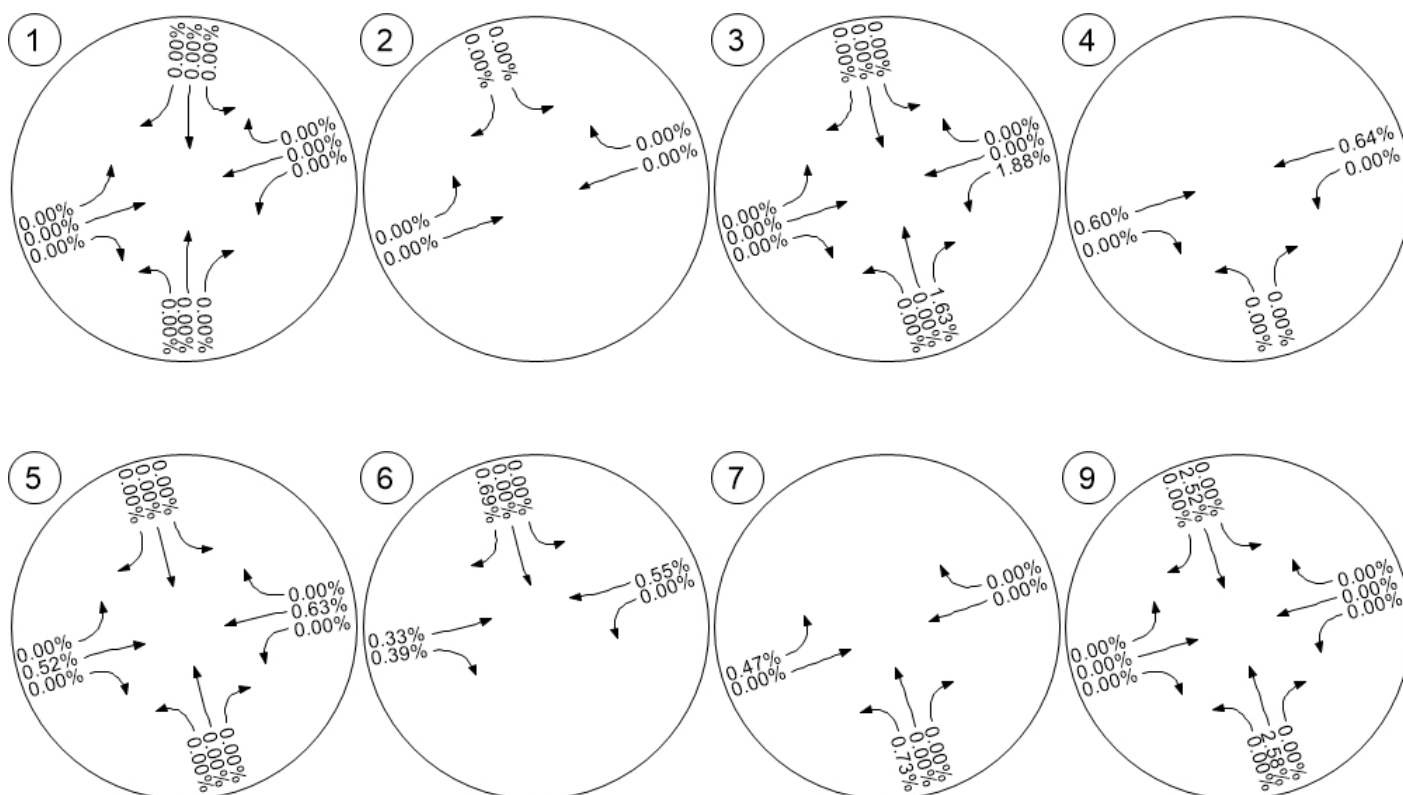


Fair Share - Fair Share % of Total Analysis - Zone 23



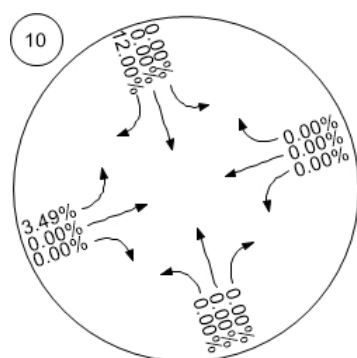


Fair Share - Fair Share % of Total Analysis - Zone 24

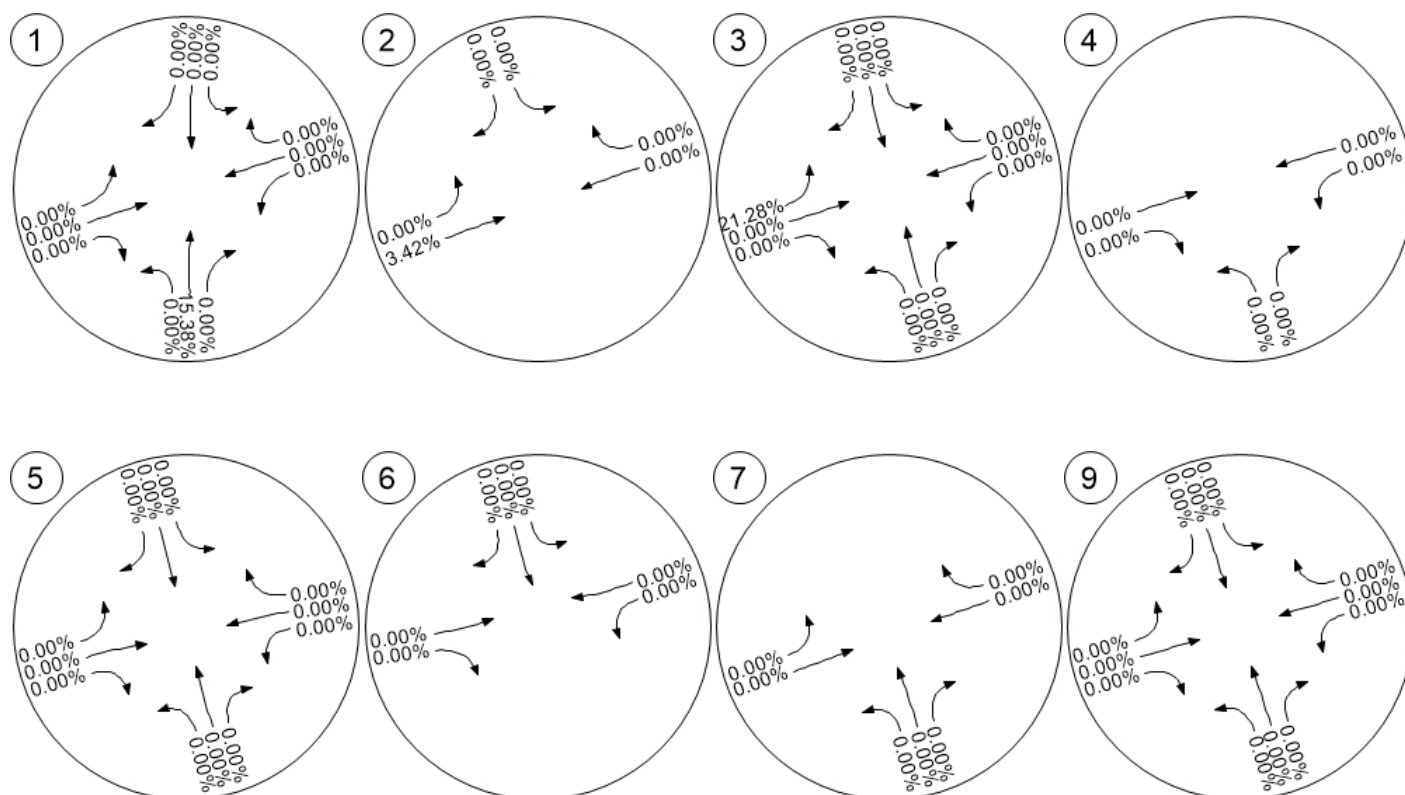




## Fair Share - Fair Share % of Total Analysis - Zone 24

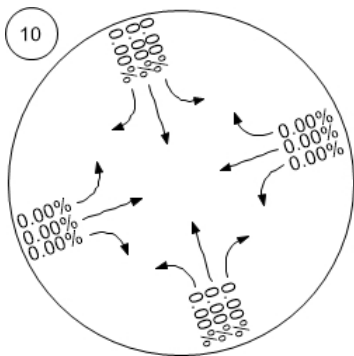


## Fair Share - Fair Share % of Total Analysis - Zone 25

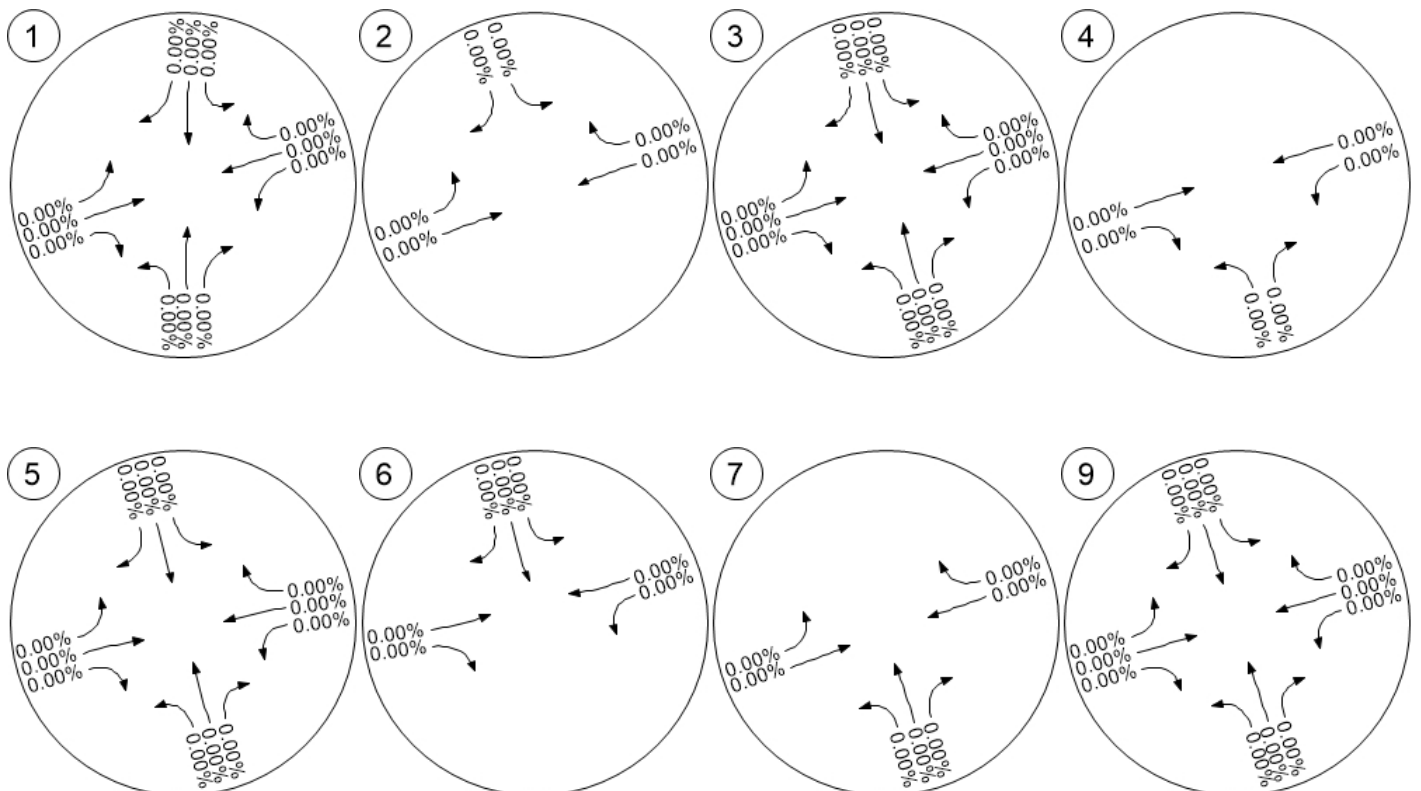




Fair Share - Fair Share % of Total Analysis - Zone 25

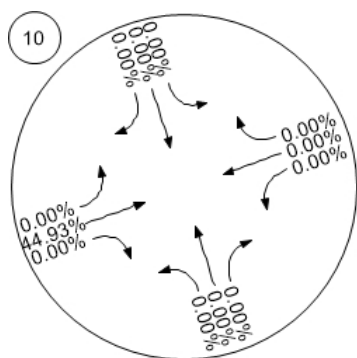


Fair Share - Fair Share % of Total Analysis - Zone 26



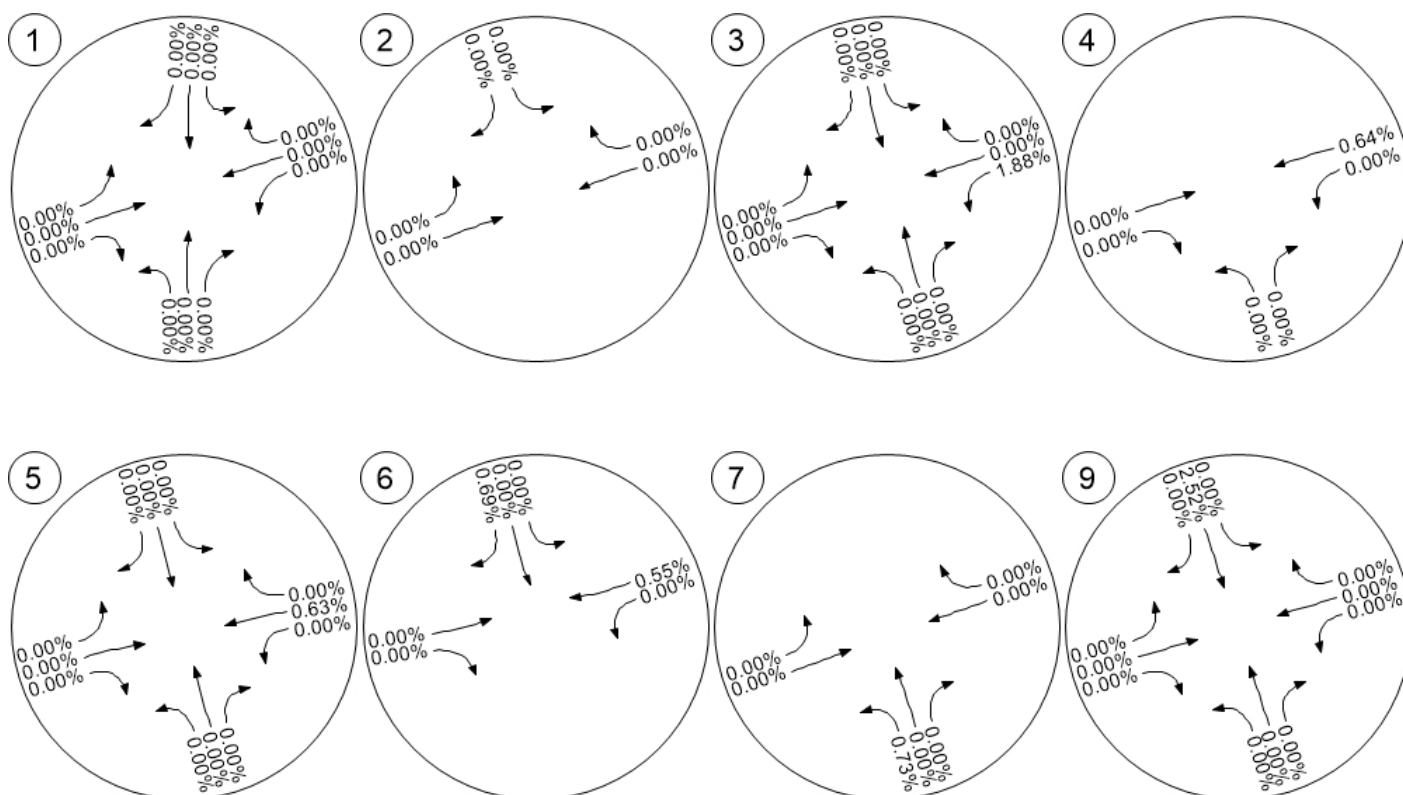


## Fair Share - Fair Share % of Total Analysis - Zone 26

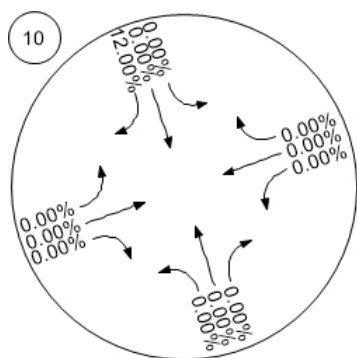




Fair Share - Fair Share % of Total Analysis - Zone 27

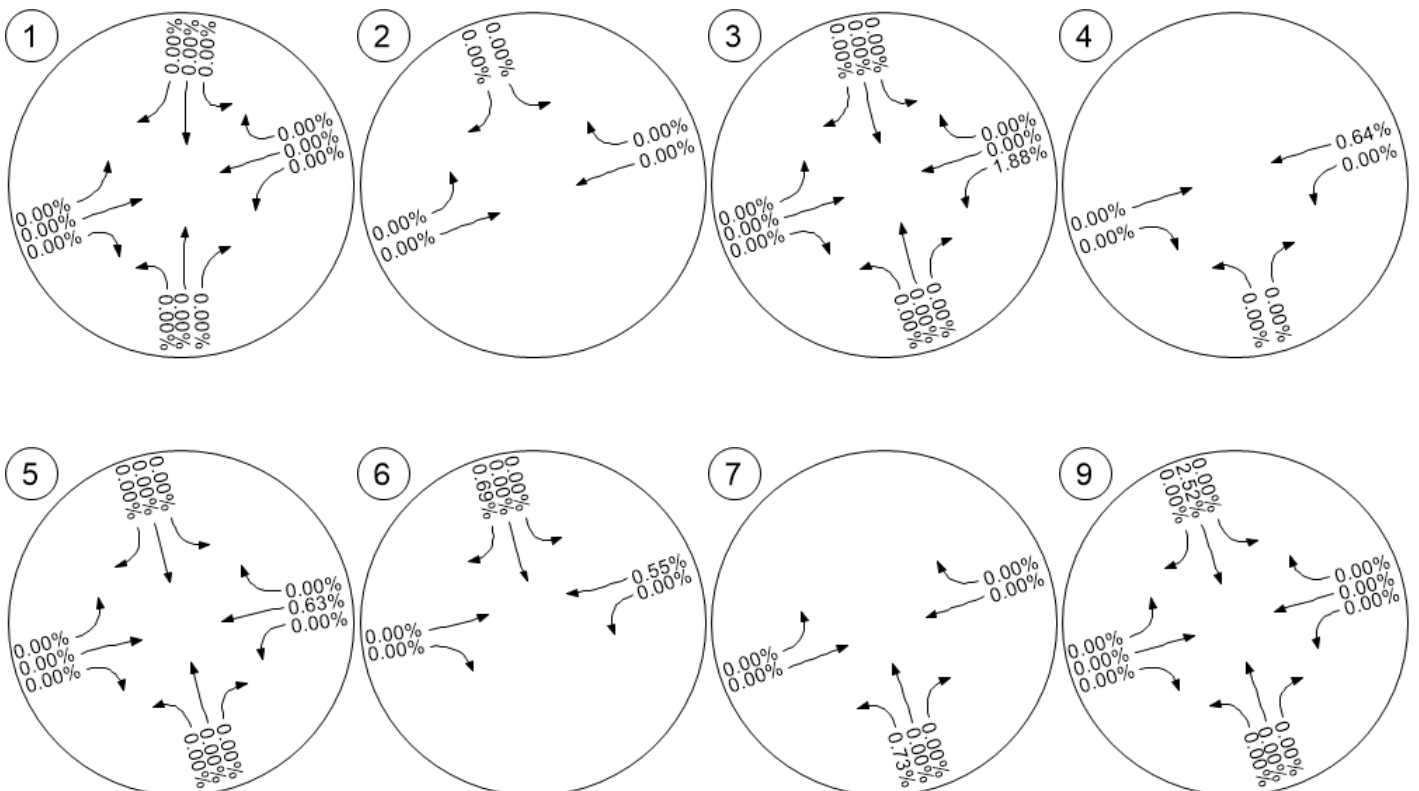


## Fair Share - Fair Share % of Total Analysis - Zone 27

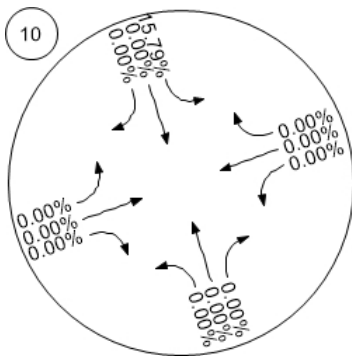




Fair Share - Fair Share % of Total Analysis - Zone 28

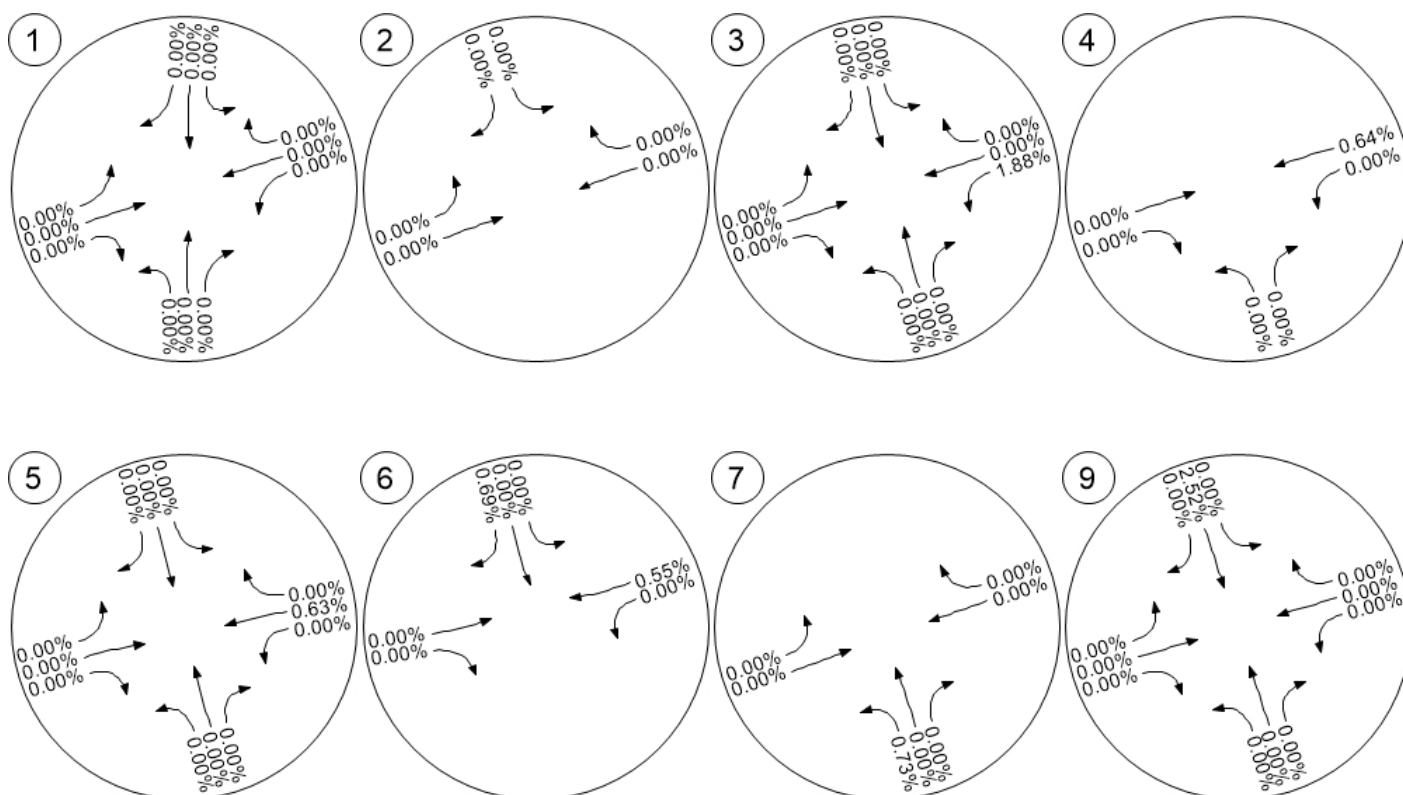


Fair Share - Fair Share % of Total Analysis - Zone 28



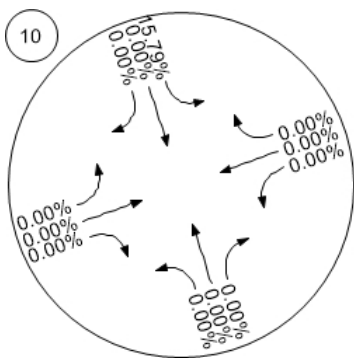
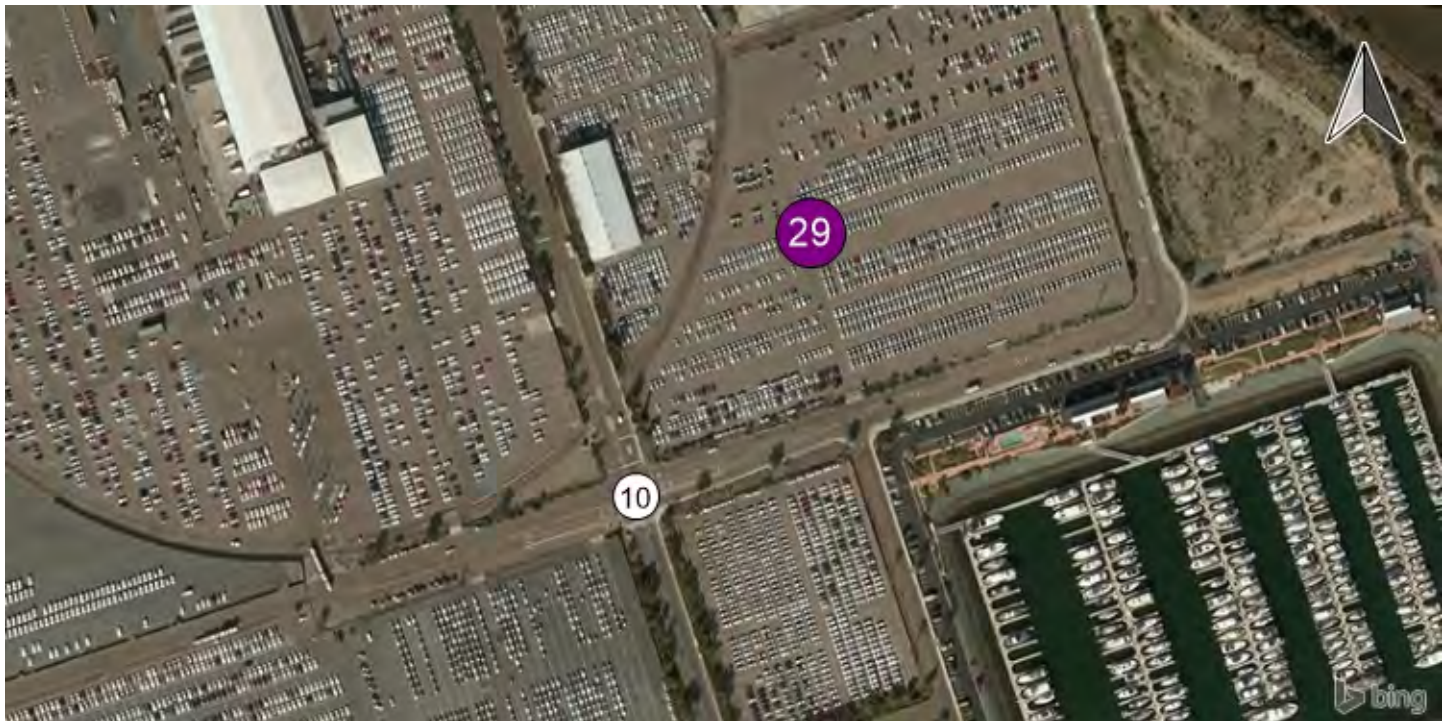


Fair Share - Fair Share % of Total Analysis - Zone 29

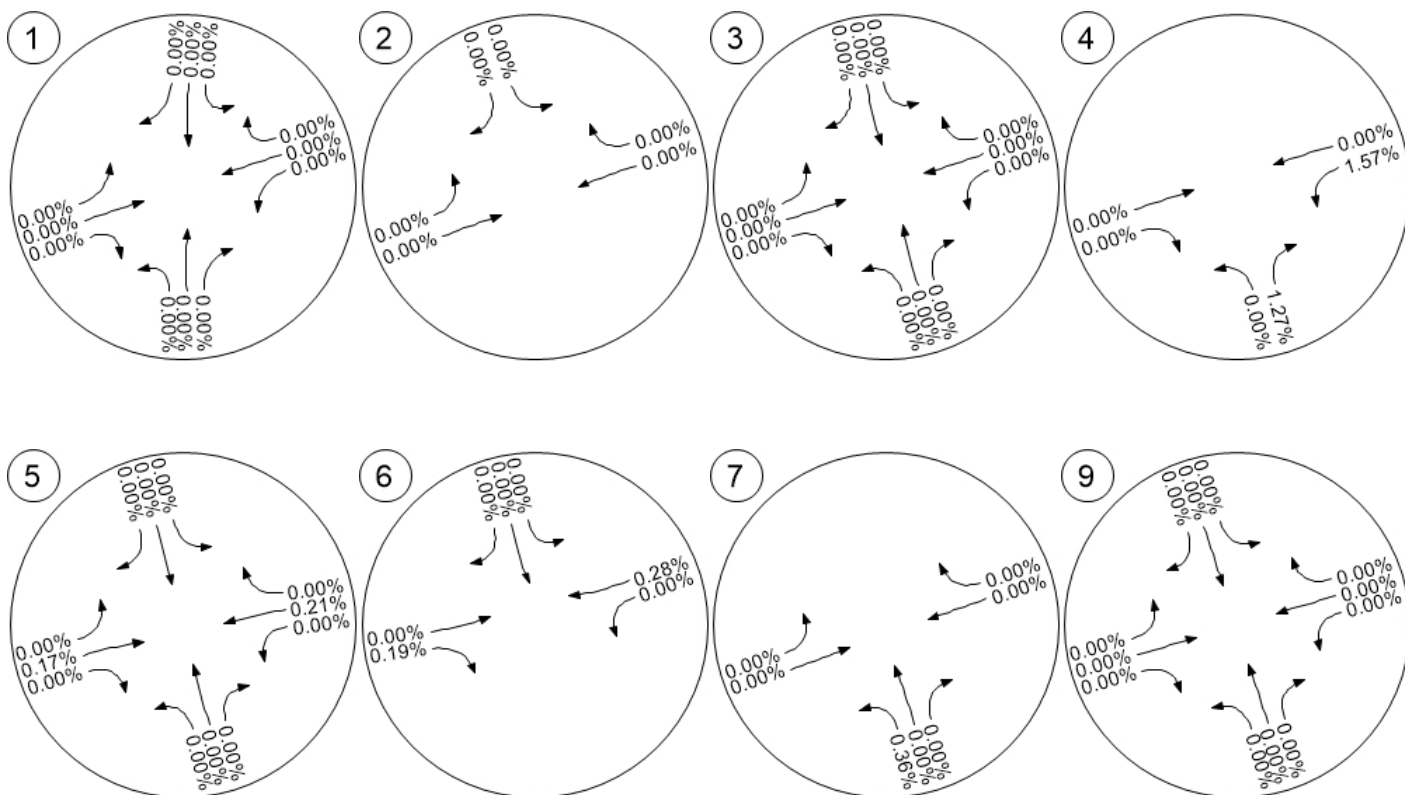




Fair Share - Fair Share % of Total Analysis - Zone 29

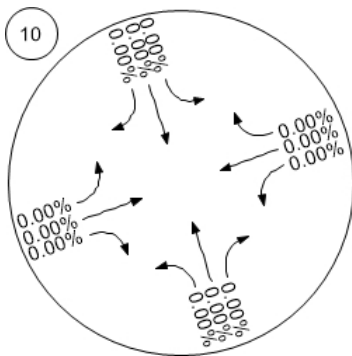


## Fair Share - Fair Share % of Total Analysis - Zone 30

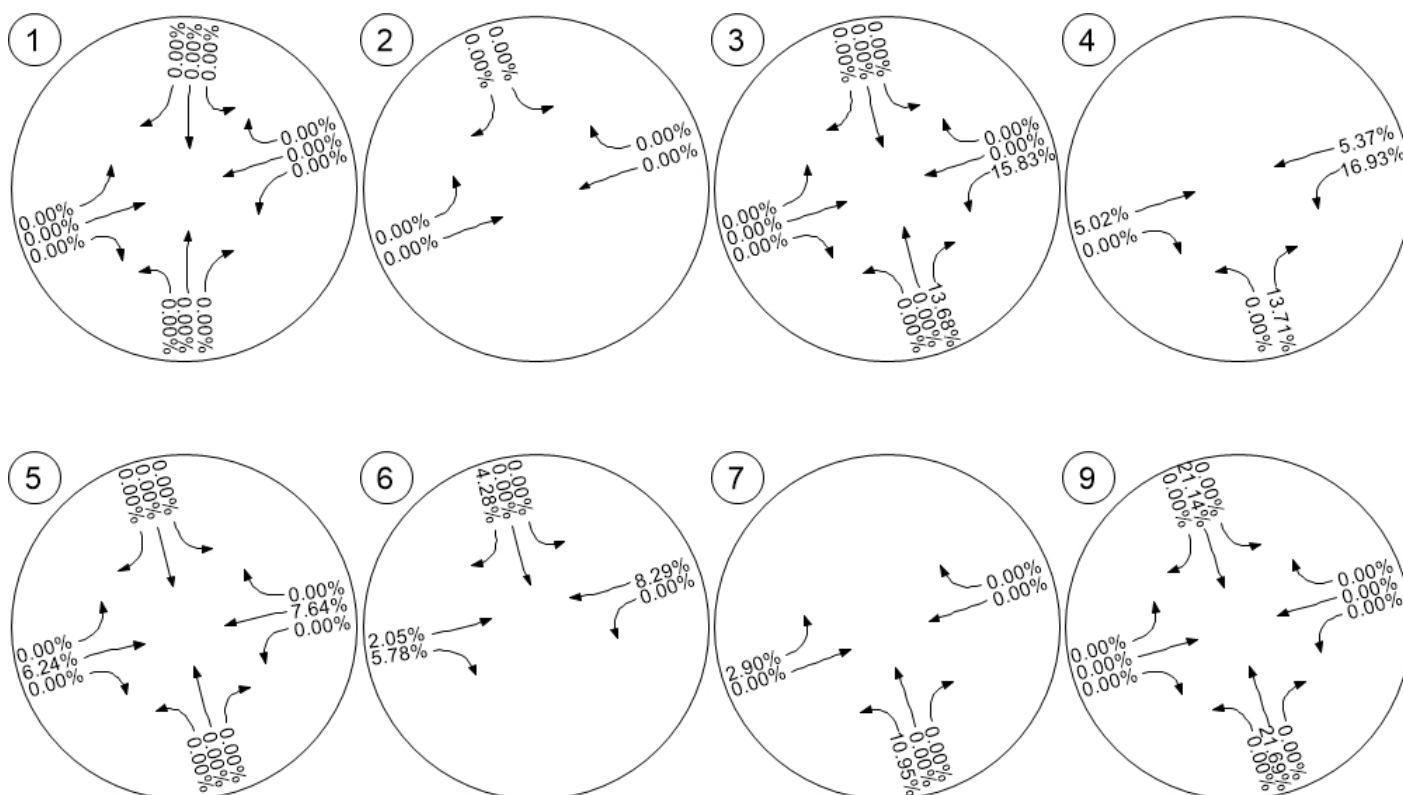




Fair Share - Fair Share % of Total Analysis - Zone 30

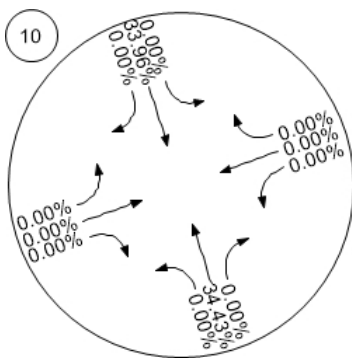
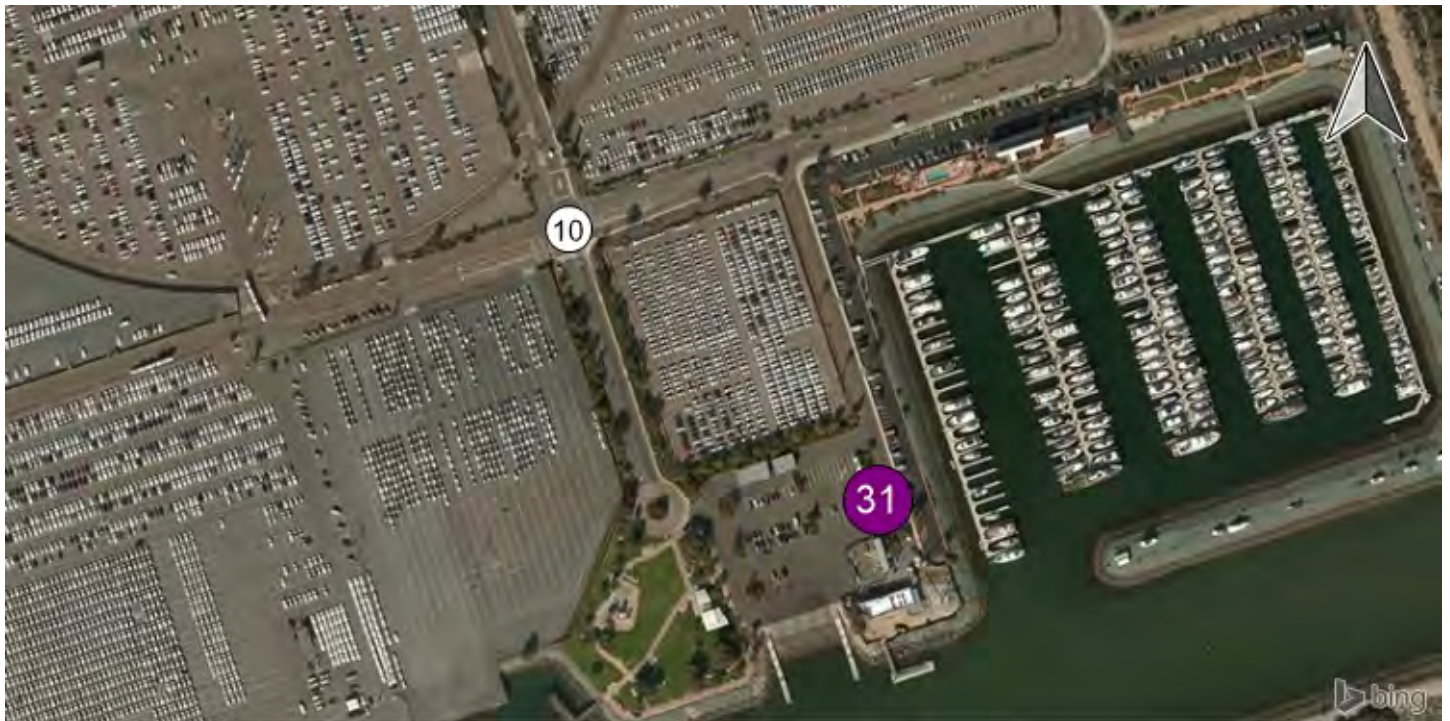


Fair Share - Fair Share % of Total Analysis - Zone 31



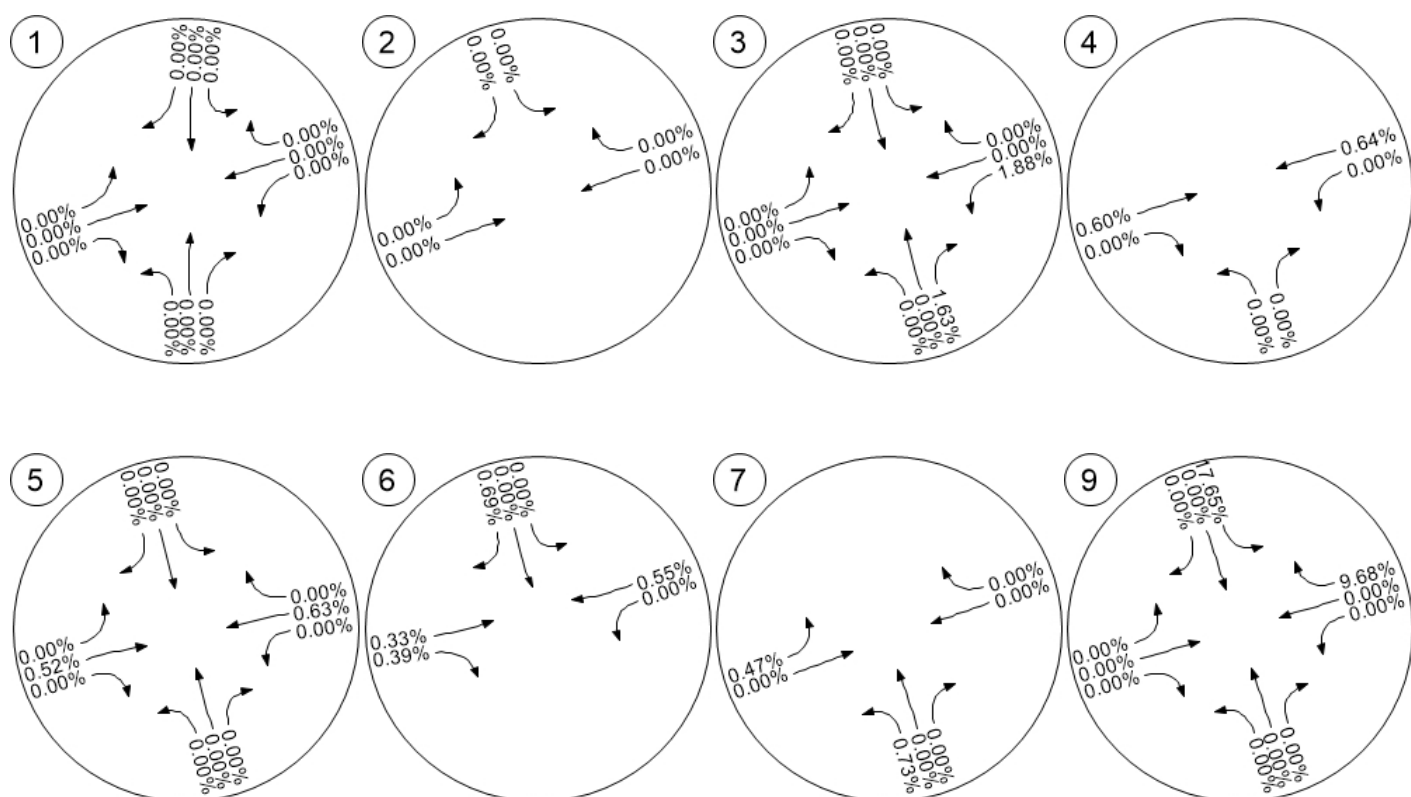


Fair Share - Fair Share % of Total Analysis - Zone 31

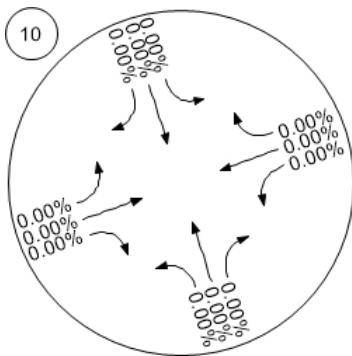




## Fair Share - Fair Share % of Total Analysis - Zone 32

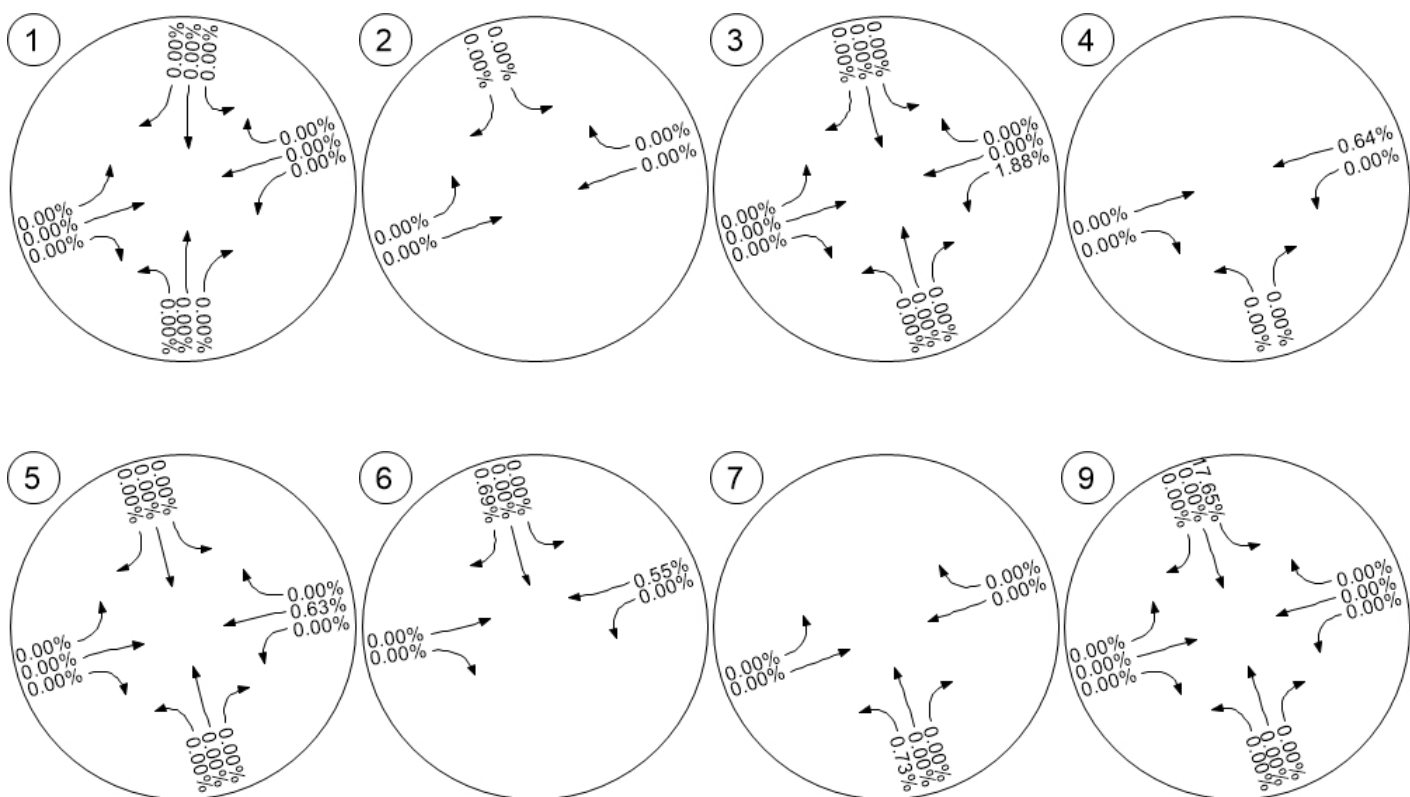


Fair Share - Fair Share % of Total Analysis - Zone 32

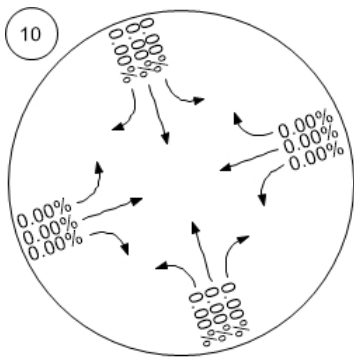




## Fair Share - Fair Share % of Total Analysis - Zone 33

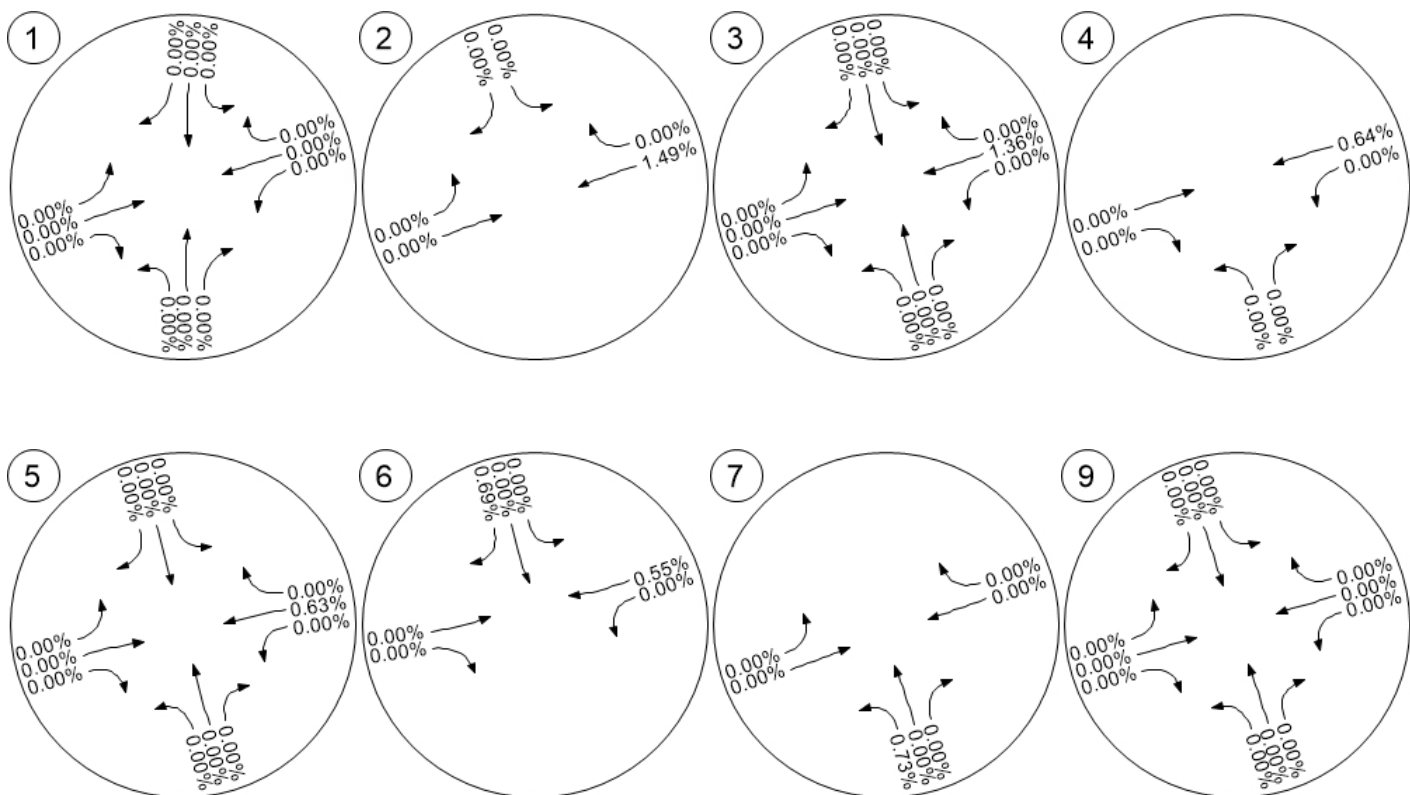


Fair Share - Fair Share % of Total Analysis - Zone 33





## Fair Share - Fair Share % of Total Analysis - Zone 34

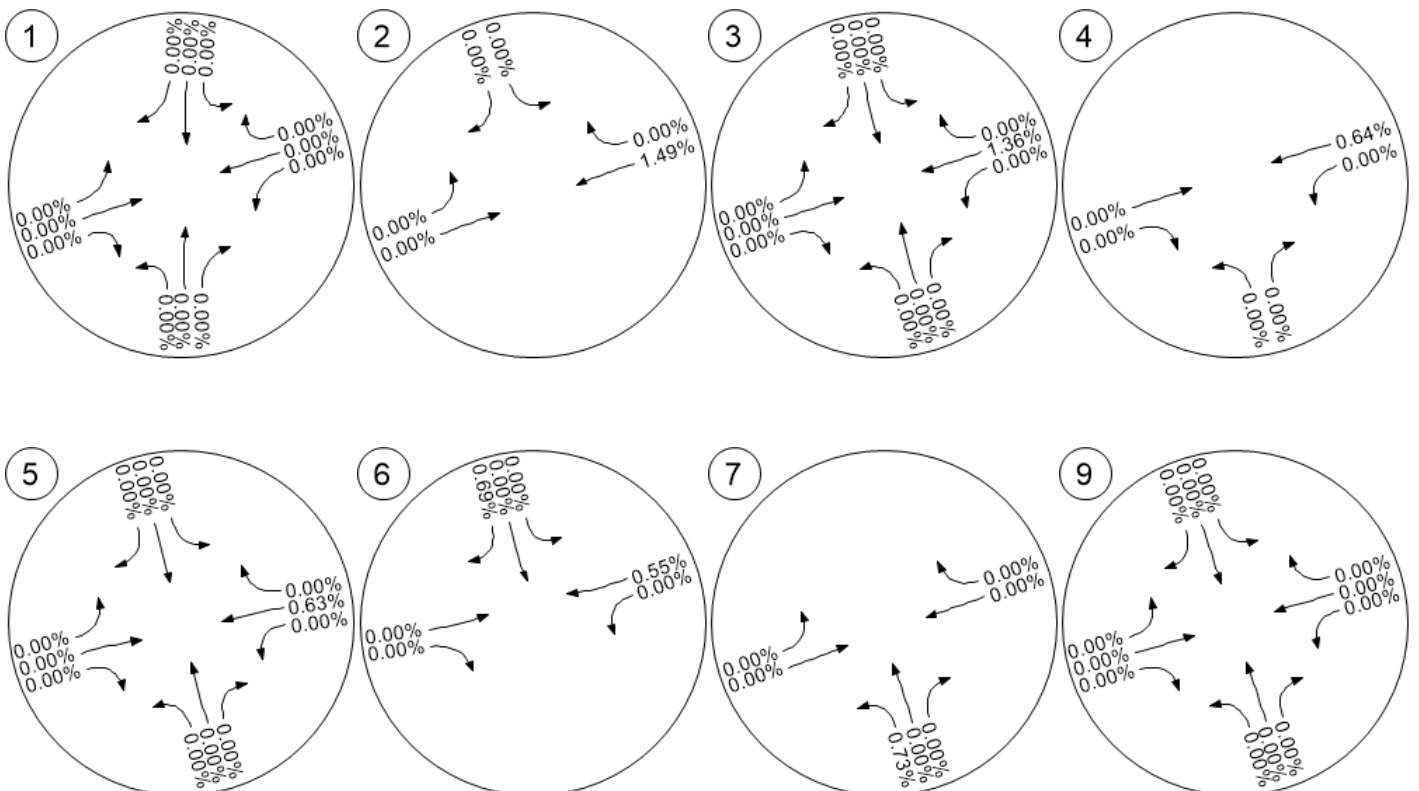


Fair Share - Fair Share % of Total Analysis - Zone 34





Fair Share - Fair Share % of Total Analysis - Zone 35



Fair Share - Fair Share % of Total Analysis - Zone 35



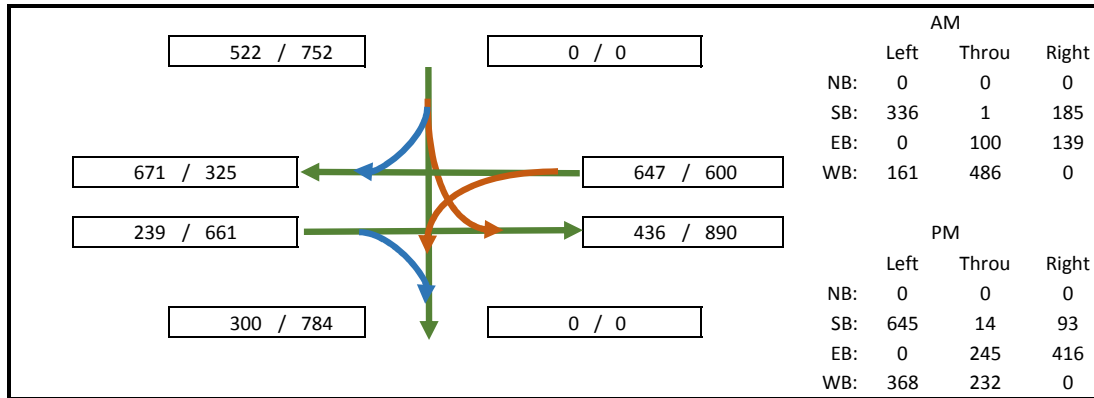


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

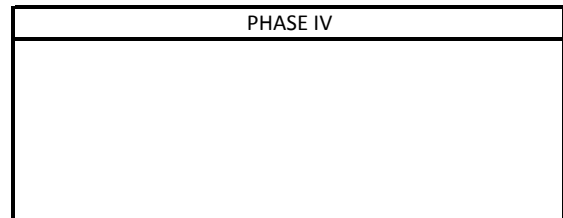
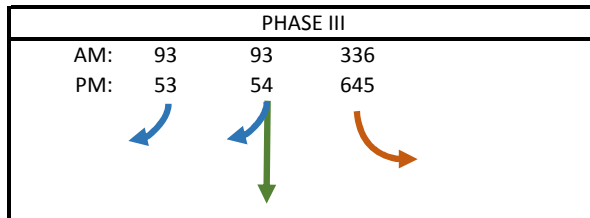
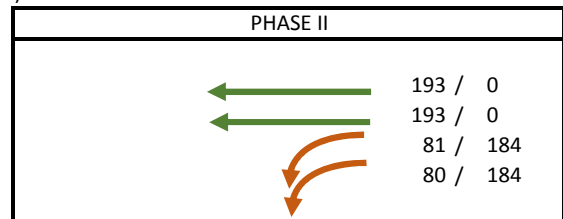
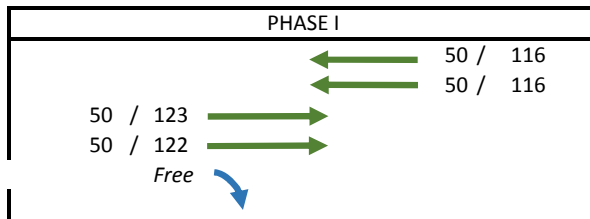
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 ALTERNATIVE: Near-Term + Project Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

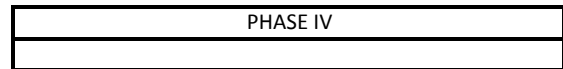
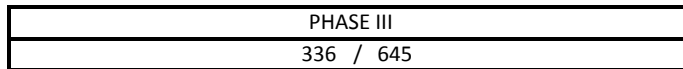
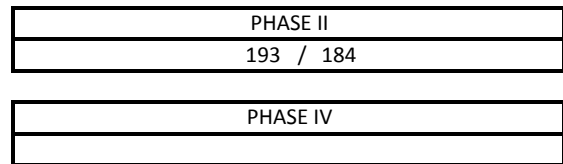
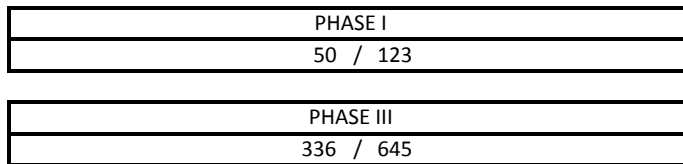
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

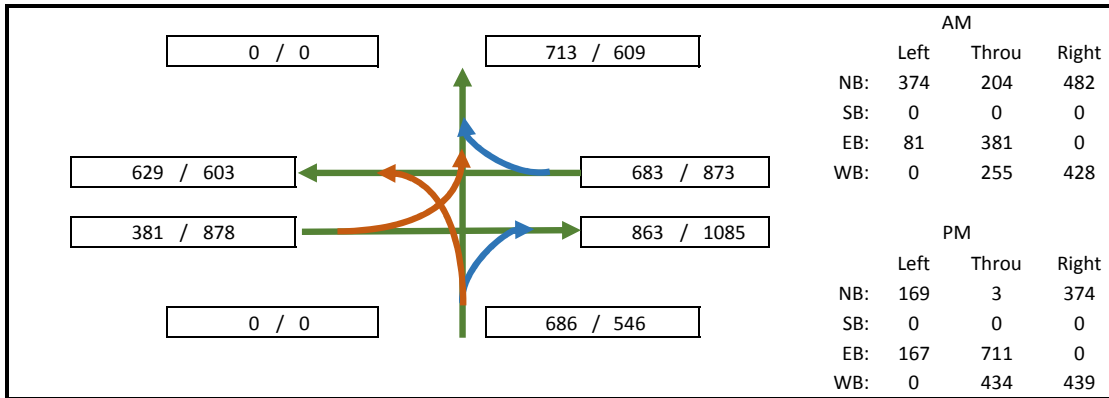
AM:	579	UNDER CAPACITY
PM:	952	UNDER CAPACITY

## SIGNALIZED INTERSECTION CAPACITY ANALYSIS

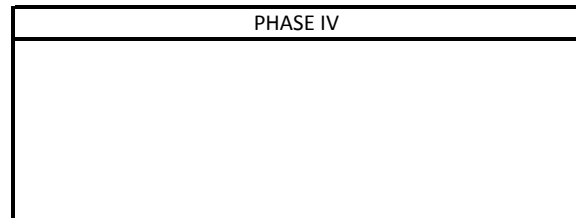
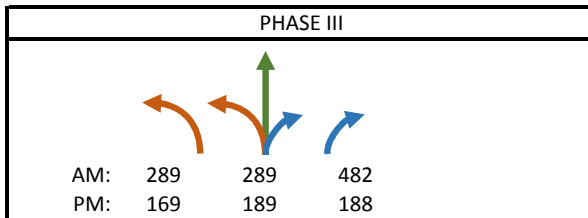
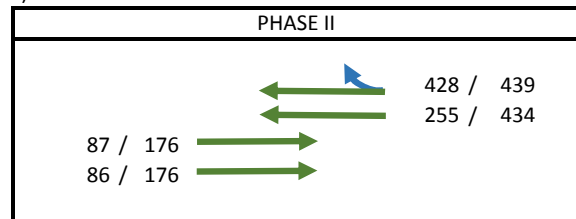
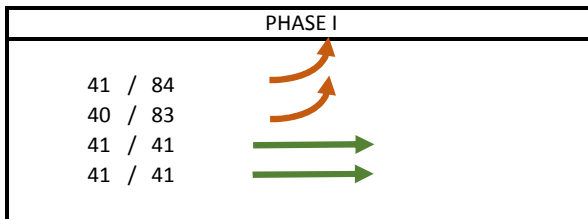
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Near-Term + Project Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME: \_\_\_\_\_

### DEMAND TRAFFIC FLOWS



### LANE VOLUMES (ILV/HR)



### CRITICAL LANE VOLUMES PER HOUR

PHASE I
41 / 84

PHASE III
482 / 189

PHASE II
428 / 439

PHASE IV
/

TOTAL OPERATING LEVEL (ILV/HR):

AM: 951	UNDER CAPACITY
PM: 712	UNDER CAPACITY

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**Appendix J**  
**City of National City Circulation Element Excerpts**

**TABLE 6.3:  
ROADWAY AVERAGE DAILY TRAFFIC (ADT) AND LEVEL OF SERVICE (LOS)  
ADOPTED GP – YEAR 2030 CONDITIONS**

Street	From	To	Classification	Lanes	ADT Capacity	ADT	LOS
Harbor Drive	Division Street	8 <sup>th</sup> Street	Arterial	4	40,000	26,100	C
Harbor Drive	8 <sup>th</sup> Street	Civic Center Drive	Arterial	4	40,000	18,500	B
Tidelands Avenue	Civic Center Drive	19 <sup>th</sup> Street	Collector	2	10,000	5,500	B
Tidelands Avenue	19 <sup>th</sup> Street	Bay Marina Drive	Collector	2	10,000	4,000	A
Tidelands Avenue	Bay Marina Drive	32 <sup>nd</sup> Street	Collector	2	10,000	2,800	A
Marina Way	Bay Marina Drive	32 <sup>nd</sup> Street	Collector	2+1	15,000	7,000	B
Cleveland Avenue	Civic Center Drive	19 <sup>th</sup> Street	Collector	2+1	15,000	5,000	A
Cleveland Avenue	19 <sup>th</sup> Street	Bay Marina Drive	Collector	2+1	15,000	5,100	B
Wilson Avenue	Civic Center Drive	18 <sup>th</sup> Street	Collector	2	10,000	12,400	F
Wilson Avenue	18 <sup>th</sup> Street	22 <sup>nd</sup> Street	Collector	2	10,000	11,500	F
Wilson Avenue	22 <sup>nd</sup> Street	Mile of Cars Way	Collector	2	10,000	5,800	C
Hoover Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Collector	2	10,000	8,800	D
Hoover Avenue	22 <sup>nd</sup> Street	Mile of Cars Way	Collector	4	20,000	7,000	A
Hoover Avenue	Miles of Cars Way	30 <sup>th</sup> Street	Collector	4	20,000	14,300	D
Hoover Avenue	30 <sup>th</sup> Street	33 <sup>rd</sup> Street	Collector	2	10,000	4,200	B
Roosevelt Avenue	Division Street	4 <sup>th</sup> Street	Collector	2	10,000	8,100	D
Roosevelt Avenue	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Collector	2	10,000	8,100	D
Roosevelt Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Collector	2	10,000	9,700	E
Roosevelt Avenue	Plaza Boulevard	Civic Center Drive	Collector	2	10,000	6,400	C
Roosevelt Avenue	Civic Center Drive	16 <sup>th</sup> Street	Collector	2	10,000	4,600	B
West Avenue	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Collector	2	10,000	6,600	C
National City Boulevard	Division Street	4 <sup>th</sup> Street	Arterial	4	40,000	16,500	B
National City Boulevard	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Arterial	4	40,000	16,000	B
National City Boulevard	8 <sup>th</sup> Street	Plaza Boulevard	Arterial	4	40,000	19,800	B
National City Boulevard	Plaza Boulevard	Civic Center Drive	Arterial	4	40,000	15,200	B
National City Boulevard	Civic Center Drive	16 <sup>th</sup> Street	Arterial	4	40,000	16,700	B
National City Boulevard	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Arterial	4	40,000	14,800	A
National City Boulevard	18 <sup>th</sup> Street	22 <sup>nd</sup> Street	Arterial	4	40,000	17,500	B
National City Boulevard	22 <sup>nd</sup> Street	24 <sup>th</sup> Street	Arterial	4	40,000	16,100	B
National City	24 <sup>th</sup> Street	30 <sup>th</sup> Street	Arterial	4	40,000	22,800	C



**TABLE 6.3:  
ROADWAY AVERAGE DAILY TRAFFIC (ADT) AND LEVEL OF SERVICE (LOS)  
ADOPTED GP – YEAR 2030 CONDITIONS**

Street	From	To	Classification	Lanes	ADT Capacity	ADT	LOS
Boulevard							
National City Boulevard	30 <sup>th</sup> Street	SR-54	Arterial	4	40,000	22,800	C
D Avenue	Division Street	4 <sup>th</sup> Street	Collector	2	10,000	4,900	B
D Avenue	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Collector	2	10,000	8,200	D
D Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Collector	2	10,000	6,400	C
D Avenue	Plaza Boulevard	16 <sup>th</sup> Street	Collector	2	10,000	8,200	D
D Avenue	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Collector	2	10,000	8,500	D
D Avenue	18 <sup>th</sup> Street	22 <sup>nd</sup> Street	Collector	2	10,000	6,100	C
D Avenue	22 <sup>nd</sup> Street	24 <sup>th</sup> Street	Collector	2	10,000	5,600	C
D Avenue	24 <sup>th</sup> Street	30 <sup>th</sup> Street	Collector	2	10,000	6,600	C
Highland Avenue	Delta Street	Division Street	Arterial	4	40,000	18,100	B
Highland Avenue	Division Street	4 <sup>th</sup> Street	Arterial	4	30,000	16,900	C
Highland Avenue	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Arterial	4	30,000	16,200	C
Highland Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Arterial	4	40,000	22,600	C
Highland Avenue	Plaza Boulevard	16 <sup>th</sup> Street	Arterial	4	40,000	20,000	B
Highland Avenue	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Arterial	4	40,000	23,500	C
Highland Avenue	18 <sup>th</sup> Street	24 <sup>th</sup> Street	Arterial	4	30,000	21,600	D
Highland Avenue	24 <sup>th</sup> Street	30 <sup>th</sup> Street	Arterial	4	30,000	23,400	D
Highland Avenue	30 <sup>th</sup> Street	SR-54	Arterial	4	40,000	33,600	D
L Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Collector	2	10,000	3,900	A
L Avenue	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Collector	2	10,000	4,000	A
L Avenue	18 <sup>th</sup> Street	24 <sup>th</sup> Street	Collector	2	10,000	6,200	C
L Avenue	24 <sup>th</sup> Street	30 <sup>th</sup> Street	Collector	2	10,000	3,900	A
Palm Avenue	I-805	Division Street	Arterial	4	40,000	23,400	C
Palm Avenue	Division Street	4 <sup>th</sup> Street	Collector	2	10,000	15,300	F
Palm Avenue	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Collector	2	10,000	13,100	F
Palm Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Collector	2	10,000	12,400	F
Palm Avenue	Plaza Boulevard	16 <sup>th</sup> Street	Collector	2	10,000	11,500	F
Palm Avenue	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Collector	2	10,000	8,300	D
Newell Street	18 <sup>th</sup> Street	Prospect Street	Collector	2	10,000	7,100	C
Grove Street	Prospect Street	Sweetwater Road	Collector	2	10,000	7,600	D
Euclid Avenue	Cervantes Avenue	Division Street	Arterial	4	30,000	12,600	B
Euclid Avenue	Division Street	4 <sup>th</sup> Street	Arterial	4	30,000	10,400	B
Euclid Avenue	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Arterial	4	40,000	16,700	B
Euclid Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Arterial	4	30,000	15,900	C

**TABLE 6.3:  
ROADWAY AVERAGE DAILY TRAFFIC (ADT) AND LEVEL OF SERVICE (LOS)  
ADOPTED GP – YEAR 2030 CONDITIONS**

Street	From	To	Classification	Lanes	ADT Capacity	ADT	LOS
Euclid Avenue	Plaza Boulevard	16 <sup>th</sup> Street	Arterial	4	30,000	14,300	C
Euclid Avenue	16 <sup>th</sup> Street	18 <sup>th</sup> Street	Arterial	4	30,000	8,800	A
Euclid Avenue	18 <sup>th</sup> Street	24 <sup>th</sup> Street	Arterial	4	30,000	9,400	A
Euclid Avenue	24 <sup>th</sup> Street	Sweetwater Road	Arterial	4	30,000	13,200	B
Harbison Avenue	Division Street	4 <sup>th</sup> Street	Collector	2	10,000	4,400	B
Harbison Avenue	4 <sup>th</sup> Street	8 <sup>th</sup> Street	Collector	2	10,000	4,000	A
Harbison Avenue	8 <sup>th</sup> Street	Plaza Boulevard	Collector	4	20,000	11,200	C
Harbison Avenue	Plaza Boulevard	16 <sup>th</sup> Street	Collector	2	10,000	5,800	C
Plaza Bonita Road	Sweetwater Road	Bonita Mesa Road	Arterial	4	40,000	18,900	B
Plaza Bonita Center Way	SR-54	Sweetwater Road	Arterial	4	40,000	27,400	C
Division Street	National City Boulevard	D Avenue	Collector	2+1	15,000	12,000	D
Division Street	D Avenue	Highland Avenue	Collector	2	10,000	12,200	F
Division Street	Highland Avenue	Palm Avenue	Arterial	4	30,000	10,800	B
Division Street	Palm Avenue	Euclid Street	Arterial	4	40,000	18,300	B
Division Street	Euclid Street	Harbison Avenue	Arterial	4	30,000	15,500	C
4 <sup>th</sup> Street	National City Boulevard	D Avenue	Collector	2	10,000	9,700	E
4 <sup>th</sup> Street	D Avenue	Highland Avenue	Collector	2	10,000	7,900	D
4 <sup>th</sup> Street	Highland Avenue	Palm Avenue	Collector	2	10,000	7,700	D
4 <sup>th</sup> Street	Palm Avenue	Euclid Street	Collector	2	10,000	9,200	E
4 <sup>th</sup> Street	Euclid Street	Harbison Avenue	Collector	2	10,000	9,100	E
8 <sup>th</sup> Street	Harbor Drive	I-5	Arterial	4	30,000	13,900	B
8 <sup>th</sup> Street	I-5	National City Boulevard	Arterial	4	40,000	29,700	C
8 <sup>th</sup> Street	National City Boulevard	D Avenue	Collector	2+1	15,000	14,800	E
8 <sup>th</sup> Street	D Avenue	Highland Avenue	Collector	2+1	15,000	9,200	C
8 <sup>th</sup> Street	Highland Avenue	Palm Avenue	Arterial	4	30,000	20,200	D
8 <sup>th</sup> Street	Palm Avenue	Euclid Avenue	Arterial	4	30,000	19,700	C
8 <sup>th</sup> Street	Euclid Avenue	Harbison Avenue	Arterial	4	30,000	16,900	C
8 <sup>th</sup> Street	Harbison Avenue	Plaza Boulevard	Arterial	4	40,000	15,000	C
Plaza Boulevard	Coolidge Avenue	Hoover Avenue	Collector	2	10,000	9,900	E
Plaza Boulevard	Hoover Avenue	National City Boulevard	Collector	4	20,000	12,200	C
Plaza Boulevard	National City Boulevard	D Avenue	Arterial	4	30,000	21,100	D

**TABLE 6.3:  
ROADWAY AVERAGE DAILY TRAFFIC (ADT) AND LEVEL OF SERVICE (LOS)  
ADOPTED GP – YEAR 2030 CONDITIONS**

Street	From	To	Classification	Lanes	ADT Capacity	ADT	LOS
Plaza Boulevard	D Avenue	Highland Avenue	Arterial	4	30,000	20,400	D
Plaza Boulevard	Highland Avenue	Palm Avenue	Arterial	6	50,000	20,300	B
Plaza Boulevard	Palm Avenue	I-805	Arterial	6	50,000	32,400	C
Plaza Boulevard	I-805	Euclid Avenue	Arterial	6	50,000	37,700	C
Plaza Boulevard	Euclid Avenue	School Xing	Arterial	4	40,000	29,800	C
Plaza Boulevard	School Xing	Harbison Avenue	Arterial	4	30,000	26,700	E
Plaza Boulevard	Harbison Avenue	8 <sup>th</sup> Street	Arterial	4	40,000	27,200	C
Paradise Valley Road	8 <sup>th</sup> Street	Plaza Entrada	Arterial	4	40,000	28,800	C
Civic Center Drive	Harbor Drive	Wilson Avenue	Collector	2	10,000	6,800	C
Civic Center Drive	Wilson Avenue	National City Boulevard	Collector	2	10,000	7,800	D
16 <sup>th</sup> Street	Wilson Avenue	National City Boulevard	Collector	2	10,000	5,500	B
16 <sup>th</sup> Street	National City Boulevard	D Avenue	Collector	4	20,000	5,900	A
16 <sup>th</sup> Street	D Avenue	Highland Avenue	Collector	4	20,000	7,400	B
16 <sup>th</sup> Street	Highland Avenue	L Avenue	Collector	2	10,000	8,300	D
16 <sup>th</sup> Street	L Avenue	Palm Avenue	Collector	2	10,000	10,700	F
16 <sup>th</sup> Street	Palm Avenue	Euclid Avenue	Collector	2	10,000	10,200	F
16 <sup>th</sup> Street	Euclid Avenue	Harbison Avenue	Collector	2	10,000	8,300	D
18 <sup>th</sup> Street	Wilson Avenue	National City Boulevard	Collector	2	10,000	8,800	D
18 <sup>th</sup> Street	National City Boulevard	D Avenue	Collector	2	10,000	8,700	D
18 <sup>th</sup> Street	D Avenue	Highland Avenue	Collector	2	10,000	8,700	D
18 <sup>th</sup> Street	Highland Avenue	L Avenue	Collector	2	10,000	8,700	D
18 <sup>th</sup> Street	L Avenue	Palm Avenue	Collector	2	10,000	11,800	F
18 <sup>th</sup> Street	Palm Avenue	Newell Street	Collector	2	10,000	9,500	E
18 <sup>th</sup> Street	Newell Street	Euclid Avenue	Collector	2	10,000	10,100	F
18 <sup>th</sup> Street	Euclid Street	Rachael Avenue	Collector	2	10,000	9,600	E
19 <sup>th</sup> Street	Tidelands Avenue	Wilson Avenue	Collector	4	20,000	7,400	B
22 <sup>nd</sup> Street	Wilson Avenue	Hoover Avenue	Collector	2	10,000	9,600	E
22 <sup>nd</sup> Street	Hoover Avenue	National City Boulevard	Collector	2	10,000	12,000	F
Bay Marina Drive	Tidelands Avenue	Marina Way	Collector	4	20,000	6,300	A
Bay Marina Drive	Marina Way	Cleveland Avenue	Arterial	4	30,000	12,100	B
Bay Marina Drive	Cleveland Avenue	I-5	Arterial	4	30,000	12,400	B

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**Appendix K**  
**Peak Hour Intersection LOS Worksheets, ILV, and Queueing**  
**Worksheets – Future Year Base Conditions**



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 9: Future Year AM

Report File: P:\...\9. Future AM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.199	13.6	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	NBT	0.010	12.1	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	SBR	0.223	10.5	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.237	10.7	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.384	19.5	B
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.441	16.2	B
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.604	23.3	C
8	28th Street / Quay Avenue	Two-way stop	HCM2000	SBT	0.006	9.3	A
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBT	0.077	9.7	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		7.9	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.199

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	45	80	60	55	110	65	30	40	65	70	105	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	80	60	55	110	65	30	40	65	70	105	60
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	22	16	15	30	18	8	11	18	19	29	16
Total Analysis Volume [veh/h]	49	87	65	60	120	71	33	43	71	76	114	65
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.05	0.11	0.05	0.09
Total Saturation Flow Adjustment	0.62	0.92	0.65	0.93	0.74	0.74
s, saturation flow rate [veh/h]	1187	1743	1230	1759	2820	2810
c, Capacity [veh/h]	492	722	510	729	1168	1164
d1, Uniform Delay [s]	12.52	13.15	12.62	13.47	12.67	13.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.40	0.66	0.47	0.88	0.22	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.10	0.21	0.12	0.26	0.13	0.22
d, Delay for Lane Group [s/veh]	12.93	13.82	13.09	14.35	12.89	13.64
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.65	2.10	0.80	2.71	1.03	1.87
50th-Percentile Queue Length [ft]	16.16	52.48	19.95	67.80	25.64	46.68
95th-Percentile Queue Length [veh]	1.60	4.74	1.96	5.92	2.48	4.27
95th-Percentile Queue Length [ft]	40.06	118.46	48.93	147.89	61.90	106.83



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.93	13.82	13.82	13.09	14.35	14.35	12.89	12.89	12.89	13.64	13.64	13.64
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	13.60			14.05			12.89			13.64		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.62											
Intersection LOS	B											
Intersection V/C	0.199											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.010

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	10	25	5	5	5	75	10	35	150	65
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	10	25	5	5	5	75	10	35	150	65
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	3	7	1	1	1	20	3	10	41	18
Total Analysis Volume [veh/h]	5	5	11	27	5	5	5	82	11	38	163	71
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.05	0.01	0.01	0.00	0.00	0.00	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	10.69	12.15	8.70	11.65	12.13	9.34	7.72	0.00	0.00	7.46	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.09	0.09	0.09	0.20	0.20	0.20	0.11	0.06	0.00	0.30	0.15	0.00
95th-Percentile Queue Length [ft]	2.18	2.18	2.18	4.92	4.92	4.92	2.87	1.43	0.00	7.47	3.73	0.00
d_A, Approach Delay [s/veh]	9.99			11.40			0.39			1.04		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	2.23											
Intersection LOS	B											







**Intersection Level Of Service Report**  
**#3: Bay Marina Drive / Tidelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.223

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	10	10	20	15	20	15	40	55	125	195	315
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	2	0	0	4	0	0	0	0	0	50
Total Hourly Volume [veh/h]	5	10	8	20	15	16	15	40	55	125	195	265
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	2	5	4	4	4	11	15	34	53	72
Total Analysis Volume [veh/h]	5	11	9	22	16	17	16	43	60	136	212	288
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	97	0	0	97	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	R	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	91	91	91	91	91	91
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.70	0.70	0.70	0.70	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.02	0.02	0.01	0.02	0.04	0.10	0.11	0.20
Total Saturation Flow Adjustment	0.72	0.82	0.73	0.81	0.61	0.98	0.83	0.71	0.98	0.75
s, saturation flow rate [veh/h]	1370	1563	1386	1547	1154	1863	1583	1355	1863	1425
c, Capacity [veh/h]	285	325	288	321	807	1304	1108	949	1304	997
d1, Uniform Delay [s]	40.95	41.33	41.46	41.69	5.93	5.99	6.08	6.50	6.60	7.33
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	0.36	0.52	0.64	0.05	0.05	0.09	0.32	0.27	0.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.06	0.08	0.10	0.02	0.03	0.05	0.14	0.16	0.29
d, Delay for Lane Group [s/veh]	41.07	41.70	41.98	42.33	5.98	6.04	6.17	6.82	6.87	8.06
Lane Group LOS	D	D	D	D	A	A	A	A	A	A
Critical Lane Group	no	no	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.15	0.62	0.69	1.04	0.20	0.54	0.77	1.88	2.94	4.51
50th-Percentile Queue Length [ft]	3.86	15.59	17.27	26.02	5.04	13.44	19.16	46.89	73.40	112.63
95th-Percentile Queue Length [veh]	0.40	1.55	1.71	2.51	0.52	1.34	1.88	4.29	6.33	9.04
95th-Percentile Queue Length [ft]	9.93	38.71	42.66	62.77	12.90	33.57	47.09	107.24	158.25	225.94

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	41.07	41.70	41.70	41.98	42.33	42.33	5.98	6.04	6.17	6.82	6.87	8.06
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	41.57			42.19			6.10			7.40		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	10.53											
Intersection LOS	B											
Intersection V/C	0.223											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-








**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.237

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	5	10	75	25	20	750
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	10	75	25	20	750
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	20	7	5	204
Total Analysis Volume [veh/h]	5	11	82	27	22	815
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	100	0	13	113
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	94	9	107
g / C, Green / Cycle	0.21	0.21	0.63	0.06	0.71
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.03	0.01	0.23
Total Saturation Flow Adjustment	0.93	0.83	0.90	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3415	1770	3547
c, Capacity [veh/h]	366	327	2140	106	2530
d1, Uniform Delay [s]	47.34	47.53	10.80	67.10	8.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.19	0.05	4.38	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.03	0.05	0.21	0.32
d, Delay for Lane Group [s/veh]	47.41	47.72	10.84	71.48	8.34
Lane Group LOS	D	D	B	E	A
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.18	0.39	1.01	0.96	7.58
50th-Percentile Queue Length [ft]	4.42	9.80	25.37	24.01	189.43
95th-Percentile Queue Length [veh]	0.45	0.99	2.45	2.33	13.79
95th-Percentile Queue Length [ft]	11.35	24.75	61.31	58.24	344.71

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	47.41	47.72	10.84	10.84	71.48	8.34
Movement LOS	D	D	B	B	E	A
d_A, Approach Delay [s/veh]	47.62		10.84		10.00	
Approach LOS	D		B		A	
d_I, Intersection Delay [s/veh]	10.72					
Intersection LOS	B					
Intersection V/C	0.237					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 19.5  
Level Of Service: B  
Volume to Capacity (v/c): 0.384

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	35	5	25	30	10	35	20	90	5	25	700	310
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	4	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	21	30	10	35	20	90	5	25	700	310
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	6	8	3	10	5	24	1	7	190	84
Total Analysis Volume [veh/h]	38	5	23	33	11	38	22	98	5	27	761	337
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	19	0	9	91	0	15	97	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	15	5	87	11	93
g / C, Green / Cycle	0.08	0.08	0.11	0.04	0.62	0.08	0.66
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.03	0.01	0.02	0.02	0.32
Total Saturation Flow Adjustment	0.93	0.86	0.85	0.93	0.88	0.93	0.89
s, saturation flow rate [veh/h]	1770	1633	3235	1770	5037	1770	3383
c, Capacity [veh/h]	139	128	347	63	3130	139	2248
d1, Uniform Delay [s]	60.74	60.47	57.25	65.91	10.24	60.35	11.68
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.80	3.87	1.60	14.49	0.02	3.09	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.27	0.22	0.24	0.35	0.03	0.19	0.49
d, Delay for Lane Group [s/veh]	65.53	64.34	58.86	80.40	10.26	63.45	12.44
Lane Group LOS	E	E	E	F	B	E	B
Critical Lane Group	yes	no	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	1.54	1.12	1.68	0.95	0.63	1.08	12.78
50th-Percentile Queue Length [ft]	38.42	28.08	41.99	23.82	15.67	26.90	319.50
95th-Percentile Queue Length [veh]	3.59	2.69	3.89	2.31	1.56	2.59	21.44
95th-Percentile Queue Length [ft]	89.73	67.36	97.18	57.81	38.89	64.74	536.00

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	65.53	64.34	64.34	58.86	58.86	58.86	80.40	10.26	10.26	63.45	12.44	12.44
Movement LOS	E	E	E	E	E	E	F	B	B	E	B	B
d_A, Approach Delay [s/veh]	65.03			58.86			22.61			13.67		
Approach LOS	E			E			C			B		
d_I, Intersection Delay [s/veh]	19.54											
Intersection LOS	B											
Intersection V/C	0.384											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





**Intersection Level Of Service Report**  
**#6: I-5 SB Off-Ramp and Bay Marina Drive**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 16.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.441

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	0	395	35	325	0	95	130	205	710	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	395	35	325	0	95	130	205	710	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	107	10	88	0	26	35	56	193	0
Total Analysis Volume [veh/h]	0	0	0	429	38	353	0	103	141	223	772	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	17	0	13	30	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		25	25	12	12	9	25
g / C, Green / Cycle		0.42	0.42	0.21	0.21	0.15	0.42
(v / s)_i Volume / Saturation Flow Rate		0.14	0.22	0.03	0.09	0.06	0.22
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3391	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1435	670	733	327	504	1501
d1, Uniform Delay [s]		11.57	12.84	19.45	20.73	23.36	12.75
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.60	2.95	0.40	4.10	2.80	1.26
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.33	0.53	0.14	0.43	0.44	0.51
d, Delay for Lane Group [s/veh]		12.17	15.79	19.85	24.83	26.16	14.01
Lane Group LOS		B	B	B	C	C	B
Critical Lane Group		no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]		3.07	5.08	0.81	2.34	2.01	5.74
50th-Percentile Queue Length [ft]		76.81	126.91	20.22	58.52	50.20	143.50
95th-Percentile Queue Length [veh]		6.58	9.96	1.98	5.21	4.56	11.00
95th-Percentile Queue Length [ft]		164.44	249.04	49.54	130.27	113.92	275.12

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.17	12.17	15.79	0.00	19.85	24.83	26.16	14.01	0.00
Movement LOS				B	B	B		B	C	C	B	
d_A, Approach Delay [s/veh]	0.00			13.73			22.72			16.74		
Approach LOS	A			B			C			B		
d_I, Intersection Delay [s/veh]	16.25											
Intersection LOS	B											
Intersection V/C	0.441											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 23.3  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.604

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	460	5	485	0	0	0	90	400	0	0	455	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	460	5	485	0	0	0	90	400	0	0	455	510
Peak Hour Factor	0.9200	0.9200	0.9200	1.0000	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	1	132	0	0	0	24	109	0	0	124	139
Total Analysis Volume [veh/h]	500	5	527	0	0	0	98	435	0	0	495	554
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	29	0	0	0	0	10	51	0	0	41	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	24		6	46	36	36
g / C, Green / Cycle	0.31		0.07	0.58	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.23		0.03	0.12	0.27	0.35
Total Saturation Flow Adjustment	0.80		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4575		3437	3547	1863	1583
c, Capacity [veh/h]	1395		249	2057	848	720
d1, Uniform Delay [s]	24.95		35.42	8.04	16.18	18.28
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.56		4.61	0.23	2.94	7.74
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

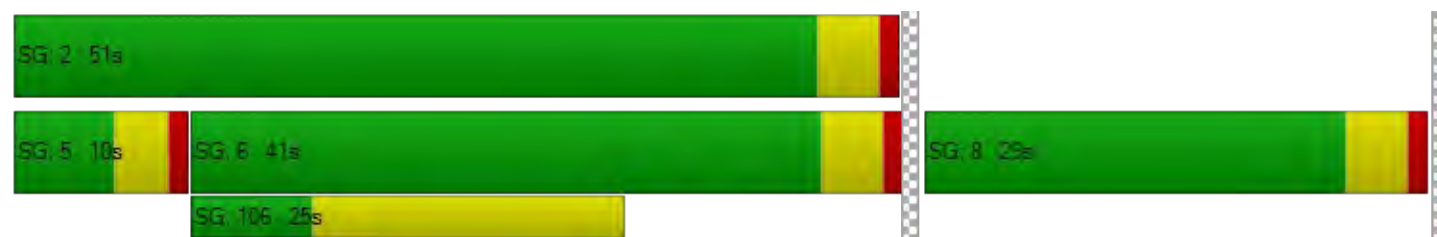
X, volume / capacity	0.74		0.39	0.21	0.58	0.77
d, Delay for Lane Group [s/veh]	28.51		40.03	8.28	19.12	26.02
Lane Group LOS	C		D	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	9.25		1.23	2.73	9.44	12.81
50th-Percentile Queue Length [ft]	231.34		30.75	68.18	236.07	320.17
95th-Percentile Queue Length [veh]	16.26		2.93	5.94	16.54	21.48
95th-Percentile Queue Length [ft]	406.49		73.25	148.61	413.43	536.99

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	28.51	28.51	28.51	0.00	0.00	0.00	40.03	8.28	0.00	0.00	19.12	26.02
Movement LOS	C	C	C				D	A			B	C
d_A, Approach Delay [s/veh]	28.51			0.00			14.11			22.76		
Approach LOS	C			A			B			C		
d_I, Intersection Delay [s/veh]	23.27											
Intersection LOS	C											
Intersection V/C	0.604											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.3  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.006

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	5	10	5	5	5	5	5	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	5	10	5	5	5	5	5	5	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	1	3	1	1	1	1	1	1	1	1
Total Analysis Volume [veh/h]	5	5	5	11	5	5	5	5	5	5	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0



**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.85	9.30	8.41	8.87	9.32	8.44	7.24	0.00	0.00	7.24	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.05	0.05	0.05	0.07	0.07	0.07	0.03	0.03	0.03	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	1.20	1.20	1.20	1.69	1.69	1.69	0.71	0.71	0.71	0.71	0.71	0.71
d_A, Approach Delay [s/veh]	8.85			8.88			2.41			2.41		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.93											
Intersection LOS	A											

**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.7  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.077

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	15	5	5	60	20	5	5	5	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	15	5	5	60	20	5	5	5	5	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	1	1	16	5	1	1	1	1	1	1
Total Analysis Volume [veh/h]	5	16	5	5	65	22	5	5	5	5	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.01	0.02	0.00	0.01	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.43	9.36	8.47	9.31	9.69	8.81	7.24	0.00	0.00	7.24	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.09	0.09	0.09	0.34	0.34	0.34	0.03	0.03	0.03	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	2.28	2.28	2.28	8.52	8.52	8.52	0.71	0.71	0.71	0.71	0.71	0.71
d_A, Approach Delay [s/veh]	9.20			9.46			2.41			2.41		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.99											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 7.9  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	5	15	20	40	50	50	5	5	15	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	5	15	20	40	50	50	5	5	15	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	1	4	5	11	14	14	1	1	4	1
Total Analysis Volume [veh/h]	5	5	5	16	22	43	54	54	5	5	16	5
Pedestrian Volume [ped/h]	0			0			0			0		



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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.06	0.17	0.16	0.26	0.23	0.02	0.02	0.04	0.04
95th-Percentile Queue Length [ft]	1.57	4.29	3.99	6.53	5.87	0.44	0.58	1.11	1.04
Approach Delay [s/veh]	8.03	7.61		8.17			7.75		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	7.92								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 9: Future Year AM

Report File: P:\...\9. Future AM.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	45	80	60	55	110	65	30	40	65	70	105	60	785

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	5	5	10	25	5	5	5	75	10	35	150	65	395

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	5	10	10	20	15	20	15	40	55	125	195	315	825

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	5	10	75	25	20	750	885

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	35	5	25	30	10	35	20	90	5	25	700	310	1290

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	395	35	325	95	130	205	710	1895

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	460	5	485	90	400	455	510	2405

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	5	5	5	10	5	5	5	5	5	5	5	5	65

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	5	15	5	5	60	20	5	5	5	5	5	5	140

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	5	5	5	15	20	40	50	50	5	5	15	5	220

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 9: Future Year AM

Report File: P:\...\9. Future AM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	45	80	60	55	110	65	30	40	65	70	105	60	785
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>45</b>	<b>80</b>	<b>60</b>	<b>55</b>	<b>110</b>	<b>65</b>	<b>30</b>	<b>40</b>	<b>65</b>	<b>70</b>	<b>105</b>	<b>60</b>	<b>785</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	5	5	10	25	5	5	5	75	10	35	150	65	395
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>25</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>75</b>	<b>10</b>	<b>35</b>	<b>150</b>	<b>65</b>	<b>395</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	5	10	10	20	15	20	15	40	55	125	195	315	825
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>15</b>	<b>20</b>	<b>15</b>	<b>40</b>	<b>55</b>	<b>125</b>	<b>195</b>	<b>315</b>	<b>825</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	5	10	75	25	20	750	885
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>75</b>	<b>25</b>	<b>20</b>	<b>750</b>	<b>885</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	35	5	25	30	10	35	20	90	5	25	700	310	1290
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>5</b>	<b>25</b>	<b>30</b>	<b>10</b>	<b>35</b>	<b>20</b>	<b>90</b>	<b>5</b>	<b>25</b>	<b>700</b>	<b>310</b>	<b>1290</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	395	35	325	95	130	205	710	1895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>395</b>	<b>35</b>	<b>325</b>	<b>95</b>	<b>130</b>	<b>205</b>	<b>710</b>	<b>1895</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	460	5	485	90	400	455	510	2405
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>460</b>	<b>5</b>	<b>485</b>	<b>90</b>	<b>400</b>	<b>455</b>	<b>510</b>	<b>2405</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	Final Base	5	5	5	10	5	5	5	5	5	5	5	5	65
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>65</b>



ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	Final Base	5	15	5	5	60	20	5	5	5	5	5	5	140
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>5</b>	<b>60</b>	<b>20</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>140</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	5	5	5	15	20	40	50	50	5	5	15	5	220
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>20</b>	<b>40</b>	<b>50</b>	<b>50</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>220</b>

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	250	90	20	35
2	240	86	19	34
3	235	85	19	33
4	200	72	16	28
5	190	68	15	27
6	170	61	14	24
7	158	57	13	22
8	150	54	12	21
9	120	43	10	17
10	113	41	9	16
11	113	41	9	16
12	108	39	9	15
13	98	35	8	14
14	90	32	7	13
15	90	32	7	13
16	88	31	7	12
17	50	18	4	7
18	28	10	2	4
19	25	9	2	4
20	10	4	1	1
21	8	3	1	1
22	8	3	1	1
23	5	2	0	1
24	5	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	340	2	55	No	No	No	No	No	No	No	No	No	No
2	4	326	2	53	No	No	No	No	No	No	No	No	No	No
3	4	320	2	52	No	No	No	No	No	No	No	No	No	No
4	4	272	2	44	No	No	No	No	No	No	No	No	No	No
5	4	258	2	42	No	No	No	No	No	No	No	No	No	No
6	4	231	2	38	No	No	No	No	No	No	No	No	No	No
7	4	215	2	35	No	No	No	No	No	No	No	No	No	No
8	4	204	2	33	No	No	No	No	No	No	No	No	No	No
9	4	163	2	27	No	No	No	No	No	No	No	No	No	No
10	4	154	2	25	No	No	No	No	No	No	No	No	No	No
11	4	154	2	25	No	No	No	No	No	No	No	No	No	No
12	4	147	2	24	No	No	No	No	No	No	No	No	No	No
13	4	133	2	22	No	No	No	No	No	No	No	No	No	No
14	4	122	2	20	No	No	No	No	No	No	No	No	No	No
15	4	122	2	20	No	No	No	No	No	No	No	No	No	No
16	4	119	2	19	No	No	No	No	No	No	No	No	No	No
17	4	68	2	11	No	No	No	No	No	No	No	No	No	No
18	4	38	2	6	No	No	No	No	No	No	No	No	No	No
19	4	34	2	6	No	No	No	No	No	No	No	No	No	No
20	4	14	2	2	No	No	No	No	No	No	No	No	No	No
21	4	11	2	2	No	No	No	No	No	No	No	No	No	No
22	4	11	2	2	No	No	No	No	No	No	No	No	No	No
23	4	7	2	1	No	No	No	No	No	No	No	No	No	No
24	4	7	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10	11.4
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:06
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	20	35
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	395	395
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	15	15	15	20
2	14	14	14	19
3	14	14	14	19
4	12	12	12	16
5	11	11	11	15
6	10	10	10	14
7	9	9	9	13
8	9	9	9	12
9	7	7	7	10
10	7	7	7	9
11	7	7	7	9
12	6	6	6	9
13	6	6	6	8
14	5	5	5	7
15	5	5	5	7
16	5	5	5	7
17	3	3	3	4
18	2	2	2	2
19	2	2	2	2
20	1	1	1	1
21	0	0	0	1
22	0	0	0	1
23	0	0	0	0
24	0	0	0	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	30	2	35	No	No	No	No	No	No	No	No	No	No
2	2	28	2	33	No	No	No	No	No	No	No	No	No	No
3	2	28	2	33	No	No	No	No	No	No	No	No	No	No
4	2	24	2	28	No	No	No	No	No	No	No	No	No	No
5	2	22	2	26	No	No	No	No	No	No	No	No	No	No
6	2	20	2	24	No	No	No	No	No	No	No	No	No	No
7	2	18	2	22	No	No	No	No	No	No	No	No	No	No
8	2	18	2	21	No	No	No	No	No	No	No	No	No	No
9	2	14	2	17	No	No	No	No	No	No	No	No	No	No
10	2	14	2	16	No	No	No	No	No	No	No	No	No	No
11	2	14	2	16	No	No	No	No	No	No	No	No	No	No
12	2	12	2	15	No	No	No	No	No	No	No	No	No	No
13	2	12	2	14	No	No	No	No	No	No	No	No	No	No
14	2	10	2	12	No	No	No	No	No	No	No	No	No	No
15	2	10	2	12	No	No	No	No	No	No	No	No	No	No
16	2	10	2	12	No	No	No	No	No	No	No	No	No	No
17	2	6	2	7	No	No	No	No	No	No	No	No	No	No
18	2	4	2	4	No	No	No	No	No	No	No	No	No	No
19	2	4	2	4	No	No	No	No	No	No	No	No	No	No
20	2	2	2	2	No	No	No	No	No	No	No	No	No	No
21	2	0	2	1	No	No	No	No	No	No	No	No	No	No
22	2	0	2	1	No	No	No	No	No	No	No	No	No	No
23	2	0	2	0	No	No	No	No	No	No	No	No	No	No
24	2	0	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.9	8.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:02
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	20
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	65	65
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	



## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	15	15	25	85
2	14	14	24	82
3	14	14	24	80
4	12	12	20	68
5	11	11	19	65
6	10	10	17	58
7	9	9	16	54
8	9	9	15	51
9	7	7	12	41
10	7	7	11	38
11	7	7	11	38
12	6	6	11	37
13	6	6	10	33
14	5	5	9	31
15	5	5	9	31
16	5	5	9	30
17	3	3	5	17
18	2	2	3	9
19	2	2	3	9
20	1	1	1	3
21	0	0	1	3
22	0	0	1	3
23	0	0	1	2
24	0	0	1	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	30	2	110	No	No	No	No	No	No	No	No	No	No
2	2	28	2	106	No	No	No	No	No	No	No	No	No	No
3	2	28	2	104	No	No	No	No	No	No	No	No	No	No
4	2	24	2	88	No	No	No	No	No	No	No	No	No	No
5	2	22	2	84	No	No	No	No	No	No	No	No	No	No
6	2	20	2	75	No	No	No	No	No	No	No	No	No	No
7	2	18	2	70	No	No	No	No	No	No	No	No	No	No
8	2	18	2	66	No	No	No	No	No	No	No	No	No	No
9	2	14	2	53	No	No	No	No	No	No	No	No	No	No
10	2	14	2	49	No	No	No	No	No	No	No	No	No	No
11	2	14	2	49	No	No	No	No	No	No	No	No	No	No
12	2	12	2	48	No	No	No	No	No	No	No	No	No	No
13	2	12	2	43	No	No	No	No	No	No	No	No	No	No
14	2	10	2	40	No	No	No	No	No	No	No	No	No	No
15	2	10	2	40	No	No	No	No	No	No	No	No	No	No
16	2	10	2	39	No	No	No	No	No	No	No	No	No	No
17	2	6	2	22	No	No	No	No	No	No	No	No	No	No
18	2	4	2	12	No	No	No	No	No	No	No	No	No	No
19	2	4	2	12	No	No	No	No	No	No	No	No	No	No
20	2	2	2	4	No	No	No	No	No	No	No	No	No	No
21	2	0	2	4	No	No	No	No	No	No	No	No	No	No
22	2	0	2	4	No	No	No	No	No	No	No	No	No	No
23	2	0	2	3	No	No	No	No	No	No	No	No	No	No
24	2	0	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.2	9.5
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:13
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	25	85
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	140	140
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	25	105	15	75
2	24	101	14	72
3	24	99	14	71
4	20	84	12	60
5	19	80	11	57
6	17	71	10	51
7	16	66	9	47
8	15	63	9	45
9	12	50	7	36
10	11	47	7	34
11	11	47	7	34
12	11	45	6	32
13	10	41	6	29
14	9	38	5	27
15	9	38	5	27
16	9	37	5	26
17	5	21	3	15
18	3	12	2	8
19	3	11	2	8
20	1	4	1	3
21	1	3	0	2
22	1	3	0	2
23	1	2	0	2
24	1	2	0	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	130	3	90	No	No	No	No	No	No	No	No	No	No
2	6	125	3	86	No	No	No	No	No	No	No	No	No	No
3	6	123	3	85	No	No	No	No	No	No	No	No	No	No
4	6	104	3	72	No	No	No	No	No	No	No	No	No	No
5	6	99	3	68	No	No	No	No	No	No	No	No	No	No
6	6	88	3	61	No	No	No	No	No	No	No	No	No	No
7	6	82	3	56	No	No	No	No	No	No	No	No	No	No
8	6	78	3	54	No	No	No	No	No	No	No	No	No	No
9	6	62	3	43	No	No	No	No	No	No	No	No	No	No
10	6	58	3	41	No	No	No	No	No	No	No	No	No	No
11	6	58	3	41	No	No	No	No	No	No	No	No	No	No
12	6	56	3	38	No	No	No	No	No	No	No	No	No	No
13	6	51	3	35	No	No	No	No	No	No	No	No	No	No
14	6	47	3	32	No	No	No	No	No	No	No	No	No	No
15	6	47	3	32	No	No	No	No	No	No	No	No	No	No
16	6	46	3	31	No	No	No	No	No	No	No	No	No	No
17	6	26	3	18	No	No	No	No	No	No	No	No	No	No
18	6	15	3	10	No	No	No	No	No	No	No	No	No	No
19	6	14	3	10	No	No	No	No	No	No	No	No	No	No
20	6	5	3	4	No	No	No	No	No	No	No	No	No	No
21	6	4	3	2	No	No	No	No	No	No	No	No	No	No
22	6	4	3	2	No	No	No	No	No	No	No	No	No	No
23	6	3	3	2	No	No	No	No	No	No	No	No	No	No
24	6	3	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

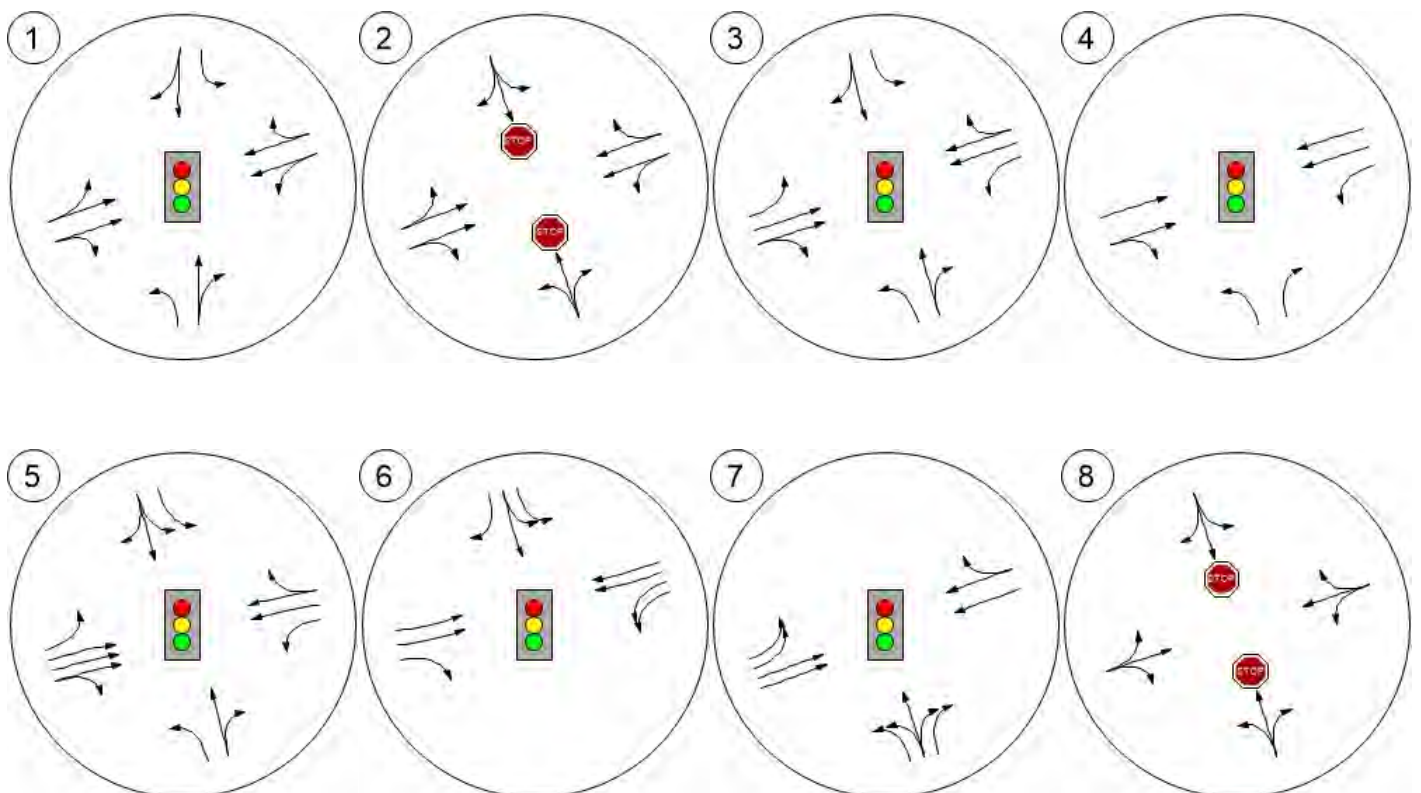
Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8	7.6
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:09
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	75
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	220	220
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Study Intersections

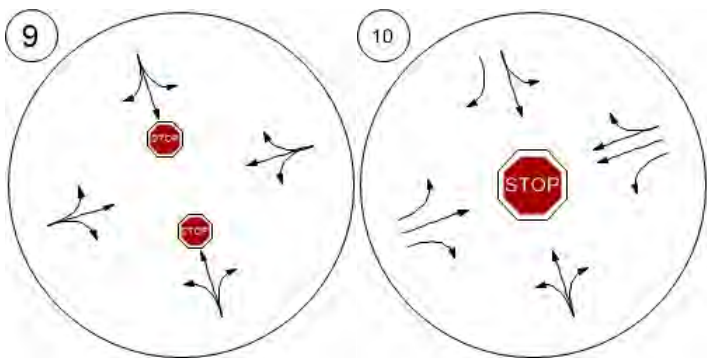




# Lane Configuration and Traffic Control

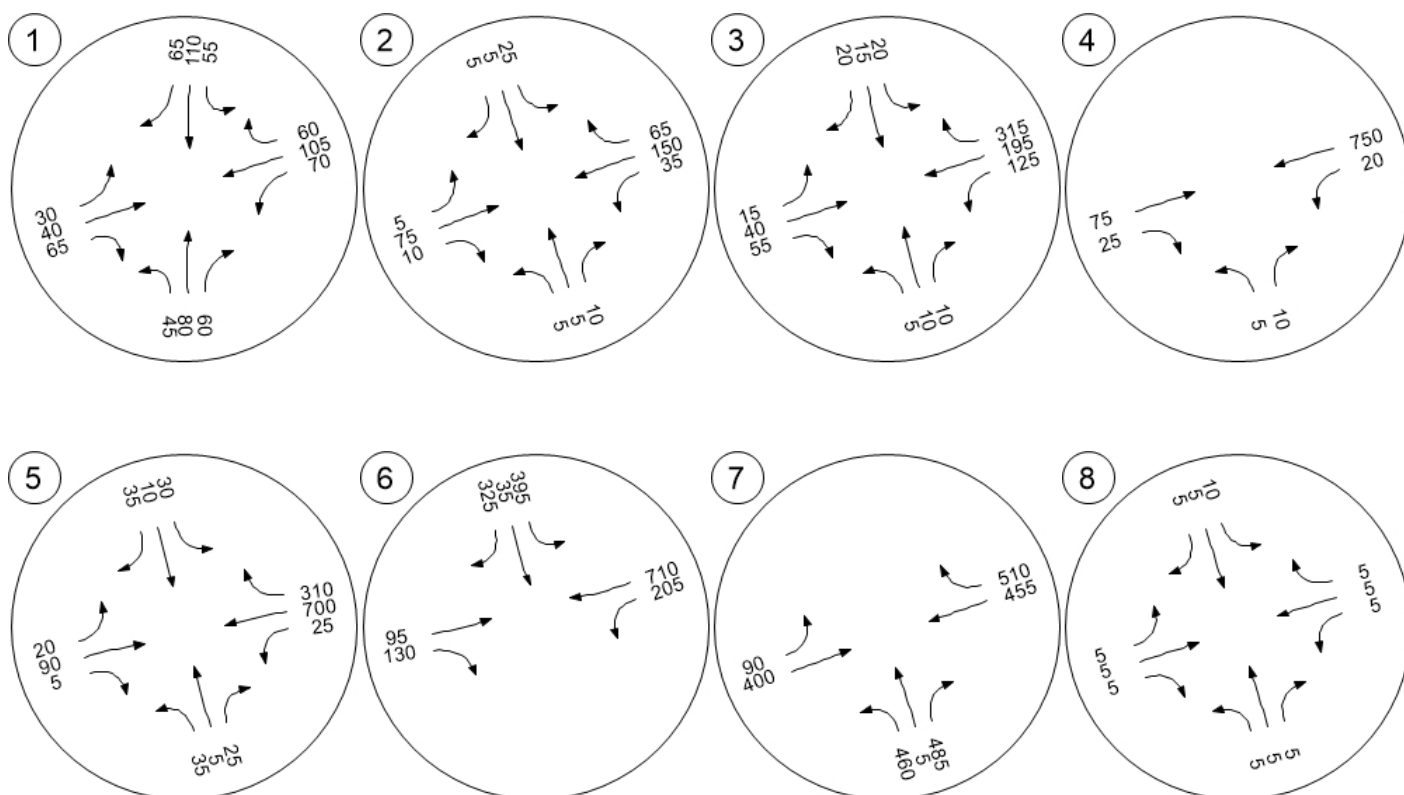


## Lane Configuration and Traffic Control

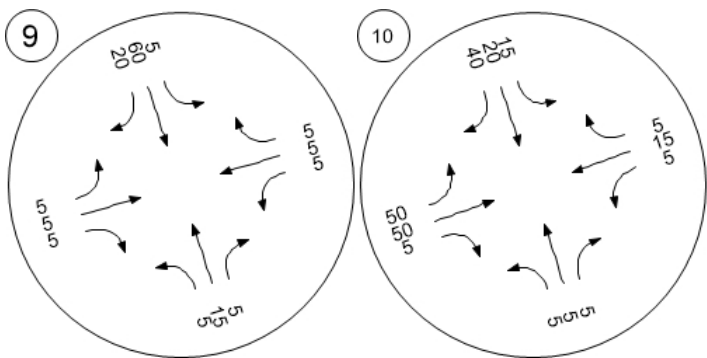




Traffic Volume - Base Volume

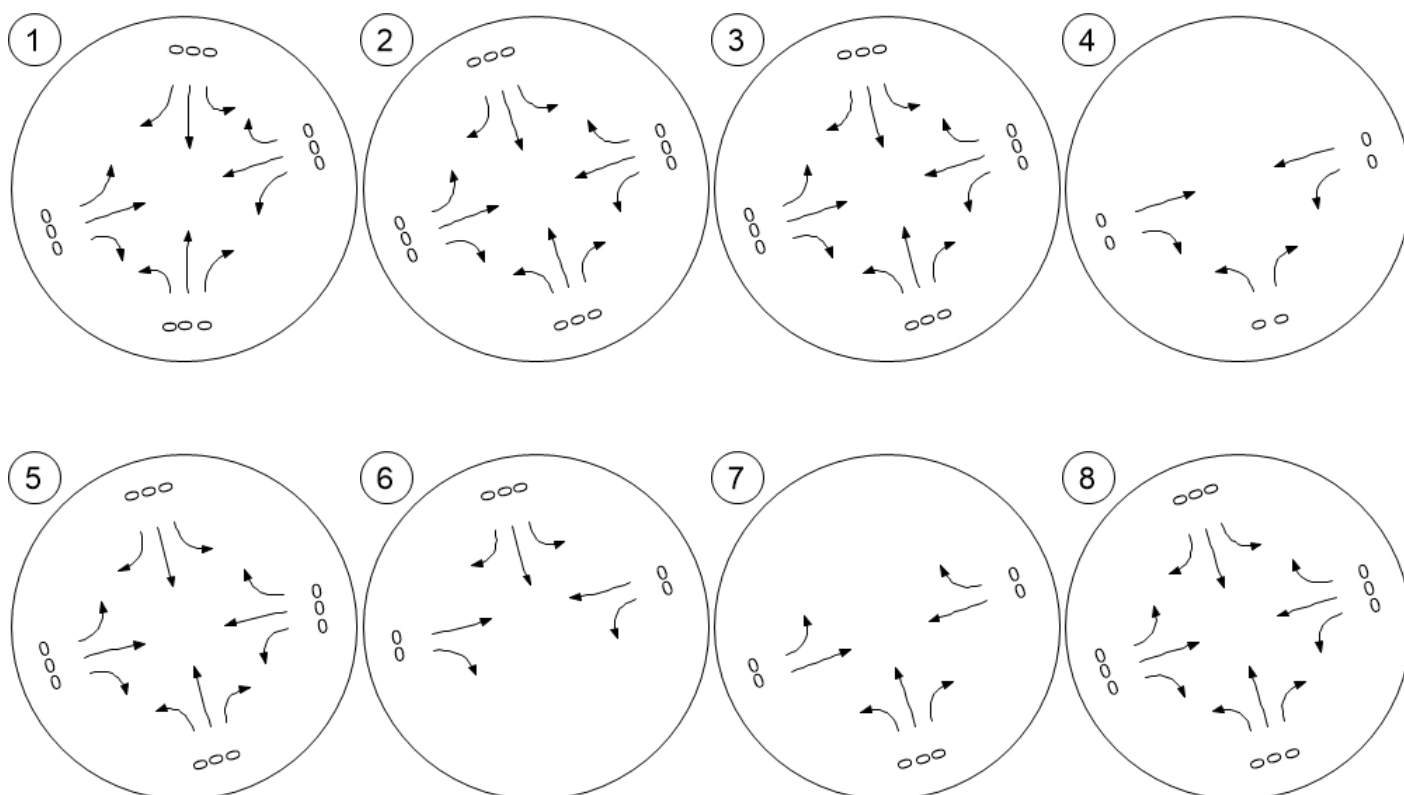


Traffic Volume - Base Volume



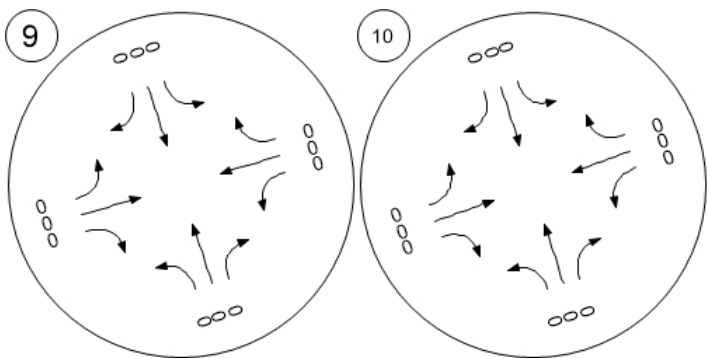


Traffic Volume - In-Process Volume

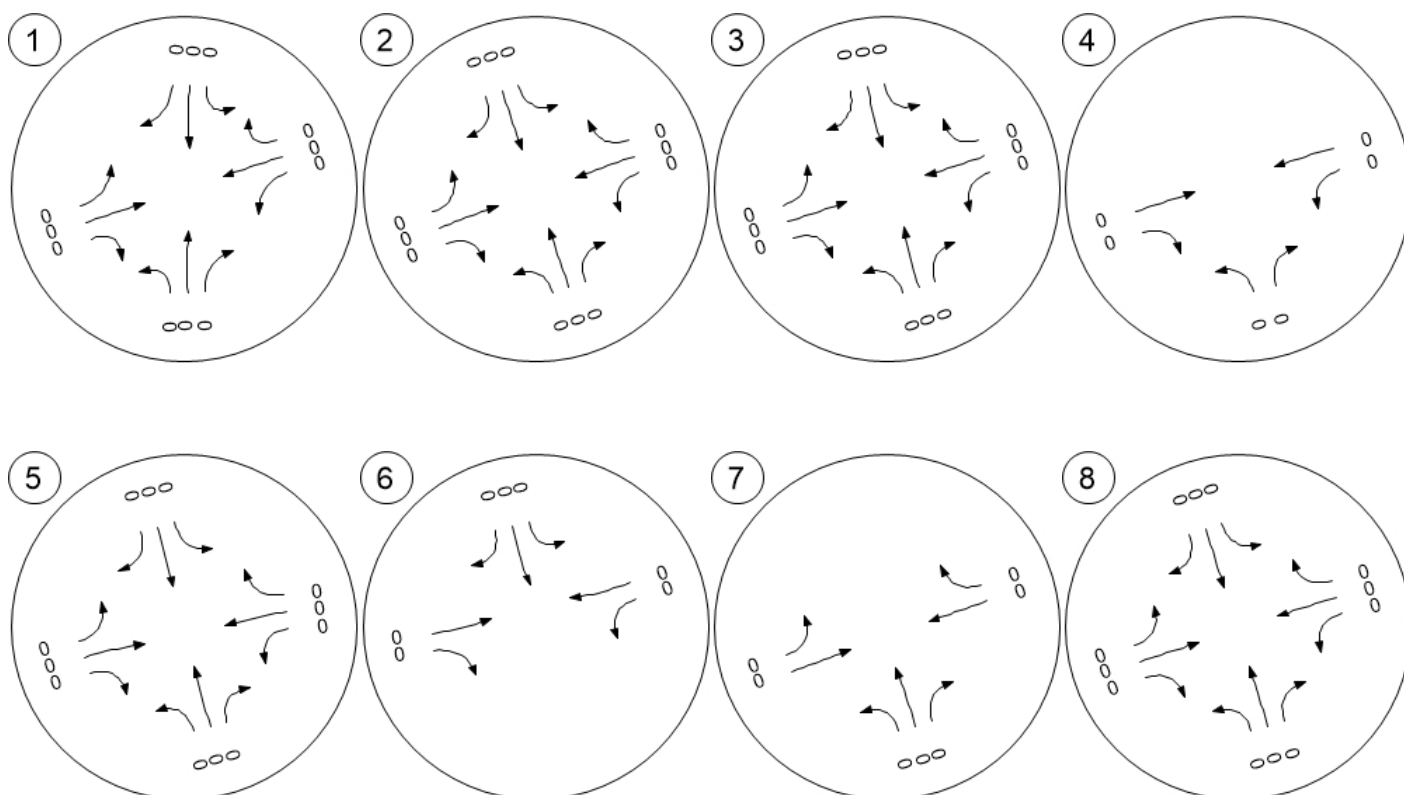




Traffic Volume - In-Process Volume

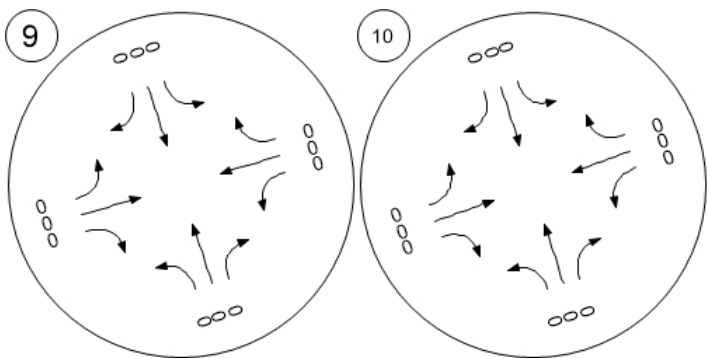


# Traffic Volume - Net New Site Trips

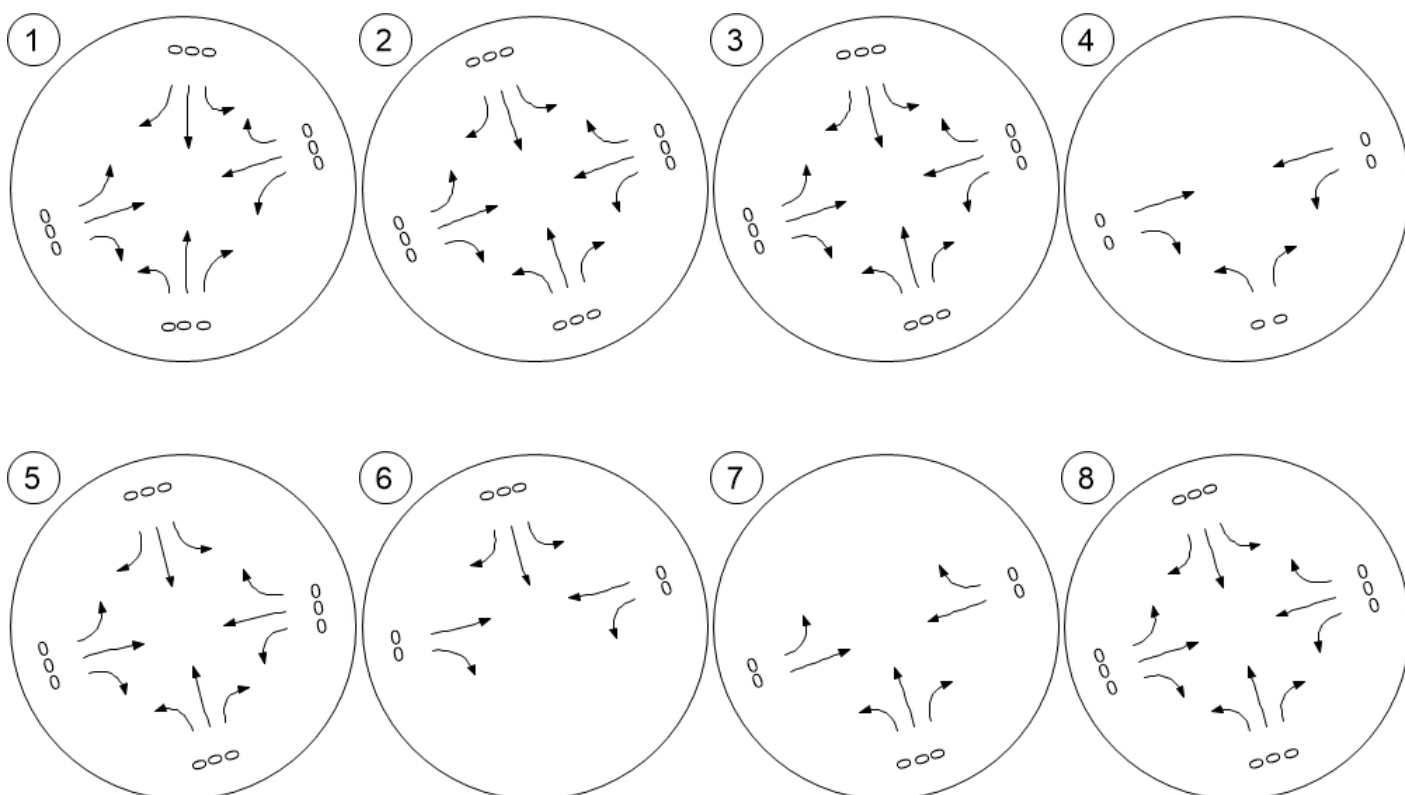




Traffic Volume - Net New Site Trips

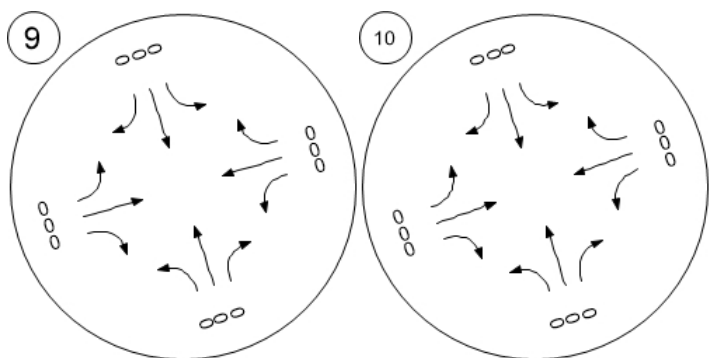


Traffic Volume - Other Volume



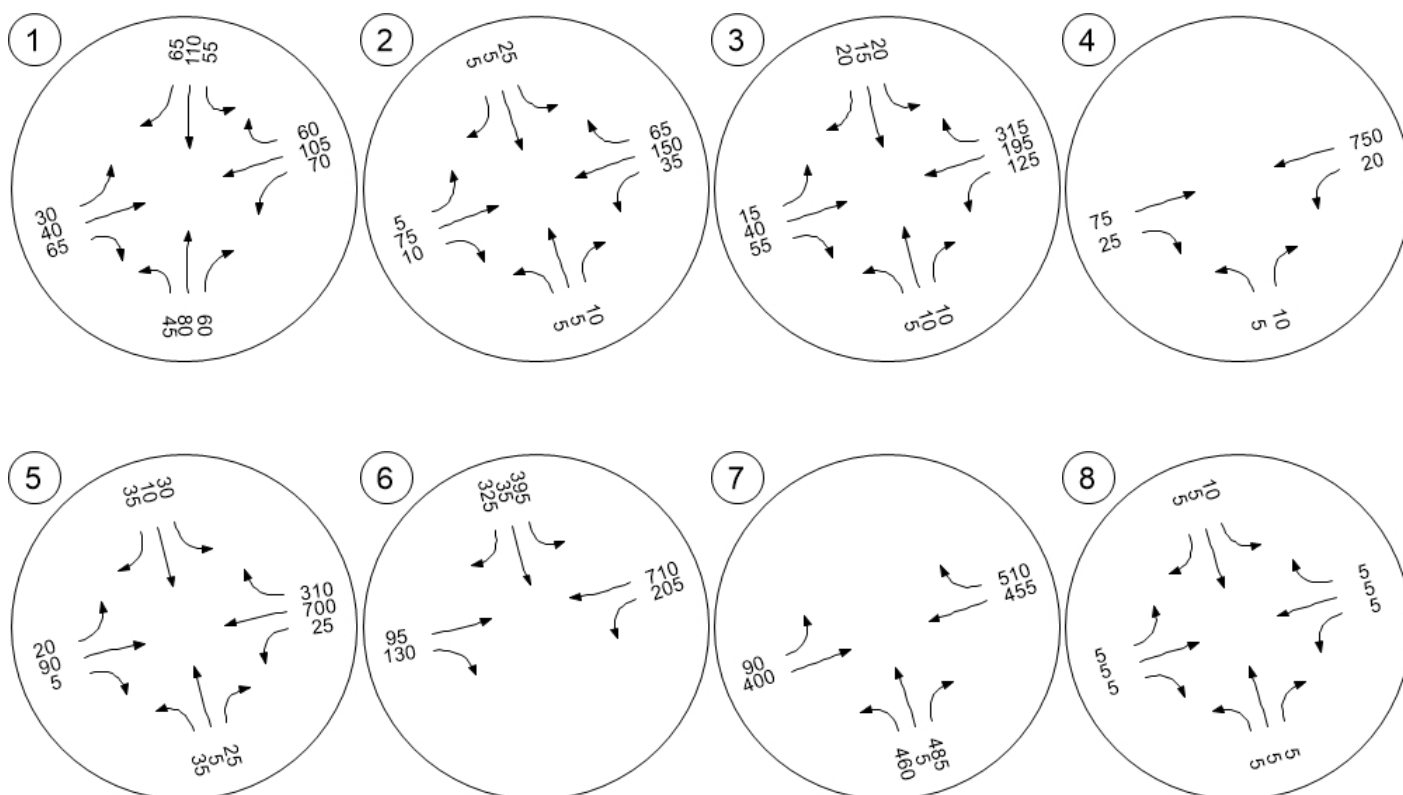


Traffic Volume - Other Volume

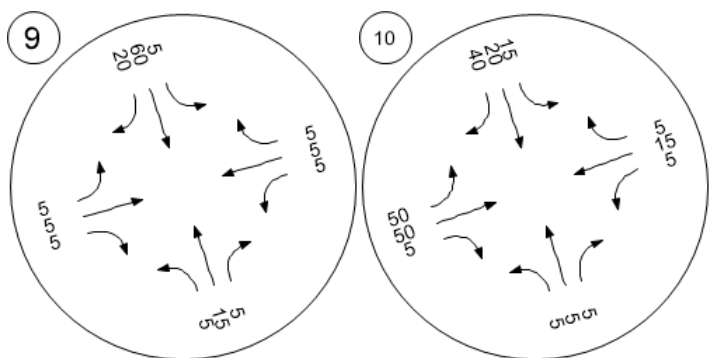




Traffic Volume - Future Total Volume

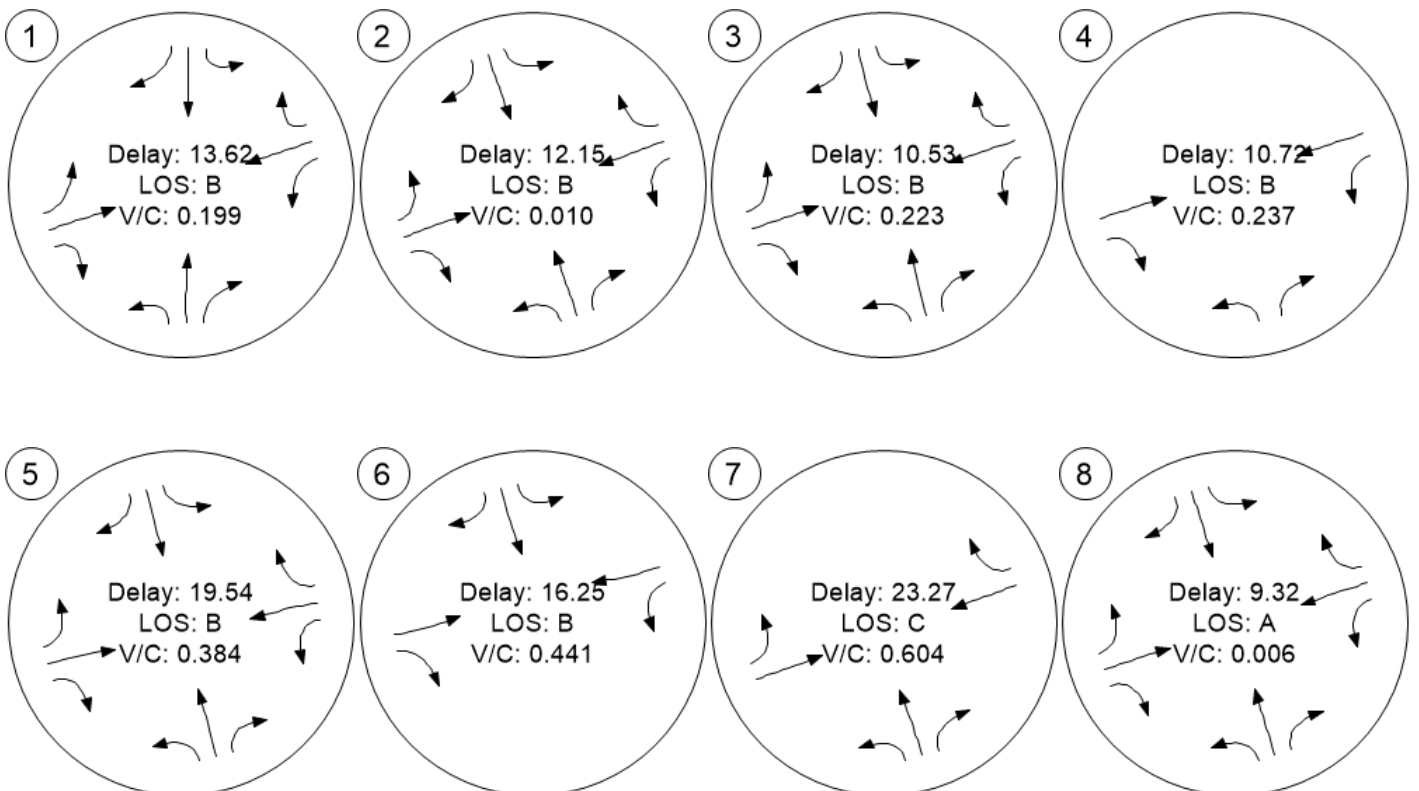


Traffic Volume - Future Total Volume

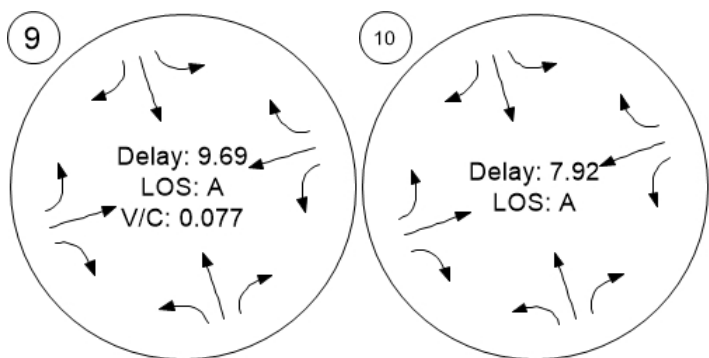




## Traffic Conditions



Traffic Conditions



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 10: Future Year PM

Report File: P:\...\10. Future PM.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.096	12.8	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBT	0.008	11.3	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	SBL	0.223	13.8	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.237	20.5	C
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.291	24.4	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.609	23.8	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.560	15.7	B
8	28th Street / Quay Avenue	Two-way stop	HCM2000	SBT	0.013	9.4	A
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBL	0.026	11.1	B
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.1	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.







**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.096

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	15	40	30	40	60	20	45	65	20	10	5	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	40	30	40	60	20	45	65	20	10	5	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	11	8	11	16	5	12	18	5	3	1	3
Total Analysis Volume [veh/h]	16	43	33	43	65	22	49	71	22	11	5	11
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.03	0.05	0.05	0.01
Total Saturation Flow Adjustment	0.69	0.92	0.69	0.94	0.79	0.77
s, saturation flow rate [veh/h]	1305	1741	1318	1792	2995	2923
c, Capacity [veh/h]	541	721	546	742	1241	1211
d1, Uniform Delay [s]	12.16	12.56	12.41	12.62	12.60	12.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.29	0.28	0.32	0.19	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

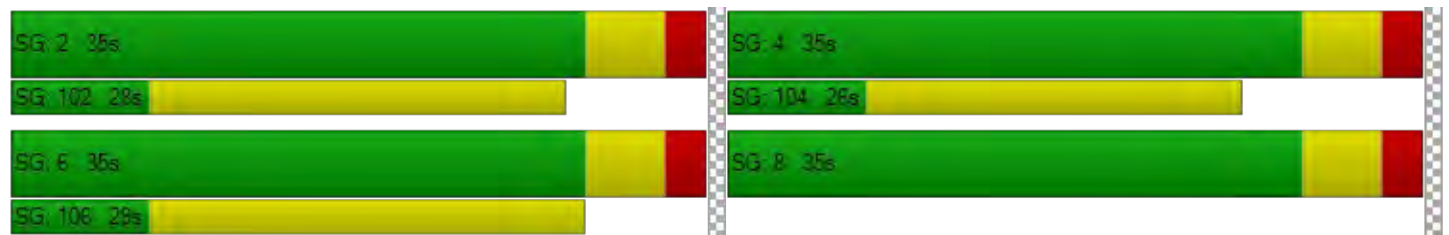
X, volume / capacity	0.03	0.11	0.08	0.12	0.11	0.02
d, Delay for Lane Group [s/veh]	12.26	12.85	12.69	12.94	12.79	12.15
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.20	0.99	0.56	1.14	0.98	0.18
50th-Percentile Queue Length [ft]	5.09	24.87	14.00	28.61	24.58	4.47
95th-Percentile Queue Length [veh]	0.52	2.41	1.40	2.74	2.38	0.46
95th-Percentile Queue Length [ft]	13.02	60.17	34.90	68.54	59.52	11.47

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.26	12.85	12.85	12.69	12.94	12.94	12.79	12.79	12.79	12.15	12.15	12.15
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.75			12.86			12.79			12.15		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.76											
Intersection LOS	B											
Intersection V/C	0.096											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.3  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.008

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	15	5	50	30	5	5	5	75	15	20	120	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	5	50	30	5	5	5	75	15	20	120	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	14	8	1	1	1	20	4	5	33	3
Total Analysis Volume [veh/h]	16	5	54	33	5	5	5	82	16	22	130	11
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.02	0.01	0.05	0.05	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	10.46	11.27	8.94	10.90	11.28	9.05	7.51	0.00	0.00	7.45	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.28	0.28	0.28	0.20	0.20	0.20	0.11	0.06	0.00	0.17	0.09	0.00
95th-Percentile Queue Length [ft]	6.89	6.89	6.89	5.12	5.12	5.12	2.78	1.39	0.00	4.33	2.16	0.00
d_A, Approach Delay [s/veh]	9.42			10.73			0.36			1.01		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	3.57											
Intersection LOS	B											

**Intersection Level Of Service Report  
#3: Bay Marina Drive / Tideland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 13.8  
Level Of Service: B  
Volume to Capacity (v/c): 0.223

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	20	40	60	195	110	70	45	85	25	50	55	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	40	60	195	110	70	45	85	25	50	55	75
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	11	16	53	30	19	12	23	7	14	15	20
Total Analysis Volume [veh/h]	22	43	65	212	120	76	49	92	27	54	60	82
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	31	31	31	31	27	27	27	27	27
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.17	0.12	0.04	0.03	0.04	0.03	0.06
Total Saturation Flow Adjustment	0.62	0.80	0.67	0.83	0.70	0.90	0.66	0.98	0.75
s, saturation flow rate [veh/h]	1182	1525	1280	1579	1334	3426	1261	1863	1425
c, Capacity [veh/h]	523	675	567	699	514	1321	486	718	550
d1, Uniform Delay [s]	11.07	11.69	13.02	12.40	13.71	13.68	13.80	13.65	14.01
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.15	0.51	1.88	1.00	0.37	0.13	0.46	0.23	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.16	0.37	0.28	0.10	0.09	0.11	0.08	0.15
d, Delay for Lane Group [s/veh]	11.22	12.20	14.90	13.40	14.08	13.82	14.26	13.87	14.59
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	no	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.27	1.40	3.13	2.71	0.67	0.85	0.75	0.81	1.15
50th-Percentile Queue Length [ft]	6.74	34.94	78.34	67.83	16.77	21.17	18.65	20.24	28.74
95th-Percentile Queue Length [veh]	0.69	3.29	6.69	5.92	1.66	2.07	1.84	1.98	2.75
95th-Percentile Queue Length [ft]	17.17	82.31	167.21	147.96	41.50	51.74	45.91	49.60	68.82



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	11.22	12.20	12.20	14.90	13.40	13.40	14.08	13.82	13.82	14.26	13.87	14.59
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.03			14.18			13.89			14.28		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.84											
Intersection LOS	B											
Intersection V/C	0.223											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 20.5  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.237

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	10	55	440	60	70	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	55	440	60	70	230
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	15	120	16	19	63
Total Analysis Volume [veh/h]	11	60	478	65	76	250
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	55	0	18	73
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	49	14	67
g / C, Green / Cycle	0.28	0.28	0.45	0.13	0.61
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.16	0.04	0.07
Total Saturation Flow Adjustment	0.93	0.83	0.92	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3483	1770	3547
c, Capacity [veh/h]	499	446	1552	225	2160
d1, Uniform Delay [s]	28.55	29.49	20.04	43.77	9.04
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.63	0.62	4.02	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.13	0.35	0.34	0.12
d, Delay for Lane Group [s/veh]	28.63	30.11	20.66	47.79	9.15
Lane Group LOS	C	C	C	D	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.26	1.48	6.33	2.35	1.87
50th-Percentile Queue Length [ft]	6.53	37.11	158.31	58.76	46.87
95th-Percentile Queue Length [veh]	0.67	3.48	11.92	5.23	4.29
95th-Percentile Queue Length [ft]	16.64	86.95	297.92	130.74	107.21

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	28.63	30.11	20.66	20.66	47.79	9.15
Movement LOS	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	29.88		20.66		18.16	
Approach LOS	C		C		B	
d_I, Intersection Delay [s/veh]	20.49					
Intersection LOS	C					
Intersection V/C	0.237					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-









### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 24.4  
Level Of Service: C  
Volume to Capacity (v/c): 0.291

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	30	5	35	320	15	50	35	430	30	65	220	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	5	35	320	15	50	35	430	30	65	220	115
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	10	87	4	14	10	117	8	18	60	31
Total Analysis Volume [veh/h]	33	5	38	348	16	54	38	467	33	71	239	125
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	24	0	9	20	0	11	22	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	20	5	16	7	18
g / C, Green / Cycle	0.16	0.16	0.29	0.07	0.23	0.10	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.13	0.02	0.10	0.04	0.11
Total Saturation Flow Adjustment	0.93	0.85	0.88	0.93	0.88	0.93	0.89
s, saturation flow rate [veh/h]	1770	1616	3339	1770	5024	1770	3364
c, Capacity [veh/h]	278	254	954	126	1148	177	865
d1, Uniform Delay [s]	25.34	25.54	20.41	30.84	23.13	29.53	21.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	1.44	1.46	6.01	1.20	6.65	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.12	0.17	0.44	0.30	0.44	0.40	0.42
d, Delay for Lane Group [s/veh]	26.21	26.98	21.88	36.85	24.33	36.19	23.16
Lane Group LOS	C	C	C	D	C	D	C
Critical Lane Group	no	yes	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.60	0.80	3.94	0.80	3.46	1.48	3.49
50th-Percentile Queue Length [ft]	15.09	19.96	98.50	19.93	86.40	37.07	87.31
95th-Percentile Queue Length [veh]	1.50	1.96	8.10	1.96	7.26	3.47	7.32
95th-Percentile Queue Length [ft]	37.52	48.96	202.40	48.88	181.52	86.86	183.12

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	26.21	26.98	26.98	21.88	21.88	21.88	36.85	24.33	24.33	36.19	23.16	23.16
Movement LOS	C	C	C	C	C	C	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.65			21.88			25.22			25.29		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.36											
Intersection LOS	C											
Intersection V/C	0.291											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.8  
Level Of Service: C  
Volume to Capacity (v/c): 0.609

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	685	5	130	0	410	375	410	270	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	685	5	130	0	410	375	410	270	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	186	1	35	0	111	102	111	73	0
Total Analysis Volume [veh/h]	0	0	0	745	5	141	0	446	408	446	293	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	22	0	0	24	0	14	38	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		17	17	19	19	10	33
g / C, Green / Cycle		0.29	0.29	0.32	0.32	0.16	0.56
(v / s)_i Volume / Saturation Flow Rate		0.22	0.09	0.13	0.26	0.13	0.08
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3379	1583	3547	1583	3437	3547
c, Capacity [veh/h]		980	459	1147	512	561	1974
d1, Uniform Delay [s]		19.44	16.60	15.71	18.50	24.13	6.43
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.69	1.73	1.00	12.18	11.08	0.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.77	0.31	0.39	0.80	0.79	0.15
d, Delay for Lane Group [s/veh]		25.12	18.33	16.71	30.68	35.21	6.59
Lane Group LOS		C	B	B	C	D	A
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		7.59	2.05	3.40	8.05	4.88	1.39
50th-Percentile Queue Length [ft]		189.63	51.29	85.06	201.20	122.02	34.82
95th-Percentile Queue Length [veh]		13.80	4.64	7.17	14.49	9.65	3.28
95th-Percentile Queue Length [ft]		345.00	116.08	179.17	362.15	241.21	82.07

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	25.12	25.12	18.33	0.00	16.71	30.68	35.21	6.59	0.00
Movement LOS				C	C	B		B	C	D	A	
d_A, Approach Delay [s/veh]	0.00			24.05			23.38			23.86		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	23.76											
Intersection LOS	C											
Intersection V/C	0.609											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 15.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.560

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	80	5	375	0	0	0	240	855	0	0	600	545
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	5	375	0	0	0	240	855	0	0	600	545
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	1	100	0	0	0	65	230	0	0	161	147
Total Analysis Volume [veh/h]	85	5	399	0	0	0	258	919	0	0	645	586
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	11	46	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	C		L	C	C
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60
g_i, Effective Green Time [s]	9		7	41	30
g / C, Green / Cycle	0.16		0.11	0.69	0.51
(v / s)_i Volume / Saturation Flow Rate	0.11		0.08	0.26	0.37
Total Saturation Flow Adjustment	0.77		0.90	0.93	0.87
s, saturation flow rate [veh/h]	4415		3437	3547	3293
c, Capacity [veh/h]	692		389	2447	1669
d1, Uniform Delay [s]	23.99		25.50	3.89	11.66
k, delay calibration	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	6.01		8.58	0.44	2.96
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.71		0.66	0.38	0.74
d, Delay for Lane Group [s/veh]	30.00		34.08	4.33	14.62
Lane Group LOS	C		C	A	B
Critical Lane Group	yes		yes	no	yes
50th-Percentile Queue Length [veh]	3.57		2.64	3.98	10.55
50th-Percentile Queue Length [ft]	89.35		65.98	99.47	263.67
95th-Percentile Queue Length [veh]	7.47		5.78	8.16	18.15
95th-Percentile Queue Length [ft]	186.68		144.48	204.03	453.86

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	30.00	30.00	30.00	0.00	0.00	0.00	34.08	4.33	0.00	0.00	14.62	14.62
Movement LOS	C	C	C				C	A			B	B
d_A, Approach Delay [s/veh]	30.00			0.00			10.85			14.62		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	15.69											
Intersection LOS	B											
Intersection V/C	0.560											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.4  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.013

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	5	15	10	5	5	5	5	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	5	15	10	5	5	5	5	5	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	1	4	3	1	1	1	1	1	1	1
Total Analysis Volume [veh/h]	5	5	5	16	11	5	5	5	5	5	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.89	9.30	8.41	8.92	9.38	8.49	7.24	0.00	0.00	7.24	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.05	0.05	0.05	0.11	0.11	0.11	0.03	0.03	0.03	0.03	0.03	0.03
95th-Percentile Queue Length [ft]	1.21	1.21	1.21	2.67	2.67	2.67	0.71	0.71	0.71	0.71	0.71	0.71
d_A, Approach Delay [s/veh]	8.87			9.01			2.41			2.41		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.41											
Intersection LOS	A											







**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.026

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	20	65	25	15	50	15	10	5	10	5	5	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	65	25	15	50	15	10	5	10	5	5	10
Peak Hour Factor	0.8200	0.8200	0.8200	0.9000	0.9000	0.9000	0.4600	0.4600	0.4600	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	20	8	4	14	4	5	3	5	5	5	10
Total Analysis Volume [veh/h]	24	79	30	17	56	17	22	11	22	20	20	40
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.03	0.11	0.03	0.03	0.08	0.02	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.10	11.09	9.40	11.12	10.70	9.15	7.37	0.00	0.00	7.31	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.63	0.63	0.63	0.41	0.41	0.41	0.11	0.11	0.11	0.16	0.16	0.16
95th-Percentile Queue Length [ft]	15.70	15.70	15.70	10.23	10.23	10.23	2.77	2.77	2.77	4.00	4.00	4.00
d_A, Approach Delay [s/veh]	10.71			10.48			2.95			1.83		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	7.48											
Intersection LOS	B											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	10	5	15	30	25	70	10	5	10	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	10	5	15	30	25	70	10	5	10	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	1	4	8	7	19	3	1	3	1	1
Total Analysis Volume [veh/h]	5	11	5	16	33	27	76	11	5	11	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.09	0.22	0.10	0.38	0.05	0.02	0.05	0.02	0.02
95th-Percentile Queue Length [ft]	2.21	5.52	2.43	9.51	1.13	0.44	1.28	0.52	0.45
Approach Delay [s/veh]	8.05	7.73		8.50			7.86		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.11								
Intersection LOS	A								



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 10: Future Year PM

Report File: P:\...\10. Future PM.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	15	40	30	40	60	20	45	65	20	10	5	10	360

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	15	5	50	30	5	5	5	75	15	20	120	10	355

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	20	40	60	195	110	70	45	85	25	50	55	75	830

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	10	55	440	60	70	230	865

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	30	5	35	320	15	50	35	430	30	65	220	115	1350

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	685	5	130	410	375	410	270	2285

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	80	5	375	240	855	600	545	2700

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	5	5	5	15	10	5	5	5	5	5	5	5	75

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	20	65	25	15	50	15	10	5	10	5	5	10	235

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	5	10	5	15	30	25	70	10	5	10	5	5	195

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 10: Future Year PM

Report File: P:\...\10. Future PM.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	15	40	30	40	60	20	45	65	20	10	5	10	360
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>40</b>	<b>30</b>	<b>40</b>	<b>60</b>	<b>20</b>	<b>45</b>	<b>65</b>	<b>20</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>360</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	15	5	50	30	5	5	5	75	15	20	120	10	355
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>5</b>	<b>50</b>	<b>30</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>75</b>	<b>15</b>	<b>20</b>	<b>120</b>	<b>10</b>	<b>355</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	20	40	60	195	110	70	45	85	25	50	55	75	830
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>20</b>	<b>40</b>	<b>60</b>	<b>195</b>	<b>110</b>	<b>70</b>	<b>45</b>	<b>85</b>	<b>25</b>	<b>50</b>	<b>55</b>	<b>75</b>	<b>830</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	10	55	440	60	70	230	865
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>55</b>	<b>440</b>	<b>60</b>	<b>70</b>	<b>230</b>	<b>865</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	30	5	35	320	15	50	35	430	30	65	220	115	1350
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>30</b>	<b>5</b>	<b>35</b>	<b>320</b>	<b>15</b>	<b>50</b>	<b>35</b>	<b>430</b>	<b>30</b>	<b>65</b>	<b>220</b>	<b>115</b>	<b>1350</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	685	5	130	410	375	410	270	2285
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>685</b>	<b>5</b>	<b>130</b>	<b>410</b>	<b>375</b>	<b>410</b>	<b>270</b>	<b>2285</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	80	5	375	240	855	600	545	2700
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>80</b>	<b>5</b>	<b>375</b>	<b>240</b>	<b>855</b>	<b>600</b>	<b>545</b>	<b>2700</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
8	28th Street / Quay Avenue	Final Base	5	5	5	15	10	5	5	5	5	5	5	5	75
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>75</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	Final Base	20	65	25	15	50	15	10	5	10	5	5	10	235
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>20</b>	<b>65</b>	<b>25</b>	<b>15</b>	<b>50</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>235</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	5	10	5	15	30	25	70	10	5	10	5	5	195
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>15</b>	<b>30</b>	<b>25</b>	<b>70</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>195</b>



## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	150	95	70	40
2	144	91	67	38
3	141	89	66	38
4	120	76	56	32
5	114	72	53	30
6	102	65	48	27
7	95	60	44	25
8	90	57	42	24
9	72	46	34	19
10	68	43	32	18
11	68	43	32	18
12	65	41	30	17
13	59	37	27	16
14	54	34	25	14
15	54	34	25	14
16	53	33	25	14
17	30	19	14	8
18	17	10	8	4
19	15	10	7	4
20	6	4	3	2
21	5	3	2	1
22	5	3	2	1
23	3	2	1	1
24	3	2	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	245	2	110	No	No	No	No	No	No	No	No	No	No
2	4	235	2	105	No	No	No	No	No	No	No	No	No	No
3	4	230	2	104	No	No	No	No	No	No	No	No	No	No
4	4	196	2	88	No	No	No	No	No	No	No	No	No	No
5	4	186	2	83	No	No	No	No	No	No	No	No	No	No
6	4	167	2	75	No	No	No	No	No	No	No	No	No	No
7	4	155	2	69	No	No	No	No	No	No	No	No	No	No
8	4	147	2	66	No	No	No	No	No	No	No	No	No	No
9	4	118	2	53	No	No	No	No	No	No	No	No	No	No
10	4	111	2	50	No	No	No	No	No	No	No	No	No	No
11	4	111	2	50	No	No	No	No	No	No	No	No	No	No
12	4	106	2	47	No	No	No	No	No	No	No	No	No	No
13	4	96	2	43	No	No	No	No	No	No	No	No	No	No
14	4	88	2	39	No	No	No	No	No	No	No	No	No	No
15	4	88	2	39	No	No	No	No	No	No	No	No	No	No
16	4	86	2	39	No	No	No	No	No	No	No	No	No	No
17	4	49	2	22	No	No	No	No	No	No	No	No	No	No
18	4	27	2	12	No	No	No	No	No	No	No	No	No	No
19	4	25	2	11	No	No	No	No	No	No	No	No	No	No
20	4	10	2	5	No	No	No	No	No	No	No	No	No	No
21	4	8	2	3	No	No	No	No	No	No	No	No	No	No
22	4	8	2	3	No	No	No	No	No	No	No	No	No	No
23	4	5	2	2	No	No	No	No	No	No	No	No	No	No
24	4	5	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.4	10.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:10	0:07
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	70	40
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	355	355
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	15	15	15	30
2	14	14	14	29
3	14	14	14	28
4	12	12	12	24
5	11	11	11	23
6	10	10	10	20
7	9	9	9	19
8	9	9	9	18
9	7	7	7	14
10	7	7	7	14
11	7	7	7	14
12	6	6	6	13
13	6	6	6	12
14	5	5	5	11
15	5	5	5	11
16	5	5	5	11
17	3	3	3	6
18	2	2	2	3
19	2	2	2	3
20	1	1	1	1
21	0	0	0	1
22	0	0	0	1
23	0	0	0	1
24	0	0	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	30	2	45	No	No	No	No	No	No	No	No	No	No
2	2	28	2	43	No	No	No	No	No	No	No	No	No	No
3	2	28	2	42	No	No	No	No	No	No	No	No	No	No
4	2	24	2	36	No	No	No	No	No	No	No	No	No	No
5	2	22	2	34	No	No	No	No	No	No	No	No	No	No
6	2	20	2	30	No	No	No	No	No	No	No	No	No	No
7	2	18	2	28	No	No	No	No	No	No	No	No	No	No
8	2	18	2	27	No	No	No	No	No	No	No	No	No	No
9	2	14	2	21	No	No	No	No	No	No	No	No	No	No
10	2	14	2	21	No	No	No	No	No	No	No	No	No	No
11	2	14	2	21	No	No	No	No	No	No	No	No	No	No
12	2	12	2	19	No	No	No	No	No	No	No	No	No	No
13	2	12	2	18	No	No	No	No	No	No	No	No	No	No
14	2	10	2	16	No	No	No	No	No	No	No	No	No	No
15	2	10	2	16	No	No	No	No	No	No	No	No	No	No
16	2	10	2	16	No	No	No	No	No	No	No	No	No	No
17	2	6	2	9	No	No	No	No	No	No	No	No	No	No
18	2	4	2	5	No	No	No	No	No	No	No	No	No	No
19	2	4	2	5	No	No	No	No	No	No	No	No	No	No
20	2	2	2	2	No	No	No	No	No	No	No	No	No	No
21	2	0	2	1	No	No	No	No	No	No	No	No	No	No
22	2	0	2	1	No	No	No	No	No	No	No	No	No	No
23	2	0	2	1	No	No	No	No	No	No	No	No	No	No
24	2	0	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.9	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:04
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	30
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	75	75
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	20	25	110	80
2	19	24	106	77
3	19	24	103	75
4	16	20	88	64
5	15	19	84	61
6	14	17	75	54
7	13	16	69	50
8	12	15	66	48
9	10	12	53	38
10	9	11	50	36
11	9	11	50	36
12	9	11	47	34
13	8	10	43	31
14	7	9	40	29
15	7	9	40	29
16	7	9	39	28
17	4	5	22	16
18	2	3	12	9
19	2	3	11	8
20	1	1	4	3
21	1	1	3	2
22	1	1	3	2
23	0	1	2	2
24	0	1	2	2



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	45	2	190	No	No	No	No	No	No	No	No	No	No
2	2	43	2	183	No	No	No	No	No	No	No	No	No	No
3	2	43	2	178	No	No	No	No	No	No	No	No	No	No
4	2	36	2	152	No	No	No	No	No	No	No	No	No	No
5	2	34	2	145	No	No	No	No	No	No	No	No	No	No
6	2	31	2	129	No	No	No	No	No	No	No	No	No	No
7	2	29	2	119	No	No	No	No	No	No	No	No	No	No
8	2	27	2	114	No	No	No	No	No	No	No	No	No	No
9	2	22	2	91	No	No	No	No	No	No	No	No	No	No
10	2	20	2	86	No	No	No	No	No	No	No	No	No	No
11	2	20	2	86	No	No	No	No	No	No	No	No	No	No
12	2	20	2	81	No	No	No	No	No	No	No	No	No	No
13	2	18	2	74	No	No	No	No	No	No	No	No	No	No
14	2	16	2	69	No	No	No	No	No	No	No	No	No	No
15	2	16	2	69	No	No	No	No	No	No	No	No	No	No
16	2	16	2	67	No	No	No	No	No	No	No	No	No	No
17	2	9	2	38	No	No	No	No	No	No	No	No	No	No
18	2	5	2	21	No	No	No	No	No	No	No	No	No	No
19	2	5	2	19	No	No	No	No	No	No	No	No	No	No
20	2	2	2	7	No	No	No	No	No	No	No	No	No	No
21	2	2	2	5	No	No	No	No	No	No	No	No	No	No
22	2	2	2	5	No	No	No	No	No	No	No	No	No	No
23	2	1	2	4	No	No	No	No	No	No	No	No	No	No
24	2	1	2	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.7	10.5
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19	0:13
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	110	80
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	235	235
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	20	85	20	70
2	19	82	19	67
3	19	80	19	66
4	16	68	16	56
5	15	65	15	53
6	14	58	14	48
7	13	54	13	44
8	12	51	12	42
9	10	41	10	34
10	9	38	9	32
11	9	38	9	32
12	9	37	9	30
13	8	33	8	27
14	7	31	7	25
15	7	31	7	25
16	7	30	7	25
17	4	17	4	14
18	2	9	2	8
19	2	9	2	7
20	1	3	1	3
21	1	3	1	2
22	1	3	1	2
23	0	2	0	1
24	0	2	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	105	3	90	No	No	No	No	No	No	No	No	No	No
2	6	101	3	86	No	No	No	No	No	No	No	No	No	No
3	6	99	3	85	No	No	No	No	No	No	No	No	No	No
4	6	84	3	72	No	No	No	No	No	No	No	No	No	No
5	6	80	3	68	No	No	No	No	No	No	No	No	No	No
6	6	72	3	62	No	No	No	No	No	No	No	No	No	No
7	6	67	3	57	No	No	No	No	No	No	No	No	No	No
8	6	63	3	54	No	No	No	No	No	No	No	No	No	No
9	6	51	3	44	No	No	No	No	No	No	No	No	No	No
10	6	47	3	41	No	No	No	No	No	No	No	No	No	No
11	6	47	3	41	No	No	No	No	No	No	No	No	No	No
12	6	46	3	39	No	No	No	No	No	No	No	No	No	No
13	6	41	3	35	No	No	No	No	No	No	No	No	No	No
14	6	38	3	32	No	No	No	No	No	No	No	No	No	No
15	6	38	3	32	No	No	No	No	No	No	No	No	No	No
16	6	37	3	32	No	No	No	No	No	No	No	No	No	No
17	6	21	3	18	No	No	No	No	No	No	No	No	No	No
18	6	11	3	10	No	No	No	No	No	No	No	No	No	No
19	6	11	3	9	No	No	No	No	No	No	No	No	No	No
20	6	4	3	4	No	No	No	No	No	No	No	No	No	No
21	6	4	3	3	No	No	No	No	No	No	No	No	No	No
22	6	4	3	3	No	No	No	No	No	No	No	No	No	No
23	6	2	3	1	No	No	No	No	No	No	No	No	No	No
24	6	2	3	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

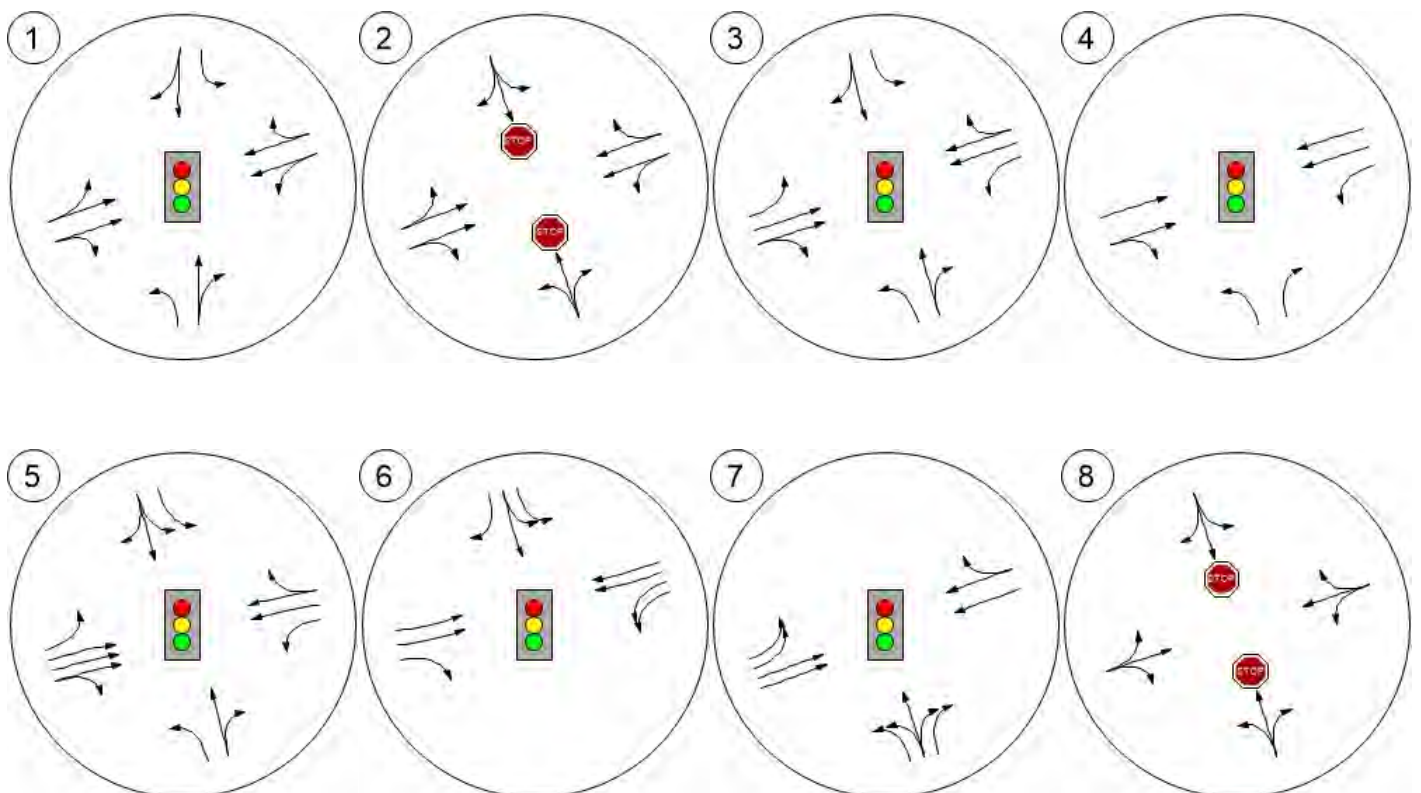
Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8	7.7
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:09
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	20	70
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	195	195
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Study Intersections



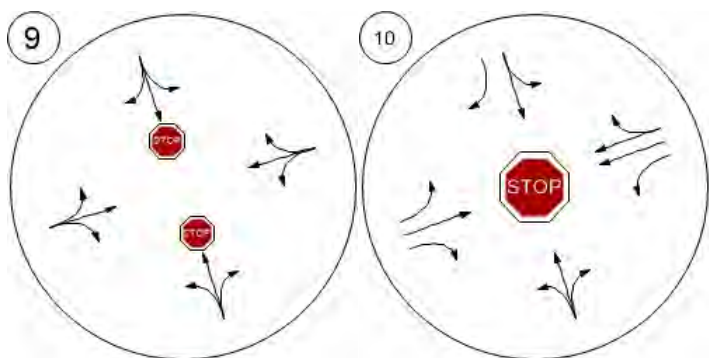


# Lane Configuration and Traffic Control

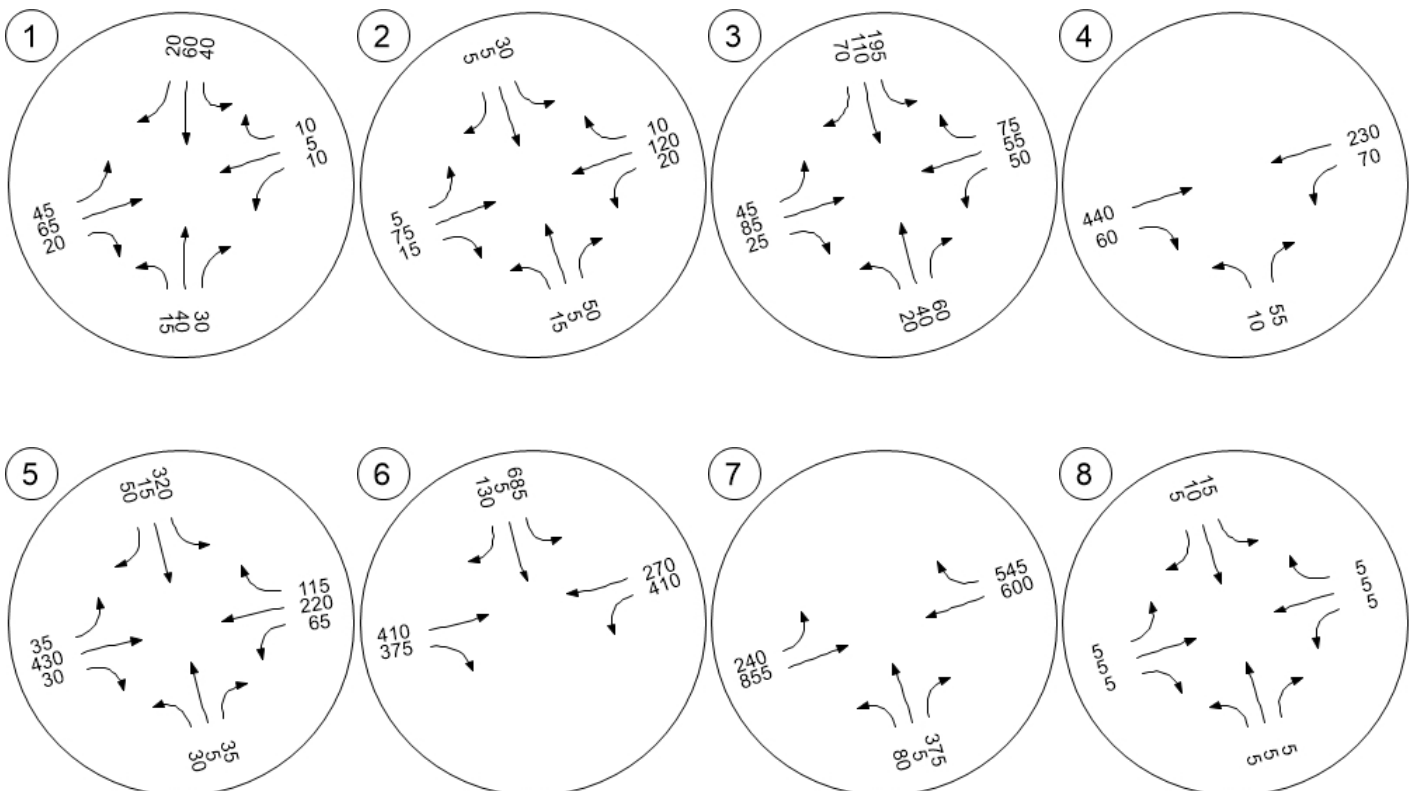




## Lane Configuration and Traffic Control

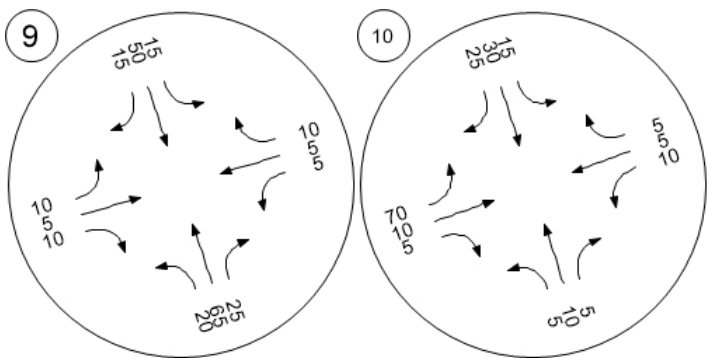


Traffic Volume - Base Volume

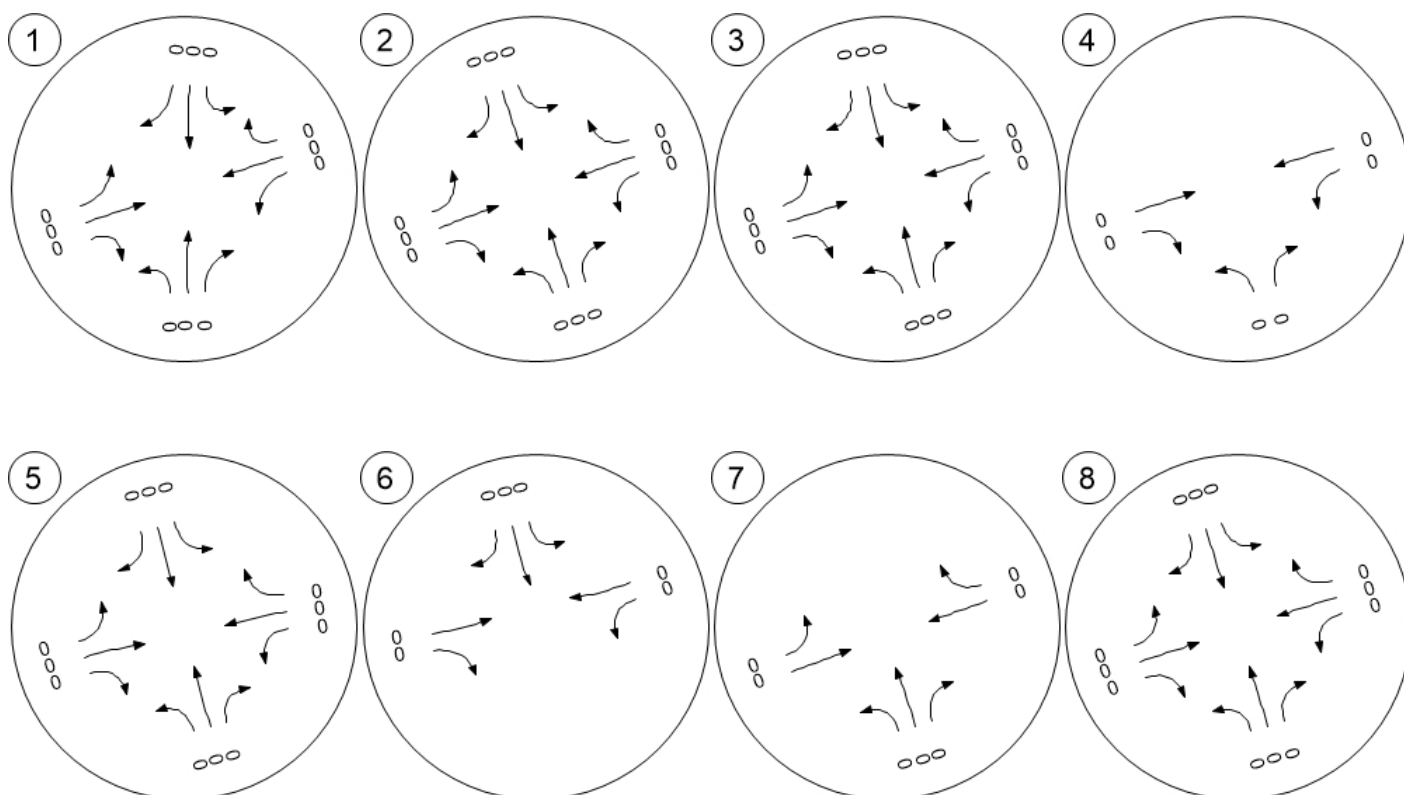




Traffic Volume - Base Volume

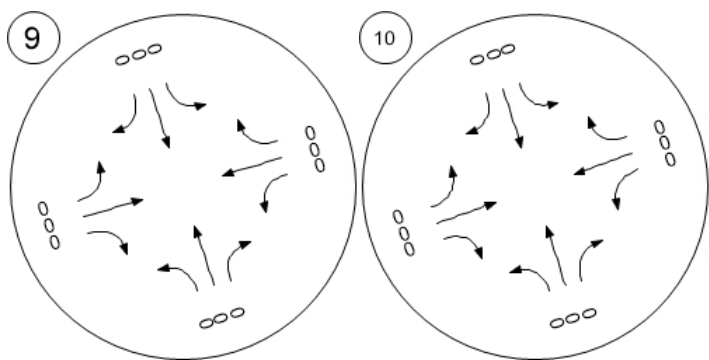


Traffic Volume - In-Process Volume



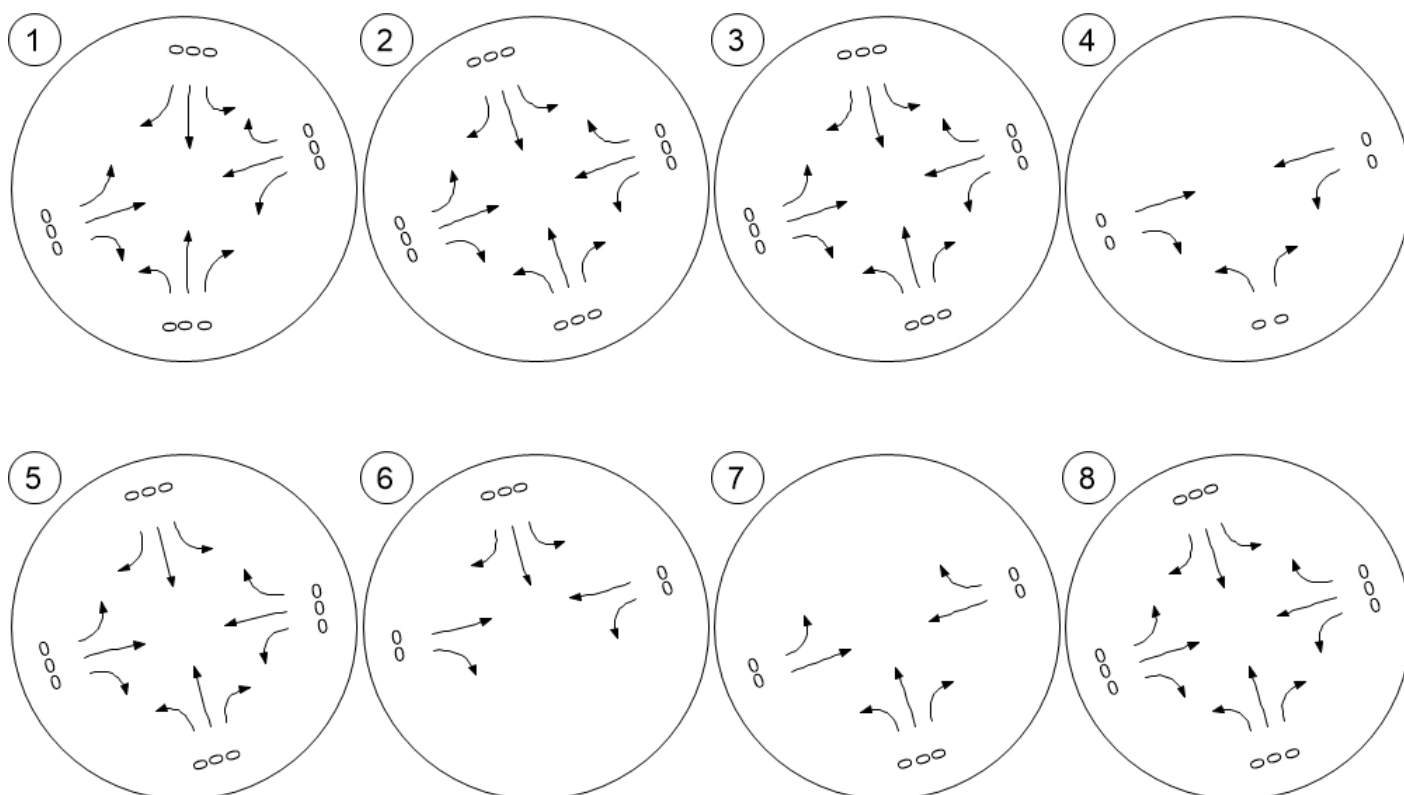


Traffic Volume - In-Process Volume

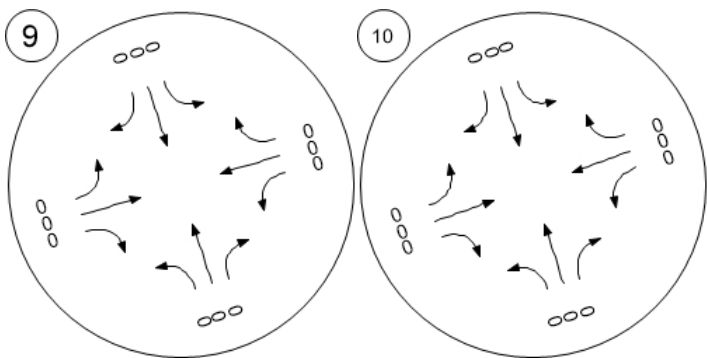




Traffic Volume - Net New Site Trips

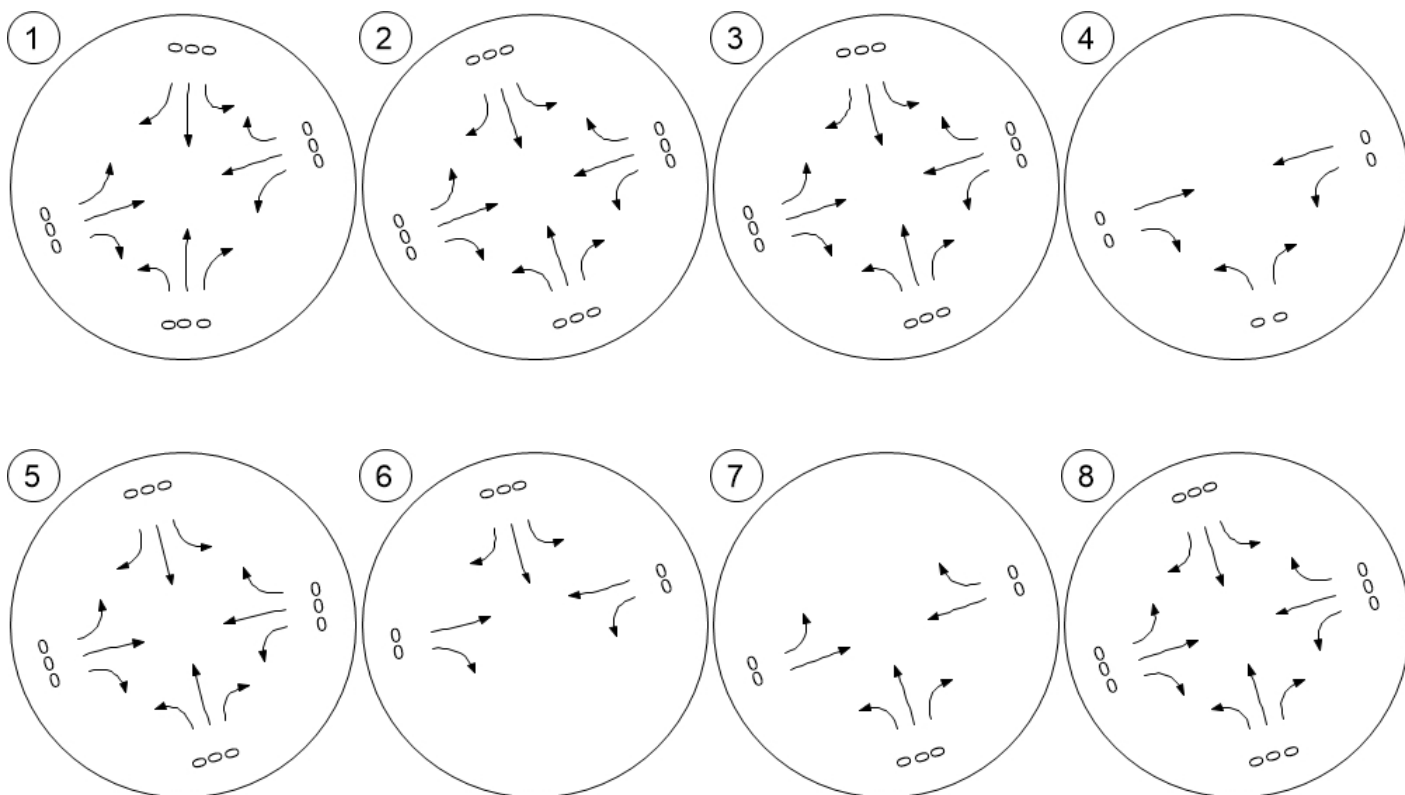


Traffic Volume - Net New Site Trips

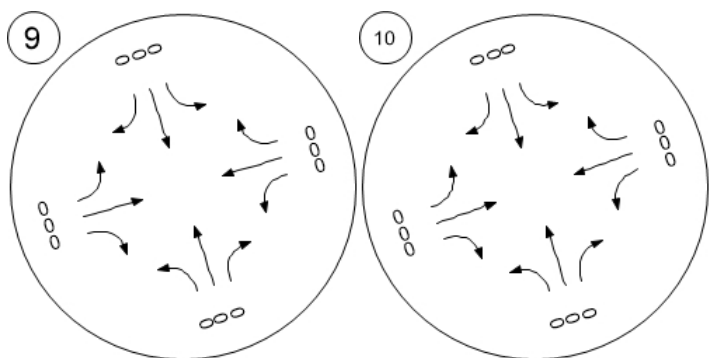




Traffic Volume - Other Volume

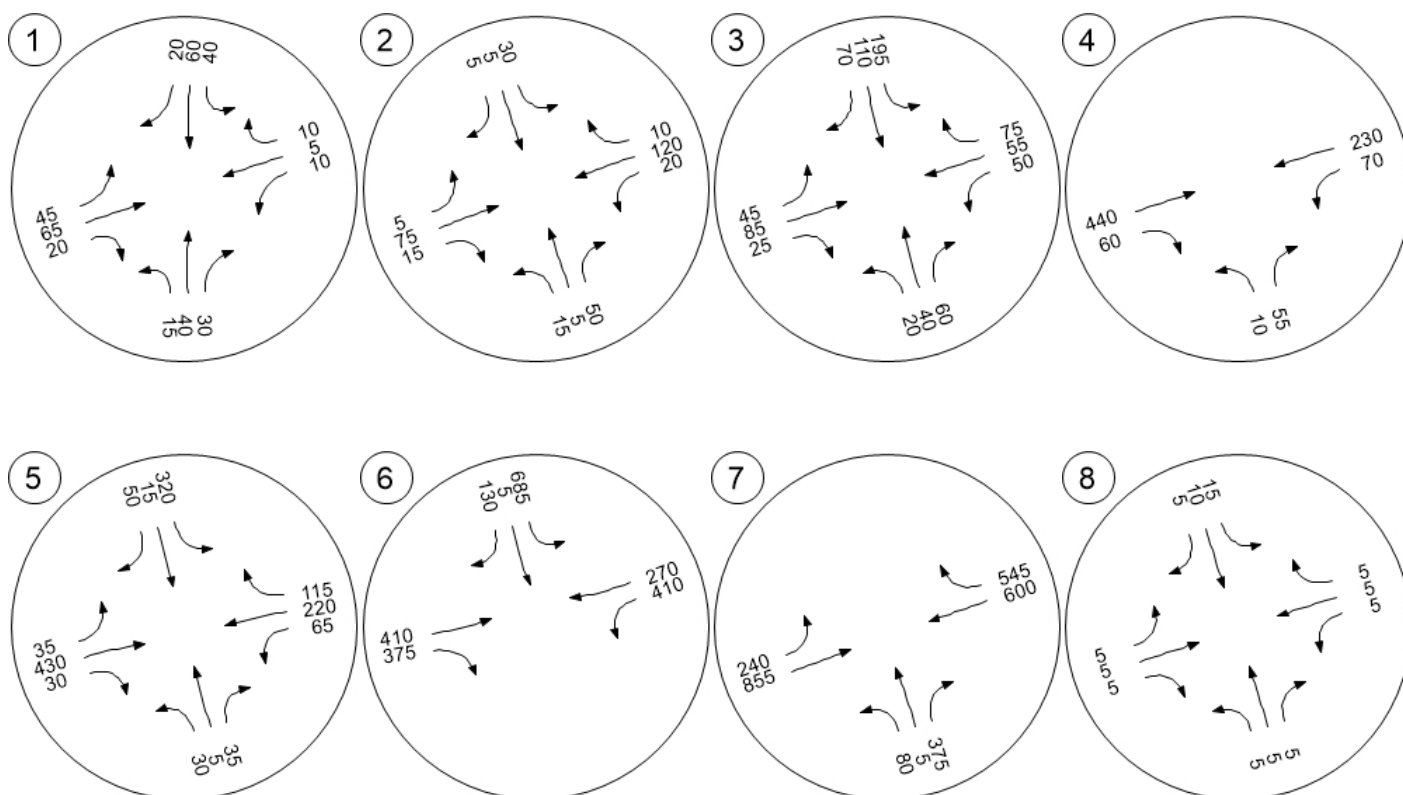


Traffic Volume - Other Volume



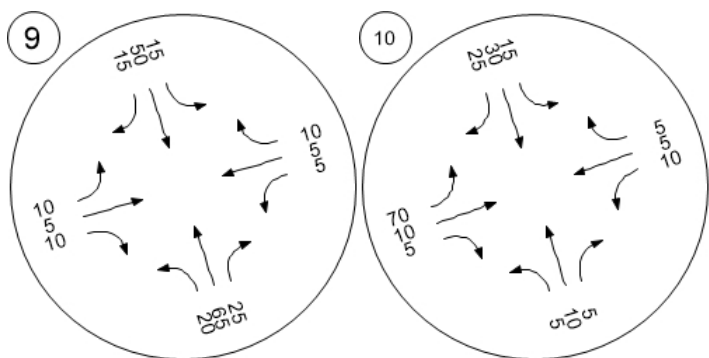


Traffic Volume - Future Total Volume

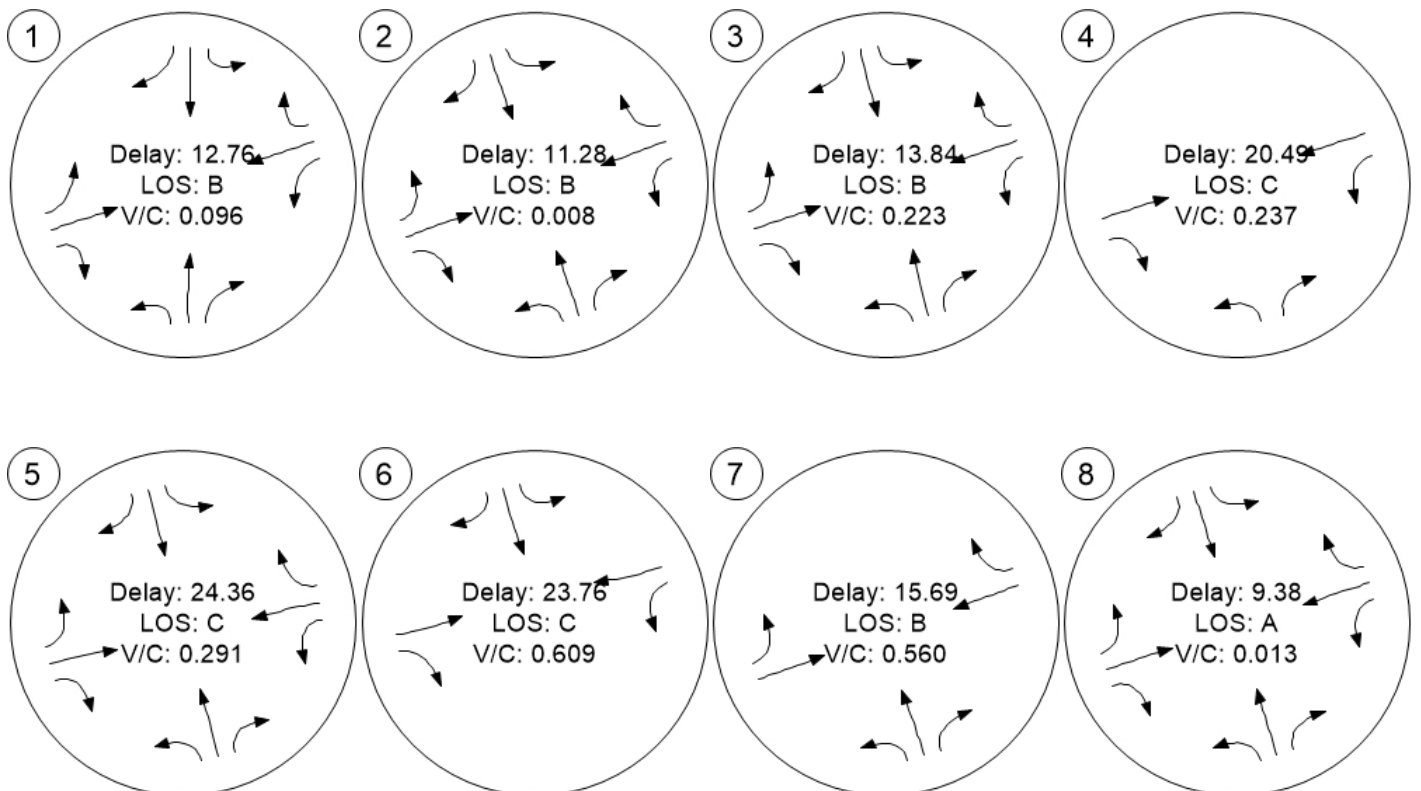




Traffic Volume - Future Total Volume

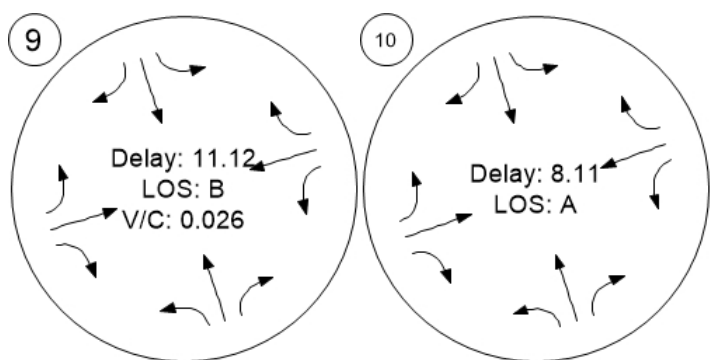


Traffic Conditions





Traffic Conditions

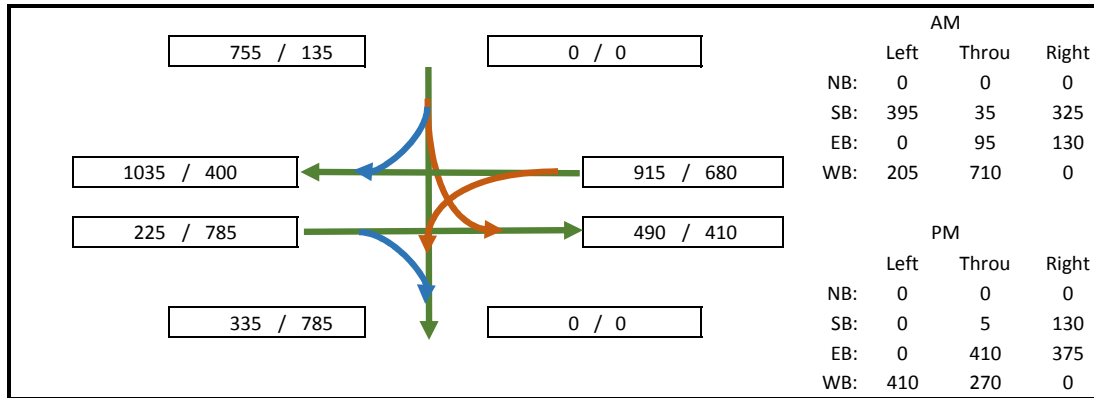


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

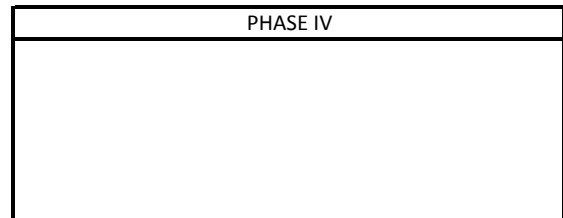
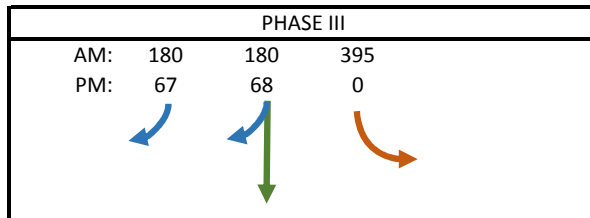
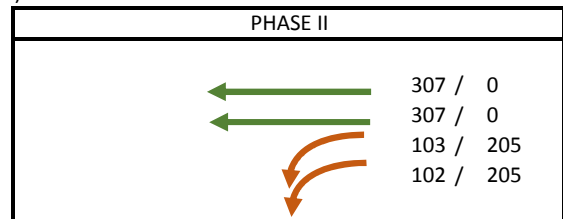
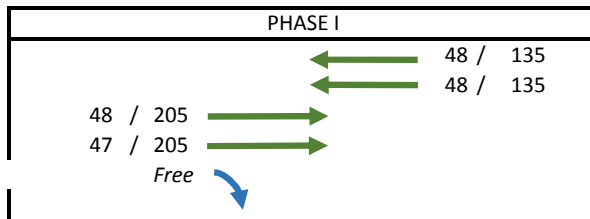
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 ALTERNATIVE: Future Year Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

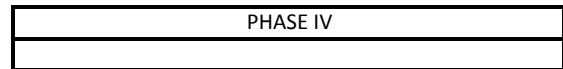
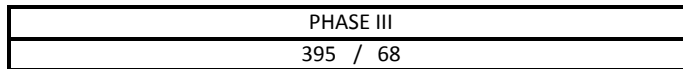
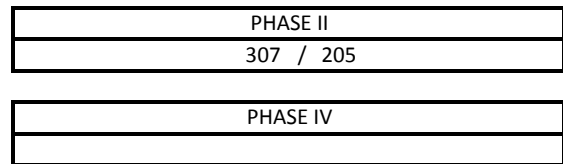
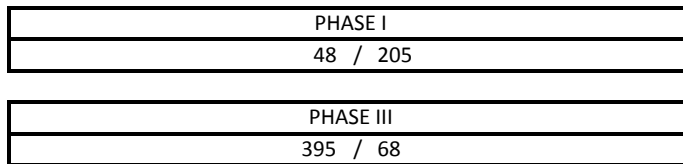
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

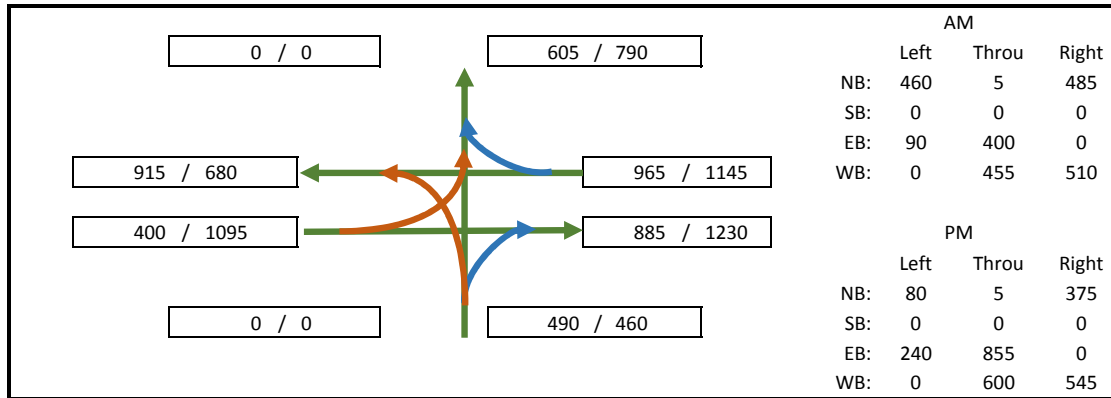
AM:	750	UNDER CAPACITY
PM:	478	UNDER CAPACITY

# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

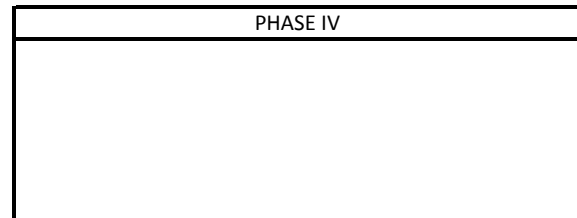
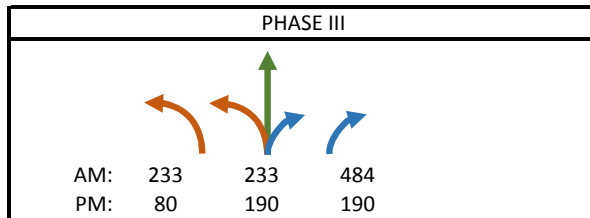
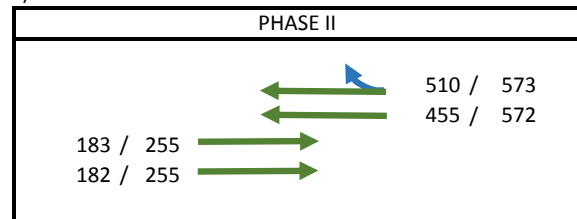
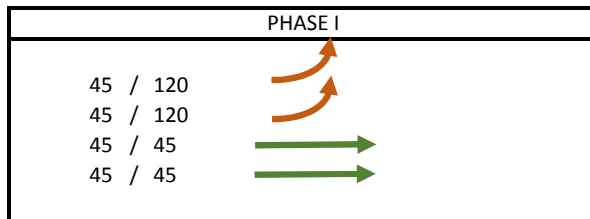
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Future Year Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR

PHASE I
45 / 120
PHASE III
484 / 190

PHASE II
510 / 573
PHASE IV
/

TOTAL OPERATING LEVEL (ILV/HR):

AM: 1039	UNDER CAPACITY
PM: 883	UNDER CAPACITY



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**Appendix L**

**Peak Hour Intersection LOS Worksheets, ILV, and Queueing  
Worksheets – Future Year Base Plus Conditions**

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	SBT	0.199	13.6	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.047	11.6	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	NBR	0.273	11.1	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.270	10.9	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.416	19.9	B
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.487	17.2	B
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.627	25.6	C
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBT	0.104	9.9	A
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.1	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.199

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	45	80	60	55	110	65	30	40	65	70	105	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	89	60	55	110	65	30	40	65	70	105	60
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	24	16	15	30	18	8	11	18	19	29	16
Total Analysis Volume [veh/h]	49	97	65	60	120	71	33	43	71	76	114	65
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.05	0.11	0.05	0.09
Total Saturation Flow Adjustment	0.62	0.92	0.64	0.93	0.74	0.74
s, saturation flow rate [veh/h]	1187	1751	1219	1759	2820	2810
c, Capacity [veh/h]	492	725	505	729	1168	1164
d1, Uniform Delay [s]	12.52	13.23	12.63	13.47	12.67	13.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.40	0.71	0.48	0.88	0.22	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.10	0.22	0.12	0.26	0.13	0.22
d, Delay for Lane Group [s/veh]	12.93	13.94	13.11	14.35	12.89	13.64
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.65	2.25	0.80	2.71	1.03	1.87
50th-Percentile Queue Length [ft]	16.16	56.31	19.97	67.80	25.64	46.68
95th-Percentile Queue Length [veh]	1.60	5.04	1.96	5.92	2.48	4.27
95th-Percentile Queue Length [ft]	40.06	125.99	48.96	147.89	61.90	106.83

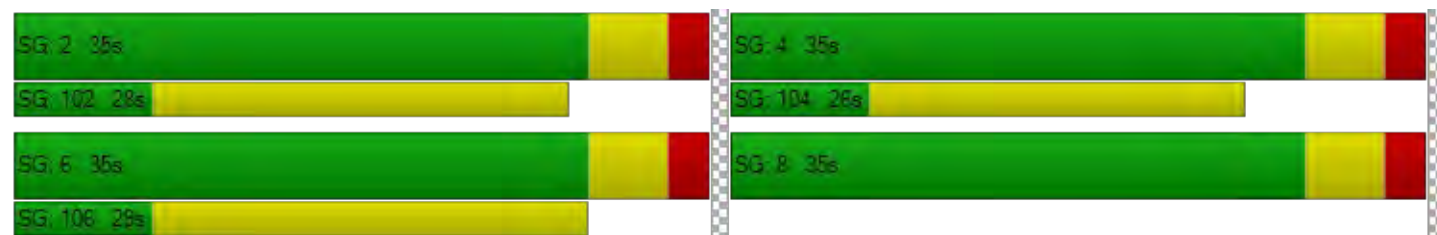


**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.93	13.94	13.94	13.11	14.35	14.35	12.89	12.89	12.89	13.64	13.64	13.64
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	13.71			14.05			12.89			13.64		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.65											
Intersection LOS	B											
Intersection V/C	0.199											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.047

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	25	10	5	85	155	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	10	5	169	235	70
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	3	1	46	64	19
Total Analysis Volume [veh/h]	27	11	5	184	255	76
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.05	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.57	9.59	7.95	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.19	0.19	0.25	0.13	0.00	0.00
95th-Percentile Queue Length [ft]	4.74	4.74	6.26	3.13	0.00	0.00
d_A, Approach Delay [s/veh]	11.00		0.21		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.82					
Intersection LOS	B					

**Intersection Level Of Service Report**  
**#3: Bay Marina Drive / Tideland Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.273

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	15	10	20	20	15	20	15	30	70	160	160	315
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	0	10	74	0	18	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	10	26	20	15	20	25	104	70	178	240	324
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	7	5	4	5	7	28	19	48	65	88
Total Analysis Volume [veh/h]	16	11	28	22	16	22	27	113	76	193	261	352
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	97	0	0	97	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	91	91	91	91	91
g / C, Green / Cycle	0.21	0.21	0.21	0.21	0.70	0.70	0.70	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.02	0.02	0.02	0.06	0.16	0.14	0.25
Total Saturation Flow Adjustment	0.72	0.79	0.72	0.81	0.57	0.88	0.62	0.98	0.75
s, saturation flow rate [veh/h]	1364	1496	1363	1531	1088	3333	1179	1863	1425
c, Capacity [veh/h]	283	311	283	318	762	2333	825	1304	997
d1, Uniform Delay [s]	41.29	41.90	41.47	41.84	6.00	6.20	6.99	6.80	7.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.38	0.83	0.54	0.77	0.09	0.07	0.66	0.35	0.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.06	0.13	0.08	0.12	0.04	0.08	0.23	0.20	0.35
d, Delay for Lane Group [s/veh]	41.67	42.73	42.01	42.61	6.09	6.27	7.66	7.15	8.75
Lane Group LOS	D	D	D	D	A	A	A	A	A
Critical Lane Group	no	yes	no	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.50	1.24	0.69	1.20	0.34	1.29	2.89	3.73	5.86
50th-Percentile Queue Length [ft]	12.49	30.98	17.28	30.11	8.62	32.25	72.31	93.30	146.52
95th-Percentile Queue Length [veh]	1.25	2.95	1.71	2.87	0.87	3.06	6.25	7.74	11.19
95th-Percentile Queue Length [ft]	31.30	73.74	42.69	71.85	21.84	76.52	156.24	193.51	279.81

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	41.67	42.73	42.73	42.01	42.61	42.61	6.09	6.27	6.27	7.66	7.15	8.75
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	42.42			42.39			6.25			7.97		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	11.13											
Intersection LOS	B											
Intersection V/C	0.273											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.9  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.270

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	5	10	75	25	20	750
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	80	0	0	107
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	10	155	25	20	857
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	42	7	5	233
Total Analysis Volume [veh/h]	5	11	168	27	22	932
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	102	0	11	113
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	96	7	107
g / C, Green / Cycle	0.21	0.21	0.64	0.05	0.71
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.06	0.01	0.26
Total Saturation Flow Adjustment	0.93	0.83	0.91	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3473	1770	3547
c, Capacity [veh/h]	366	327	2223	83	2530
d1, Uniform Delay [s]	47.34	47.53	10.30	69.02	8.36
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.19	0.08	7.73	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.01	0.03	0.09	0.27	0.37
d, Delay for Lane Group [s/veh]	47.41	47.72	10.38	76.76	8.77
Lane Group LOS	D	D	B	E	A
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.18	0.39	1.80	0.99	9.08
50th-Percentile Queue Length [ft]	4.42	9.80	45.06	24.68	227.01
95th-Percentile Queue Length [veh]	0.45	0.99	4.14	2.39	16.01
95th-Percentile Queue Length [ft]	11.35	24.75	103.52	59.74	400.14

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	47.41	47.72	10.38	10.38	76.76	8.77
Movement LOS	D	D	B	B	E	A
d_A, Approach Delay [s/veh]	47.62		10.38		10.34	
Approach LOS	D		B		B	
d_I, Intersection Delay [s/veh]	10.86					
Intersection LOS	B					
Intersection V/C	0.270					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 19.9  
Level Of Service: B  
Volume to Capacity (v/c): 0.416

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	35	5	25	30	10	35	20	90	5	25	700	310
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	1	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	24	30	10	35	20	170	5	25	807	310
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	7	8	3	10	5	46	1	7	219	84
Total Analysis Volume [veh/h]	38	5	26	33	11	38	22	185	5	27	877	337
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	150
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	17	0	0	19	0	9	101	0	13	105	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	15	5	97	9	101
g / C, Green / Cycle	0.09	0.09	0.10	0.03	0.65	0.06	0.67
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.03	0.01	0.04	0.02	0.36
Total Saturation Flow Adjustment	0.93	0.86	0.85	0.93	0.89	0.93	0.89
s, saturation flow rate [veh/h]	1770	1628	3235	1770	5054	1770	3399
c, Capacity [veh/h]	153	141	324	59	3268	106	2289
d1, Uniform Delay [s]	63.94	63.78	62.33	70.97	9.73	67.30	12.45
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.82	3.55	1.88	17.11	0.03	5.68	0.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.25	0.22	0.25	0.37	0.06	0.25	0.53
d, Delay for Lane Group [s/veh]	67.76	67.33	64.21	88.08	9.76	72.98	13.33
Lane Group LOS	E	E	E	F	A	E	B
Critical Lane Group	yes	no	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	1.62	1.32	1.82	1.03	1.18	1.19	15.54
50th-Percentile Queue Length [ft]	40.53	32.96	45.39	25.69	29.54	29.71	388.50
95th-Percentile Queue Length [veh]	3.77	3.12	4.17	2.48	2.82	2.84	25.56
95th-Percentile Queue Length [ft]	94.16	78.06	104.20	62.02	70.58	70.96	638.96



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	67.76	67.33	67.33	64.21	64.21	64.21	88.08	9.76	9.76	72.98	13.33	13.33
Movement LOS	E	E	E	E	E	E	F	A	A	E	B	B
d_A, Approach Delay [s/veh]	67.57			64.21			17.89			14.63		
Approach LOS	E			E			B			B		
d_I, Intersection Delay [s/veh]	19.87											
Intersection LOS	B											
Intersection V/C	0.416											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**  
**#6: I-5 SB Off-Ramp and Bay Marina Drive**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 17.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.487

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	0	0	0	395	35	325	0	95	130	205	710	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	37	0	35	45	0	70	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	395	35	362	0	130	175	205	780	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	107	10	98	0	35	48	56	212	0
Total Analysis Volume [veh/h]	0	0	0	429	38	393	0	141	190	223	848	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	18	0	12	30	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		25	25	13	13	8	25
g / C, Green / Cycle		0.42	0.42	0.22	0.22	0.13	0.42
(v / s)_i Volume / Saturation Flow Rate		0.14	0.25	0.04	0.12	0.06	0.24
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3391	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1435	670	792	354	447	1501
d1, Uniform Delay [s]		11.57	13.27	18.85	20.56	24.28	13.11
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.60	3.73	0.49	5.75	3.95	1.54
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

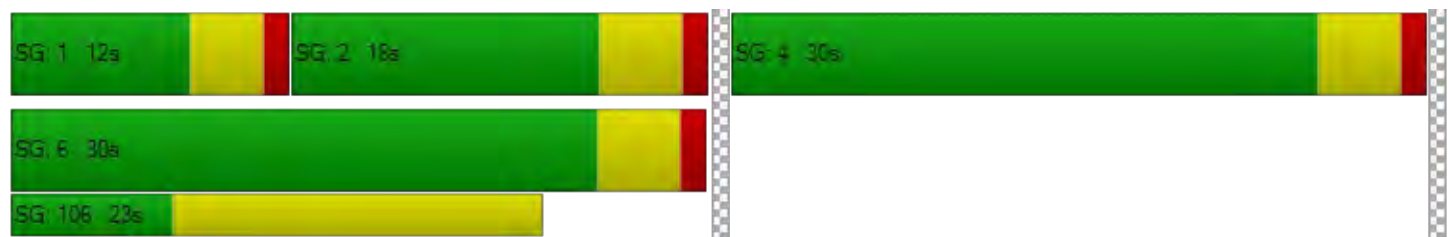
X, volume / capacity		0.33	0.59	0.18	0.54	0.50	0.56
d, Delay for Lane Group [s/veh]		12.17	17.00	19.34	26.32	28.23	14.65
Lane Group LOS		B	B	B	C	C	B
Critical Lane Group		no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]		3.07	5.92	1.10	3.27	2.08	6.55
50th-Percentile Queue Length [ft]		76.81	148.05	27.47	81.66	52.02	163.77
95th-Percentile Queue Length [veh]		6.58	11.29	2.64	6.93	4.70	12.25
95th-Percentile Queue Length [ft]		164.44	282.18	66.00	173.14	117.54	306.21

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.17	12.17	17.00	0.00	19.34	26.32	28.23	14.65	0.00
Movement LOS				B	B	B		B	C	C	B	
d_A, Approach Delay [s/veh]	0.00			14.38			23.34			17.48		
Approach LOS	A			B			C			B		
d_I, Intersection Delay [s/veh]	17.16											
Intersection LOS	B											
Intersection V/C	0.487											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-








**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 25.6  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.627

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	460	5	485	0	0	0	90	400	0	0	455	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	0	0	0	0	0	28	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	523	5	485	0	0	0	118	407	0	0	462	510
Peak Hour Factor	0.9200	0.9200	0.9200	1.0000	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	142	1	132	0	0	0	32	111	0	0	126	139
Total Analysis Volume [veh/h]	568	5	527	0	0	0	128	442	0	0	502	554
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	0	0	10	57	0	0	47	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	28		6	52	42	42
g / C, Green / Cycle	0.32		0.06	0.58	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.24		0.04	0.12	0.27	0.35
Total Saturation Flow Adjustment	0.81		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4591		3437	3547	1863	1583
c, Capacity [veh/h]	1449		221	2065	878	746
d1, Uniform Delay [s]	27.72		40.91	8.97	17.23	19.36
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.79		10.54	0.24	2.70	6.59
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

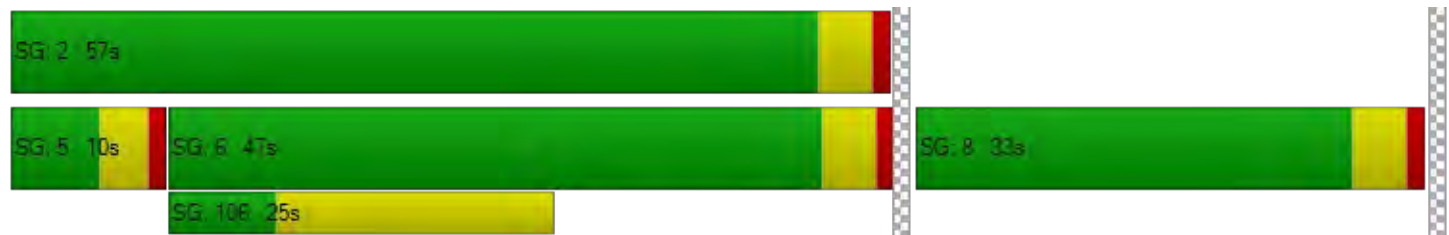
X, volume / capacity	0.76		0.58	0.21	0.57	0.74
d, Delay for Lane Group [s/veh]	31.51		51.46	9.21	19.94	25.95
Lane Group LOS	C		D	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	11.14		1.93	3.10	10.44	13.71
50th-Percentile Queue Length [ft]	278.49		48.15	77.45	261.01	342.63
95th-Percentile Queue Length [veh]	19.02		4.39	6.62	18.00	22.81
95th-Percentile Queue Length [ft]	475.59		109.79	165.60	449.97	570.31

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	31.51	31.51	31.51	0.00	0.00	0.00	51.46	9.21	0.00	0.00	19.94	25.95
Movement LOS	C	C	C				D	A			B	C
d_A, Approach Delay [s/veh]	31.51			0.00			18.70			23.09		
Approach LOS	C			A			B			C		
d_I, Intersection Delay [s/veh]	25.57											
Intersection LOS	C											
Intersection V/C	0.627											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 9.9  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.104

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	15	5	5	70	20	5	0	5	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	6	12	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	18	5	11	82	20	5	0	5	5	5	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	1	3	22	5	1	0	1	1	1	2
Total Analysis Volume [veh/h]	5	20	5	12	89	22	5	0	5	5	5	9
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.01	0.02	0.00	0.01	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.62	9.38	8.48	9.51	9.87	9.00	7.25	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	0.48	0.48	0.48	0.02	0.02	0.02	0.04	0.04	0.04
95th-Percentile Queue Length [ft]	2.66	2.66	2.66	11.93	11.93	11.93	0.47	0.47	0.47	0.89	0.89	0.89
d_A, Approach Delay [s/veh]	9.27			9.68			3.63			1.90		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.46											
Intersection LOS	A											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	5	15	20	40	50	50	5	5	15	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	0	6	3	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	5	21	20	46	53	81	5	5	15	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	1	6	5	13	14	22	1	1	4	1
Total Analysis Volume [veh/h]	5	5	5	23	22	50	58	88	5	5	16	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.06	0.21	0.19	0.29	0.41	0.02	0.02	0.05	0.04
95th-Percentile Queue Length [ft]	1.61	5.29	4.79	7.13	10.16	0.44	0.59	1.14	1.07
Approach Delay [s/veh]	8.16	7.80		8.36			7.87		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.12								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	45	89	60	55	110	65	30	40	65	70	105	60	794

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	25	10	5	169	235	70	514

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	15	10	26	20	15	20	25	104	70	178	240	324	1047

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	5	10	155	25	20	857	1072

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	35	5	25	30	10	35	20	170	5	25	807	310	1477

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	395	35	362	130	175	205	780	2082

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	523	5	485	118	407	462	510	2510



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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	5	18	5	11	82	20	5	0	5	5	5	8	169

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	5	5	5	21	20	46	53	81	5	5	15	5	266

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	45	80	60	55	110	65	30	40	65	70	105	60	785
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>45</b>	<b>89</b>	<b>60</b>	<b>55</b>	<b>110</b>	<b>65</b>	<b>30</b>	<b>40</b>	<b>65</b>	<b>70</b>	<b>105</b>	<b>60</b>	<b>794</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	25	10	5	85	155	70	350
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>25</b>	<b>10</b>	<b>5</b>	<b>169</b>	<b>235</b>	<b>70</b>	<b>514</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tideland Avenue	Final Base	15	10	20	20	15	20	15	30	70	160	160	315	850
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	0	0	0	10	74	0	18	80	9	197
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>10</b>	<b>26</b>	<b>20</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>104</b>	<b>70</b>	<b>178</b>	<b>240</b>	<b>324</b>	<b>1047</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	5	10	75	25	20	750	885
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	80	0	0	107	187
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>155</b>	<b>25</b>	<b>20</b>	<b>857</b>	<b>1072</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	35	5	25	30	10	35	20	90	5	25	700	310	1290
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	80	0	0	107	0	187
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>5</b>	<b>25</b>	<b>30</b>	<b>10</b>	<b>35</b>	<b>20</b>	<b>170</b>	<b>5</b>	<b>25</b>	<b>807</b>	<b>310</b>	<b>1477</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	395	35	325	95	130	205	710	1895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	37	35	45	0	70	187
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>395</b>	<b>35</b>	<b>362</b>	<b>130</b>	<b>175</b>	<b>205</b>	<b>780</b>	<b>2082</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	460	5	485	90	400	455	510	2405
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	63	0	0	28	7	7	0	105
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>523</b>	<b>5</b>	<b>485</b>	<b>118</b>	<b>407</b>	<b>462</b>	<b>510</b>	<b>2510</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tideland Avenue	Final Base	5	15	5	5	70	20	5	0	5	5	5	5	145
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	3	0	6	12	0	0	0	0	0	0	3	24
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>18</b>	<b>5</b>	<b>11</b>	<b>82</b>	<b>20</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>8</b>	<b>169</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	5	5	5	15	20	40	50	50	5	5	15	5	220
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	6	0	6	3	31	0	0	0	0	46
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>21</b>	<b>20</b>	<b>46</b>	<b>53</b>	<b>81</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>266</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	784	1552	1040	960	1920	1136	528	688	1136	1216	1824	1040	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	432	176	80	2944	4080	1216	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	6	0	0	0	10	74	0	18	80	9	
Total Analysis Volume	256	176	448	352	256	352	432	1808	1216	3088	4176	5632	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	0	80	0	0	107	
Total Analysis Volume	80	176	2688	432	352	14912	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	80	0	0	107	0	
Total Analysis Volume	608	80	416	528	176	608	352	2960	80	432	14032	5392	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	37	35	45	0	70	
Total Analysis Volume	6864	608	6288	2256	3040	3568	13568	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	63	0	0	28	7	7	0	
Total Analysis Volume	9088	80	8432	2048	7072	8032	8864	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	3	0	0	3	0	0	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	3	0	0	0	0	0	0	0	3
28: 028-007	0	0	0	0	3	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	0	3	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	3	0	0	0	0	0	0	0	3	6
33: 027-042	0	0	0	3	0	0	0	0	0	0	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	6	12	0	0	0	0	0	0	3	
Total Analysis Volume	80	320	80	192	1424	352	80	0	80	80	80	144	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	3	3	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	3	0	0	0	0	0	0	3
28: 028-007	0	0	0	3	0	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	3	0	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	6	0	6	3	31	0	0	0	0	
Total Analysis Volume	80	80	80	368	352	800	928	1408	80	80	256	80	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
32: 027-029	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	100.02%	100.00%	99.99%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	2.8%	1.40%
19: 025-010 B	0	0	0%	0	0	2.8%	1.40%
20: 025-010 C	0	0	0%	0	0	2.8%	1.40%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	88.75%	0	0	66.36%	77.57%
23: NCTF Trucks	0	0	3.75%	0	0	2.8%	3.28%
24: 027-016	0	0	3.75%	0	0	2.8%	3.28%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	2.8%	1.40%
28: 028-007	0	0	0%	0	0	2.8%	1.40%
29: 025-010 D	0	0	0%	0	0	2.8%	1.40%
32: 027-029	0	0	3.75%	0	0	2.8%	3.28%
33: 027-042	0	0	0%	0	0	2.8%	1.40%
34: 026-009 & 027-011	0	0	0%	0	0	2.8%	1.40%
35: 027-014 & 027-016	0	0	0%	0	0	2.8%	1.40%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	88.75%	0	0	66.36%	0	77.57%
23: NCTF Trucks	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
24: 027-016	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
32: 027-029	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.7%	0%	0%	0	2.86%	1.39%
19: 025-010 B	0	0	2.7%	0%	0%	0	2.86%	1.39%
20: 025-010 C	0	0	2.7%	0%	0%	0	2.86%	1.39%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	67.57%	91.43%	86.67%	0	65.71%	77.85%
23: NCTF Trucks	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
24: 027-016	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.7%	0%	0%	0	2.86%	1.39%
28: 028-007	0	0	2.7%	0%	0%	0	2.86%	1.39%
29: 025-010 D	0	0	2.7%	0%	0%	0	2.86%	1.39%
32: 027-029	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
33: 027-042	0	0	2.7%	0%	0%	0	2.86%	1.39%
34: 026-009 & 027-011	0	0	2.7%	0%	0%	0	2.86%	1.39%
35: 027-014 & 027-016	0	0	2.7%	0%	0%	0	2.86%	1.39%
Total	0.00%	0.00%	99.97%	100.01%	99.99%	0.00%	100.03%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	3.17%	0	0	0%	0%	0%	0	0.79%
19: 025-010 B	3.17%	0	0	0%	0%	0%	0	0.79%
20: 025-010 C	3.17%	0	0	0%	0%	0%	0	0.79%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	61.9%	0	0	89.29%	100%	100%	0	87.81%
23: NCTF Trucks	3.17%	0	0	3.57%	0%	0%	0	1.69%
24: 027-016	3.17%	0	0	3.57%	0%	0%	0	1.69%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	3.17%	0	0	0%	0%	0%	0	0.79%
28: 028-007	3.17%	0	0	0%	0%	0%	0	0.79%
29: 025-010 D	3.17%	0	0	0%	0%	0%	0	0.79%
32: 027-029	3.17%	0	0	3.57%	0%	0%	0	1.69%
33: 027-042	3.17%	0	0	0%	0%	0%	0	0.79%
34: 026-009 & 027-011	3.17%	0	0	0%	0%	0%	0	0.79%
35: 027-014 & 027-016	3.17%	0	0	0%	0%	0%	0	0.79%
Total	99.94%	0.00%	0.00%	100.00%	100.00%	100.00%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	100%	0	0%	25%	0	0	0	0	0	0	0%	31.25%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
28: 028-007	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
29: 025-010 D	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
32: 027-029	0	0%	0	50%	0%	0	0	0	0	0	0	100%	37.50%
33: 027-042	0	0%	0	50%	0%	0	0	0	0	0	0	0%	12.50%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	100.00%	0.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	50%	100%	0%	0	0	0	0%	37.50%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	100%	0	0	0	0%	25.00%
27: 028-003	0	0	0	0%	0	50%	0%	0%	0	0	0	0%	12.50%
28: 028-007	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
29: 025-010 D	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	2.83%	0	0	0%	0	0	0	0	0	0	0	0.02%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	5.66%	0	0	0%	0	0	0	0	0	0	0	0.04%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	8.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	



Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	26.49%	21.19%	0	0.53%
23: NCTF Trucks	0	0	0	1.12%	0.9%	0	0.02%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.73%	0%	0	0.04%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	0.9%	0	0.01%
35: 027-014 & 027-016	0	0	0	0%	0.9%	0	0.01%
Total	0.00%	0.00%	0.00%	31.34%	23.89%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0.83%	0.00%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0.83%	0.00%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0.83%	0.00%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	37.97%	0	0%	20.82%	0%	0.32%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.6%	0	0%	0.88%	0%	0.01%
24: 027-016	0	0	8.82%	0%	0	0	0%	0%	0	1.42%	0%	0%	0.06%
25: Vehicle Movement External	0	0	0%	0%	0	0	27.03%	0%	0	0%	0%	0%	0.15%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	1.42%	0%	0%	0.01%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	1.42%	0%	0%	0.01%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	1.42%	0%	0%	0.01%
32: 027-029	0	0	8.82%	0%	0	0	0%	0%	0	1.42%	0%	0%	0.06%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	1.42%	0%	0%	0.01%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	0.88%	0%	0.00%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	0.88%	0%	0.00%
Total	0.00%	0.00%	17.64%	0.00%	0.00%	0.00%	27.03%	39.57%	0.00%	8.52%	23.46%	2.49%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	0.29%	0.00%
19: 025-010 B	0	0	0%	0	0	0.29%	0.00%
20: 025-010 C	0	0	0%	0	0	0.29%	0.00%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	28.63%	0	0	6.83%	0.19%
23: NCTF Trucks	0	0	1.21%	0	0	0.29%	0.01%
24: 027-016	0	0	1.21%	0	0	0.29%	0.01%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	0.29%	0.00%
28: 028-007	0	0	0%	0	0	0.29%	0.00%
29: 025-010 D	0	0	0%	0	0	0.29%	0.00%
32: 027-029	0	0	1.21%	0	0	0.29%	0.01%
33: 027-042	0	0	0%	0	0	0.29%	0.00%
34: 026-009 & 027-011	0	0	0%	0	0	0.29%	0.00%
35: 027-014 & 027-016	0	0	0%	0	0	0.29%	0.00%
Total	0.00%	0.00%	32.26%	0.00%	0.00%	10.31%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	26.79%	0	0	7.22%	0	0.13%
23: NCTF Trucks	0	0	0	0	0	0	0	1.13%	0	0	0.3%	0	0.01%
24: 027-016	0	0	0	0	0	0	0	1.13%	0	0	0.3%	0	0.01%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
32: 027-029	0	0	0	0	0	0	0	1.13%	0	0	0.3%	0	0.01%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.18%	0.00%	0.00%	10.82%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.23%	0%	0%	0	0.22%	0.00%
19: 025-010 B	0	0	0.23%	0%	0%	0	0.22%	0.00%
20: 025-010 C	0	0	0.23%	0%	0%	0	0.22%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	5.81%	18.18%	16.6%	0	5.01%	0.13%
23: NCTF Trucks	0	0	0.23%	0.57%	0.85%	0	0.22%	0.01%
24: 027-016	0	0	0.23%	0.57%	0.85%	0	0.22%	0.01%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.23%	0%	0%	0	0.22%	0.00%
28: 028-007	0	0	0.23%	0%	0%	0	0.22%	0.00%
29: 025-010 D	0	0	0.23%	0%	0%	0	0.22%	0.00%
32: 027-029	0	0	0.23%	0.57%	0.85%	0	0.22%	0.01%
33: 027-042	0	0	0.23%	0%	0%	0	0.22%	0.00%
34: 026-009 & 027-011	0	0	0.23%	0%	0%	0	0.22%	0.00%
35: 027-014 & 027-016	0	0	0.23%	0%	0%	0	0.22%	0.00%
Total	0.00%	0.00%	8.57%	19.89%	19.15%	0.00%	7.65%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.32%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.32%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.32%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	6.18%	0	0	16.03%	1.56%	1.38%	0	0.06%
23: NCTF Trucks	0.32%	0	0	0.64%	0%	0%	0	0.00%
24: 027-016	0.32%	0	0	0.64%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.32%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.32%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.32%	0	0	0%	0%	0%	0	0.00%
32: 027-029	0.32%	0	0	0.64%	0%	0%	0	0.00%
33: 027-042	0.32%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.32%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.32%	0	0	0%	0%	0%	0	0.00%
Total	10.02%	0.00%	0.00%	17.95%	1.56%	1.38%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	13.04%	0	0%	2.97%	0	0	0	0	0	0	0%	0.55%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	2.97%	0	0	0	0	0	0	0%	0.10%
28: 028-007	0	0%	0	0%	2.97%	0	0	0	0	0	0	0%	0.10%
29: 025-010 D	0	0%	0	0%	2.97%	0	0	0	0	0	0	0%	0.10%
32: 027-029	0	0%	0	16.67%	0%	0	0	0	0	0	0	25%	1.43%
33: 027-042	0	0%	0	16.67%	0%	0	0	0	0	0	0	0%	0.57%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	13.04%	0.00%	33.34%	11.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	5.36%	4.92%	0%	0	0	0	0%	0.22%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	26.05%	0	0	0	0%	0.57%
27: 028-003	0	0	0	0%	0	5.36%	0%	0%	0	0	0	0%	0.12%
28: 028-007	0	0	0	10.34%	0	0%	0%	0%	0	0	0	0%	0.23%
29: 025-010 D	0	0	0	10.34%	0	0%	0%	0%	0	0	0	0%	0.23%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	20.68%	0.00%	10.72%	4.92%	26.05%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	305	174	35
2	293	167	34
3	287	164	33
4	244	139	28
5	232	132	27
6	207	118	24
7	192	110	22
8	183	104	21
9	146	84	17
10	137	78	16
11	137	78	16
12	131	75	15
13	119	68	14
14	110	63	13
15	110	63	13
16	107	61	12
17	61	35	7
18	34	19	4
19	31	17	4
20	12	7	1
21	9	5	1
22	9	5	1
23	6	3	1
24	6	3	1



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	479	1	35	No	No	No	No	No	No	No	No	No	No
2	4	460	1	34	No	No	No	No	No	No	No	No	No	No
3	4	451	1	33	No	No	No	No	No	No	No	No	No	No
4	4	383	1	28	No	No	No	No	No	No	No	No	No	No
5	4	364	1	27	No	No	No	No	No	No	No	No	No	No
6	4	325	1	24	No	No	No	No	No	No	No	No	No	No
7	4	302	1	22	No	No	No	No	No	No	No	No	No	No
8	4	287	1	21	No	No	No	No	No	No	No	No	No	No
9	4	230	1	17	No	No	No	No	No	No	No	No	No	No
10	4	215	1	16	No	No	No	No	No	No	No	No	No	No
11	4	215	1	16	No	No	No	No	No	No	No	No	No	No
12	4	206	1	15	No	No	No	No	No	No	No	No	No	No
13	4	187	1	14	No	No	No	No	No	No	No	No	No	No
14	4	173	1	13	No	No	No	No	No	No	No	No	No	No
15	4	173	1	13	No	No	No	No	No	No	No	No	No	No
16	4	168	1	12	No	No	No	No	No	No	No	No	No	No
17	4	96	1	7	No	No	No	No	No	No	No	No	No	No
18	4	53	1	4	No	No	No	No	No	No	No	No	No	No
19	4	48	1	4	No	No	No	No	No	No	No	No	No	No
20	4	19	1	1	No	No	No	No	No	No	No	No	No	No
21	4	14	1	1	No	No	No	No	No	No	No	No	No	No
22	4	14	1	1	No	No	No	No	No	No	No	No	No	No
23	4	9	1	1	No	No	No	No	No	No	No	No	No	No
24	4	9	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	35
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	514
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	18	10	28	113
2	17	10	27	108
3	17	9	26	106
4	14	8	22	90
5	14	8	21	86
6	12	7	19	77
7	11	6	18	71
8	11	6	17	68
9	9	5	13	54
10	8	5	13	51
11	8	5	13	51
12	8	4	12	49
13	7	4	11	44
14	6	4	10	41
15	6	4	10	41
16	6	4	10	40
17	4	2	6	23
18	2	1	3	12
19	2	1	3	11
20	1	0	1	5
21	1	0	1	3
22	1	0	1	3
23	0	0	1	2
24	0	0	1	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	28	2	141	No	No	No	No	No	No	No	No	No	No
2	2	27	2	135	No	No	No	No	No	No	No	No	No	No
3	2	26	2	132	No	No	No	No	No	No	No	No	No	No
4	2	22	2	112	No	No	No	No	No	No	No	No	No	No
5	2	22	2	107	No	No	No	No	No	No	No	No	No	No
6	2	19	2	96	No	No	No	No	No	No	No	No	No	No
7	2	17	2	89	No	No	No	No	No	No	No	No	No	No
8	2	17	2	85	No	No	No	No	No	No	No	No	No	No
9	2	14	2	67	No	No	No	No	No	No	No	No	No	No
10	2	13	2	64	No	No	No	No	No	No	No	No	No	No
11	2	13	2	64	No	No	No	No	No	No	No	No	No	No
12	2	12	2	61	No	No	No	No	No	No	No	No	No	No
13	2	11	2	55	No	No	No	No	No	No	No	No	No	No
14	2	10	2	51	No	No	No	No	No	No	No	No	No	No
15	2	10	2	51	No	No	No	No	No	No	No	No	No	No
16	2	10	2	50	No	No	No	No	No	No	No	No	No	No
17	2	6	2	29	No	No	No	No	No	No	No	No	No	No
18	2	3	2	15	No	No	No	No	No	No	No	No	No	No
19	2	3	2	14	No	No	No	No	No	No	No	No	No	No
20	2	1	2	6	No	No	No	No	No	No	No	No	No	No
21	2	1	2	4	No	No	No	No	No	No	No	No	No	No
22	2	1	2	4	No	No	No	No	No	No	No	No	No	No
23	2	0	2	3	No	No	No	No	No	No	No	No	No	No
24	2	0	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.3	9.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:18
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	28	113
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	169	169
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	25	139	15	87
2	24	133	14	84
3	24	131	14	82
4	20	111	12	70
5	19	106	11	66
6	17	95	10	59
7	16	88	9	55
8	15	83	9	52
9	12	67	7	42
10	11	63	7	39
11	11	63	7	39
12	11	60	6	37
13	10	54	6	34
14	9	50	5	31
15	9	50	5	31
16	9	49	5	30
17	5	28	3	17
18	3	15	2	10
19	3	14	2	9
20	1	6	1	3
21	1	4	0	3
22	1	4	0	3
23	1	3	0	2
24	1	3	0	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	164	3	102	No	No	No	No	No	No	No	No	No	No
2	6	157	3	98	No	No	No	No	No	No	No	No	No	No
3	6	155	3	96	No	No	No	No	No	No	No	No	No	No
4	6	131	3	82	No	No	No	No	No	No	No	No	No	No
5	6	125	3	77	No	No	No	No	No	No	No	No	No	No
6	6	112	3	69	No	No	No	No	No	No	No	No	No	No
7	6	104	3	64	No	No	No	No	No	No	No	No	No	No
8	6	98	3	61	No	No	No	No	No	No	No	No	No	No
9	6	79	3	49	No	No	No	No	No	No	No	No	No	No
10	6	74	3	46	No	No	No	No	No	No	No	No	No	No
11	6	74	3	46	No	No	No	No	No	No	No	No	No	No
12	6	71	3	43	No	No	No	No	No	No	No	No	No	No
13	6	64	3	40	No	No	No	No	No	No	No	No	No	No
14	6	59	3	36	No	No	No	No	No	No	No	No	No	No
15	6	59	3	36	No	No	No	No	No	No	No	No	No	No
16	6	58	3	35	No	No	No	No	No	No	No	No	No	No
17	6	33	3	20	No	No	No	No	No	No	No	No	No	No
18	6	18	3	12	No	No	No	No	No	No	No	No	No	No
19	6	17	3	11	No	No	No	No	No	No	No	No	No	No
20	6	7	3	4	No	No	No	No	No	No	No	No	No	No
21	6	5	3	3	No	No	No	No	No	No	No	No	No	No
22	6	5	3	3	No	No	No	No	No	No	No	No	No	No
23	6	4	3	2	No	No	No	No	No	No	No	No	No	No
24	6	4	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.2	7.8
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	15	87
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	266	266
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...\11. Future AM + Project.pdf

4/27/2016

## Trip generation summary

## Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.22
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.22
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.22
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	57.96
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.45
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.45
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	4.08
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	19.59
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.22
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.22
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.22
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.45
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.22
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.22
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.22
Added Trips Total								107	138	245	100.00

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated).vistr

Scenario 11: Future Year + Project AM

Report File: P:\...11. Future AM + Project.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0

34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0

27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 28: 028-007			
	To 028-007:		From 028-007:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0

Zone / Gate	Zone 29: 025-010 D			
	To 025-010 D:		From 025-010 D:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0

20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>



Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

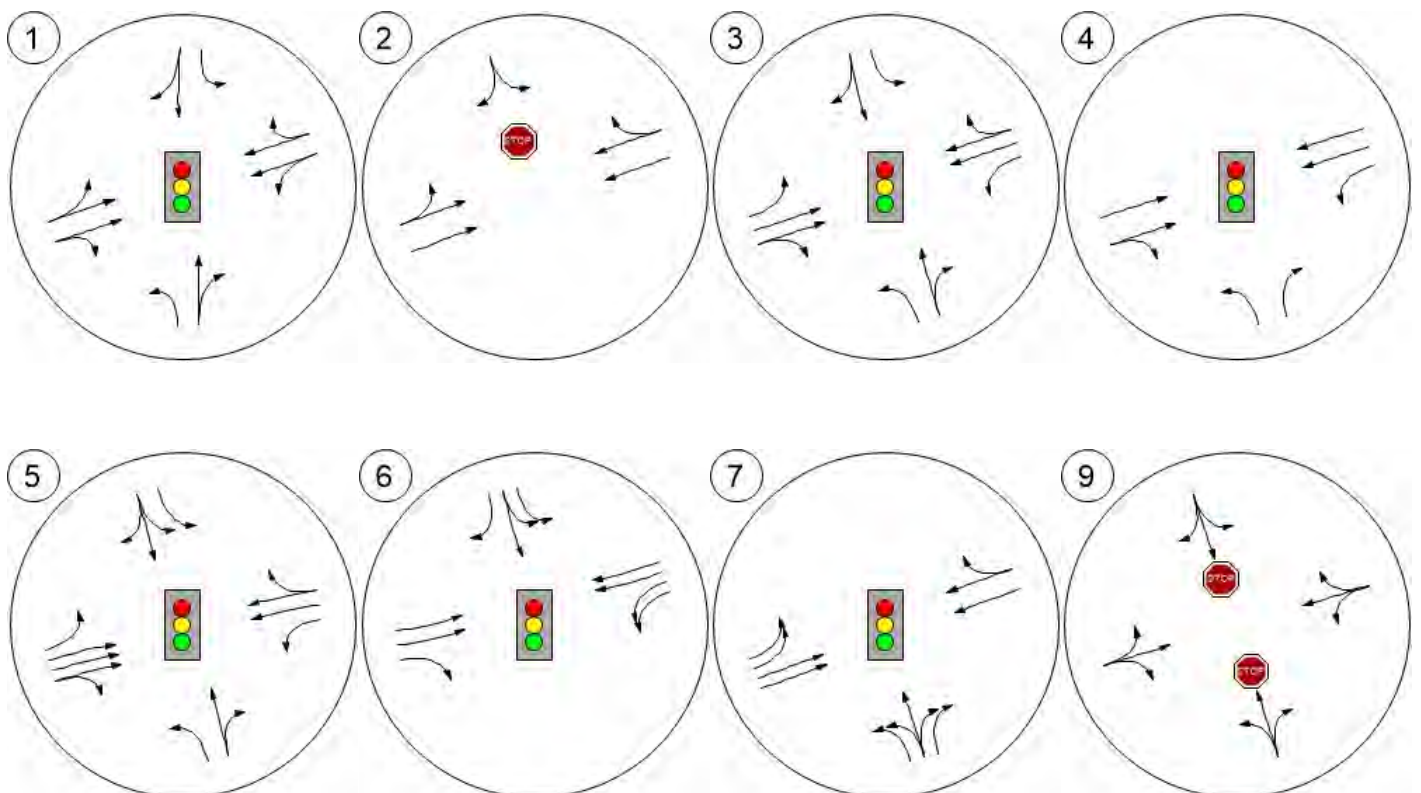
Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

## Study Intersections

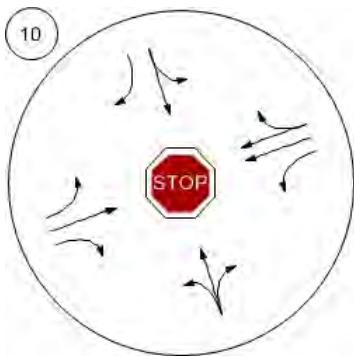




# Lane Configuration and Traffic Control

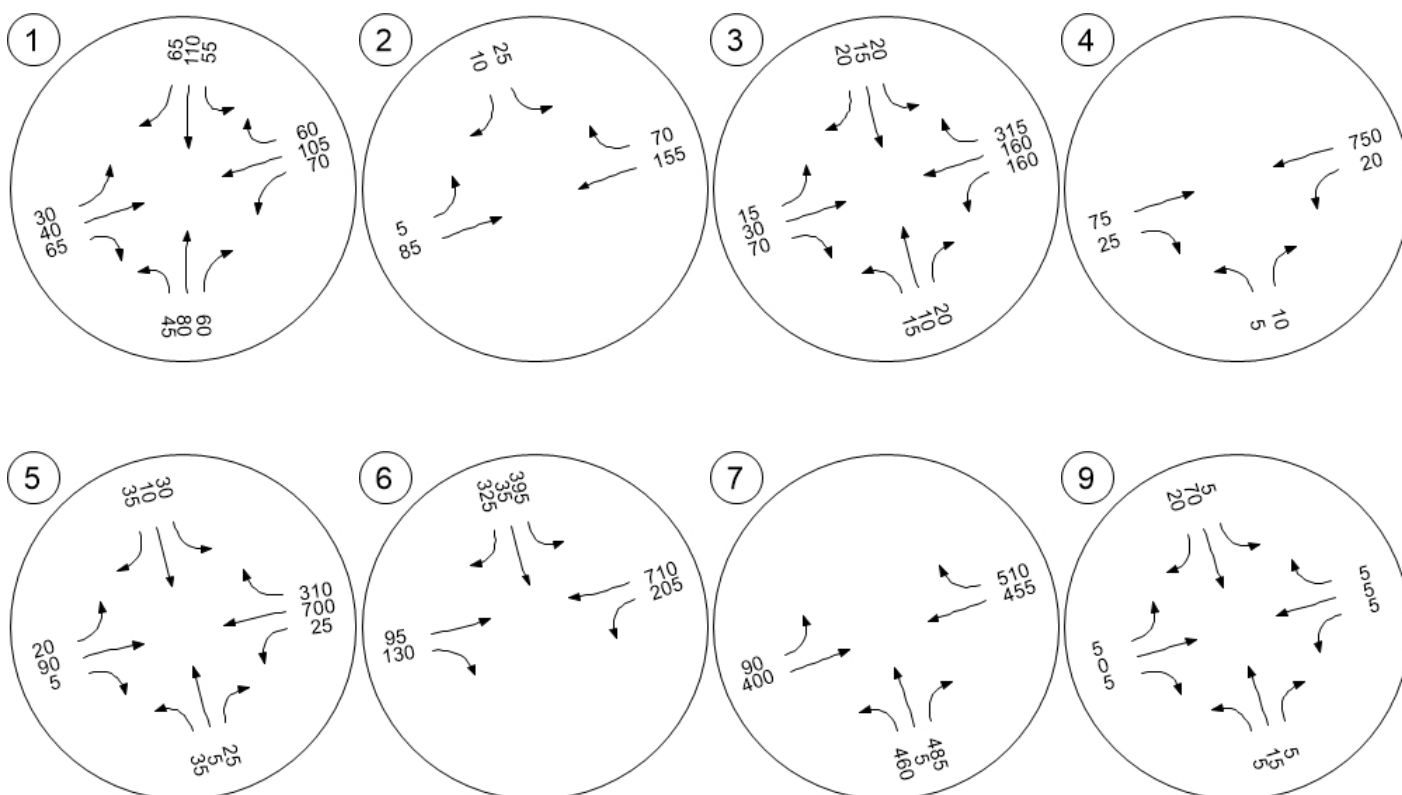


## Lane Configuration and Traffic Control



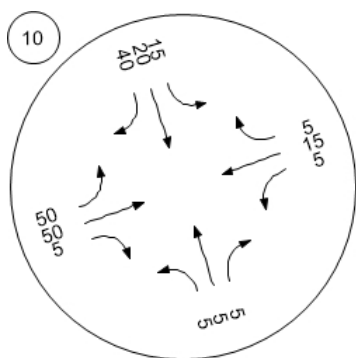


Traffic Volume - Base Volume

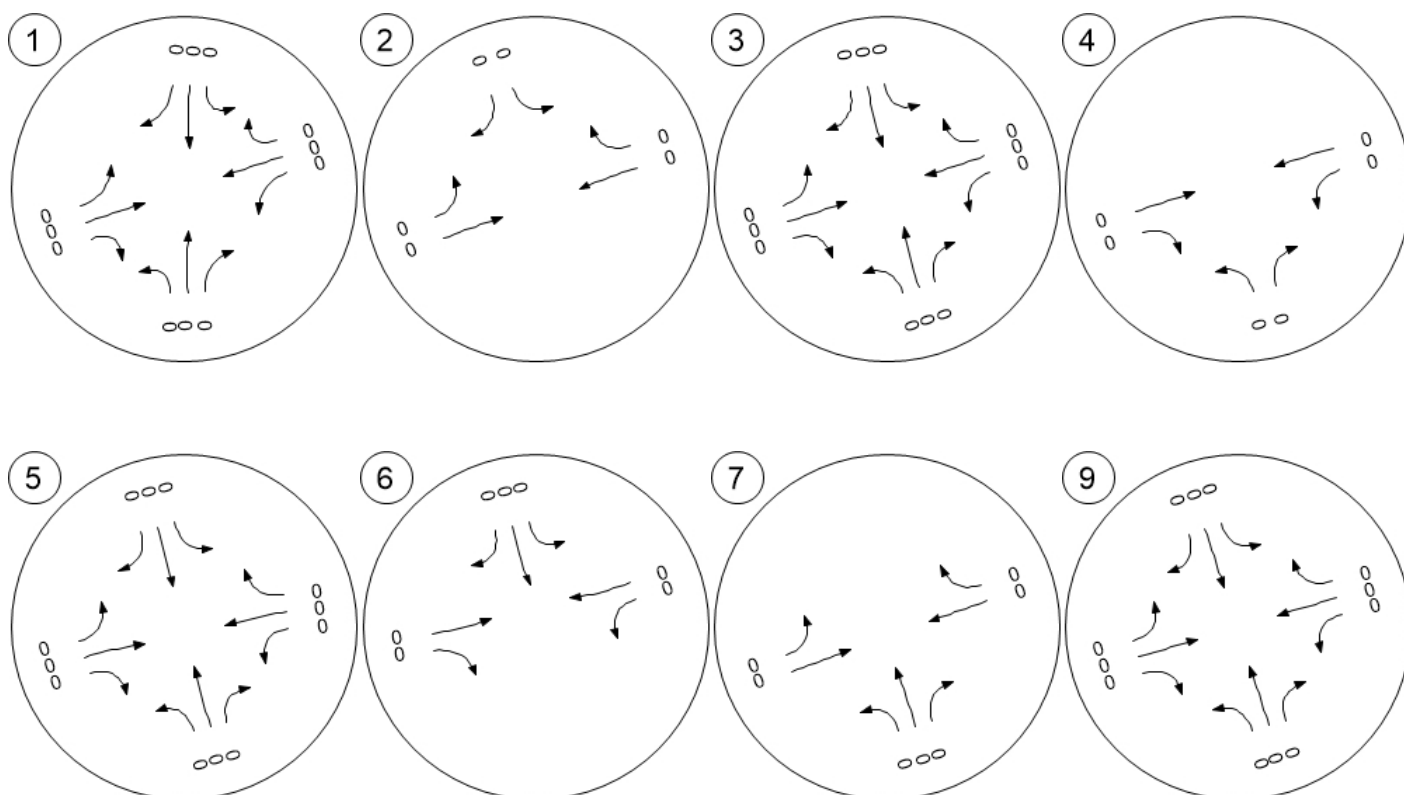




Traffic Volume - Base Volume

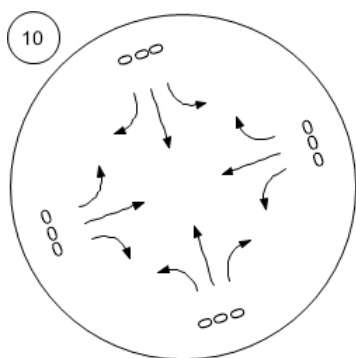


Traffic Volume - In-Process Volume

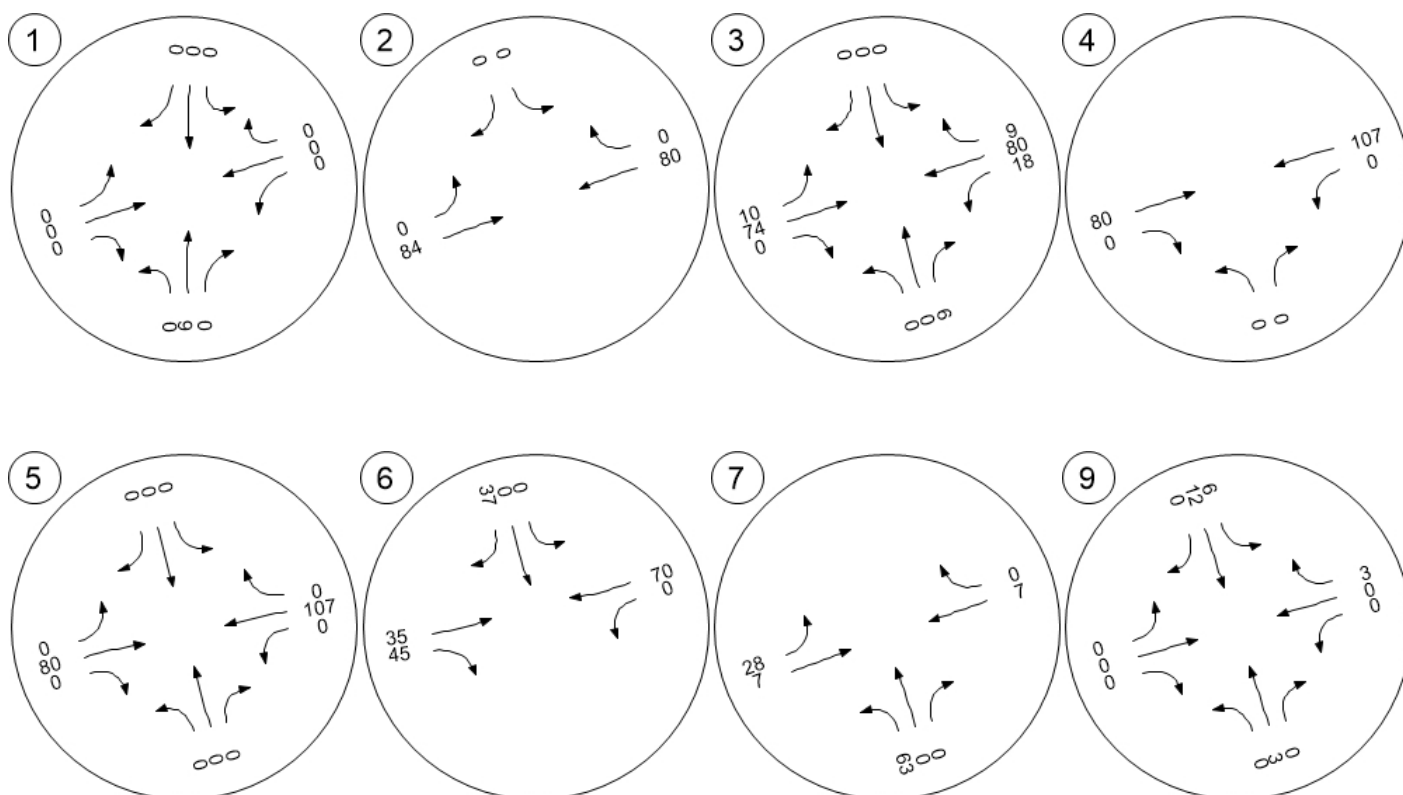




Traffic Volume - In-Process Volume

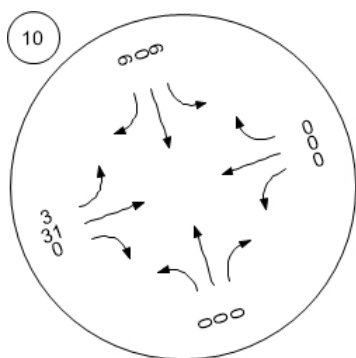


# Traffic Volume - Net New Site Trips



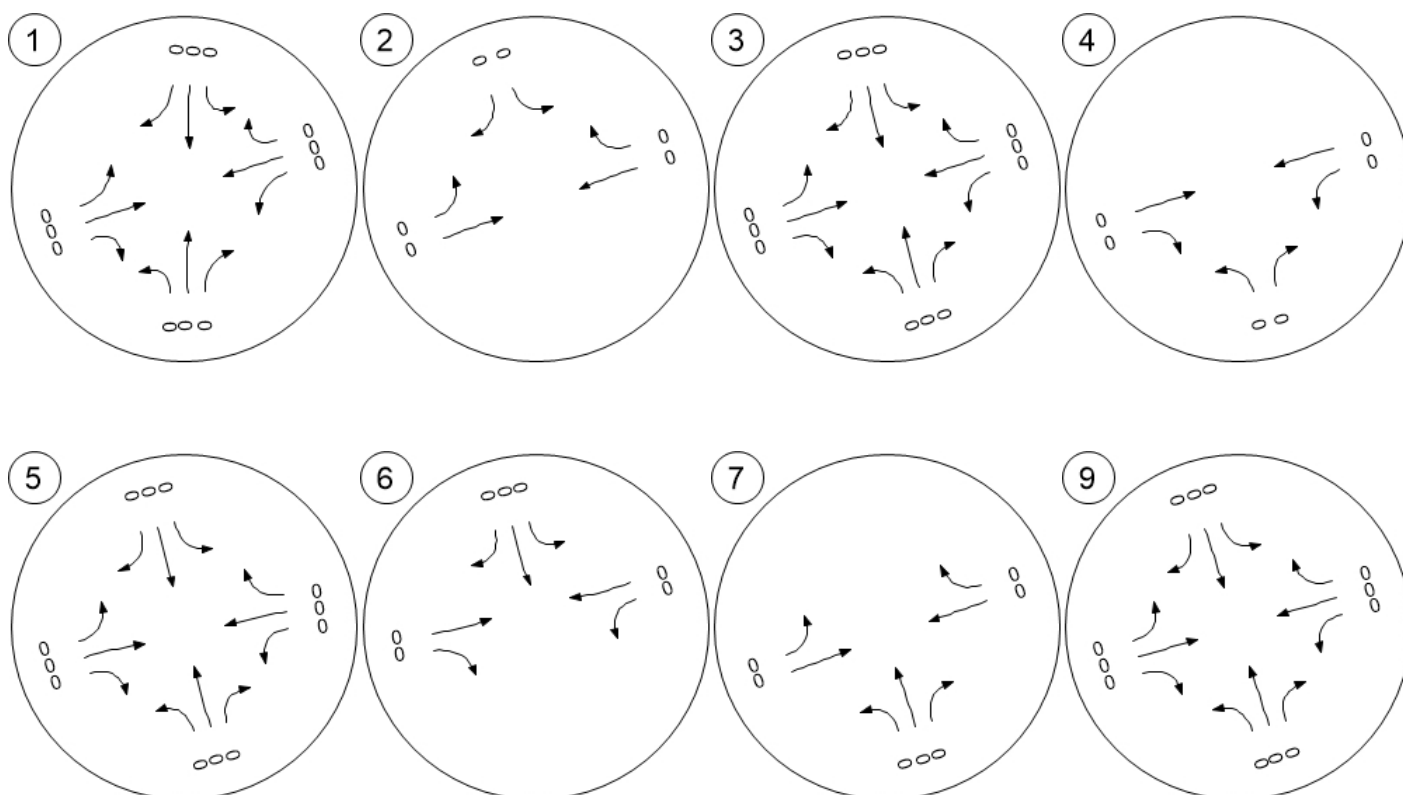


Traffic Volume - Net New Site Trips

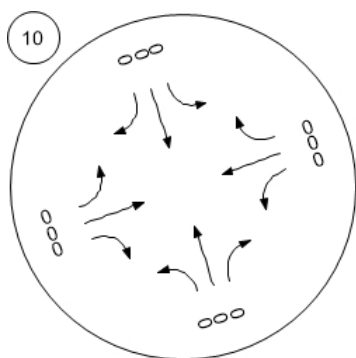




Traffic Volume - Other Volume

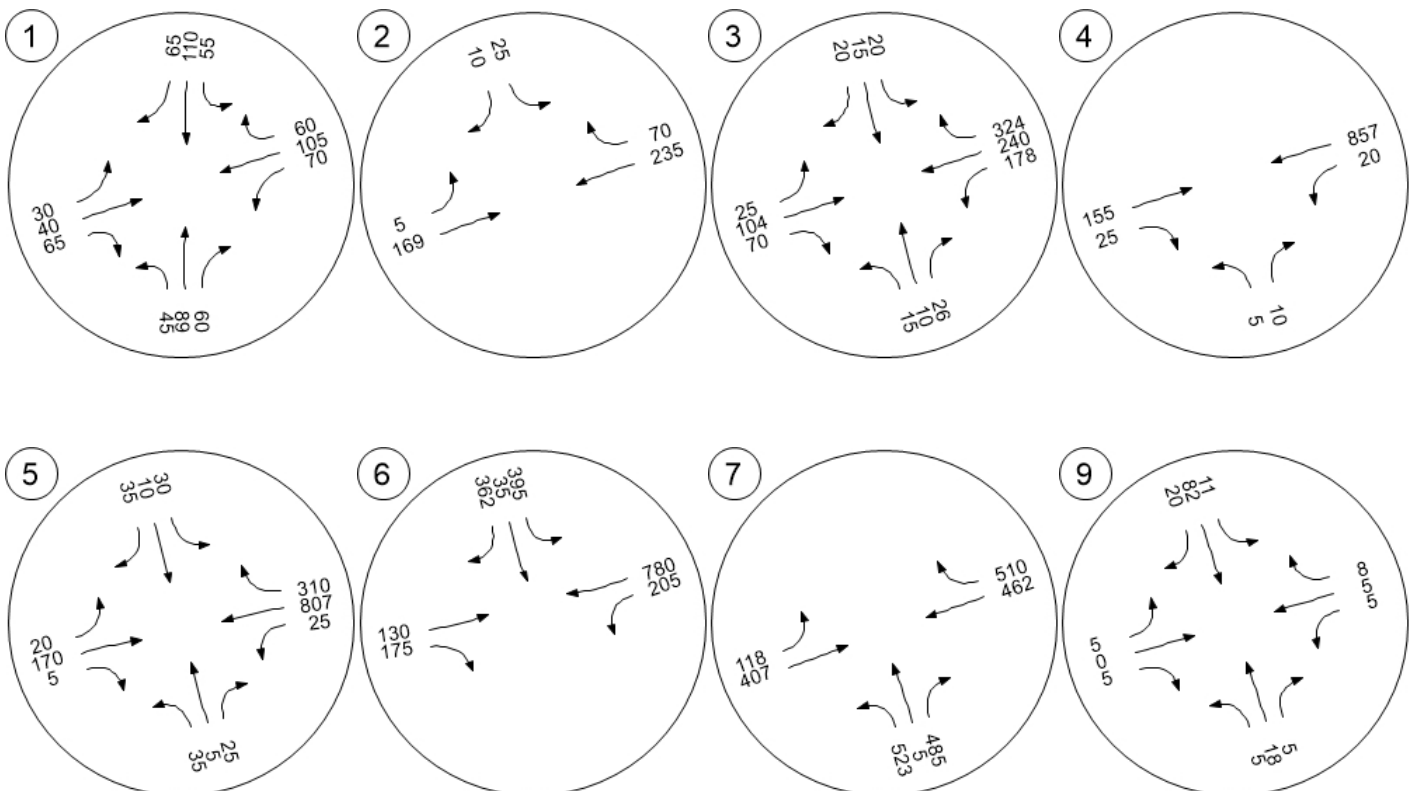


Traffic Volume - Other Volume

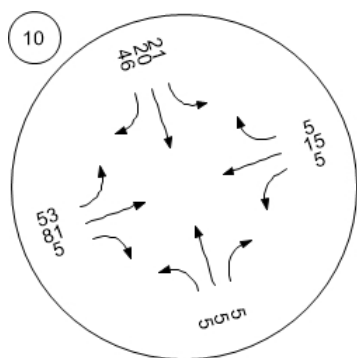




Traffic Volume - Future Total Volume

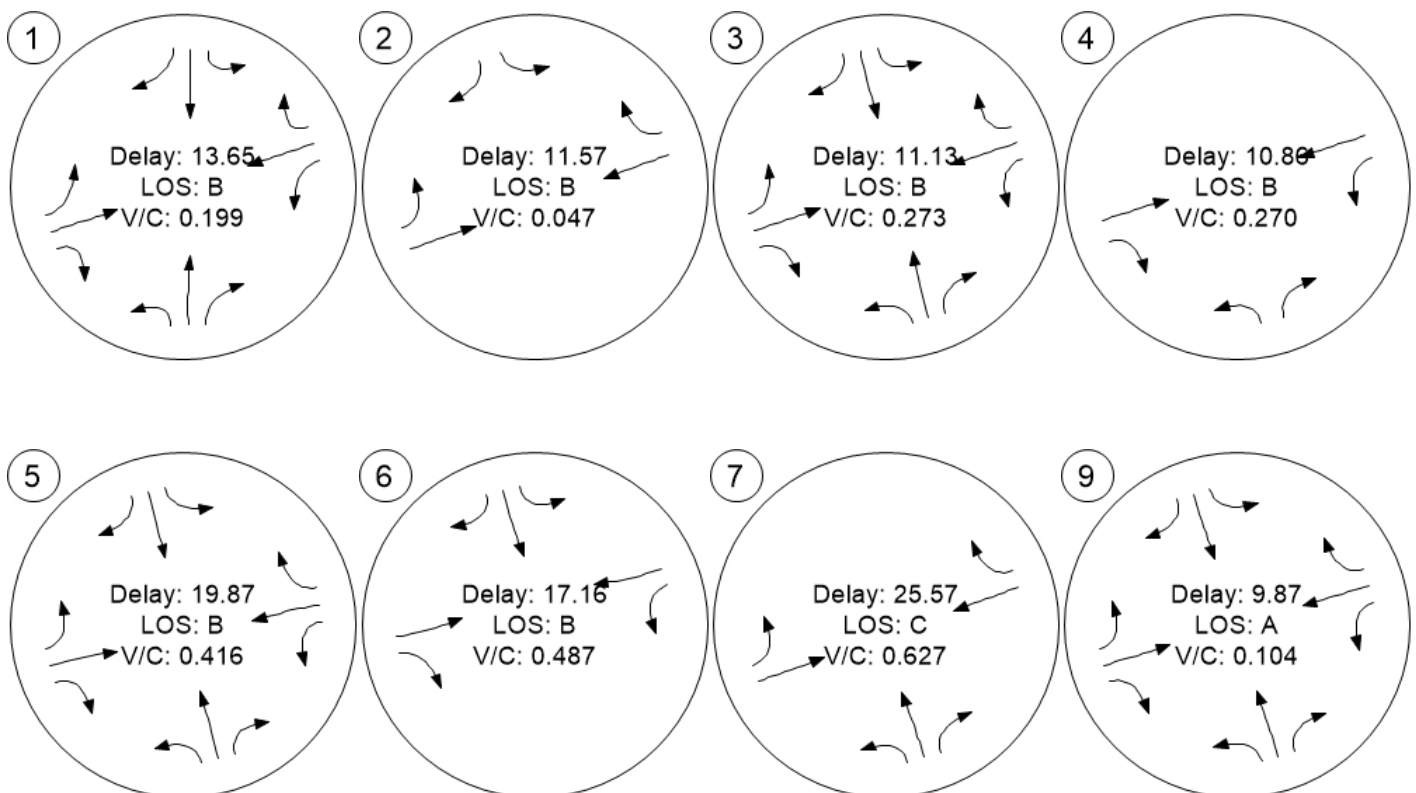


Traffic Volume - Future Total Volume



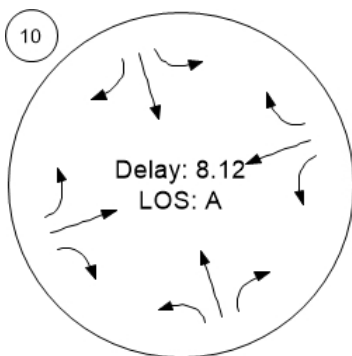


## Traffic Conditions

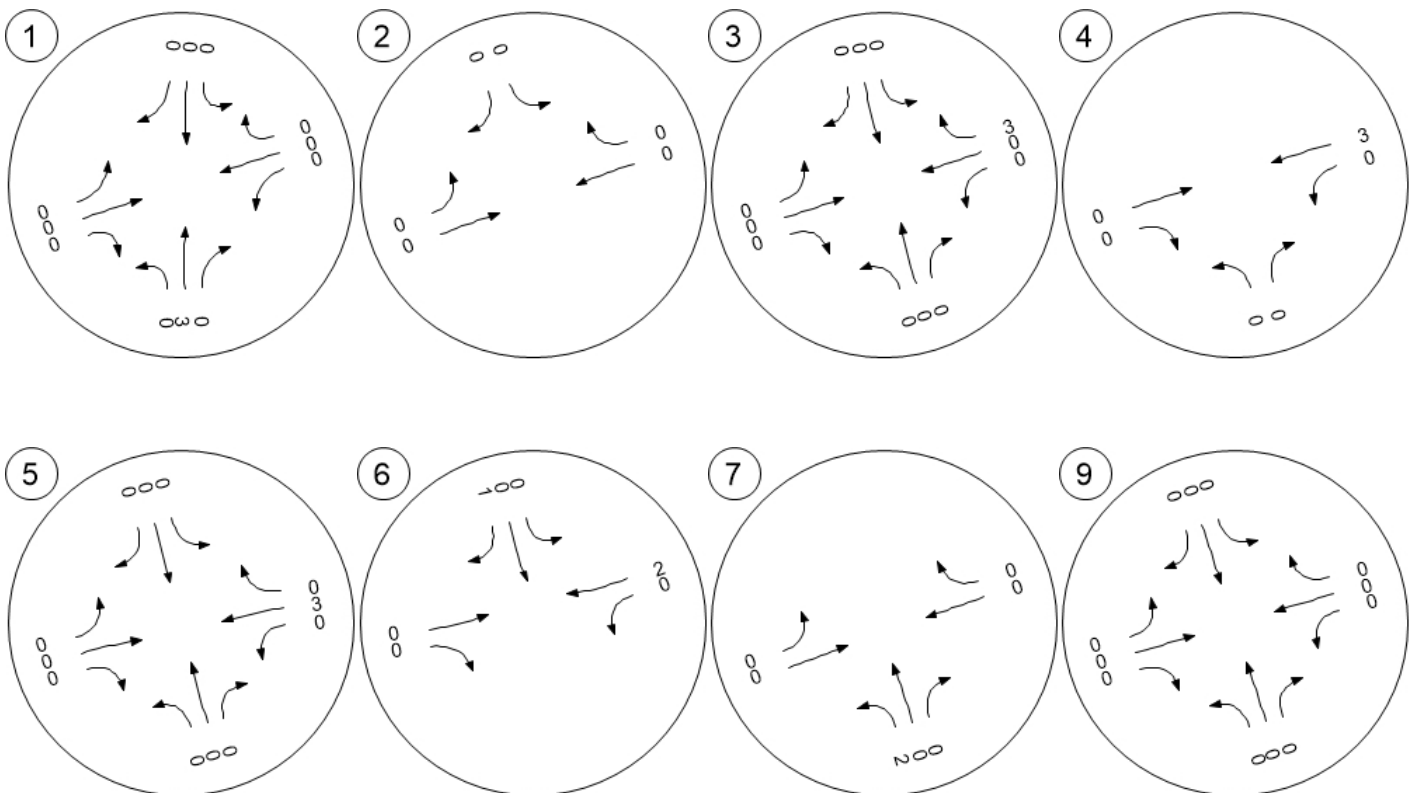




## Traffic Conditions

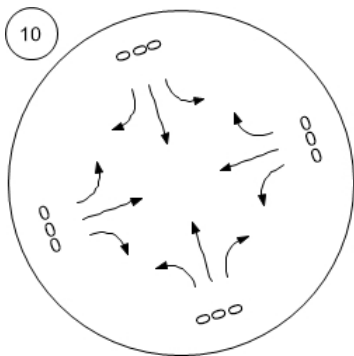


Fair Share - Fair Share Volumes - Zone 18

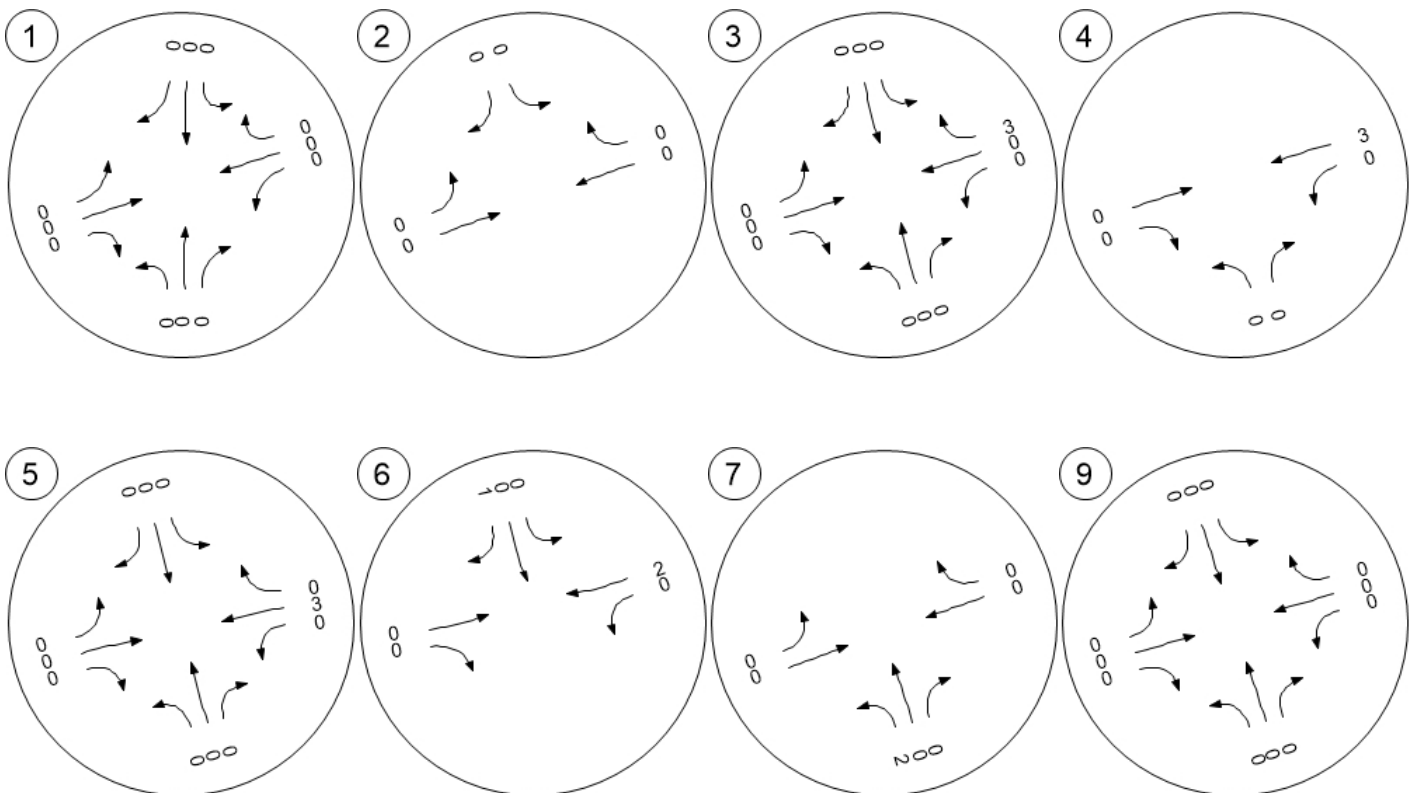




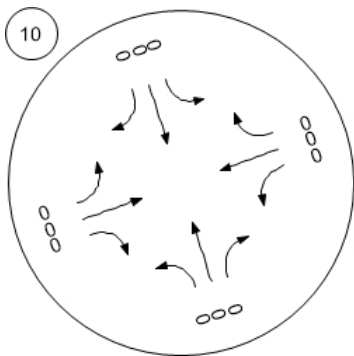
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 19

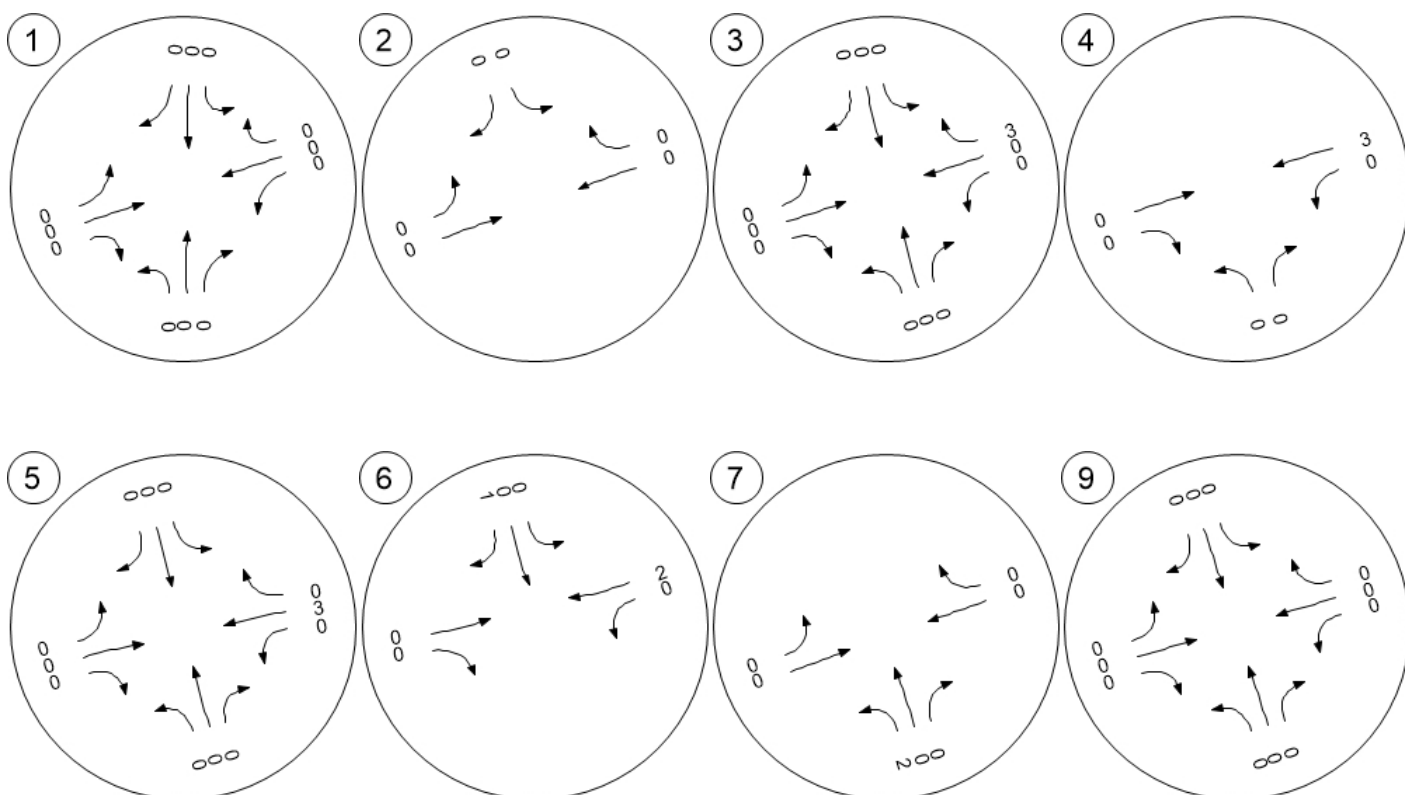


Fair Share - Fair Share Volumes - Zone 19

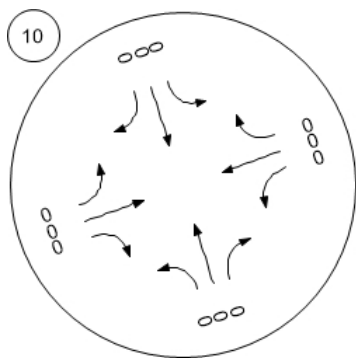




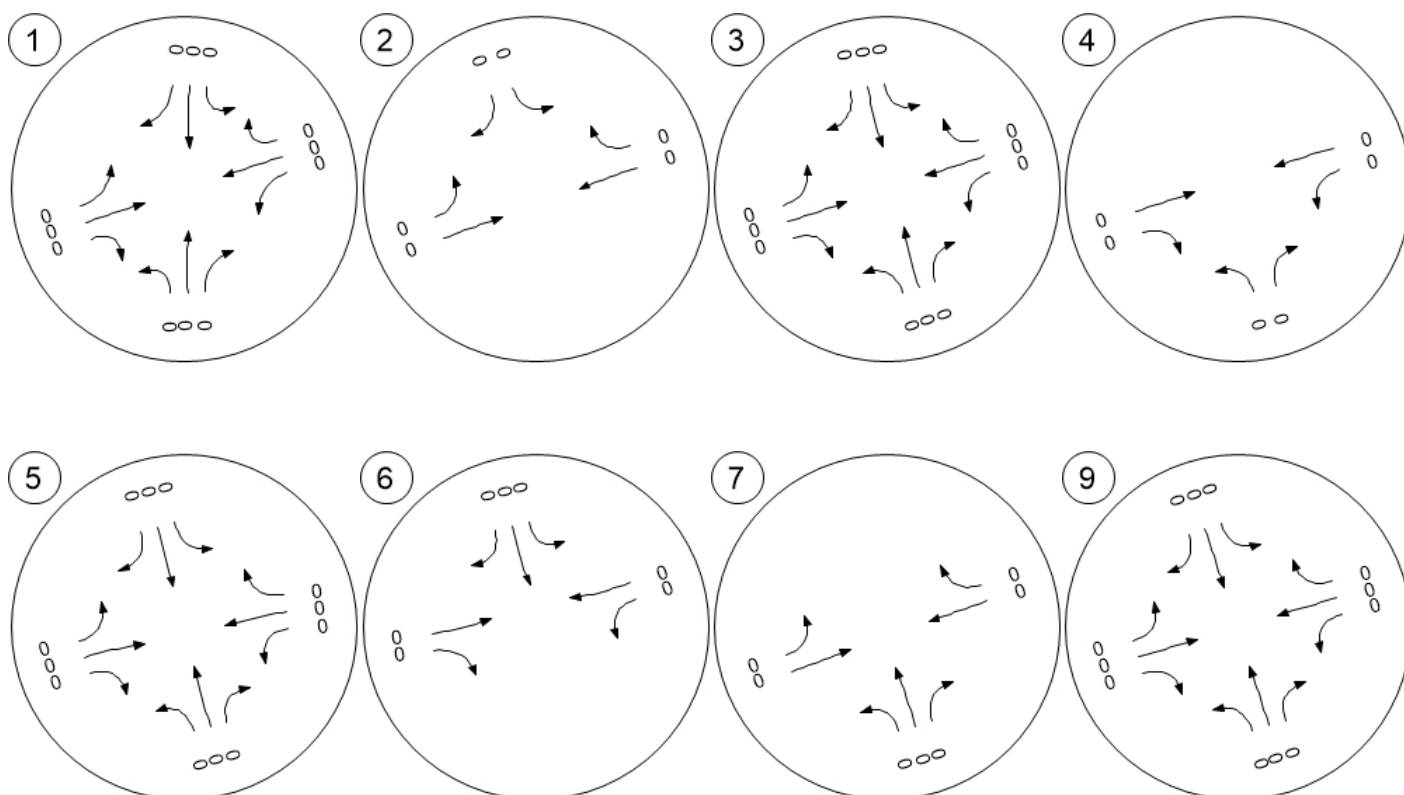
Fair Share - Fair Share Volumes - Zone 20



Fair Share - Fair Share Volumes - Zone 20

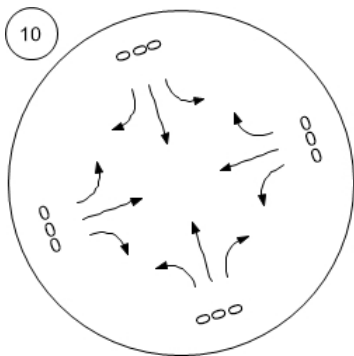


Fair Share - Fair Share Volumes - Zone 21

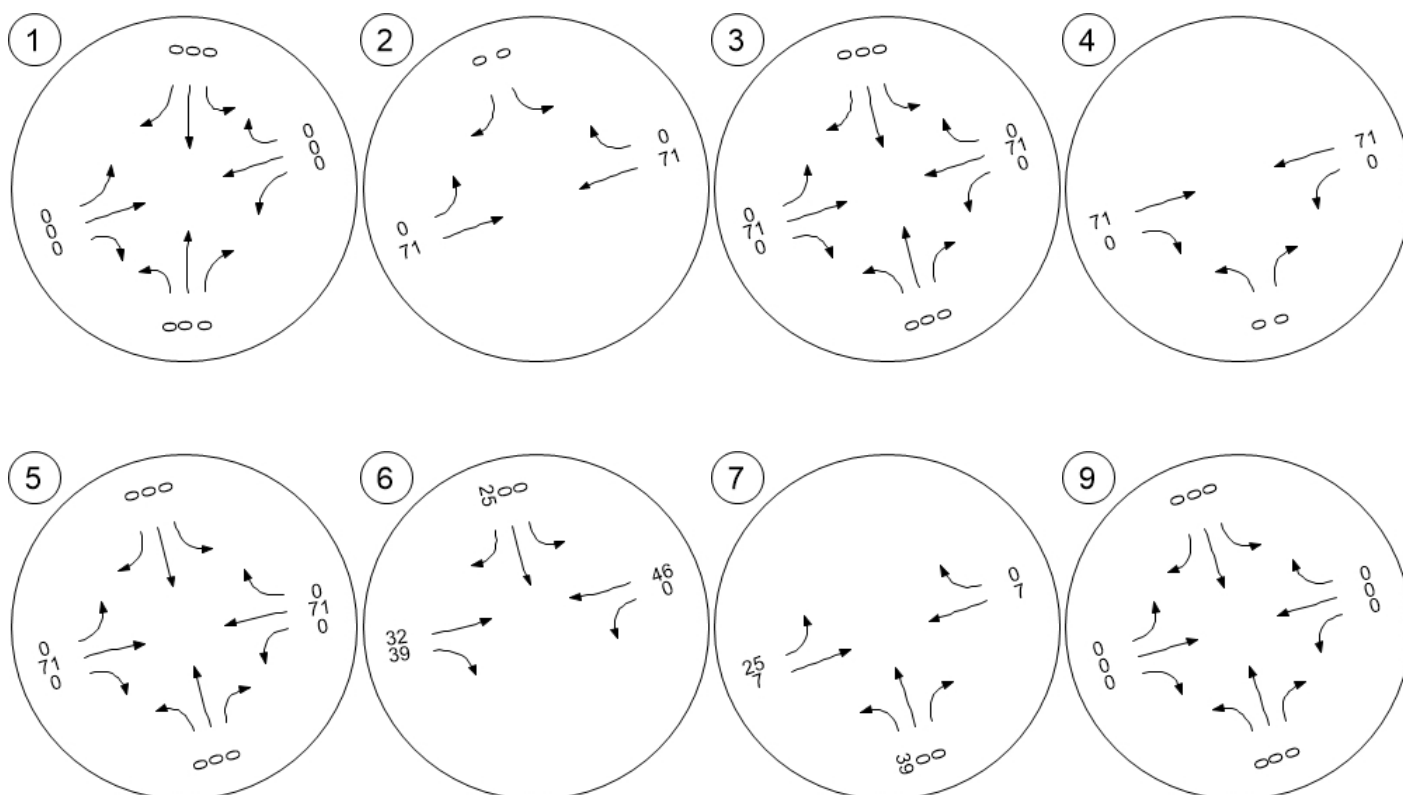




Fair Share - Fair Share Volumes - Zone 21

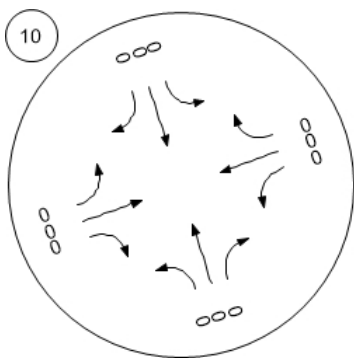


Fair Share - Fair Share Volumes - Zone 22

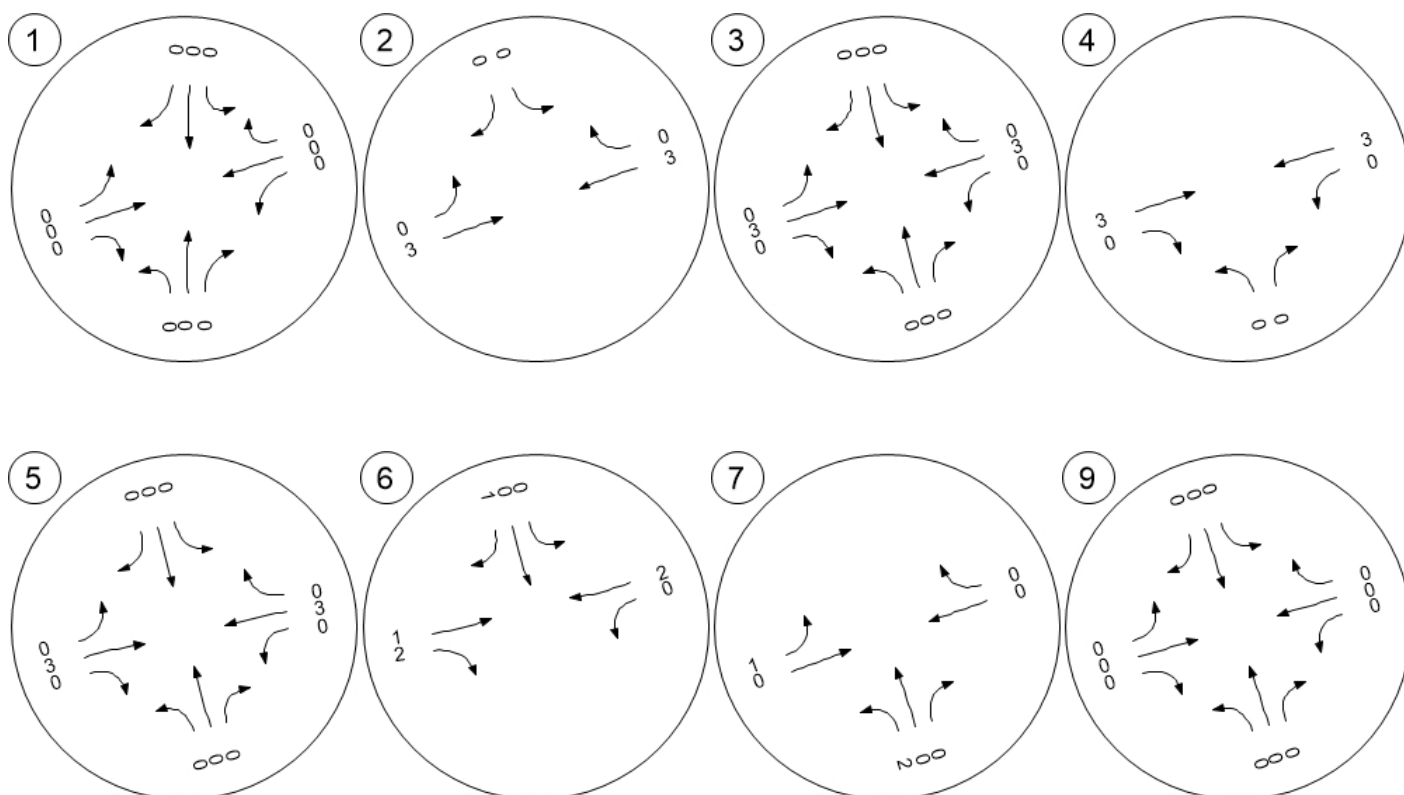




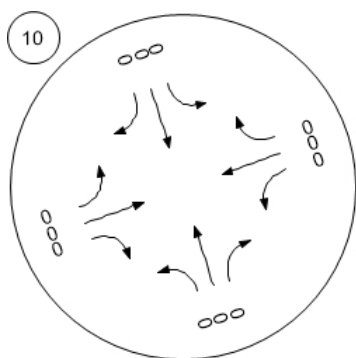
Fair Share - Fair Share Volumes - Zone 22



Fair Share - Fair Share Volumes - Zone 23

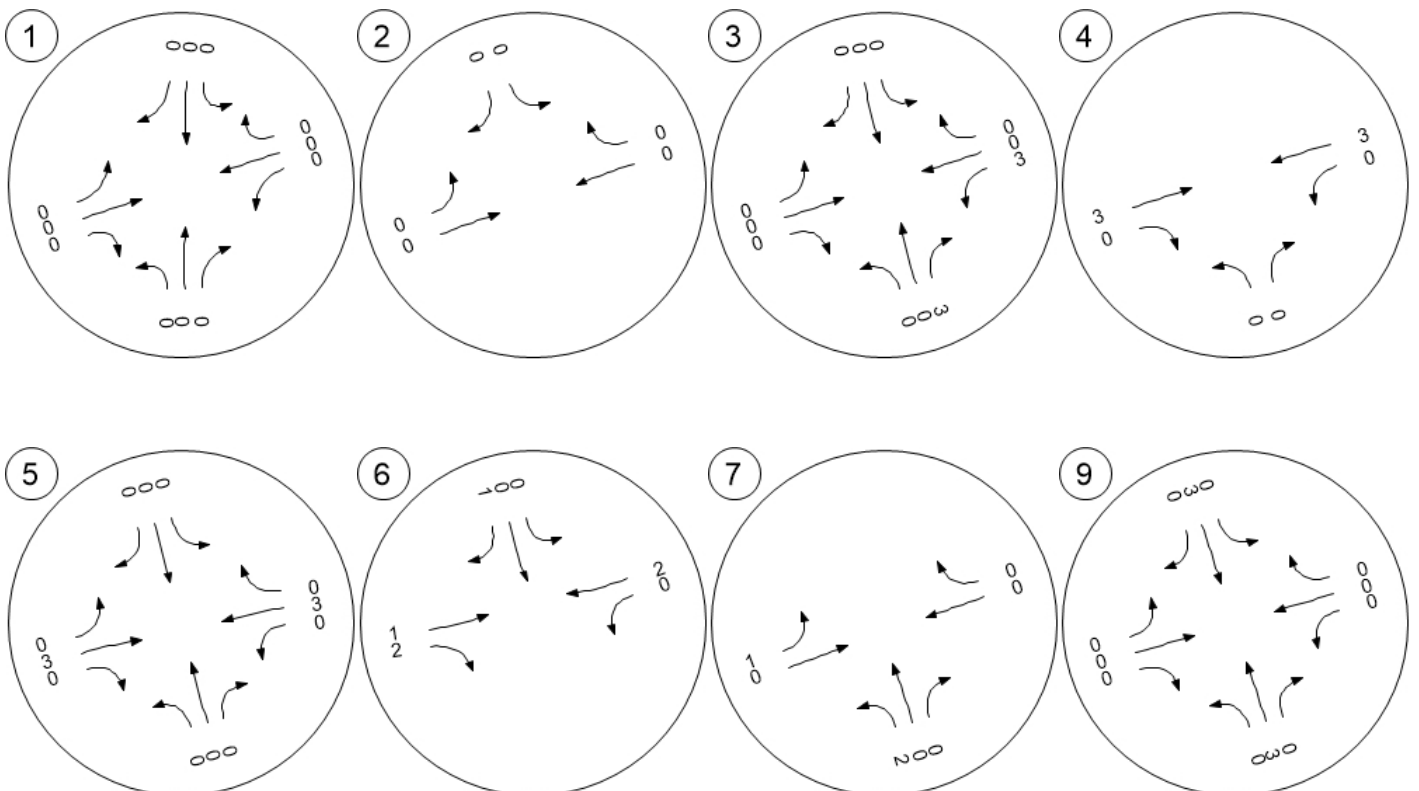


Fair Share - Fair Share Volumes - Zone 23

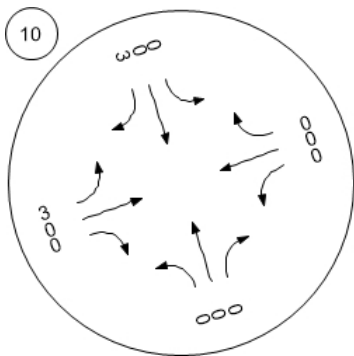




Fair Share - Fair Share Volumes - Zone 24

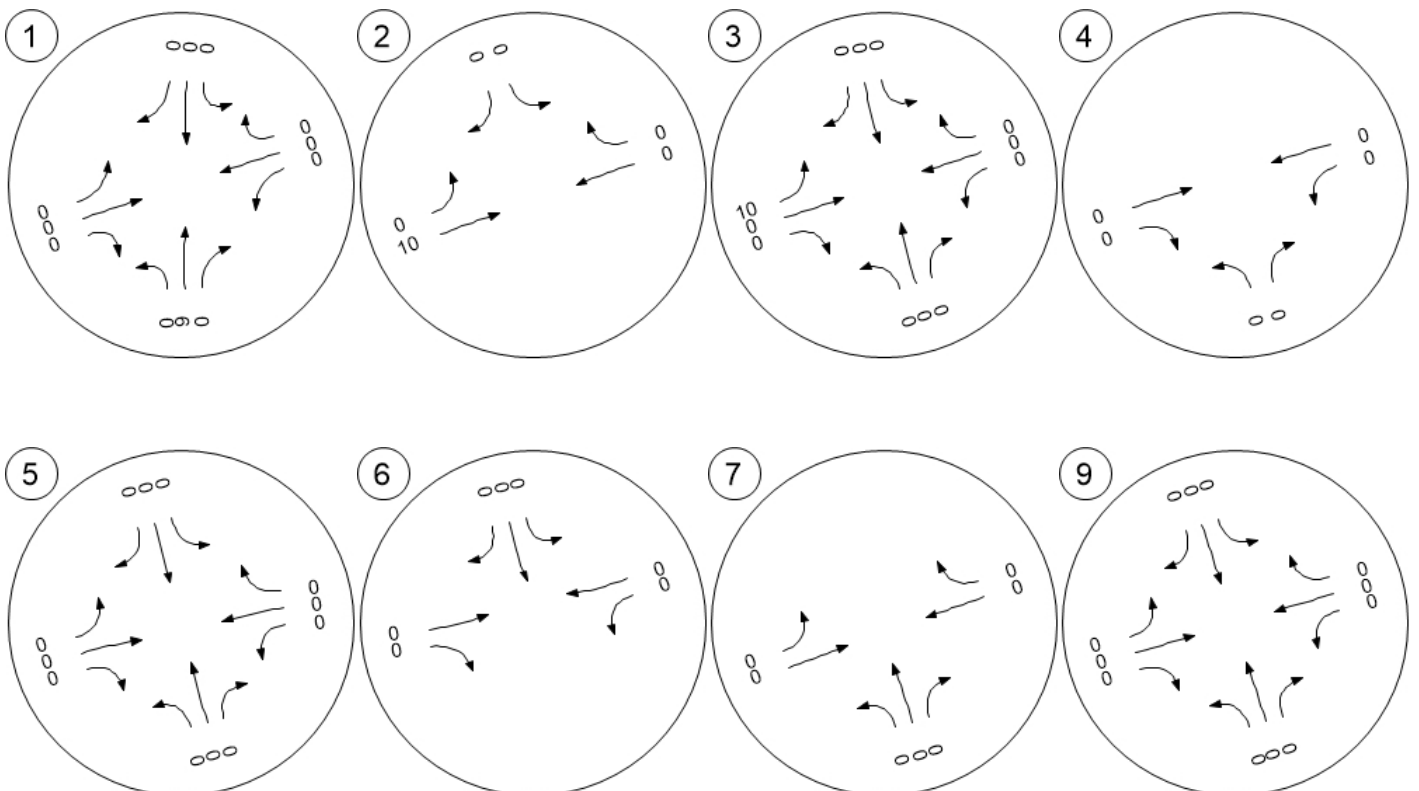


Fair Share - Fair Share Volumes - Zone 24

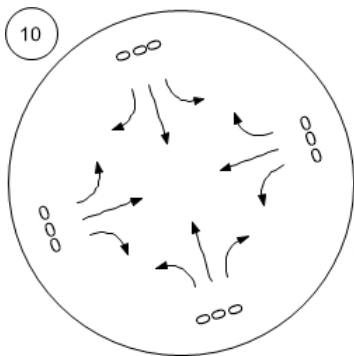




Fair Share - Fair Share Volumes - Zone 25

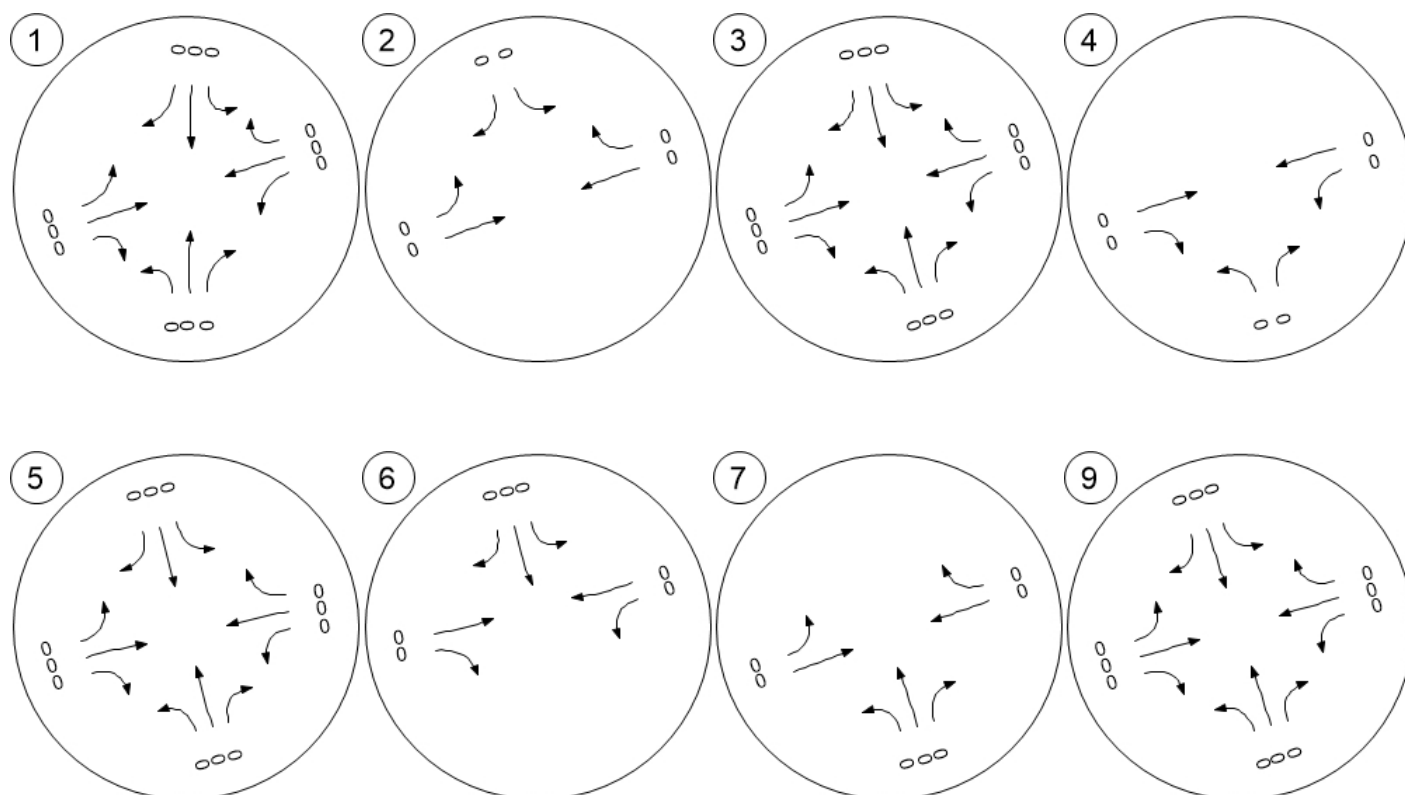


Fair Share - Fair Share Volumes - Zone 25

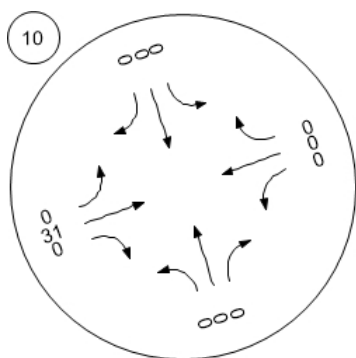




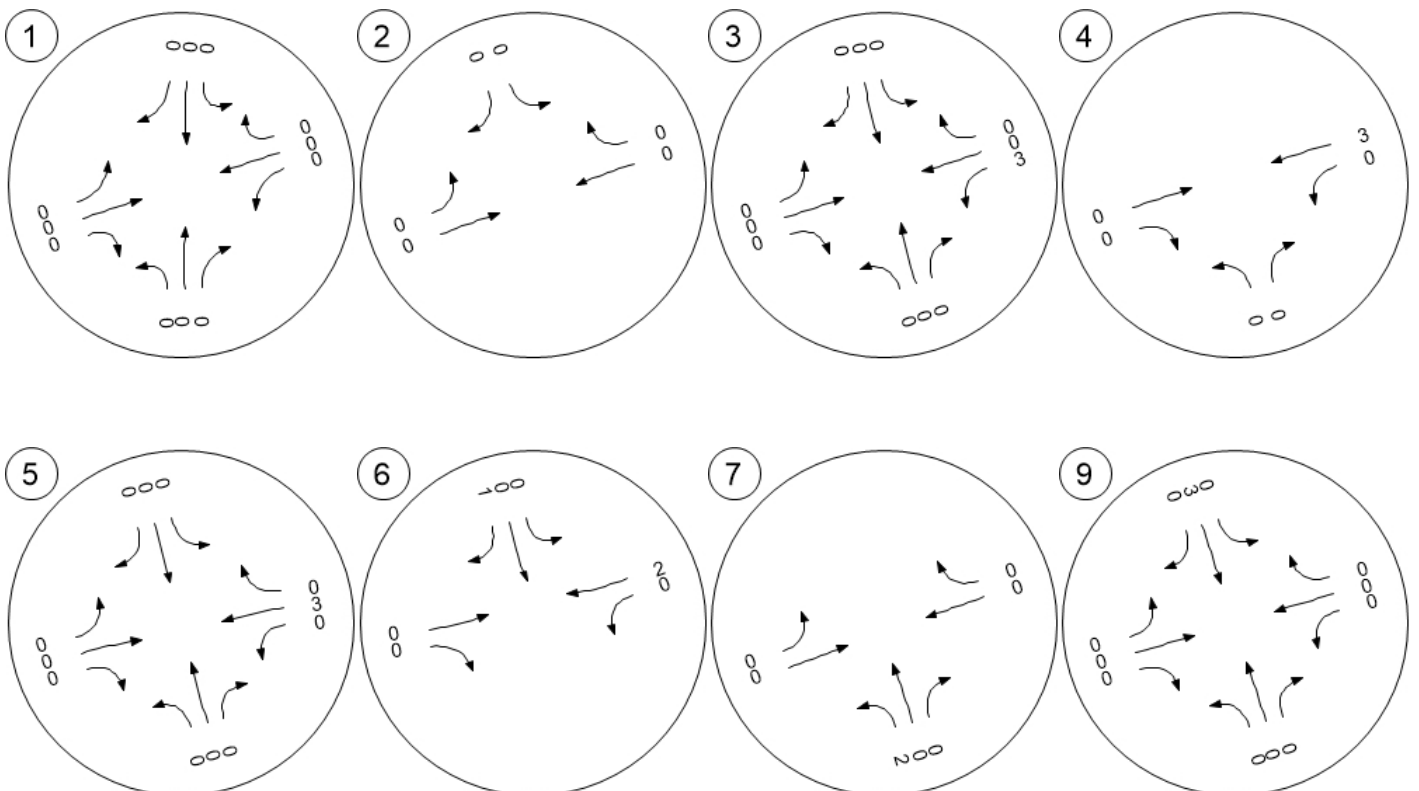
Fair Share - Fair Share Volumes - Zone 26



Fair Share - Fair Share Volumes - Zone 26

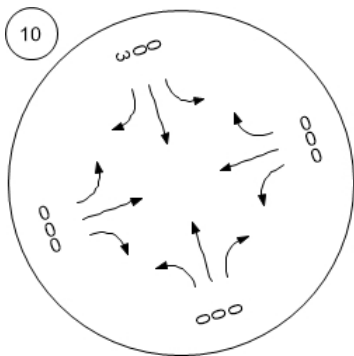


Fair Share - Fair Share Volumes - Zone 27

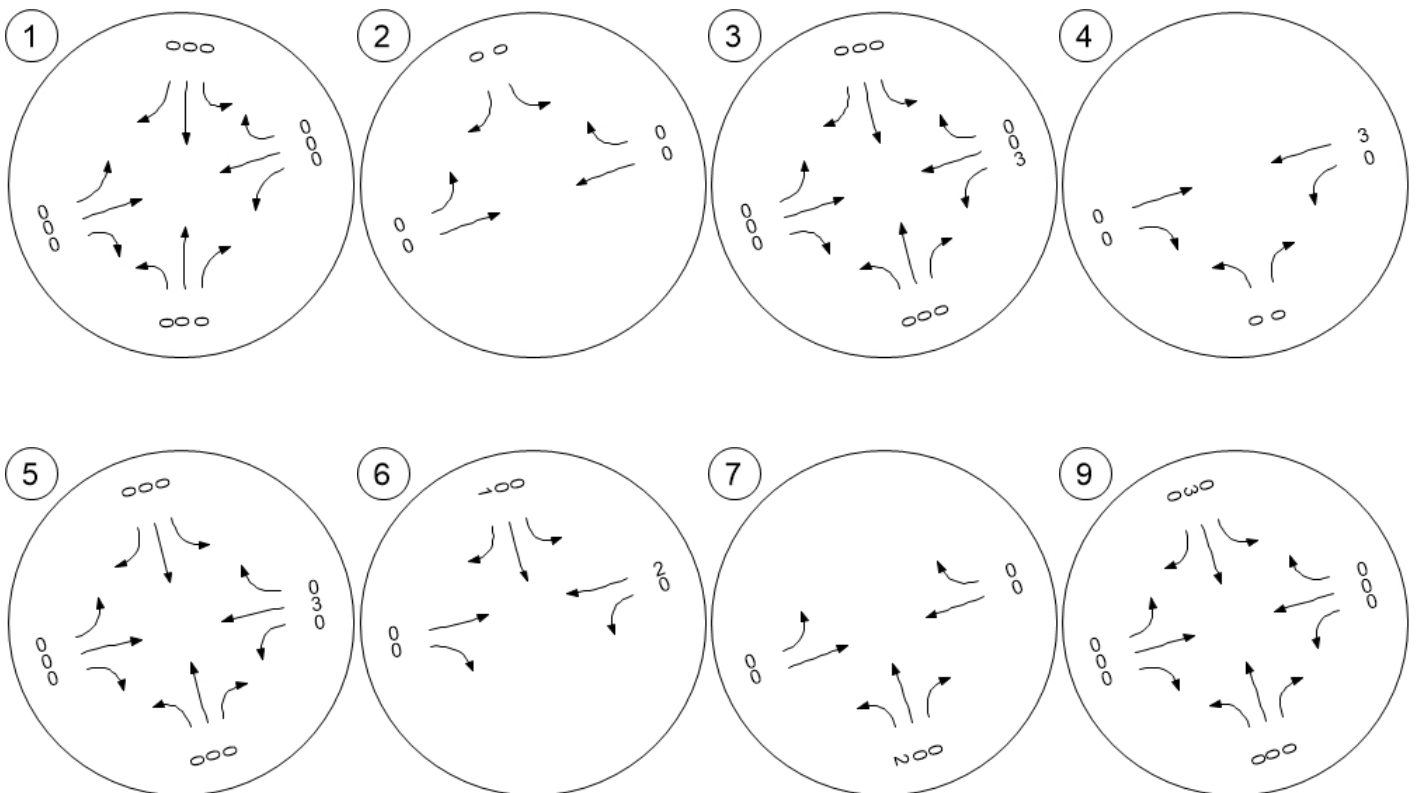




Fair Share - Fair Share Volumes - Zone 27

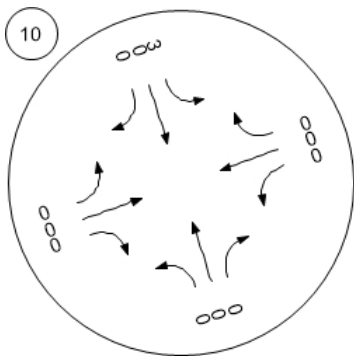


Fair Share - Fair Share Volumes - Zone 28

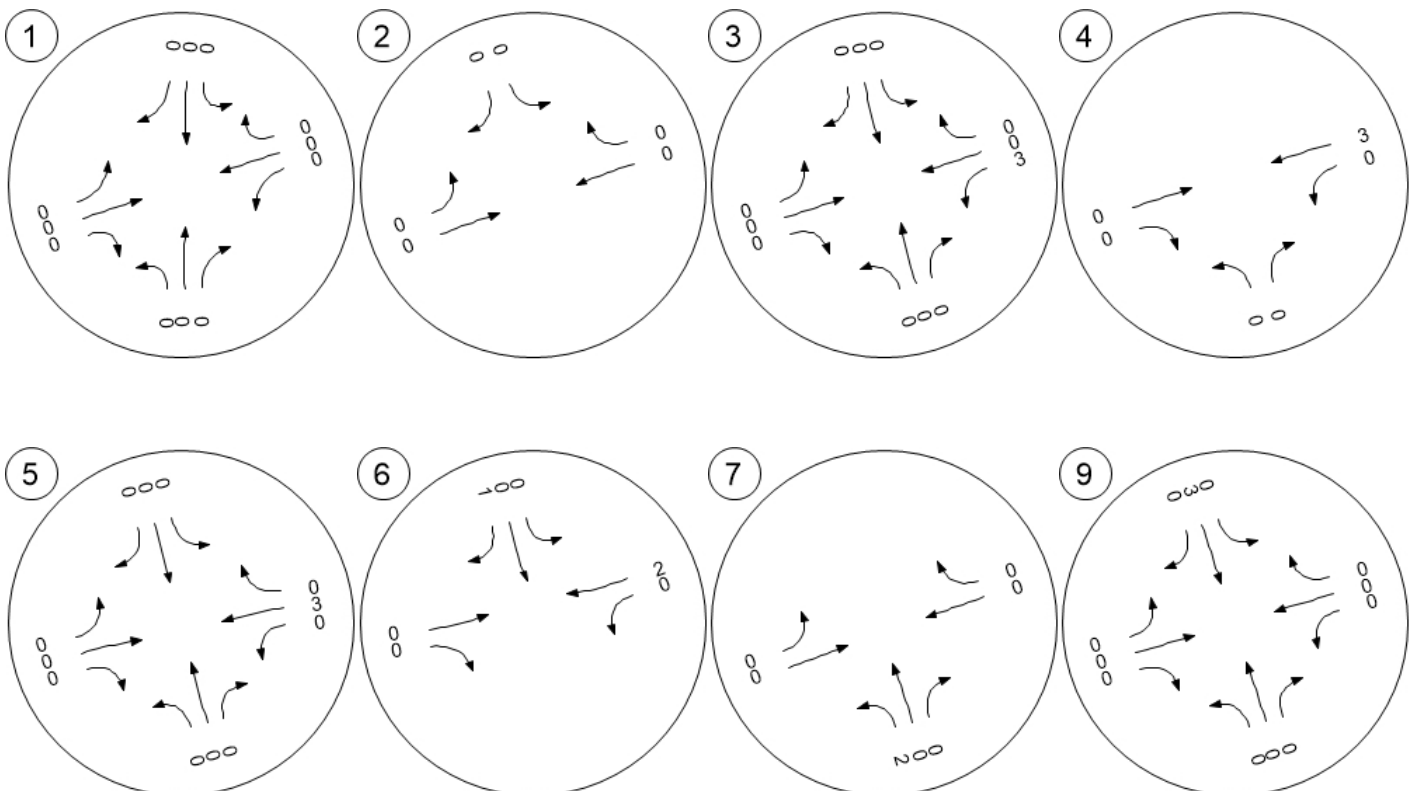




Fair Share - Fair Share Volumes - Zone 28

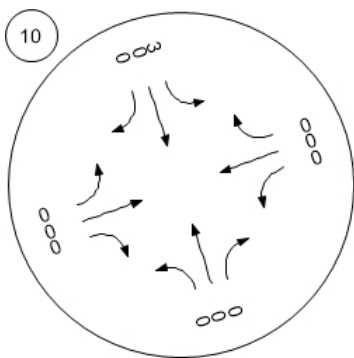
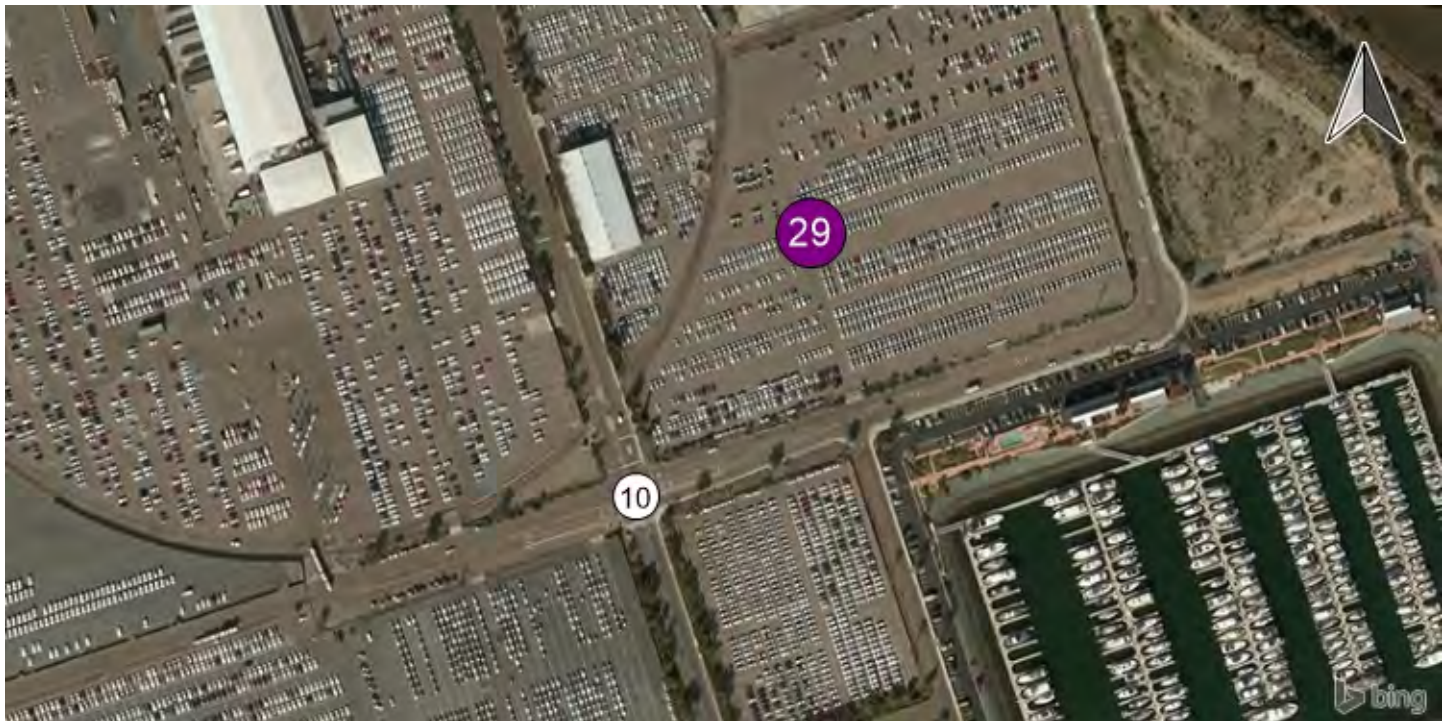


Fair Share - Fair Share Volumes - Zone 29



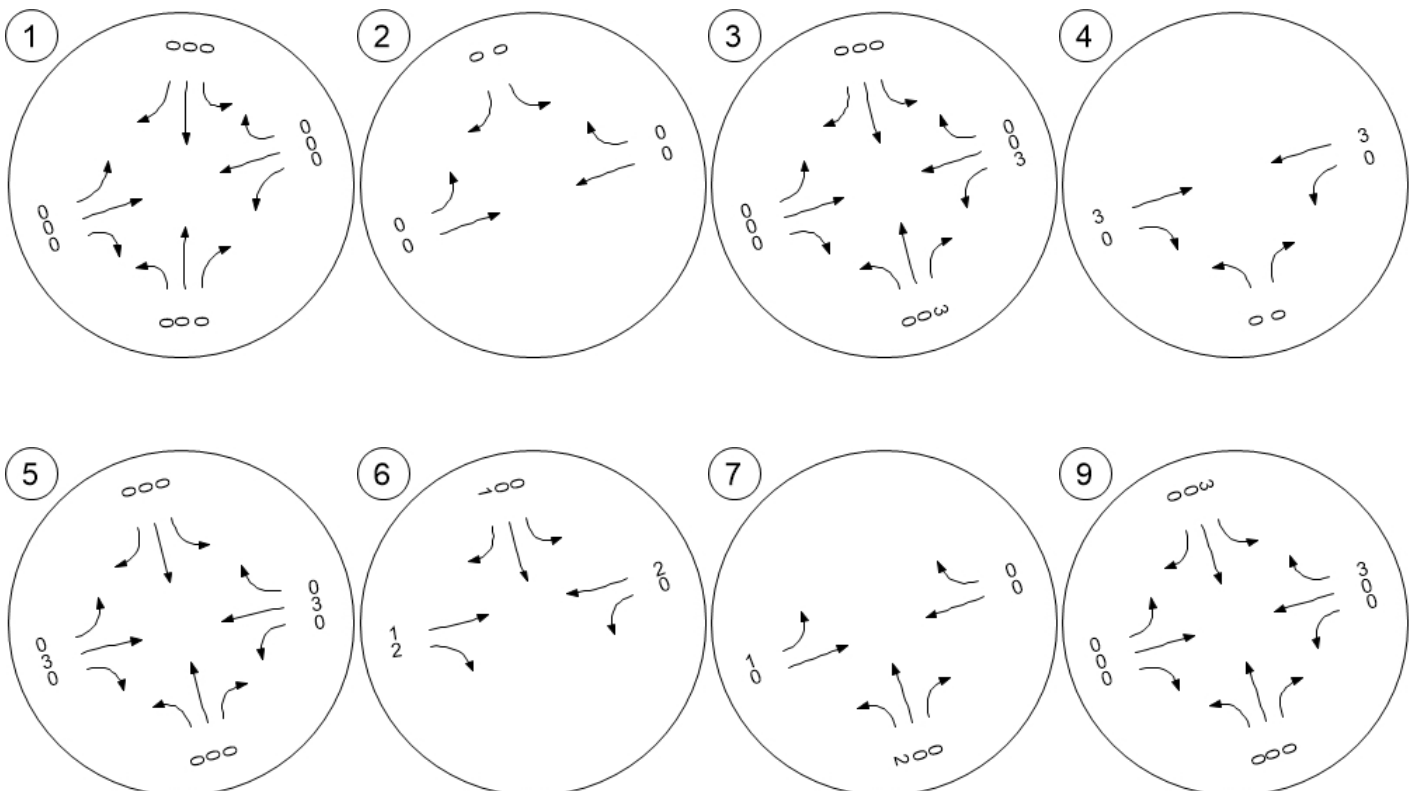


Fair Share - Fair Share Volumes - Zone 29

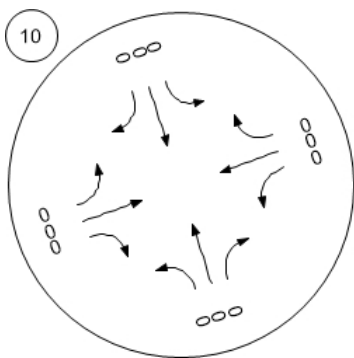




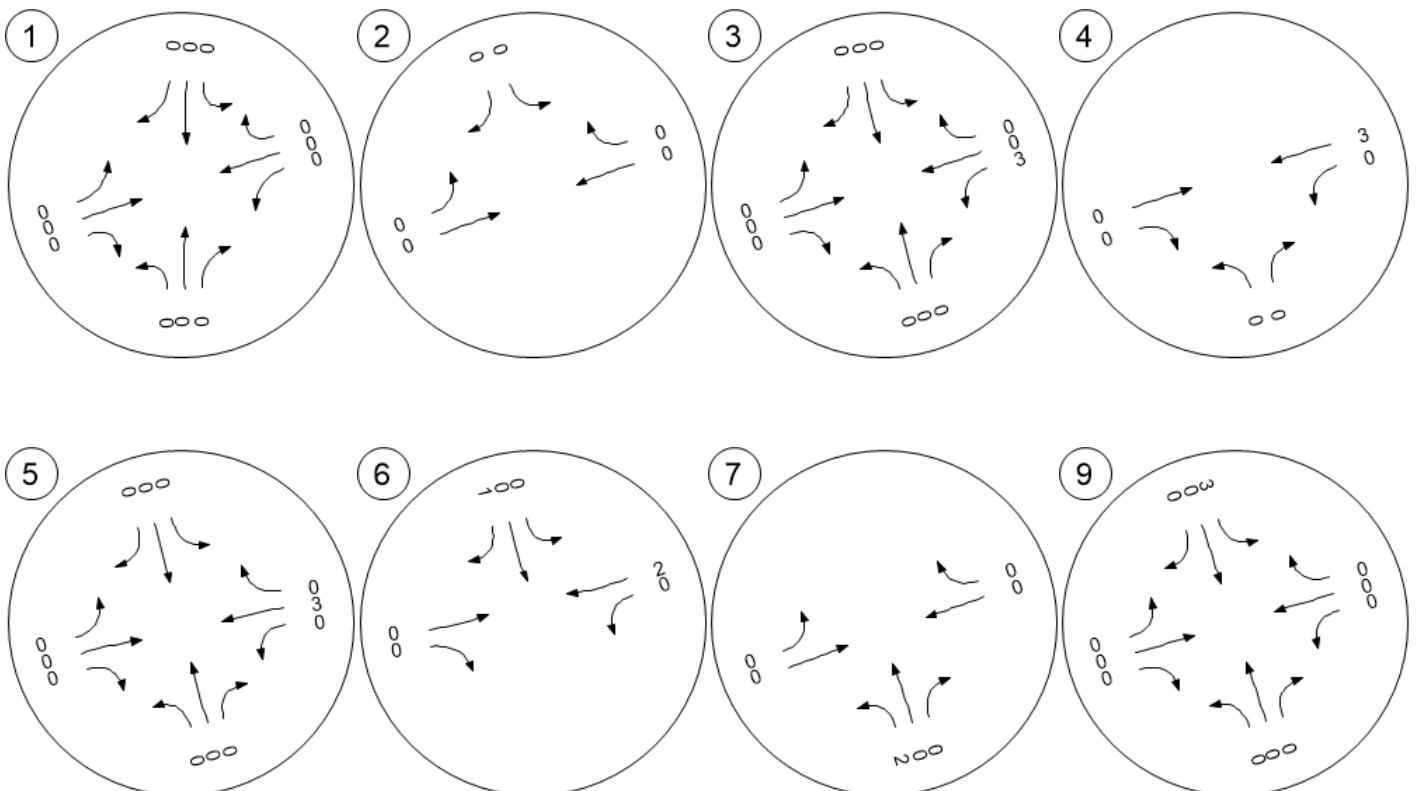
Fair Share - Fair Share Volumes - Zone 32



Fair Share - Fair Share Volumes - Zone 32

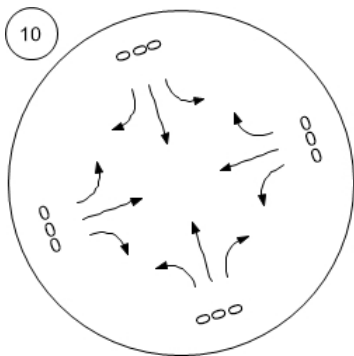


Fair Share - Fair Share Volumes - Zone 33

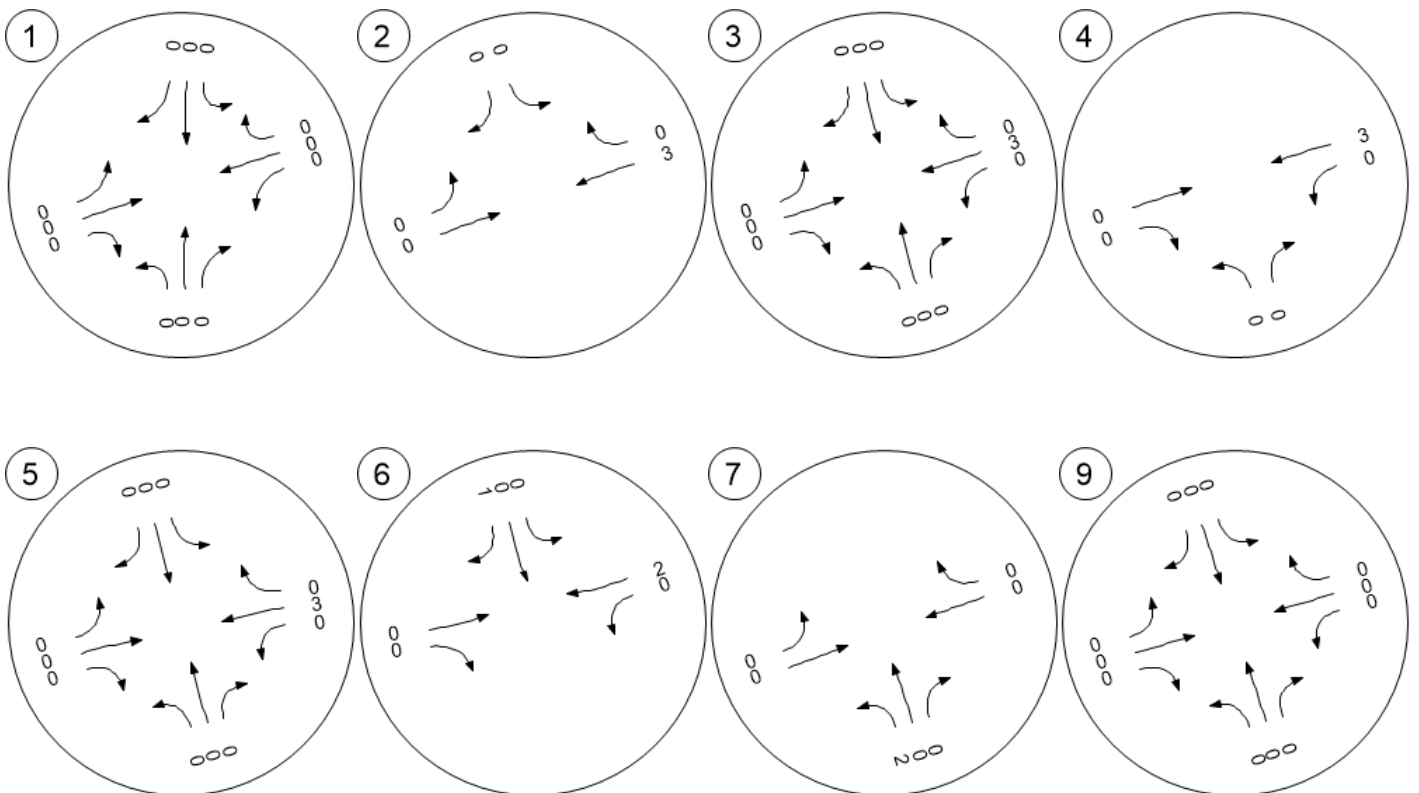




Fair Share - Fair Share Volumes - Zone 33

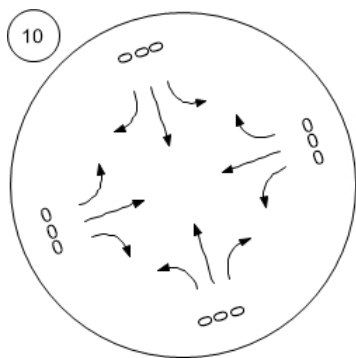


Fair Share - Fair Share Volumes - Zone 34

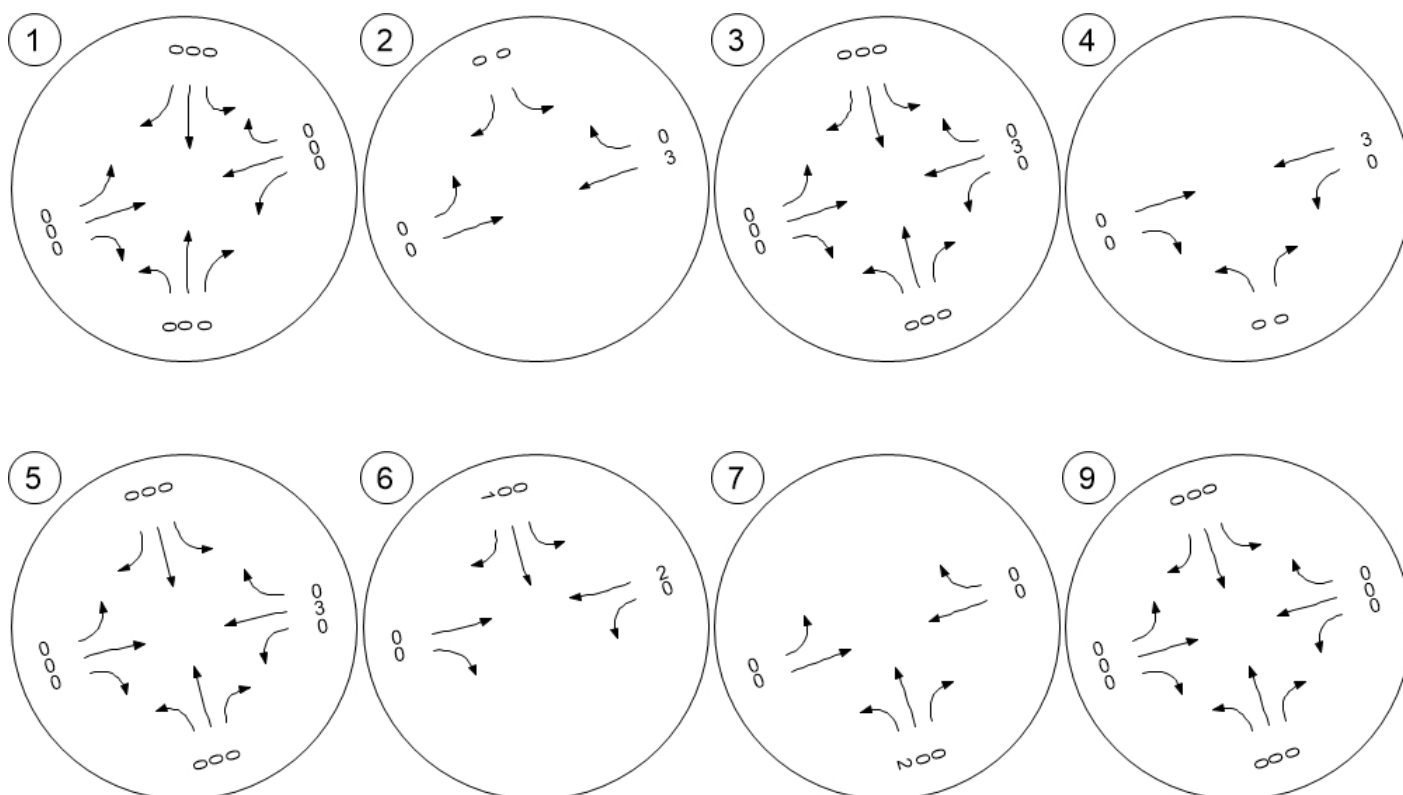




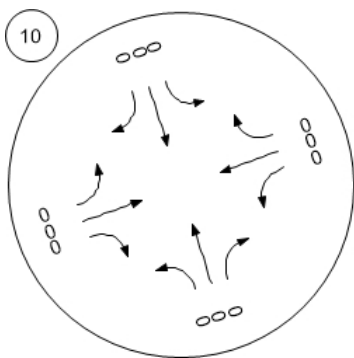
Fair Share - Fair Share Volumes - Zone 34



Fair Share - Fair Share Volumes - Zone 35

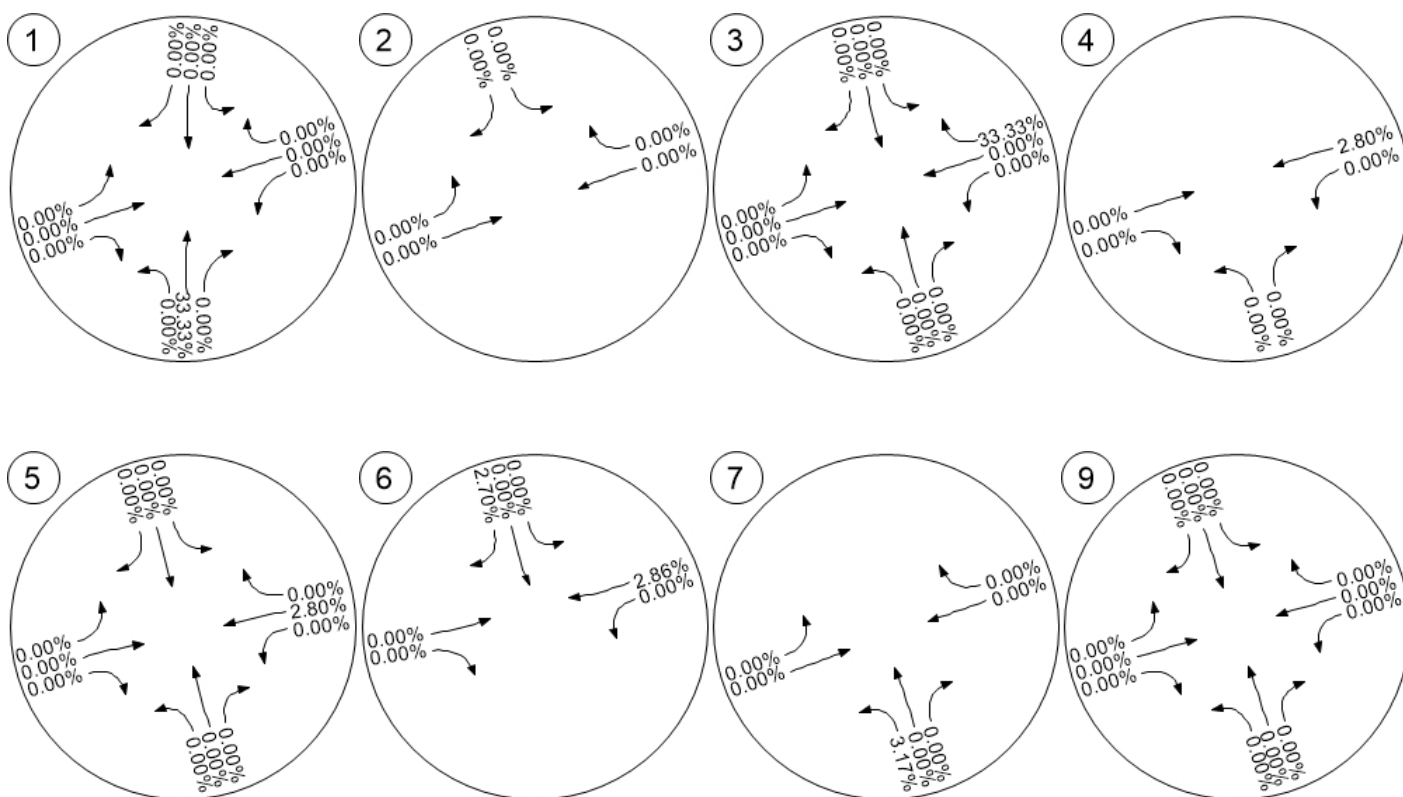


Fair Share - Fair Share Volumes - Zone 35





## Fair Share - Fair Share % of Net New Site - Zone 18

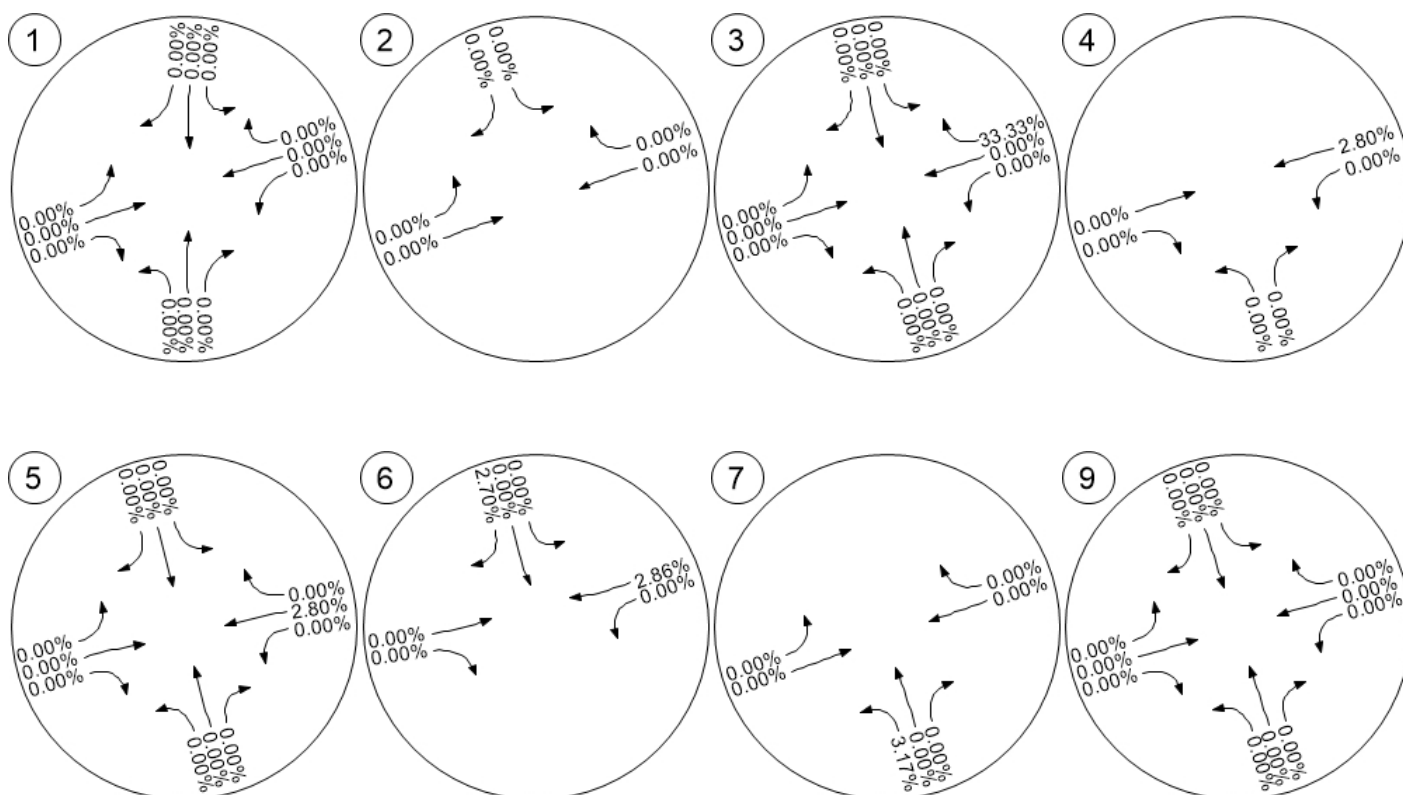


Fair Share - Fair Share % of Net New Site - Zone 18





Fair Share - Fair Share % of Net New Site - Zone 19

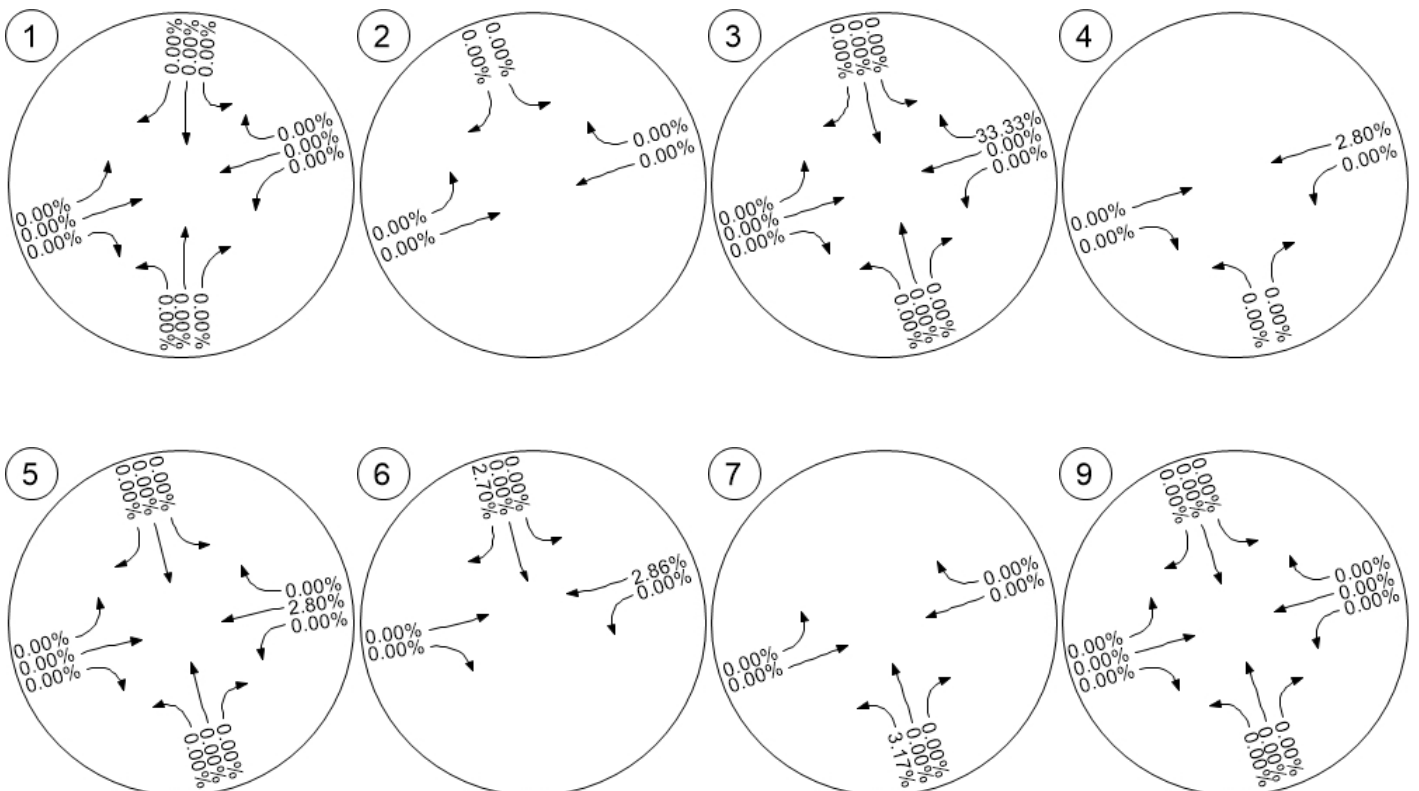


Fair Share - Fair Share % of Net New Site - Zone 19

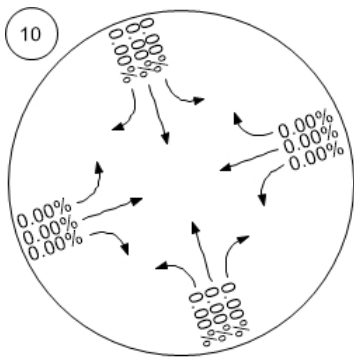




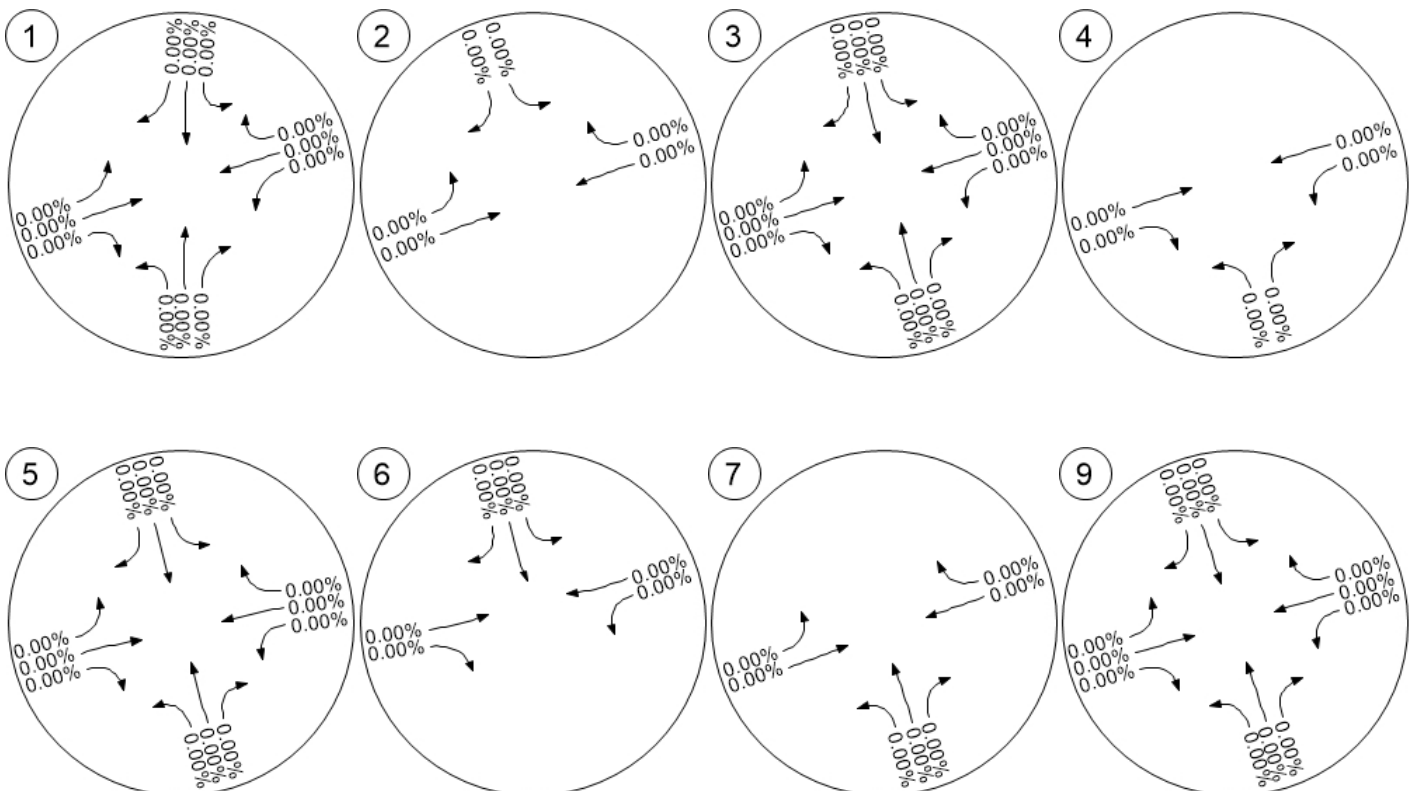
Fair Share - Fair Share % of Net New Site - Zone 20



Fair Share - Fair Share % of Net New Site - Zone 20

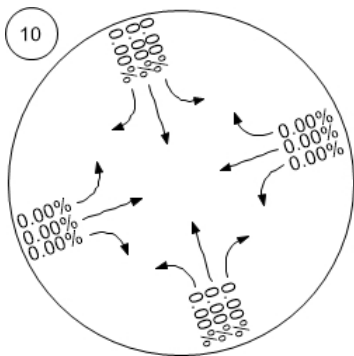


Fair Share - Fair Share % of Net New Site - Zone 21

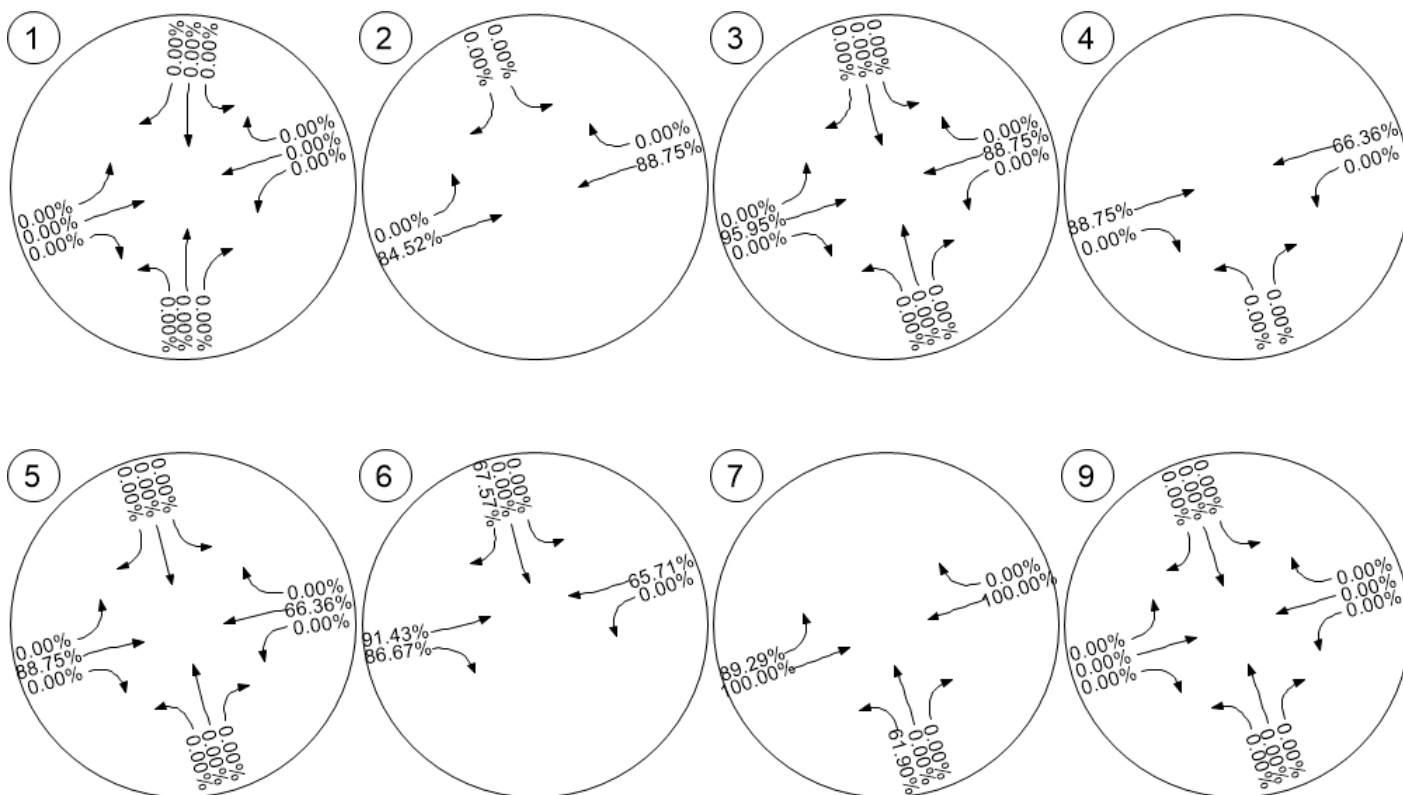




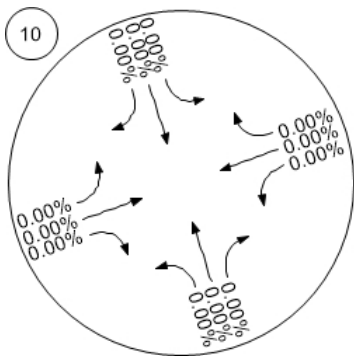
Fair Share - Fair Share % of Net New Site - Zone 21



## Fair Share - Fair Share % of Net New Site - Zone 22

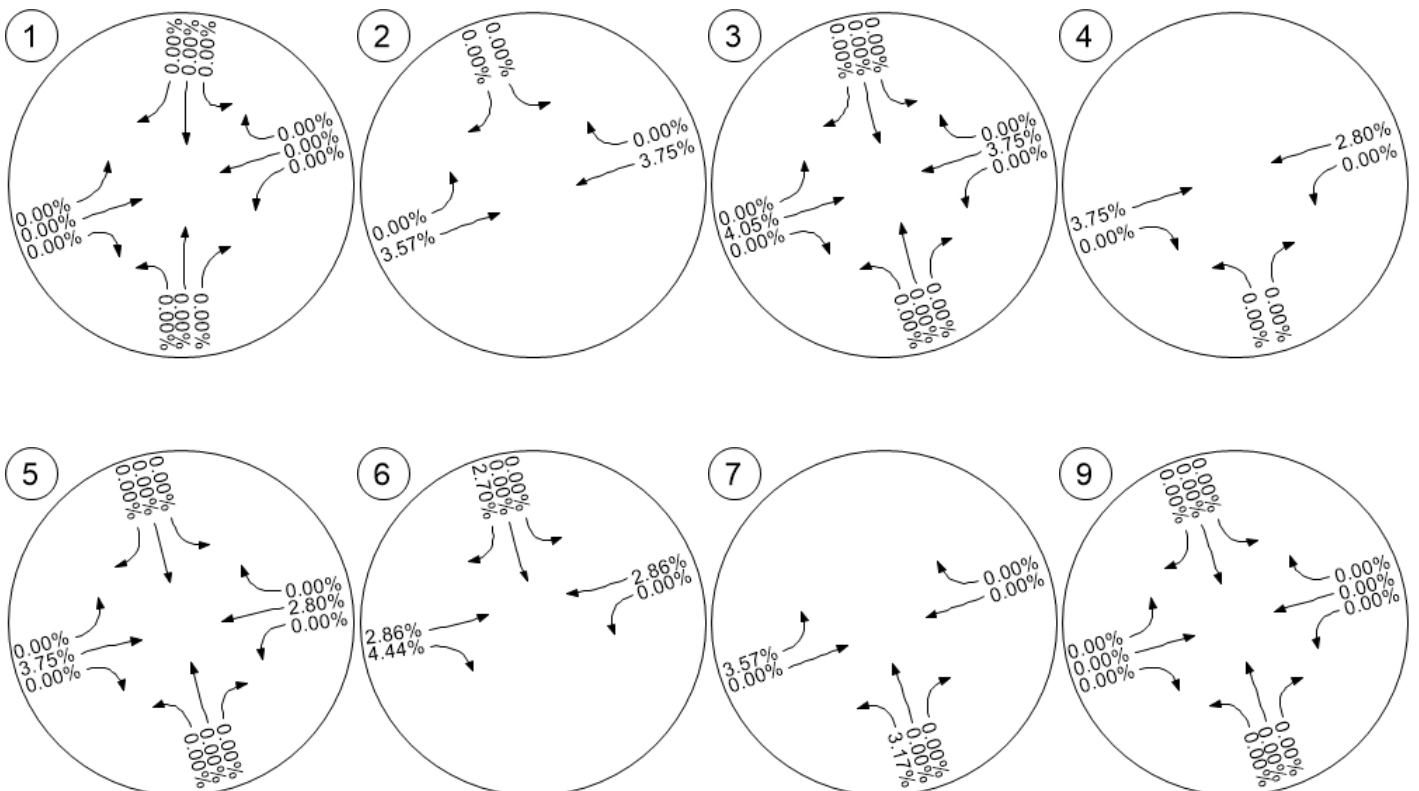


Fair Share - Fair Share % of Net New Site - Zone 22

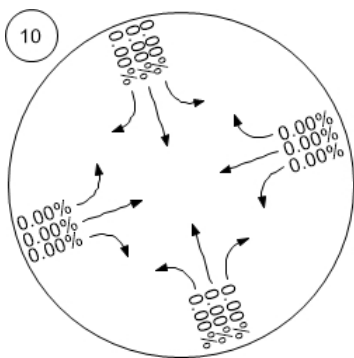




Fair Share - Fair Share % of Net New Site - Zone 23

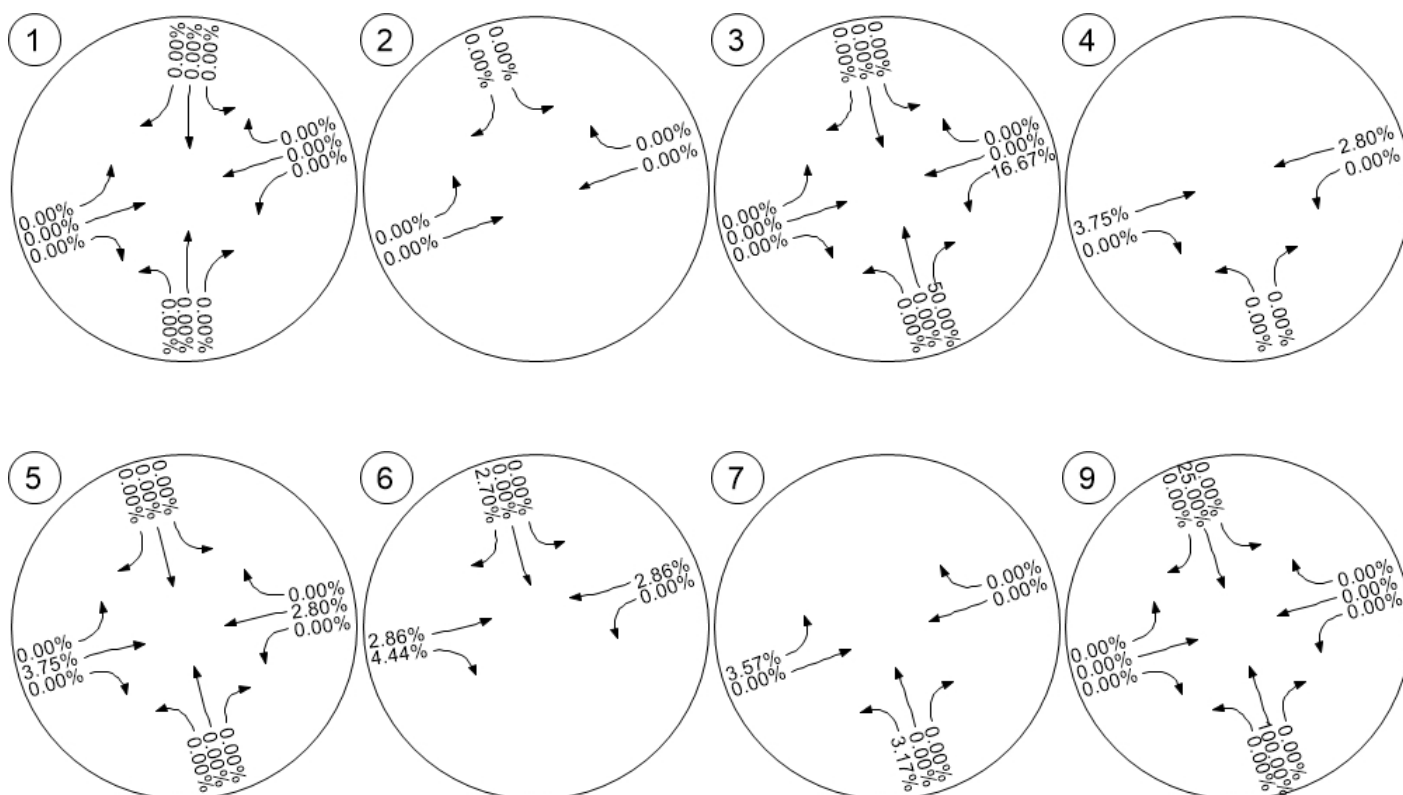


Fair Share - Fair Share % of Net New Site - Zone 23

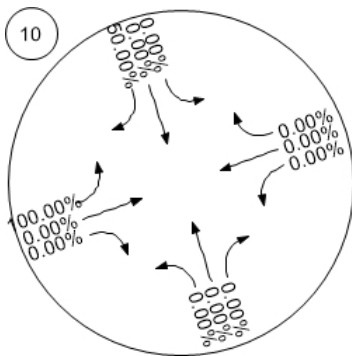




Fair Share - Fair Share % of Net New Site - Zone 24

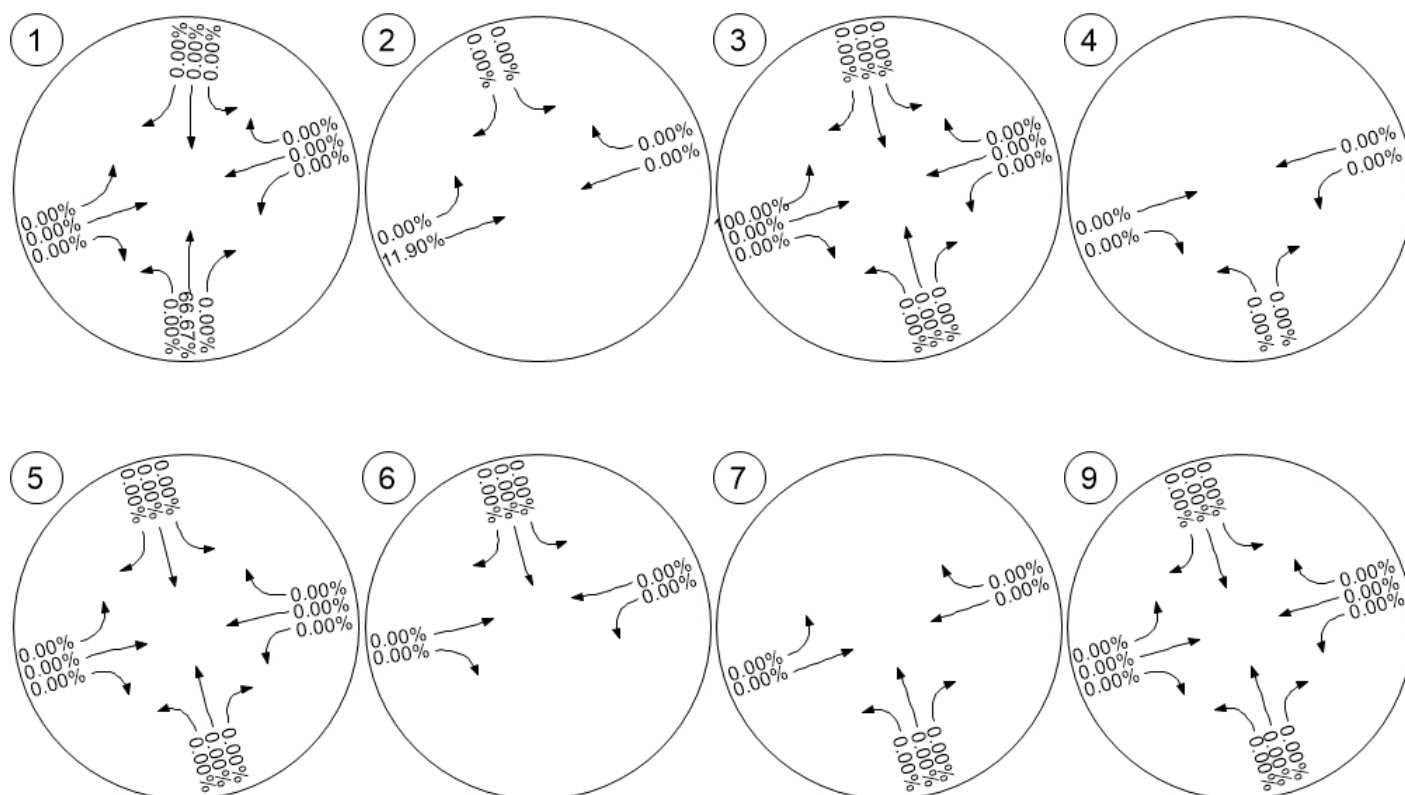


### Fair Share - Fair Share % of Net New Site - Zone 24





## Fair Share - Fair Share % of Net New Site - Zone 25

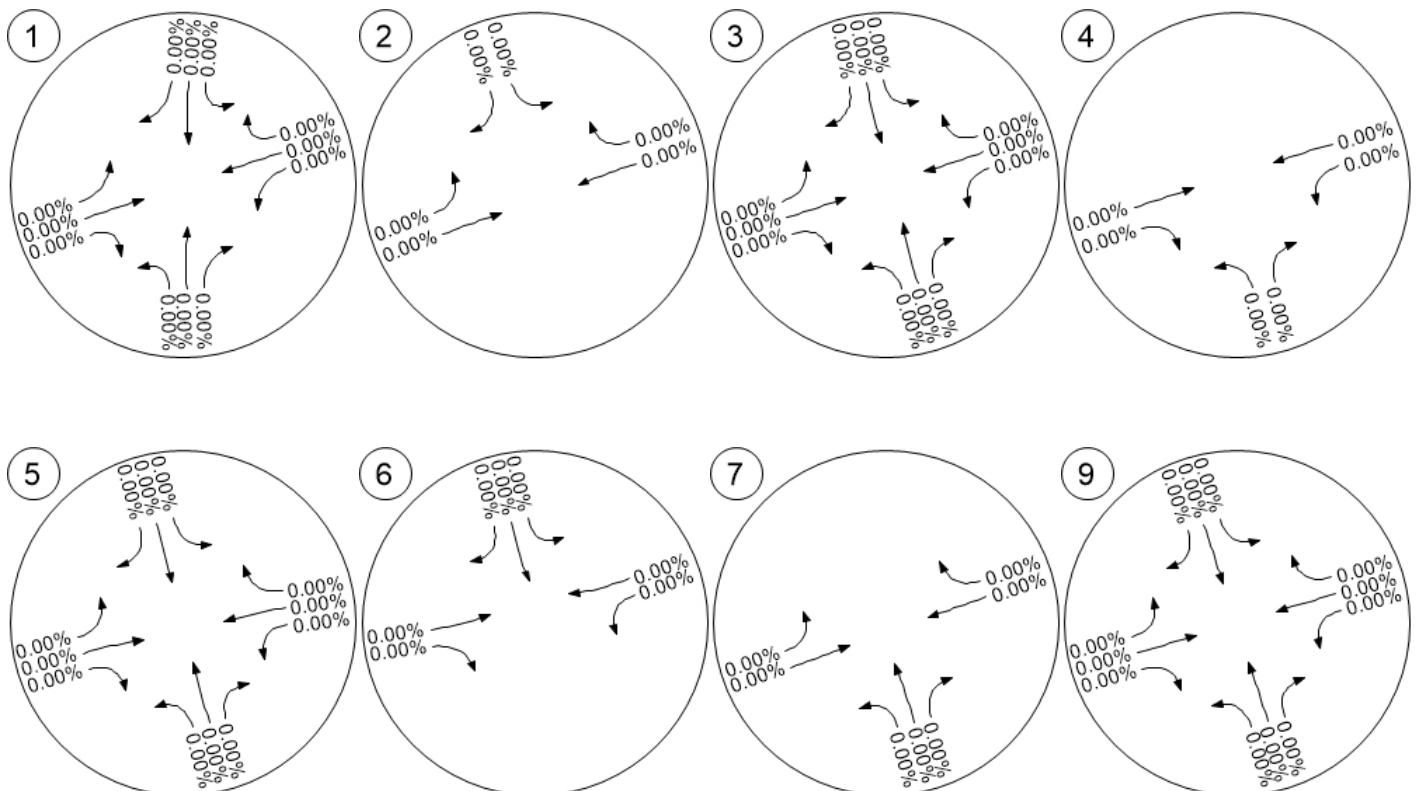


Fair Share - Fair Share % of Net New Site - Zone 25



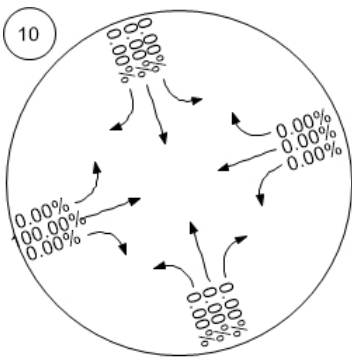


Fair Share - Fair Share % of Net New Site - Zone 26

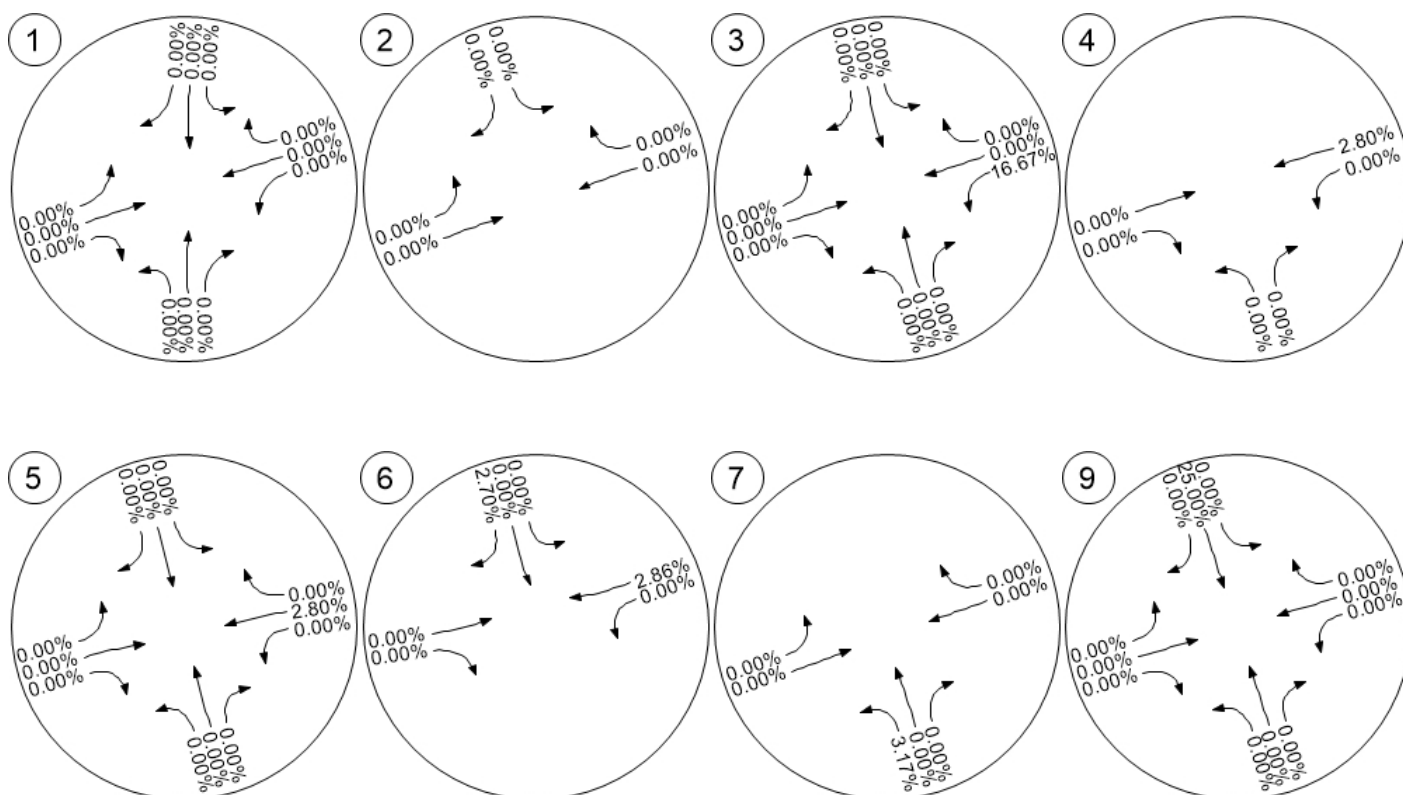




Fair Share - Fair Share % of Net New Site - Zone 26

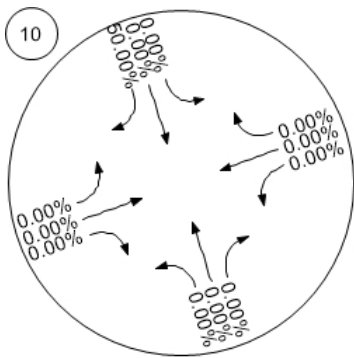


Fair Share - Fair Share % of Net New Site - Zone 27

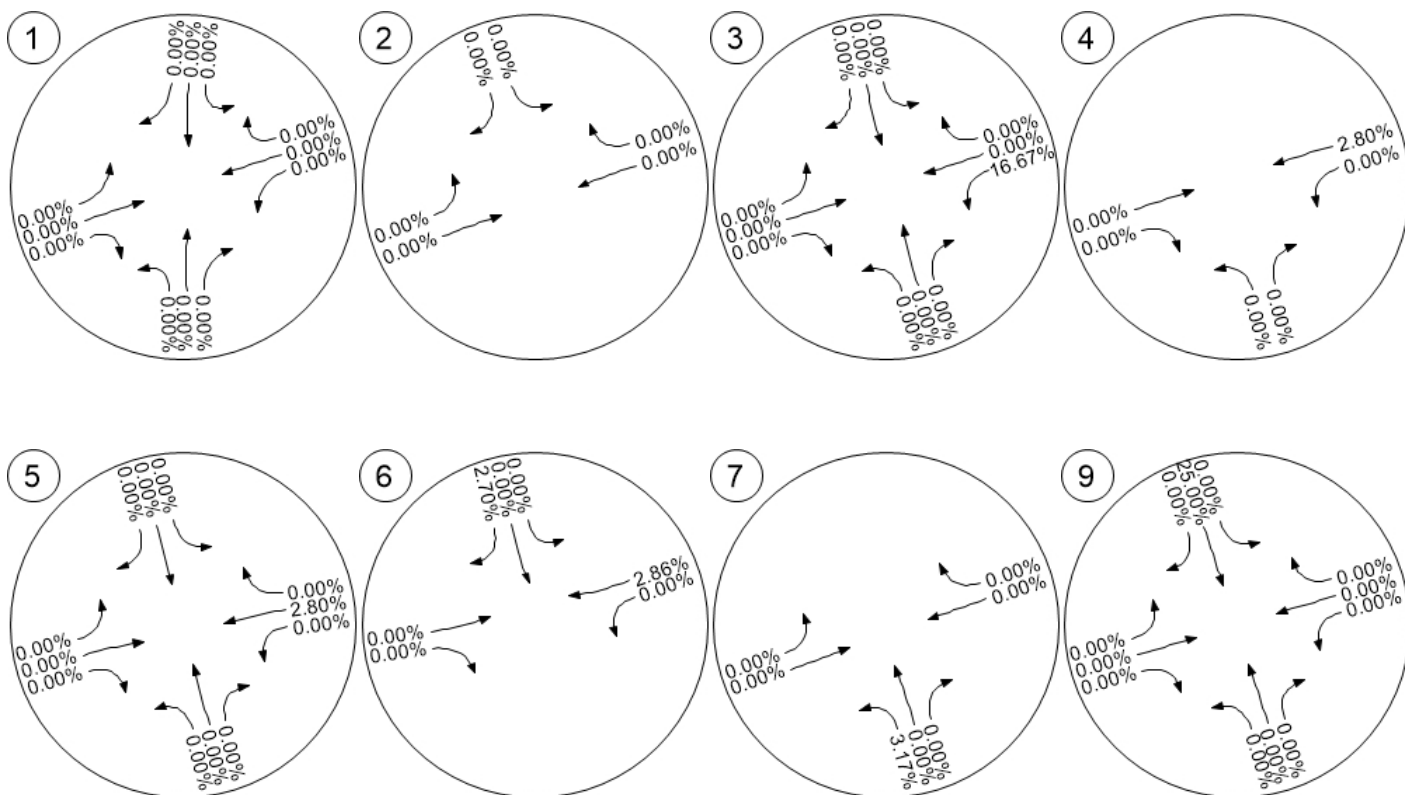




Fair Share - Fair Share % of Net New Site - Zone 27

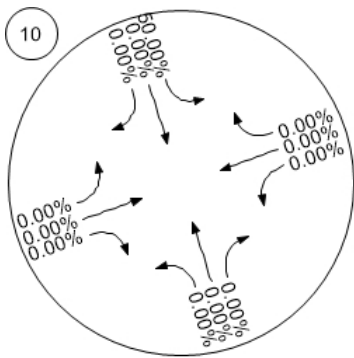


## Fair Share - Fair Share % of Net New Site - Zone 28



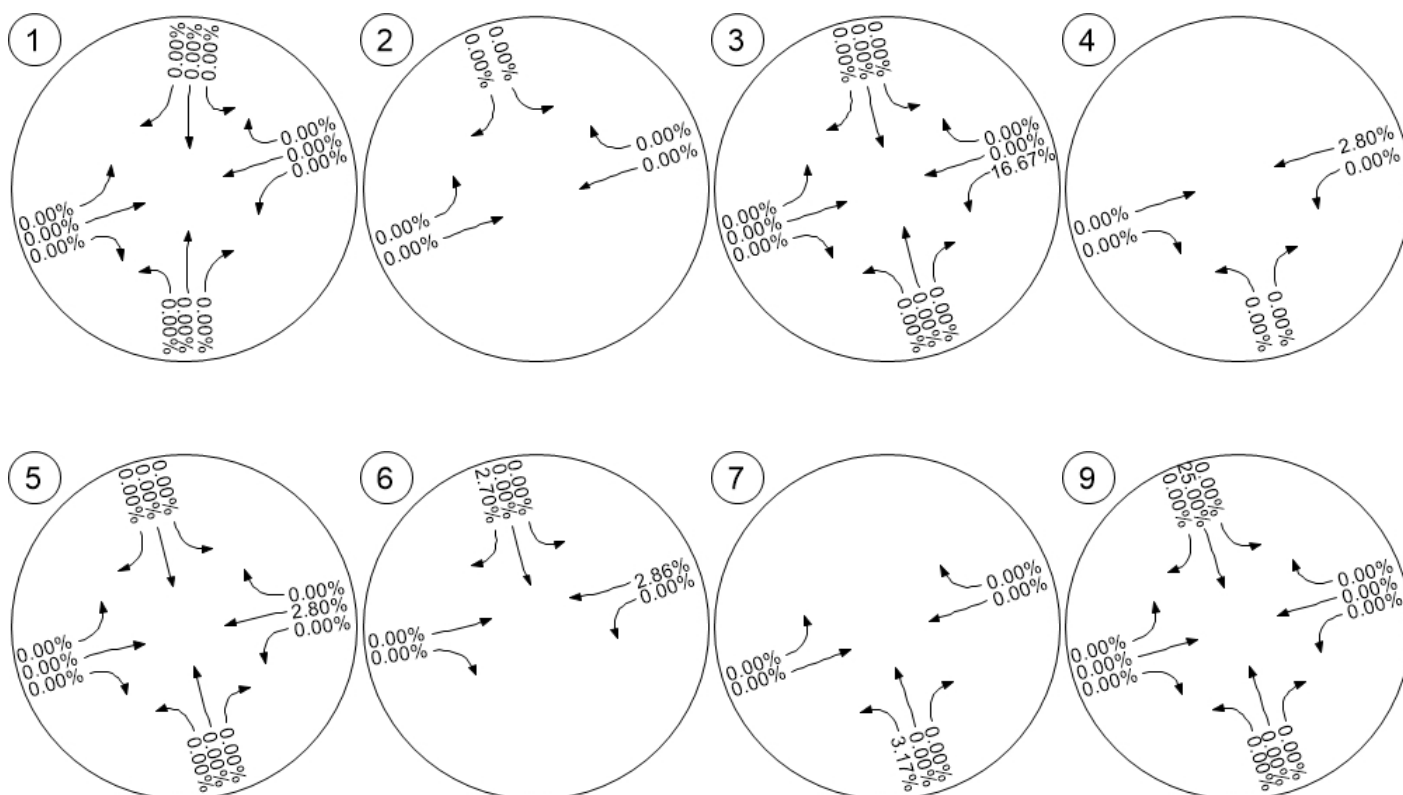


Fair Share - Fair Share % of Net New Site - Zone 28

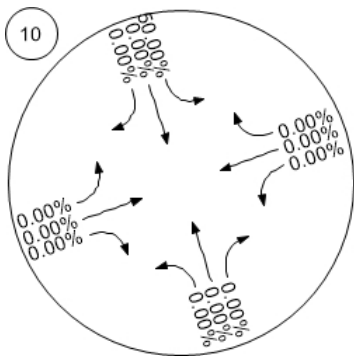




Fair Share - Fair Share % of Net New Site - Zone 29

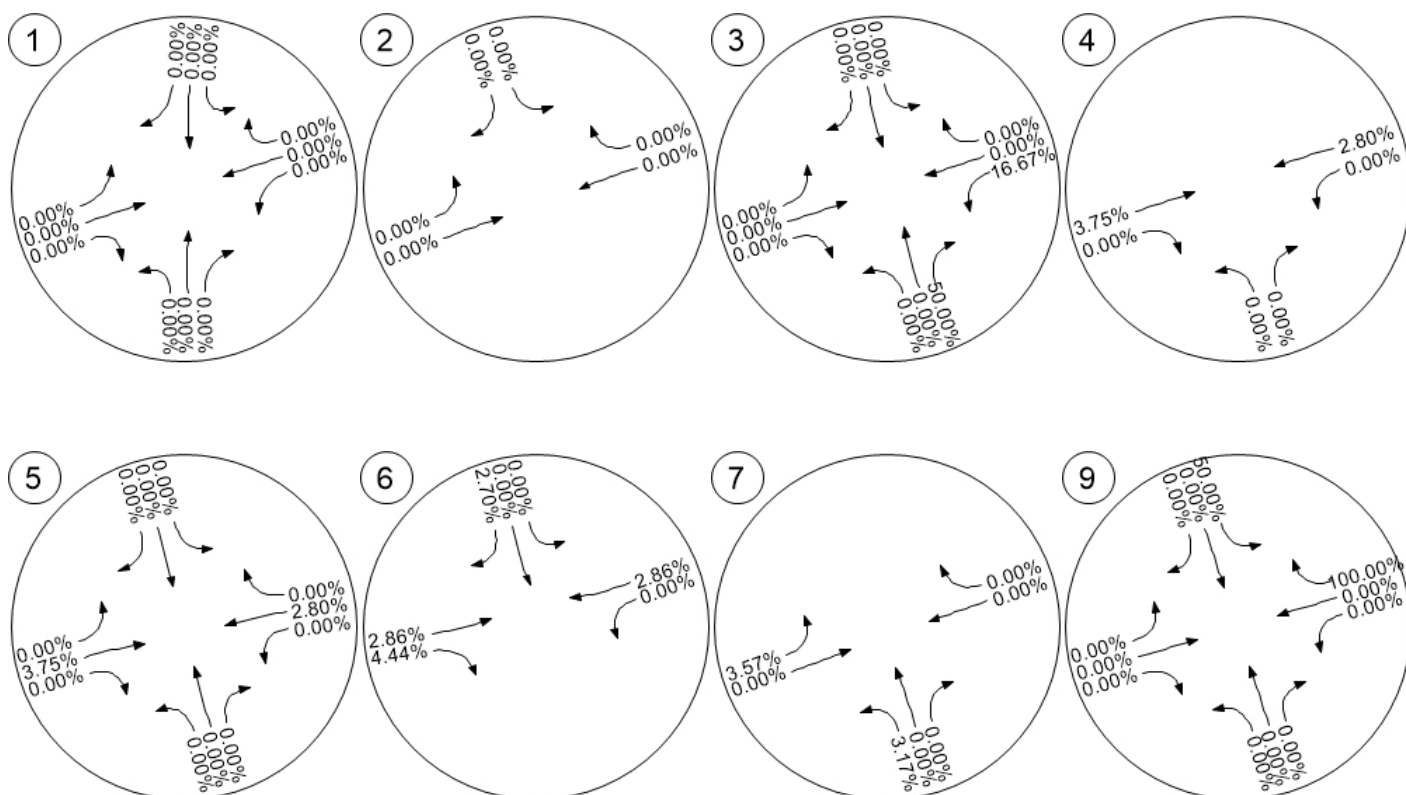


Fair Share - Fair Share % of Net New Site - Zone 29

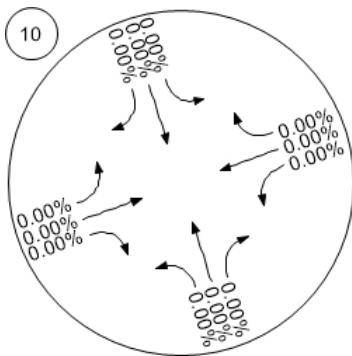




Fair Share - Fair Share % of Net New Site - Zone 32

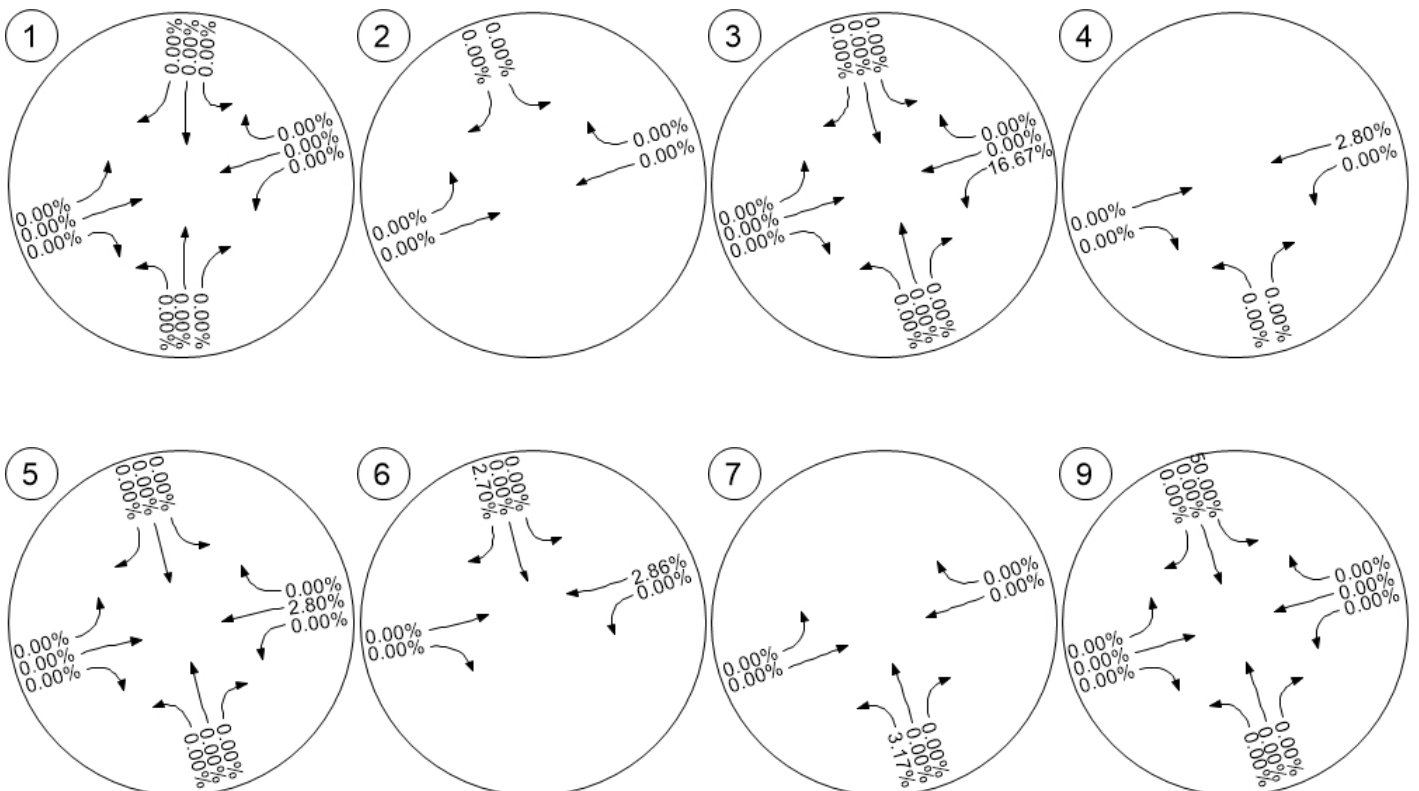


Fair Share - Fair Share % of Net New Site - Zone 32



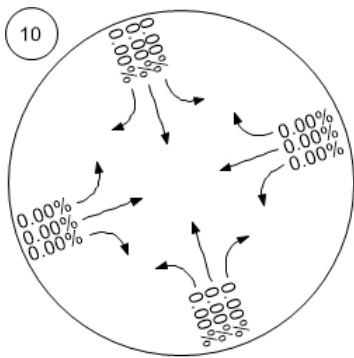


Fair Share - Fair Share % of Net New Site - Zone 33

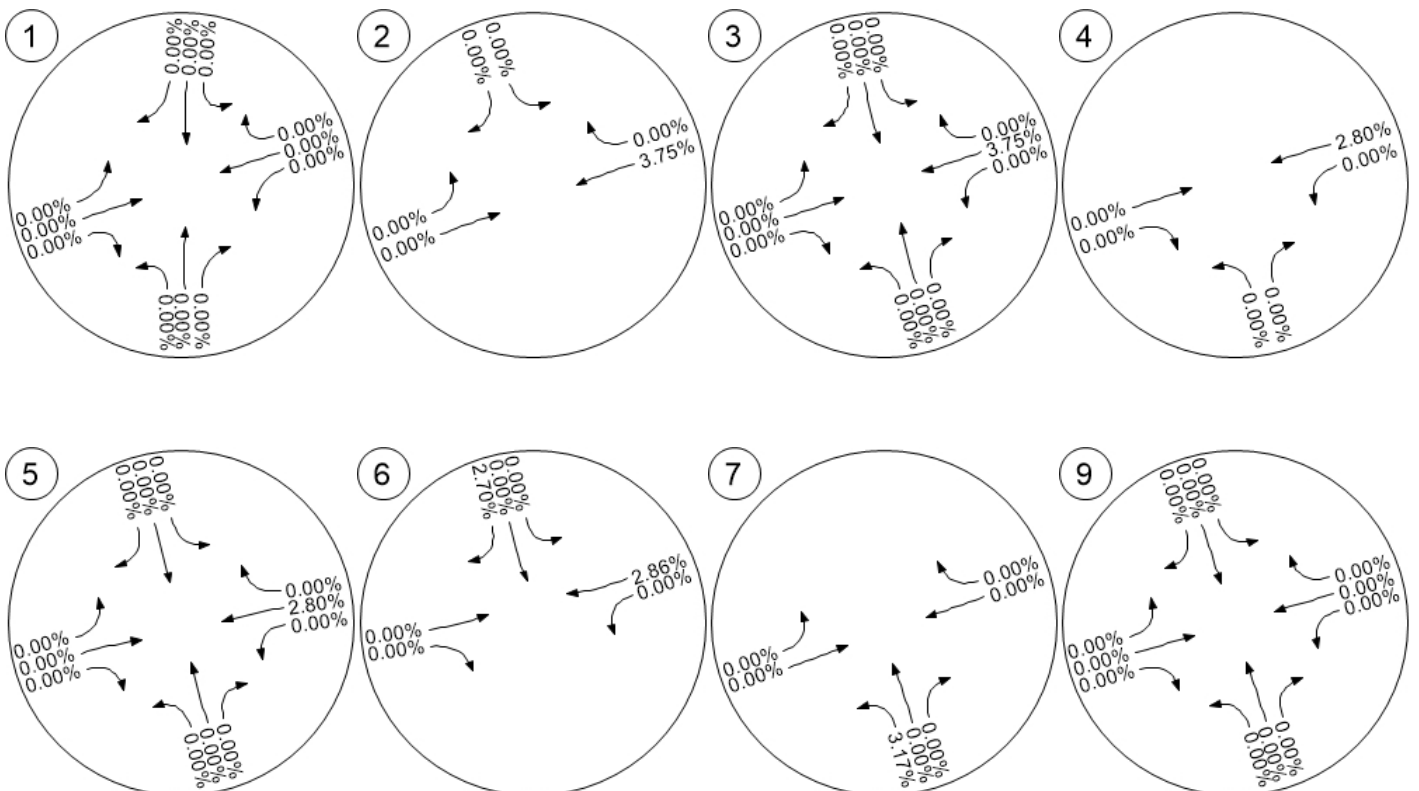




Fair Share - Fair Share % of Net New Site - Zone 33

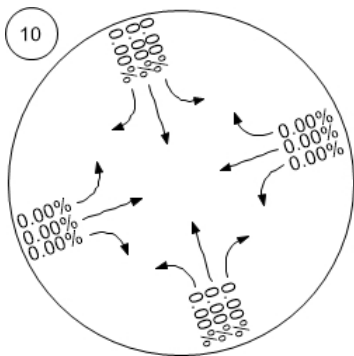


Fair Share - Fair Share % of Net New Site - Zone 34

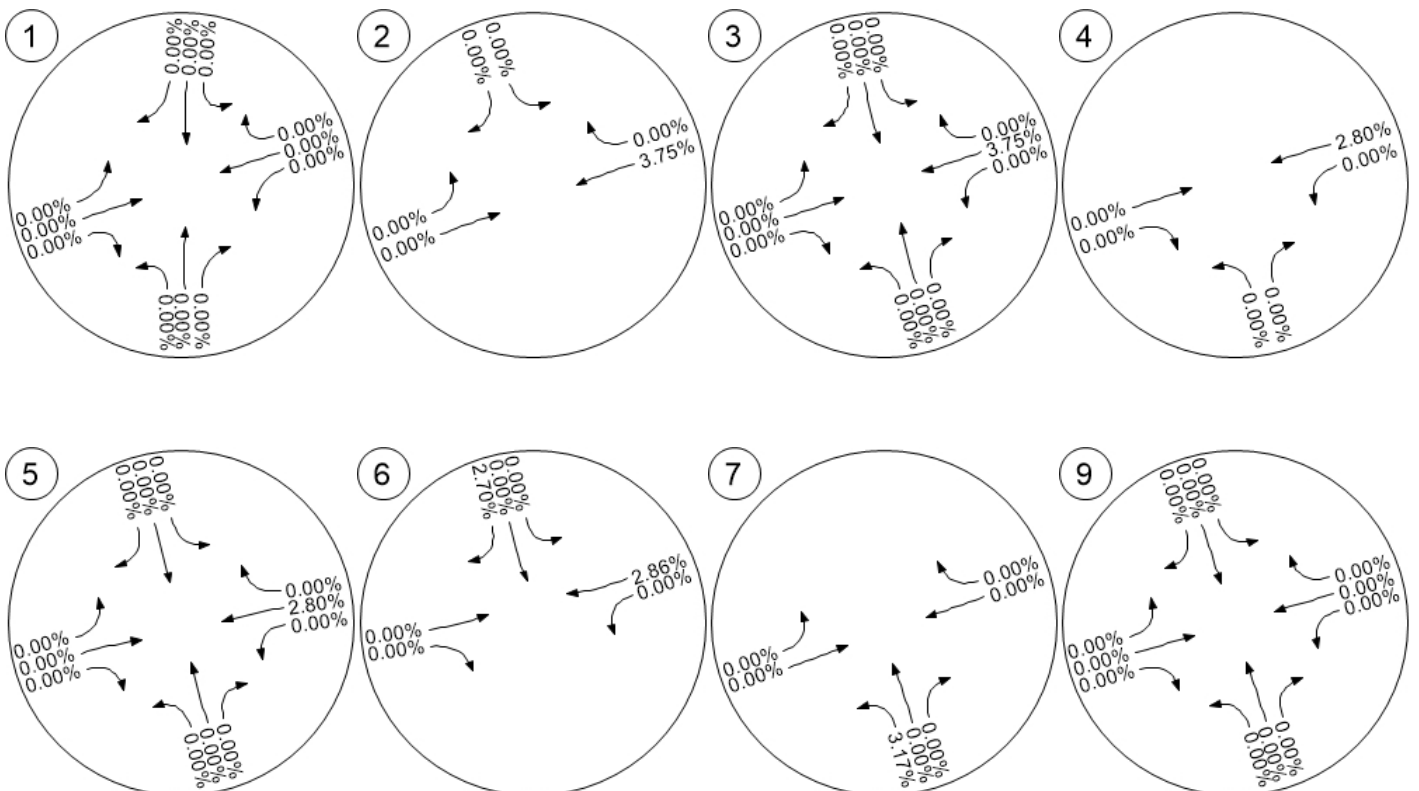




Fair Share - Fair Share % of Net New Site - Zone 34

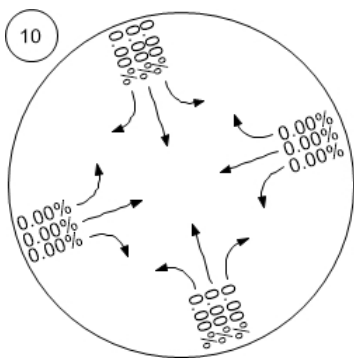


Fair Share - Fair Share % of Net New Site - Zone 35



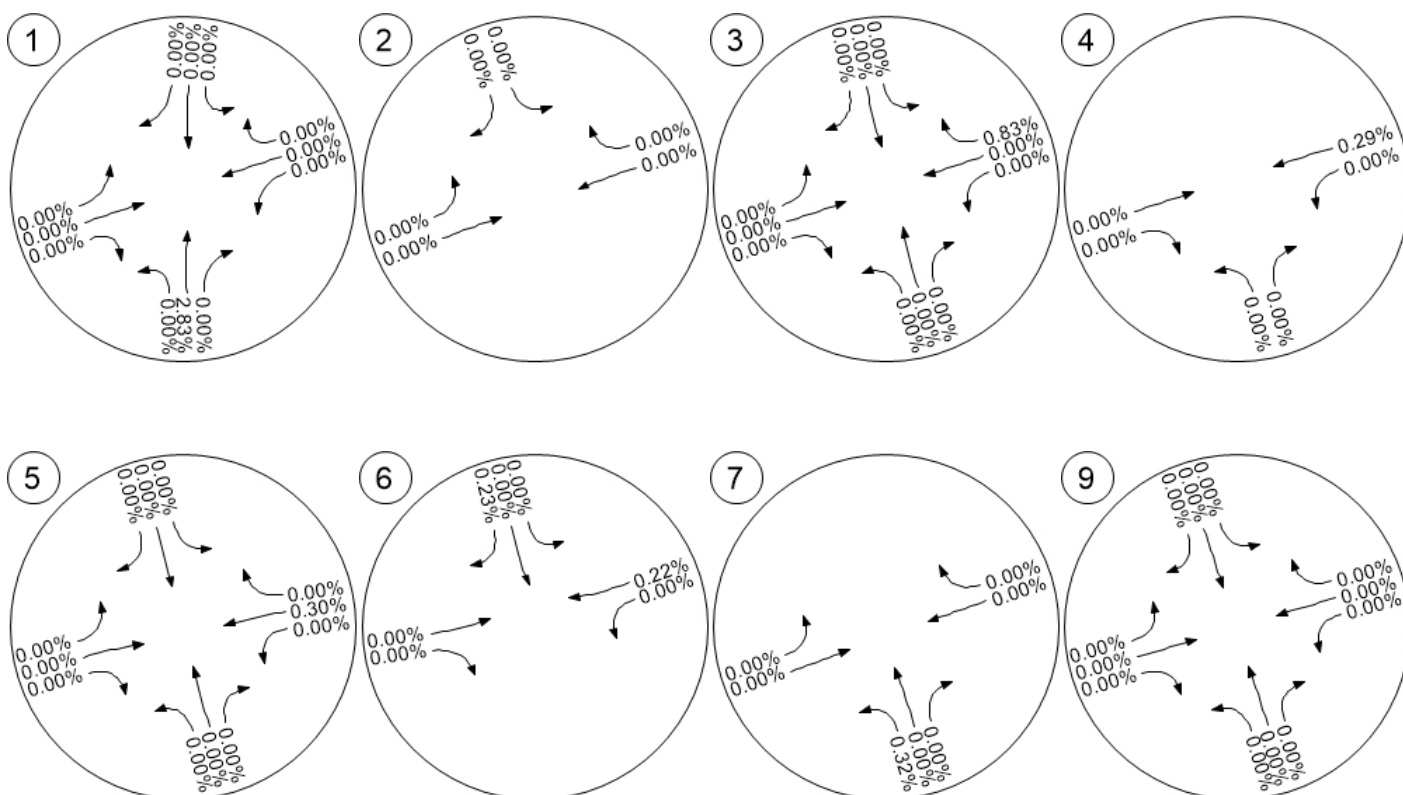


Fair Share - Fair Share % of Net New Site - Zone 35

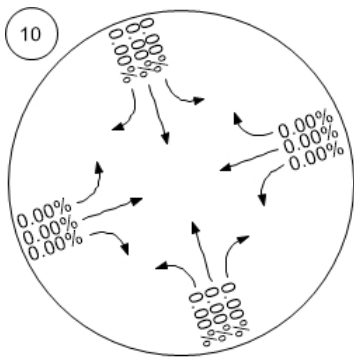




## Fair Share - Fair Share % of Total Analysis - Zone 18

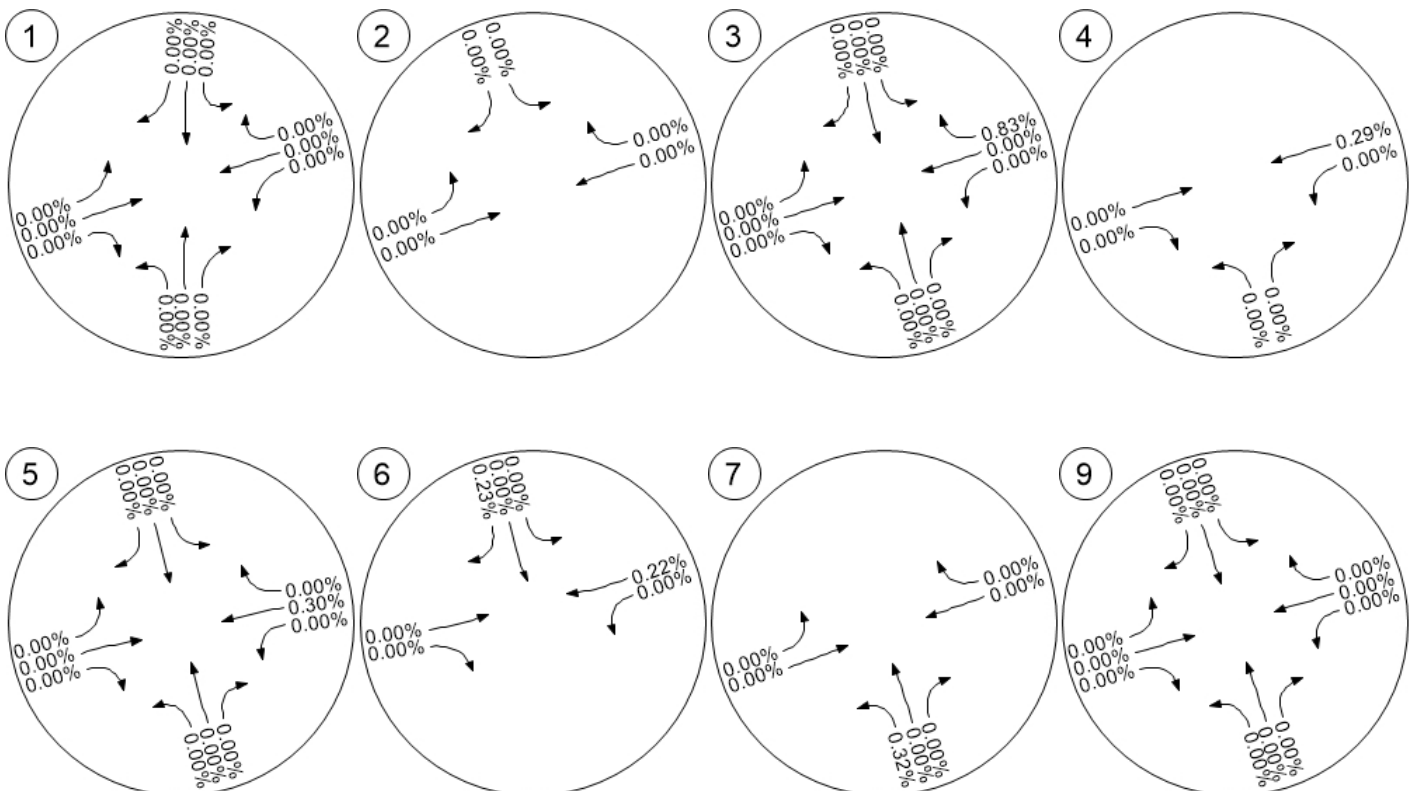


Fair Share - Fair Share % of Total Analysis - Zone 18





Fair Share - Fair Share % of Total Analysis - Zone 19

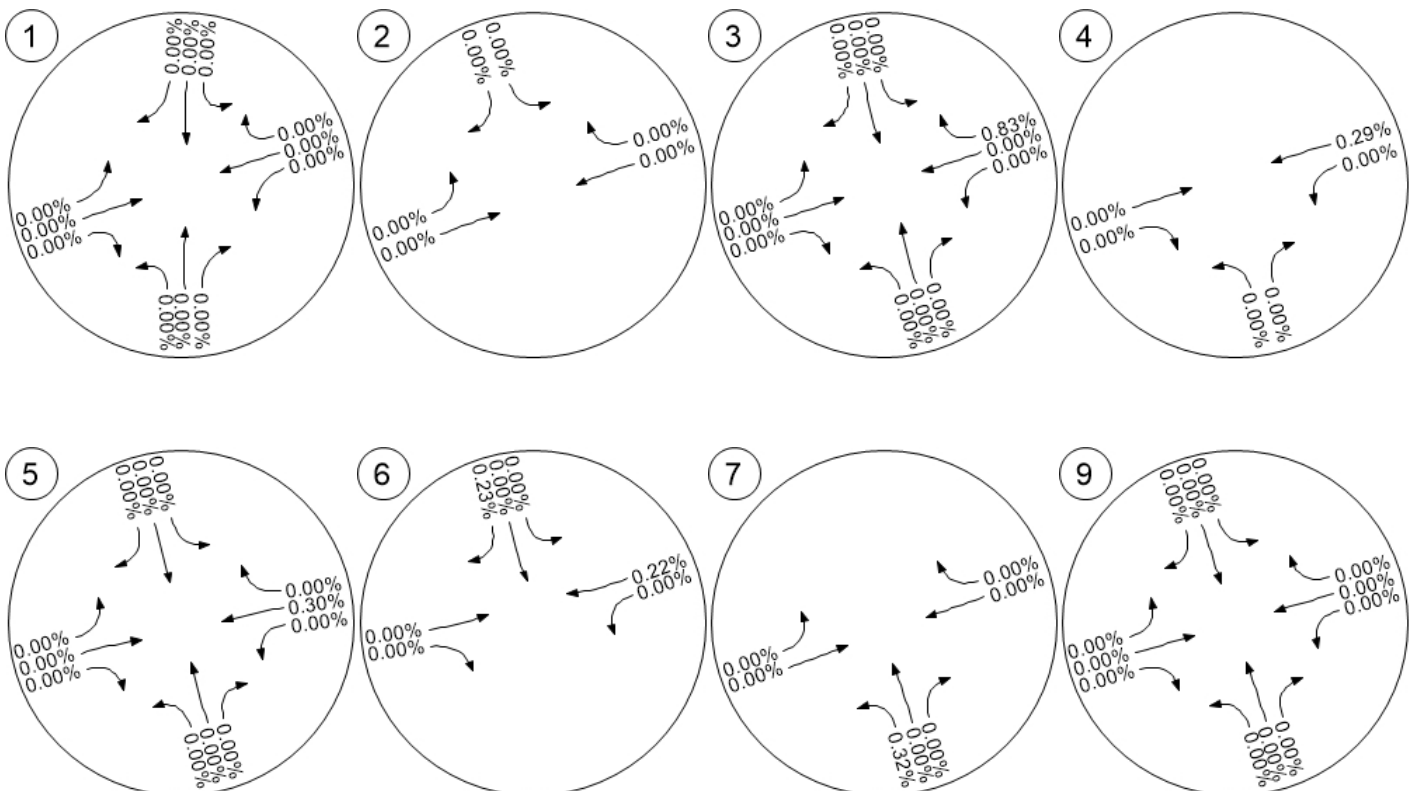


Fair Share - Fair Share % of Total Analysis - Zone 19



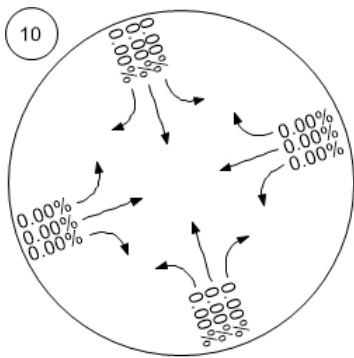


Fair Share - Fair Share % of Total Analysis - Zone 20

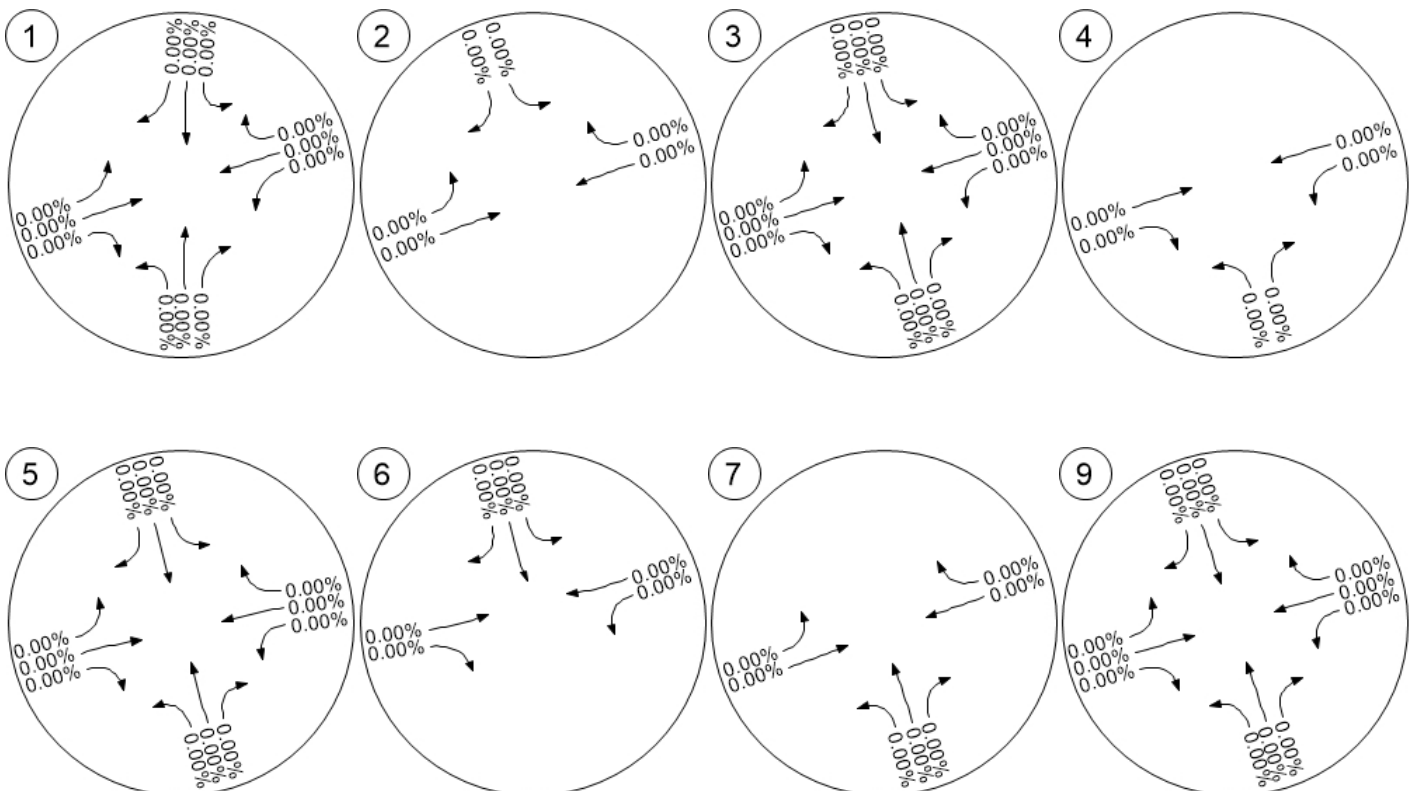




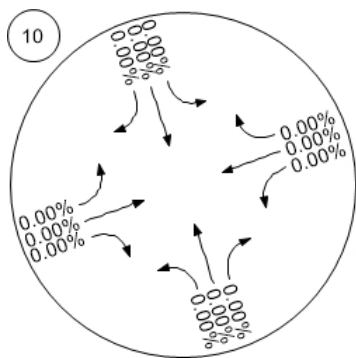
Fair Share - Fair Share % of Total Analysis - Zone 20



Fair Share - Fair Share % of Total Analysis - Zone 21

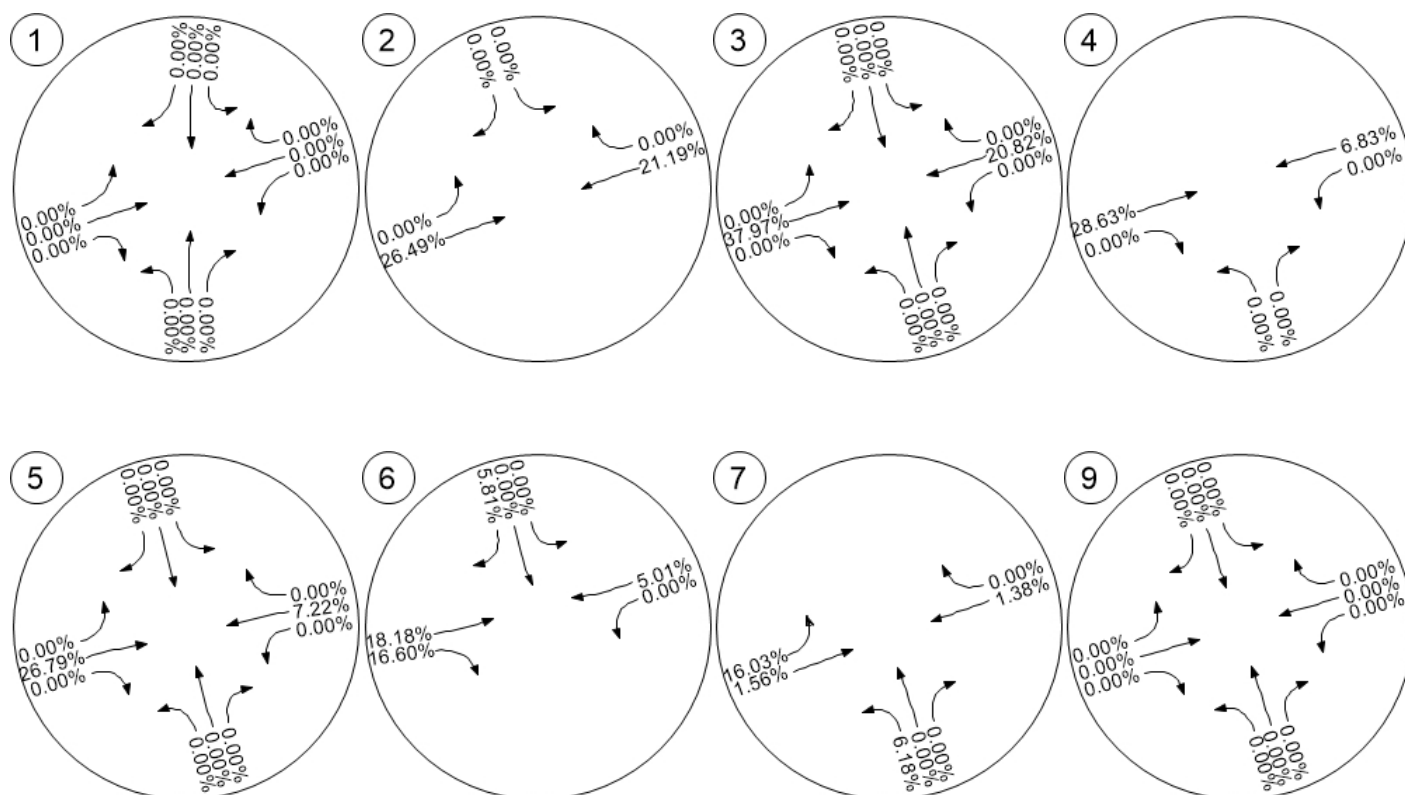


Fair Share - Fair Share % of Total Analysis - Zone 21

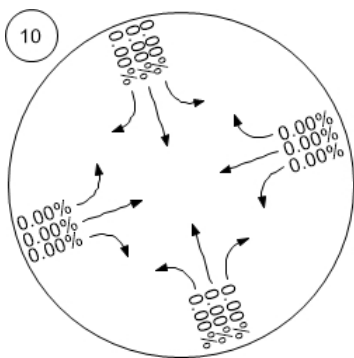




## Fair Share - Fair Share % of Total Analysis - Zone 22

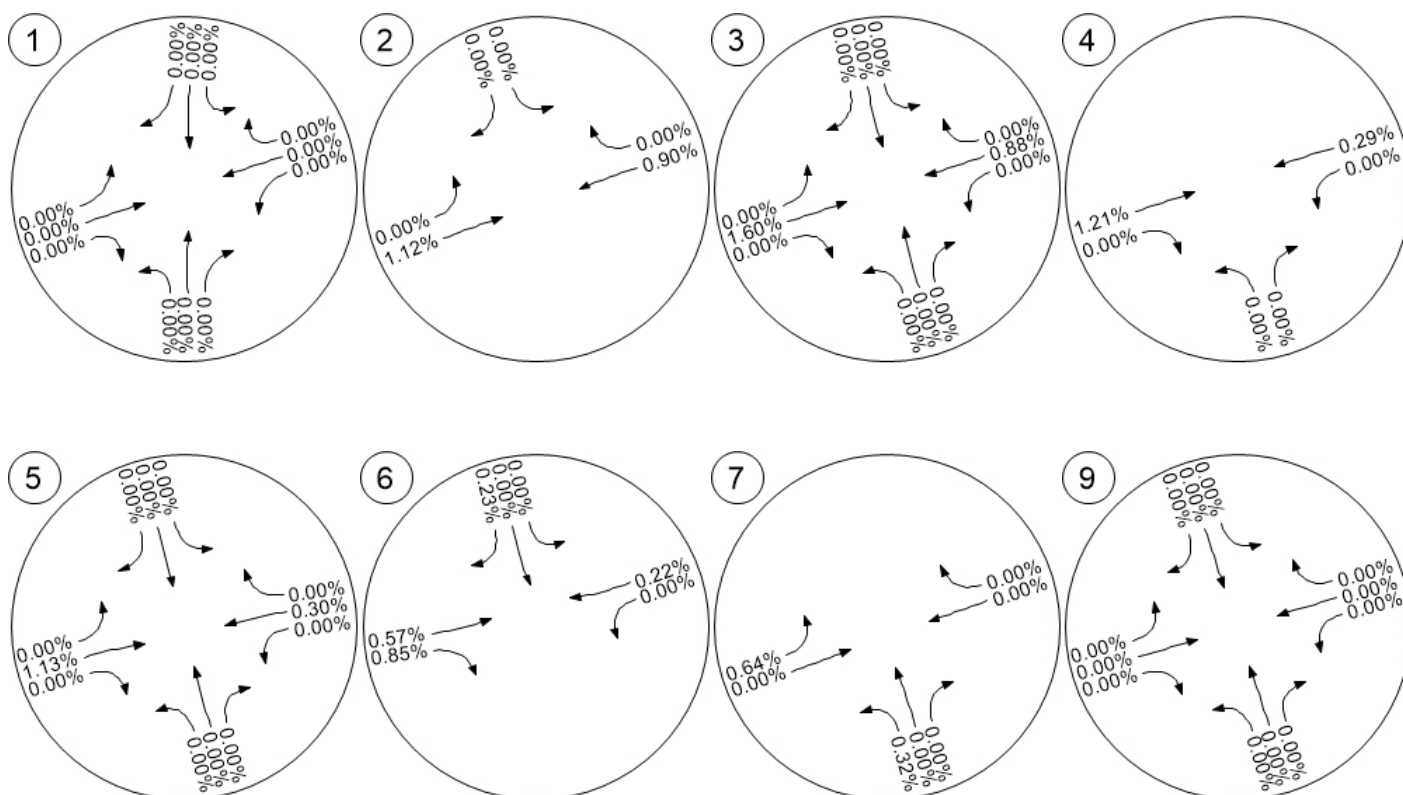


Fair Share - Fair Share % of Total Analysis - Zone 22

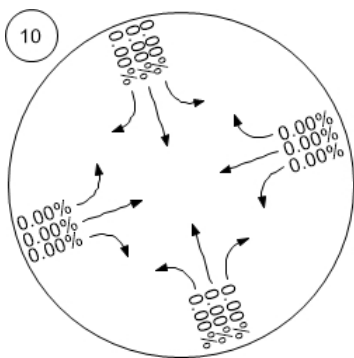




Fair Share - Fair Share % of Total Analysis - Zone 23

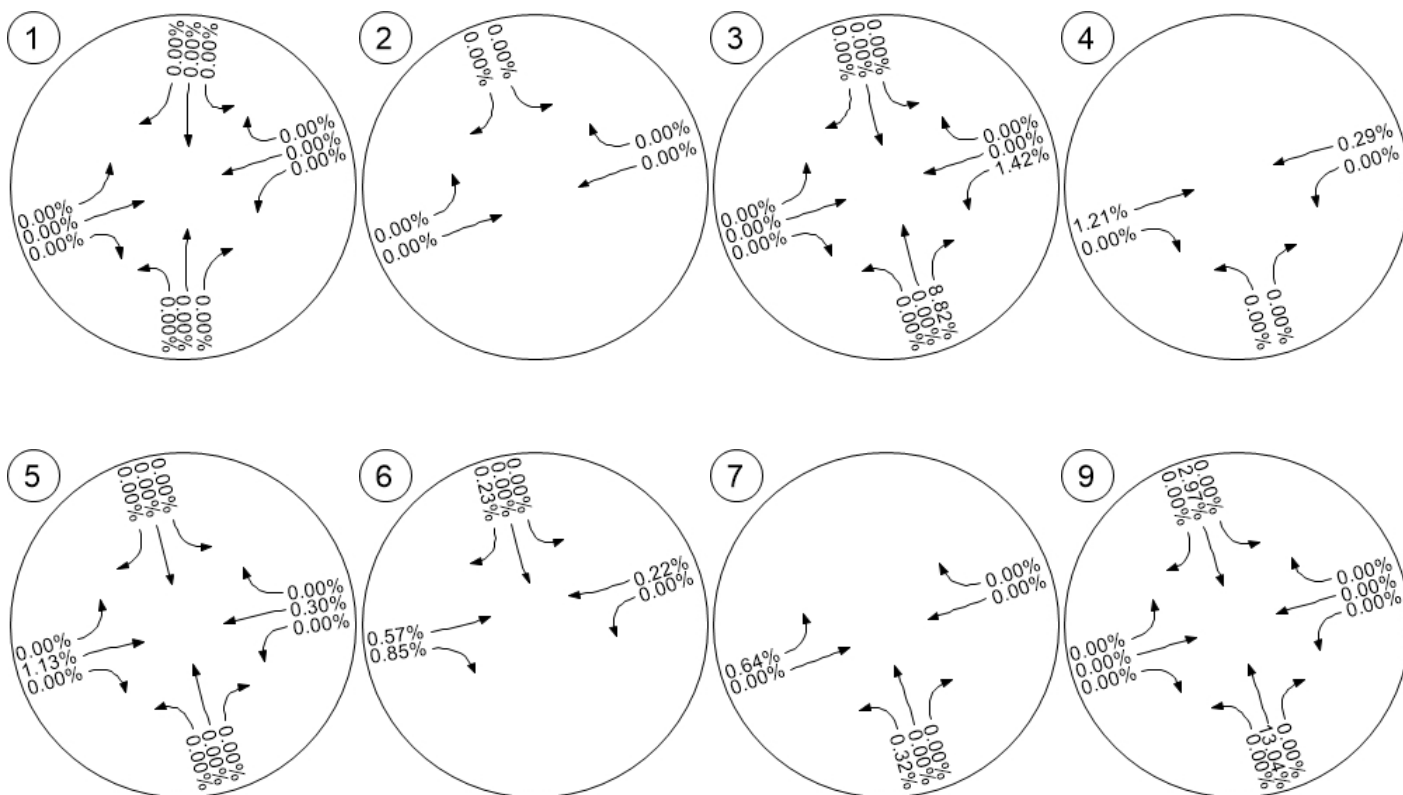


Fair Share - Fair Share % of Total Analysis - Zone 23

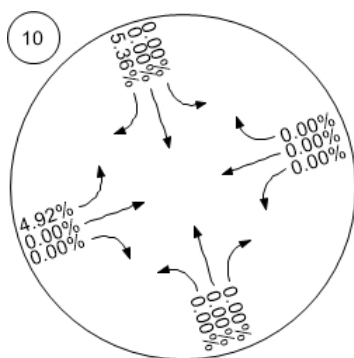




## Fair Share - Fair Share % of Total Analysis - Zone 24

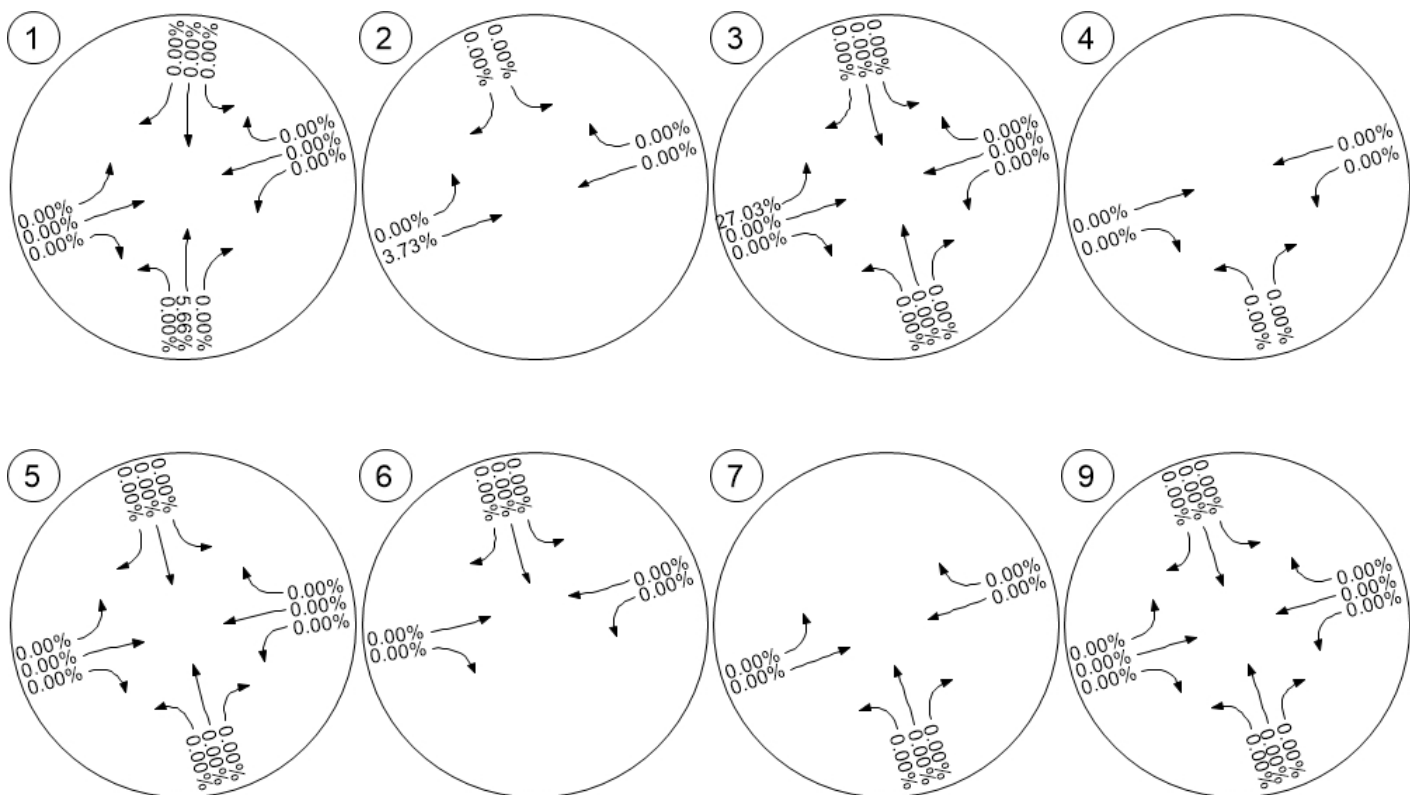


## Fair Share - Fair Share % of Total Analysis - Zone 24



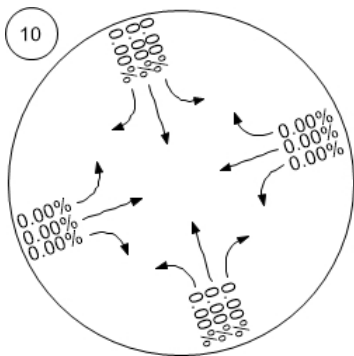


## Fair Share - Fair Share % of Total Analysis - Zone 25

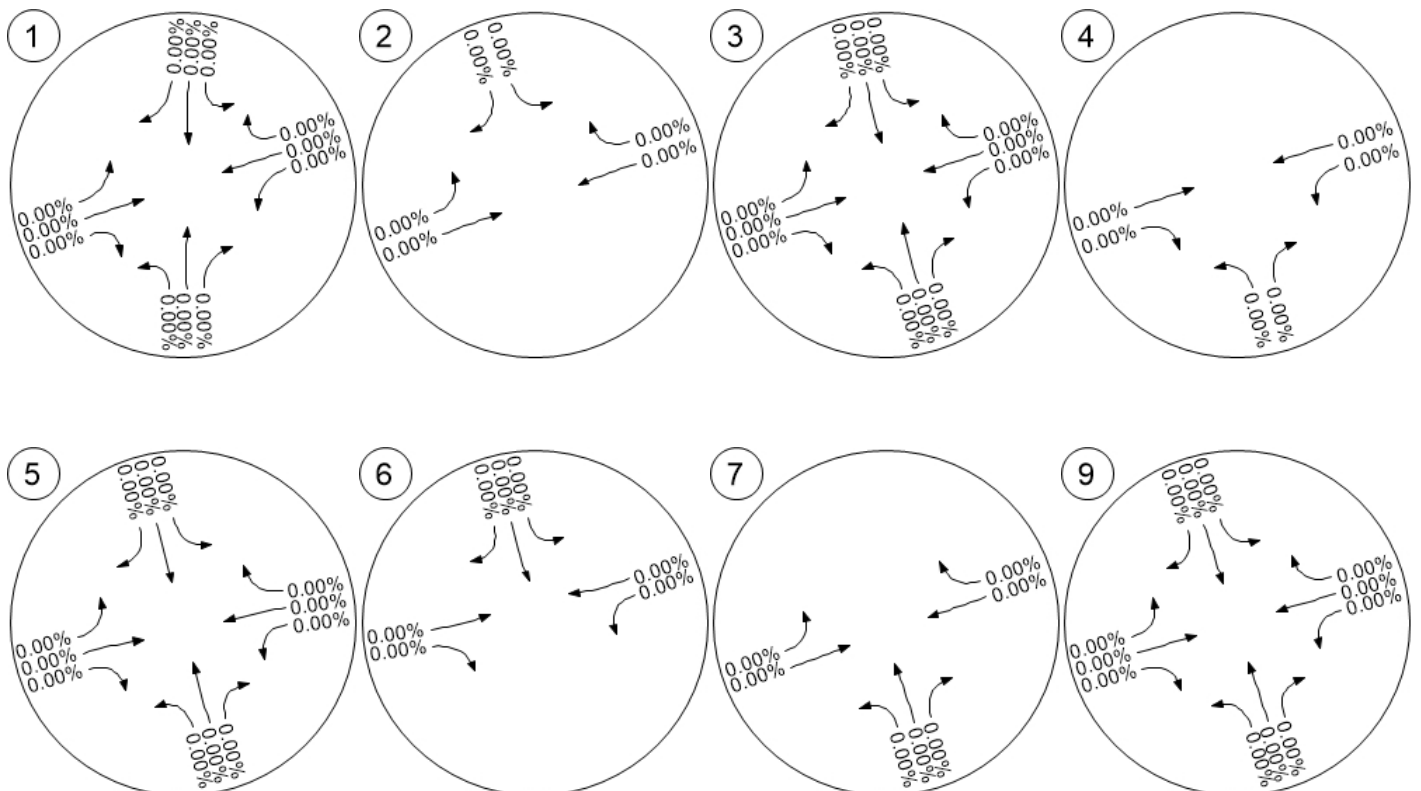




Fair Share - Fair Share % of Total Analysis - Zone 25

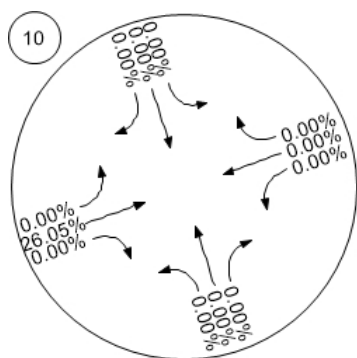


Fair Share - Fair Share % of Total Analysis - Zone 26

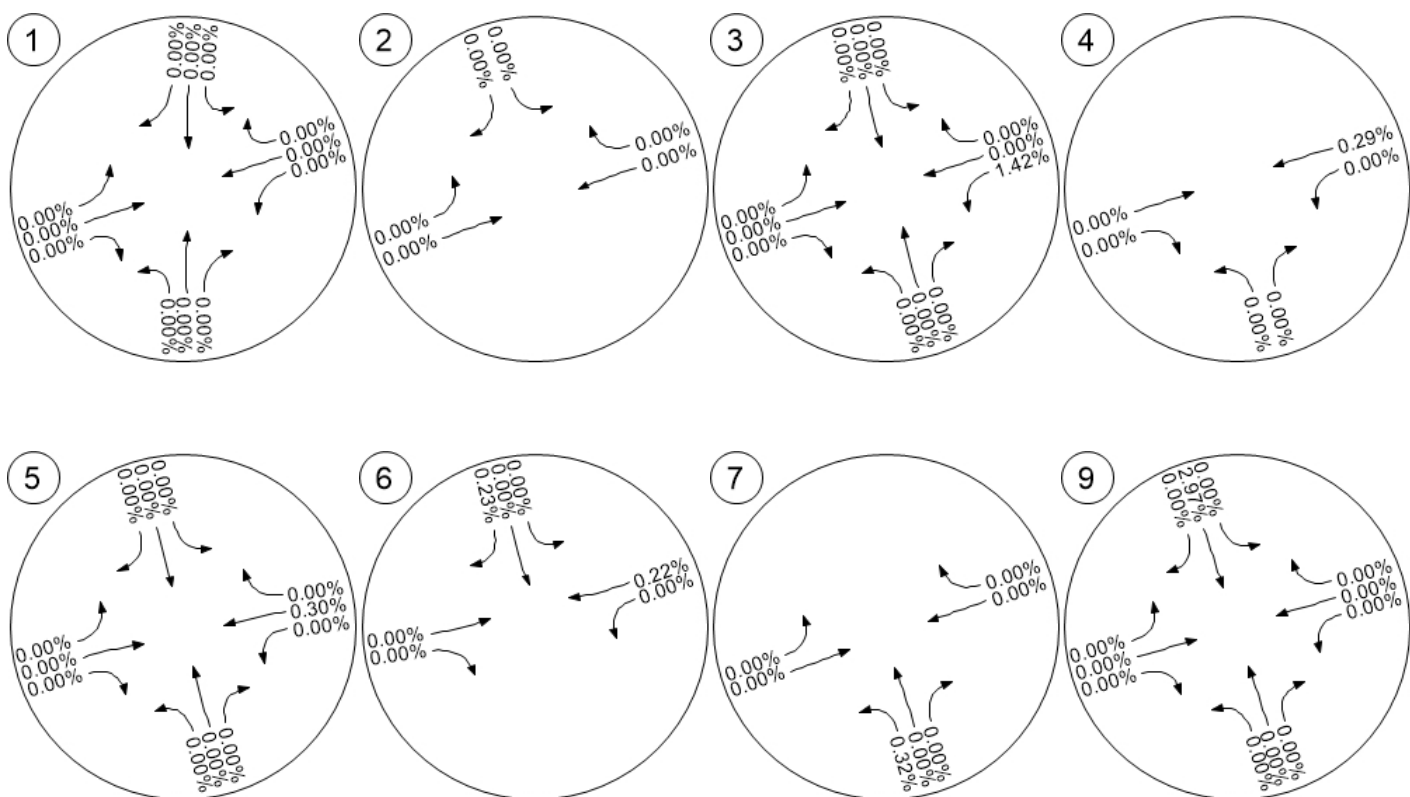




## Fair Share - Fair Share % of Total Analysis - Zone 26

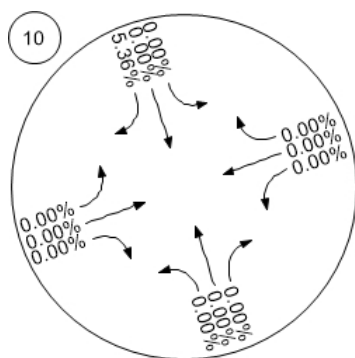


## Fair Share - Fair Share % of Total Analysis - Zone 27



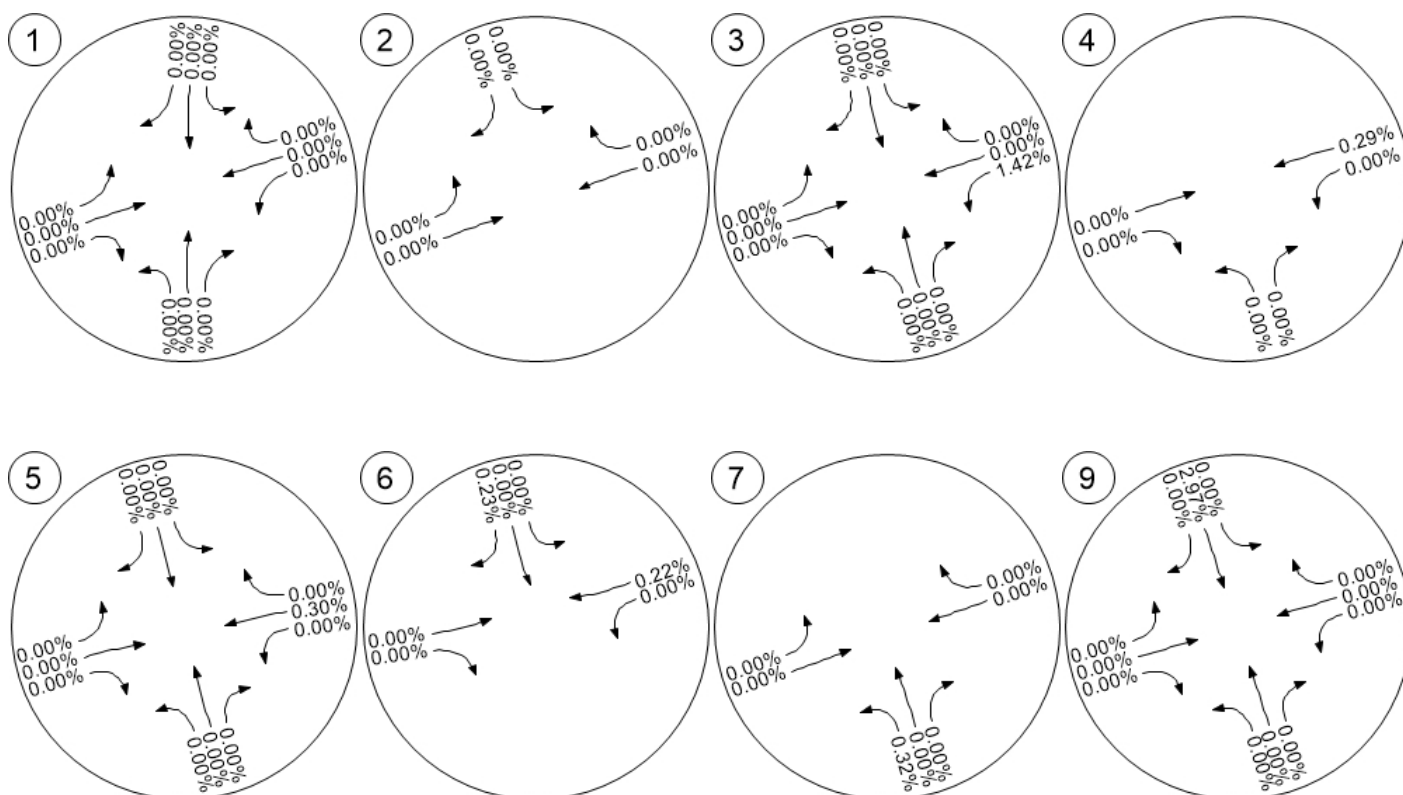


## Fair Share - Fair Share % of Total Analysis - Zone 27

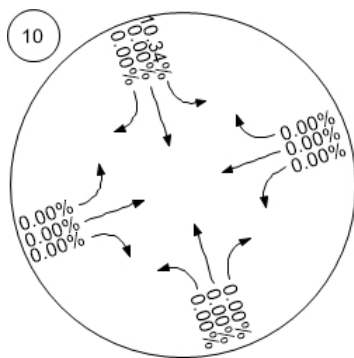




Fair Share - Fair Share % of Total Analysis - Zone 28

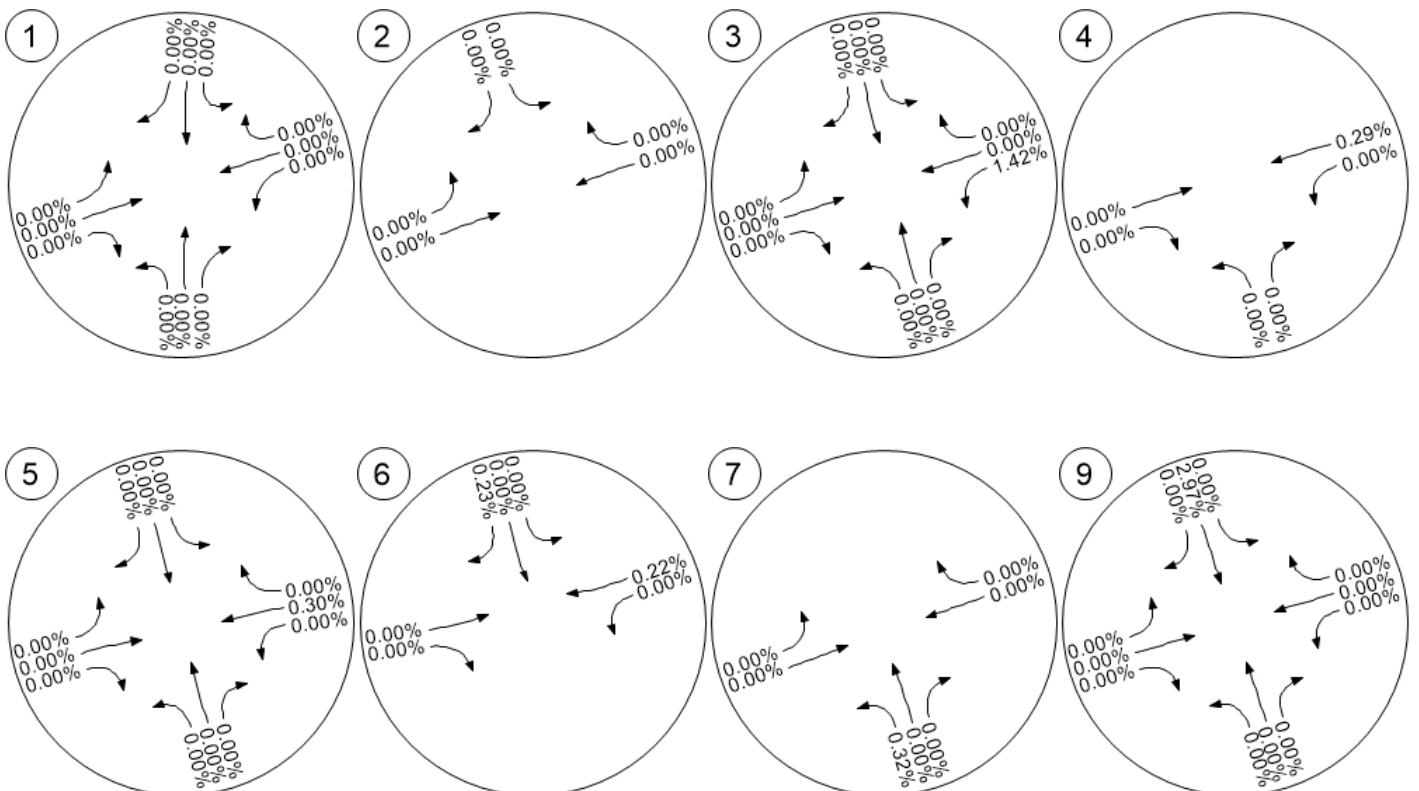


### Fair Share - Fair Share % of Total Analysis - Zone 28

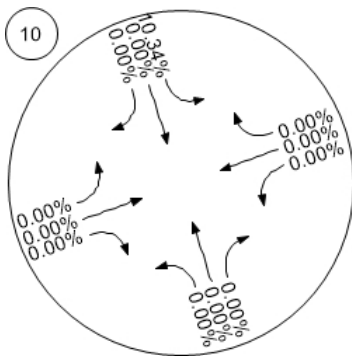




Fair Share - Fair Share % of Total Analysis - Zone 29

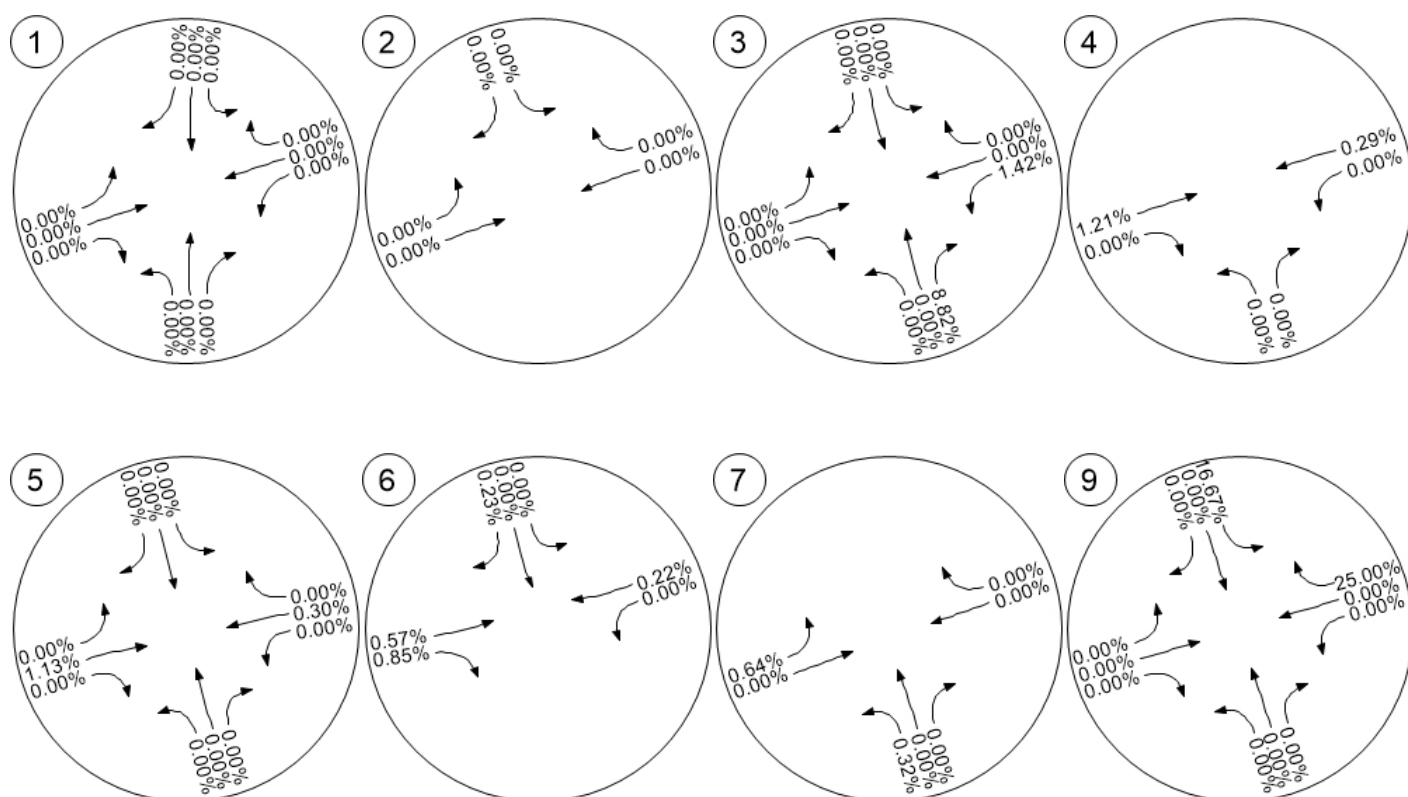


### Fair Share - Fair Share % of Total Analysis - Zone 29



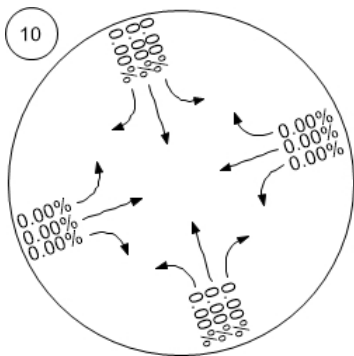


## Fair Share - Fair Share % of Total Analysis - Zone 32

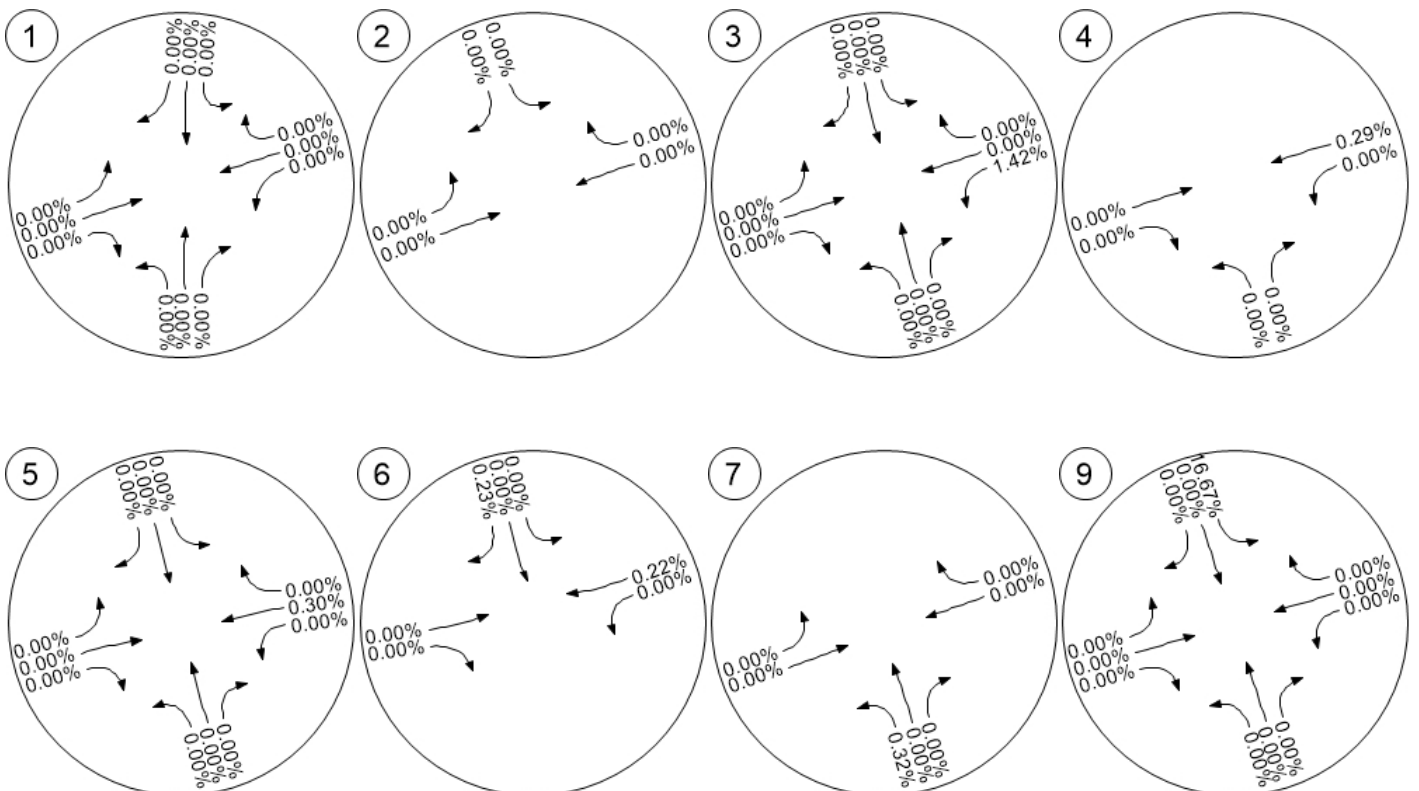




Fair Share - Fair Share % of Total Analysis - Zone 32

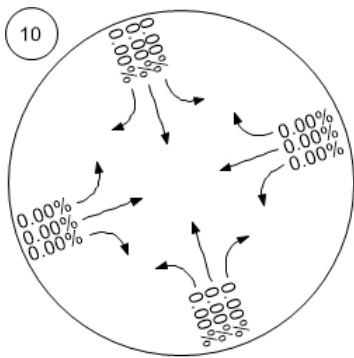


Fair Share - Fair Share % of Total Analysis - Zone 33

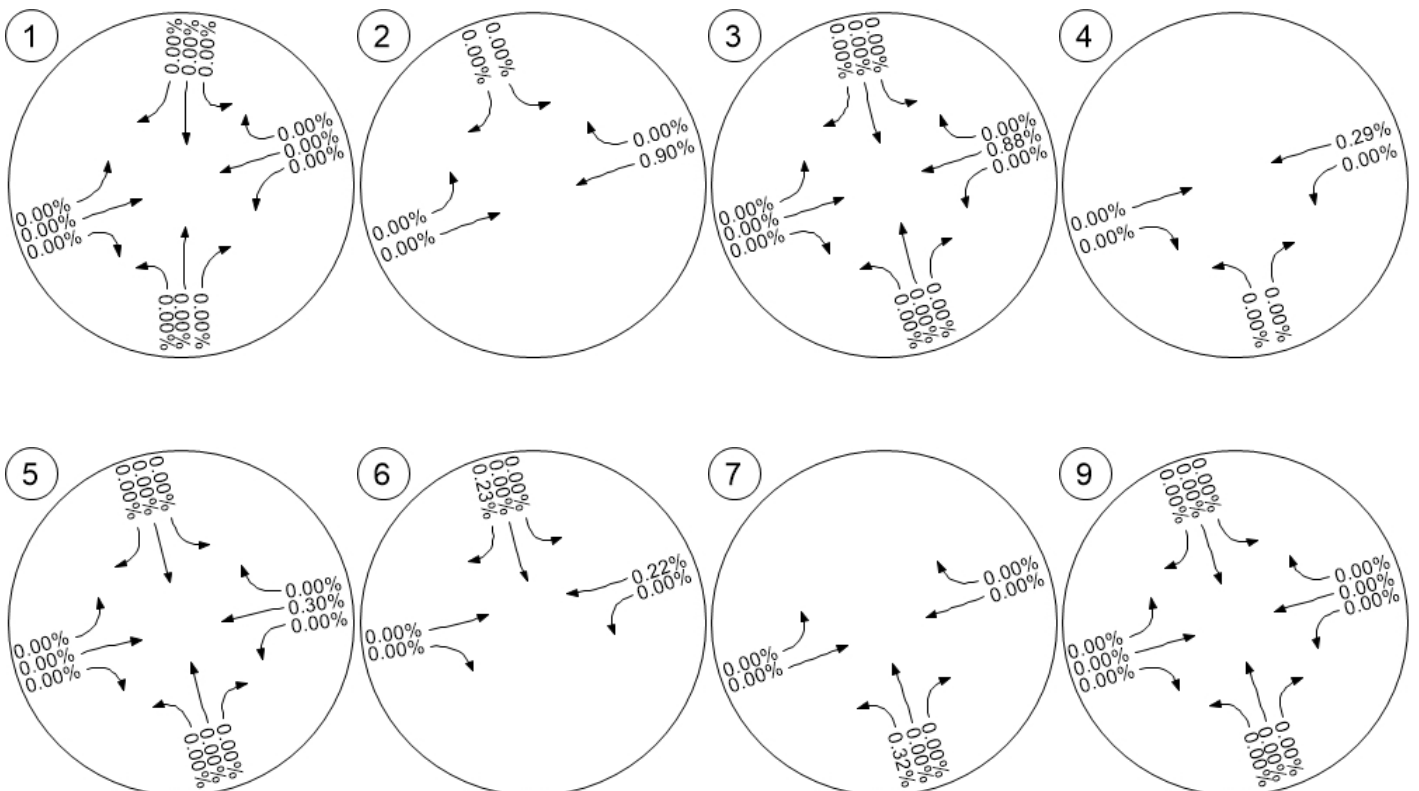




Fair Share - Fair Share % of Total Analysis - Zone 33

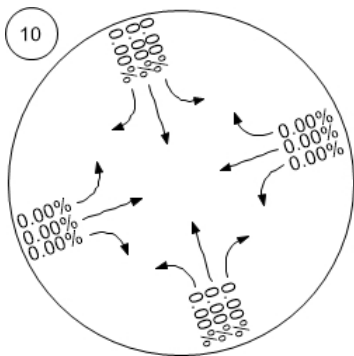


Fair Share - Fair Share % of Total Analysis - Zone 34



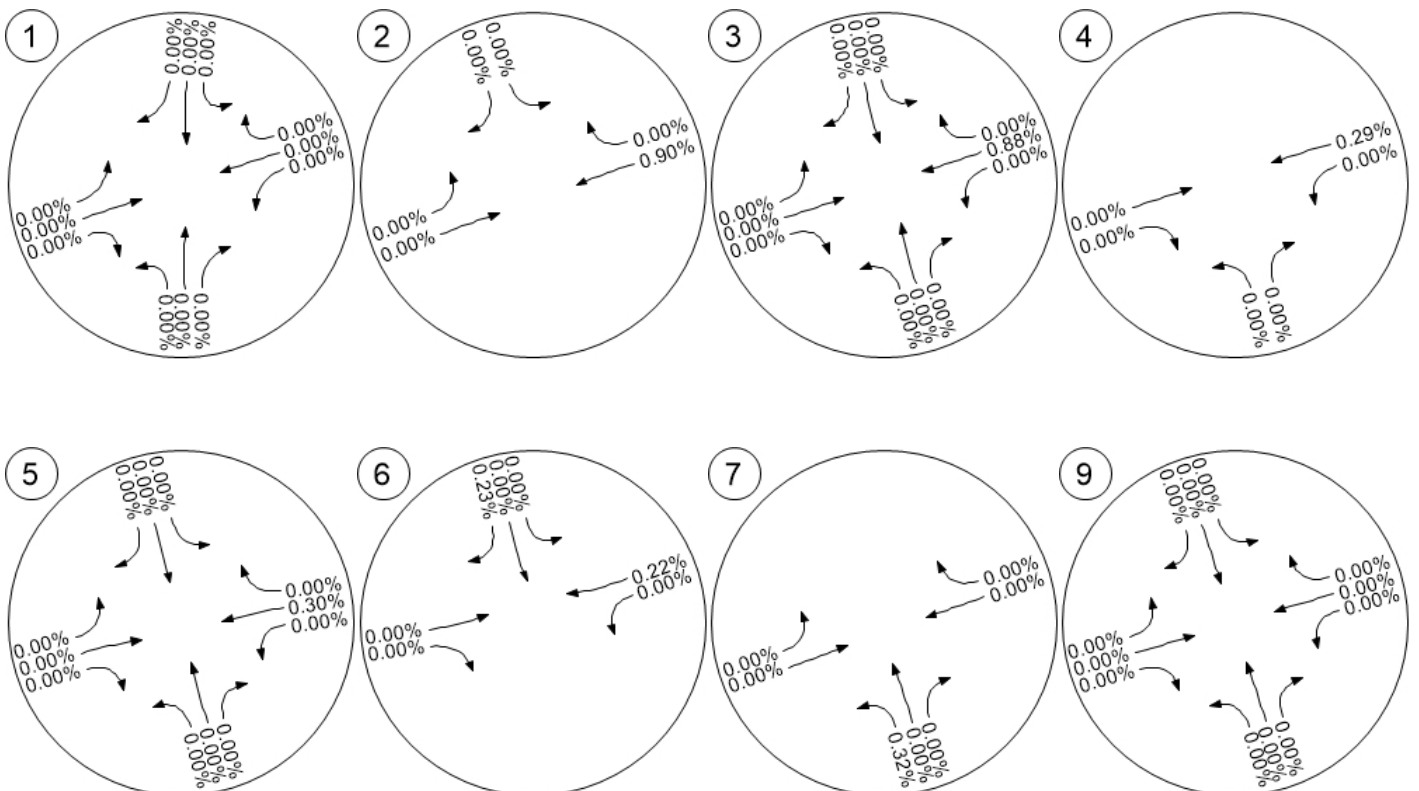


Fair Share - Fair Share % of Total Analysis - Zone 34

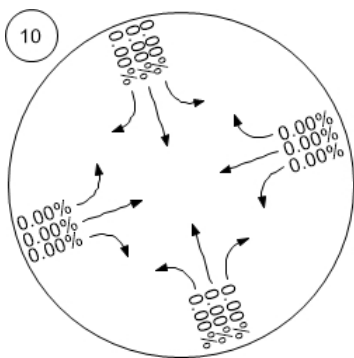




Fair Share - Fair Share % of Total Analysis - Zone 35



Fair Share - Fair Share % of Total Analysis - Zone 35



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tridelands Avenue	Signalized	HCM2000	NBT	0.096	12.8	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.061	11.2	B
3	Bay Marina Drive / Tideland Avenue	Signalized	HCM2000	WBL	0.273	25.3	C
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.261	21.2	C
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	WBL	0.314	24.6	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.640	34.4	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.584	17.1	B
9	28th Street / Tideland Avenue	Two-way stop	HCM2000	SBL	0.043	11.2	B
10	32nd Street / Tideland Avenue	All-way stop	HCM2000	EBL		8.2	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.096

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	15	40	30	40	60	20	45	65	20	10	5	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	49	30	40	60	20	45	65	20	10	5	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	13	8	11	16	5	12	18	5	3	1	3
Total Analysis Volume [veh/h]	16	53	33	43	65	22	49	71	22	11	5	11
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.03	0.05	0.05	0.01
Total Saturation Flow Adjustment	0.69	0.92	0.69	0.94	0.79	0.77
s, saturation flow rate [veh/h]	1305	1756	1306	1792	2995	2923
c, Capacity [veh/h]	541	727	541	742	1241	1211
d1, Uniform Delay [s]	12.16	12.63	12.42	12.62	12.60	12.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.33	0.29	0.32	0.19	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

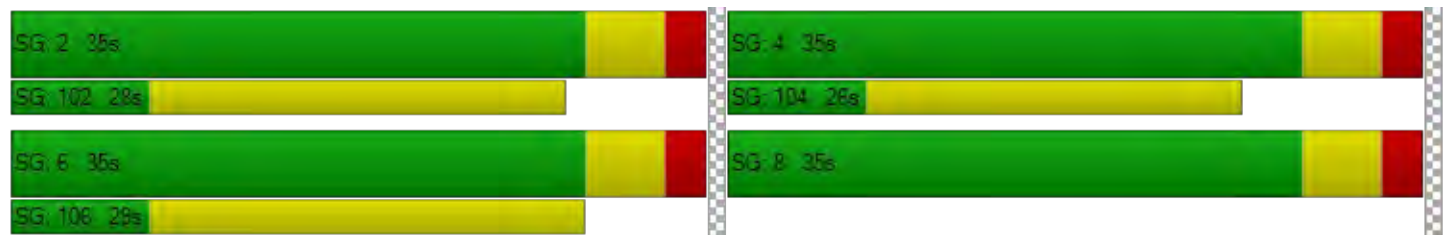
X, volume / capacity	0.03	0.12	0.08	0.12	0.11	0.02
d, Delay for Lane Group [s/veh]	12.26	12.96	12.70	12.94	12.79	12.15
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	yes	no	no	yes	no
50th-Percentile Queue Length [veh]	0.20	1.13	0.56	1.14	0.98	0.18
50th-Percentile Queue Length [ft]	5.09	28.31	14.00	28.61	24.58	4.47
95th-Percentile Queue Length [veh]	0.52	2.72	1.40	2.74	2.38	0.46
95th-Percentile Queue Length [ft]	13.02	67.88	34.93	68.54	59.52	11.47

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.26	12.96	12.96	12.70	12.94	12.94	12.79	12.79	12.79	12.15	12.15	12.15
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.85			12.86			12.79			12.15		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.79											
Intersection LOS	B											
Intersection V/C	0.096											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.061

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	35	5	5	90	135	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	5	174	215	15
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	1	47	58	4
Total Analysis Volume [veh/h]	38	5	5	189	234	16
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0



**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.06	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.17	9.01	7.75	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.19	0.02	0.24	0.12	0.00	0.00
95th-Percentile Queue Length [ft]	4.87	0.42	5.98	2.99	0.00	0.00
d_A, Approach Delay [s/veh]	10.92		0.20		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.04					
Intersection LOS	B					

### Intersection Level Of Service Report #3: Bay Marina Drive / Tideland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 25.3  
Level Of Service: C  
Volume to Capacity (v/c): 0.273

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	40	40	110	195	110	70	45	35	45	70	35	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	0	10	74	0	18	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	40	116	195	110	70	55	109	45	88	115	84
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	11	32	53	30	19	15	30	12	24	31	23
Total Analysis Volume [veh/h]	43	43	126	212	120	76	60	118	49	96	125	91
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	3.0	3.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	40	0	0	30	0	74	25	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	5	5	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	10	10	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no			no		no	no	
Maximum Recall		no			no			no		no	no	
Pedestrian Recall		no			no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	0.00	0.00
g_i, Effective Green Time [s]	34	34	34	34	24	24	0	0
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.34	0.34	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.22	0.12	0.05	0.05	0.00	0.07
Total Saturation Flow Adjustment	0.49	0.78	0.50	0.83	0.60	0.89	0.00	0.83
s, saturation flow rate [veh/h]	933	1489	959	1579	1149	3391	0	3156
c, Capacity [veh/h]	453	723	466	767	394	1162	103	0
d1, Uniform Delay [s]	9.70	10.44	11.88	10.57	15.95	15.90	35.00	35.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.42	0.76	3.18	0.80	0.82	0.26	72.03	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.09	0.23	0.45	0.26	0.15	0.14	0.93	0.00
d, Delay for Lane Group [s/veh]	10.12	11.20	15.07	11.37	16.77	16.16	107.03	35.00
Lane Group LOS	B	B	B	B	B	B	F	C
Critical Lane Group	no	no	yes	no	yes	no	no	no
50th-Percentile Queue Length [veh]	0.51	2.14	3.18	2.51	0.90	1.29	1.87	2.21
50th-Percentile Queue Length [ft]	12.71	53.46	79.58	62.75	22.46	32.31	46.67	55.15
95th-Percentile Queue Length [veh]	1.27	4.82	6.78	5.54	2.19	3.07	4.27	4.95
95th-Percentile Queue Length [ft]	31.82	120.39	169.43	138.38	54.70	76.65	106.79	123.71

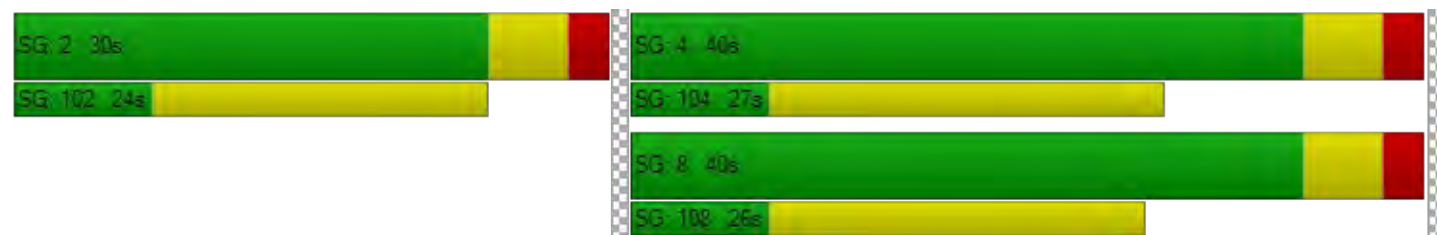


**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	10.12	11.20	11.20	15.07	11.37	11.37	16.77	16.16	16.16	107.03	35.00	35.00
Movement LOS	B	B	B	B	B	B	B	B	B	F	C	C
d_A, Approach Delay [s/veh]	10.98			13.29			16.32			57.16		
Approach LOS	B			B			B			E		
d_I, Intersection Delay [s/veh]	25.27											
Intersection LOS	C											
Intersection V/C	0.273											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 21.2  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.261

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	10	55	440	60	70	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	80	0	0	107
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	55	520	60	70	337
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	15	141	16	19	92
Total Analysis Volume [veh/h]	11	60	565	65	76	366
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	40	0	60	0	20	80
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	34	34	54	16	74
g / C, Green / Cycle	0.28	0.28	0.45	0.13	0.62
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.18	0.04	0.10
Total Saturation Flow Adjustment	0.93	0.83	0.92	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3492	1770	3547
c, Capacity [veh/h]	501	449	1571	236	2187
d1, Uniform Delay [s]	31.01	32.03	22.15	47.09	9.83
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.62	0.76	3.58	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.13	0.40	0.32	0.17
d, Delay for Lane Group [s/veh]	31.09	32.65	22.91	50.67	10.00
Lane Group LOS	C	C	C	D	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.28	1.61	8.21	2.53	3.05
50th-Percentile Queue Length [ft]	7.09	40.31	205.21	63.32	76.19
95th-Percentile Queue Length [veh]	0.72	3.75	14.72	5.58	6.53
95th-Percentile Queue Length [ft]	18.05	93.70	368.08	139.47	163.31



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	31.09	32.65	22.91	22.91	50.67	10.00
Movement LOS	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	32.41		22.91		16.99	
Approach LOS	C		C		B	
d_I, Intersection Delay [s/veh]	21.21					
Intersection LOS	C					
Intersection V/C	0.261					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#5: Bay Marina Drive / Cleveland Avenue**

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 24.6  
Level Of Service: C  
Volume to Capacity (v/c): 0.314

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

**Volumes**

Name												
Base Volume Input [veh/h]	30	5	35	320	15	50	35	430	30	65	220	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	5	35	320	15	50	35	510	30	65	327	115
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	10	87	4	14	10	139	8	18	89	31
Total Analysis Volume [veh/h]	33	5	38	348	16	54	38	554	33	71	355	125
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	16	0	0	22	0	9	22	0	10	23	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	12	18	5	18	6	19
g / C, Green / Cycle	0.17	0.17	0.26	0.07	0.26	0.09	0.27
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.13	0.02	0.12	0.04	0.14
Total Saturation Flow Adjustment	0.93	0.85	0.88	0.93	0.88	0.93	0.90
s, saturation flow rate [veh/h]	1770	1616	3339	1770	5031	1770	3408
c, Capacity [veh/h]	303	277	859	126	1294	152	925
d1, Uniform Delay [s]	24.49	24.69	22.08	30.84	21.87	30.48	21.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.72	1.19	1.97	6.01	1.15	10.02	2.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

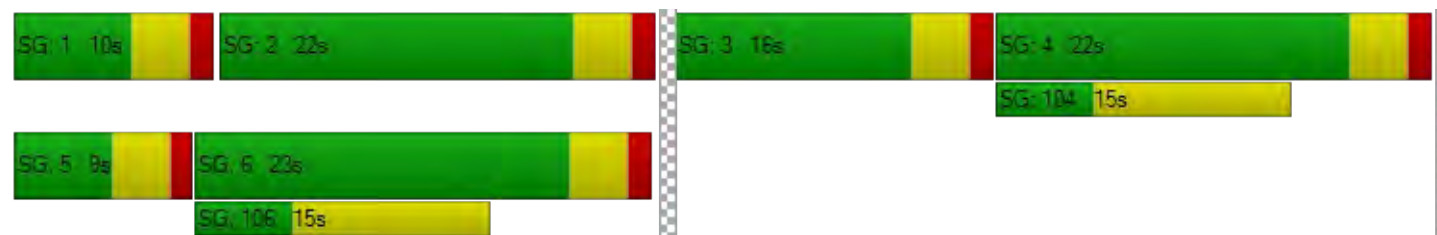
X, volume / capacity	0.11	0.16	0.49	0.30	0.45	0.47	0.52
d, Delay for Lane Group [s/veh]	25.21	25.88	24.05	36.85	23.02	40.50	23.70
Lane Group LOS	C	C	C	D	C	D	C
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.59	0.78	4.14	0.80	3.99	1.54	4.77
50th-Percentile Queue Length [ft]	14.81	19.58	103.41	19.93	99.74	38.38	119.19
95th-Percentile Queue Length [veh]	1.47	1.92	8.43	1.96	8.18	3.59	9.47
95th-Percentile Queue Length [ft]	36.85	48.07	210.67	48.88	204.49	89.65	236.63

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	25.21	25.88	25.88	24.05	24.05	24.05	36.85	23.02	23.02	40.50	23.70	23.70
Movement LOS	C	C	C	C	C	C	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	25.59			24.05			23.86			25.87		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.65											
Intersection LOS	C											
Intersection V/C	0.314											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 34.4  
Level Of Service: C  
Volume to Capacity (v/c): 0.640

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	685	5	130	0	410	375	410	270	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	37	0	35	45	0	70	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	685	5	167	0	445	420	410	340	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	186	1	45	0	121	114	111	92	0
Total Analysis Volume [veh/h]	0	0	0	745	5	182	0	484	457	446	370	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	41	0	0	51	0	25	76	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		36	36	46	46	21	71
g / C, Green / Cycle		0.31	0.31	0.40	0.40	0.18	0.61
(v / s)_i Volume / Saturation Flow Rate		0.22	0.11	0.14	0.29	0.13	0.10
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3379	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1051	493	1407	628	611	2164
d1, Uniform Delay [s]		35.68	31.37	24.67	29.94	45.45	9.92
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		4.13	2.13	0.67	7.24	7.50	0.17
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.71	0.37	0.34	0.73	0.73	0.17
d, Delay for Lane Group [s/veh]		39.81	33.49	25.34	37.18	52.95	10.09
Lane Group LOS		D	C	C	D	D	B
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		13.38	5.09	6.35	14.98	8.51	3.06
50th-Percentile Queue Length [ft]		334.47	127.20	158.75	374.55	212.63	76.42
95th-Percentile Queue Length [veh]		22.33	9.98	11.94	24.72	15.16	6.55
95th-Percentile Queue Length [ft]		558.18	249.49	298.58	618.00	379.01	163.74

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	39.81	39.81	33.49	0.00	25.34	37.18	52.95	10.09	0.00
Movement LOS				D	D	C		C	D	D	B	
d_A, Approach Delay [s/veh]	0.00			38.58			31.09			33.52		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	34.42											
Intersection LOS	C											
Intersection V/C	0.640											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 17.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.584

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	80	5	375	0	0	0	240	855	0	0	600	545
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	0	0	0	0	0	28	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	5	375	0	0	0	268	862	0	0	607	545
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	1	100	0	0	0	72	232	0	0	163	147
Total Analysis Volume [veh/h]	152	5	399	0	0	0	288	927	0	0	653	586
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	15	0	0	0	0	11	45	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60
g_i, Effective Green Time [s]	10		7	40	29
g / C, Green / Cycle	0.17		0.11	0.67	0.49
(v / s)_i Volume / Saturation Flow Rate	0.12		0.08	0.26	0.38
Total Saturation Flow Adjustment	0.78		0.90	0.93	0.87
s, saturation flow rate [veh/h]	4467		3437	3547	3295
c, Capacity [veh/h]	774		389	2388	1615
d1, Uniform Delay [s]	23.42		25.74	4.33	12.51
k, delay calibration	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.67		11.91	0.48	3.56
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00

**Lane Group Results**

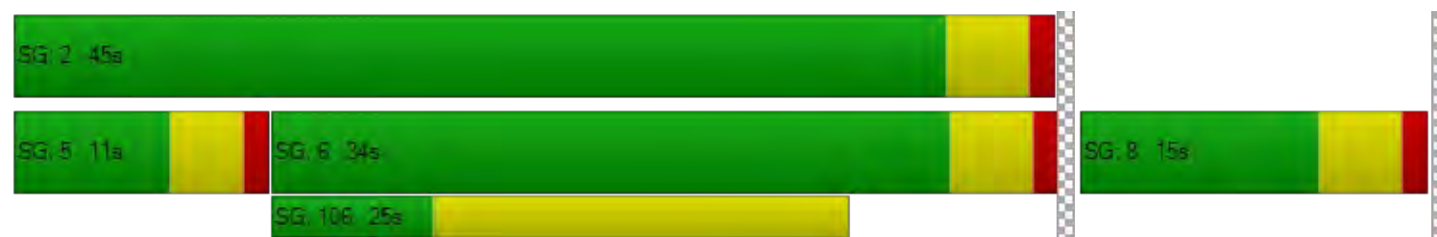
X, volume / capacity	0.72		0.74	0.39	0.77
d, Delay for Lane Group [s/veh]	29.08		37.65	4.81	16.06
Lane Group LOS	C		D	A	B
Critical Lane Group	yes		yes	no	yes
50th-Percentile Queue Length [veh]	4.05		3.11	4.22	11.18
50th-Percentile Queue Length [ft]	101.25		77.66	105.60	279.39
95th-Percentile Queue Length [veh]	8.28		6.64	8.57	19.08
95th-Percentile Queue Length [ft]	207.04		165.98	214.33	476.91

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	29.08	29.08	29.08	0.00	0.00	0.00	37.65	4.81	0.00	0.00	16.06	16.06
Movement LOS	C	C	C				D	A			B	B
d_A, Approach Delay [s/veh]	29.08			0.00			12.60			16.06		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	17.07											
Intersection LOS	B											
Intersection V/C	0.584											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#9: 28th Street / Tidelands Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.043

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	20	65	25	20	55	15	10	5	10	5	0	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	6	12	0	0	0	0	0	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	68	25	26	67	15	10	5	10	5	0	8
Peak Hour Factor	0.8200	0.8200	0.8200	0.9000	0.9000	0.9000	0.4600	0.4600	0.4600	0.2500	0.2500	0.2500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	21	8	7	19	4	5	3	5	5	0	8
Total Analysis Volume [veh/h]	24	83	30	29	74	17	22	11	22	20	0	32
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no		
Number of Storage Spaces in Median	0	0	0	0



**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.11	0.03	0.04	0.10	0.02	0.01	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	11.06	10.89	9.39	11.18	10.78	9.28	7.31	0.00	0.00	7.31	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.63	0.63	0.63	0.56	0.56	0.56	0.11	0.11	0.11	0.10	0.10	0.10
95th-Percentile Queue Length [ft]	15.85	15.85	15.85	14.07	14.07	14.07	2.70	2.70	2.70	2.55	2.55	2.55
d_A, Approach Delay [s/veh]	10.59			10.67			2.92			2.81		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	8.35											
Intersection LOS	B											

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.2  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	10	5	15	30	25	70	10	5	10	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	0	6	3	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	10	5	21	30	31	73	41	5	10	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	1	6	8	8	20	11	1	3	1	1
Total Analysis Volume [veh/h]	5	11	5	23	33	34	79	45	5	11	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.09	0.26	0.13	0.40	0.20	0.02	0.05	0.02	0.02
95th-Percentile Queue Length [ft]	2.26	6.56	3.16	10.03	4.88	0.44	1.31	0.54	0.46
Approach Delay [s/veh]	8.18	7.90		8.44			7.98		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.19								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	15	49	30	40	60	20	45	65	20	10	5	10	369

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	35	5	5	174	215	15	449

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidlands Avenue	40	40	116	195	110	70	55	109	45	88	115	84	1067

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	10	55	520	60	70	337	1052

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	30	5	35	320	15	50	35	510	30	65	327	115	1537

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	685	5	167	445	420	410	340	2472

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	143	5	375	268	862	607	545	2805

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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tidelands Avenue	20	68	25	26	67	15	10	5	10	5	0	8	259

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	5	10	5	21	30	31	73	41	5	10	5	5	241



NCMT Tank Farm Redevelopment

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appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

**Turning Movement Volume: Detail**

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	15	40	30	40	60	20	45	65	20	10	5	10	360
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>49</b>	<b>30</b>	<b>40</b>	<b>60</b>	<b>20</b>	<b>45</b>	<b>65</b>	<b>20</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>369</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	35	5	5	90	135	15	285
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>5</b>	<b>5</b>	<b>174</b>	<b>215</b>	<b>15</b>	<b>449</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	40	40	110	195	110	70	45	35	45	70	35	75	870
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	0	0	0	10	74	0	18	80	9	197
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>40</b>	<b>40</b>	<b>116</b>	<b>195</b>	<b>110</b>	<b>70</b>	<b>55</b>	<b>109</b>	<b>45</b>	<b>88</b>	<b>115</b>	<b>84</b>	<b>1067</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	10	55	440	60	70	230	865
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	80	0	0	107	187
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>55</b>	<b>520</b>	<b>60</b>	<b>70</b>	<b>337</b>	<b>1052</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	30	5	35	320	15	50	35	430	30	65	220	115	1350
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	80	0	0	107	0	187
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>30</b>	<b>5</b>	<b>35</b>	<b>320</b>	<b>15</b>	<b>50</b>	<b>35</b>	<b>510</b>	<b>30</b>	<b>65</b>	<b>327</b>	<b>115</b>	<b>1537</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	685	5	130	410	375	410	270	2285
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	37	35	45	0	70	187
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>685</b>	<b>5</b>	<b>167</b>	<b>445</b>	<b>420</b>	<b>410</b>	<b>340</b>	<b>2472</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	80	5	375	240	855	600	545	2700
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	63	0	0	28	7	7	0	105
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>143</b>	<b>5</b>	<b>375</b>	<b>268</b>	<b>862</b>	<b>607</b>	<b>545</b>	<b>2805</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
9	28th Street / Tideland Avenue	Final Base	20	65	25	20	55	15	10	5	10	5	0	5	235
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	3	0	6	12	0	0	0	0	0	0	3	24
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>20</b>	<b>68</b>	<b>25</b>	<b>26</b>	<b>67</b>	<b>15</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>0</b>	<b>8</b>	<b>259</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	5	10	5	15	30	25	70	10	5	10	5	5	195
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	6	0	6	3	31	0	0	0	0	46
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>21</b>	<b>30</b>	<b>31</b>	<b>73</b>	<b>41</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>241</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	256	848	528	688	1040	352	784	1136	352	176	80	176	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	608	80	80	3024	3744	256	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	6	0	0	0	10	74	0	18	80	9	
Total Analysis Volume	688	688	2016	3392	1920	1216	960	1888	784	1536	2000	1456	



Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	0	80	0	0	107	
Total Analysis Volume	176	960	9040	1040	1216	5856	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	80	0	0	107	0	
Total Analysis Volume	528	80	608	5568	256	864	608	8864	528	1136	5680	2000	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	37	35	45	0	70	
Total Analysis Volume	11920	80	2912	7744	7312	7136	5920	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	63	0	0	28	7	7	0	
Total Analysis Volume	2432	80	6384	4608	14832	10448	9376	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	3	0	0	3	0	0	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	3	0	0	0	0	0	0	0	3
28: 028-007	0	0	0	0	3	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	0	3	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	3	0	0	0	0	0	0	0	3	6
33: 027-042	0	0	0	3	0	0	0	0	0	0	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	6	12	0	0	0	0	0	0	3	
Total Analysis Volume	384	1328	480	464	1184	272	352	176	352	320	0	512	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	3	3	0	0	0	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	3	0	0	0	0	0	0	3
28: 028-007	0	0	0	3	0	0	0	0	0	0	0	0	3
29: 025-010 D	0	0	0	3	0	0	0	0	0	0	0	0	3
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	6	0	6	3	31	0	0	0	0	
Total Analysis Volume	80	176	80	368	528	544	1264	720	80	176	80	80	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
32: 027-029	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	100.02%	100.00%	99.99%	



Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	2.8%	1.40%
19: 025-010 B	0	0	0%	0	0	2.8%	1.40%
20: 025-010 C	0	0	0%	0	0	2.8%	1.40%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	88.75%	0	0	66.36%	77.57%
23: NCTF Trucks	0	0	3.75%	0	0	2.8%	3.28%
24: 027-016	0	0	3.75%	0	0	2.8%	3.28%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	2.8%	1.40%
28: 028-007	0	0	0%	0	0	2.8%	1.40%
29: 025-010 D	0	0	0%	0	0	2.8%	1.40%
32: 027-029	0	0	3.75%	0	0	2.8%	3.28%
33: 027-042	0	0	0%	0	0	2.8%	1.40%
34: 026-009 & 027-011	0	0	0%	0	0	2.8%	1.40%
35: 027-014 & 027-016	0	0	0%	0	0	2.8%	1.40%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	88.75%	0	0	66.36%	0	77.57%
23: NCTF Trucks	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
24: 027-016	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
32: 027-029	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.7%	0%	0%	0	2.86%	1.39%
19: 025-010 B	0	0	2.7%	0%	0%	0	2.86%	1.39%
20: 025-010 C	0	0	2.7%	0%	0%	0	2.86%	1.39%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	67.57%	91.43%	86.67%	0	65.71%	77.85%
23: NCTF Trucks	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
24: 027-016	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.7%	0%	0%	0	2.86%	1.39%
28: 028-007	0	0	2.7%	0%	0%	0	2.86%	1.39%
29: 025-010 D	0	0	2.7%	0%	0%	0	2.86%	1.39%
32: 027-029	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
33: 027-042	0	0	2.7%	0%	0%	0	2.86%	1.39%
34: 026-009 & 027-011	0	0	2.7%	0%	0%	0	2.86%	1.39%
35: 027-014 & 027-016	0	0	2.7%	0%	0%	0	2.86%	1.39%
Total	0.00%	0.00%	99.97%	100.01%	99.99%	0.00%	100.03%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	3.17%	0	0	0%	0%	0%	0	0.79%
19: 025-010 B	3.17%	0	0	0%	0%	0%	0	0.79%
20: 025-010 C	3.17%	0	0	0%	0%	0%	0	0.79%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	61.9%	0	0	89.29%	100%	100%	0	87.81%
23: NCTF Trucks	3.17%	0	0	3.57%	0%	0%	0	1.69%
24: 027-016	3.17%	0	0	3.57%	0%	0%	0	1.69%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	3.17%	0	0	0%	0%	0%	0	0.79%
28: 028-007	3.17%	0	0	0%	0%	0%	0	0.79%
29: 025-010 D	3.17%	0	0	0%	0%	0%	0	0.79%
32: 027-029	3.17%	0	0	3.57%	0%	0%	0	1.69%
33: 027-042	3.17%	0	0	0%	0%	0%	0	0.79%
34: 026-009 & 027-011	3.17%	0	0	0%	0%	0%	0	0.79%
35: 027-014 & 027-016	3.17%	0	0	0%	0%	0%	0	0.79%
Total	99.94%	0.00%	0.00%	100.00%	100.00%	100.00%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	100%	0	0%	25%	0	0	0	0	0	0	0%	31.25%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
28: 028-007	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
29: 025-010 D	0	0%	0	0%	25%	0	0	0	0	0	0	0%	6.25%
32: 027-029	0	0%	0	50%	0%	0	0	0	0	0	0	100%	37.50%
33: 027-042	0	0%	0	50%	0%	0	0	0	0	0	0	0%	12.50%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	100.00%	0.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	50%	100%	0%	0	0	0	0%	37.50%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	100%	0	0	0	0%	25.00%
27: 028-003	0	0	0	0%	0	50%	0%	0%	0	0	0	0%	12.50%
28: 028-007	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
29: 025-010 D	0	0	0	50%	0	0%	0%	0%	0	0	0	0%	12.50%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	100.00%	0.00%	100.00%	100.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tridelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	4.84%	0	0	0%	0	0	0	0	0	0	0	0.08%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	9.68%	0	0	0%	0	0	0	0	0	0	0	0.15%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	14.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	26.01%	22.61%	0	0.62%
23: NCTF Trucks	0	0	0	1.1%	0.96%	0	0.03%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.66%	0%	0	0.05%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	0.96%	0	0.01%
35: 027-014 & 027-016	0	0	0	0%	0.96%	0	0.01%
Total	0.00%	0.00%	0.00%	30.77%	25.49%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	3%	0.02%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	3%	0.02%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	3%	0.02%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	36.98%	0	0%	34.63%	0%	0.39%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.56%	0	0%	1.46%	0%	0.02%
24: 027-016	0	0	2.27%	0%	0	0	0%	0%	0	2.63%	0%	0%	0.03%
25: Vehicle Movement External	0	0	0%	0%	0	0	14.29%	0%	0	0%	0%	0%	0.08%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	2.63%	0%	0%	0.01%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	2.63%	0%	0%	0.01%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	2.63%	0%	0%	0.01%
32: 027-029	0	0	2.27%	0%	0	0	0%	0%	0	2.63%	0%	0%	0.03%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	2.63%	0%	0%	0.01%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	1.46%	0%	0.01%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	1.46%	0%	0.01%
Total	0.00%	0.00%	4.54%	0.00%	0.00%	0.00%	14.29%	38.54%	0.00%	15.78%	39.01%	9.00%	



Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	0.63%	0.00%
19: 025-010 B	0	0	0%	0	0	0.63%	0.00%
20: 025-010 C	0	0	0%	0	0	0.63%	0.00%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	11.01%	0	0	15.01%	0.14%
23: NCTF Trucks	0	0	0.47%	0	0	0.63%	0.01%
24: 027-016	0	0	0.47%	0	0	0.63%	0.01%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	0.63%	0.00%
28: 028-007	0	0	0%	0	0	0.63%	0.00%
29: 025-010 D	0	0	0%	0	0	0.63%	0.00%
32: 027-029	0	0	0.47%	0	0	0.63%	0.01%
33: 027-042	0	0	0%	0	0	0.63%	0.00%
34: 026-009 & 027-011	0	0	0%	0	0	0.63%	0.00%
35: 027-014 & 027-016	0	0	0%	0	0	0.63%	0.00%
Total	0.00%	0.00%	12.42%	0.00%	0.00%	22.57%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	11.2%	0	0	15.37%	0	0.10%
23: NCTF Trucks	0	0	0	0	0	0	0	0.47%	0	0	0.65%	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0.47%	0	0	0.65%	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0.47%	0	0	0.65%	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.61%	0.00%	0.00%	23.17%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.46%	0%	0%	0	0.45%	0.00%
19: 025-010 B	0	0	0.46%	0%	0%	0	0.45%	0.00%
20: 025-010 C	0	0	0.46%	0%	0%	0	0.45%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	11.42%	6.17%	7.77%	0	10.45%	0.08%
23: NCTF Trucks	0	0	0.46%	0.19%	0.4%	0	0.45%	0.00%
24: 027-016	0	0	0.46%	0.19%	0.4%	0	0.45%	0.00%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.46%	0%	0%	0	0.45%	0.00%
28: 028-007	0	0	0.46%	0%	0%	0	0.45%	0.00%
29: 025-010 D	0	0	0.46%	0%	0%	0	0.45%	0.00%
32: 027-029	0	0	0.46%	0.19%	0.4%	0	0.45%	0.00%
33: 027-042	0	0	0.46%	0%	0%	0	0.45%	0.00%
34: 026-009 & 027-011	0	0	0.46%	0%	0%	0	0.45%	0.00%
35: 027-014 & 027-016	0	0	0.46%	0%	0%	0	0.45%	0.00%
Total	0.00%	0.00%	16.94%	6.74%	8.97%	0.00%	15.85%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.93%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.93%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.93%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	18.14%	0	0	7.91%	0.75%	1.06%	0	0.06%
23: NCTF Trucks	0.93%	0	0	0.32%	0%	0%	0	0.00%
24: 027-016	0.93%	0	0	0.32%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.93%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.93%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.93%	0	0	0%	0%	0%	0	0.00%
32: 027-029	0.93%	0	0	0.32%	0%	0%	0	0.00%
33: 027-042	0.93%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.93%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.93%	0	0	0%	0%	0%	0	0.00%
Total	29.30%	0.00%	0.00%	8.87%	0.75%	1.06%	0.00%	

Intersection 9: 28th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
19: 025-010 B	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
20: 025-010 C	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
21: 027-043	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
22: NCMT Employees	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
23: NCTF Trucks	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
24: 027-016	0	3.49%	0	0%	3.49%	0	0	0	0	0	0	0%	0.12%
25: Vehicle Movement External	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
27: 028-003	0	0%	0	0%	3.49%	0	0	0	0	0	0	0%	0.06%
28: 028-007	0	0%	0	0%	3.49%	0	0	0	0	0	0	0%	0.06%
29: 025-010 D	0	0%	0	0%	3.49%	0	0	0	0	0	0	0%	0.06%
32: 027-029	0	0%	0	8.57%	0%	0	0	0	0	0	0	8.57%	0.29%
33: 027-042	0	0%	0	8.57%	0%	0	0	0	0	0	0	0%	0.15%
34: 026-009 & 027-011	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0%	0	0%	0%	0	0	0	0	0	0	0%	0.00%
Total	0.00%	3.49%	0.00%	17.14%	13.96%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.57%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
19: 025-010 B	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
20: 025-010 C	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
21: 027-043	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
22: NCMT Employees	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
23: NCTF Trucks	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
24: 027-016	0	0	0	0%	0	7.5%	3.66%	0%	0	0	0	0%	0.27%
25: Vehicle Movement External	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0	0%	0	0%	0%	40.79%	0	0	0	0%	0.98%
27: 028-003	0	0	0	0%	0	7.5%	0%	0%	0	0	0	0%	0.18%
28: 028-007	0	0	0	10.34%	0	0%	0%	0%	0	0	0	0%	0.25%
29: 025-010 D	0	0	0	10.34%	0	0%	0%	0%	0	0	0	0%	0.25%
32: 027-029	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
33: 027-042	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
34: 026-009 & 027-011	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
35: 027-014 & 027-016	0	0	0	0%	0	0%	0%	0%	0	0	0	0%	0.00%
Total	0.00%	0.00%	0.00%	20.68%	0.00%	15.00%	3.66%	40.79%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	230	179	40
2	221	172	38
3	216	168	38
4	184	143	32
5	175	136	30
6	156	122	27
7	145	113	25
8	138	107	24
9	110	86	19
10	104	81	18
11	104	81	18
12	99	77	17
13	90	70	16
14	83	64	14
15	83	64	14
16	81	63	14
17	46	36	8
18	25	20	4
19	23	18	4
20	9	7	2
21	7	5	1
22	7	5	1
23	5	4	1
24	5	4	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	409	2	40	No	No	No	No	No	No	No	No	No	No
2	4	393	2	38	No	No	No	No	No	No	No	No	No	No
3	4	384	2	38	No	No	No	No	No	No	No	No	No	No
4	4	327	2	32	No	No	No	No	No	No	No	No	No	No
5	4	311	2	30	No	No	No	No	No	No	No	No	No	No
6	4	278	2	27	No	No	No	No	No	No	No	No	No	No
7	4	258	2	25	No	No	No	No	No	No	No	No	No	No
8	4	245	2	24	No	No	No	No	No	No	No	No	No	No
9	4	196	2	19	No	No	No	No	No	No	No	No	No	No
10	4	185	2	18	No	No	No	No	No	No	No	No	No	No
11	4	185	2	18	No	No	No	No	No	No	No	No	No	No
12	4	176	2	17	No	No	No	No	No	No	No	No	No	No
13	4	160	2	16	No	No	No	No	No	No	No	No	No	No
14	4	147	2	14	No	No	No	No	No	No	No	No	No	No
15	4	147	2	14	No	No	No	No	No	No	No	No	No	No
16	4	144	2	14	No	No	No	No	No	No	No	No	No	No
17	4	82	2	8	No	No	No	No	No	No	No	No	No	No
18	4	45	2	4	No	No	No	No	No	No	No	No	No	No
19	4	41	2	4	No	No	No	No	No	No	No	No	No	No
20	4	16	2	2	No	No	No	No	No	No	No	No	No	No
21	4	12	2	1	No	No	No	No	No	No	No	No	No	No
22	4	12	2	1	No	No	No	No	No	No	No	No	No	No
23	4	9	2	1	No	No	No	No	No	No	No	No	No	No
24	4	9	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.9
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	40
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	449
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>



## Signal Warrants Report For Intersection #9: 28th Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	13	25	113	108
2	12	24	108	104
3	12	24	106	102
4	10	20	90	86
5	10	19	86	82
6	9	17	77	73
7	8	16	71	68
8	8	15	68	65
9	6	12	54	52
10	6	11	51	49
11	6	11	51	49
12	6	11	49	46
13	5	10	44	42
14	5	9	41	39
15	5	9	41	39
16	5	9	40	38
17	3	5	23	22
18	1	3	12	12
19	1	3	11	11
20	1	1	5	4
21	0	1	3	3
22	0	1	3	3
23	0	1	2	2
24	0	1	2	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	38	2	221	No	No	No	No	No	No	No	No	No	No
2	2	36	2	212	No	No	No	No	No	No	No	No	No	No
3	2	36	2	208	No	No	No	No	No	No	No	No	No	No
4	2	30	2	176	No	No	No	No	No	No	No	No	No	No
5	2	29	2	168	No	No	No	No	No	No	No	No	No	No
6	2	26	2	150	No	No	No	No	No	No	No	No	No	No
7	2	24	2	139	No	No	No	No	No	No	No	No	No	No
8	2	23	2	133	No	No	No	No	No	No	No	No	No	No
9	2	18	2	106	No	No	No	No	No	No	No	No	No	No
10	2	17	2	100	No	No	No	No	No	No	No	No	No	No
11	2	17	2	100	No	No	No	No	No	No	No	No	No	No
12	2	17	2	95	No	No	No	No	No	No	No	No	No	No
13	2	15	2	86	No	No	No	No	No	No	No	No	No	No
14	2	14	2	80	No	No	No	No	No	No	No	No	No	No
15	2	14	2	80	No	No	No	No	No	No	No	No	No	No
16	2	14	2	78	No	No	No	No	No	No	No	No	No	No
17	2	8	2	45	No	No	No	No	No	No	No	No	No	No
18	2	4	2	24	No	No	No	No	No	No	No	No	No	No
19	2	4	2	22	No	No	No	No	No	No	No	No	No	No
20	2	2	2	9	No	No	No	No	No	No	No	No	No	No
21	2	1	2	6	No	No	No	No	No	No	No	No	No	No
22	2	1	2	6	No	No	No	No	No	No	No	No	No	No
23	2	1	2	4	No	No	No	No	No	No	No	No	No	No
24	2	1	2	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.6	10.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19	0:19
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	113	108
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	259	259
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	20	119	20	82
2	19	114	19	79
3	19	112	19	77
4	16	95	16	66
5	15	90	15	62
6	14	81	14	56
7	13	75	13	52
8	12	71	12	49
9	10	57	10	39
10	9	54	9	37
11	9	54	9	37
12	9	51	9	35
13	8	46	8	32
14	7	43	7	30
15	7	43	7	30
16	7	42	7	29
17	4	24	4	16
18	2	13	2	9
19	2	12	2	8
20	1	5	1	3
21	1	4	1	2
22	1	4	1	2
23	0	2	0	2
24	0	2	0	2

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	139	3	102	No	No	No	No	No	No	No	No	No	No
2	6	133	3	98	No	No	No	No	No	No	No	No	No	No
3	6	131	3	96	No	No	No	No	No	No	No	No	No	No
4	6	111	3	82	No	No	No	No	No	No	No	No	No	No
5	6	105	3	77	No	No	No	No	No	No	No	No	No	No
6	6	95	3	70	No	No	No	No	No	No	No	No	No	No
7	6	88	3	65	No	No	No	No	No	No	No	No	No	No
8	6	83	3	61	No	No	No	No	No	No	No	No	No	No
9	6	67	3	49	No	No	No	No	No	No	No	No	No	No
10	6	63	3	46	No	No	No	No	No	No	No	No	No	No
11	6	63	3	46	No	No	No	No	No	No	No	No	No	No
12	6	60	3	44	No	No	No	No	No	No	No	No	No	No
13	6	54	3	40	No	No	No	No	No	No	No	No	No	No
14	6	50	3	37	No	No	No	No	No	No	No	No	No	No
15	6	50	3	37	No	No	No	No	No	No	No	No	No	No
16	6	49	3	36	No	No	No	No	No	No	No	No	No	No
17	6	28	3	20	No	No	No	No	No	No	No	No	No	No
18	6	15	3	11	No	No	No	No	No	No	No	No	No	No
19	6	14	3	10	No	No	No	No	No	No	No	No	No	No
20	6	6	3	4	No	No	No	No	No	No	No	No	No	No
21	6	5	3	3	No	No	No	No	No	No	No	No	No	No
22	6	5	3	3	No	No	No	No	No	No	No	No	No	No
23	6	2	3	2	No	No	No	No	No	No	No	No	No	No
24	6	2	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.2	7.9
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02	0:10
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	20	82
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	241	241
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\12. Future PM + Project.pdf

4/27/2016

### Trip generation summary

#### Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.22
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.22
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.22
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	57.96
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.45
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.45
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	4.08
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	19.59
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.22
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.22
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.22
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.45
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.22
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.22
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.22
<b>Added Trips Total</b>								<b>107</b>	<b>138</b>	<b>245</b>	<b>100.00</b>



## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (HCM 2000) (updated) - for  
appendices.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...12. Future PM + Project.pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0

33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 28: 028-007			
	To 028-007:		From 028-007:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

Zone / Gate	Zone 29: 025-010 D			
	To 025-010 D:		From 025-010 D:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

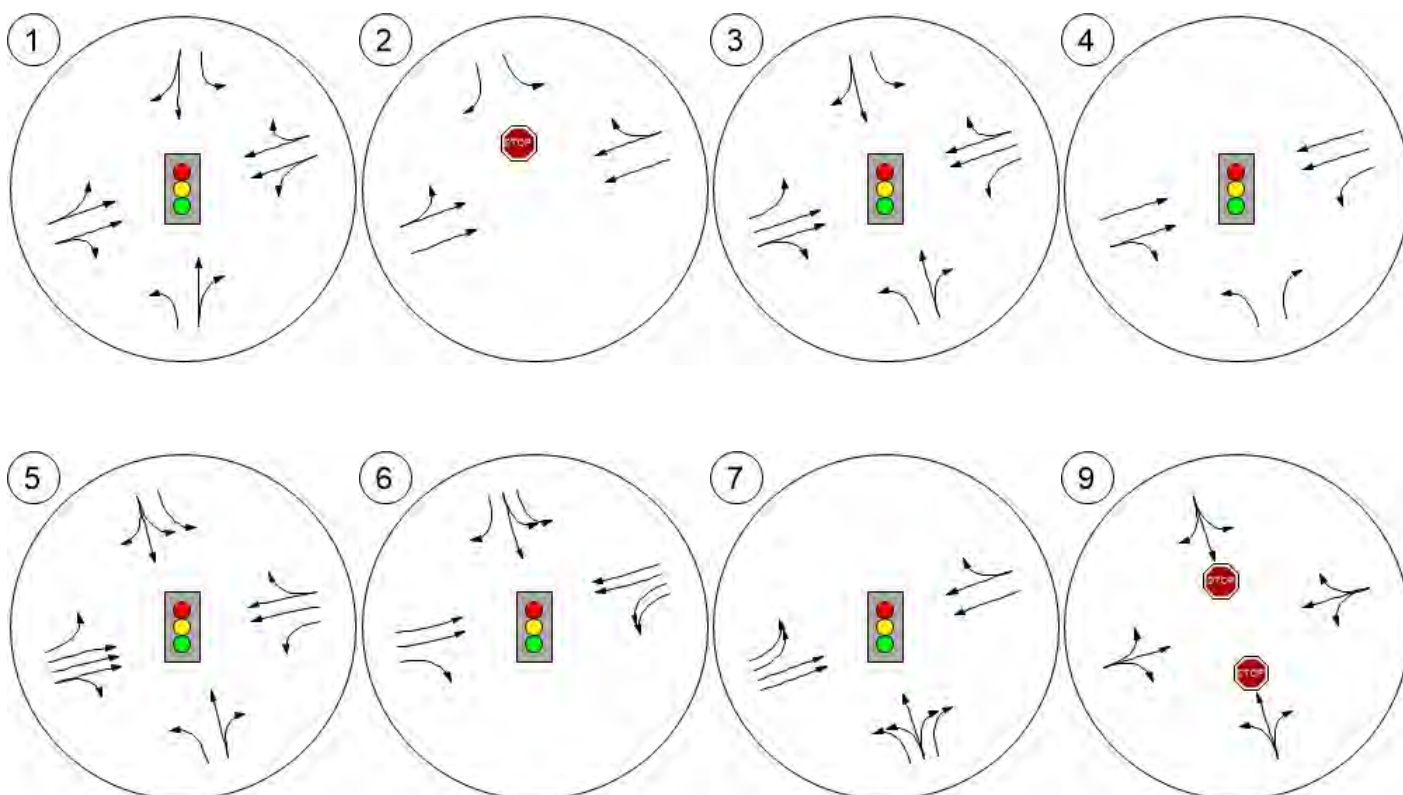


Study Intersections

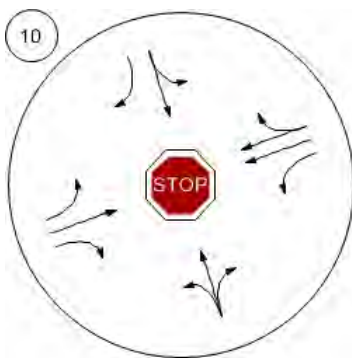




# Lane Configuration and Traffic Control

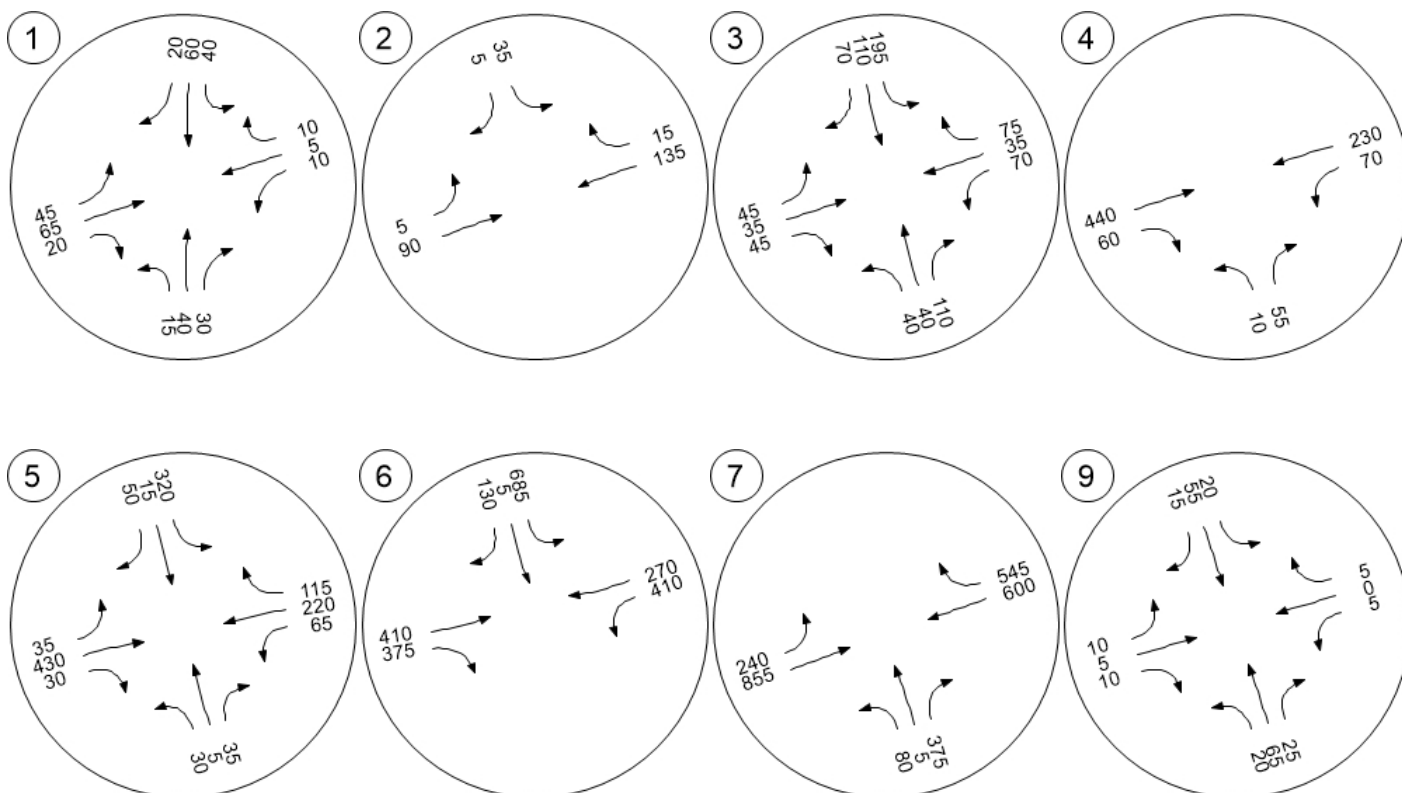


## Lane Configuration and Traffic Control

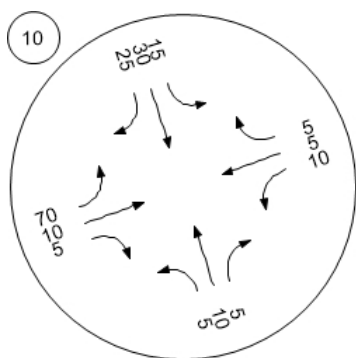




Traffic Volume - Base Volume

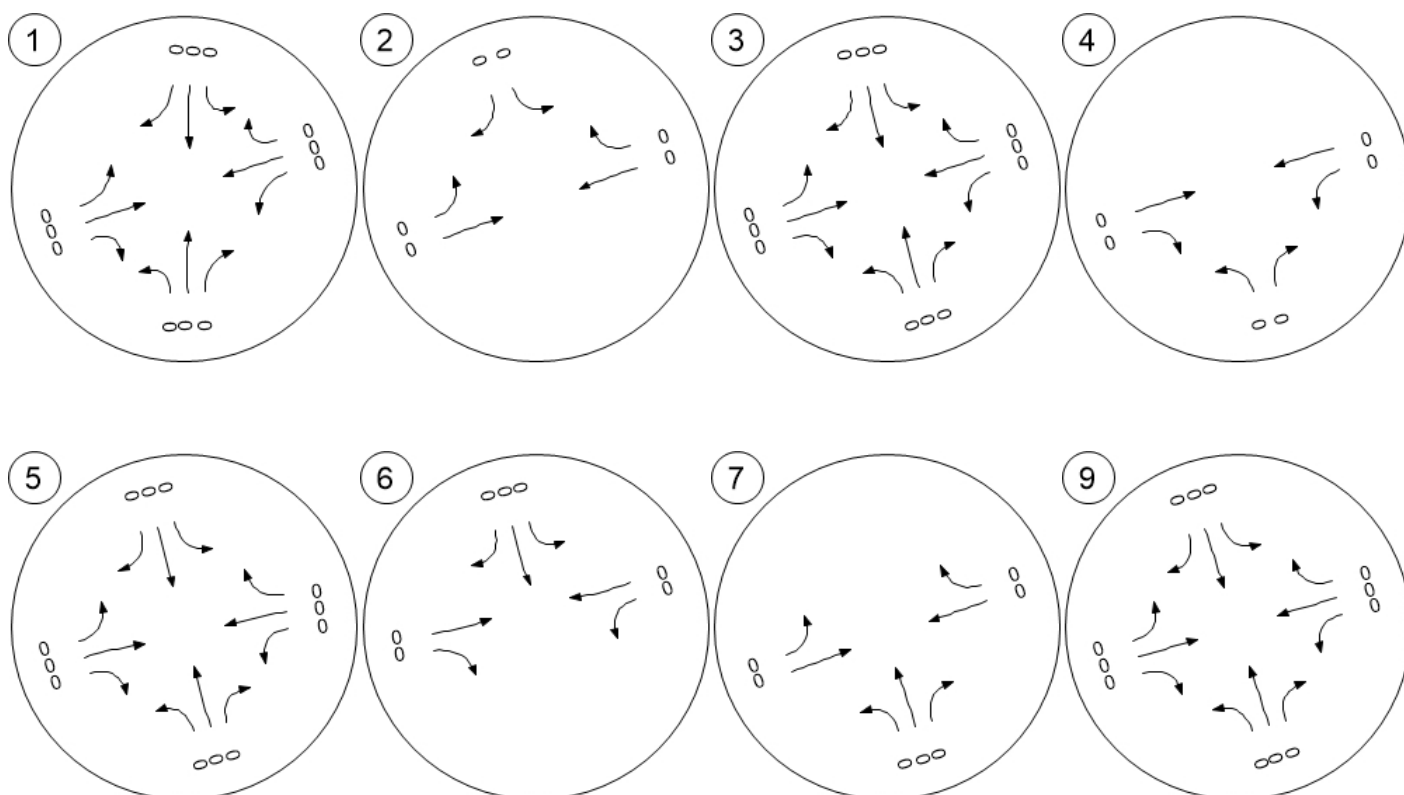


Traffic Volume - Base Volume

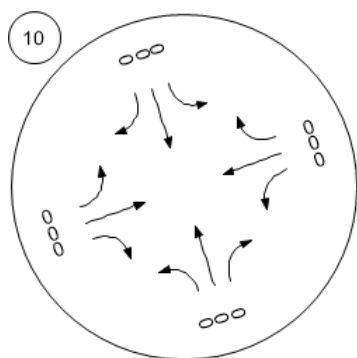




Traffic Volume - In-Process Volume

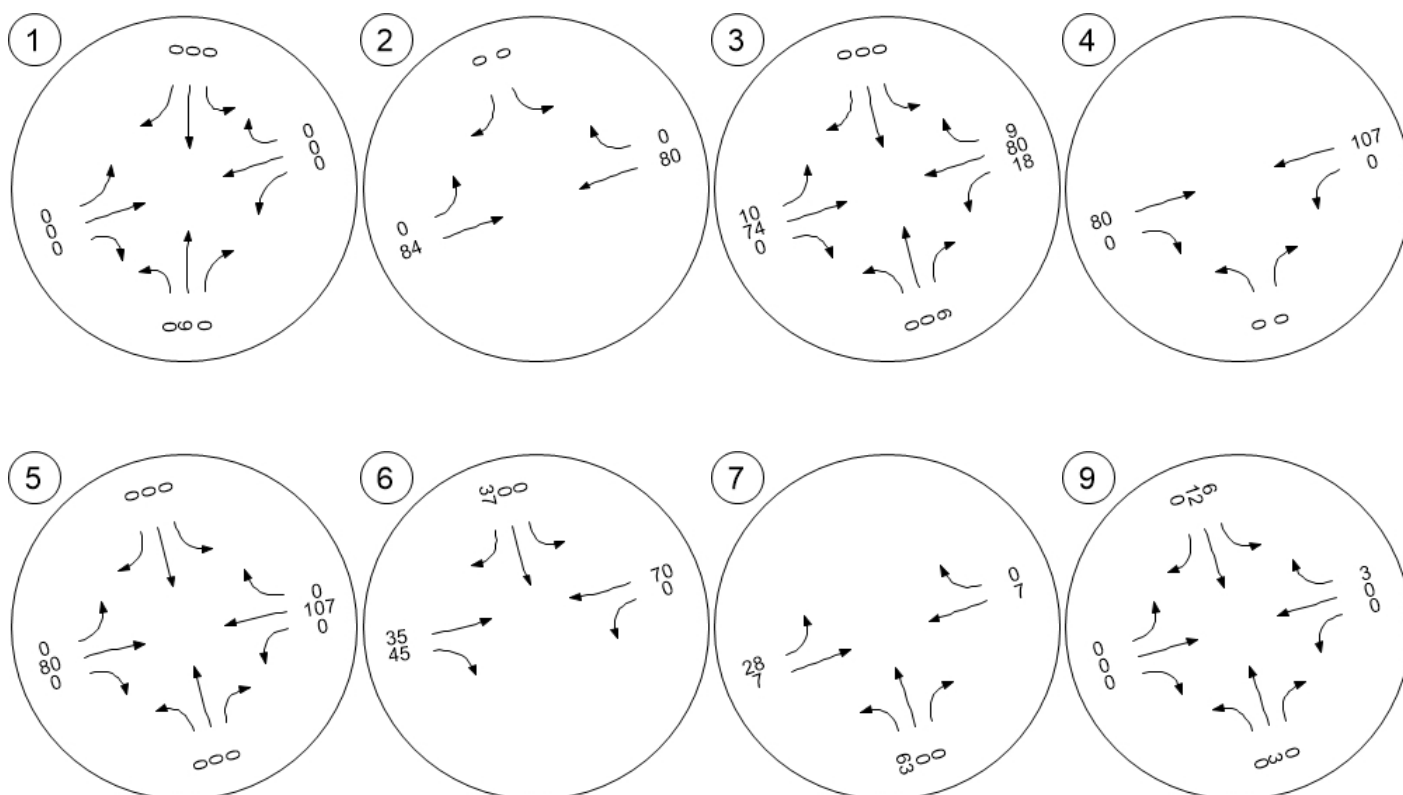


Traffic Volume - In-Process Volume

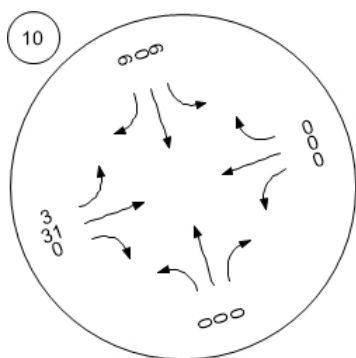




# Traffic Volume - Net New Site Trips

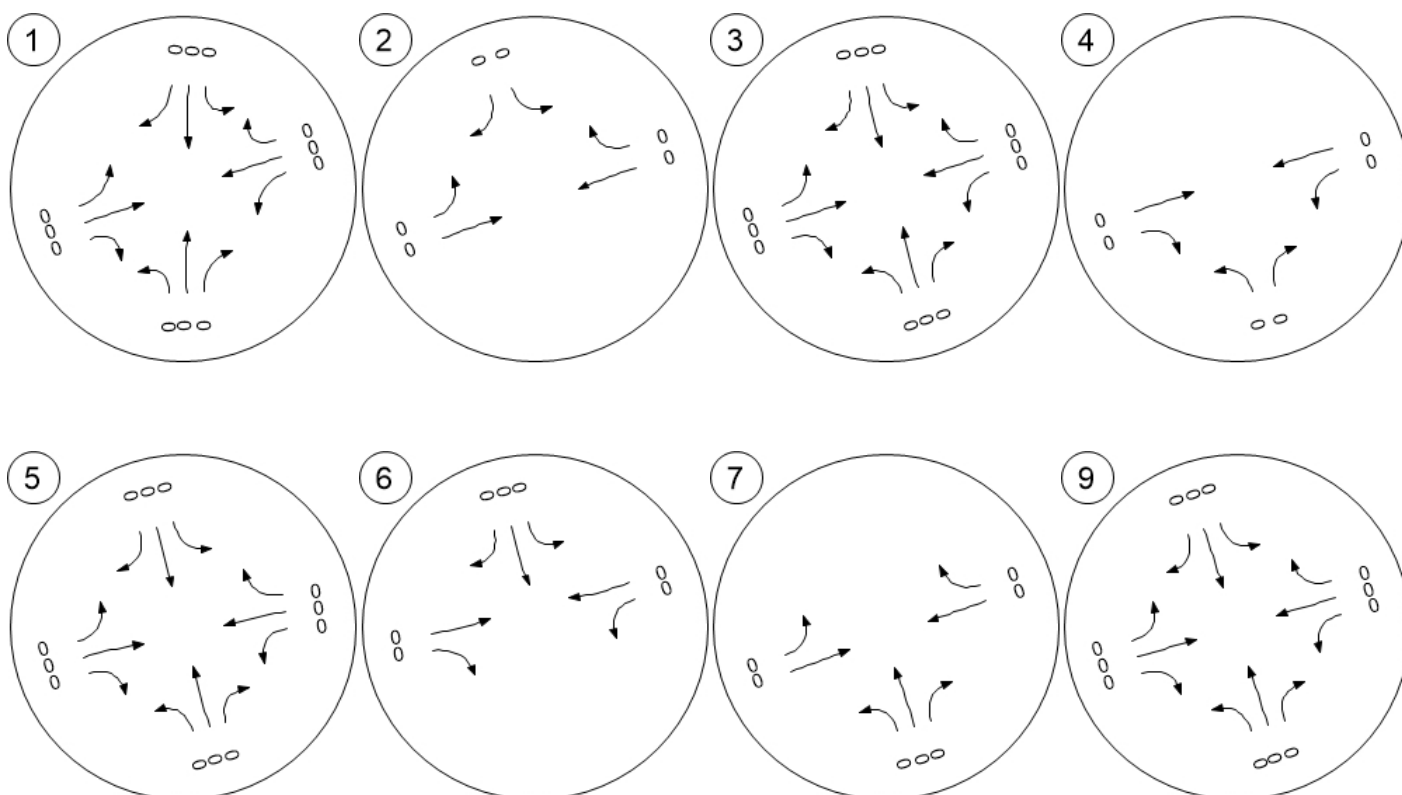


Traffic Volume - Net New Site Trips



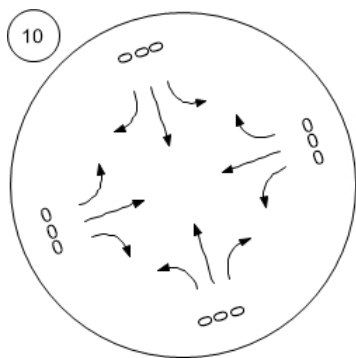


Traffic Volume - Other Volume

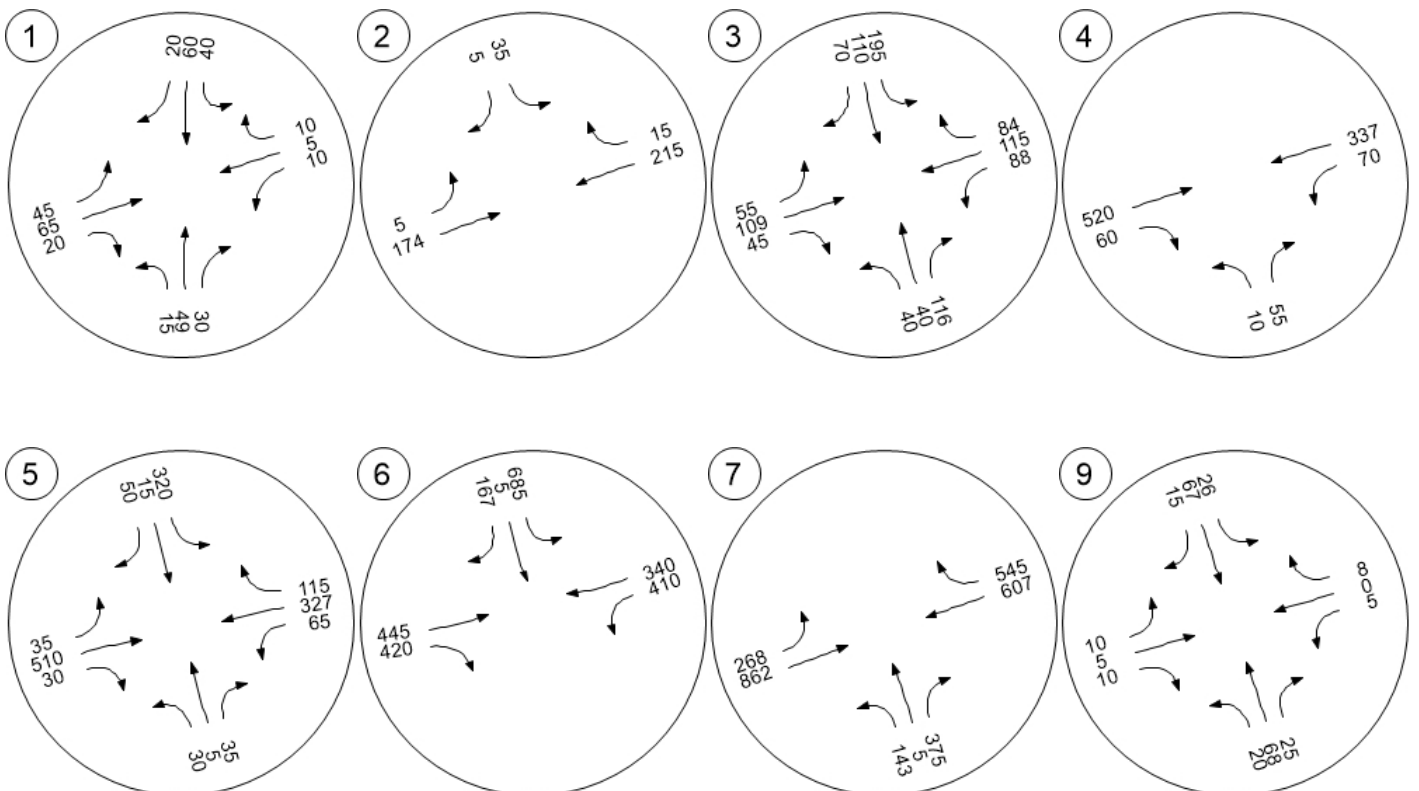




Traffic Volume - Other Volume

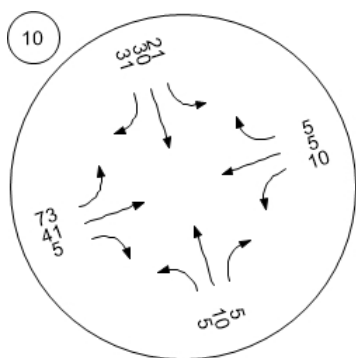


Traffic Volume - Future Total Volume

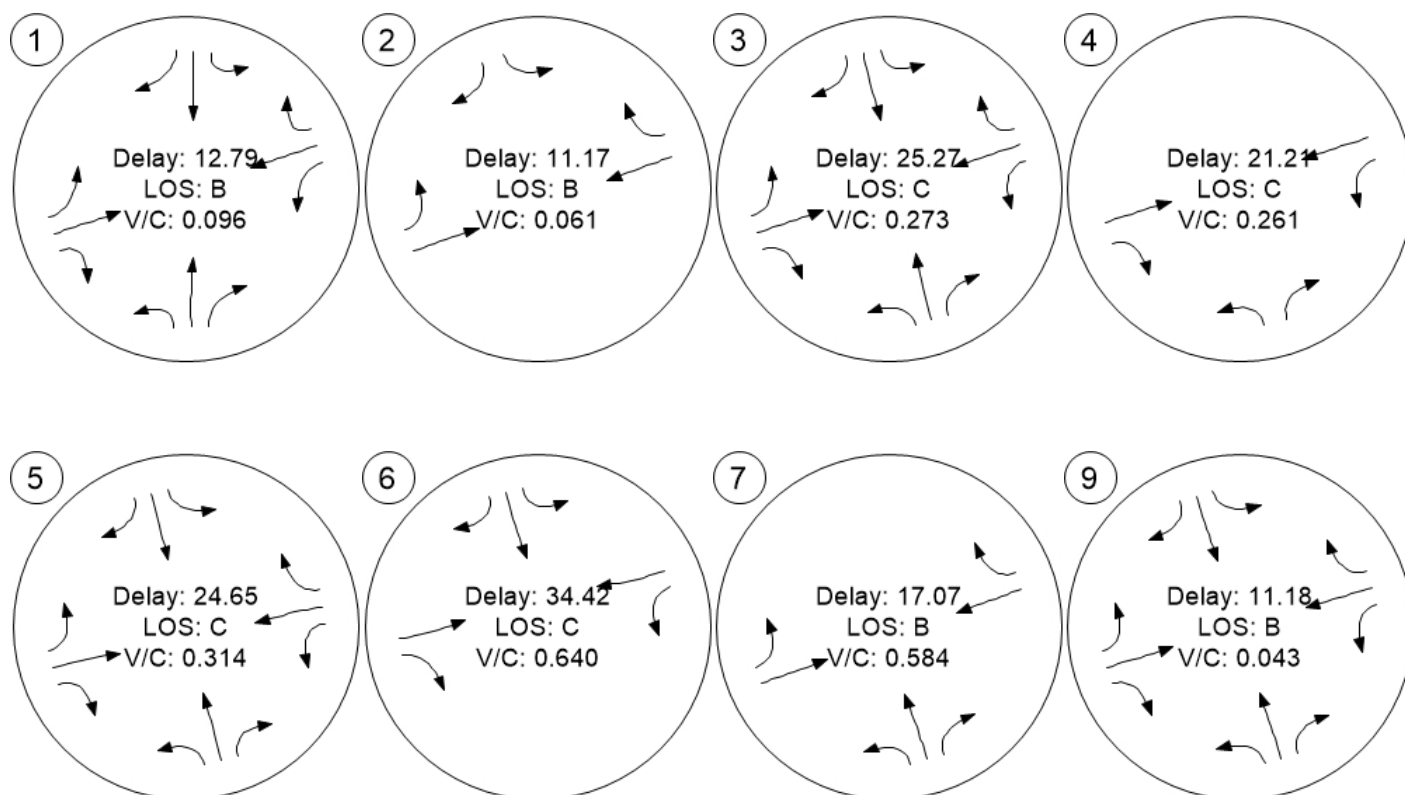




Traffic Volume - Future Total Volume

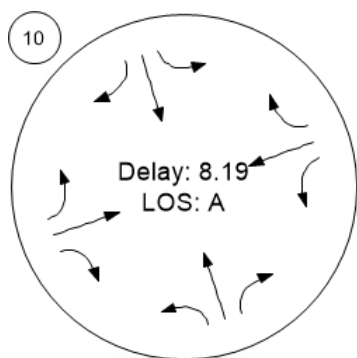


## Traffic Conditions



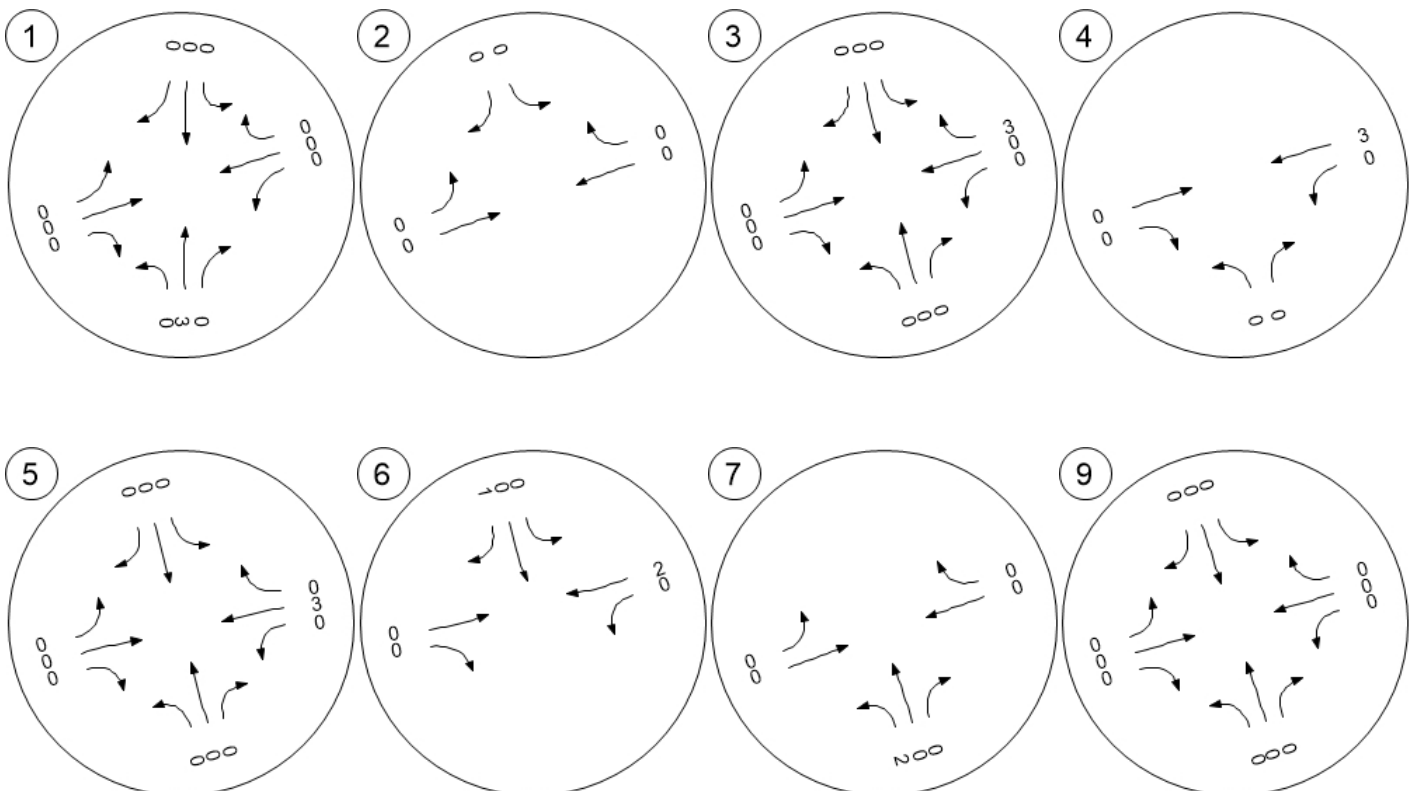


## Traffic Conditions

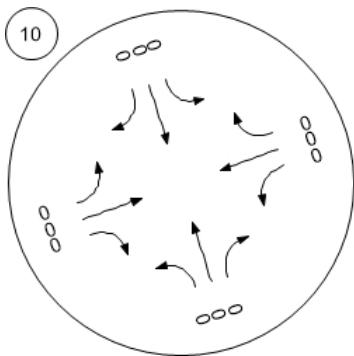




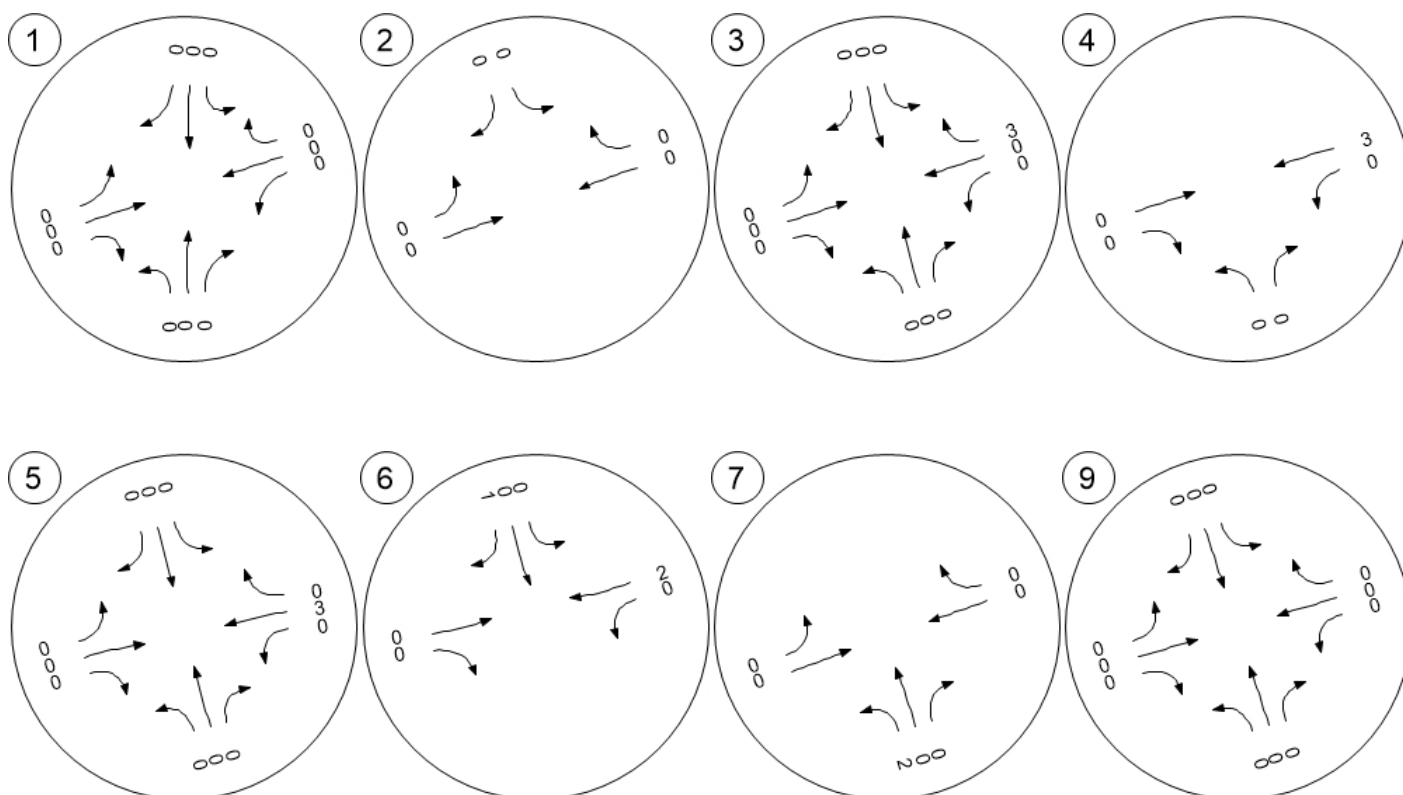
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 18

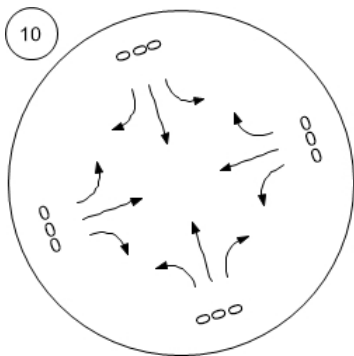


Fair Share - Fair Share Volumes - Zone 19

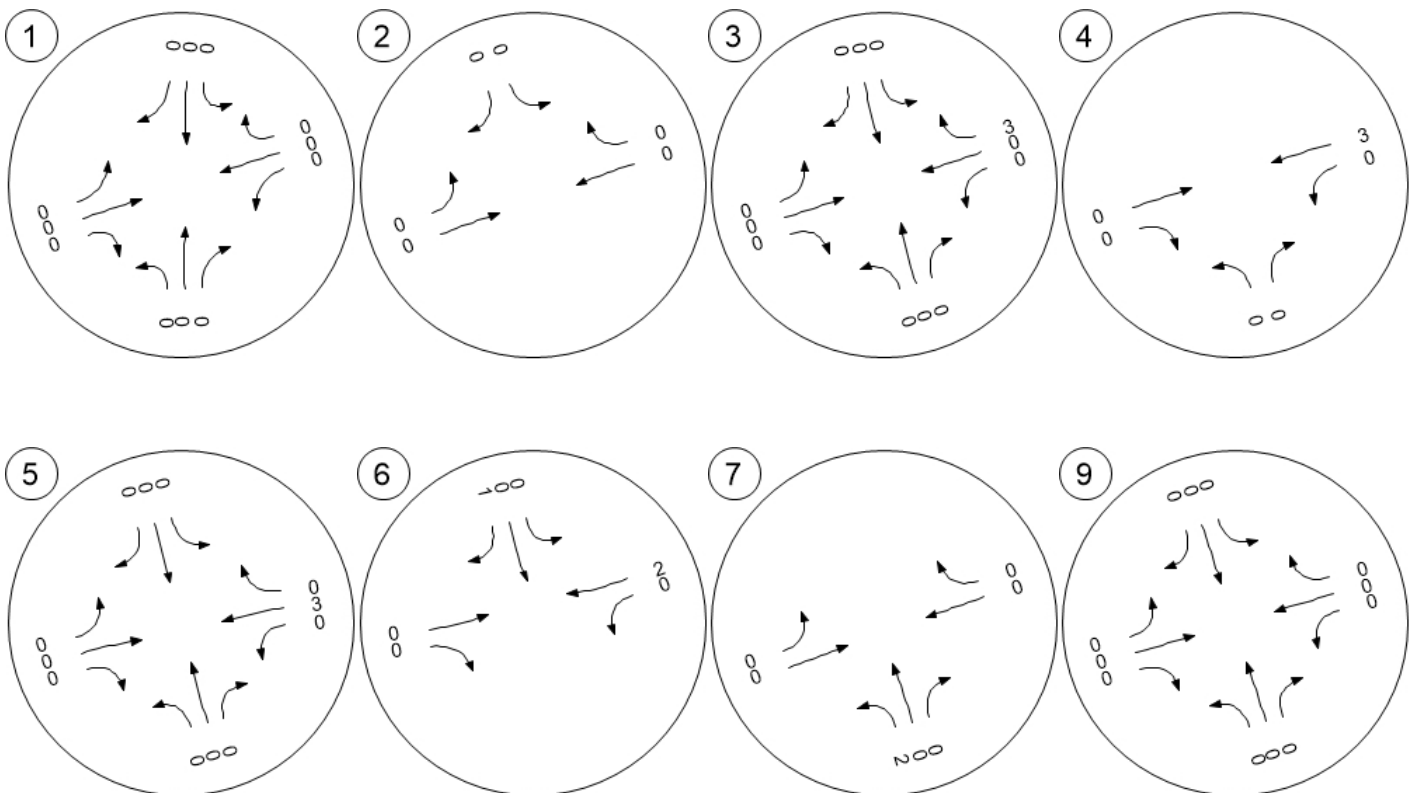




Fair Share - Fair Share Volumes - Zone 19

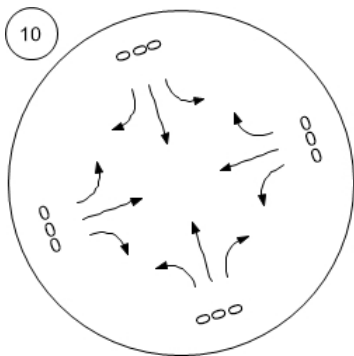


Fair Share - Fair Share Volumes - Zone 20

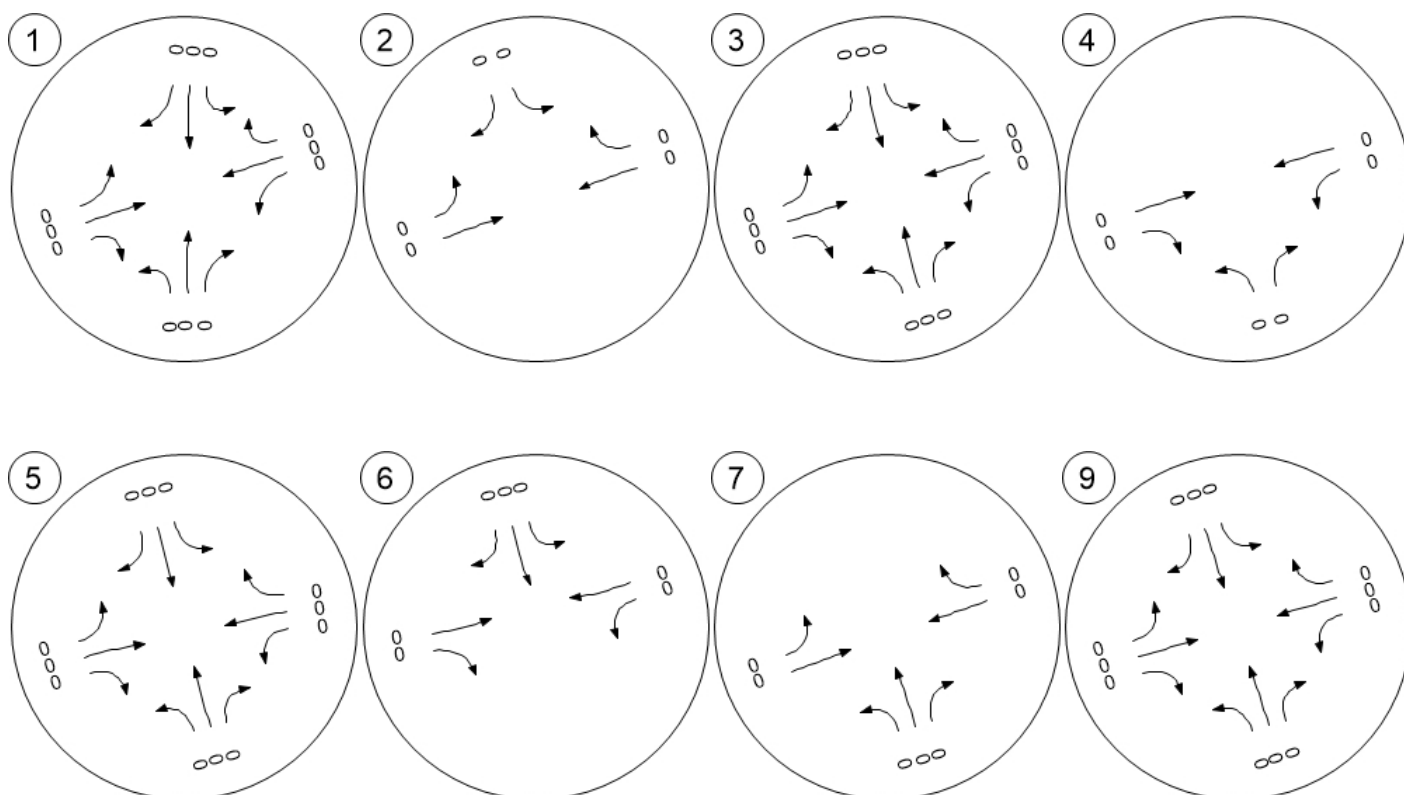




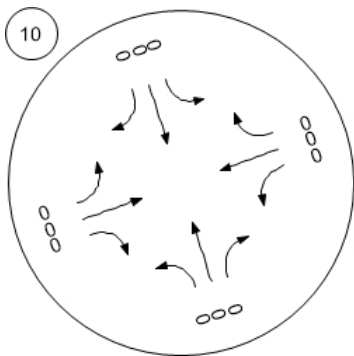
Fair Share - Fair Share Volumes - Zone 20



Fair Share - Fair Share Volumes - Zone 21

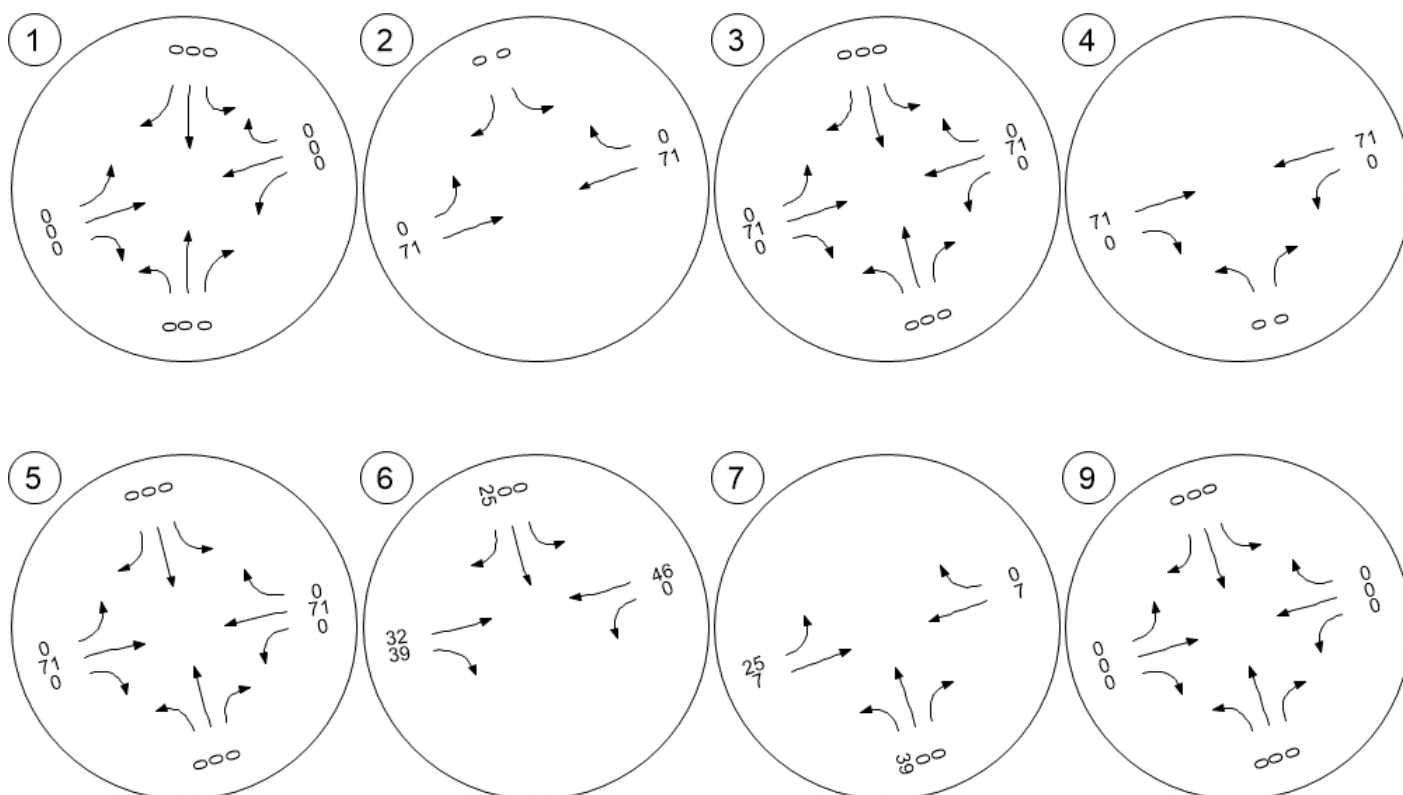


Fair Share - Fair Share Volumes - Zone 21

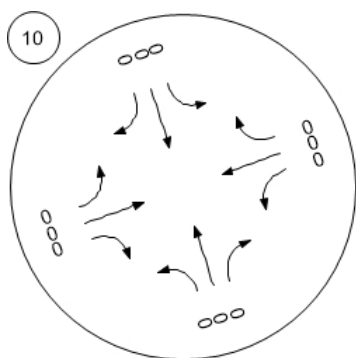




Fair Share - Fair Share Volumes - Zone 22

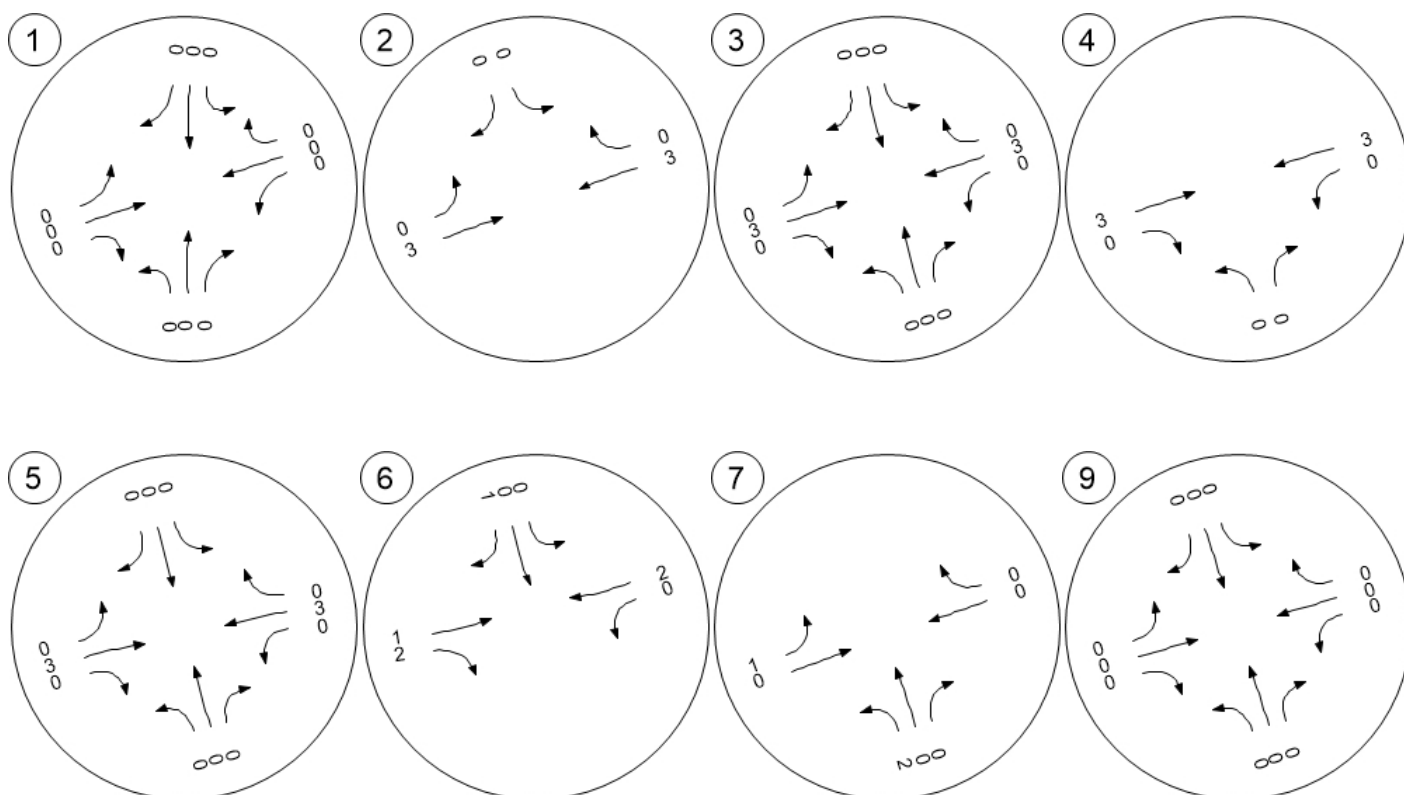


Fair Share - Fair Share Volumes - Zone 22

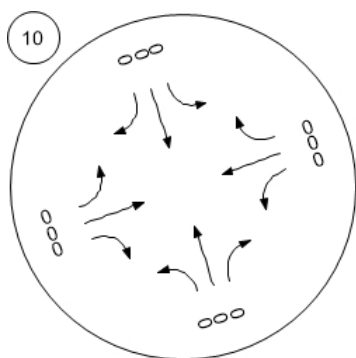




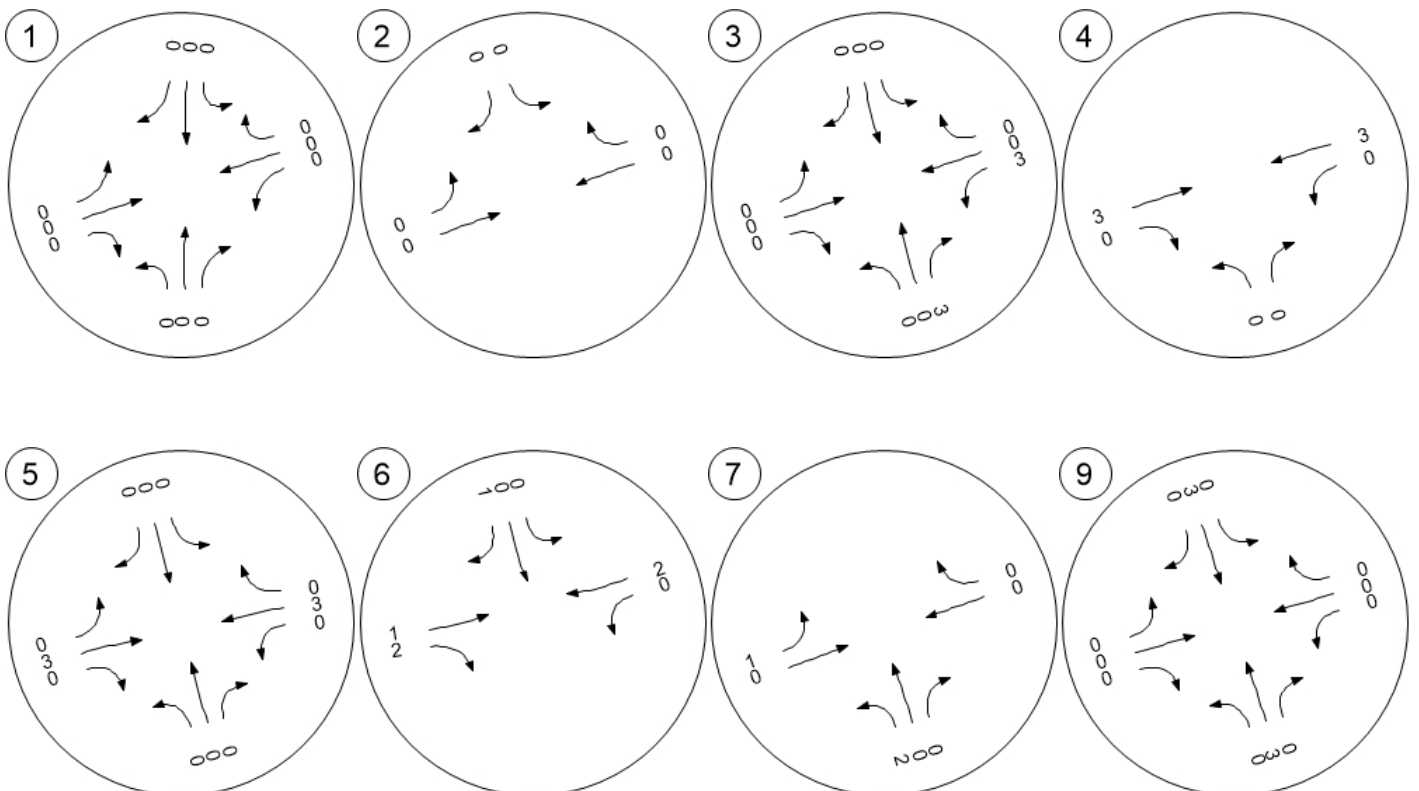
Fair Share - Fair Share Volumes - Zone 23



Fair Share - Fair Share Volumes - Zone 23

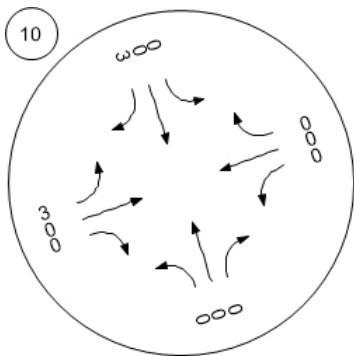


Fair Share - Fair Share Volumes - Zone 24

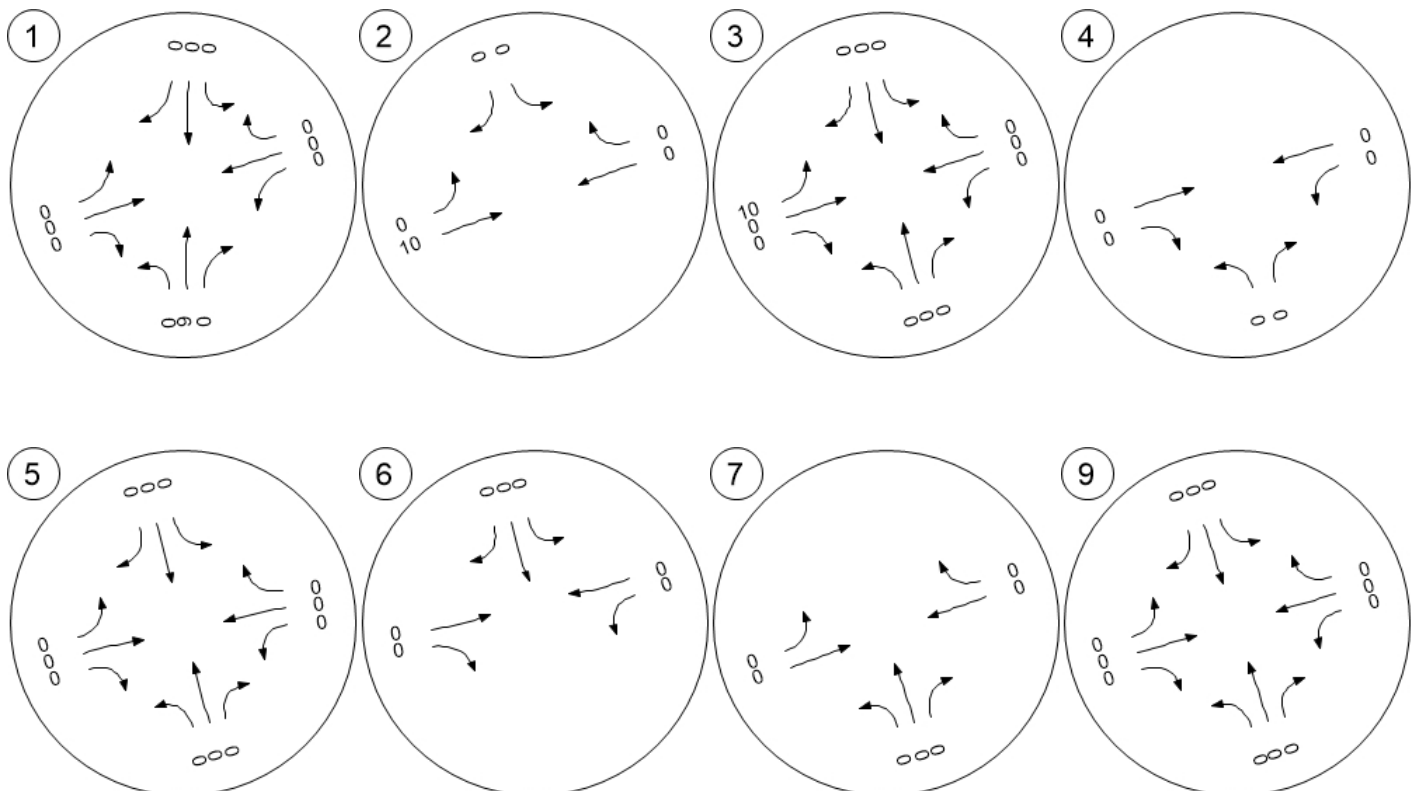




Fair Share - Fair Share Volumes - Zone 24

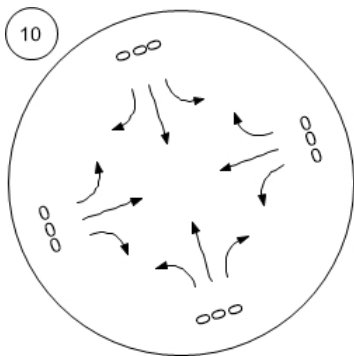


Fair Share - Fair Share Volumes - Zone 25

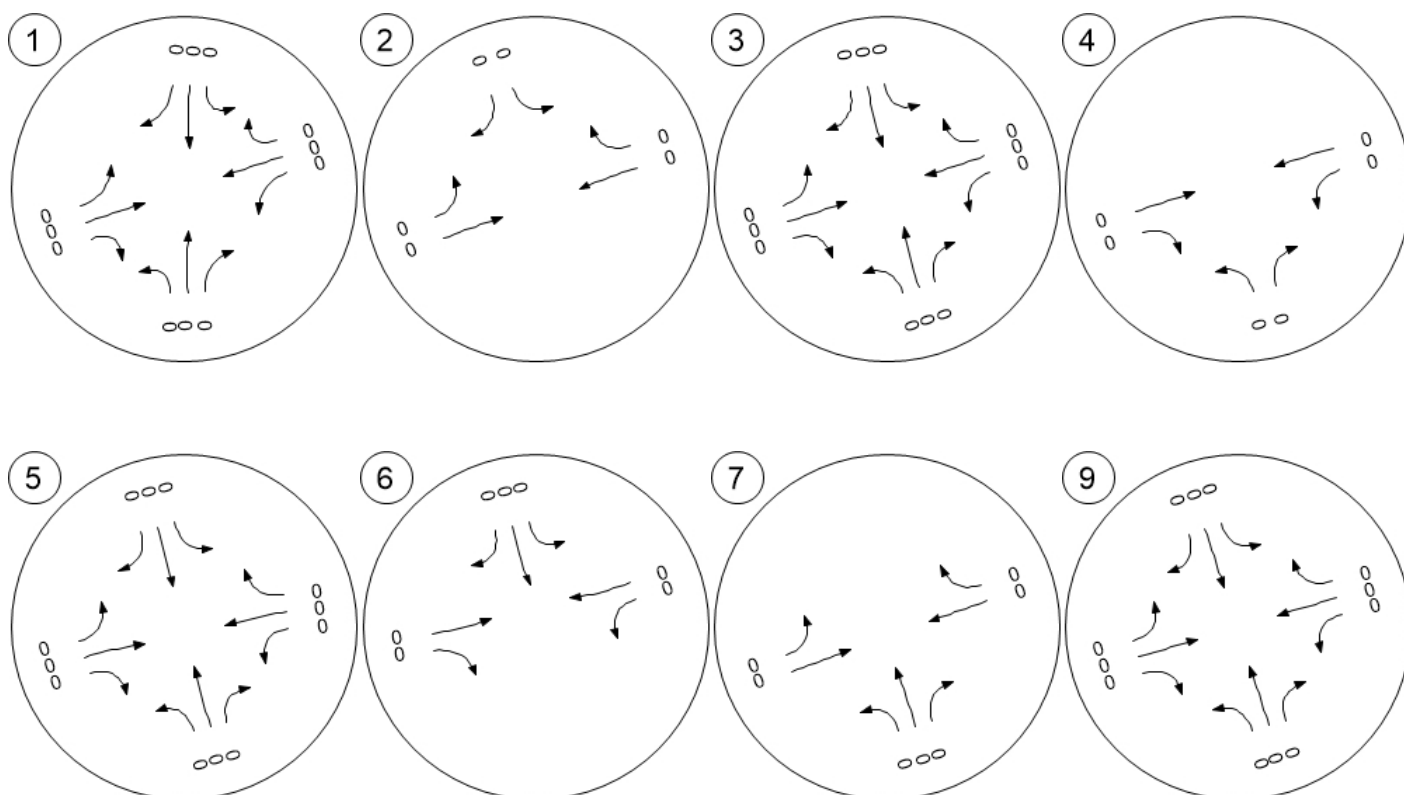




Fair Share - Fair Share Volumes - Zone 25

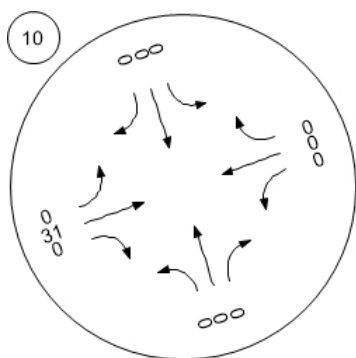


Fair Share - Fair Share Volumes - Zone 26

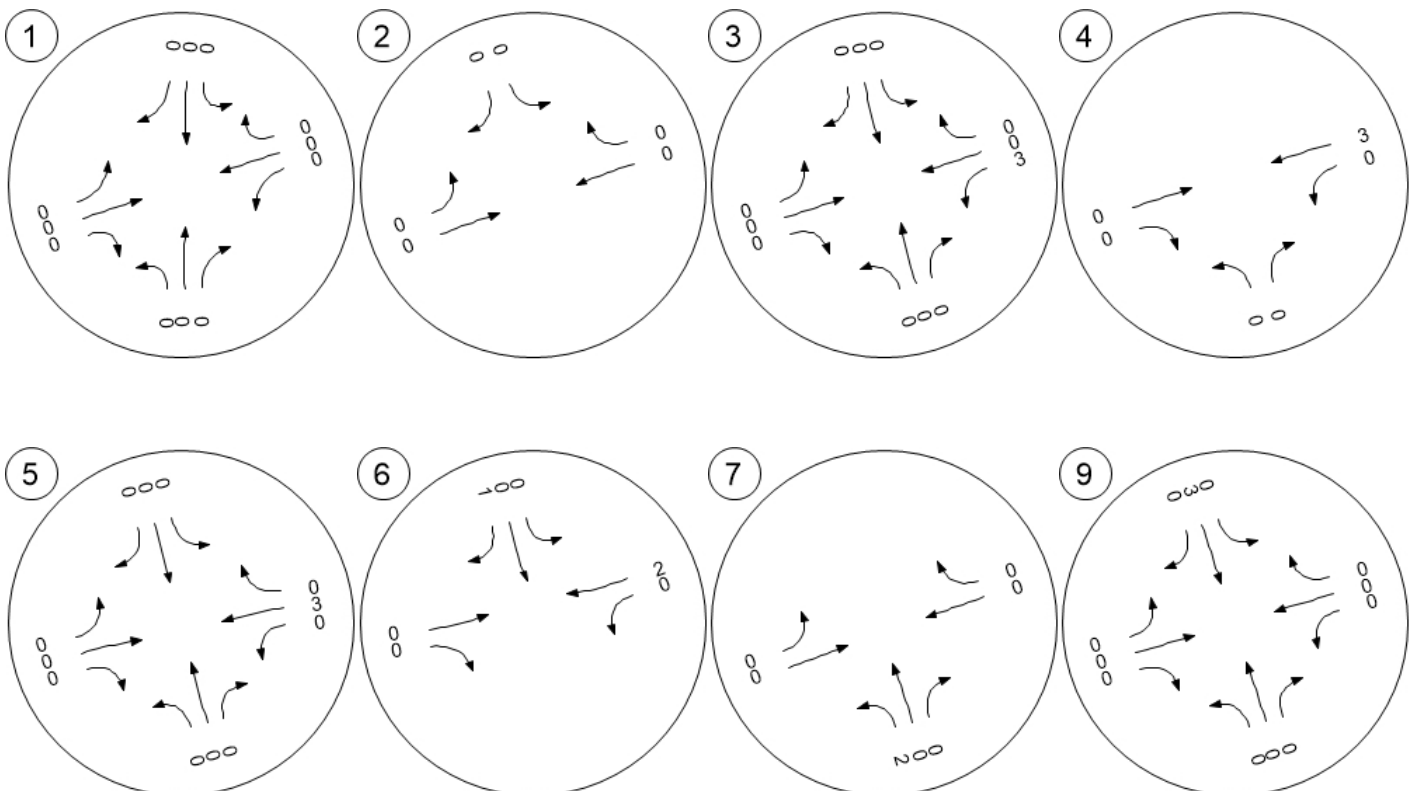




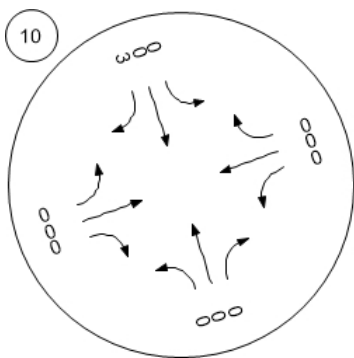
Fair Share - Fair Share Volumes - Zone 26



Fair Share - Fair Share Volumes - Zone 27

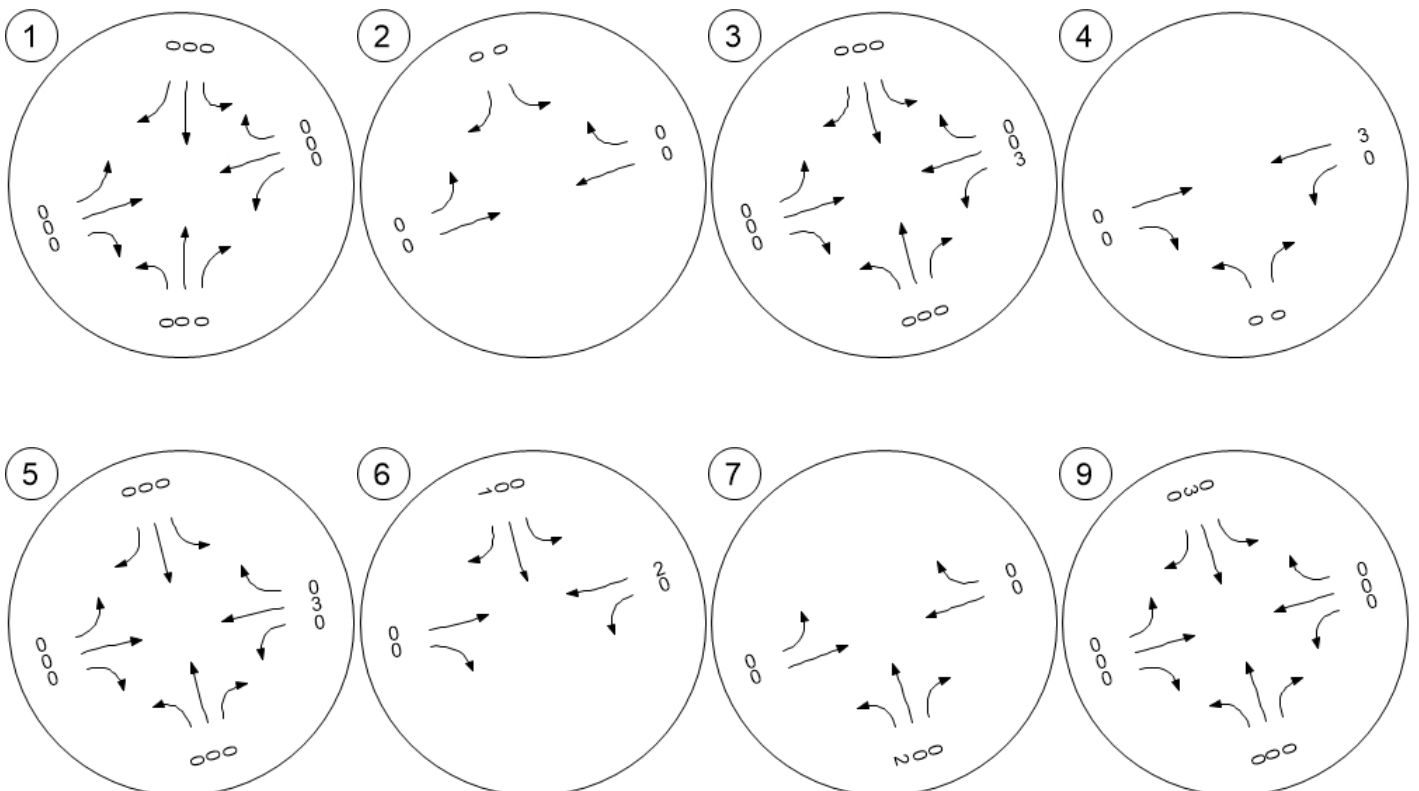


Fair Share - Fair Share Volumes - Zone 27

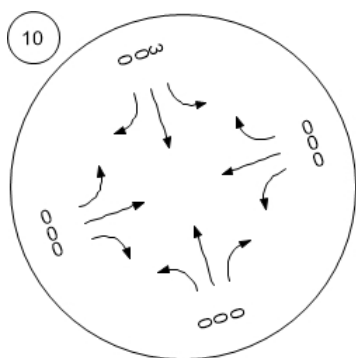




Fair Share - Fair Share Volumes - Zone 28

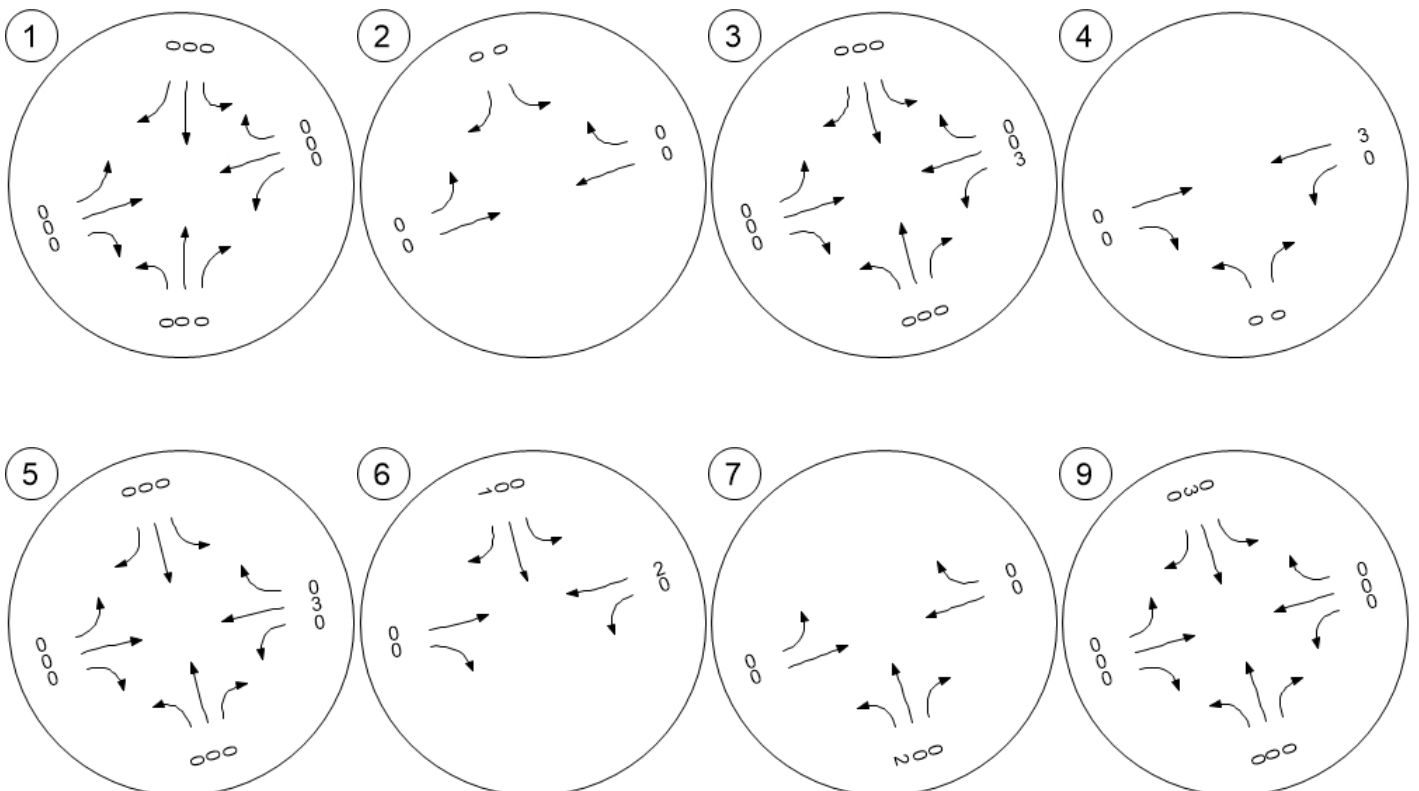


Fair Share - Fair Share Volumes - Zone 28

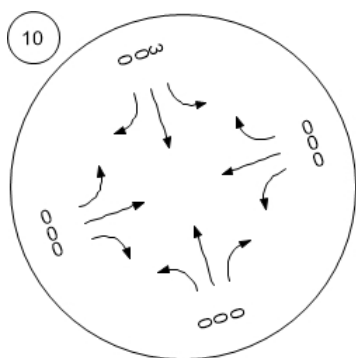
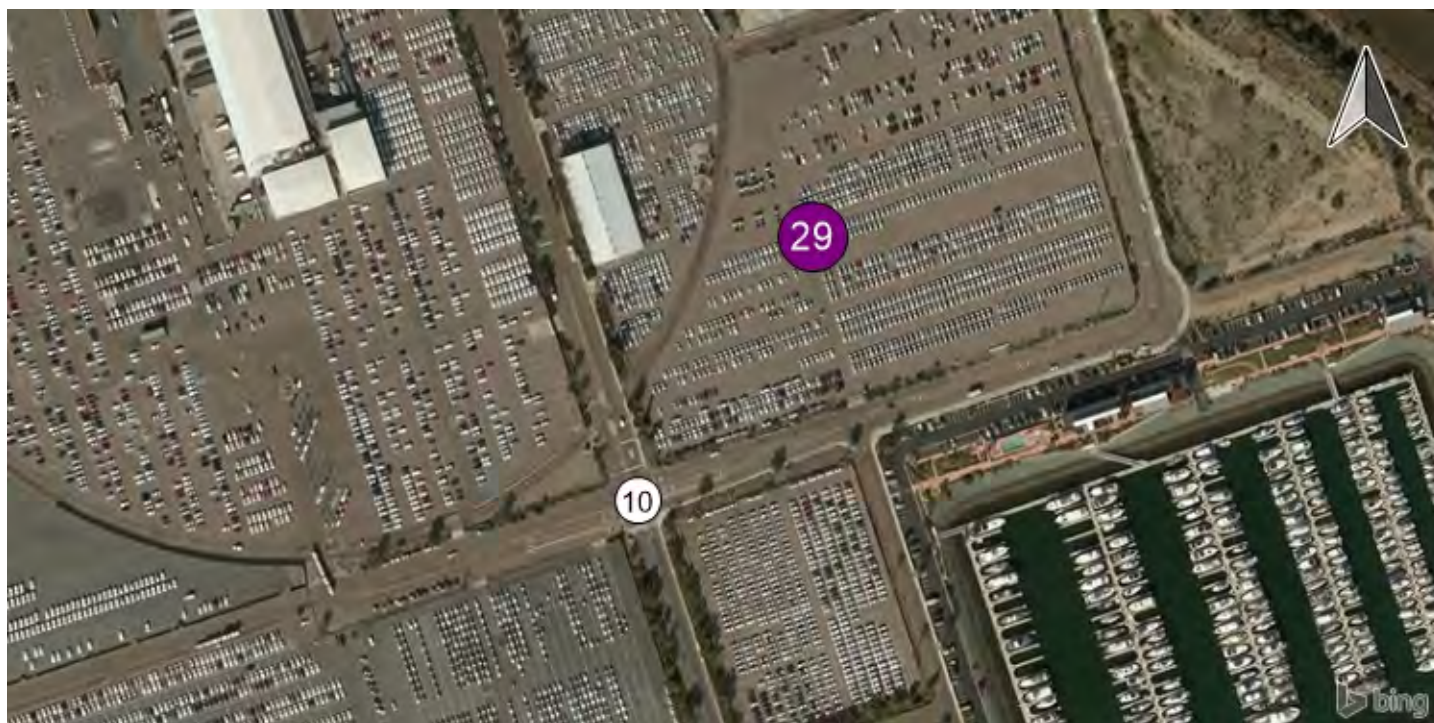




Fair Share - Fair Share Volumes - Zone 29

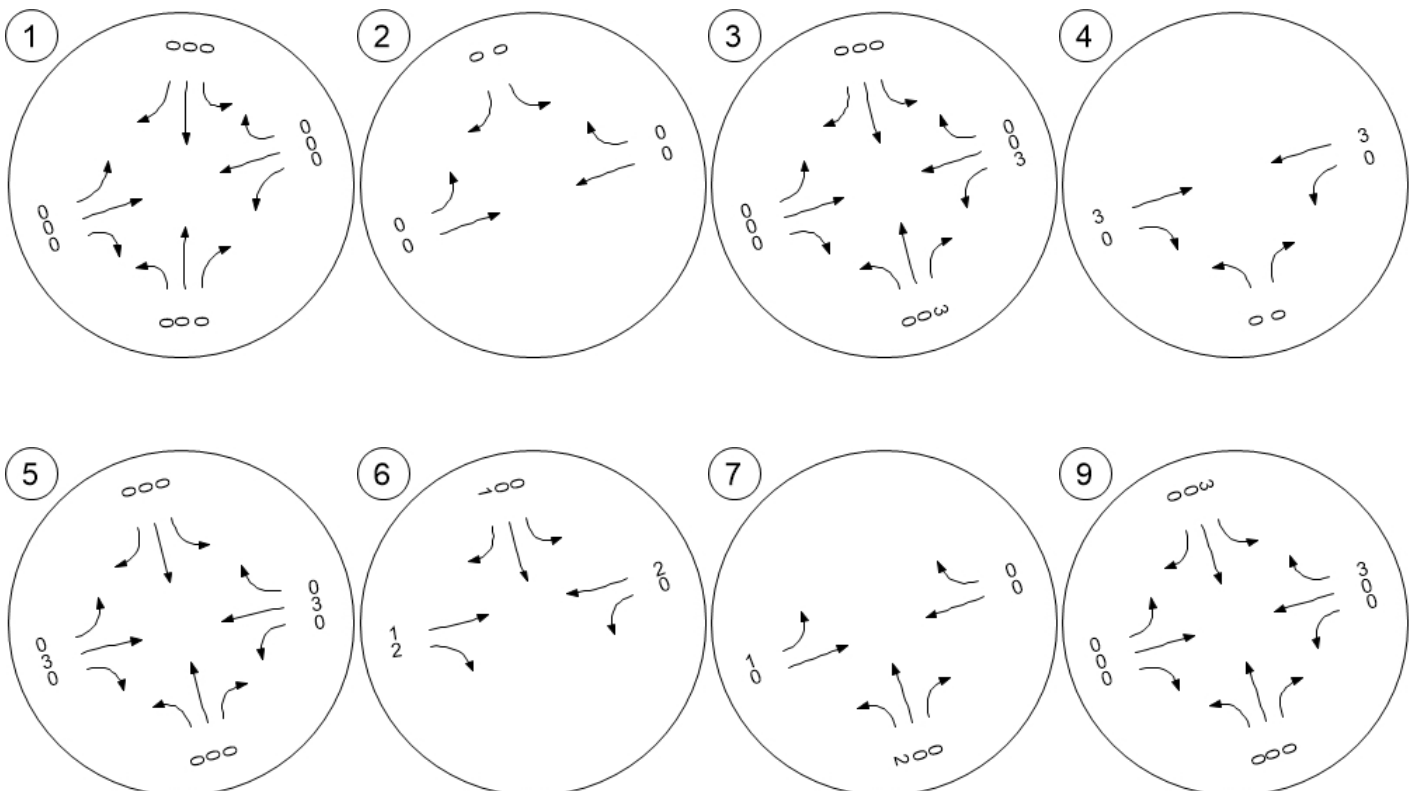


Fair Share - Fair Share Volumes - Zone 29



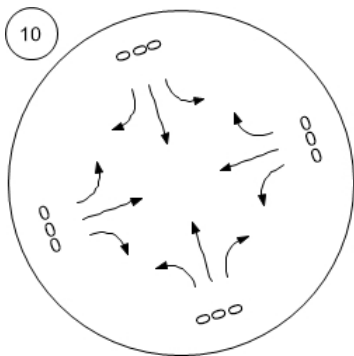


Fair Share - Fair Share Volumes - Zone 32

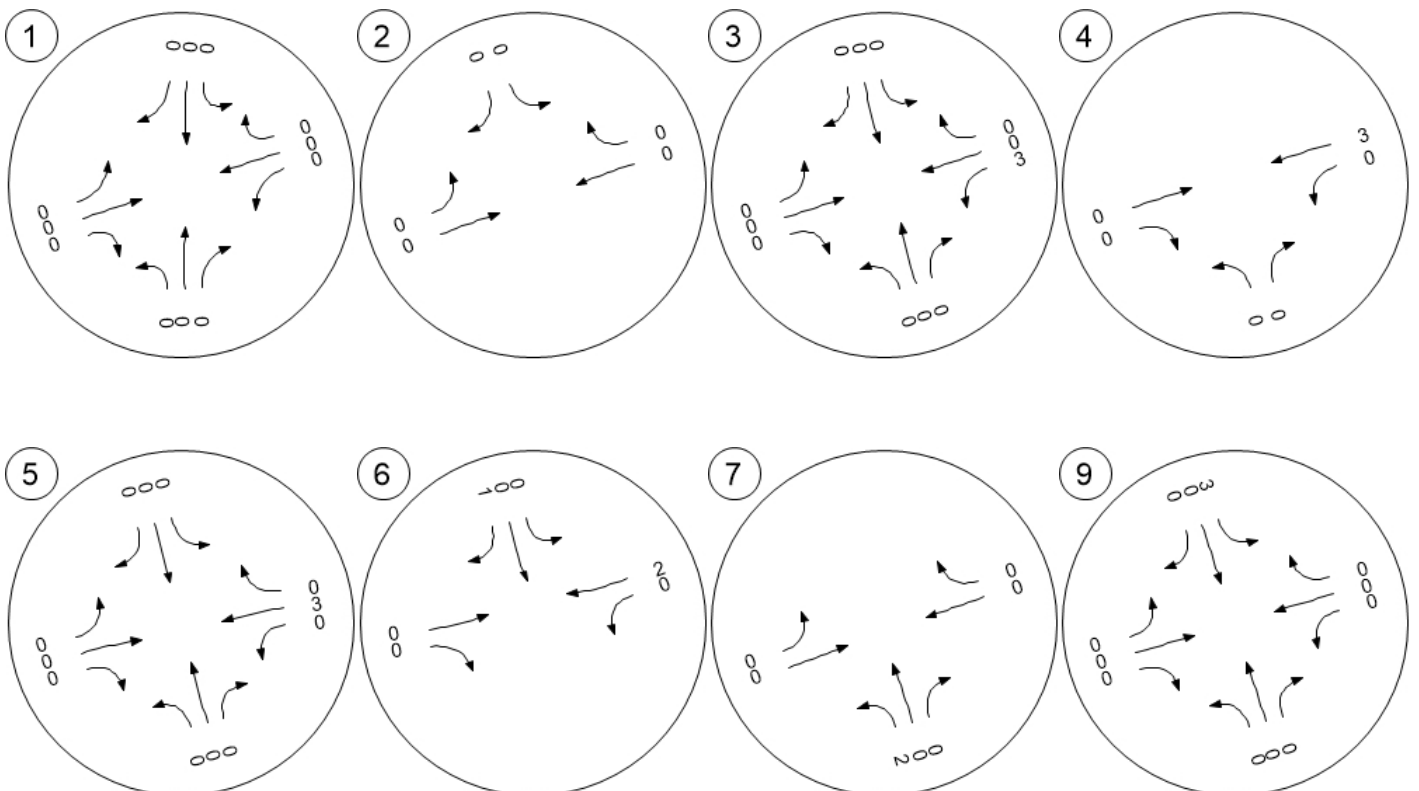




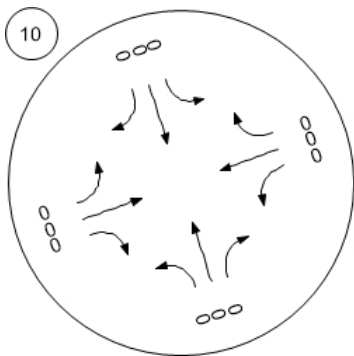
Fair Share - Fair Share Volumes - Zone 32



Fair Share - Fair Share Volumes - Zone 33

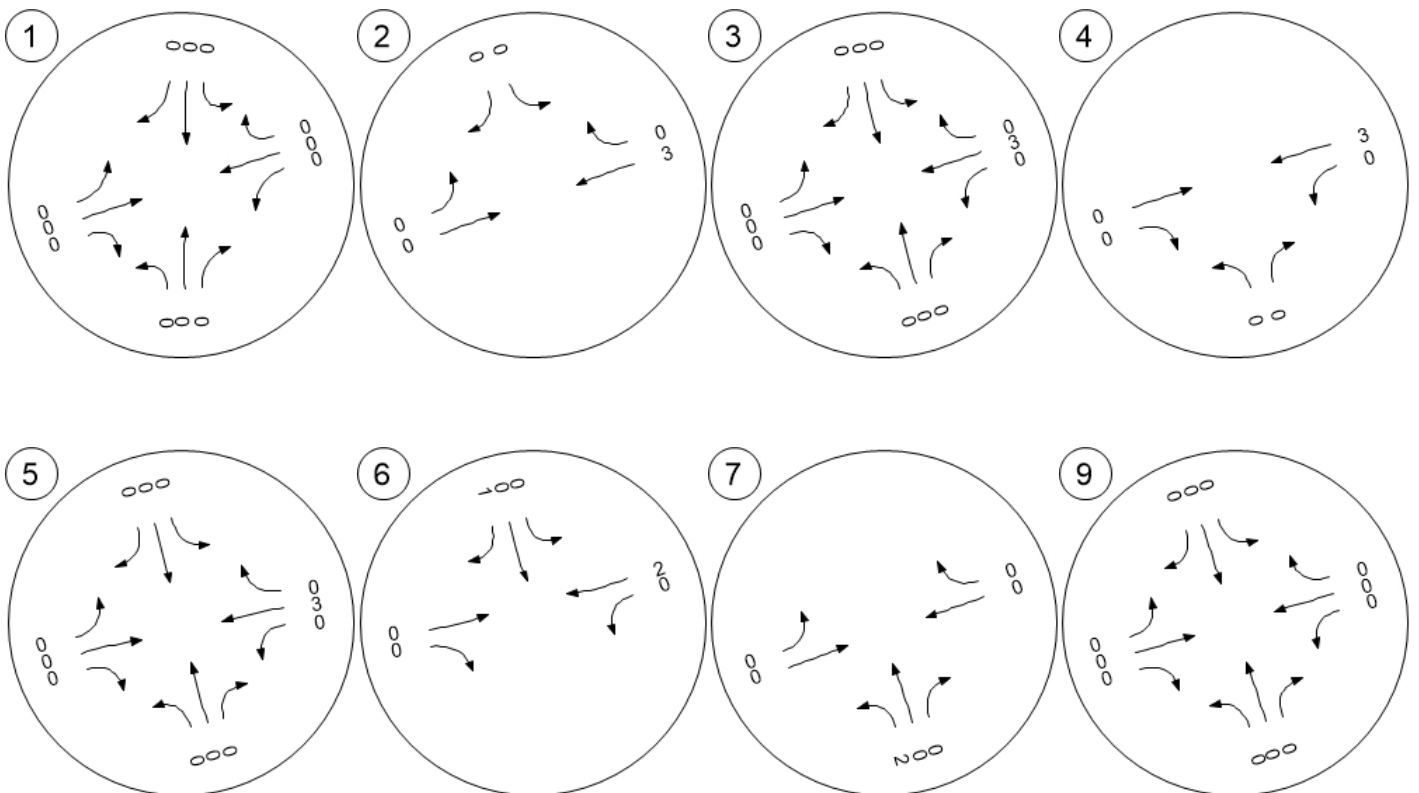


Fair Share - Fair Share Volumes - Zone 33

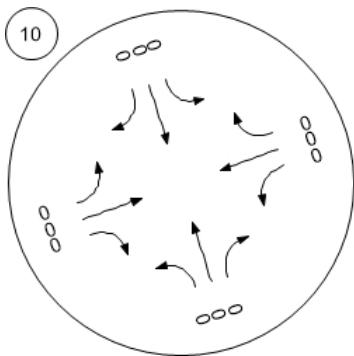




Fair Share - Fair Share Volumes - Zone 34

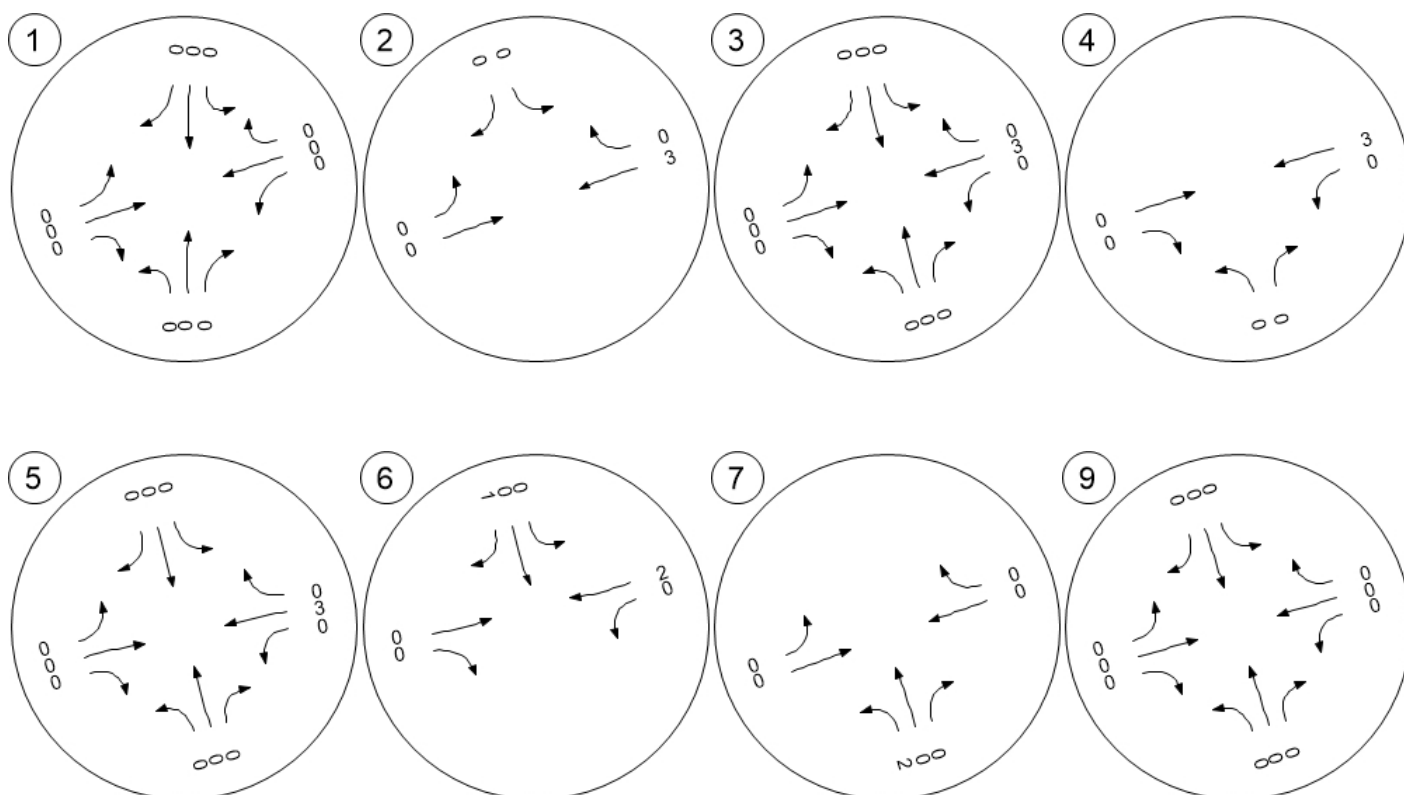


Fair Share - Fair Share Volumes - Zone 34

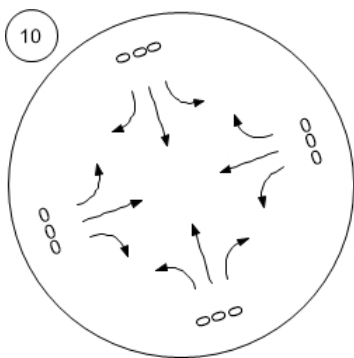




Fair Share - Fair Share Volumes - Zone 35

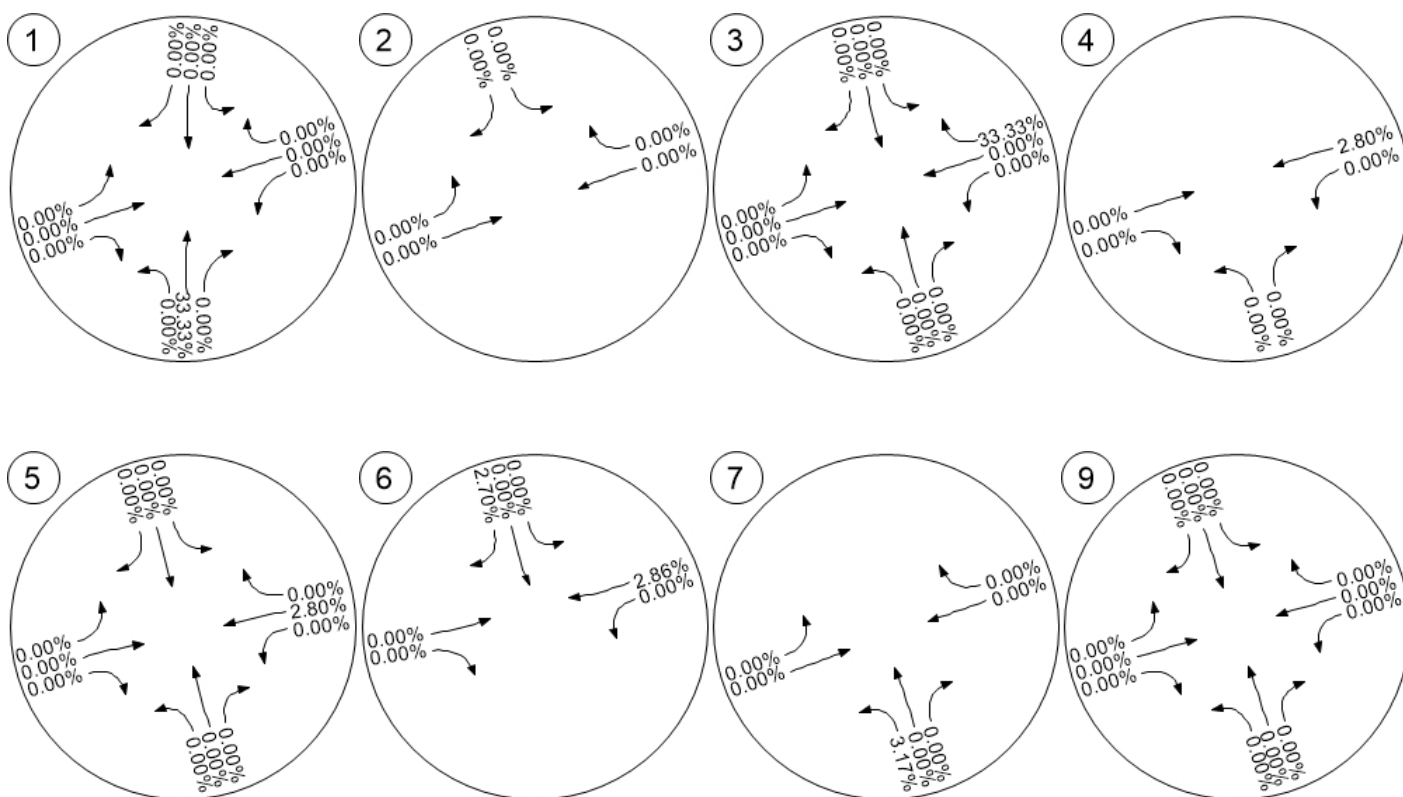


Fair Share - Fair Share Volumes - Zone 35





## Fair Share - Fair Share % of Net New Site - Zone 18

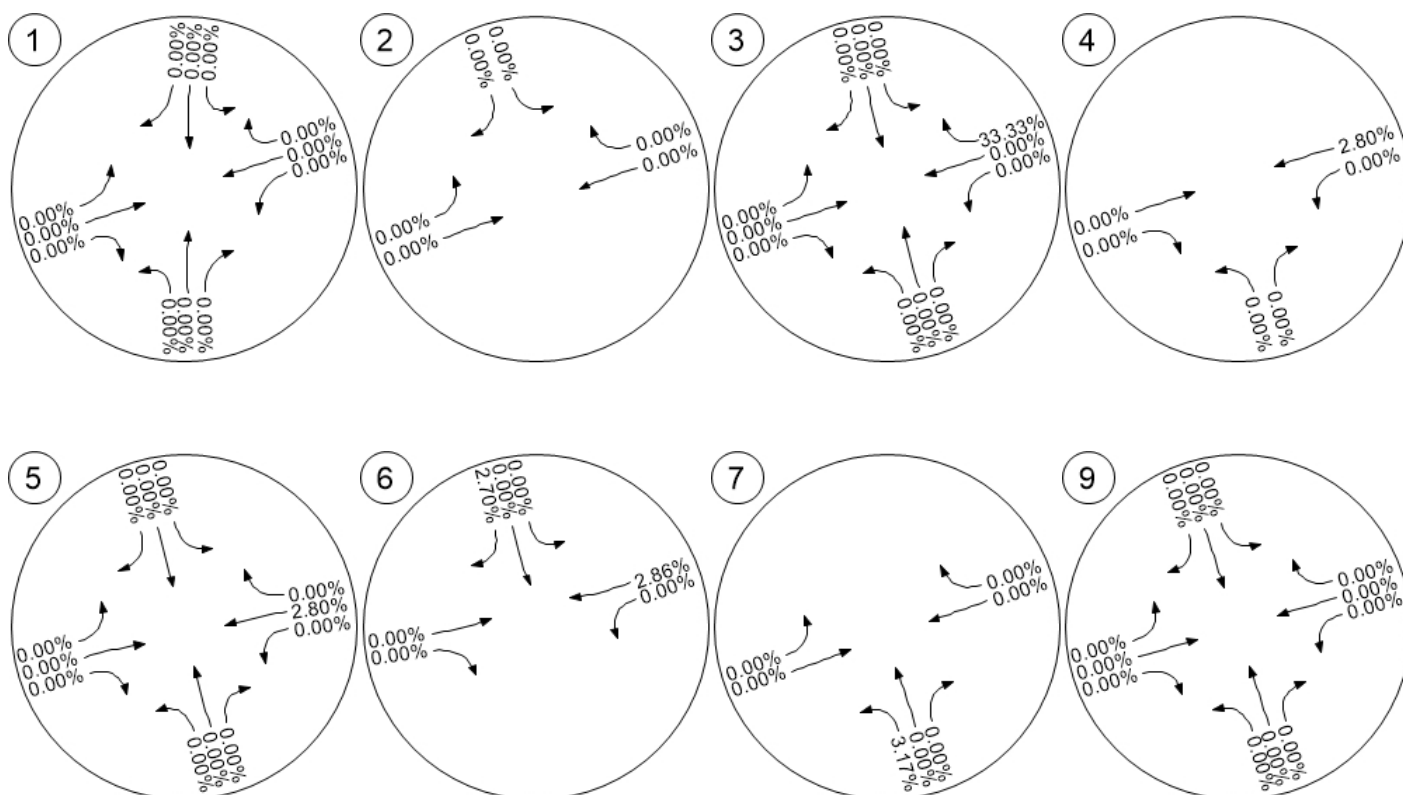


Fair Share - Fair Share % of Net New Site - Zone 18



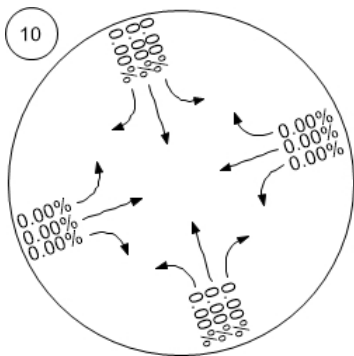


Fair Share - Fair Share % of Net New Site - Zone 19

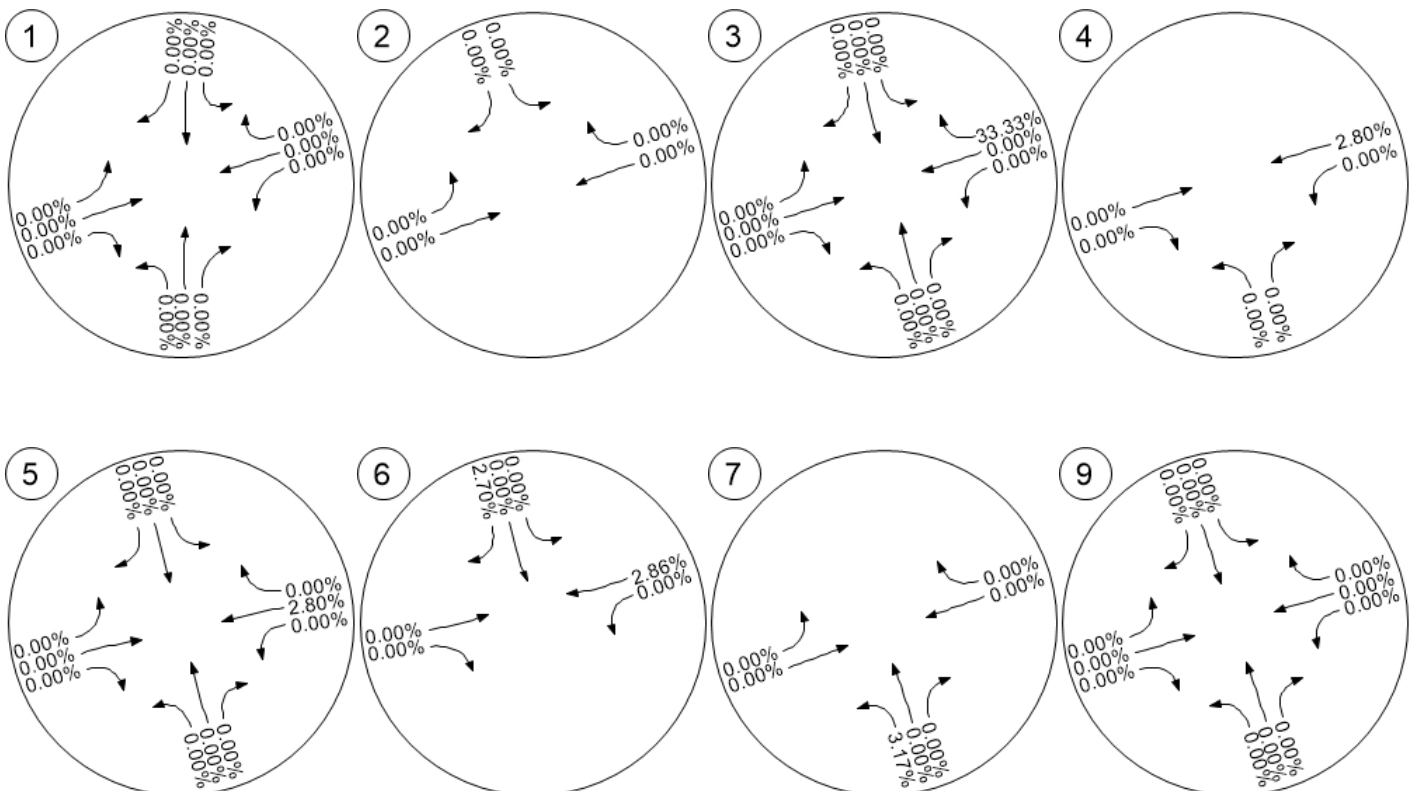




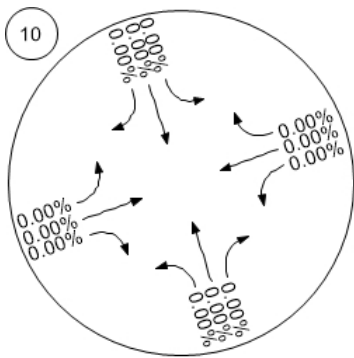
Fair Share - Fair Share % of Net New Site - Zone 19



Fair Share - Fair Share % of Net New Site - Zone 20

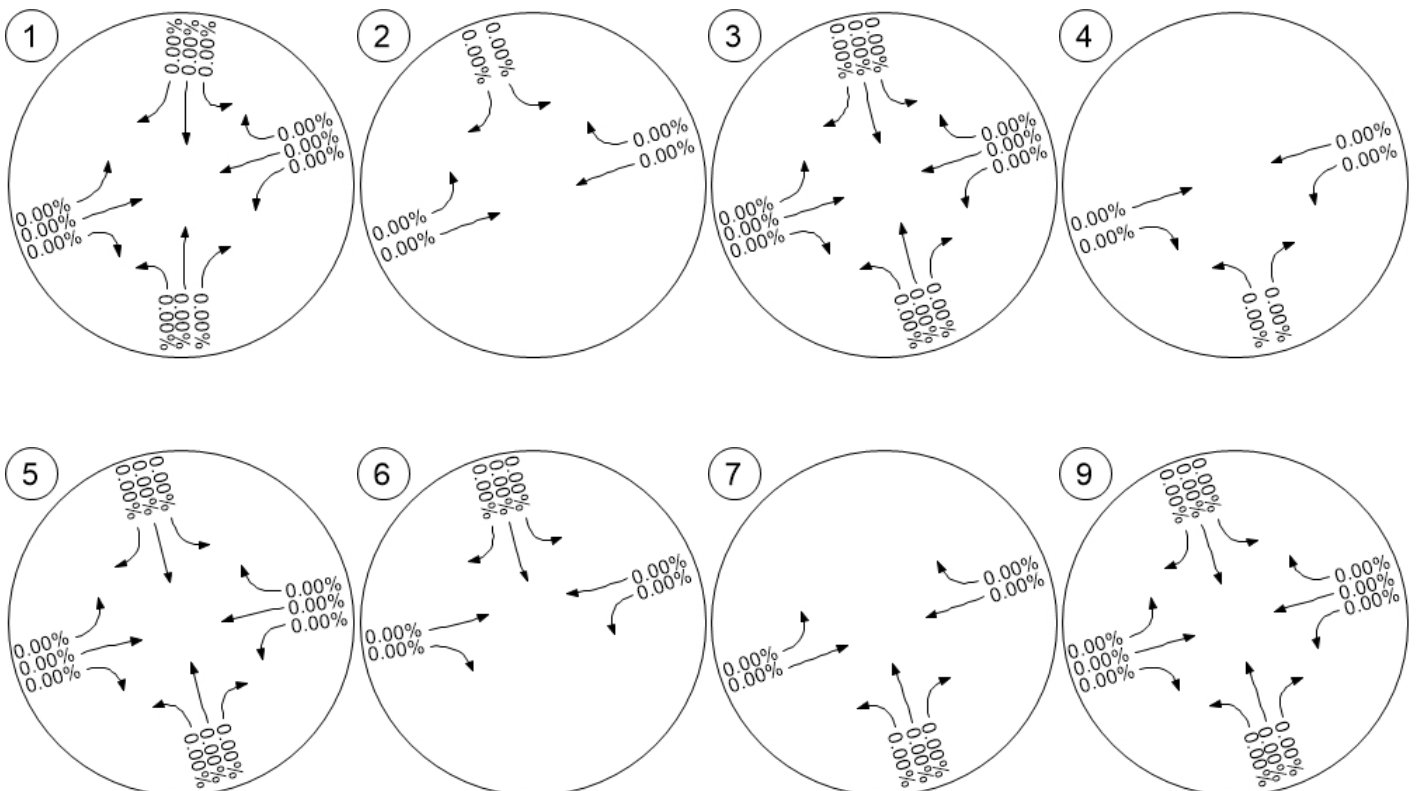


Fair Share - Fair Share % of Net New Site - Zone 20





Fair Share - Fair Share % of Net New Site - Zone 21

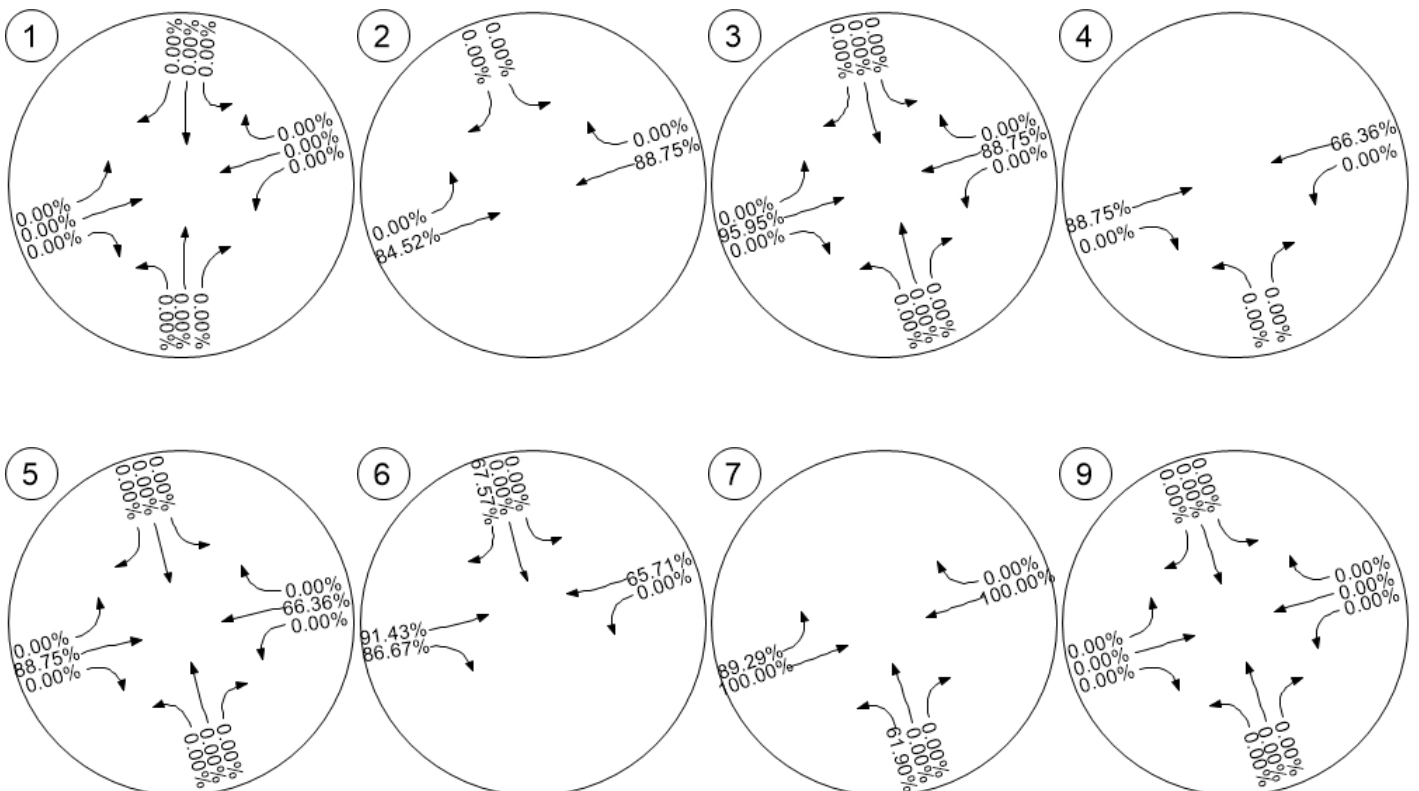


Fair Share - Fair Share % of Net New Site - Zone 21





Fair Share - Fair Share % of Net New Site - Zone 22

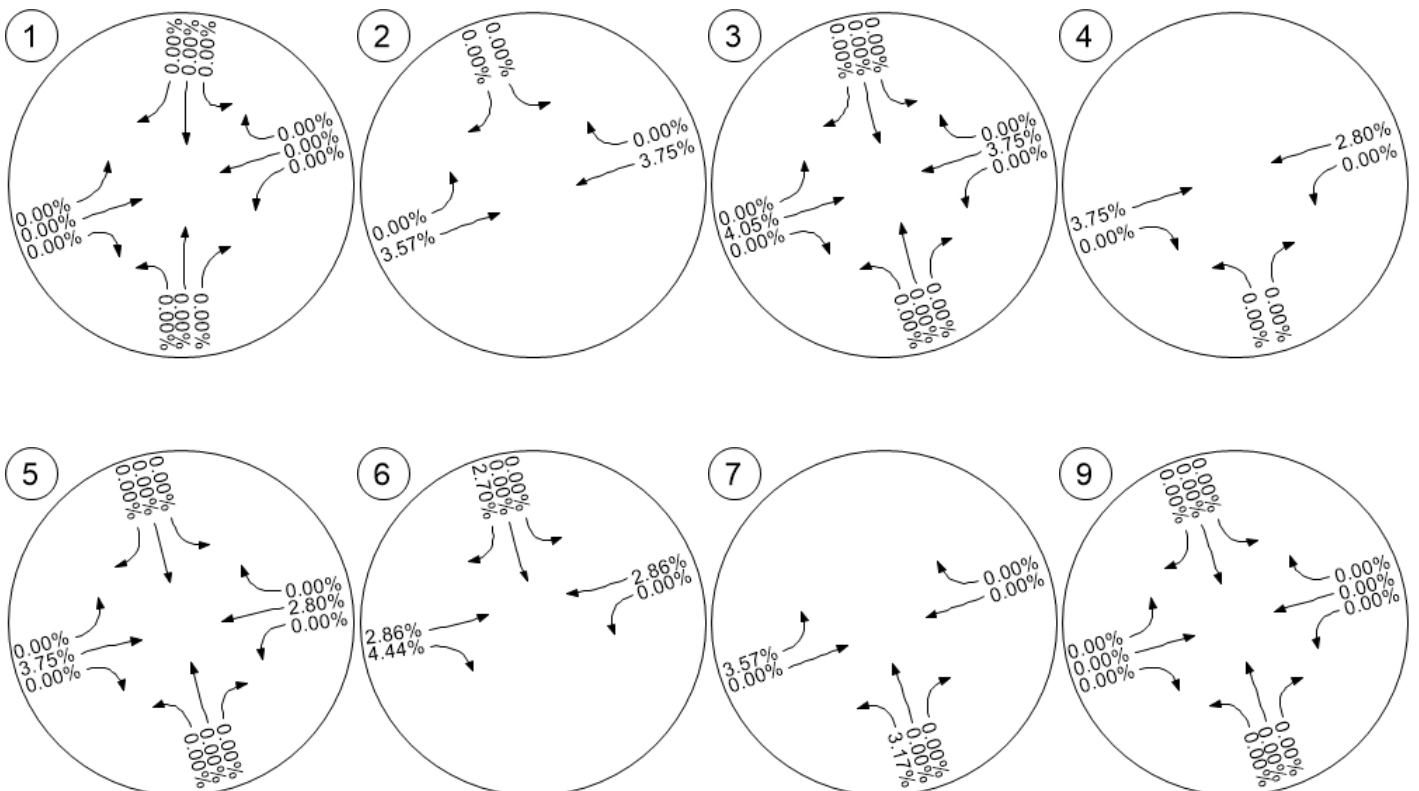


Fair Share - Fair Share % of Net New Site - Zone 22

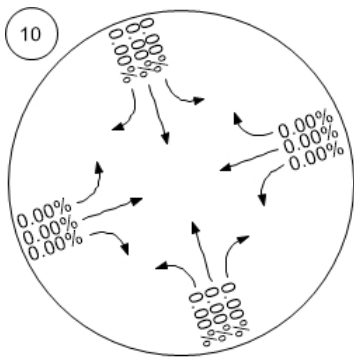




Fair Share - Fair Share % of Net New Site - Zone 23

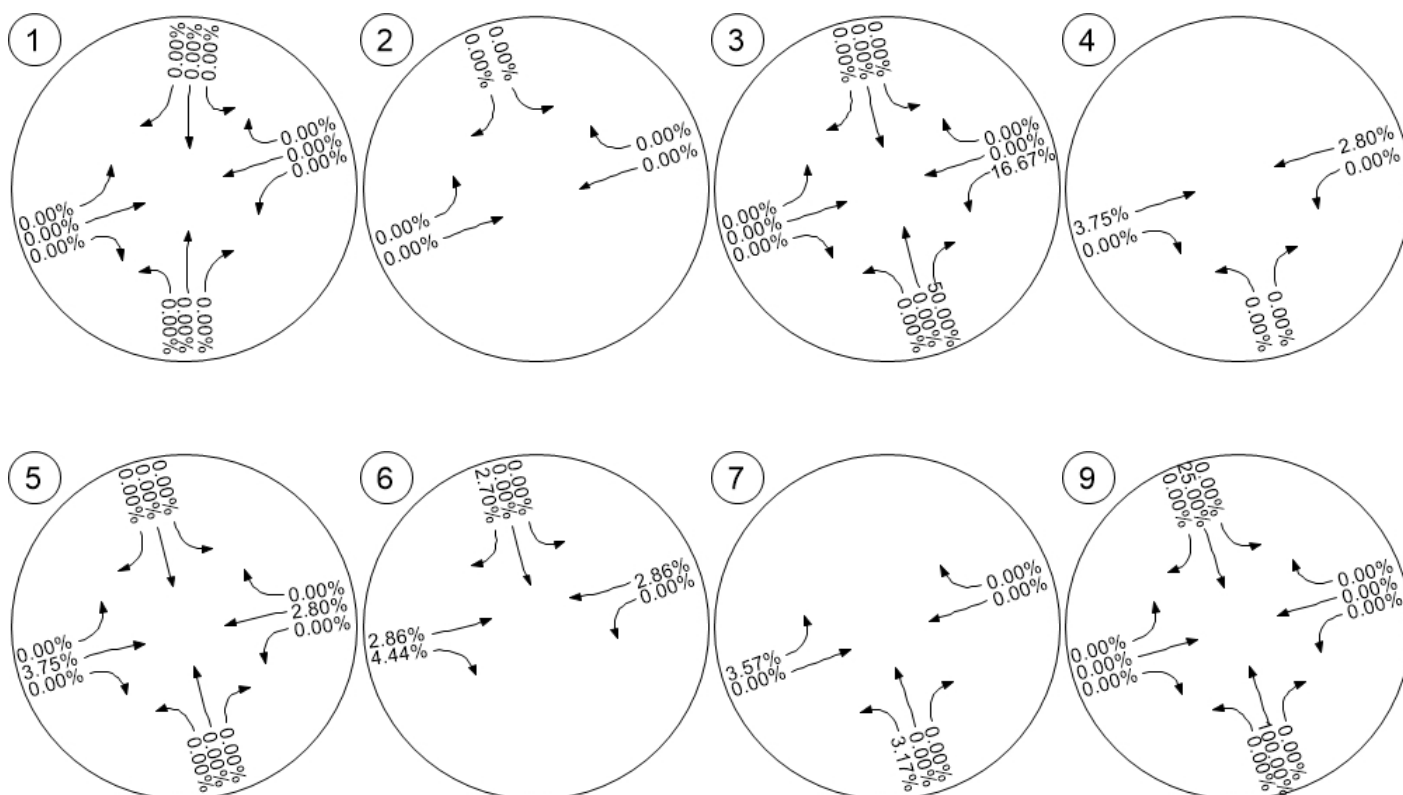


Fair Share - Fair Share % of Net New Site - Zone 23

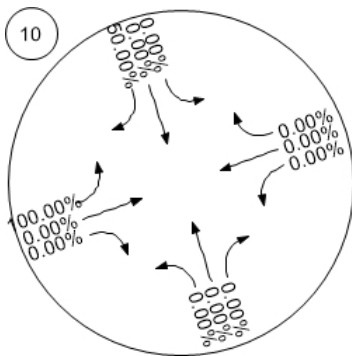




Fair Share - Fair Share % of Net New Site - Zone 24

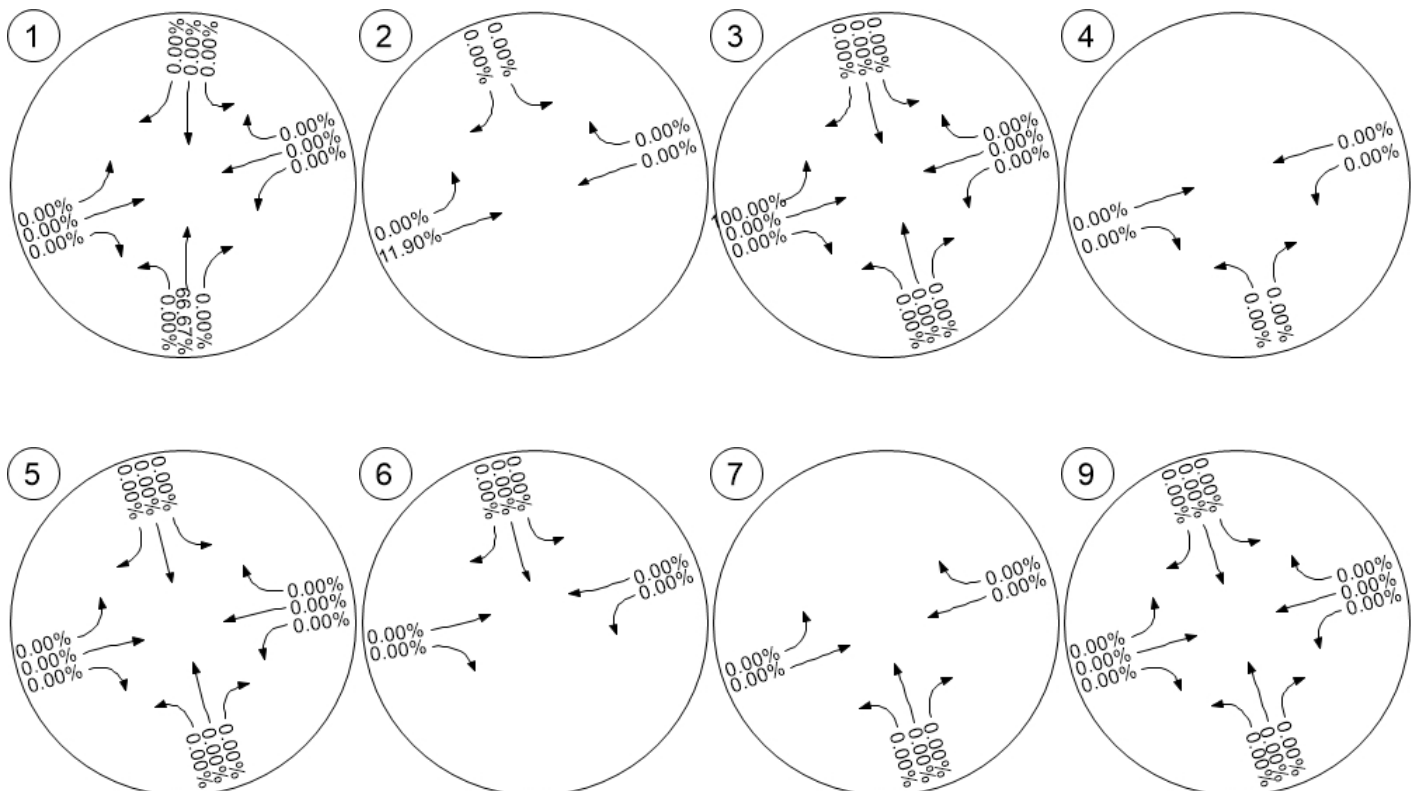


Fair Share - Fair Share % of Net New Site - Zone 24





Fair Share - Fair Share % of Net New Site - Zone 25

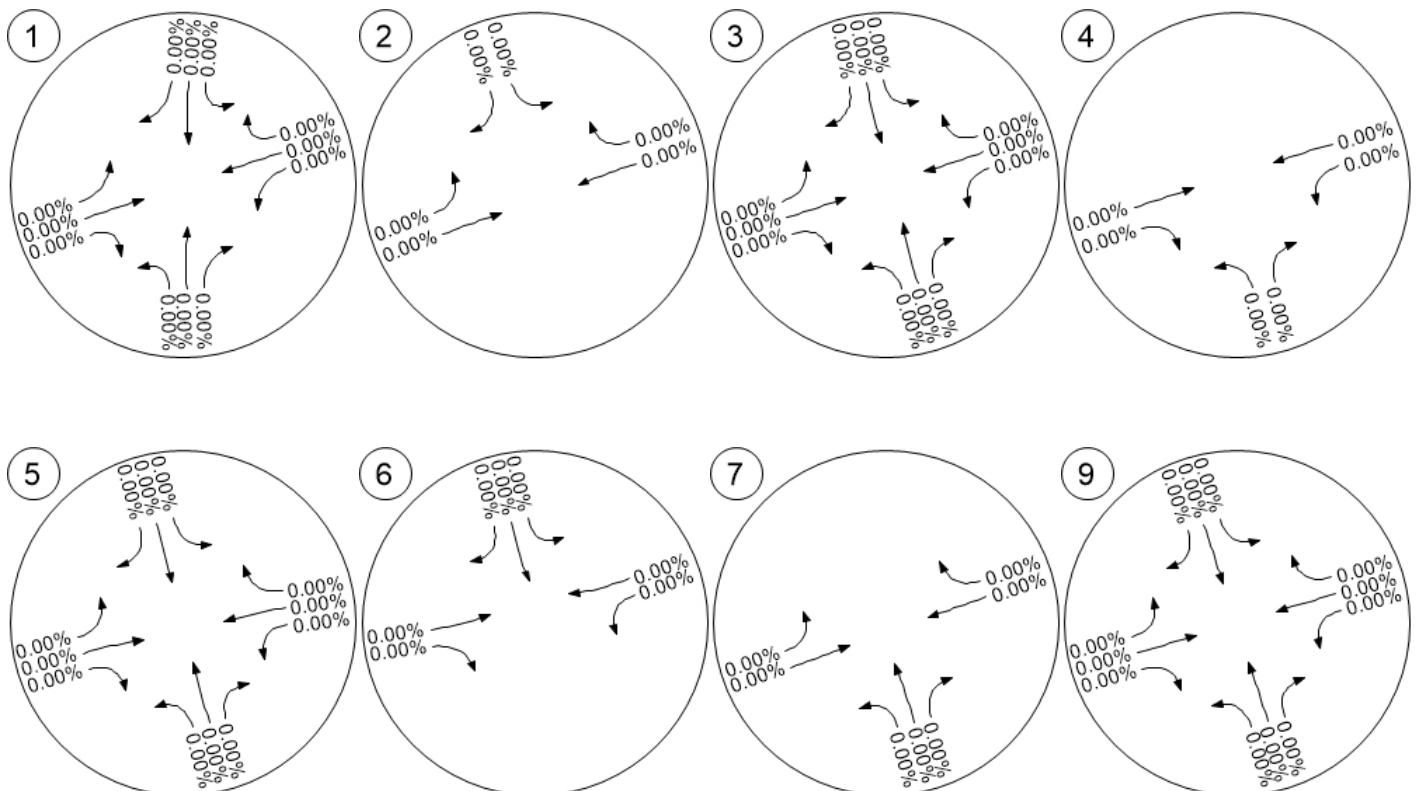


Fair Share - Fair Share % of Net New Site - Zone 25

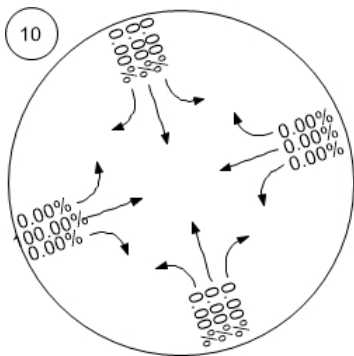




Fair Share - Fair Share % of Net New Site - Zone 26

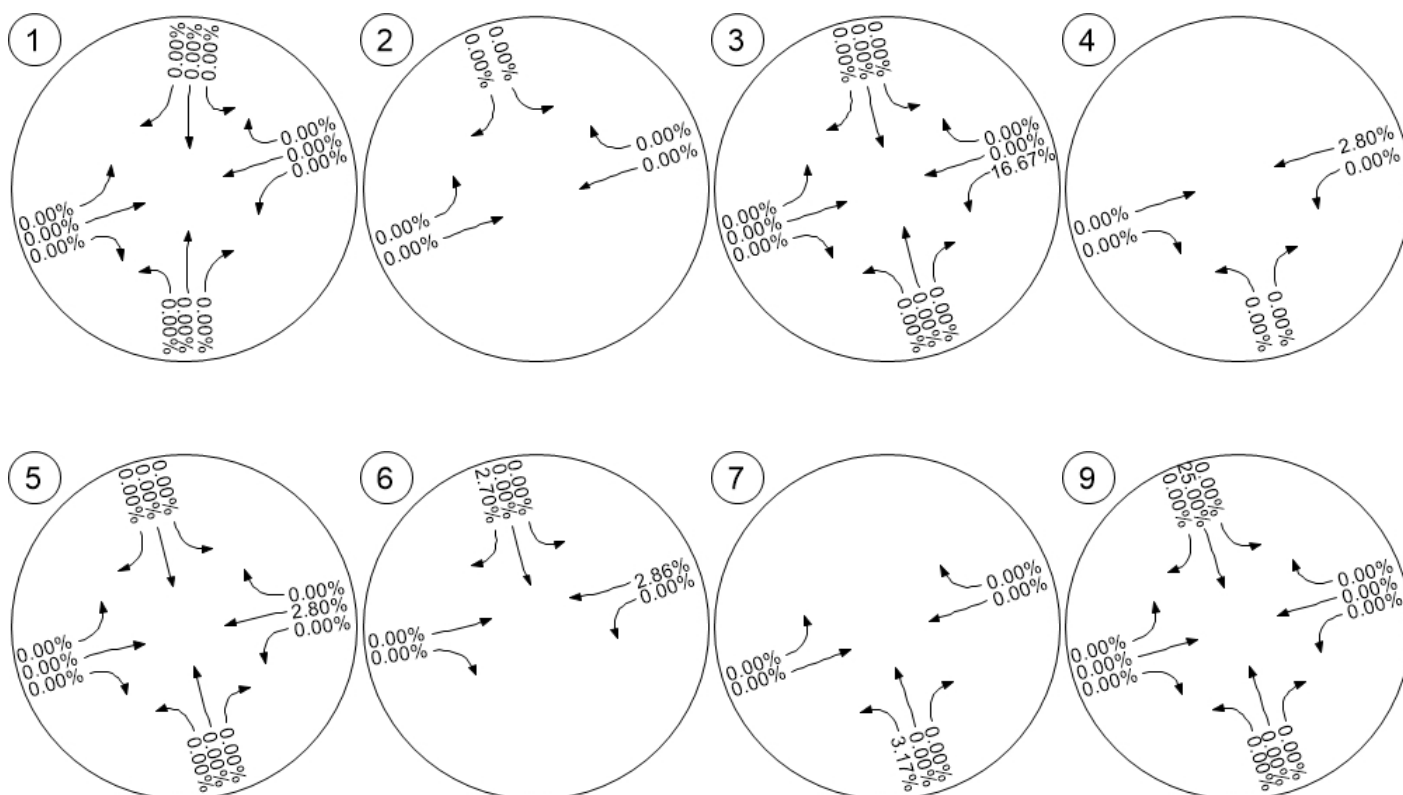


Fair Share - Fair Share % of Net New Site - Zone 26

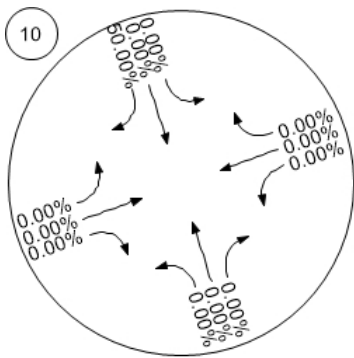




Fair Share - Fair Share % of Net New Site - Zone 27

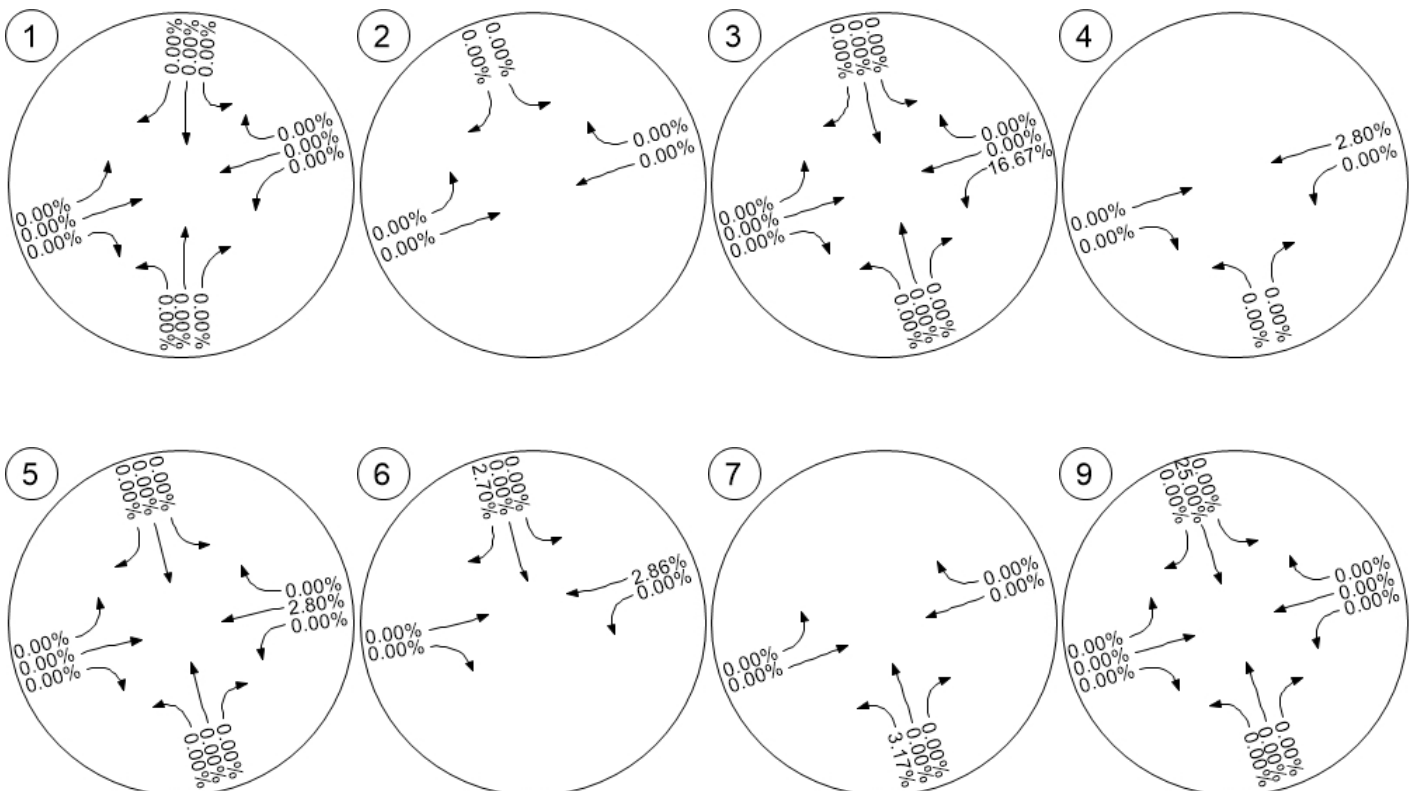


Fair Share - Fair Share % of Net New Site - Zone 27

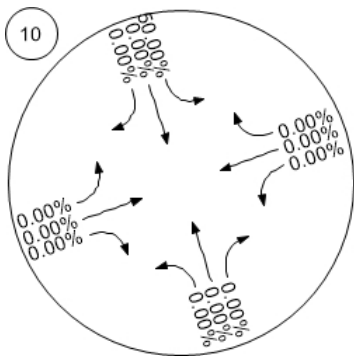




Fair Share - Fair Share % of Net New Site - Zone 28

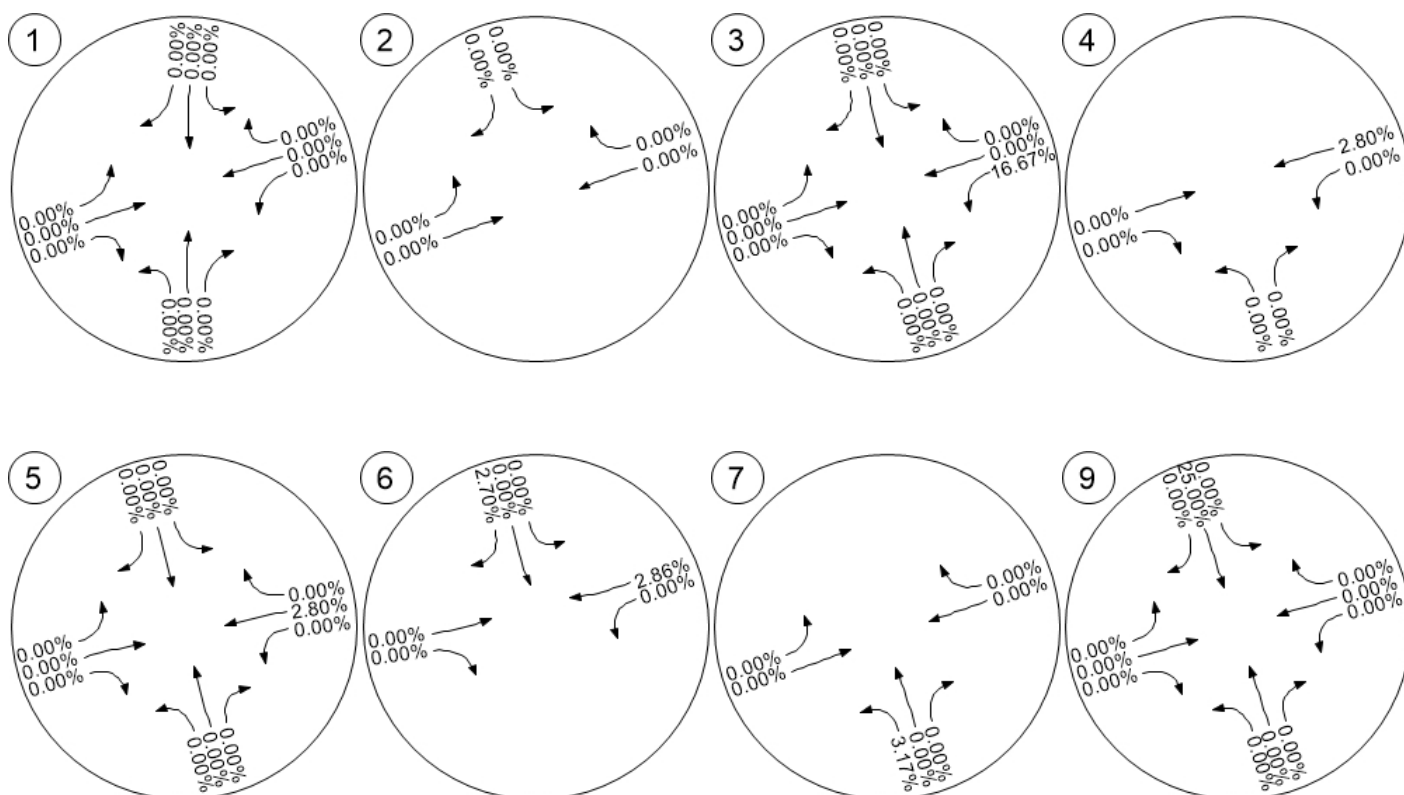


Fair Share - Fair Share % of Net New Site - Zone 28

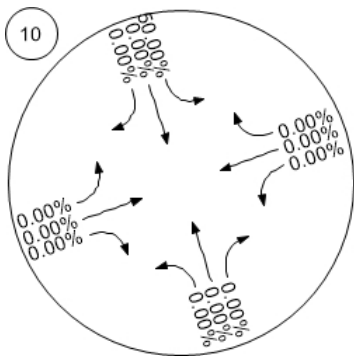




Fair Share - Fair Share % of Net New Site - Zone 29

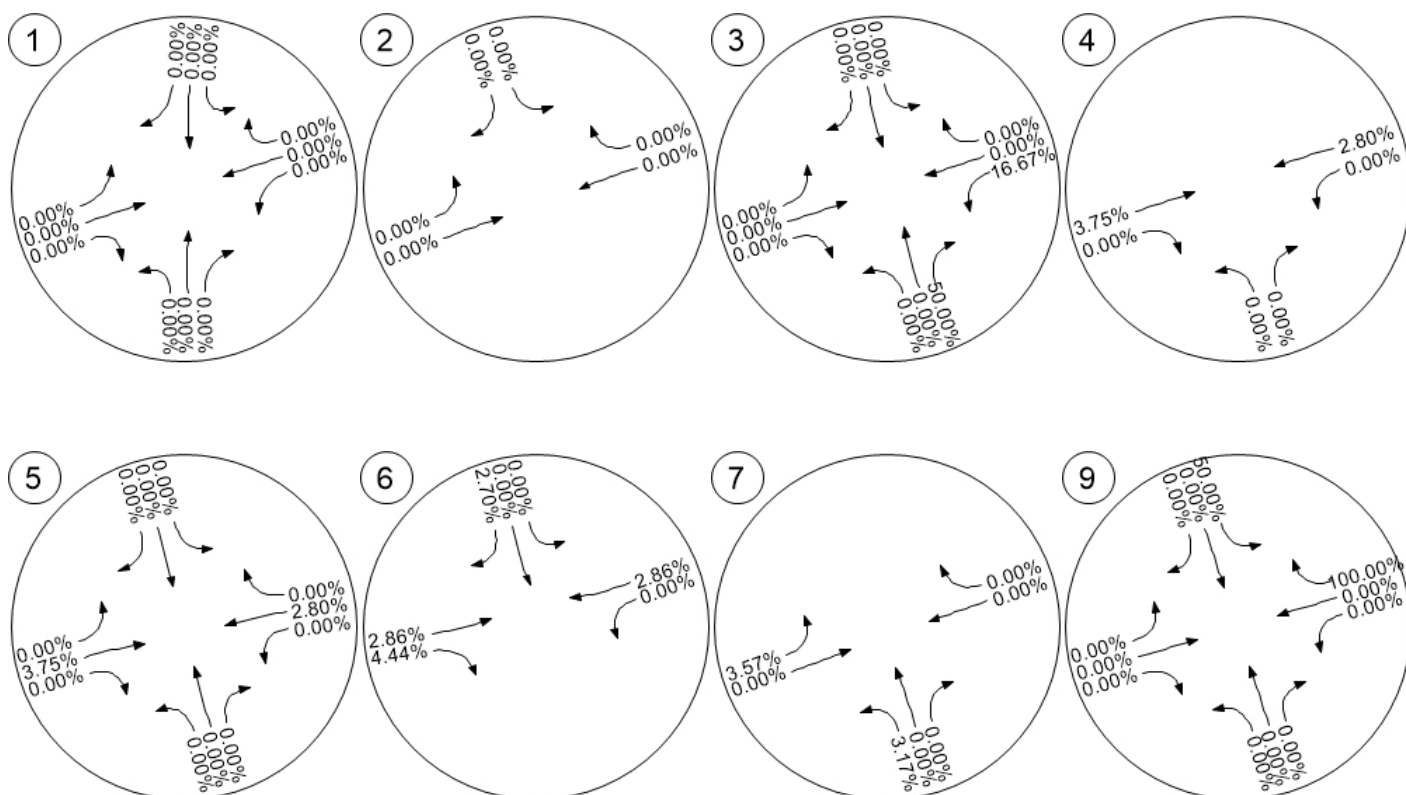


Fair Share - Fair Share % of Net New Site - Zone 29





Fair Share - Fair Share % of Net New Site - Zone 32

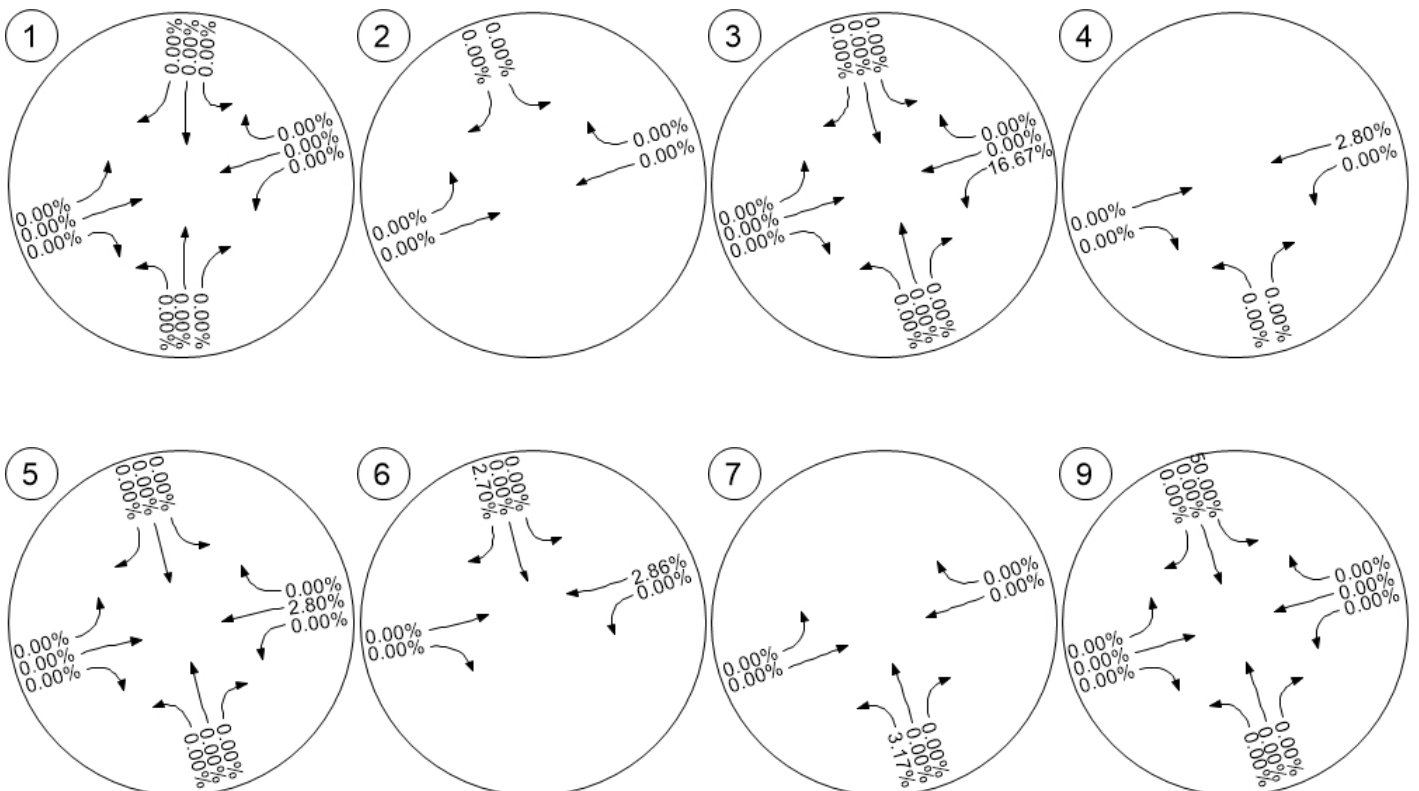


Fair Share - Fair Share % of Net New Site - Zone 32

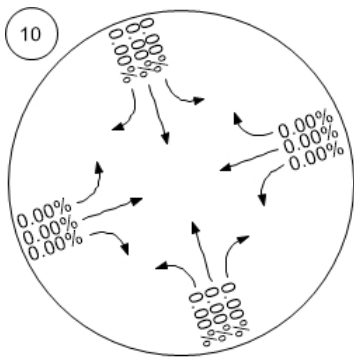




Fair Share - Fair Share % of Net New Site - Zone 33

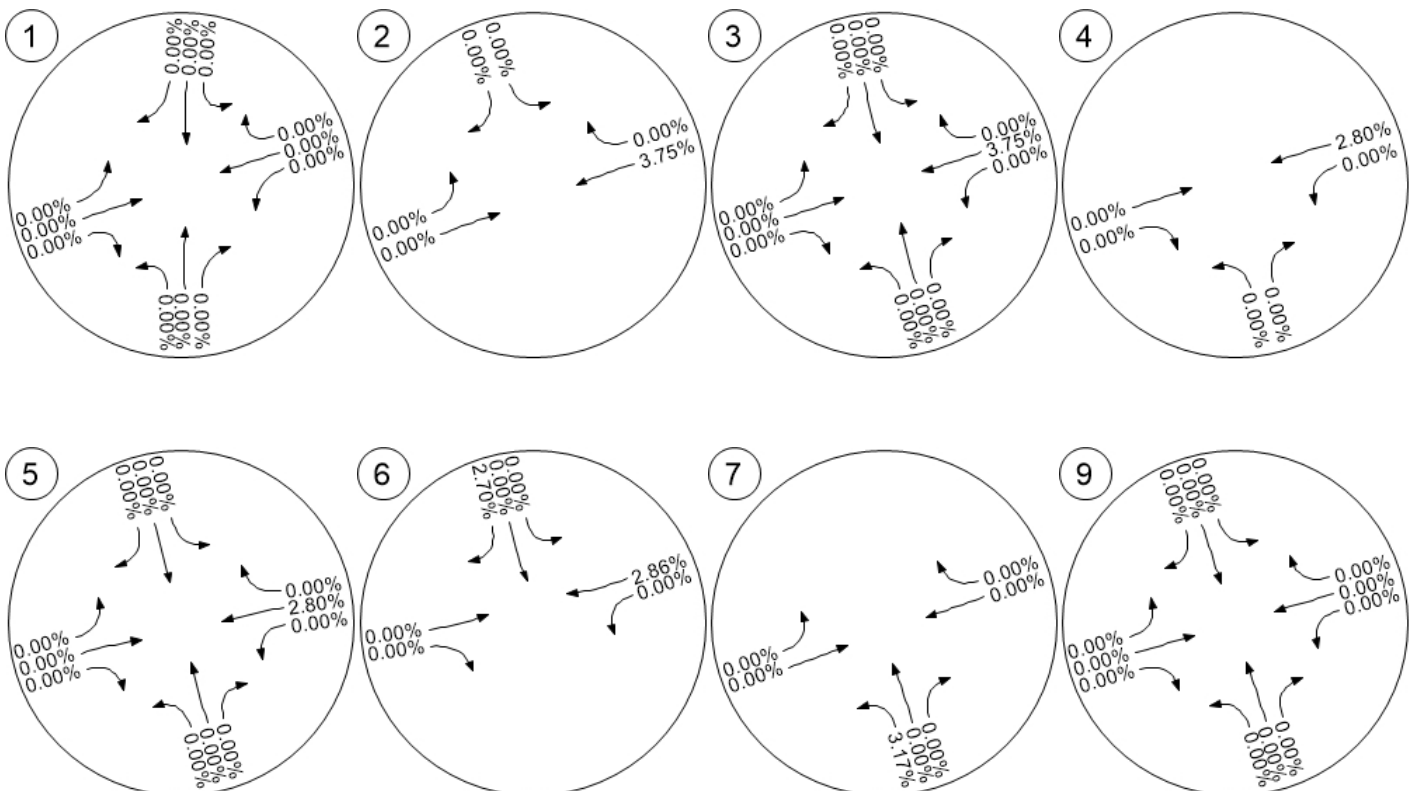


Fair Share - Fair Share % of Net New Site - Zone 33





Fair Share - Fair Share % of Net New Site - Zone 34

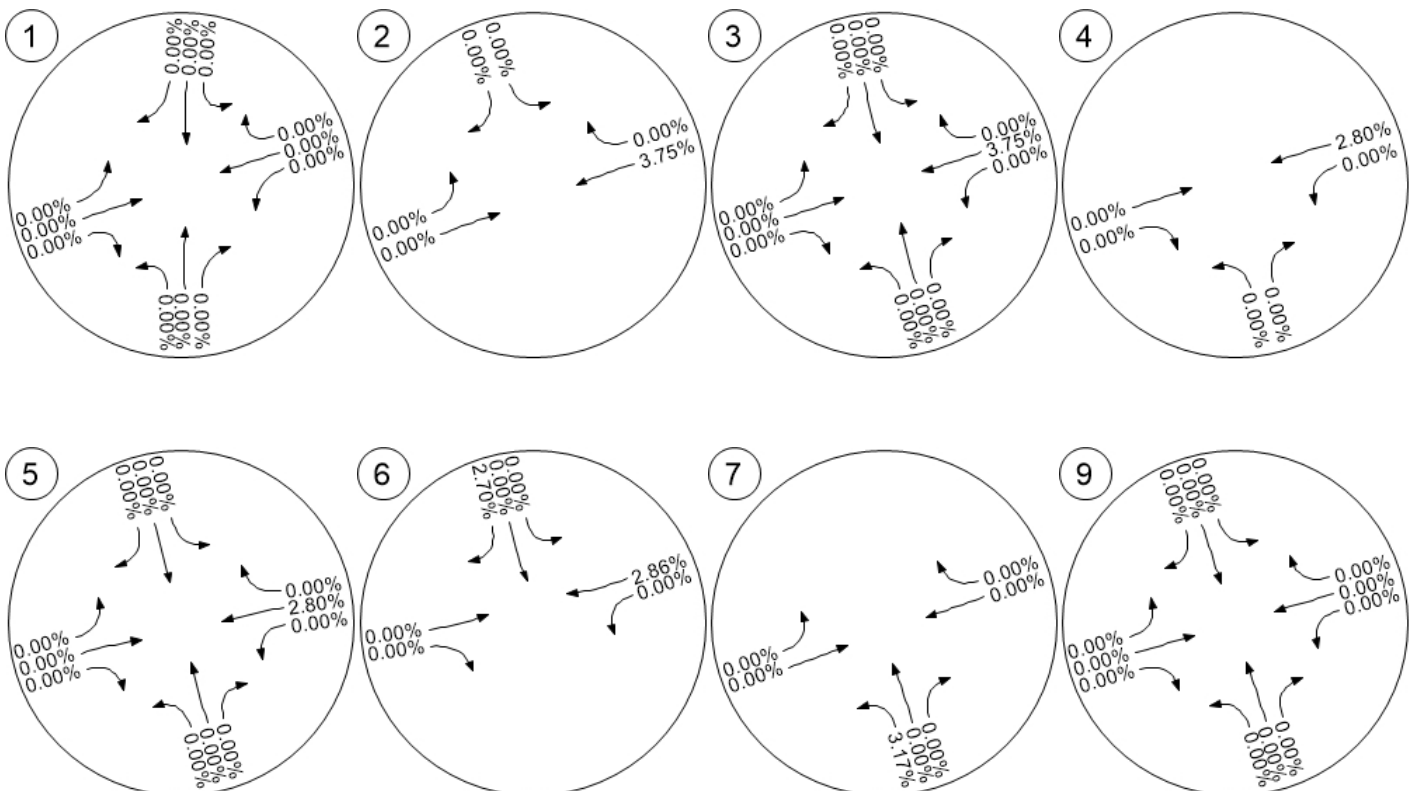


Fair Share - Fair Share % of Net New Site - Zone 34

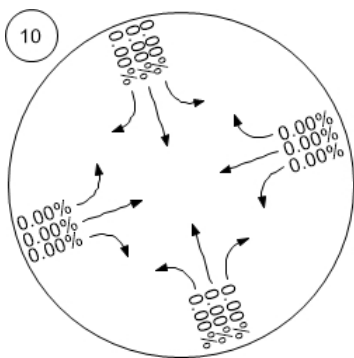




Fair Share - Fair Share % of Net New Site - Zone 35

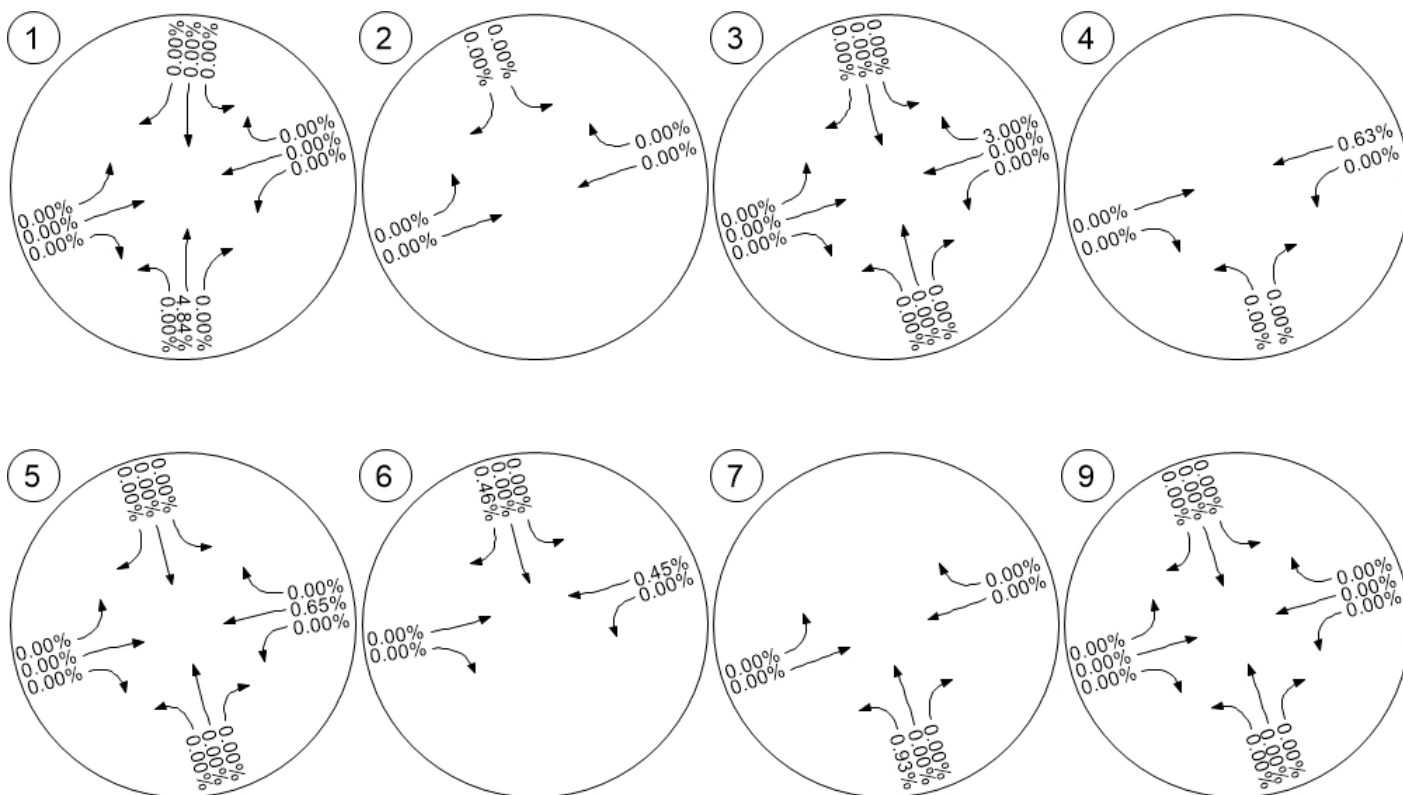


Fair Share - Fair Share % of Net New Site - Zone 35

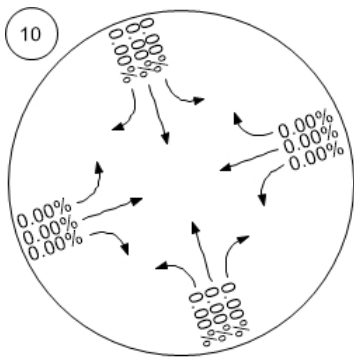




## Fair Share - Fair Share % of Total Analysis - Zone 18

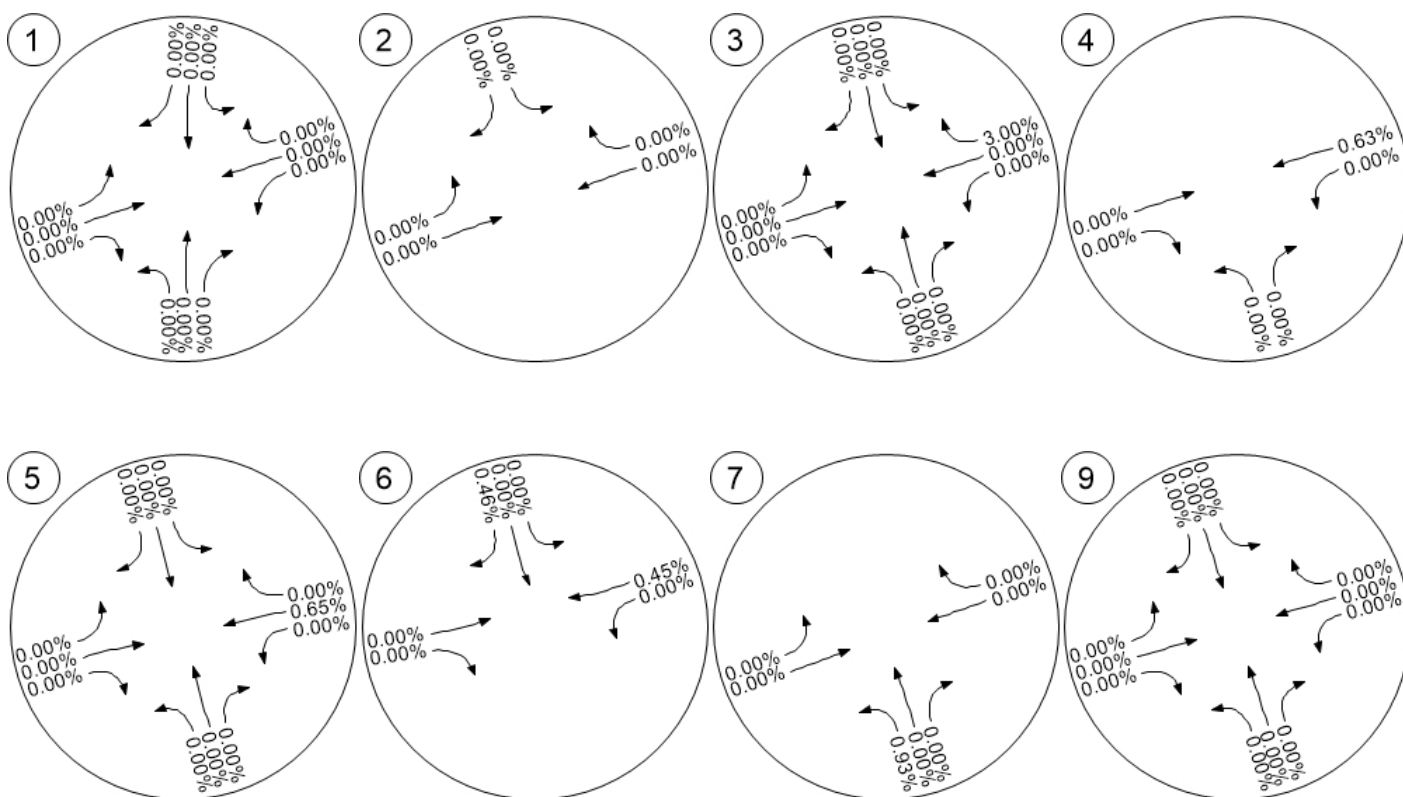


Fair Share - Fair Share % of Total Analysis - Zone 18





## Fair Share - Fair Share % of Total Analysis - Zone 19

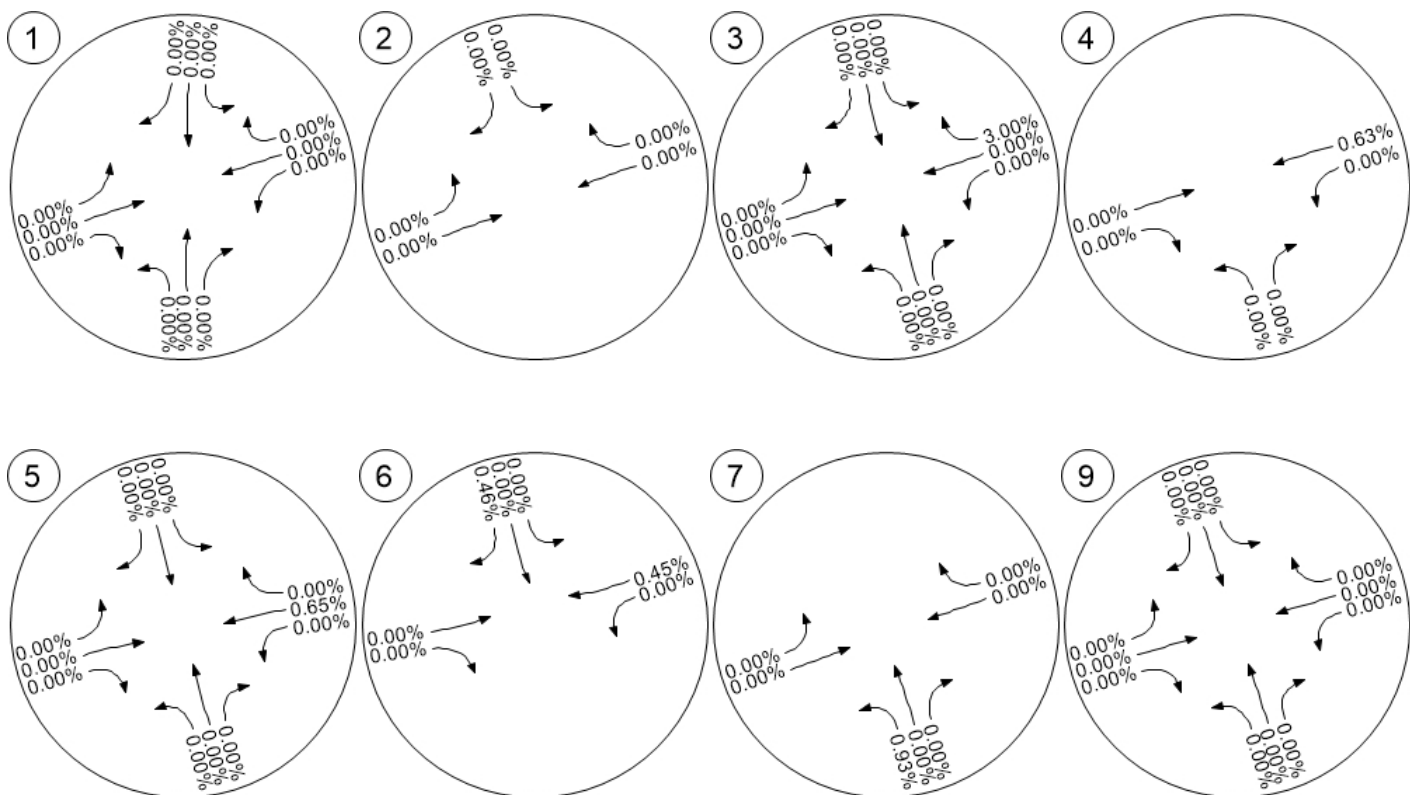


Fair Share - Fair Share % of Total Analysis - Zone 19

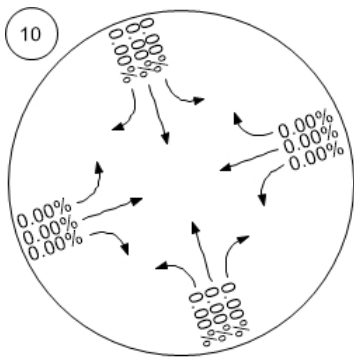




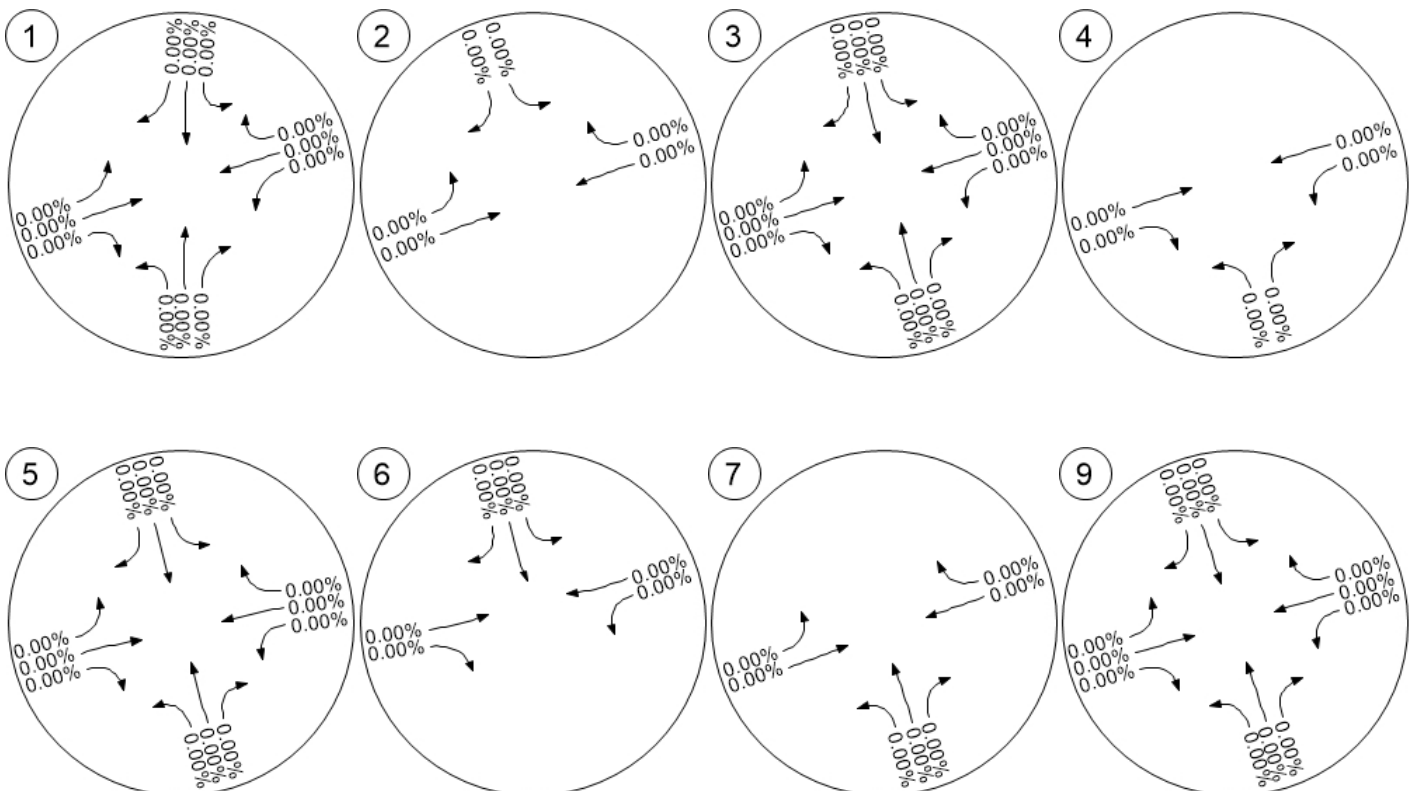
## Fair Share - Fair Share % of Total Analysis - Zone 20



Fair Share - Fair Share % of Total Analysis - Zone 20

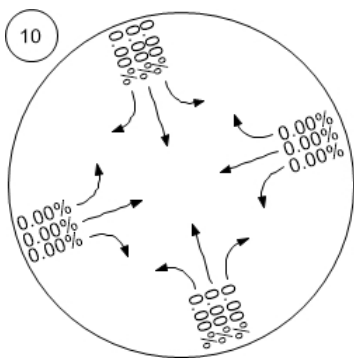


Fair Share - Fair Share % of Total Analysis - Zone 21



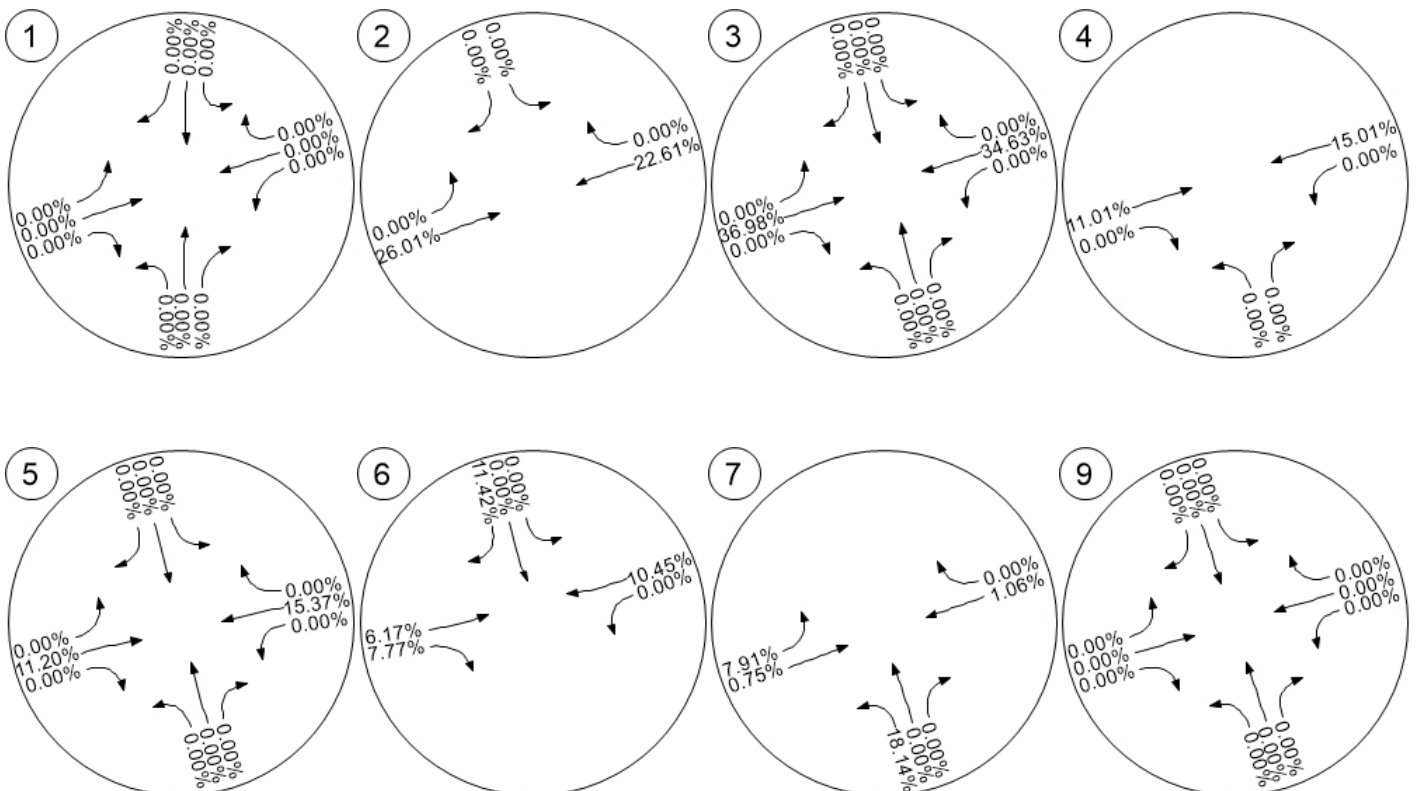


Fair Share - Fair Share % of Total Analysis - Zone 21

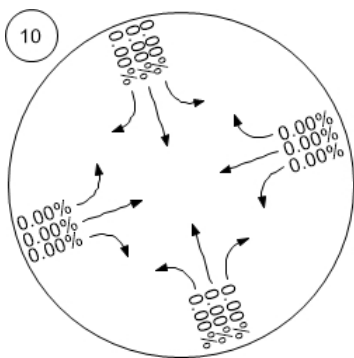




Fair Share - Fair Share % of Total Analysis - Zone 22

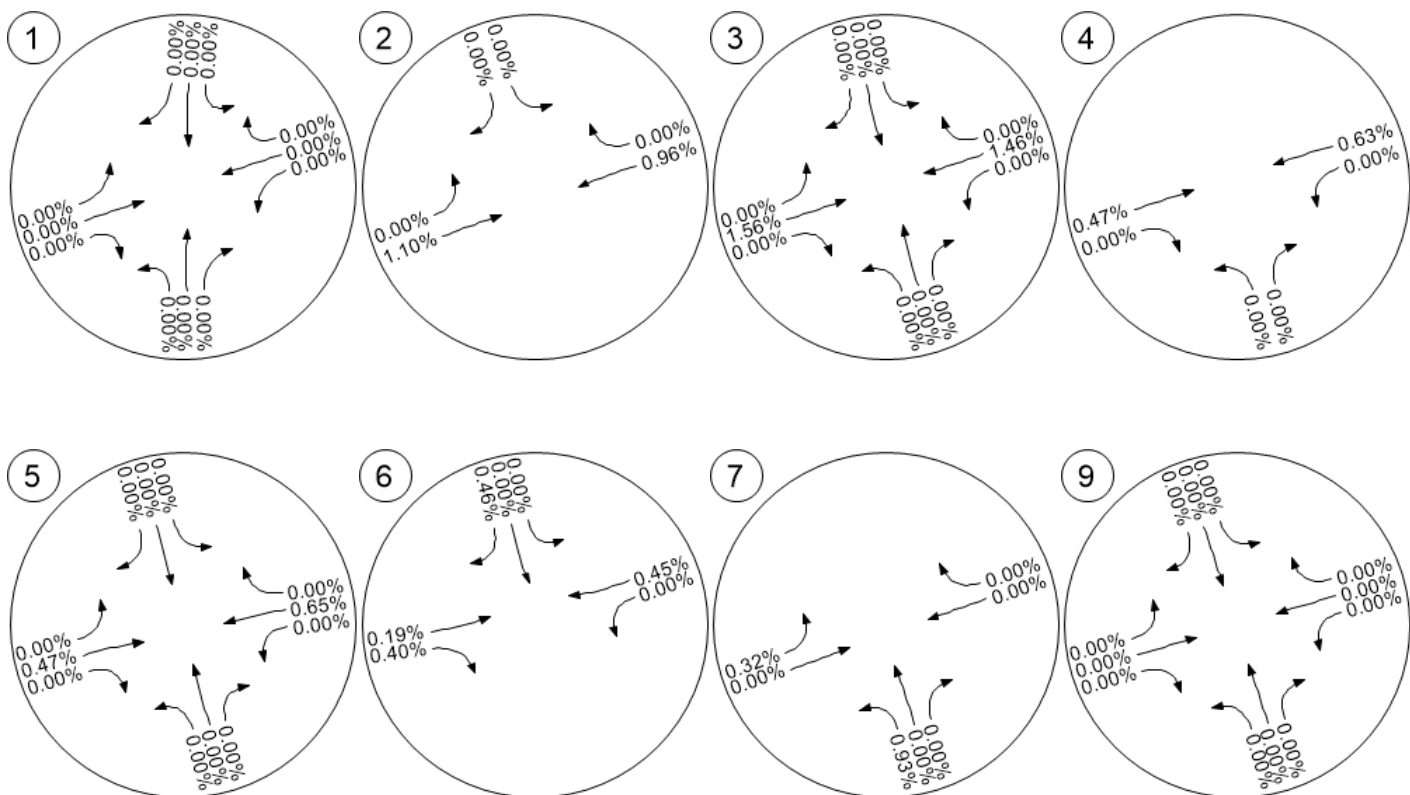


Fair Share - Fair Share % of Total Analysis - Zone 22

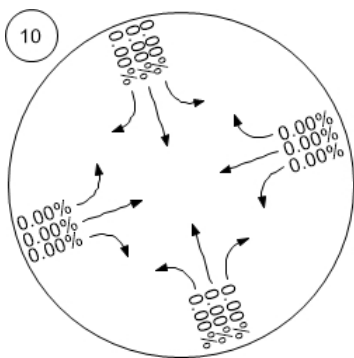




## Fair Share - Fair Share % of Total Analysis - Zone 23

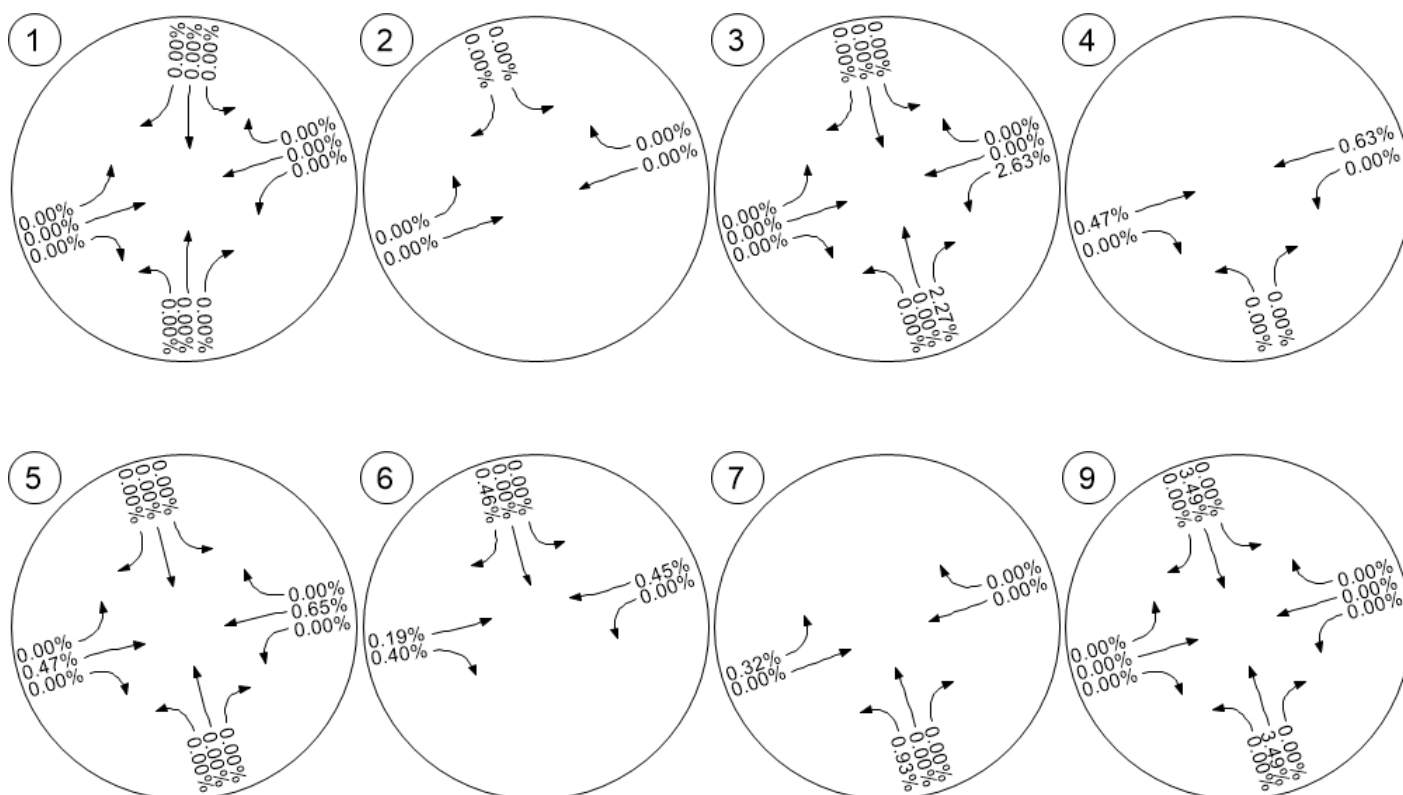


Fair Share - Fair Share % of Total Analysis - Zone 23

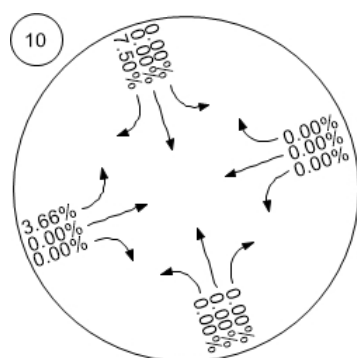




## Fair Share - Fair Share % of Total Analysis - Zone 24

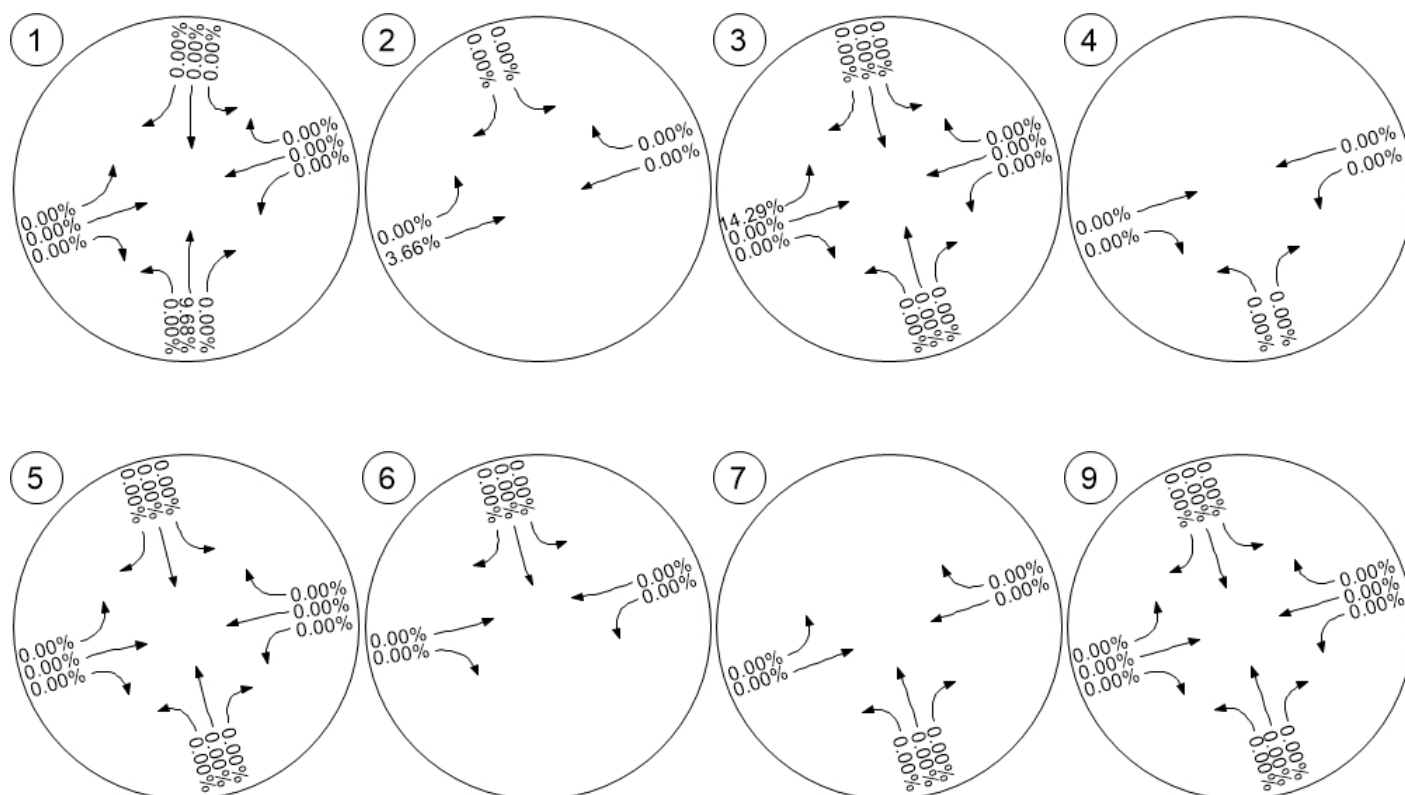


## Fair Share - Fair Share % of Total Analysis - Zone 24

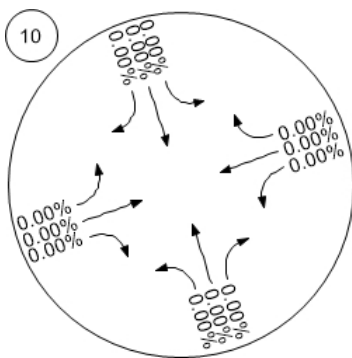




Fair Share - Fair Share % of Total Analysis - Zone 25

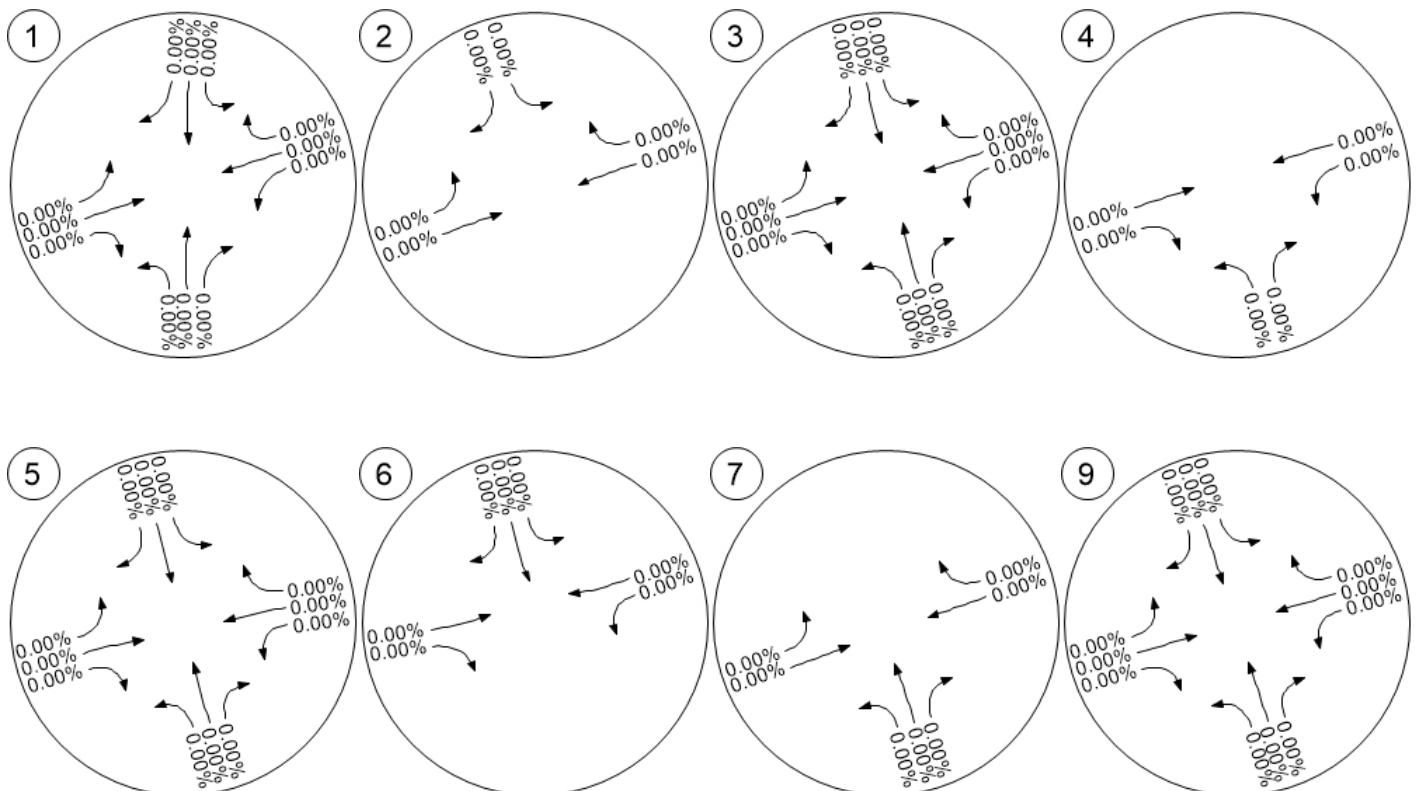


Fair Share - Fair Share % of Total Analysis - Zone 25

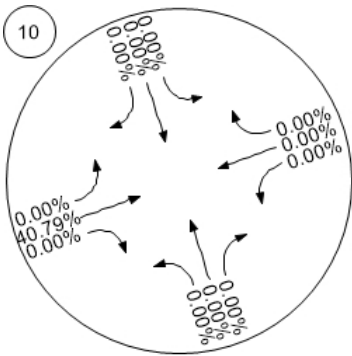




Fair Share - Fair Share % of Total Analysis - Zone 26

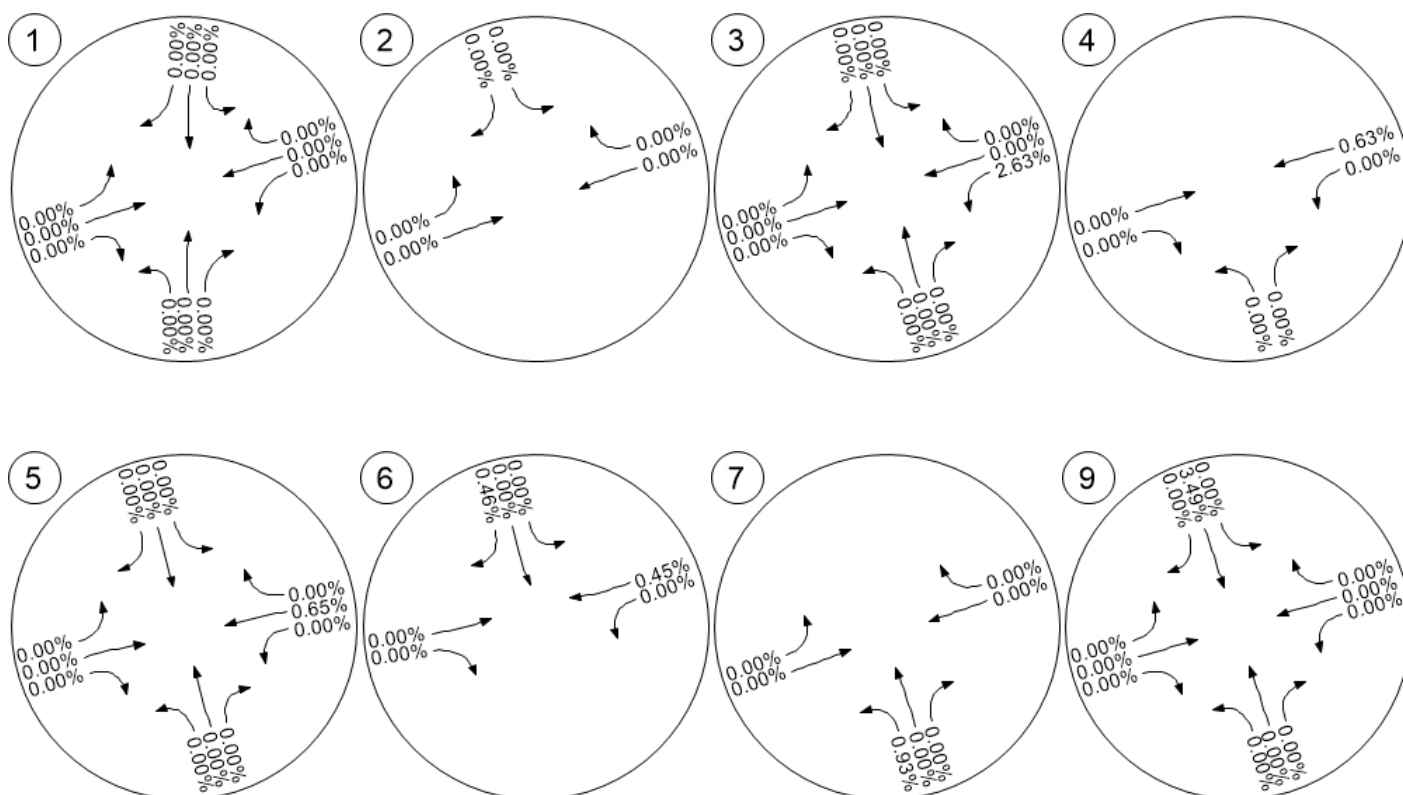


### Fair Share - Fair Share % of Total Analysis - Zone 26

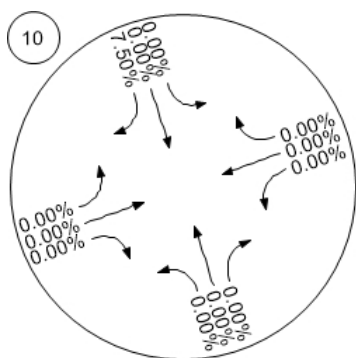




Fair Share - Fair Share % of Total Analysis - Zone 27

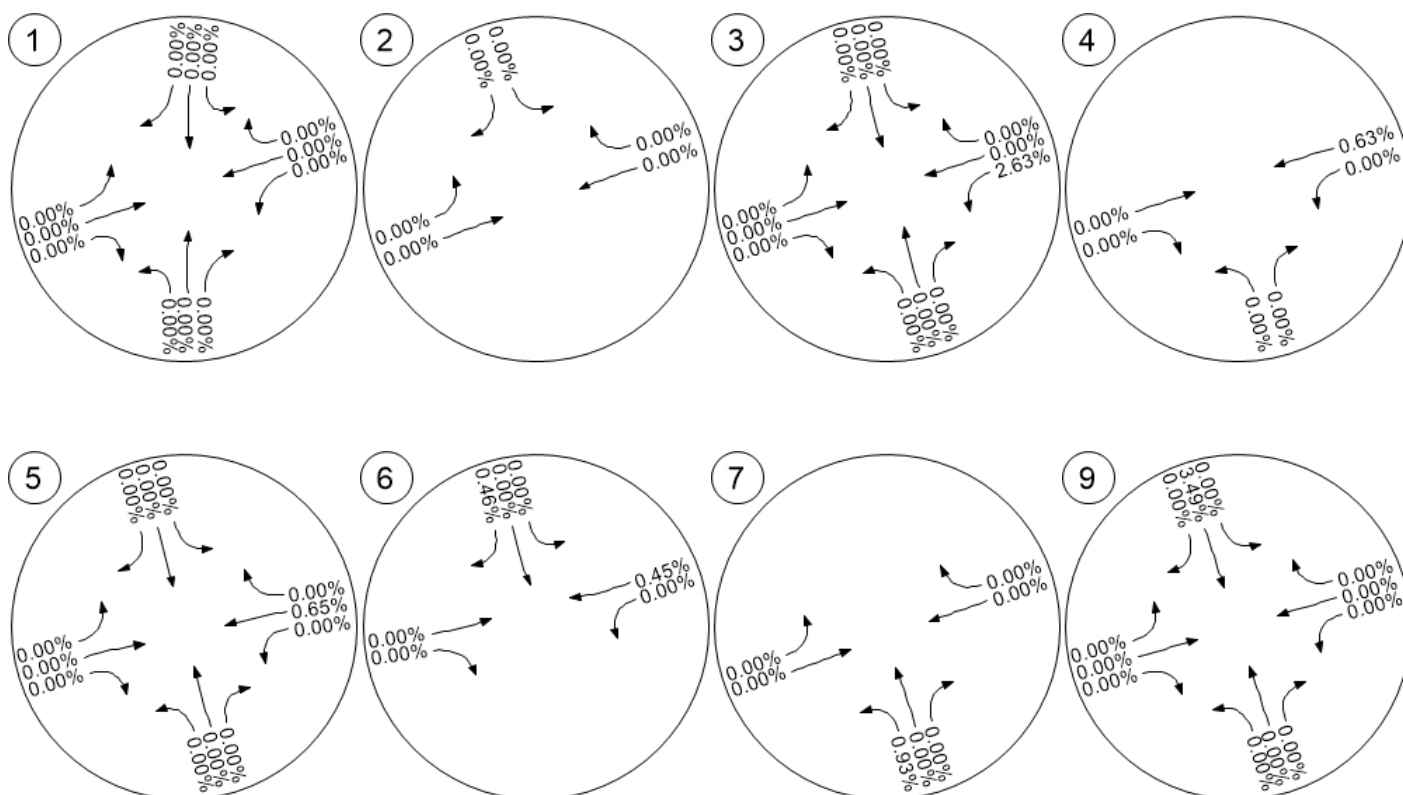


Fair Share - Fair Share % of Total Analysis - Zone 27

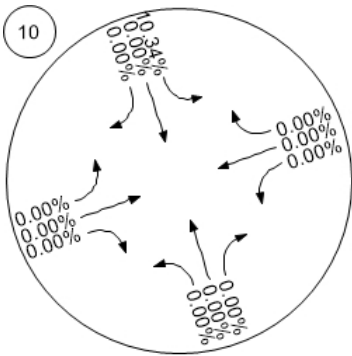




Fair Share - Fair Share % of Total Analysis - Zone 28

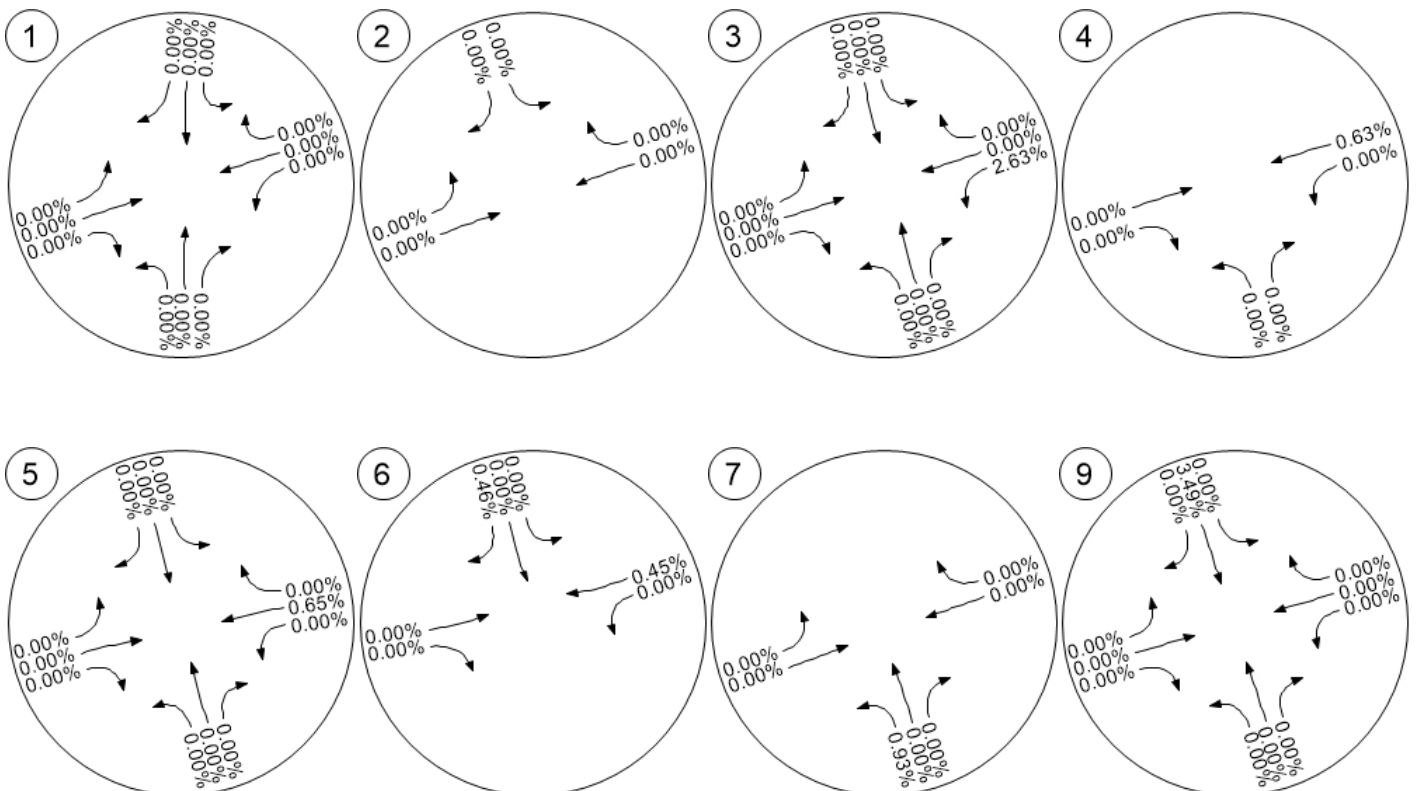


### Fair Share - Fair Share % of Total Analysis - Zone 28

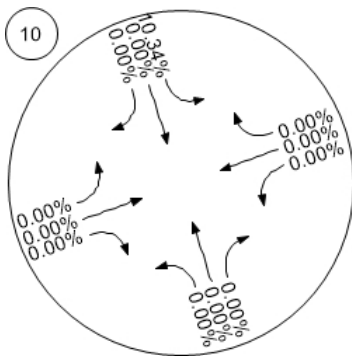
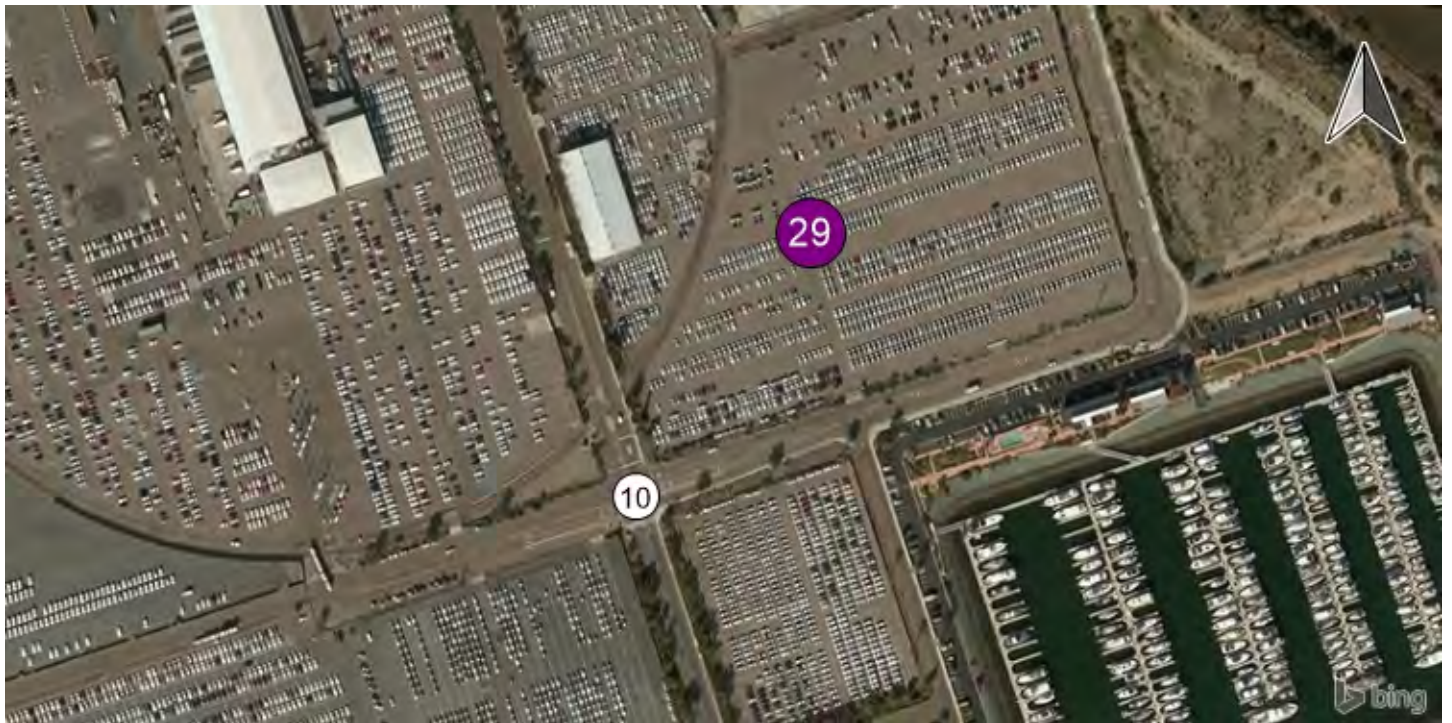




Fair Share - Fair Share % of Total Analysis - Zone 29

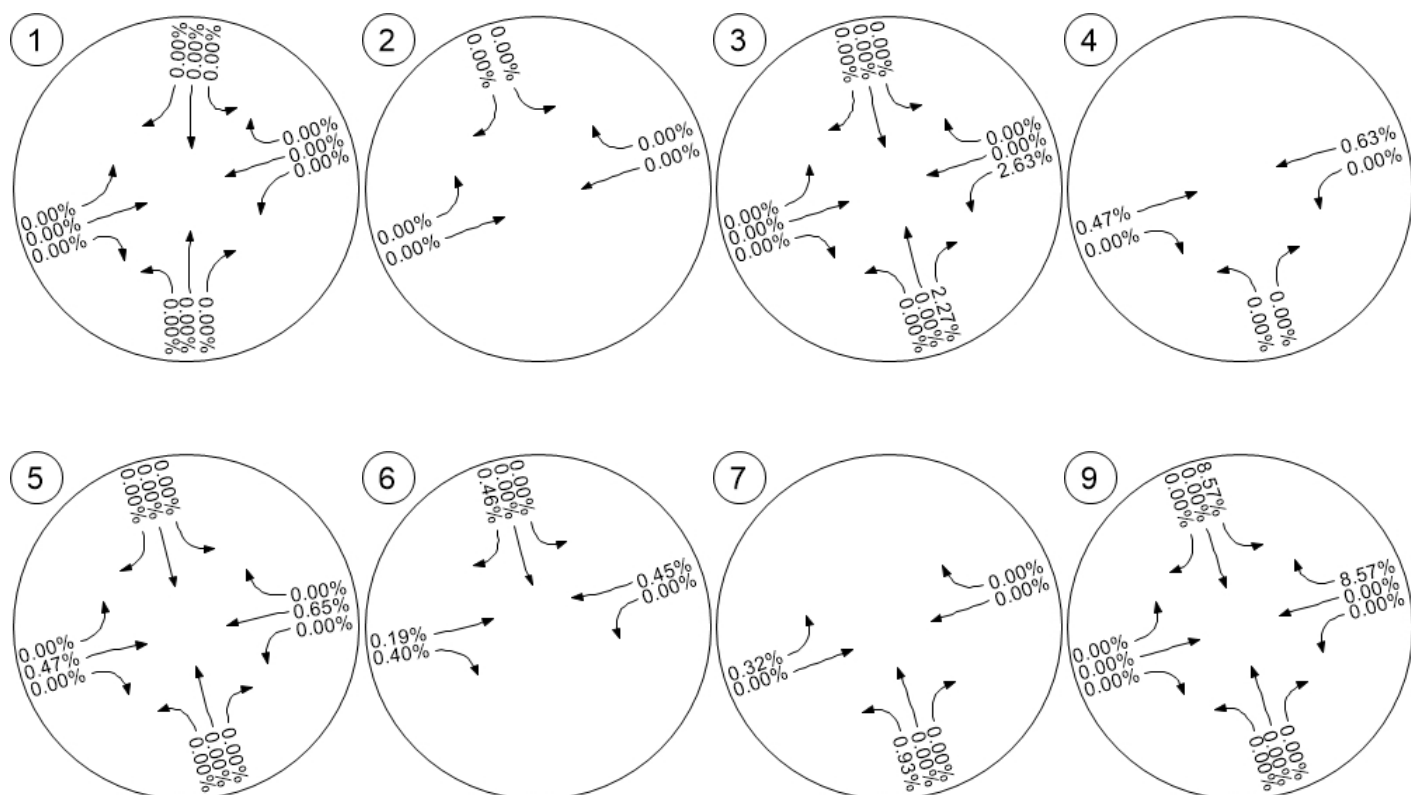


### Fair Share - Fair Share % of Total Analysis - Zone 29





## Fair Share - Fair Share % of Total Analysis - Zone 32

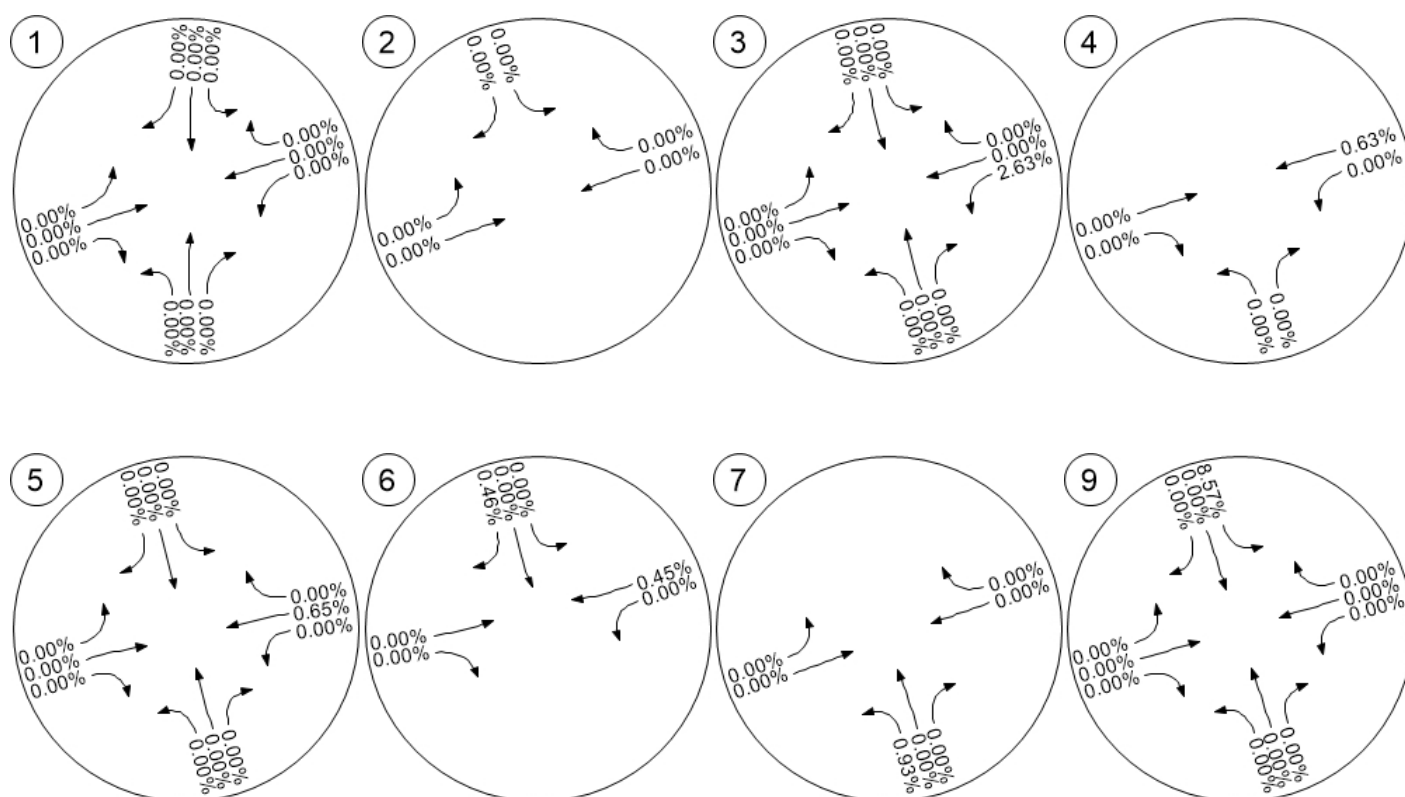


Fair Share - Fair Share % of Total Analysis - Zone 32

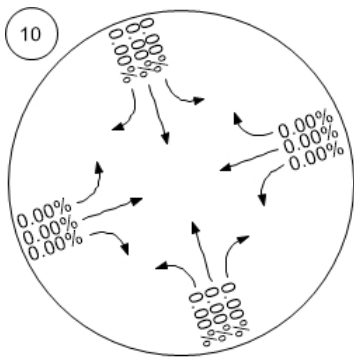




## Fair Share - Fair Share % of Total Analysis - Zone 33

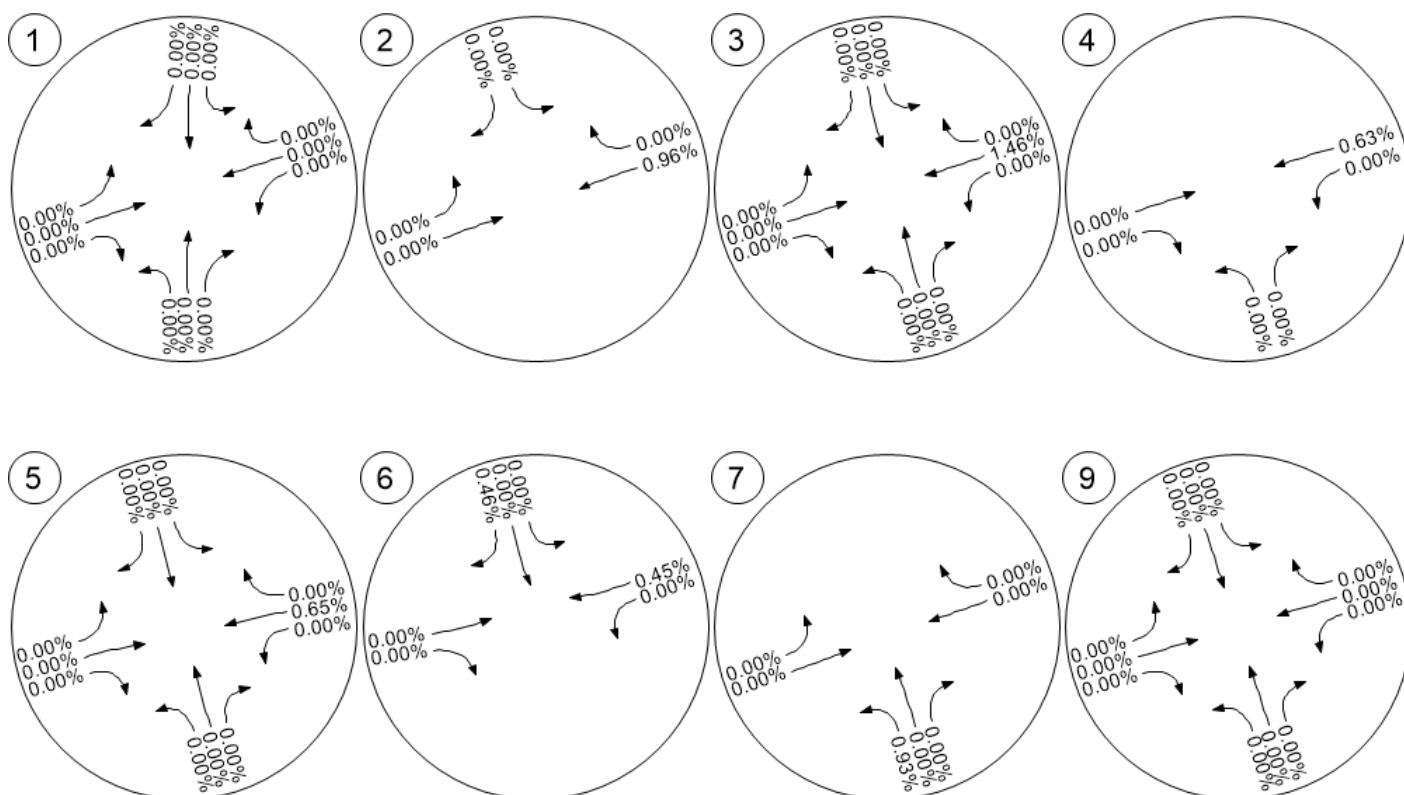


Fair Share - Fair Share % of Total Analysis - Zone 33





Fair Share - Fair Share % of Total Analysis - Zone 34

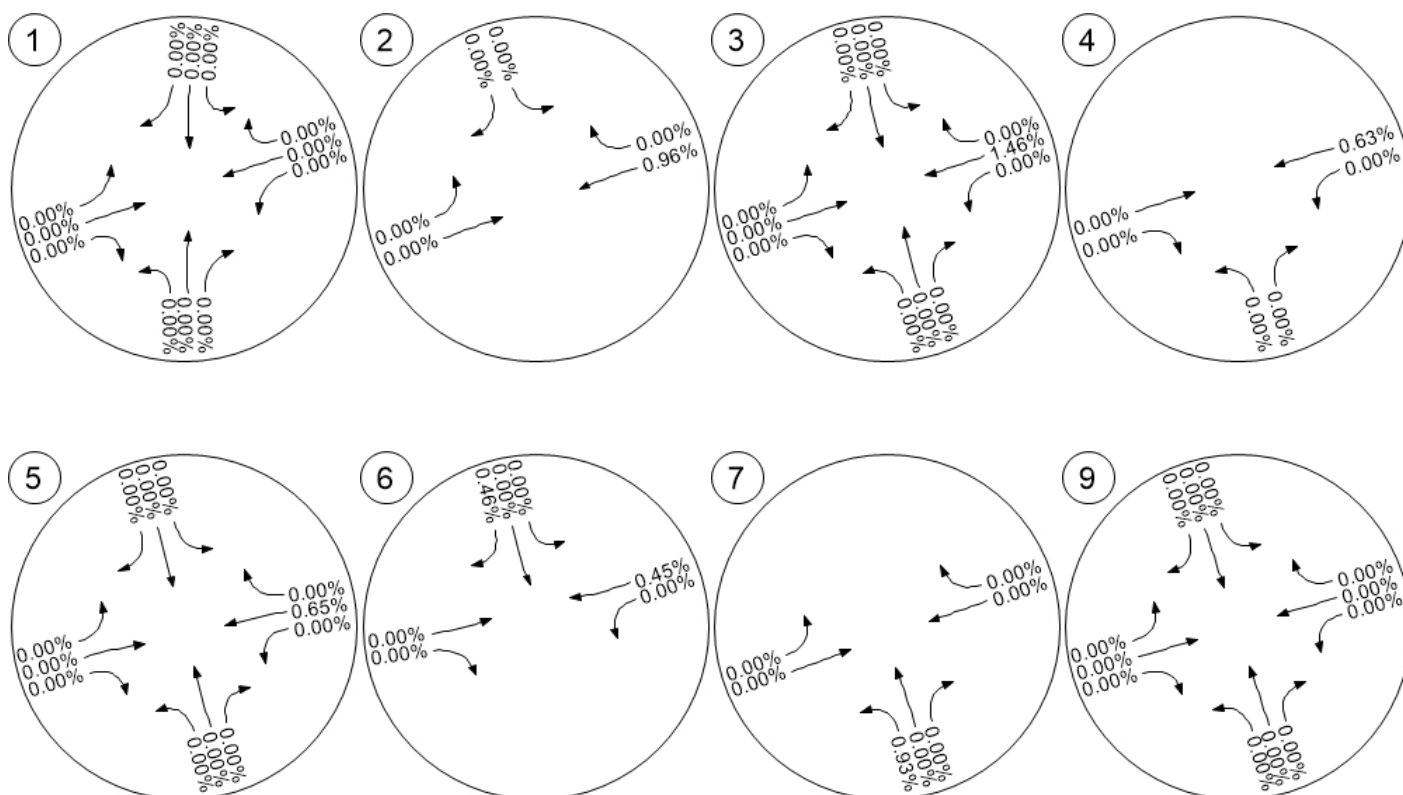


Fair Share - Fair Share % of Total Analysis - Zone 34





Fair Share - Fair Share % of Total Analysis - Zone 35



Fair Share - Fair Share % of Total Analysis - Zone 35



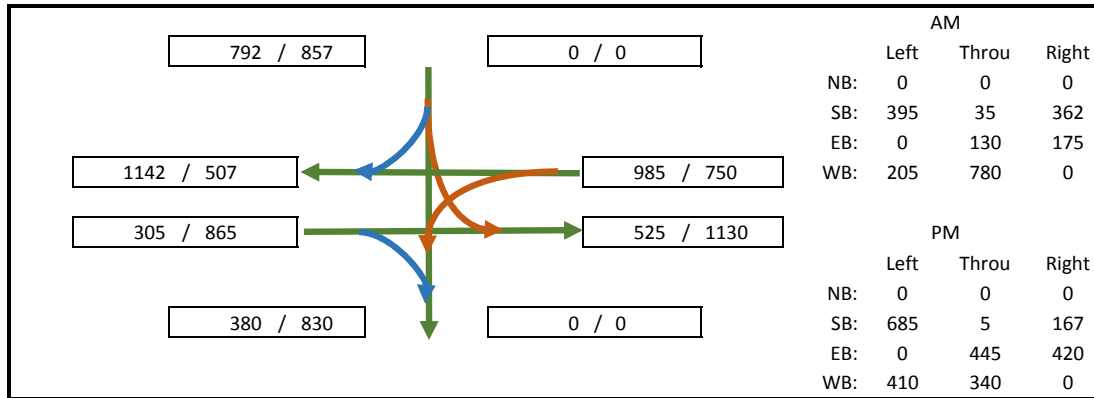


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

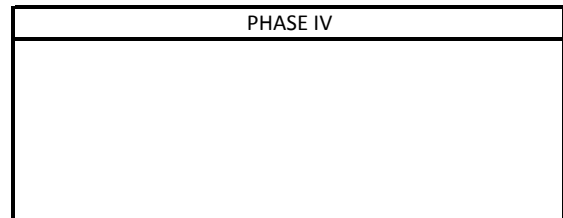
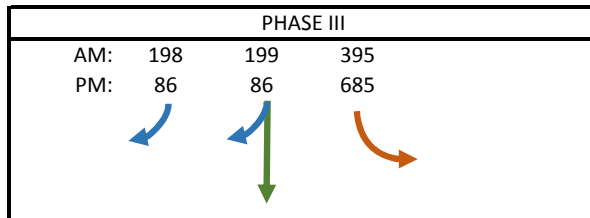
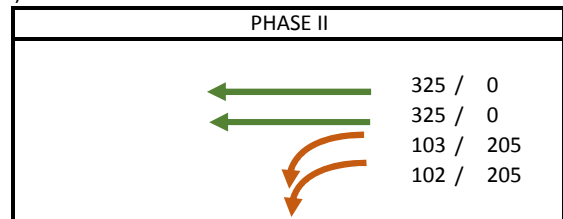
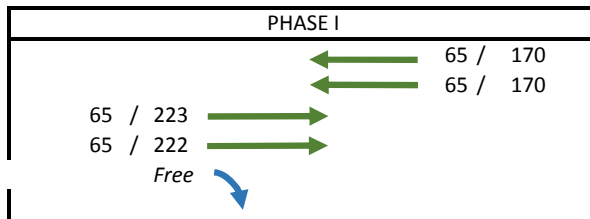
INTERSECTION: I-5 SB / Bay Marina Drive  
 ALTERNATIVE: Future Year + Project Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR

PHASE I
65 / 223
PHASE III
395 / 685

PHASE II
325 / 205
PHASE IV

TOTAL OPERATING LEVEL (ILV/HR):

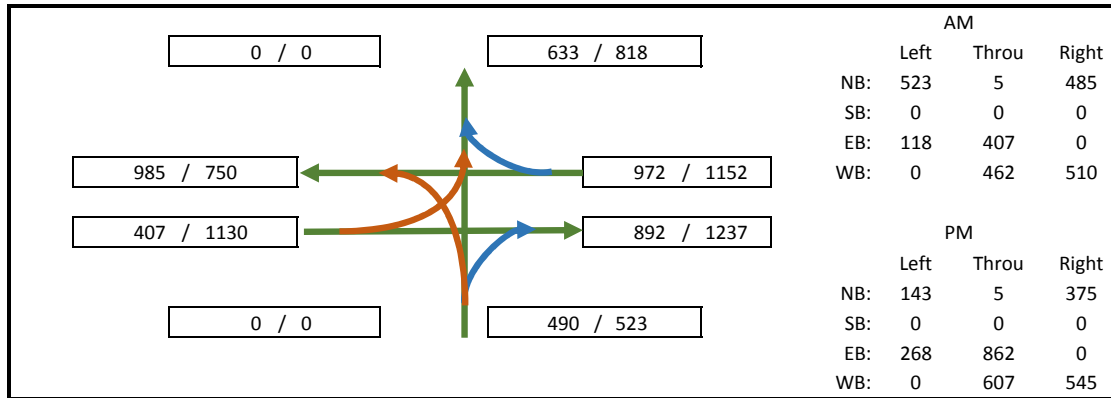
AM:	785	UNDER CAPACITY
PM:	1113	UNDER CAPACITY

# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

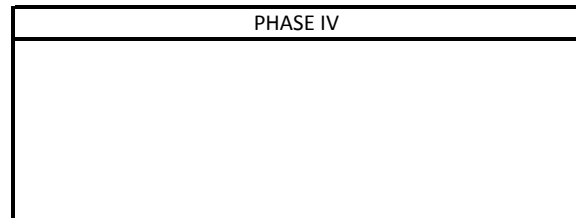
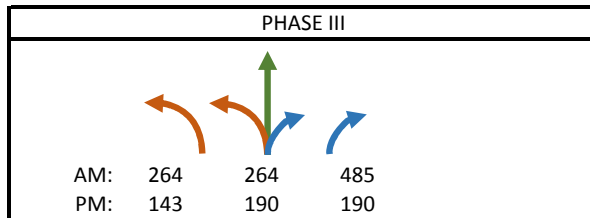
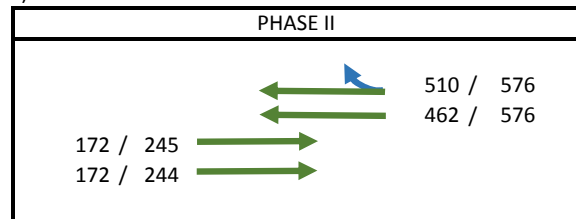
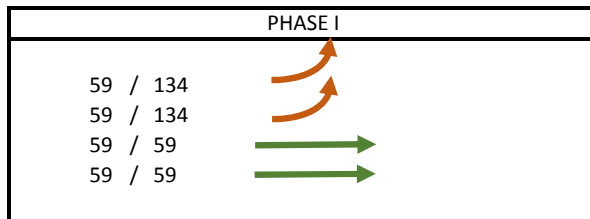
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Future Year + Project Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR

PHASE I
59 / 134

PHASE III
485 / 190

PHASE II
510 / 576

PHASE IV
/

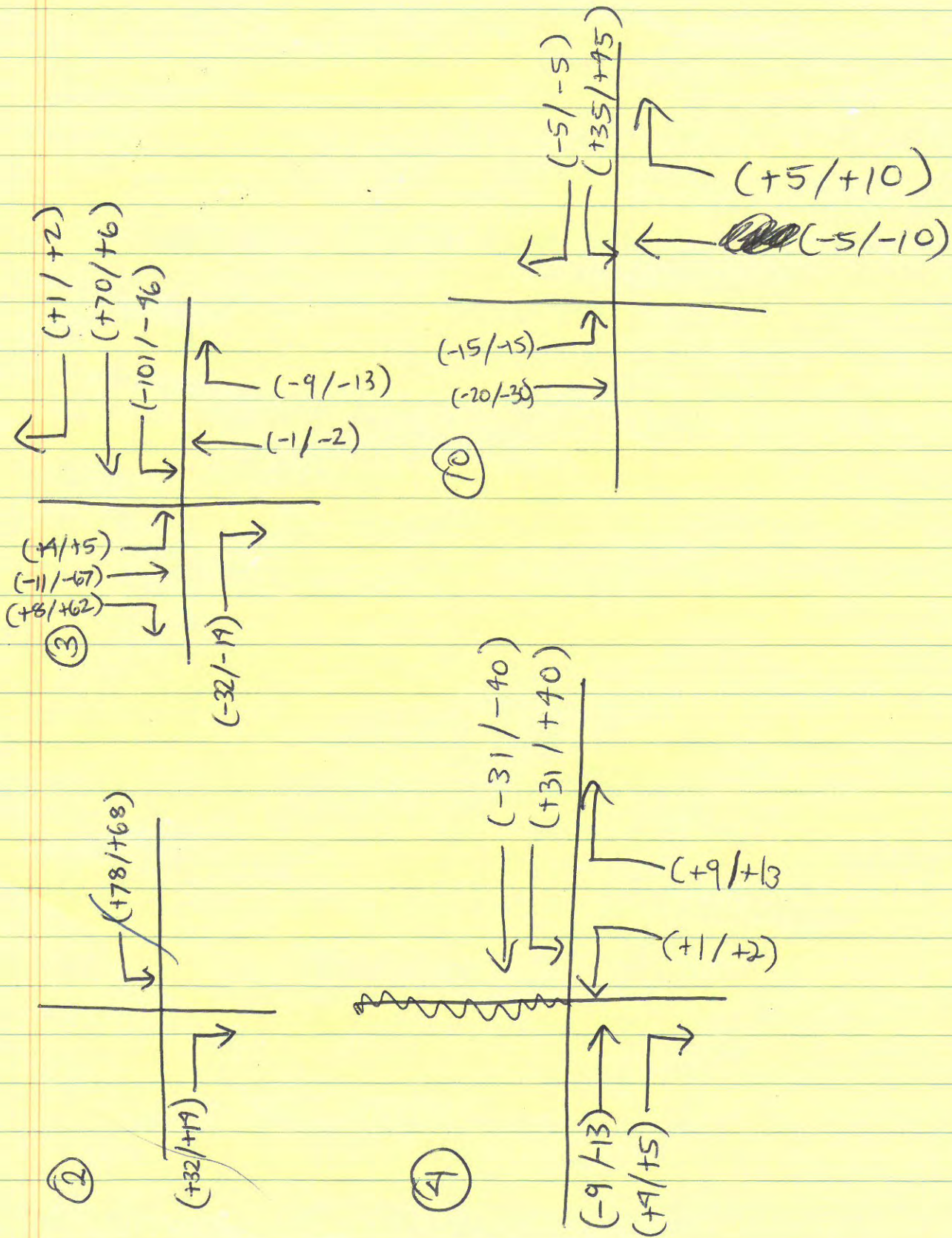
TOTAL OPERATING LEVEL (ILV/HR):

AM: 1054	UNDER CAPACITY
PM: 900	UNDER CAPACITY

---

**Appendix M**  
**Redistribution of Traffic with Tidelands Avenue, Quay Street & 28<sup>th</sup>**  
**Street Closed**

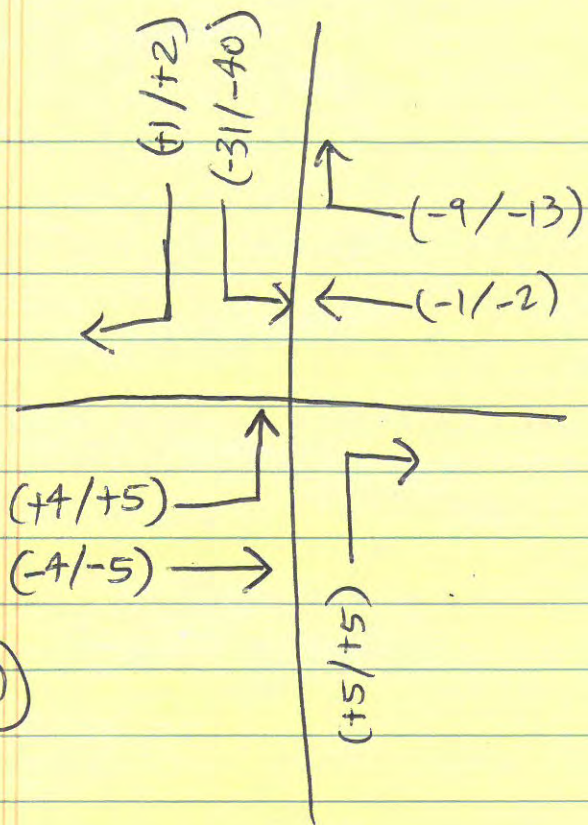
# Redistribution of traffic - Future Year (Tidelands Closed)



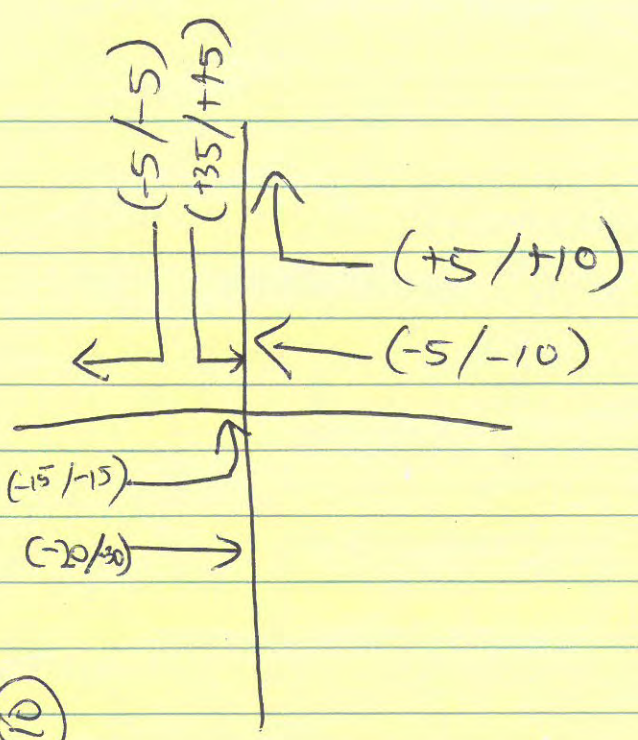


# Redistribution of Traffic - Future Year (Tidelands and Quay Closed)

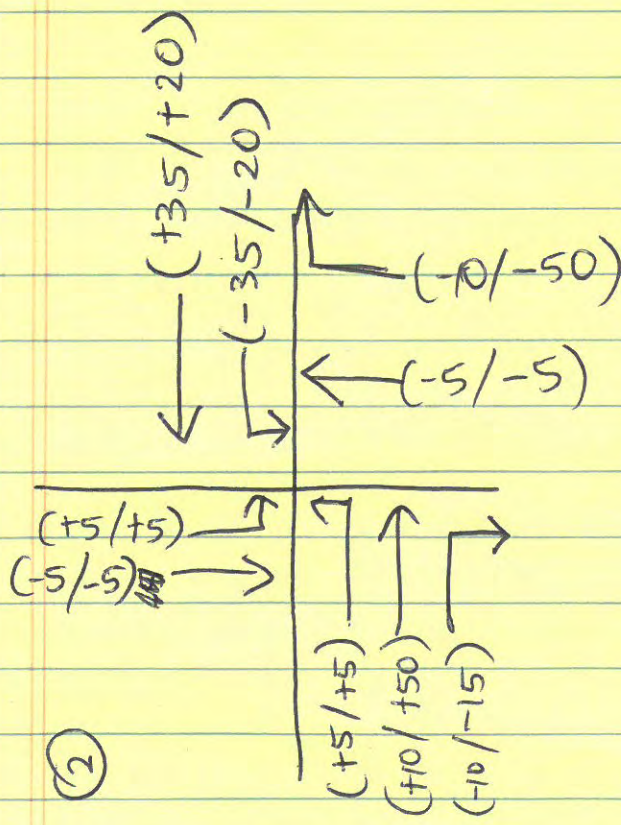
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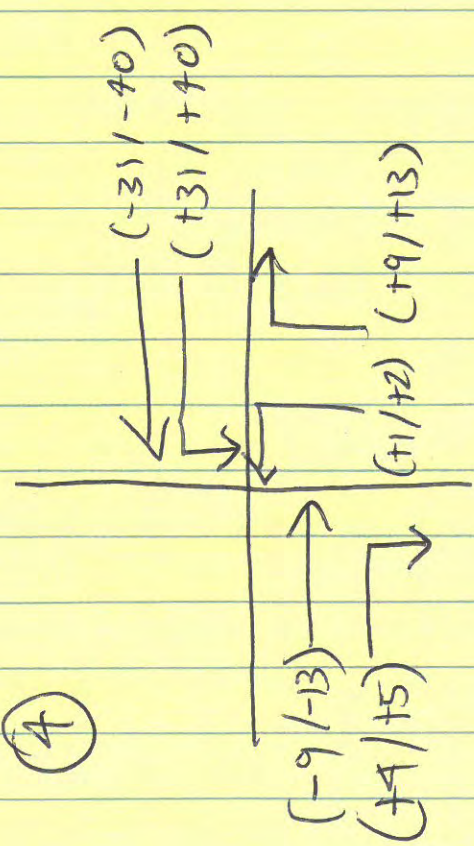
(10)



(2)



(4)



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**Appendix N**  
**Peak Hour Intersection LOS Worksheets, ILV, Queueing Worksheets –**  
**Future Year Base**

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands).vistro

Scenario 9: Future Year AM

Report File: P:\...\Future AM (without Tidelands Avenue).pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tidelands Avenue	Signalized	HCM2000	SBT	0.202	13.6	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBT	0.013	15.4	C
3	Bay Marina Drive / Tidelands Avenue	Signalized	HCM2000	SBR	0.228	11.1	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.244	14.2	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.384	19.8	B
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.441	16.2	B
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.604	23.2	C
8	28th Street / Quay Avenue	Two-way stop	HCM2000	EBL	0.005	8.7	A
10	32nd Street / Tidelands Avenue	All-way stop	HCM2000	EBL		7.9	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.202

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	45	80	60	55	115	65	30	40	65	70	105	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	80	60	55	115	65	30	40	65	70	105	60
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	22	16	15	31	18	8	11	18	19	29	16
Total Analysis Volume [veh/h]	49	87	65	60	125	71	33	43	71	76	114	65
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.05	0.11	0.05	0.09
Total Saturation Flow Adjustment	0.62	0.92	0.65	0.93	0.74	0.74
s, saturation flow rate [veh/h]	1182	1743	1230	1762	2820	2810
c, Capacity [veh/h]	490	722	510	730	1168	1164
d1, Uniform Delay [s]	12.53	13.15	12.62	13.51	12.67	13.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.41	0.66	0.47	0.90	0.22	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.10	0.21	0.12	0.27	0.13	0.22
d, Delay for Lane Group [s/veh]	12.93	13.82	13.09	14.41	12.89	13.64
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.65	2.10	0.80	2.79	1.03	1.87
50th-Percentile Queue Length [ft]	16.17	52.48	19.95	69.82	25.64	46.68
95th-Percentile Queue Length [veh]	1.60	4.74	1.96	6.07	2.48	4.27
95th-Percentile Queue Length [ft]	40.08	118.46	48.93	151.64	61.90	106.83

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.93	13.82	13.82	13.09	14.41	14.41	12.89	12.89	12.89	13.64	13.64	13.64
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	13.60			14.10			12.89			13.64		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.64											
Intersection LOS	B											
Intersection V/C	0.202											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 15.4  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.013

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	10	25	5	5	5	75	45	115	150	65
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	10	25	5	5	5	75	45	115	150	65
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	3	7	1	1	1	20	12	31	41	18
Total Analysis Volume [veh/h]	5	5	11	27	5	5	5	82	49	125	163	71
Pedestrian Volume [ped/h]	0			0			0			0		



**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.01	0.01	0.01	0.07	0.01	0.01	0.00	0.00	0.00	0.09	0.00	0.00
d_M, Delay for Movement [s/veh]	13.30	14.96	8.88	14.60	15.35	9.71	7.72	0.00	0.00	7.71	0.00	0.00
Movement LOS	B	B	A	B	C	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.11	0.11	0.11	0.28	0.28	0.28	0.16	0.08	0.00	0.42	0.21	0.00
95th-Percentile Queue Length [ft]	2.79	2.79	2.79	6.93	6.93	6.93	4.04	2.02	0.00	10.55	5.28	0.00
d_A, Approach Delay [s/veh]	11.38			14.04			0.28			2.69		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.18											
Intersection LOS	C											

### Intersection Level Of Service Report #3: Bay Marina Drive / Tidelands Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 11.1  
Level Of Service: B  
Volume to Capacity (v/c): 0.228

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	5	10	5	25	5	30	15	40	25	25	265	320
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	4	0	0	0	0	0	50
Total Hourly Volume [veh/h]	5	10	5	25	5	26	15	40	25	25	265	270
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	1	7	1	7	4	11	6	6	72	73
Total Analysis Volume [veh/h]	5	10	5	27	5	28	16	43	25	25	288	293
Presence of On-Street Parking	no		no	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	3	4	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	33	0	0	33	0	0	87	0	0	87	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	27	27	27	27	81	81	81	81	81
g / C, Green / Cycle	0.23	0.23	0.23	0.23	0.68	0.68	0.68	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.02	0.02	0.02	0.02	0.02	0.15	0.21
Total Saturation Flow Adjustment	0.72	0.93	0.73	0.77	0.55	0.88	0.70	0.98	0.75
s, saturation flow rate [veh/h]	1370	1770	1393	1463	1048	3351	1323	1863	1425
c, Capacity [veh/h]	308	398	313	329	707	2262	893	1257	962
d1, Uniform Delay [s]	36.17	36.35	36.75	36.87	6.44	6.47	6.46	7.50	7.98
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.18	0.54	0.61	0.06	0.02	0.06	0.42	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.04	0.09	0.10	0.02	0.03	0.03	0.23	0.30
d, Delay for Lane Group [s/veh]	36.27	36.52	37.29	37.48	6.49	6.49	6.52	7.92	8.80
Lane Group LOS	D	D	D	D	A	A	A	A	A
Critical Lane Group	no	no	no	yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.14	0.42	0.77	0.94	0.20	0.44	0.31	4.18	4.59
50th-Percentile Queue Length [ft]	3.49	10.49	19.24	23.59	5.03	11.09	7.83	104.40	114.68
95th-Percentile Queue Length [veh]	0.36	1.06	1.89	2.29	0.52	1.12	0.80	8.49	9.17
95th-Percentile Queue Length [ft]	8.99	26.42	47.28	57.27	12.89	27.90	19.88	212.32	229.30

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	36.27	36.52	36.52	37.29	37.48	37.48	6.49	6.49	6.49	6.52	7.92	8.80
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	36.46			37.39			6.49			8.29		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	11.09											
Intersection LOS	B											
Intersection V/C	0.228											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.244

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	10	20	75	30	55	750
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	20	75	30	55	750
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	5	20	8	15	204
Total Analysis Volume [veh/h]	11	22	82	33	60	815
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	62	0	21	83
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	56	17	77
g / C, Green / Cycle	0.26	0.26	0.47	0.14	0.64
(v / s)_i Volume / Saturation Flow Rate	0.01	0.01	0.03	0.03	0.23
Total Saturation Flow Adjustment	0.93	0.83	0.89	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3394	1770	3547
c, Capacity [veh/h]	457	409	1584	251	2276
d1, Uniform Delay [s]	33.21	33.47	17.67	45.76	10.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.25	0.09	2.24	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.05	0.07	0.24	0.36
d, Delay for Lane Group [s/veh]	33.31	33.72	17.75	48.00	10.44
Lane Group LOS	C	C	B	D	B
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.29	0.59	1.21	1.94	7.51
50th-Percentile Queue Length [ft]	7.34	14.85	30.19	48.57	187.83
95th-Percentile Queue Length [veh]	0.75	1.48	2.88	4.43	13.69
95th-Percentile Queue Length [ft]	18.66	36.95	72.01	110.64	342.33

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	33.31	33.72	17.75	17.75	48.00	10.44
Movement LOS	C	C	B	B	D	B
d_A, Approach Delay [s/veh]	33.58		17.75		13.02	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	14.21					
Intersection LOS	B					
Intersection V/C	0.244					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 19.8  
Level Of Service: B  
Volume to Capacity (v/c): 0.384

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	35	5	25	30	10	35	20	90	5	25	700	310
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	4	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	21	30	10	35	20	90	5	25	700	310
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	6	8	3	10	5	24	1	7	190	84
Total Analysis Volume [veh/h]	38	5	23	33	11	38	22	98	5	27	761	337
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	19	0	9	73	0	13	77	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	15	5	69	9	73
g / C, Green / Cycle	0.09	0.09	0.13	0.04	0.58	0.08	0.61
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.03	0.01	0.02	0.02	0.32
Total Saturation Flow Adjustment	0.93	0.86	0.85	0.93	0.88	0.93	0.89
s, saturation flow rate [veh/h]	1770	1633	3235	1770	5037	1770	3383
c, Capacity [veh/h]	162	150	404	74	2896	133	2058
d1, Uniform Delay [s]	50.59	50.37	47.13	55.80	11.06	52.13	13.63
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.36	2.75	1.13	10.06	0.02	3.43	1.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.23	0.19	0.20	0.30	0.04	0.20	0.53
d, Delay for Lane Group [s/veh]	53.95	53.11	48.26	65.86	11.09	55.56	14.62
Lane Group LOS	D	D	D	E	B	E	B
Critical Lane Group	yes	no	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	1.29	0.95	1.41	0.81	0.60	0.93	12.79
50th-Percentile Queue Length [ft]	32.36	23.68	35.21	20.15	15.02	23.29	319.75
95th-Percentile Queue Length [veh]	3.07	2.30	3.32	1.98	1.49	2.26	21.45
95th-Percentile Queue Length [ft]	76.76	57.48	82.89	49.39	37.34	56.60	536.37

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	53.95	53.11	53.11	48.26	48.26	48.26	65.86	11.09	11.09	55.56	14.62	14.62
Movement LOS	D	D	D	D	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	53.60			48.26			20.73			15.60		
Approach LOS	D			D			C			B		
d_I, Intersection Delay [s/veh]	19.77											
Intersection LOS	B											
Intersection V/C	0.384											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 16.2  
Level Of Service: B  
Volume to Capacity (v/c): 0.441

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	395	35	325	0	95	130	205	710	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	395	35	325	0	95	130	205	710	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	107	10	88	0	26	35	56	193	0
Total Analysis Volume [veh/h]	0	0	0	429	38	353	0	103	141	223	772	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	17	0	13	30	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		25	25	12	12	9	25
g / C, Green / Cycle		0.42	0.42	0.21	0.21	0.15	0.42
(v / s)_i Volume / Saturation Flow Rate		0.14	0.22	0.03	0.09	0.06	0.22
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3391	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1435	670	733	327	504	1501
d1, Uniform Delay [s]		11.57	12.84	19.45	20.73	23.36	12.75
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.60	2.95	0.40	4.10	2.80	1.26
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.33	0.53	0.14	0.43	0.44	0.51
d, Delay for Lane Group [s/veh]		12.17	15.79	19.85	24.83	26.16	14.01
Lane Group LOS		B	B	B	C	C	B
Critical Lane Group		no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]		3.07	5.08	0.81	2.34	2.01	5.74
50th-Percentile Queue Length [ft]		76.81	126.91	20.22	58.52	50.20	143.50
95th-Percentile Queue Length [veh]		6.58	9.96	1.98	5.21	4.56	11.00
95th-Percentile Queue Length [ft]		164.44	249.04	49.54	130.27	113.92	275.12

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.17	12.17	15.79	0.00	19.85	24.83	26.16	14.01	0.00
Movement LOS				B	B	B		B	C	C	B	
d_A, Approach Delay [s/veh]	0.00			13.73			22.72			16.74		
Approach LOS	A			B			C			B		
d_I, Intersection Delay [s/veh]	16.25											
Intersection LOS	B											
Intersection V/C	0.441											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 23.2  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.604

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	460	5	485	0	0	0	90	400	0	0	455	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	460	5	485	0	0	0	90	400	0	0	455	510
Peak Hour Factor	0.9200	0.9200	0.9200	1.0000	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	1	132	0	0	0	24	109	0	0	124	139
Total Analysis Volume [veh/h]	500	5	527	0	0	0	98	435	0	0	495	554
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	29	0	0	0	0	10	47	0	0	37	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	24		6	42	32	32
g / C, Green / Cycle	0.32		0.08	0.56	0.43	0.43
(v / s)_i Volume / Saturation Flow Rate	0.23		0.03	0.12	0.27	0.35
Total Saturation Flow Adjustment	0.80		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4575		3437	3547	1863	1583
c, Capacity [veh/h]	1469		262	1979	794	675
d1, Uniform Delay [s]	22.62		33.37	8.47	17.03	19.24
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.84		4.04	0.26	3.67	10.77
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

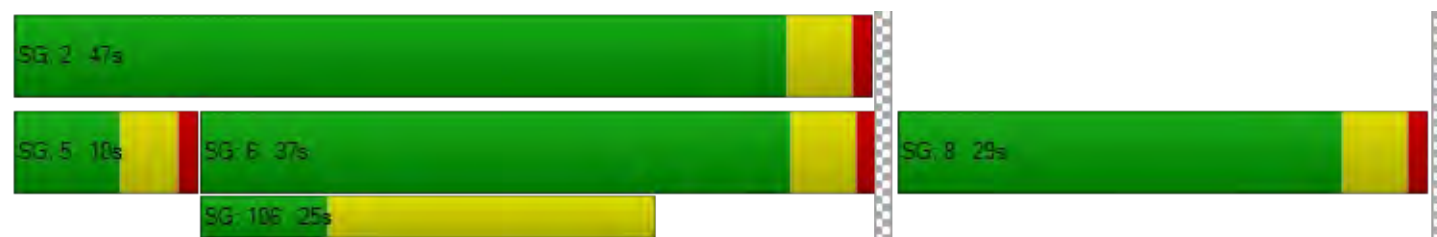
X, volume / capacity	0.70		0.37	0.22	0.62	0.82
d, Delay for Lane Group [s/veh]	25.46		37.41	8.72	20.70	30.01
Lane Group LOS	C		D	A	C	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	8.46		1.16	2.72	9.54	13.27
50th-Percentile Queue Length [ft]	211.58		29.00	68.08	238.57	331.82
95th-Percentile Queue Length [veh]	15.10		2.78	5.94	16.68	22.17
95th-Percentile Queue Length [ft]	377.47		69.39	148.42	417.09	554.25

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	25.46	25.46	25.46	0.00	0.00	0.00	37.41	8.72	0.00	0.00	20.70	30.01
Movement LOS	C	C	C				D	A			C	C
d_A, Approach Delay [s/veh]	25.46			0.00			14.00			25.62		
Approach LOS	C			A			B			C		
d_I, Intersection Delay [s/veh]	23.18											
Intersection LOS	C											
Intersection V/C	0.604											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.7  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	5	5	5	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	5	5	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	1	1	1	1
Total Analysis Volume [veh/h]	5	5	5	5	5	5
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0



**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	8.67	8.38
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.02	0.02	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	0.47	0.47	0.00	0.00	0.73	0.73
d_A, Approach Delay [s/veh]	3.62		0.00		8.53	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.05					
Intersection LOS	A					

**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 7.9  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	15	5	0	40	50	50	5	40	15	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	15	5	0	40	50	50	5	40	15	5
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	1	0	10	13	14	1	11	4	1
Total Analysis Volume [veh/h]	5	5	16	5	0	40	50	54	5	43	16	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.10	0.18	0.24	0.23	0.02	0.20	0.07	0.02
95th-Percentile Queue Length [ft]	2.60	4.40	5.90	5.75	0.43	5.05	1.63	0.43
Approach Delay [s/veh]	7.80	7.70	8.03			8.04		
Approach LOS	A	A	A			A		
Intersection Delay [s/veh]	7.95							
Intersection LOS	A							

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands).vistro

Scenario 9: Future Year AM

Report File: P:\...\Future AM (without Tidelands Avenue).pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	45	80	60	55	115	65	30	40	65	70	105	60	790

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	5	5	10	25	5	5	5	75	45	115	150	65	510

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	5	10	5	25	5	30	15	40	25	25	265	320	770

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	10	20	75	30	55	750	940

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	35	5	25	30	10	35	20	90	5	25	700	310	1290

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	395	35	325	95	130	205	710	1895

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	460	5	485	90	400	455	510	2405



ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
8	28th Street / Quay Avenue	5	5	5	5	5	5	30

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tideland Avenue	5	5	15	5	0	40	50	50	5	40	15	5	235

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands).vistro

Scenario 9: Future Year AM

Report File: P:\...\Future AM (without Tidelands Avenue).pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	Final Base	45	80	60	55	115	65	30	40	65	70	105	60	790
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>45</b>	<b>80</b>	<b>60</b>	<b>55</b>	<b>115</b>	<b>65</b>	<b>30</b>	<b>40</b>	<b>65</b>	<b>70</b>	<b>105</b>	<b>60</b>	<b>790</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	5	5	10	25	5	5	5	75	45	115	150	65	510
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>25</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>75</b>	<b>45</b>	<b>115</b>	<b>150</b>	<b>65</b>	<b>510</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	5	10	5	25	5	30	15	40	25	25	265	320	770
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>25</b>	<b>5</b>	<b>30</b>	<b>15</b>	<b>40</b>	<b>25</b>	<b>25</b>	<b>265</b>	<b>320</b>	<b>770</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	10	20	75	30	55	750	940
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>20</b>	<b>75</b>	<b>30</b>	<b>55</b>	<b>750</b>	<b>940</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	35	5	25	30	10	35	20	90	5	25	700	310	1290
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>5</b>	<b>25</b>	<b>30</b>	<b>10</b>	<b>35</b>	<b>20</b>	<b>90</b>	<b>5</b>	<b>25</b>	<b>700</b>	<b>310</b>	<b>1290</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	395	35	325	95	130	205	710	1895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>395</b>	<b>35</b>	<b>325</b>	<b>95</b>	<b>130</b>	<b>205</b>	<b>710</b>	<b>1895</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	460	5	485	90	400	455	510	2405
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>460</b>	<b>5</b>	<b>485</b>	<b>90</b>	<b>400</b>	<b>455</b>	<b>510</b>	<b>2405</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
8	28th Street / Quay Avenue	Final Base	5	5	5	5	5	5	30
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>30</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	5	5	15	5	0	40	50	50	5	40	15	5	235
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>0</b>	<b>40</b>	<b>50</b>	<b>50</b>	<b>5</b>	<b>40</b>	<b>15</b>	<b>5</b>	<b>235</b>



## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	330	125	20	35
2	317	120	19	34
3	310	118	19	33
4	264	100	16	28
5	251	95	15	27
6	224	85	14	24
7	208	79	13	22
8	198	75	12	21
9	158	60	10	17
10	149	56	9	16
11	149	56	9	16
12	142	54	9	15
13	129	49	8	14
14	119	45	7	13
15	119	45	7	13
16	115	44	7	12
17	66	25	4	7
18	36	14	2	4
19	33	13	2	4
20	13	5	1	1
21	10	4	1	1
22	10	4	1	1
23	7	3	0	1
24	7	3	0	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	455	2	55	No	No	No	No	No	No	No	No	No	No
2	4	437	2	53	No	No	No	No	No	No	No	No	No	No
3	4	428	2	52	No	No	No	No	No	No	No	No	No	No
4	4	364	2	44	No	No	No	No	No	No	No	No	No	No
5	4	346	2	42	No	No	No	No	No	No	No	No	No	No
6	4	309	2	38	No	No	No	No	No	No	No	No	No	No
7	4	287	2	35	No	No	No	No	No	No	No	No	No	No
8	4	273	2	33	No	No	No	No	No	No	No	No	No	No
9	4	218	2	27	No	No	No	No	No	No	No	No	No	No
10	4	205	2	25	No	No	No	No	No	No	No	No	No	No
11	4	205	2	25	No	No	No	No	No	No	No	No	No	No
12	4	196	2	24	No	No	No	No	No	No	No	No	No	No
13	4	178	2	22	No	No	No	No	No	No	No	No	No	No
14	4	164	2	20	No	No	No	No	No	No	No	No	No	No
15	4	164	2	20	No	No	No	No	No	No	No	No	No	No
16	4	159	2	19	No	No	No	No	No	No	No	No	No	No
17	4	91	2	11	No	No	No	No	No	No	No	No	No	No
18	4	50	2	6	No	No	No	No	No	No	No	No	No	No
19	4	46	2	6	No	No	No	No	No	No	No	No	No	No
20	4	18	2	2	No	No	No	No	No	No	No	No	No	No
21	4	14	2	2	No	No	No	No	No	No	No	No	No	No
22	4	14	2	2	No	No	No	No	No	No	No	No	No	No
23	4	10	2	1	No	No	No	No	No	No	No	No	No	No
24	4	10	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.4	14
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:08
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	20	35
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	510	510
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	W
1	10	10	10
2	10	10	10
3	9	9	9
4	8	8	8
5	8	8	8
6	7	7	7
7	6	6	6
8	6	6	6
9	5	5	5
10	5	5	5
11	5	5	5
12	4	4	4
13	4	4	4
14	4	4	4
15	4	4	4
16	4	4	4
17	2	2	2
18	1	1	1
19	1	1	1
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	20	1	10	No	No	No	No	No	No	No	No	No	No
2	2	20	1	10	No	No	No	No	No	No	No	No	No	No
3	2	18	1	9	No	No	No	No	No	No	No	No	No	No
4	2	16	1	8	No	No	No	No	No	No	No	No	No	No
5	2	16	1	8	No	No	No	No	No	No	No	No	No	No
6	2	14	1	7	No	No	No	No	No	No	No	No	No	No
7	2	12	1	6	No	No	No	No	No	No	No	No	No	No
8	2	12	1	6	No	No	No	No	No	No	No	No	No	No
9	2	10	1	5	No	No	No	No	No	No	No	No	No	No
10	2	10	1	5	No	No	No	No	No	No	No	No	No	No
11	2	10	1	5	No	No	No	No	No	No	No	No	No	No
12	2	8	1	4	No	No	No	No	No	No	No	No	No	No
13	2	8	1	4	No	No	No	No	No	No	No	No	No	No
14	2	8	1	4	No	No	No	No	No	No	No	No	No	No
15	2	8	1	4	No	No	No	No	No	No	No	No	No	No
16	2	8	1	4	No	No	No	No	No	No	No	No	No	No
17	2	4	1	2	No	No	No	No	No	No	No	No	No	No
18	2	2	1	1	No	No	No	No	No	No	No	No	No	No
19	2	2	1	1	No	No	No	No	No	No	No	No	No	No
20	2	0	1	0	No	No	No	No	No	No	No	No	No	No
21	2	0	1	0	No	No	No	No	No	No	No	No	No	No
22	2	0	1	0	No	No	No	No	No	No	No	No	No	No
23	2	0	1	0	No	No	No	No	No	No	No	No	No	No
24	2	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	10
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	30
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>



## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	60	105	25	45
2	58	101	24	43
3	56	99	24	42
4	48	84	20	36
5	46	80	19	34
6	41	71	17	31
7	38	66	16	28
8	36	63	15	27
9	29	50	12	22
10	27	47	11	20
11	27	47	11	20
12	26	45	11	19
13	23	41	10	18
14	22	38	9	16
15	22	38	9	16
16	21	37	9	16
17	12	21	5	9
18	7	12	3	5
19	6	11	3	5
20	2	4	1	2
21	2	3	1	1
22	2	3	1	1
23	1	2	1	1
24	1	2	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	165	2	70	No	No	No	No	No	No	No	No	No	No
2	6	159	2	67	No	No	No	No	No	No	No	No	No	No
3	6	155	2	66	No	No	No	No	No	No	No	No	No	No
4	6	132	2	56	No	No	No	No	No	No	No	No	No	No
5	6	126	2	53	No	No	No	No	No	No	No	No	No	No
6	6	112	2	48	No	No	No	No	No	No	No	No	No	No
7	6	104	2	44	No	No	No	No	No	No	No	No	No	No
8	6	99	2	42	No	No	No	No	No	No	No	No	No	No
9	6	79	2	34	No	No	No	No	No	No	No	No	No	No
10	6	74	2	31	No	No	No	No	No	No	No	No	No	No
11	6	74	2	31	No	No	No	No	No	No	No	No	No	No
12	6	71	2	30	No	No	No	No	No	No	No	No	No	No
13	6	64	2	28	No	No	No	No	No	No	No	No	No	No
14	6	60	2	25	No	No	No	No	No	No	No	No	No	No
15	6	60	2	25	No	No	No	No	No	No	No	No	No	No
16	6	58	2	25	No	No	No	No	No	No	No	No	No	No
17	6	33	2	14	No	No	No	No	No	No	No	No	No	No
18	6	19	2	8	No	No	No	No	No	No	No	No	No	No
19	6	17	2	8	No	No	No	No	No	No	No	No	No	No
20	6	6	2	3	No	No	No	No	No	No	No	No	No	No
21	6	5	2	2	No	No	No	No	No	No	No	No	No	No
22	6	5	2	2	No	No	No	No	No	No	No	No	No	No
23	6	3	2	2	No	No	No	No	No	No	No	No	No	No
24	6	3	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

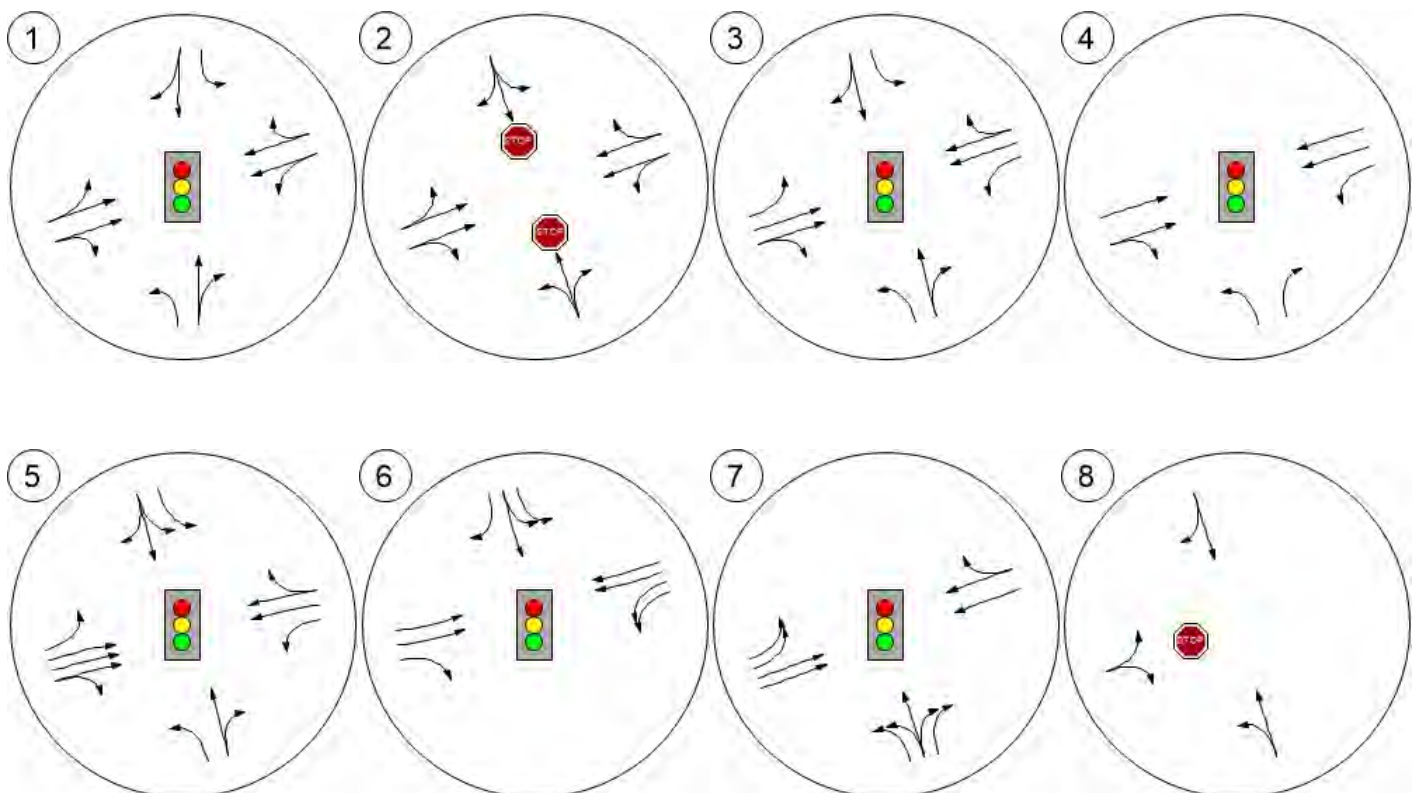
Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	7.8	7.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:05
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	25	45
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	235	235
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Study Intersections



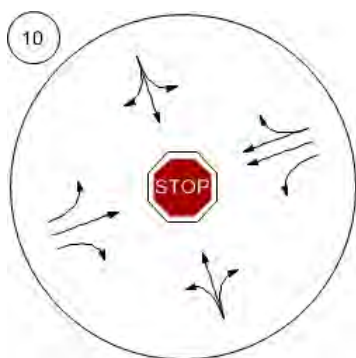


# Lane Configuration and Traffic Control

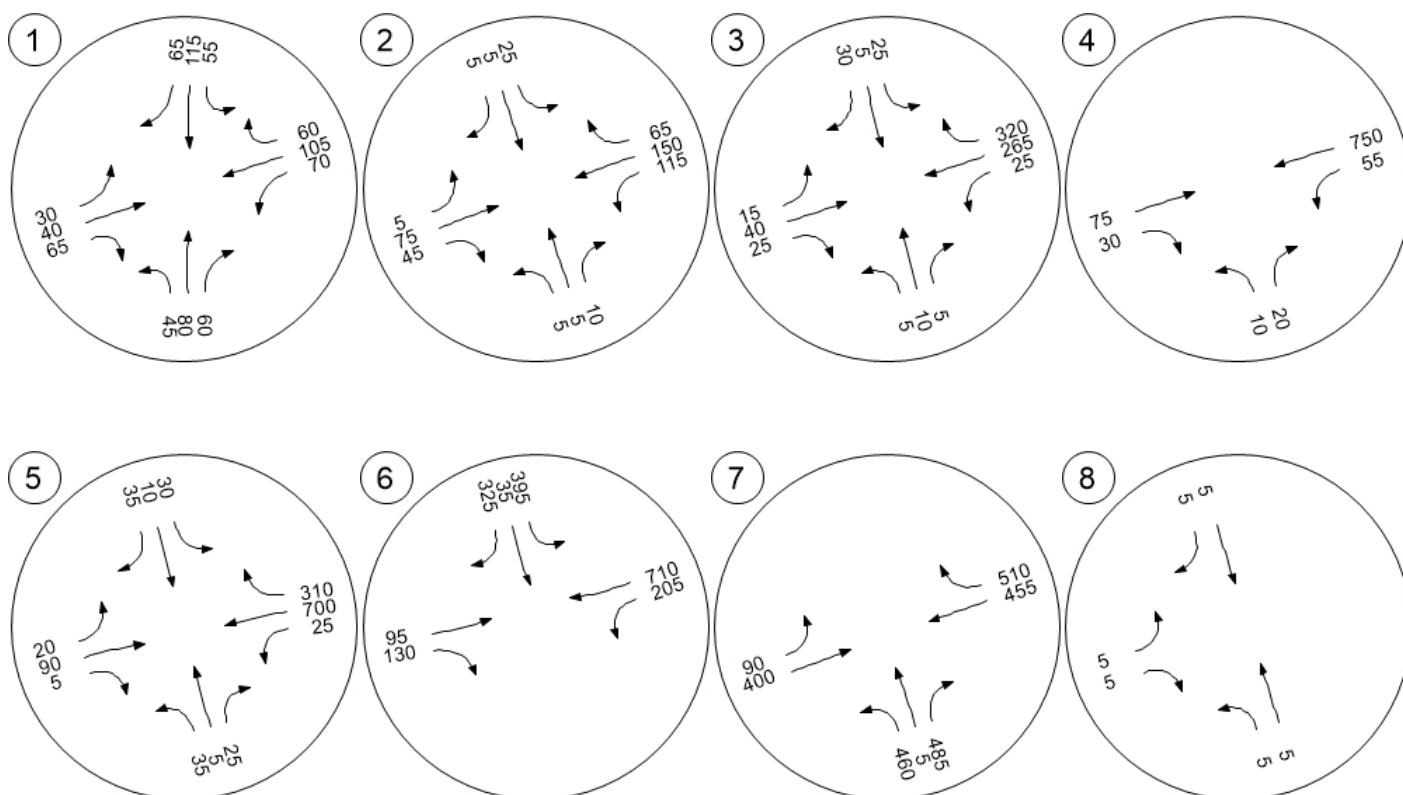




## Lane Configuration and Traffic Control

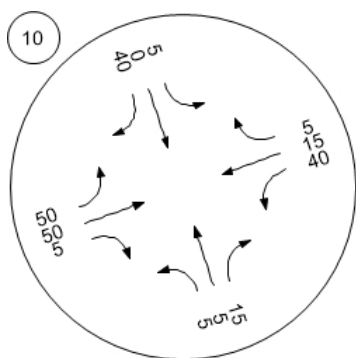


Traffic Volume - Base Volume

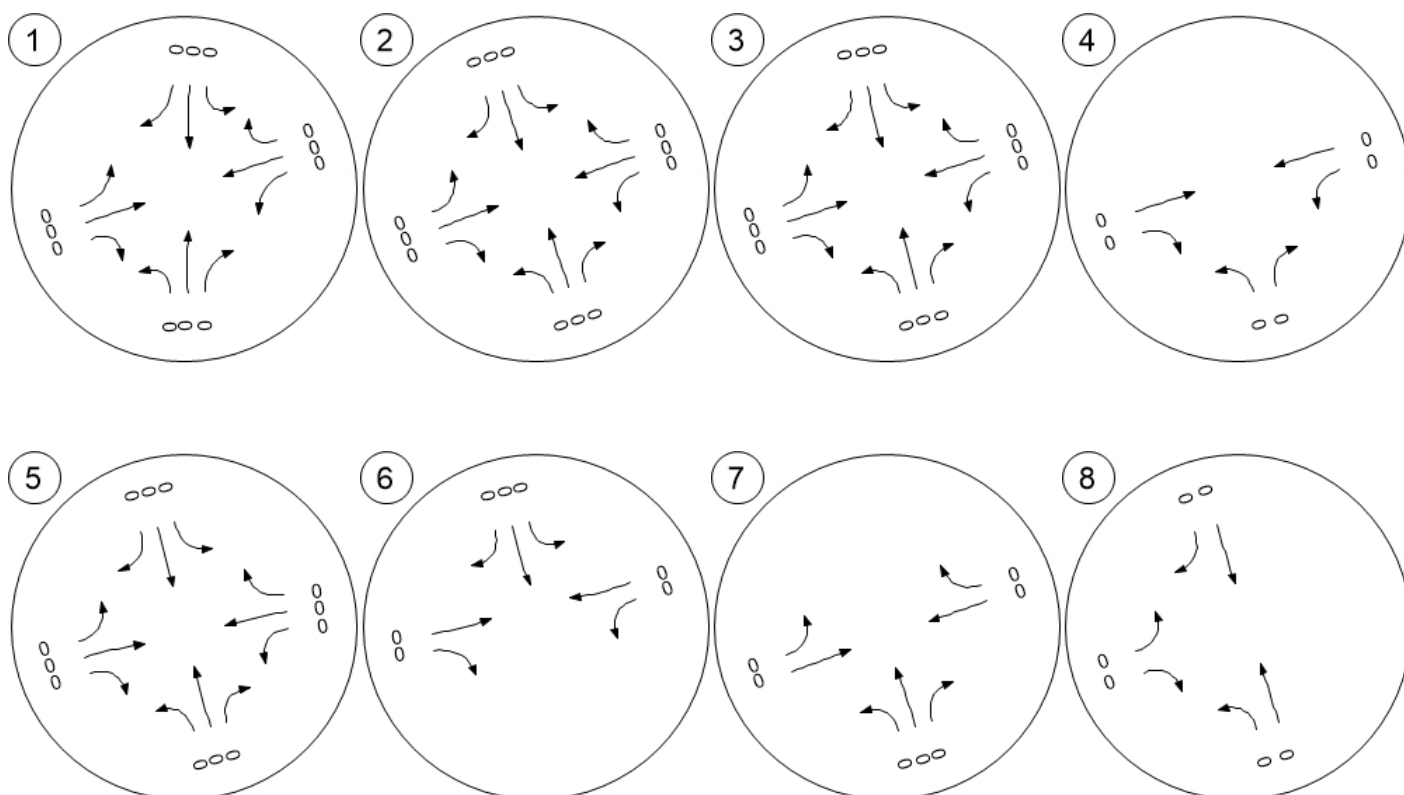




Traffic Volume - Base Volume

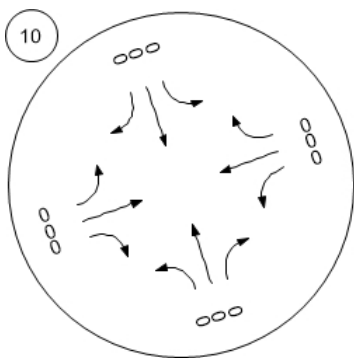


Traffic Volume - In-Process Volume

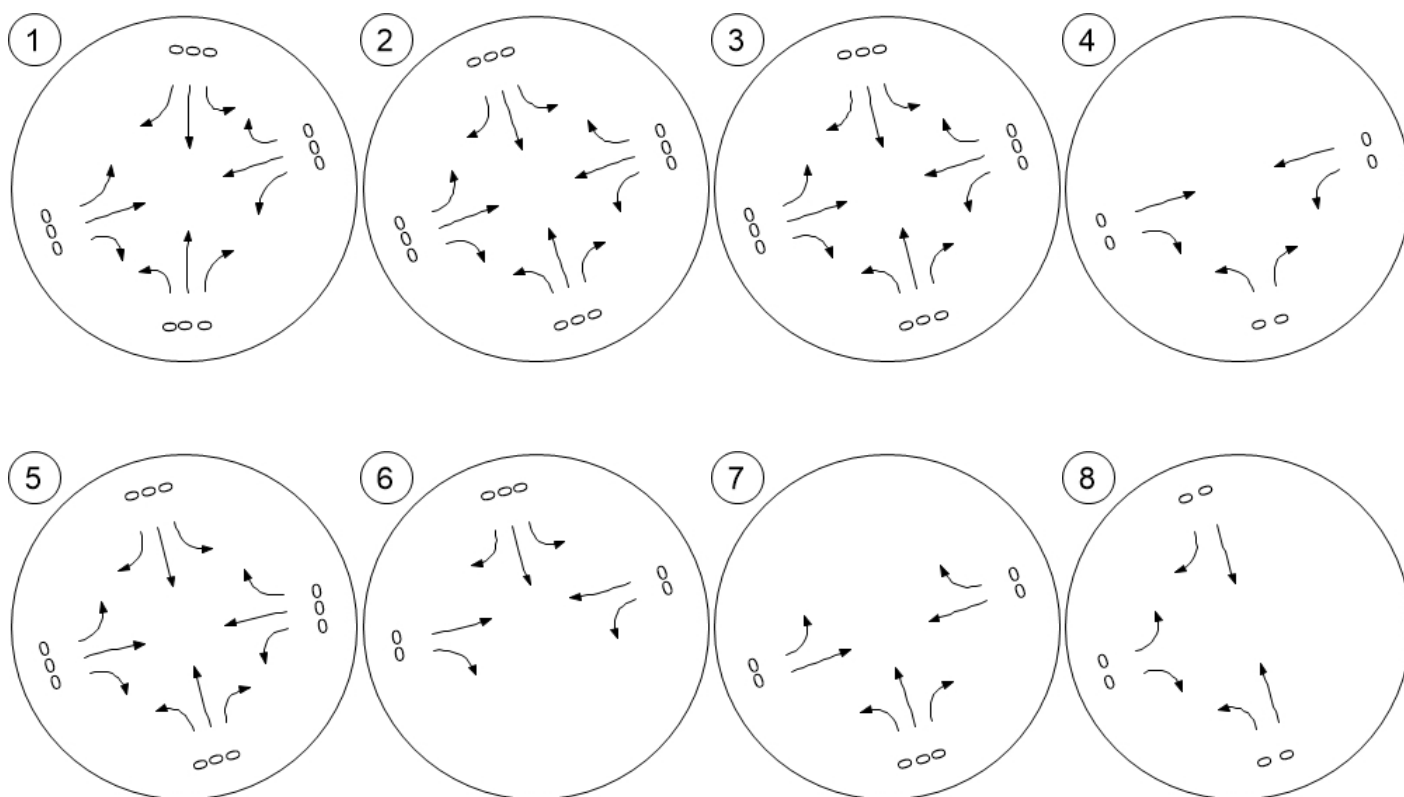




Traffic Volume - In-Process Volume

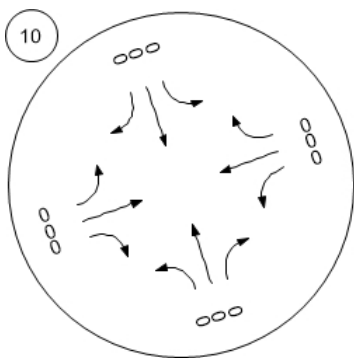


Traffic Volume - Net New Site Trips

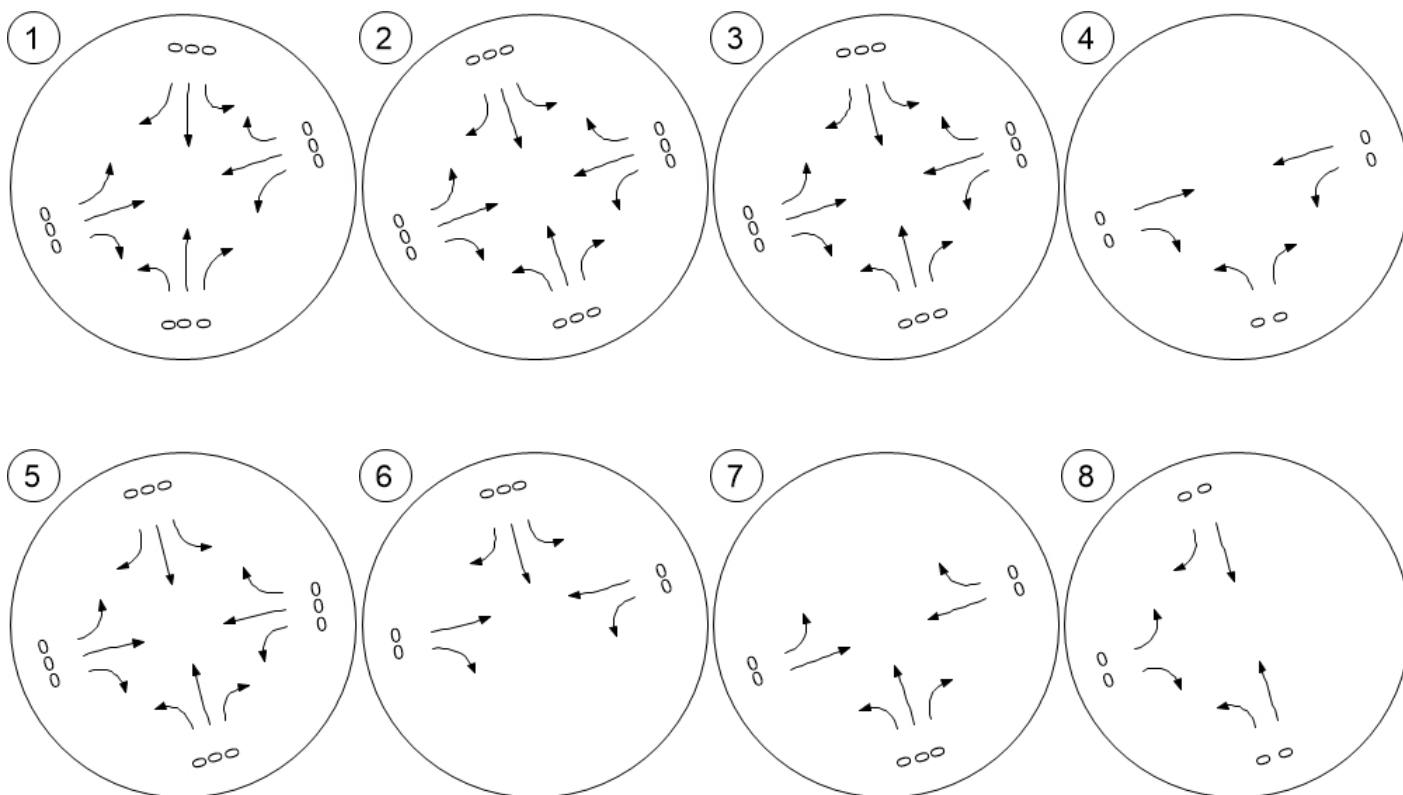




Traffic Volume - Net New Site Trips

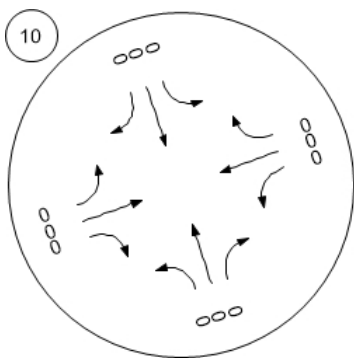


Traffic Volume - Other Volume

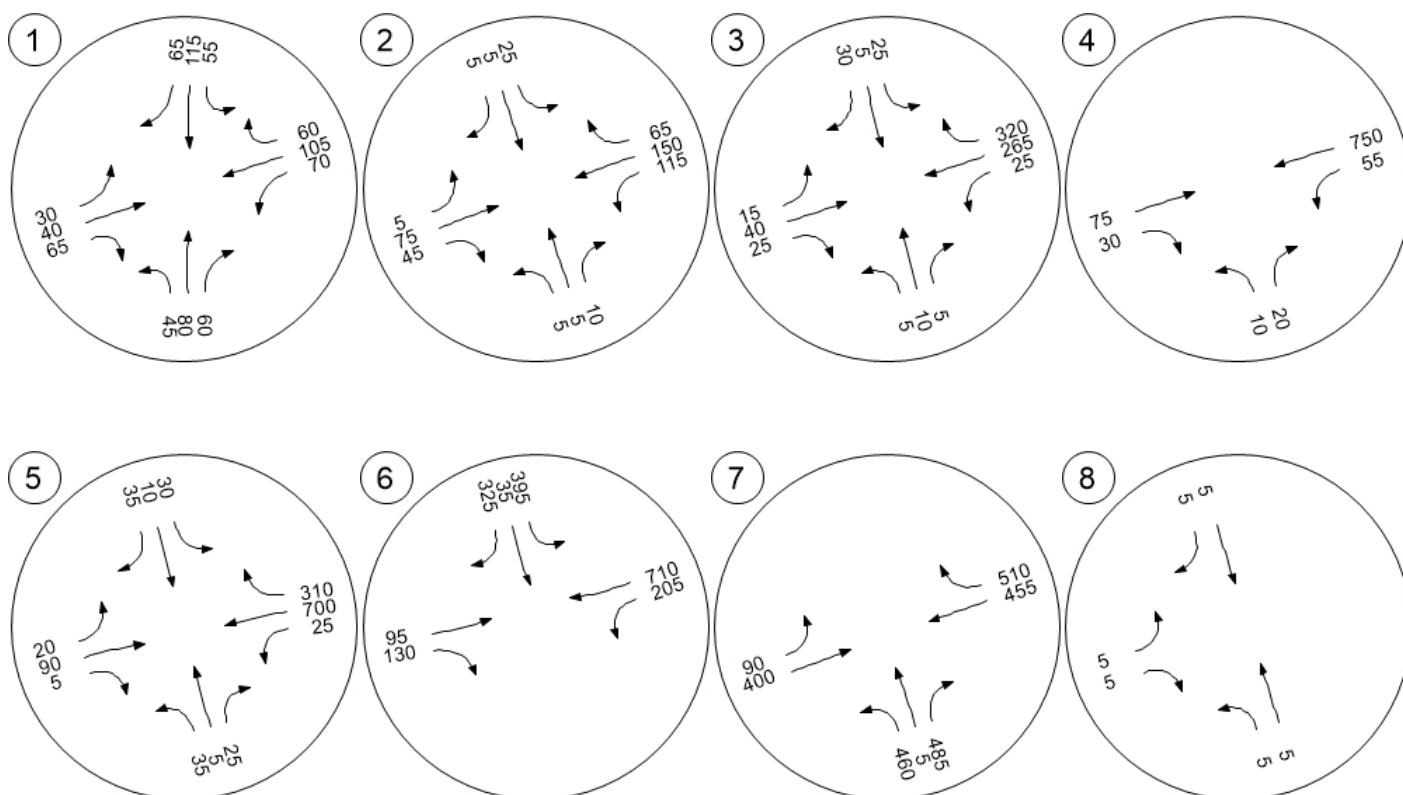




Traffic Volume - Other Volume

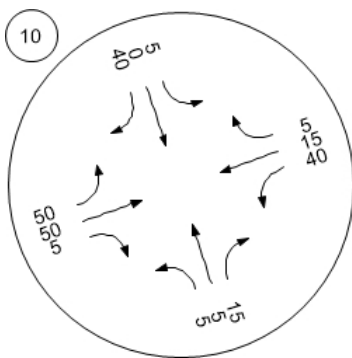


Traffic Volume - Future Total Volume

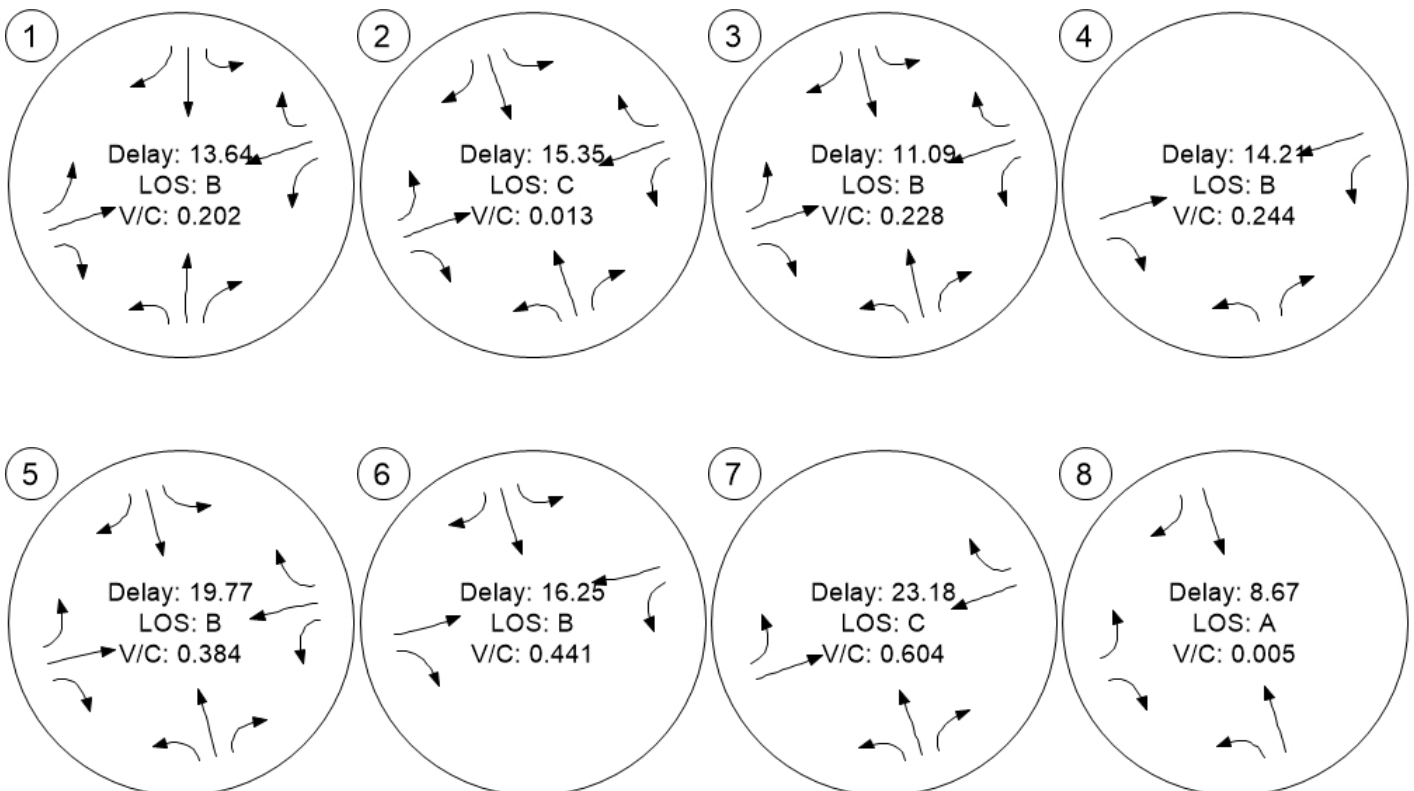




Traffic Volume - Future Total Volume

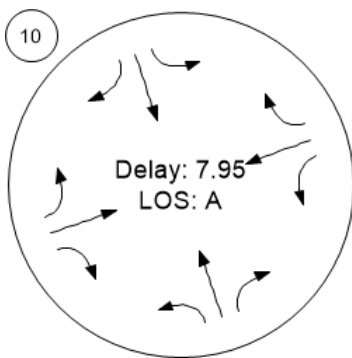


## Traffic Conditions





## Traffic Conditions



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands).vistro

Scenario 10: Future Year PM

Report File: P:\...\Future PM (without Tidelands Avenue).pdf

4/27/2016

## Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tidelands Avenue	Signalized	HCM2000	SBT	0.096	12.8	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBT	0.011	13.5	B
3	Bay Marina Drive / Tidelands Avenue	Signalized	HCM2000	SBL	0.228	13.9	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.274	23.5	C
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.291	24.4	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.609	23.8	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.560	15.7	B
8	28th Street / Quay Avenue	Two-way stop	HCM2000	EBL	0.005	8.7	A
10	32nd Street / Tidelands Avenue	All-way stop	HCM2000	EBL		8.2	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.096

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	15	40	30	40	60	20	45	65	20	10	5	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	40	30	40	60	20	45	65	20	10	5	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	11	8	11	16	5	12	18	5	3	1	3
Total Analysis Volume [veh/h]	16	43	33	43	65	22	49	71	22	11	5	11
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.03	0.05	0.05	0.01
Total Saturation Flow Adjustment	0.69	0.92	0.69	0.94	0.79	0.77
s, saturation flow rate [veh/h]	1305	1741	1318	1792	2995	2923
c, Capacity [veh/h]	541	721	546	742	1241	1211
d1, Uniform Delay [s]	12.16	12.56	12.41	12.62	12.60	12.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.29	0.28	0.32	0.19	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

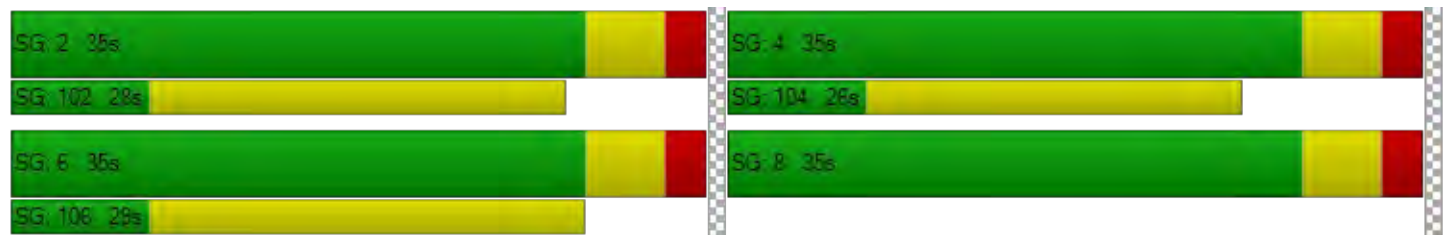
X, volume / capacity	0.03	0.11	0.08	0.12	0.11	0.02
d, Delay for Lane Group [s/veh]	12.26	12.85	12.69	12.94	12.79	12.15
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.20	0.99	0.56	1.14	0.98	0.18
50th-Percentile Queue Length [ft]	5.09	24.87	14.00	28.61	24.58	4.47
95th-Percentile Queue Length [veh]	0.52	2.41	1.40	2.74	2.38	0.46
95th-Percentile Queue Length [ft]	13.02	60.17	34.90	68.54	59.52	11.47

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.26	12.85	12.85	12.69	12.94	12.94	12.79	12.79	12.79	12.15	12.15	12.15
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.75			12.86			12.79			12.15		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.76											
Intersection LOS	B											
Intersection V/C	0.096											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.011

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	15	5	50	30	5	5	5	75	30	90	120	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	5	50	30	5	5	5	75	30	90	120	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	14	8	1	1	1	20	8	24	33	3
Total Analysis Volume [veh/h]	16	5	54	33	5	5	5	82	33	98	130	11
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	no	no	no	no
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	no	no	no	no
Number of Storage Spaces in Median	0	0	0	0



**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.03	0.01	0.05	0.07	0.01	0.01	0.00	0.00	0.00	0.07	0.00	0.00
d_M, Delay for Movement [s/veh]	12.41	13.19	9.10	13.08	13.46	9.33	7.51	0.00	0.00	7.62	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.32	0.32	0.32	0.27	0.27	0.27	0.13	0.07	0.00	0.26	0.13	0.00
95th-Percentile Queue Length [ft]	7.90	7.90	7.90	6.86	6.86	6.86	3.26	1.63	0.00	6.62	3.31	0.00
d_A, Approach Delay [s/veh]	10.08			12.69			0.31			3.12		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	4.37											
Intersection LOS	B											

### Intersection Level Of Service Report #3: Bay Marina Drive / Tidelands Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 13.9  
Level Of Service: B  
Volume to Capacity (v/c): 0.228

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	20	40	50	200	45	135	45	85	15	5	65	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	40	50	200	45	135	45	85	15	5	65	80
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	13	54	11	37	12	23	4	1	18	22
Total Analysis Volume [veh/h]	20	40	50	217	45	147	49	92	15	5	71	87
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	3	4	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	37	0	0	37	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	31	31	31	31	27	27	27	27	27
g / C, Green / Cycle	0.44	0.44	0.44	0.44	0.39	0.39	0.39	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.17	0.13	0.04	0.03	0.00	0.04	0.06
Total Saturation Flow Adjustment	0.62	0.81	0.68	0.78	0.69	0.91	0.67	0.98	0.75
s, saturation flow rate [veh/h]	1186	1537	1301	1484	1320	3472	1275	1863	1425
c, Capacity [veh/h]	525	681	576	657	509	1339	492	718	550
d1, Uniform Delay [s]	11.05	11.54	13.04	12.48	13.72	13.63	13.26	13.73	14.07
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	0.40	1.87	1.13	0.38	0.12	0.04	0.27	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.04	0.13	0.38	0.29	0.10	0.08	0.01	0.10	0.16
d, Delay for Lane Group [s/veh]	11.19	11.94	14.91	13.61	14.09	13.74	13.30	14.01	14.68
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	no	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.24	1.15	3.21	2.68	0.67	0.76	0.07	0.96	1.22
50th-Percentile Queue Length [ft]	6.11	28.67	80.28	67.06	16.78	18.94	1.65	24.12	30.62
95th-Percentile Queue Length [veh]	0.62	2.75	6.83	5.86	1.66	1.86	0.17	2.34	2.92
95th-Percentile Queue Length [ft]	15.60	68.68	170.69	146.51	41.53	46.58	4.26	58.49	72.97



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	11.19	11.94	11.94	14.91	13.61	13.61	14.09	13.74	13.74	13.30	14.01	14.68
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	11.81			14.30			13.85			14.34		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.90											
Intersection LOS	B											
Intersection V/C	0.228											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 23.5  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.274

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	15	70	440	65	110	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	70	440	65	110	230
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	19	120	18	30	63
Total Analysis Volume [veh/h]	16	76	478	71	120	250
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	50	0	23	73
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	44	19	67
g / C, Green / Cycle	0.28	0.28	0.40	0.17	0.61
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.16	0.07	0.07
Total Saturation Flow Adjustment	0.93	0.83	0.92	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3478	1770	3547
c, Capacity [veh/h]	499	446	1391	306	2160
d1, Uniform Delay [s]	28.63	29.80	23.51	40.38	9.04
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.83	0.84	3.75	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.03	0.17	0.39	0.39	0.12
d, Delay for Lane Group [s/veh]	28.75	30.62	24.35	44.13	9.15
Lane Group LOS	C	C	C	D	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.38	1.90	6.96	3.62	1.87
50th-Percentile Queue Length [ft]	9.53	47.62	173.92	90.47	46.87
95th-Percentile Queue Length [veh]	0.96	4.35	12.86	7.54	4.29
95th-Percentile Queue Length [ft]	24.07	108.72	321.53	188.62	107.21



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	28.75	30.62	24.35	24.35	44.13	9.15
Movement LOS	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	30.30		24.35		20.50	
Approach LOS	C		C		C	
d_I, Intersection Delay [s/veh]	23.48					
Intersection LOS	C					
Intersection V/C	0.274					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 24.4  
Level Of Service: C  
Volume to Capacity (v/c): 0.291

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	30	5	35	320	15	50	35	430	30	65	220	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	5	35	320	15	50	35	430	30	65	220	115
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	10	87	4	14	10	117	8	18	60	31
Total Analysis Volume [veh/h]	33	5	38	348	16	54	38	467	33	71	239	125
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	24	0	9	20	0	11	22	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	20	5	16	7	18
g / C, Green / Cycle	0.16	0.16	0.29	0.07	0.23	0.10	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.13	0.02	0.10	0.04	0.11
Total Saturation Flow Adjustment	0.93	0.85	0.88	0.93	0.88	0.93	0.89
s, saturation flow rate [veh/h]	1770	1616	3339	1770	5024	1770	3364
c, Capacity [veh/h]	278	254	954	126	1148	177	865
d1, Uniform Delay [s]	25.34	25.54	20.41	30.84	23.13	29.53	21.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	1.44	1.46	6.01	1.20	6.65	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.12	0.17	0.44	0.30	0.44	0.40	0.42
d, Delay for Lane Group [s/veh]	26.21	26.98	21.88	36.85	24.33	36.19	23.16
Lane Group LOS	C	C	C	D	C	D	C
Critical Lane Group	no	yes	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.60	0.80	3.94	0.80	3.46	1.48	3.49
50th-Percentile Queue Length [ft]	15.09	19.96	98.50	19.93	86.40	37.07	87.31
95th-Percentile Queue Length [veh]	1.50	1.96	8.10	1.96	7.26	3.47	7.32
95th-Percentile Queue Length [ft]	37.52	48.96	202.40	48.88	181.52	86.86	183.12



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	26.21	26.98	26.98	21.88	21.88	21.88	36.85	24.33	24.33	36.19	23.16	23.16
Movement LOS	C	C	C	C	C	C	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.65			21.88			25.22			25.29		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.36											
Intersection LOS	C											
Intersection V/C	0.291											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 23.8  
Level Of Service: C  
Volume to Capacity (v/c): 0.609

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	685	5	130	0	410	375	410	270	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	685	5	130	0	410	375	410	270	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	186	1	35	0	111	102	111	73	0
Total Analysis Volume [veh/h]	0	0	0	745	5	141	0	446	408	446	293	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	22	0	0	24	0	14	38	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		17	17	19	19	10	33
g / C, Green / Cycle		0.29	0.29	0.32	0.32	0.16	0.56
(v / s)_i Volume / Saturation Flow Rate		0.22	0.09	0.13	0.26	0.13	0.08
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3379	1583	3547	1583	3437	3547
c, Capacity [veh/h]		980	459	1147	512	561	1974
d1, Uniform Delay [s]		19.44	16.60	15.71	18.50	24.13	6.43
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.69	1.73	1.00	12.18	11.08	0.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.77	0.31	0.39	0.80	0.79	0.15
d, Delay for Lane Group [s/veh]		25.12	18.33	16.71	30.68	35.21	6.59
Lane Group LOS		C	B	B	C	D	A
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		7.59	2.05	3.40	8.05	4.88	1.39
50th-Percentile Queue Length [ft]		189.63	51.29	85.06	201.20	122.02	34.82
95th-Percentile Queue Length [veh]		13.80	4.64	7.17	14.49	9.65	3.28
95th-Percentile Queue Length [ft]		345.00	116.08	179.17	362.15	241.21	82.07



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	25.12	25.12	18.33	0.00	16.71	30.68	35.21	6.59	0.00
Movement LOS				C	C	B		B	C	D	A	
d_A, Approach Delay [s/veh]	0.00			24.05			23.38			23.86		
Approach LOS	A			C			C			C		
d_I, Intersection Delay [s/veh]	23.76											
Intersection LOS	C											
Intersection V/C	0.609											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 15.7  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.560

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	80	5	375	0	0	0	240	855	0	0	600	545
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	5	375	0	0	0	240	855	0	0	600	545
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	1	100	0	0	0	65	230	0	0	161	147
Total Analysis Volume [veh/h]	85	5	399	0	0	0	258	919	0	0	645	586
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	14	0	0	0	0	11	46	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60
g_i, Effective Green Time [s]	9		7	41	30
g / C, Green / Cycle	0.16		0.11	0.69	0.51
(v / s)_i Volume / Saturation Flow Rate	0.11		0.08	0.26	0.37
Total Saturation Flow Adjustment	0.77		0.90	0.93	0.87
s, saturation flow rate [veh/h]	4415		3437	3547	3293
c, Capacity [veh/h]	692		389	2447	1669
d1, Uniform Delay [s]	23.99		25.50	3.89	11.66
k, delay calibration	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	6.01		8.58	0.44	2.96
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.71		0.66	0.38	0.74
d, Delay for Lane Group [s/veh]	30.00		34.08	4.33	14.62
Lane Group LOS	C		C	A	B
Critical Lane Group	yes		yes	no	yes
50th-Percentile Queue Length [veh]	3.57		2.64	3.98	10.55
50th-Percentile Queue Length [ft]	89.35		65.98	99.47	263.67
95th-Percentile Queue Length [veh]	7.47		5.78	8.16	18.15
95th-Percentile Queue Length [ft]	186.68		144.48	204.03	453.86



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	30.00	30.00	30.00	0.00	0.00	0.00	34.08	4.33	0.00	0.00	14.62	14.62
Movement LOS	C	C	C				C	A			B	B
d_A, Approach Delay [s/veh]	30.00			0.00			10.85			14.62		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	15.69											
Intersection LOS	B											
Intersection V/C	0.560											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#8: 28th Street / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.7  
 Level Of Service: A  
 Volume to Capacity (v/c): 0.005

**Intersection Setup**

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	5	5	10	5	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	10	5	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	3	1	1	1
Total Analysis Volume [veh/h]	5	5	11	5	5	5
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	7.25	0.00	0.00	0.00	8.70	8.41
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.02	0.02	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	0.47	0.47	0.00	0.00	0.74	0.74
d_A, Approach Delay [s/veh]	3.63		0.00		8.55	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	3.38					
Intersection LOS	A					







**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.2  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	0	30	5	0	25	70	10	5	55	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	30	5	0	25	70	10	5	55	5	5
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	8	1	0	6	18	3	1	15	1	1
Total Analysis Volume [veh/h]	5	0	33	5	0	25	70	11	5	60	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.15	0.02	0.09	0.35	0.05	0.02	0.30	0.02	0.02
95th-Percentile Queue Length [ft]	3.76	0.58	2.33	8.70	1.13	0.44	7.38	0.51	0.44
Approach Delay [s/veh]	7.76	7.35		8.45			8.44		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.18								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands).vistro

Scenario 10: Future Year PM

Report File: P:\...\Future PM (without Tidelands Avenue).pdf

4/27/2016

**Turning Movement Volume: Summary**

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	15	40	30	40	60	20	45	65	20	10	5	10	360

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	15	5	50	30	5	5	5	75	30	90	120	10	440

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	20	40	50	200	45	135	45	85	15	5	65	80	785

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	15	70	440	65	110	230	930

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	30	5	35	320	15	50	35	430	30	65	220	115	1350

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	685	5	130	410	375	410	270	2285

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	80	5	375	240	855	600	545	2700

ID	Intersection Name	Northbound		Southbound		Eastbound		Total Volume
		Left	Thru	Thru	Right	Left	Right	
8	28th Street / Quay Avenue	5	5	10	5	5	5	35

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tideland Avenue	5	0	30	5	0	25	70	10	5	55	5	5	215



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands).vistro

Scenario 10: Future Year PM

Report File: P:\...\Future PM (without Tidelands Avenue).pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	Final Base	15	40	30	40	60	20	45	65	20	10	5	10	360
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>40</b>	<b>30</b>	<b>40</b>	<b>60</b>	<b>20</b>	<b>45</b>	<b>65</b>	<b>20</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>360</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	15	5	50	30	5	5	5	75	30	90	120	10	440
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>5</b>	<b>50</b>	<b>30</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>75</b>	<b>30</b>	<b>90</b>	<b>120</b>	<b>10</b>	<b>440</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	20	40	50	200	45	135	45	85	15	5	65	80	785
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>20</b>	<b>40</b>	<b>50</b>	<b>200</b>	<b>45</b>	<b>135</b>	<b>45</b>	<b>85</b>	<b>15</b>	<b>5</b>	<b>65</b>	<b>80</b>	<b>785</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	15	70	440	65	110	230	930
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>70</b>	<b>440</b>	<b>65</b>	<b>110</b>	<b>230</b>	<b>930</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	30	5	35	320	15	50	35	430	30	65	220	115	1350
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>30</b>	<b>5</b>	<b>35</b>	<b>320</b>	<b>15</b>	<b>50</b>	<b>35</b>	<b>430</b>	<b>30</b>	<b>65</b>	<b>220</b>	<b>115</b>	<b>1350</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	685	5	130	410	375	410	270	2285
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>685</b>	<b>5</b>	<b>130</b>	<b>410</b>	<b>375</b>	<b>410</b>	<b>270</b>	<b>2285</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	80	5	375	240	855	600	545	2700
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>80</b>	<b>5</b>	<b>375</b>	<b>240</b>	<b>855</b>	<b>600</b>	<b>545</b>	<b>2700</b>

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Total Volume
			Left	Thru	Thru	Right	Left	Right	
8	28th Street / Quay Avenue	Final Base	5	5	10	5	5	5	35
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>35</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	Final Base	5	0	30	5	0	25	70	10	5	55	5	5	215
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>0</b>	<b>30</b>	<b>5</b>	<b>0</b>	<b>25</b>	<b>70</b>	<b>10</b>	<b>5</b>	<b>55</b>	<b>5</b>	<b>5</b>	<b>215</b>

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	220	110	70	40
2	211	106	67	38
3	207	103	66	38
4	176	88	56	32
5	167	84	53	30
6	150	75	48	27
7	139	69	44	25
8	132	66	42	24
9	106	53	34	19
10	99	50	32	18
11	99	50	32	18
12	95	47	30	17
13	86	43	27	16
14	79	40	25	14
15	79	40	25	14
16	77	39	25	14
17	44	22	14	8
18	24	12	8	4
19	22	11	7	4
20	9	4	3	2
21	7	3	2	1
22	7	3	2	1
23	4	2	1	1
24	4	2	1	1



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	330	2	110	No	No	No	No	No	No	No	No	No	No
2	4	317	2	105	No	No	No	No	No	No	No	No	No	No
3	4	310	2	104	No	No	No	No	No	No	No	No	No	No
4	4	264	2	88	No	No	No	No	No	No	No	No	No	No
5	4	251	2	83	No	No	No	No	No	No	No	No	No	No
6	4	225	2	75	No	No	No	No	No	No	No	No	No	No
7	4	208	2	69	No	No	No	No	No	No	No	No	No	No
8	4	198	2	66	No	No	No	No	No	No	No	No	No	No
9	4	159	2	53	No	No	No	No	No	No	No	No	No	No
10	4	149	2	50	No	No	No	No	No	No	No	No	No	No
11	4	149	2	50	No	No	No	No	No	No	No	No	No	No
12	4	142	2	47	No	No	No	No	No	No	No	No	No	No
13	4	129	2	43	No	No	No	No	No	No	No	No	No	No
14	4	119	2	39	No	No	No	No	No	No	No	No	No	No
15	4	119	2	39	No	No	No	No	No	No	No	No	No	No
16	4	116	2	39	No	No	No	No	No	No	No	No	No	No
17	4	66	2	22	No	No	No	No	No	No	No	No	No	No
18	4	36	2	12	No	No	No	No	No	No	No	No	No	No
19	4	33	2	11	No	No	No	No	No	No	No	No	No	No
20	4	13	2	5	No	No	No	No	No	No	No	No	No	No
21	4	10	2	3	No	No	No	No	No	No	No	No	No	No
22	4	10	2	3	No	No	No	No	No	No	No	No	No	No
23	4	6	2	2	No	No	No	No	No	No	No	No	No	No
24	4	6	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.1	12.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:11	0:08
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	70	40
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	440	440
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## Signal Warrants Report For Intersection #8: 28th Street / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	W
1	10	15	10
2	10	14	10
3	9	14	9
4	8	12	8
5	8	11	8
6	7	10	7
7	6	9	6
8	6	9	6
9	5	7	5
10	5	7	5
11	5	7	5
12	4	6	4
13	4	6	4
14	4	5	4
15	4	5	4
16	4	5	4
17	2	3	2
18	1	2	1
19	1	2	1
20	0	1	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	25	1	10	No	No	No	No	No	No	No	No	No	No
2	2	24	1	10	No	No	No	No	No	No	No	No	No	No
3	2	23	1	9	No	No	No	No	No	No	No	No	No	No
4	2	20	1	8	No	No	No	No	No	No	No	No	No	No
5	2	19	1	8	No	No	No	No	No	No	No	No	No	No
6	2	17	1	7	No	No	No	No	No	No	No	No	No	No
7	2	15	1	6	No	No	No	No	No	No	No	No	No	No
8	2	15	1	6	No	No	No	No	No	No	No	No	No	No
9	2	12	1	5	No	No	No	No	No	No	No	No	No	No
10	2	12	1	5	No	No	No	No	No	No	No	No	No	No
11	2	12	1	5	No	No	No	No	No	No	No	No	No	No
12	2	10	1	4	No	No	No	No	No	No	No	No	No	No
13	2	10	1	4	No	No	No	No	No	No	No	No	No	No
14	2	9	1	4	No	No	No	No	No	No	No	No	No	No
15	2	9	1	4	No	No	No	No	No	No	No	No	No	No
16	2	9	1	4	No	No	No	No	No	No	No	No	No	No
17	2	5	1	2	No	No	No	No	No	No	No	No	No	No
18	2	3	1	1	No	No	No	No	No	No	No	No	No	No
19	2	3	1	1	No	No	No	No	No	No	No	No	No	No
20	2	1	1	0	No	No	No	No	No	No	No	No	No	No
21	2	0	1	0	No	No	No	No	No	No	No	No	No	No
22	2	0	1	0	No	No	No	No	No	No	No	No	No	No
23	2	0	1	0	No	No	No	No	No	No	No	No	No	No
24	2	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	10
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	35
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	S	N	E	W
1	35	30	65	85
2	34	29	62	82
3	33	28	61	80
4	28	24	52	68
5	27	23	49	65
6	24	20	44	58
7	22	19	41	54
8	21	18	39	51
9	17	14	31	41
10	16	14	29	38
11	16	14	29	38
12	15	13	28	37
13	14	12	25	33
14	13	11	23	31
15	13	11	23	31
16	12	11	23	30
17	7	6	13	17
18	4	3	7	9
19	4	3	7	9
20	1	1	3	3
21	1	1	2	3
22	1	1	2	3
23	1	1	1	2
24	1	1	1	2



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	65	6	150	No	No	No	No	No	No	No	No	No	No
2	3	63	6	144	No	No	No	No	No	No	No	No	No	No
3	3	61	6	141	No	No	No	No	No	No	No	No	No	No
4	3	52	6	120	No	No	No	No	No	No	No	No	No	No
5	3	50	6	114	No	No	No	No	No	No	No	No	No	No
6	3	44	6	102	No	No	No	No	No	No	No	No	No	No
7	3	41	6	95	No	No	No	No	No	No	No	No	No	No
8	3	39	6	90	No	No	No	No	No	No	No	No	No	No
9	3	31	6	72	No	No	No	No	No	No	No	No	No	No
10	3	30	6	67	No	No	No	No	No	No	No	No	No	No
11	3	30	6	67	No	No	No	No	No	No	No	No	No	No
12	3	28	6	65	No	No	No	No	No	No	No	No	No	No
13	3	26	6	58	No	No	No	No	No	No	No	No	No	No
14	3	24	6	54	No	No	No	No	No	No	No	No	No	No
15	3	24	6	54	No	No	No	No	No	No	No	No	No	No
16	3	23	6	53	No	No	No	No	No	No	No	No	No	No
17	3	13	6	30	No	No	No	No	No	No	No	No	No	No
18	3	7	6	16	No	No	No	No	No	No	No	No	No	No
19	3	7	6	16	No	No	No	No	No	No	No	No	No	No
20	3	2	6	6	No	No	No	No	No	No	No	No	No	No
21	3	2	6	5	No	No	No	No	No	No	No	No	No	No
22	3	2	6	5	No	No	No	No	No	No	No	No	No	No
23	3	2	6	3	No	No	No	No	No	No	No	No	No	No
24	3	2	6	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

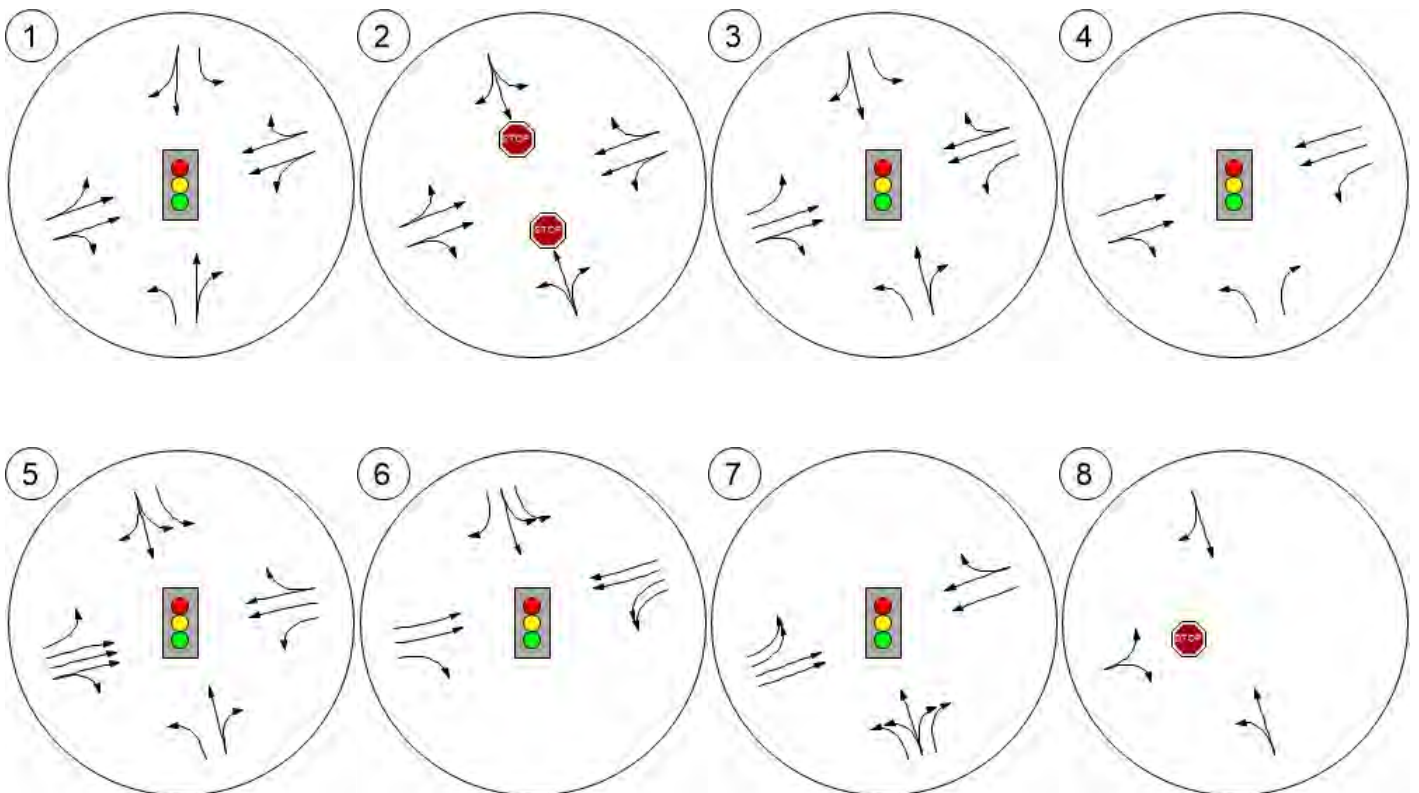
Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.4	8.5
Number of Lanes on Minor Street Approach	3	3
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09	0:11
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	65	85
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	215	215
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

Study Intersections

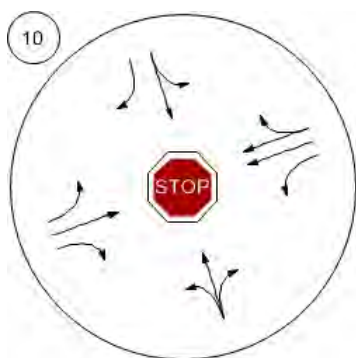




# Lane Configuration and Traffic Control

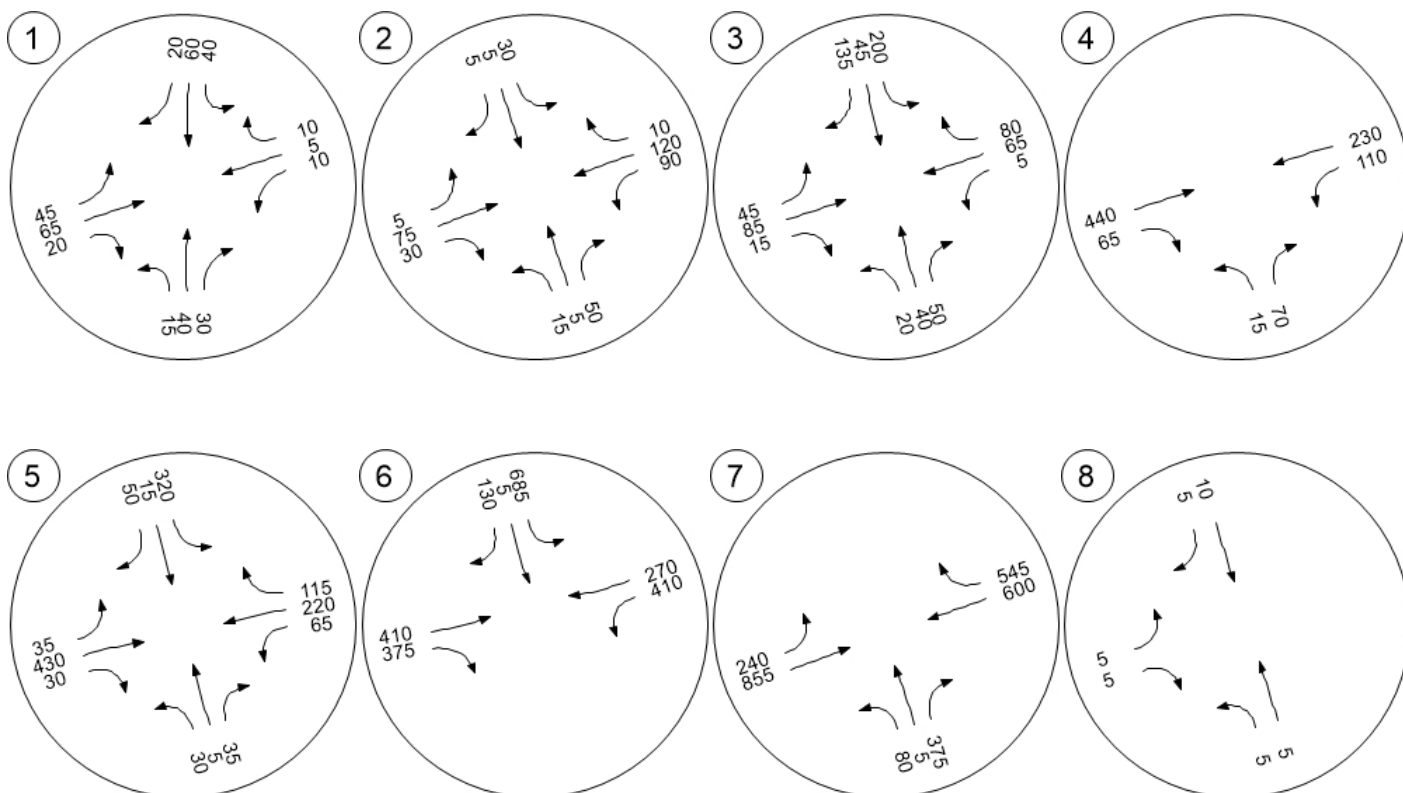


## Lane Configuration and Traffic Control



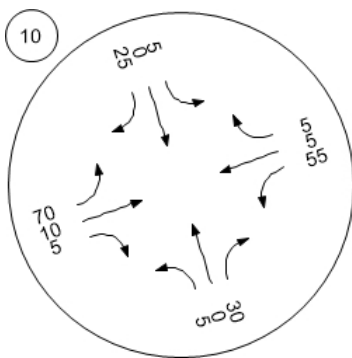


Traffic Volume - Base Volume

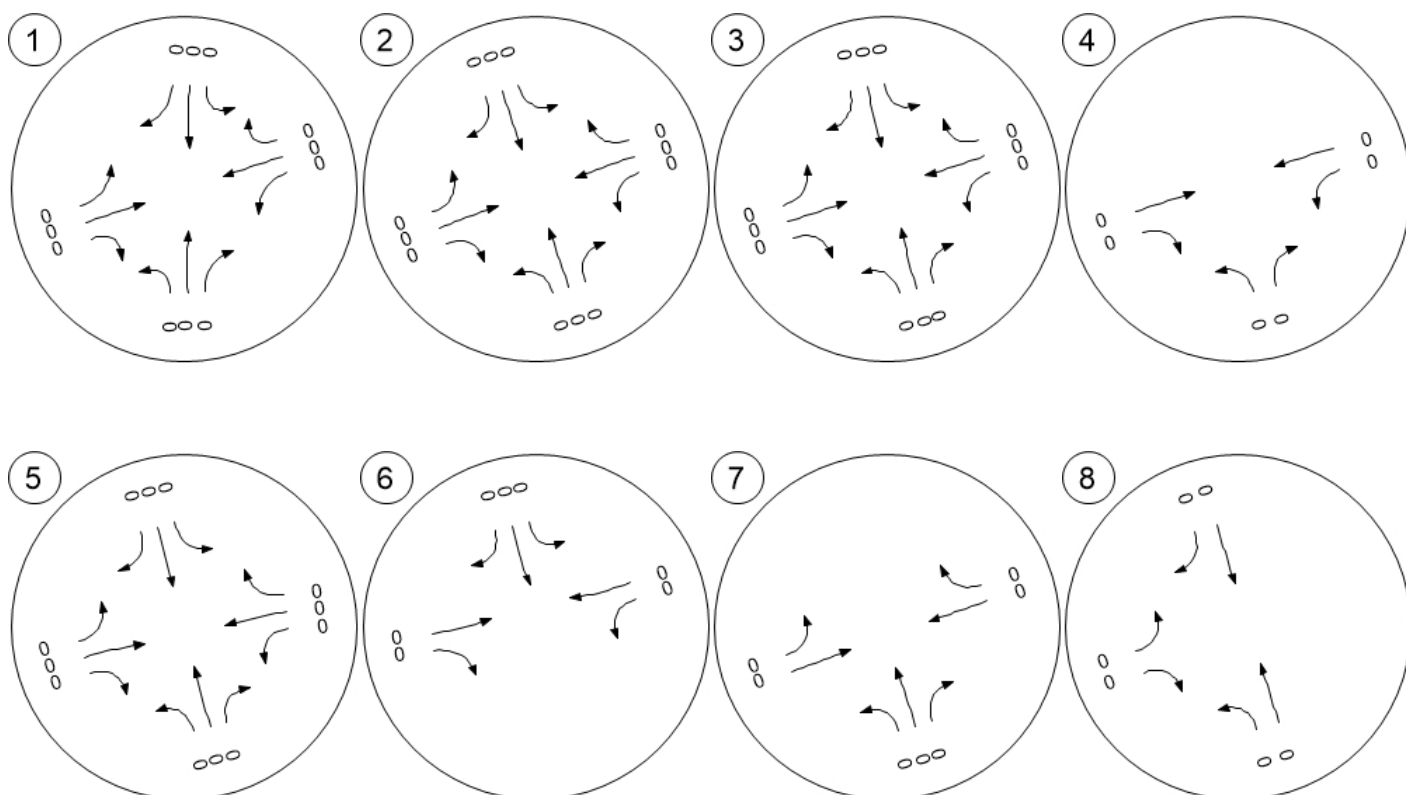




Traffic Volume - Base Volume

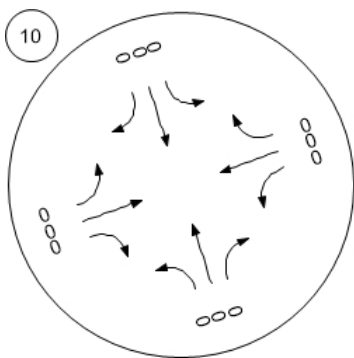


Traffic Volume - In-Process Volume

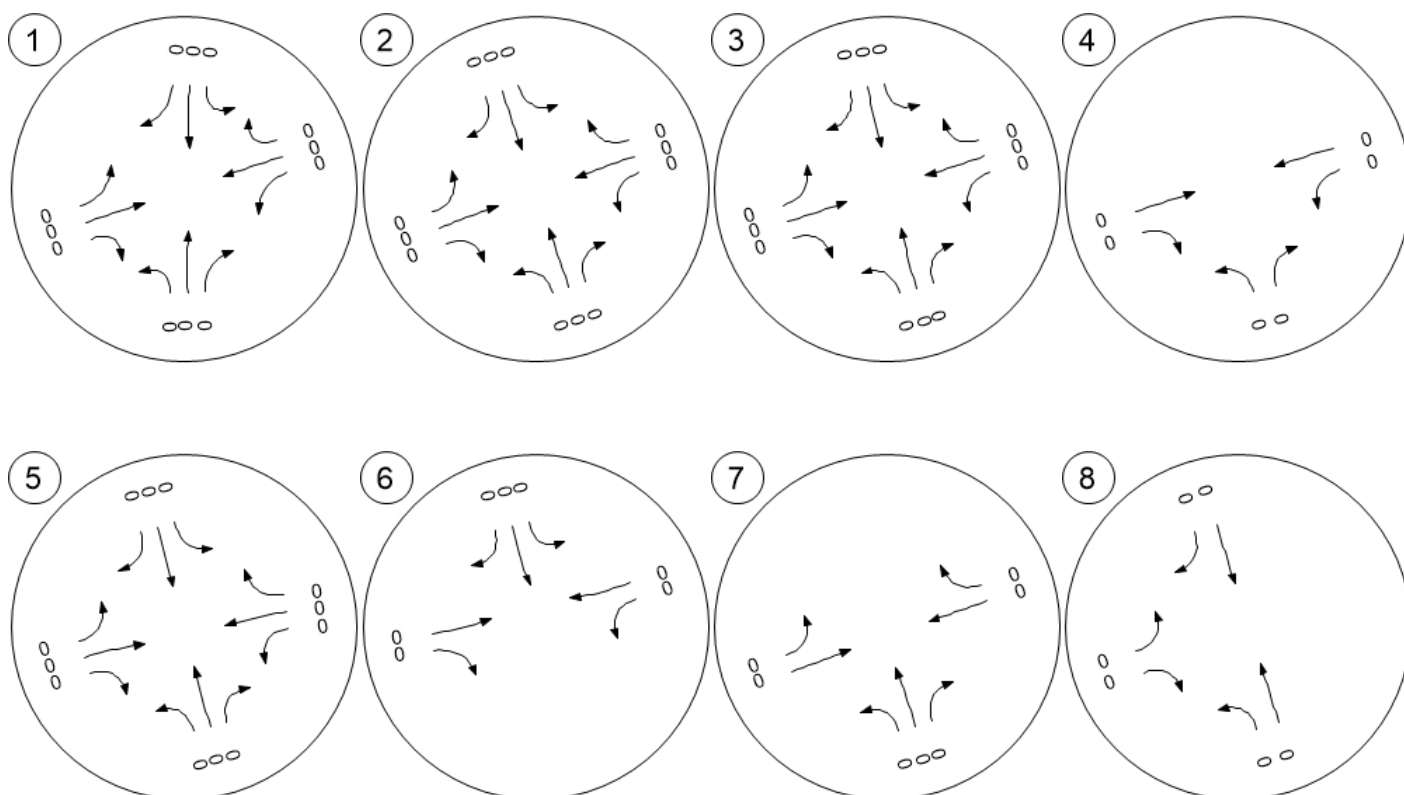




Traffic Volume - In-Process Volume

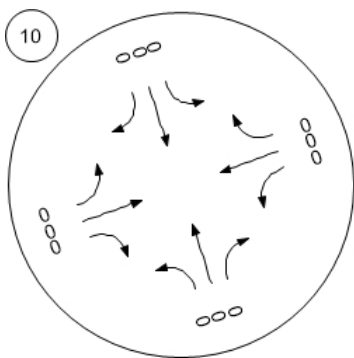


# Traffic Volume - Net New Site Trips

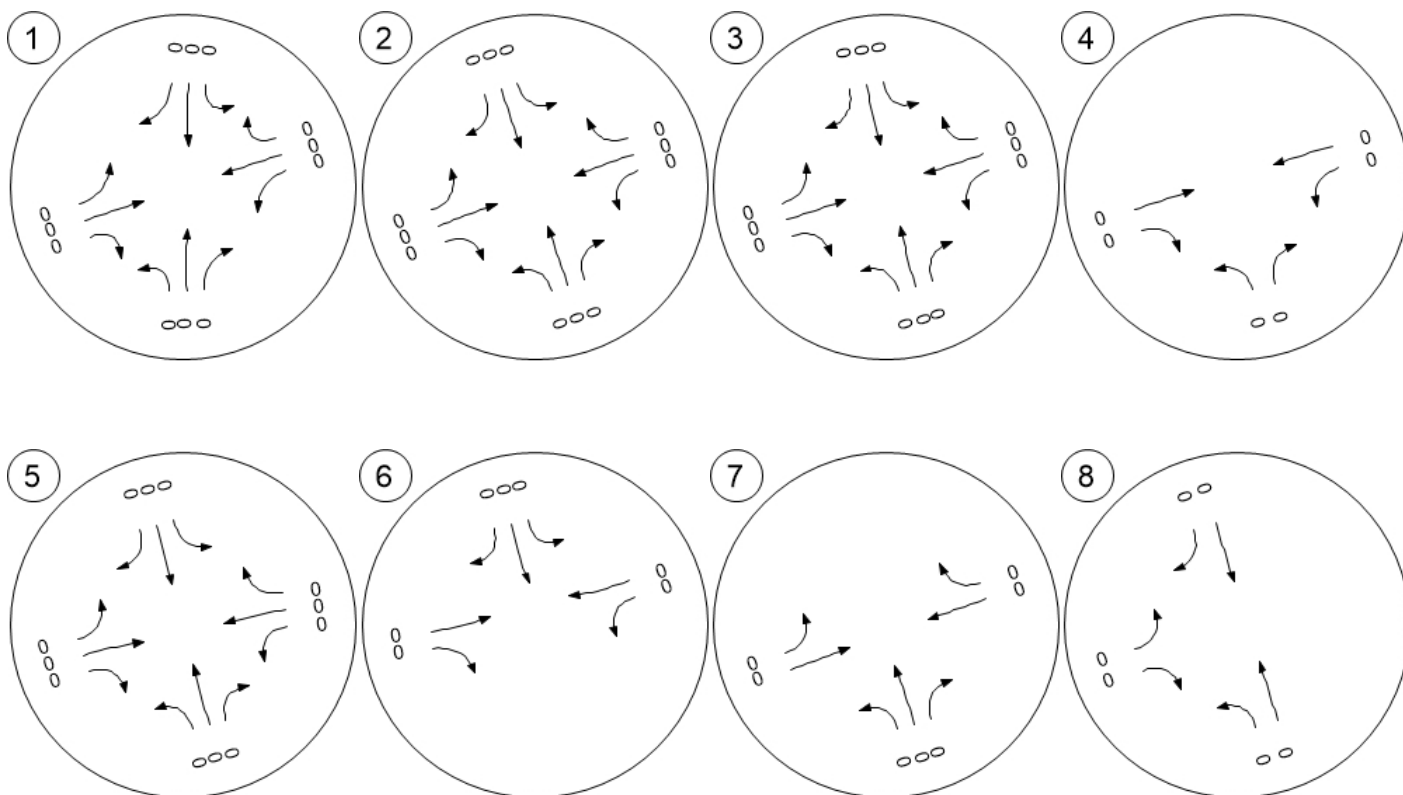




Traffic Volume - Net New Site Trips

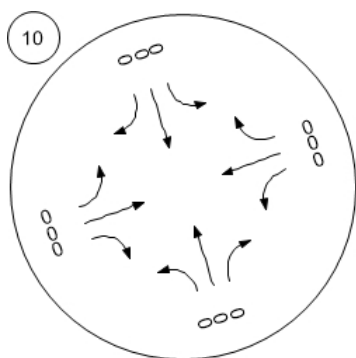


Traffic Volume - Other Volume

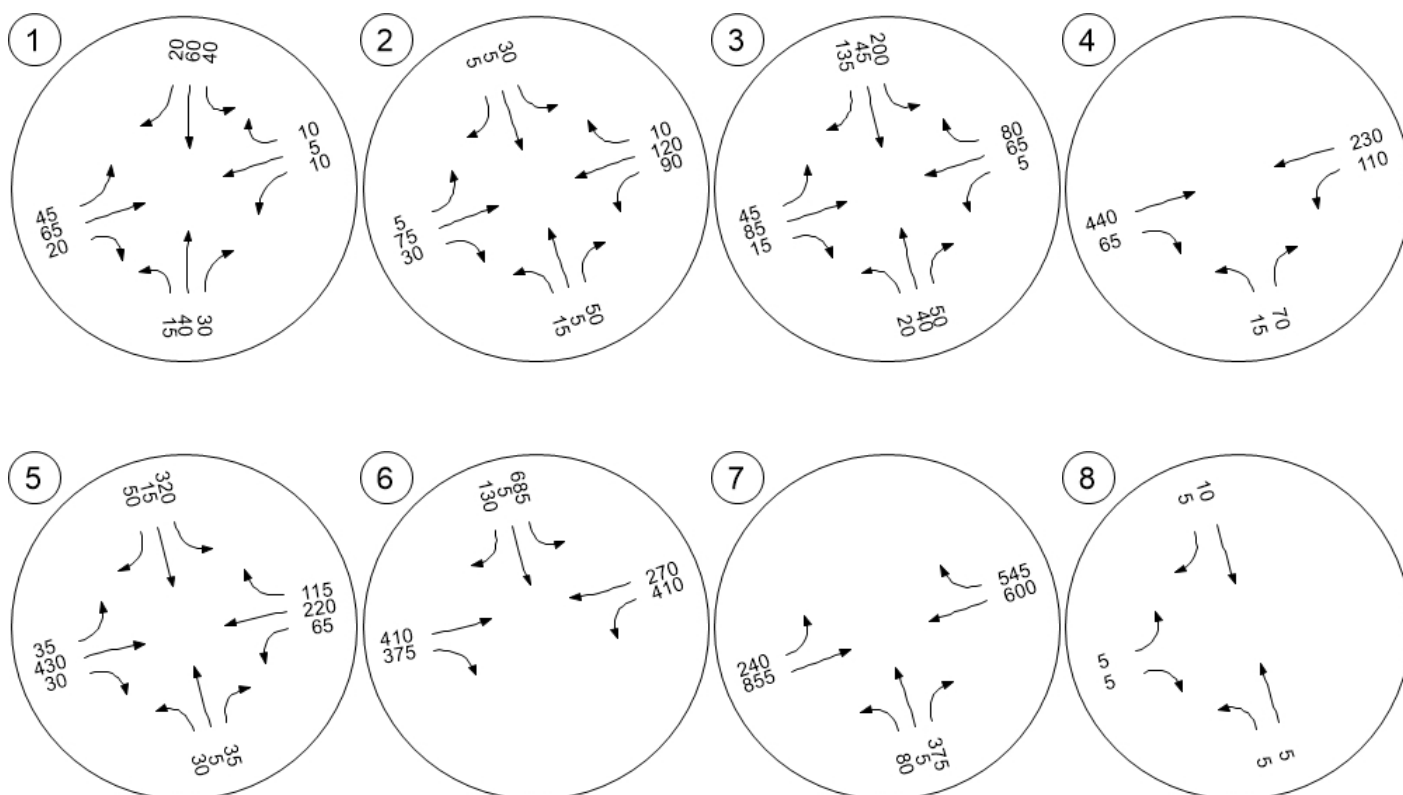




Traffic Volume - Other Volume

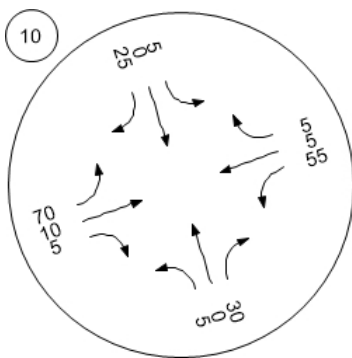


Traffic Volume - Future Total Volume

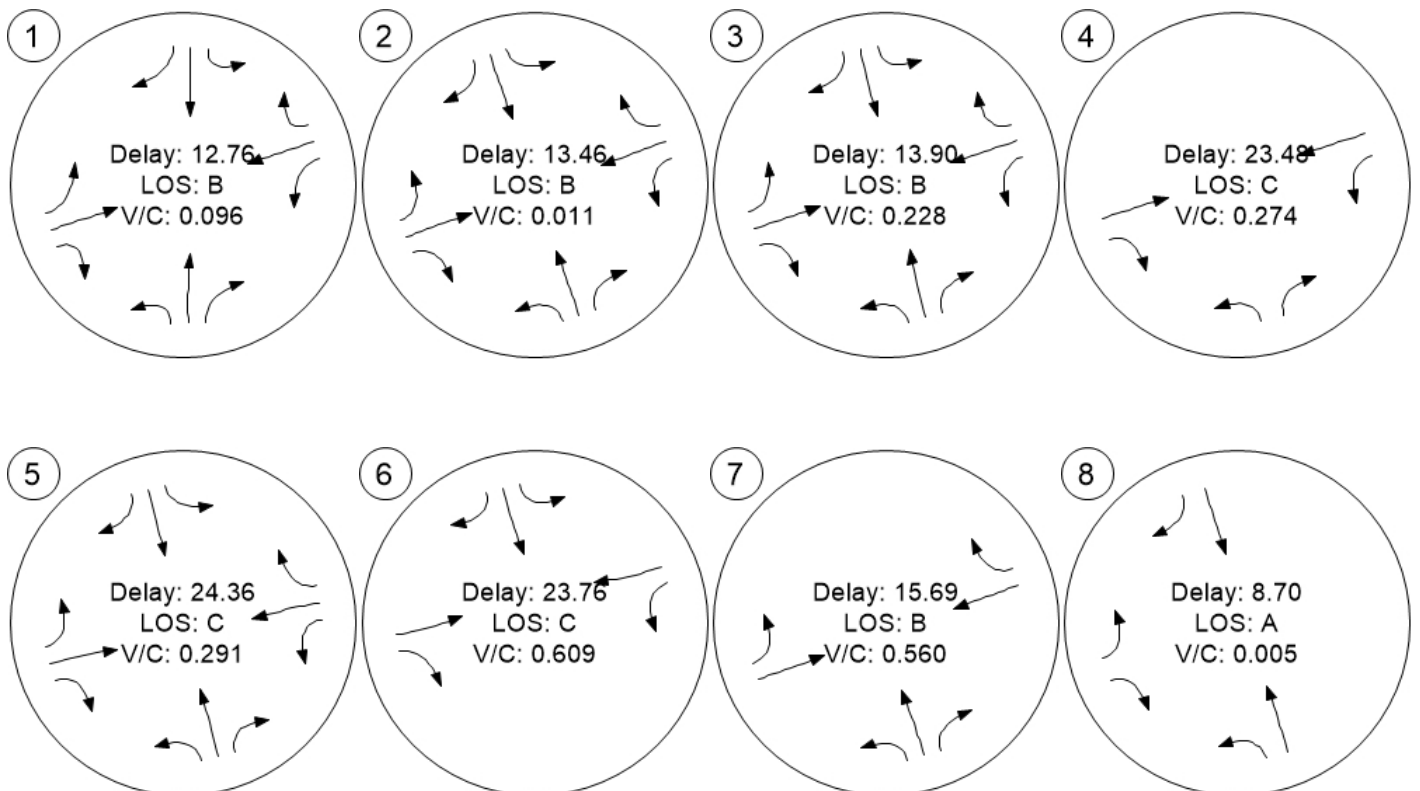




Traffic Volume - Future Total Volume

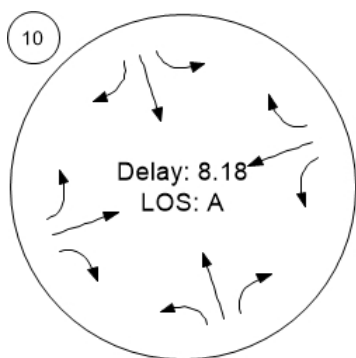


## Traffic Conditions





## Traffic Conditions

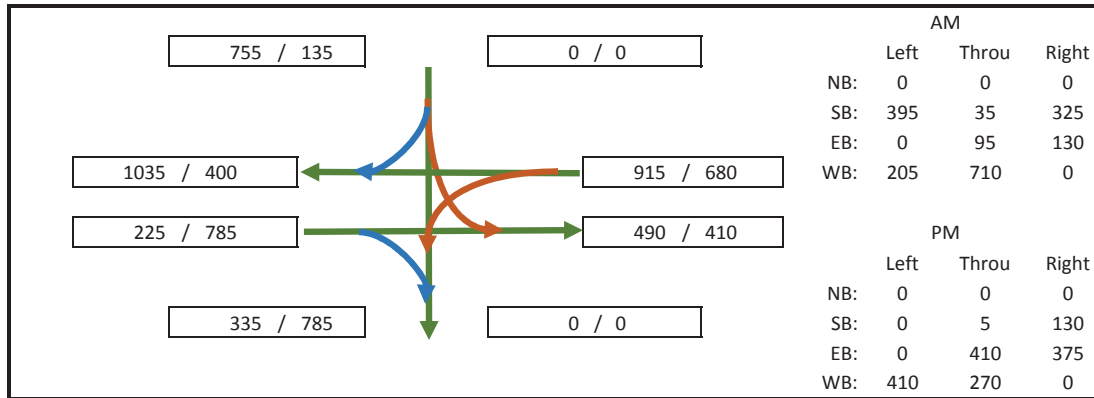


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

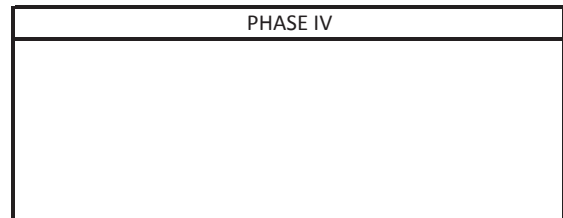
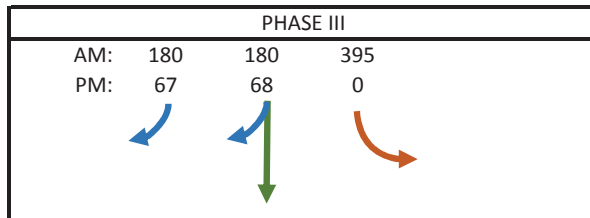
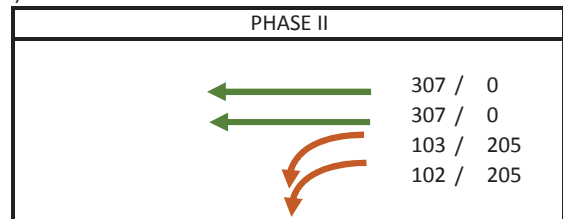
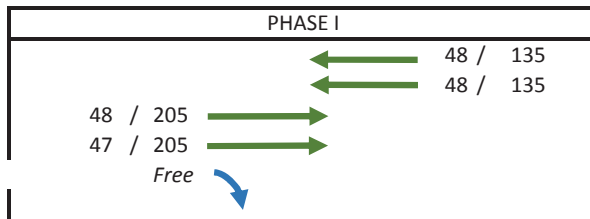
INTERSECTION: I-5 SB / Bay Marina Drive  
 ALTERNATIVE: Future Year Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

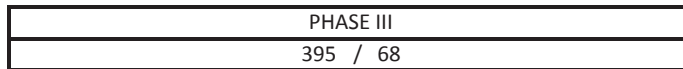
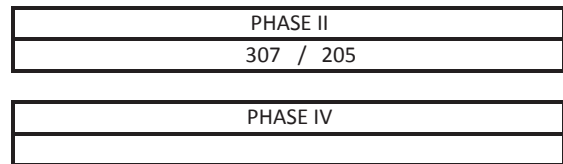
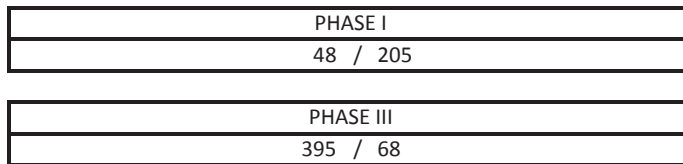
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

AM:	750	UNDER CAPACITY
PM:	478	UNDER CAPACITY

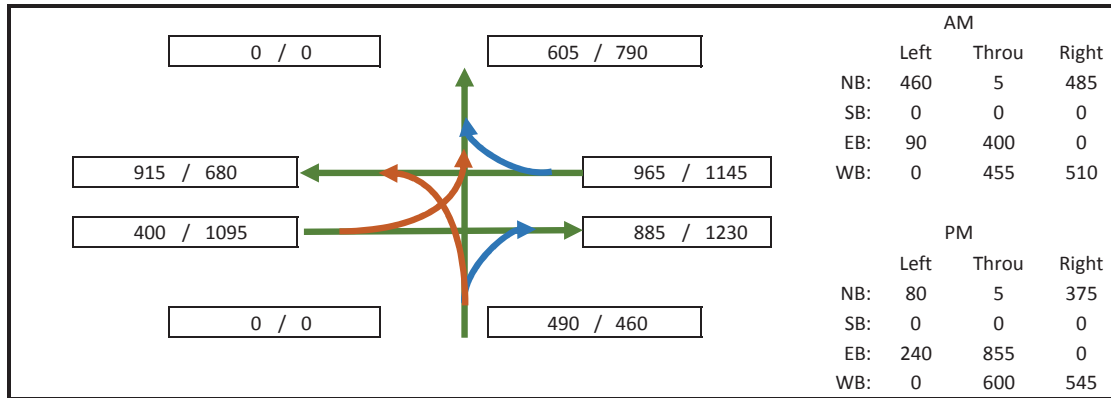


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

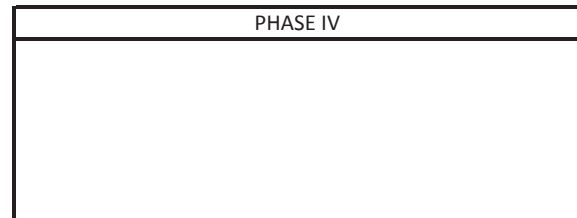
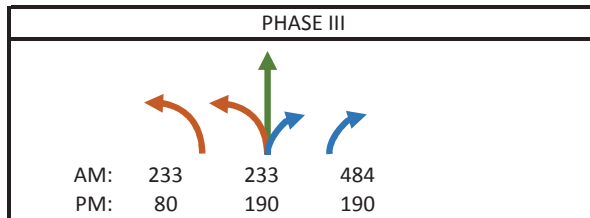
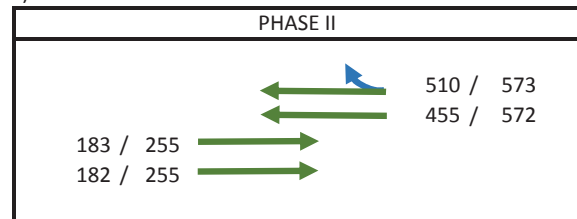
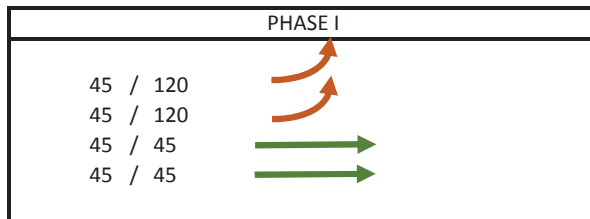
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Future Year Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR

PHASE I
45 / 120
PHASE III
484 / 190

PHASE II
510 / 573
PHASE IV
/

TOTAL OPERATING LEVEL (ILV/HR):

AM: 1039	UNDER CAPACITY
PM: 883	UNDER CAPACITY

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**Appendix O**

**Peak Hour Intersection LOS Worksheets, ILV, Queueing Worksheets –  
Future Year Base Plus Project Conditions**

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tidelands Avenue	Signalized	HCM2000	SBT	0.199	13.6	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.056	11.5	B
3	Bay Marina Drive / Tidelands Avenue	Signalized	HCM2000	SBR	0.234	11.2	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.277	14.5	B
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	EBL	0.416	20.2	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.487	17.2	B
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.627	25.6	C
10	32nd Street / Tidelands Avenue	All-way stop	HCM2000	WBL		8.1	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 13.6  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.199

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	45	80	60	55	110	65	30	40	65	70	105	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	89	60	55	110	65	30	40	65	70	105	60
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	24	16	15	30	18	8	11	18	19	29	16
Total Analysis Volume [veh/h]	49	97	65	60	120	71	33	43	71	76	114	65
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.05	0.11	0.05	0.09
Total Saturation Flow Adjustment	0.62	0.92	0.64	0.93	0.74	0.74
s, saturation flow rate [veh/h]	1187	1751	1219	1759	2820	2810
c, Capacity [veh/h]	492	725	505	729	1168	1164
d1, Uniform Delay [s]	12.52	13.23	12.63	13.47	12.67	13.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.40	0.71	0.48	0.88	0.22	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

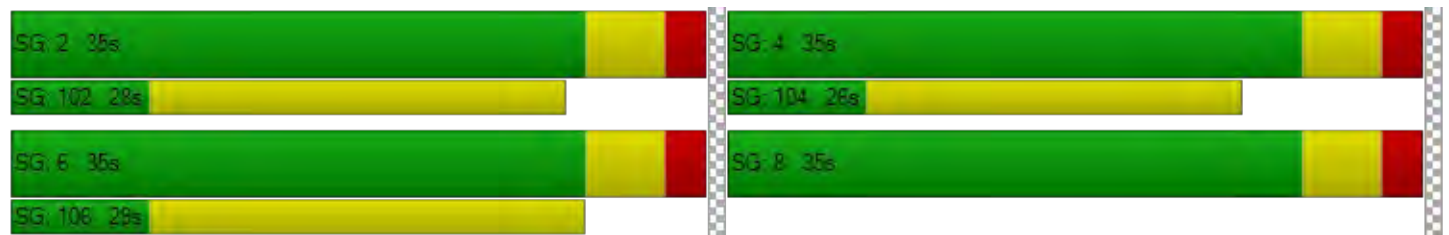
X, volume / capacity	0.10	0.22	0.12	0.26	0.13	0.22
d, Delay for Lane Group [s/veh]	12.93	13.94	13.11	14.35	12.89	13.64
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	0.65	2.25	0.80	2.71	1.03	1.87
50th-Percentile Queue Length [ft]	16.16	56.31	19.97	67.80	25.64	46.68
95th-Percentile Queue Length [veh]	1.60	5.04	1.96	5.92	2.48	4.27
95th-Percentile Queue Length [ft]	40.06	125.99	48.96	147.89	61.90	106.83

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.93	13.94	13.94	13.11	14.35	14.35	12.89	12.89	12.89	13.64	13.64	13.64
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	13.71			14.05			12.89			13.64		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.65											
Intersection LOS	B											
Intersection V/C	0.199											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.056

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	30	5	5	75	150	65
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	5	5	159	230	65
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	1	43	63	18
Total Analysis Volume [veh/h]	33	5	5	173	250	71
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.06	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.48	9.59	7.93	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.20	0.20	0.23	0.12	0.00	0.00
95th-Percentile Queue Length [ft]	4.92	4.92	5.81	2.91	0.00	0.00
d_A, Approach Delay [s/veh]	11.23		0.22		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.87					
Intersection LOS	B					

**Intersection Level Of Service Report**  
**#3: Bay Marina Drive / Tideland Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 11.2  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.234

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	10	5	25	15	20	15	40	5	95	195	320
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	0	10	74	0	18	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	4	0	0	0	0	0	50
Total Hourly Volume [veh/h]	5	10	11	25	15	16	25	114	5	113	275	279
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	3	7	4	4	7	31	1	31	75	76
Total Analysis Volume [veh/h]	5	11	12	27	16	17	27	124	5	123	299	303
Presence of On-Street Parking	no		no	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	85	0	0	85	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	0	20	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C	R
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	79	79	79	79	79
g / C, Green / Cycle	0.24	0.24	0.24	0.24	0.66	0.66	0.66	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.02	0.02	0.03	0.04	0.10	0.16	0.21
Total Saturation Flow Adjustment	0.72	0.90	0.73	0.81	0.54	0.93	0.66	0.98	0.75
s, saturation flow rate [veh/h]	1370	1717	1383	1547	1025	3526	1249	1863	1425
c, Capacity [veh/h]	331	415	334	374	675	2321	822	1226	938
d1, Uniform Delay [s]	34.63	34.97	35.19	35.26	7.19	7.27	7.77	8.34	8.90
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.25	0.47	0.47	0.11	0.05	0.38	0.47	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.06	0.08	0.09	0.04	0.06	0.15	0.24	0.32
d, Delay for Lane Group [s/veh]	34.71	35.23	35.66	35.72	7.30	7.32	8.15	8.82	9.81
Lane Group LOS	C	D	D	D	A	A	A	A	A
Critical Lane Group	no	no	no	yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.14	0.63	0.75	0.92	0.36	0.90	1.77	4.57	5.02
50th-Percentile Queue Length [ft]	3.42	15.84	18.83	23.00	9.00	22.38	44.19	114.34	125.38
95th-Percentile Queue Length [veh]	0.35	1.57	1.85	2.24	0.91	2.18	4.07	9.15	9.86
95th-Percentile Queue Length [ft]	8.80	39.29	46.31	55.94	22.77	54.52	101.74	228.76	246.59

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	34.71	35.23	35.23	35.66	35.72	35.72	7.30	7.32	7.32	8.15	8.82	9.81
Movement LOS	C	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	35.14			35.70			7.31			9.12		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	11.23											
Intersection LOS	B											
Intersection V/C	0.234											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 14.5  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.277

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	10	20	75	30	55	750
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	80	0	0	107
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	20	155	30	55	857
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	5	42	8	15	233
Total Analysis Volume [veh/h]	11	22	168	33	60	932
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	37	0	66	0	17	83
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	31	31	60	13	77
g / C, Green / Cycle	0.26	0.26	0.50	0.11	0.64
(v / s)_i Volume / Saturation Flow Rate	0.01	0.01	0.06	0.03	0.26
Total Saturation Flow Adjustment	0.93	0.83	0.91	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3459	1770	3547
c, Capacity [veh/h]	457	409	1730	192	2276
d1, Uniform Delay [s]	33.21	33.47	15.93	49.38	10.45
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.25	0.14	4.22	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.02	0.05	0.12	0.31	0.41
d, Delay for Lane Group [s/veh]	33.31	33.72	16.06	53.60	11.00
Lane Group LOS	C	C	B	D	B
Critical Lane Group	no	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.29	0.59	2.04	2.04	9.02
50th-Percentile Queue Length [ft]	7.34	14.85	50.99	51.09	225.38
95th-Percentile Queue Length [veh]	0.75	1.48	4.62	4.63	15.91
95th-Percentile Queue Length [ft]	18.66	36.95	115.49	115.70	397.75

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	33.31	33.72	16.06	16.06	53.60	11.00
Movement LOS	C	C	B	B	D	B
d_A, Approach Delay [s/veh]	33.58		16.06		13.57	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	14.52					
Intersection LOS	B					
Intersection V/C	0.277					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 20.2  
Level Of Service: C  
Volume to Capacity (v/c): 0.416

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	35	5	25	30	10	35	20	90	5	25	700	310
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	1	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	24	30	10	35	20	170	5	25	807	310
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	7	8	3	10	5	46	1	7	219	84
Total Analysis Volume [veh/h]	38	5	26	33	11	38	22	185	5	27	877	337
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	20	0	9	73	0	13	77	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	16	5	69	9	73
g / C, Green / Cycle	0.09	0.09	0.13	0.04	0.57	0.07	0.60
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.03	0.01	0.04	0.02	0.36
Total Saturation Flow Adjustment	0.93	0.86	0.85	0.93	0.89	0.93	0.89
s, saturation flow rate [veh/h]	1770	1628	3235	1770	5054	1770	3399
c, Capacity [veh/h]	161	148	428	73	2882	132	2051
d1, Uniform Delay [s]	51.10	50.97	46.74	56.30	11.61	52.64	14.81
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.43	3.19	1.00	10.26	0.04	3.50	1.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.24	0.21	0.19	0.30	0.07	0.21	0.59
d, Delay for Lane Group [s/veh]	54.52	54.16	47.74	66.56	11.65	56.13	16.08
Lane Group LOS	D	D	D	E	B	E	B
Critical Lane Group	yes	no	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	1.31	1.06	1.41	0.81	1.15	0.94	15.29
50th-Percentile Queue Length [ft]	32.66	26.57	35.13	20.33	28.75	23.50	382.36
95th-Percentile Queue Length [veh]	3.10	2.56	3.31	1.99	2.75	2.28	25.19
95th-Percentile Queue Length [ft]	77.42	63.99	82.74	49.81	68.84	57.08	629.73

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	54.52	54.16	54.16	47.74	47.74	47.74	66.56	11.65	11.65	56.13	16.08	16.08
Movement LOS	D	D	D	D	D	D	E	B	B	E	B	B
d_A, Approach Delay [s/veh]	54.36			47.74			17.35			16.95		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	20.18											
Intersection LOS	C											
Intersection V/C	0.416											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 17.2  
Level Of Service: B  
Volume to Capacity (v/c): 0.487

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	395	35	325	0	95	130	205	710	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	37	0	35	45	0	70	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	395	35	362	0	130	175	205	780	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	107	10	98	0	35	48	56	212	0
Total Analysis Volume [veh/h]	0	0	0	429	38	393	0	141	190	223	848	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	30	0	0	18	0	12	30	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		25	25	13	13	8	25
g / C, Green / Cycle		0.42	0.42	0.22	0.22	0.13	0.42
(v / s)_i Volume / Saturation Flow Rate		0.14	0.25	0.04	0.12	0.06	0.24
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3391	1583	3547	1583	3437	3547
c, Capacity [veh/h]		1435	670	792	354	447	1501
d1, Uniform Delay [s]		11.57	13.27	18.85	20.56	24.28	13.11
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.60	3.73	0.49	5.75	3.95	1.54
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

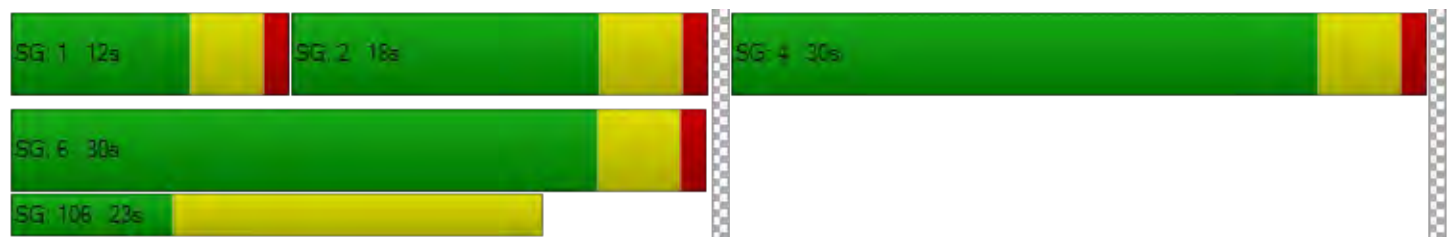
X, volume / capacity		0.33	0.59	0.18	0.54	0.50	0.56
d, Delay for Lane Group [s/veh]		12.17	17.00	19.34	26.32	28.23	14.65
Lane Group LOS		B	B	B	C	C	B
Critical Lane Group		no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]		3.07	5.92	1.10	3.27	2.08	6.55
50th-Percentile Queue Length [ft]		76.81	148.05	27.47	81.66	52.02	163.77
95th-Percentile Queue Length [veh]		6.58	11.29	2.64	6.93	4.70	12.25
95th-Percentile Queue Length [ft]		164.44	282.18	66.00	173.14	117.54	306.21

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	12.17	12.17	17.00	0.00	19.34	26.32	28.23	14.65	0.00
Movement LOS				B	B	B		B	C	C	B	
d_A, Approach Delay [s/veh]	0.00			14.38			23.34			17.48		
Approach LOS	A			B			C			B		
d_I, Intersection Delay [s/veh]	17.16											
Intersection LOS	B											
Intersection V/C	0.487											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 25.6  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.627

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	460	5	485	0	0	0	90	400	0	0	455	510
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	0	0	0	0	0	28	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	523	5	485	0	0	0	118	407	0	0	462	510
Peak Hour Factor	0.9200	0.9200	0.9200	1.0000	1.0000	1.0000	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	142	1	132	0	0	0	32	111	0	0	126	139
Total Analysis Volume [veh/h]	568	5	527	0	0	0	128	442	0	0	502	554
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	33	0	0	0	0	10	57	0	0	47	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	C		L	C	C	R
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60	2.60
g_i, Effective Green Time [s]	28		6	52	42	42
g / C, Green / Cycle	0.32		0.06	0.58	0.47	0.47
(v / s)_i Volume / Saturation Flow Rate	0.24		0.04	0.12	0.27	0.35
Total Saturation Flow Adjustment	0.81		0.90	0.93	0.98	0.83
s, saturation flow rate [veh/h]	4591		3437	3547	1863	1583
c, Capacity [veh/h]	1449		221	2065	878	746
d1, Uniform Delay [s]	27.72		40.91	8.97	17.23	19.36
k, delay calibration	0.50		0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.79		10.54	0.24	2.70	6.59
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00	1.00

**Lane Group Results**

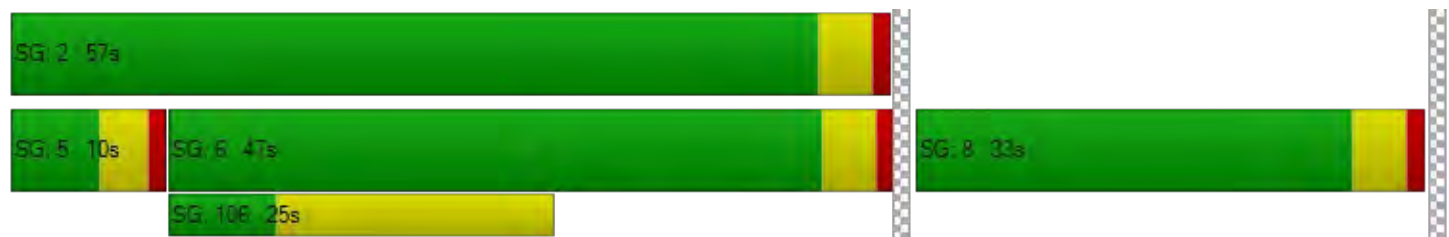
X, volume / capacity	0.76		0.58	0.21	0.57	0.74
d, Delay for Lane Group [s/veh]	31.51		51.46	9.21	19.94	25.95
Lane Group LOS	C		D	A	B	C
Critical Lane Group	yes		yes	no	no	yes
50th-Percentile Queue Length [veh]	11.14		1.93	3.10	10.44	13.71
50th-Percentile Queue Length [ft]	278.49		48.15	77.45	261.01	342.63
95th-Percentile Queue Length [veh]	19.02		4.39	6.62	18.00	22.81
95th-Percentile Queue Length [ft]	475.59		109.79	165.60	449.97	570.31

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	31.51	31.51	31.51	0.00	0.00	0.00	51.46	9.21	0.00	0.00	19.94	25.95
Movement LOS	C	C	C				D	A			B	C
d_A, Approach Delay [s/veh]	31.51			0.00			18.70			23.09		
Approach LOS	C			A			B			C		
d_I, Intersection Delay [s/veh]	25.57											
Intersection LOS	C											
Intersection V/C	0.627											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.1  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	5	15	5	0	40	50	50	5	40	15	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	15	5	0	40	50	81	5	40	15	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	1	0	11	14	22	1	11	4	1
Total Analysis Volume [veh/h]	5	5	16	5	0	43	54	88	5	43	16	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.11	0.02	0.17	0.26	0.40	0.02	0.21	0.07	0.02
95th-Percentile Queue Length [ft]	2.72	0.59	4.19	6.55	10.10	0.44	5.29	1.71	0.45
Approach Delay [s/veh]	8.02	7.49		8.30			8.30		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.14								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

## Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	45	89	60	55	110	65	30	40	65	70	105	60	794

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	30	5	5	159	230	65	494

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	5	10	11	25	15	20	25	114	5	113	275	329	947

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	10	20	155	30	55	857	1127

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	35	5	25	30	10	35	20	170	5	25	807	310	1477

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	395	35	362	130	175	205	780	2082

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	523	5	485	118	407	462	510	2510



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ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	5	5	15	5	0	40	50	81	5	40	15	5	266

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	45	80	60	55	110	65	30	40	65	70	105	60	785
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>45</b>	<b>89</b>	<b>60</b>	<b>55</b>	<b>110</b>	<b>65</b>	<b>30</b>	<b>40</b>	<b>65</b>	<b>70</b>	<b>105</b>	<b>60</b>	<b>794</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	30	5	5	75	150	65	330
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>30</b>	<b>5</b>	<b>5</b>	<b>159</b>	<b>230</b>	<b>65</b>	<b>494</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	5	10	5	25	15	20	15	40	5	95	195	320	750
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	0	0	0	10	74	0	18	80	9	197
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>10</b>	<b>11</b>	<b>25</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>114</b>	<b>5</b>	<b>113</b>	<b>275</b>	<b>329</b>	<b>947</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	10	20	75	30	55	750	940
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	80	0	0	107	187
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>10</b>	<b>20</b>	<b>155</b>	<b>30</b>	<b>55</b>	<b>857</b>	<b>1127</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	35	5	25	30	10	35	20	90	5	25	700	310	1290
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	80	0	0	107	0	187
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>5</b>	<b>25</b>	<b>30</b>	<b>10</b>	<b>35</b>	<b>20</b>	<b>170</b>	<b>5</b>	<b>25</b>	<b>807</b>	<b>310</b>	<b>1477</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	395	35	325	95	130	205	710	1895
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	37	35	45	0	70	187
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>395</b>	<b>35</b>	<b>362</b>	<b>130</b>	<b>175</b>	<b>205</b>	<b>780</b>	<b>2082</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	460	5	485	90	400	455	510	2405
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	63	0	0	28	7	7	0	105
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>523</b>	<b>5</b>	<b>485</b>	<b>118</b>	<b>407</b>	<b>462</b>	<b>510</b>	<b>2510</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tideland Avenue	Final Base	5	5	15	5	0	40	50	50	5	40	15	5	235
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	31	0	0	0	0	31
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>5</b>	<b>0</b>	<b>40</b>	<b>50</b>	<b>81</b>	<b>5</b>	<b>40</b>	<b>15</b>	<b>5</b>	<b>266</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

**Fair Share Volumes**

Intersection 1: 19th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	784	1552	1040	960	1920	1136	528	688	1136	1216	1824	1040	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	528	80	80	2768	4000	1136	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	6	0	0	0	10	74	0	18	80	9	
Total Analysis Volume	80	176	192	432	256	272	432	1984	80	1968	4784	4848	



Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	0	80	0	0	107	
Total Analysis Volume	176	352	2688	528	960	14912	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	80	0	0	107	0	
Total Analysis Volume	608	80	416	528	176	608	352	2960	80	432	14032	5392	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	37	35	45	0	70	
Total Analysis Volume	6864	608	6288	2256	3040	3568	13568	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	63	0	0	28	7	7	0	
Total Analysis Volume	9088	80	8432	2048	7072	8032	8864	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	31	0	0	0	0	
Total Analysis Volume	80	80	256	80	0	688	864	1408	80	688	256	80	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
32: 027-029	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	100.02%	100.00%	99.99%	



Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	2.8%	1.40%
19: 025-010 B	0	0	0%	0	0	2.8%	1.40%
20: 025-010 C	0	0	0%	0	0	2.8%	1.40%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	88.75%	0	0	66.36%	77.57%
23: NCTF Trucks	0	0	3.75%	0	0	2.8%	3.28%
24: 027-016	0	0	3.75%	0	0	2.8%	3.28%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	2.8%	1.40%
28: 028-007	0	0	0%	0	0	2.8%	1.40%
29: 025-010 D	0	0	0%	0	0	2.8%	1.40%
32: 027-029	0	0	3.75%	0	0	2.8%	3.28%
33: 027-042	0	0	0%	0	0	2.8%	1.40%
34: 026-009 & 027-011	0	0	0%	0	0	2.8%	1.40%
35: 027-014 & 027-016	0	0	0%	0	0	2.8%	1.40%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	88.75%	0	0	66.36%	0	77.57%
23: NCTF Trucks	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
24: 027-016	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
32: 027-029	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.7%	0%	0%	0	2.86%	1.39%
19: 025-010 B	0	0	2.7%	0%	0%	0	2.86%	1.39%
20: 025-010 C	0	0	2.7%	0%	0%	0	2.86%	1.39%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	67.57%	91.43%	86.67%	0	65.71%	77.85%
23: NCTF Trucks	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
24: 027-016	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.7%	0%	0%	0	2.86%	1.39%
28: 028-007	0	0	2.7%	0%	0%	0	2.86%	1.39%
29: 025-010 D	0	0	2.7%	0%	0%	0	2.86%	1.39%
32: 027-029	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
33: 027-042	0	0	2.7%	0%	0%	0	2.86%	1.39%
34: 026-009 & 027-011	0	0	2.7%	0%	0%	0	2.86%	1.39%
35: 027-014 & 027-016	0	0	2.7%	0%	0%	0	2.86%	1.39%
Total	0.00%	0.00%	99.97%	100.01%	99.99%	0.00%	100.03%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	3.17%	0	0	0%	0%	0%	0	0.79%
19: 025-010 B	3.17%	0	0	0%	0%	0%	0	0.79%
20: 025-010 C	3.17%	0	0	0%	0%	0%	0	0.79%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	61.9%	0	0	89.29%	100%	100%	0	87.81%
23: NCTF Trucks	3.17%	0	0	3.57%	0%	0%	0	1.69%
24: 027-016	3.17%	0	0	3.57%	0%	0%	0	1.69%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	3.17%	0	0	0%	0%	0%	0	0.79%
28: 028-007	3.17%	0	0	0%	0%	0%	0	0.79%
29: 025-010 D	3.17%	0	0	0%	0%	0%	0	0.79%
32: 027-029	3.17%	0	0	3.57%	0%	0%	0	1.69%
33: 027-042	3.17%	0	0	0%	0%	0%	0	0.79%
34: 026-009 & 027-011	3.17%	0	0	0%	0%	0%	0	0.79%
35: 027-014 & 027-016	3.17%	0	0	0%	0%	0%	0	0.79%
Total	99.94%	0.00%	0.00%	100.00%	100.00%	100.00%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
23: NCTF Trucks	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	100%	0	0	0	0	100.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	2.83%	0	0	0%	0	0	0	0	0	0	0	0.02%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	5.66%	0	0	0%	0	0	0	0	0	0	0	0.04%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	8.49%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	27.63%	21.52%	0	0.57%
23: NCTF Trucks	0	0	0	1.17%	0.91%	0	0.02%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.89%	0%	0	0.05%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	0.91%	0	0.01%
35: 027-014 & 027-016	0	0	0	0%	0.91%	0	0.01%
Total	0.00%	0.00%	0.00%	32.69%	24.25%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0.96%	0.01%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0.96%	0.01%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0.96%	0.01%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	35.86%	0	0%	18.73%	0%	0.35%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.52%	0	0%	0.79%	0%	0.01%
24: 027-016	0	0	16.67%	0%	0	0	0%	0%	0	2.13%	0%	0%	0.12%
25: Vehicle Movement External	0	0	0%	0%	0	0	27.03%	0%	0	0%	0%	0%	0.17%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	2.13%	0%	0%	0.01%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	2.13%	0%	0%	0.01%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	2.13%	0%	0%	0.01%
32: 027-029	0	0	16.67%	0%	0	0	0%	0%	0	2.13%	0%	0%	0.12%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	2.13%	0%	0%	0.01%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	0.79%	0%	0.01%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	0.79%	0%	0.01%
Total	0.00%	0.00%	33.34%	0.00%	0.00%	0.00%	27.03%	37.38%	0.00%	12.78%	21.10%	2.88%	



Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	0.29%	0.00%
19: 025-010 B	0	0	0%	0	0	0.29%	0.00%
20: 025-010 C	0	0	0%	0	0	0.29%	0.00%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	28.63%	0	0	6.83%	0.18%
23: NCTF Trucks	0	0	1.21%	0	0	0.29%	0.01%
24: 027-016	0	0	1.21%	0	0	0.29%	0.01%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	0.29%	0.00%
28: 028-007	0	0	0%	0	0	0.29%	0.00%
29: 025-010 D	0	0	0%	0	0	0.29%	0.00%
32: 027-029	0	0	1.21%	0	0	0.29%	0.01%
33: 027-042	0	0	0%	0	0	0.29%	0.00%
34: 026-009 & 027-011	0	0	0%	0	0	0.29%	0.00%
35: 027-014 & 027-016	0	0	0%	0	0	0.29%	0.00%
Total	0.00%	0.00%	32.26%	0.00%	0.00%	10.31%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	26.79%	0	0	7.22%	0	0.13%
23: NCTF Trucks	0	0	0	0	0	0	0	1.13%	0	0	0.3%	0	0.01%
24: 027-016	0	0	0	0	0	0	0	1.13%	0	0	0.3%	0	0.01%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
32: 027-029	0	0	0	0	0	0	0	1.13%	0	0	0.3%	0	0.01%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.3%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.18%	0.00%	0.00%	10.82%	0.00%	

Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.23%	0%	0%	0	0.22%	0.00%
19: 025-010 B	0	0	0.23%	0%	0%	0	0.22%	0.00%
20: 025-010 C	0	0	0.23%	0%	0%	0	0.22%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	5.81%	18.18%	16.6%	0	5.01%	0.13%
23: NCTF Trucks	0	0	0.23%	0.57%	0.85%	0	0.22%	0.01%
24: 027-016	0	0	0.23%	0.57%	0.85%	0	0.22%	0.01%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.23%	0%	0%	0	0.22%	0.00%
28: 028-007	0	0	0.23%	0%	0%	0	0.22%	0.00%
29: 025-010 D	0	0	0.23%	0%	0%	0	0.22%	0.00%
32: 027-029	0	0	0.23%	0.57%	0.85%	0	0.22%	0.01%
33: 027-042	0	0	0.23%	0%	0%	0	0.22%	0.00%
34: 026-009 & 027-011	0	0	0.23%	0%	0%	0	0.22%	0.00%
35: 027-014 & 027-016	0	0	0.23%	0%	0%	0	0.22%	0.00%
Total	0.00%	0.00%	8.57%	19.89%	19.15%	0.00%	7.65%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.32%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.32%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.32%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	6.18%	0	0	16.03%	1.56%	1.38%	0	0.06%
23: NCTF Trucks	0.32%	0	0	0.64%	0%	0%	0	0.00%
24: 027-016	0.32%	0	0	0.64%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.32%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.32%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.32%	0	0	0%	0%	0%	0	0.00%
32: 027-029	0.32%	0	0	0.64%	0%	0%	0	0.00%
33: 027-042	0.32%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.32%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.32%	0	0	0%	0%	0%	0	0.00%
Total	10.02%	0.00%	0.00%	17.95%	1.56%	1.38%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
23: NCTF Trucks	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	26.05%	0	0	0	0	0.57%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.05%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	295	164	35
2	283	157	34
3	277	154	33
4	236	131	28
5	224	125	27
6	201	112	24
7	186	103	22
8	177	98	21
9	142	79	17
10	133	74	16
11	133	74	16
12	127	71	15
13	115	64	14
14	106	59	13
15	106	59	13
16	103	57	12
17	59	33	7
18	32	18	4
19	30	16	4
20	12	7	1
21	9	5	1
22	9	5	1
23	6	3	1
24	6	3	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	459	1	35	No	No	No	No	No	No	No	No	No	No
2	4	440	1	34	No	No	No	No	No	No	No	No	No	No
3	4	431	1	33	No	No	No	No	No	No	No	No	No	No
4	4	367	1	28	No	No	No	No	No	No	No	No	No	No
5	4	349	1	27	No	No	No	No	No	No	No	No	No	No
6	4	313	1	24	No	No	No	No	No	No	No	No	No	No
7	4	289	1	22	No	No	No	No	No	No	No	No	No	No
8	4	275	1	21	No	No	No	No	No	No	No	No	No	No
9	4	221	1	17	No	No	No	No	No	No	No	No	No	No
10	4	207	1	16	No	No	No	No	No	No	No	No	No	No
11	4	207	1	16	No	No	No	No	No	No	No	No	No	No
12	4	198	1	15	No	No	No	No	No	No	No	No	No	No
13	4	179	1	14	No	No	No	No	No	No	No	No	No	No
14	4	165	1	13	No	No	No	No	No	No	No	No	No	No
15	4	165	1	13	No	No	No	No	No	No	No	No	No	No
16	4	160	1	12	No	No	No	No	No	No	No	No	No	No
17	4	92	1	7	No	No	No	No	No	No	No	No	No	No
18	4	50	1	4	No	No	No	No	No	No	No	No	No	No
19	4	46	1	4	No	No	No	No	No	No	No	No	No	No
20	4	19	1	1	No	No	No	No	No	No	No	No	No	No
21	4	14	1	1	No	No	No	No	No	No	No	No	No	No
22	4	14	1	1	No	No	No	No	No	No	No	No	No	No
23	4	9	1	1	No	No	No	No	No	No	No	No	No	No
24	4	9	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	35
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	494
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>



## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	60	136	25	45
2	58	131	24	43
3	56	128	24	42
4	48	109	20	36
5	46	103	19	34
6	41	92	17	31
7	38	86	16	28
8	36	82	15	27
9	29	65	12	22
10	27	61	11	20
11	27	61	11	20
12	26	58	11	19
13	23	53	10	18
14	22	49	9	16
15	22	49	9	16
16	21	48	9	16
17	12	27	5	9
18	7	15	3	5
19	6	14	3	5
20	2	5	1	2
21	2	4	1	1
22	2	4	1	1
23	1	3	1	1
24	1	3	1	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	196	3	70	No	No	No	No	No	No	No	No	No	No
2	6	189	3	67	No	No	No	No	No	No	No	No	No	No
3	6	184	3	66	No	No	No	No	No	No	No	No	No	No
4	6	157	3	56	No	No	No	No	No	No	No	No	No	No
5	6	149	3	53	No	No	No	No	No	No	No	No	No	No
6	6	133	3	48	No	No	No	No	No	No	No	No	No	No
7	6	124	3	44	No	No	No	No	No	No	No	No	No	No
8	6	118	3	42	No	No	No	No	No	No	No	No	No	No
9	6	94	3	34	No	No	No	No	No	No	No	No	No	No
10	6	88	3	31	No	No	No	No	No	No	No	No	No	No
11	6	88	3	31	No	No	No	No	No	No	No	No	No	No
12	6	84	3	30	No	No	No	No	No	No	No	No	No	No
13	6	76	3	28	No	No	No	No	No	No	No	No	No	No
14	6	71	3	25	No	No	No	No	No	No	No	No	No	No
15	6	71	3	25	No	No	No	No	No	No	No	No	No	No
16	6	69	3	25	No	No	No	No	No	No	No	No	No	No
17	6	39	3	14	No	No	No	No	No	No	No	No	No	No
18	6	22	3	8	No	No	No	No	No	No	No	No	No	No
19	6	20	3	8	No	No	No	No	No	No	No	No	No	No
20	6	7	3	3	No	No	No	No	No	No	No	No	No	No
21	6	6	3	2	No	No	No	No	No	No	No	No	No	No
22	6	6	3	2	No	No	No	No	No	No	No	No	No	No
23	6	4	3	2	No	No	No	No	No	No	No	No	No	No
24	6	4	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	8	7.5
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03	0:05
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	25	45
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	266	266
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...\Future AM + Project (without Tidelands).pdf

4/27/2016

## Trip generation summary

## Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.22
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.22
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.22
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	57.96
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.45
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.45
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	4.08
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	19.59
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.22
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.22
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.22
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.45
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.22
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.22
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.22
<b>Added Trips Total</b>								<b>107</b>	<b>138</b>	<b>245</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 11: Future Year + Project AM

Report File: P:\...Future AM + Project (without Tidelands).pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0

32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0



25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone 28: 028-007			
To 028-007:		From 028-007:	

Zone 29: 025-010 D			
To 025-010 D:		From 025-010 D:	

Zone / Gate	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0

38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

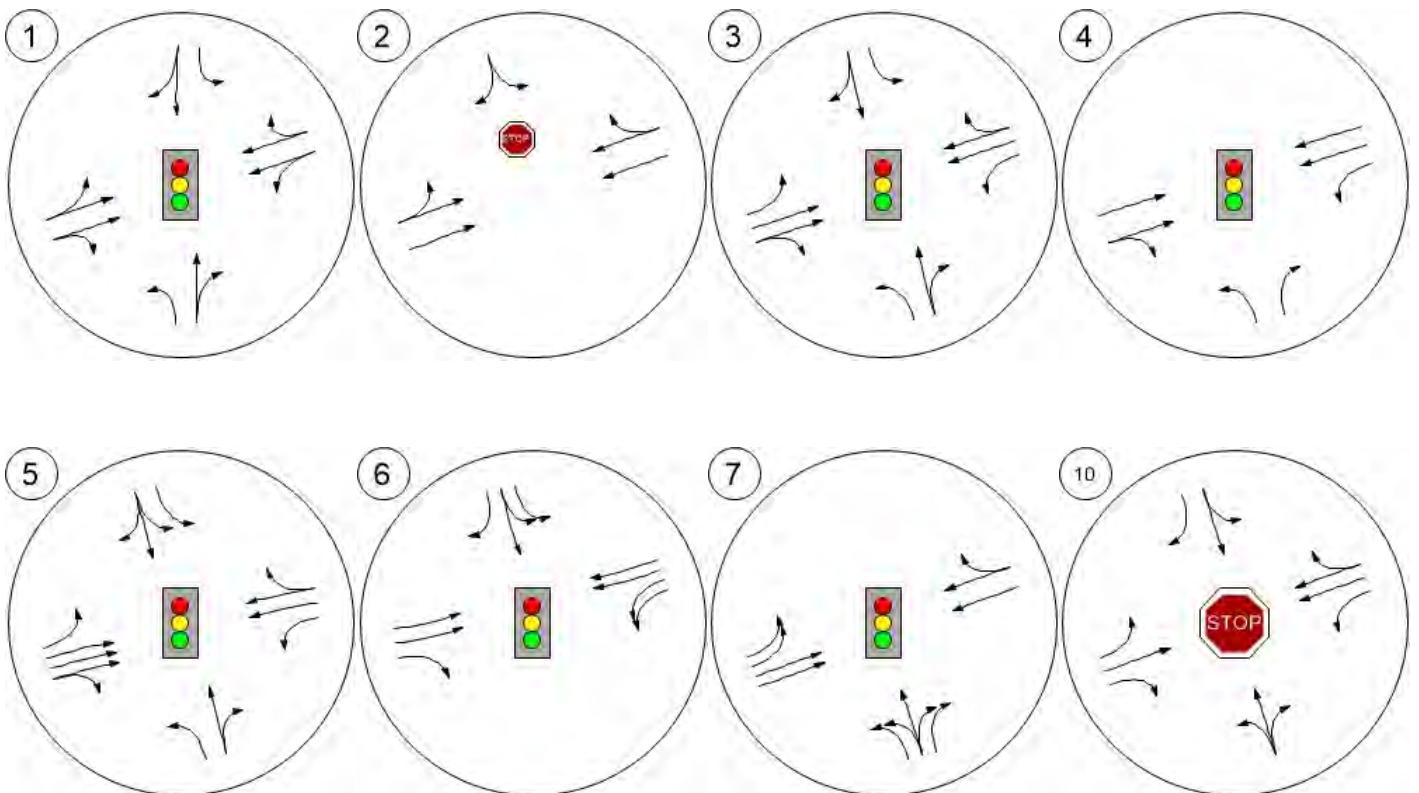
Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Study Intersections



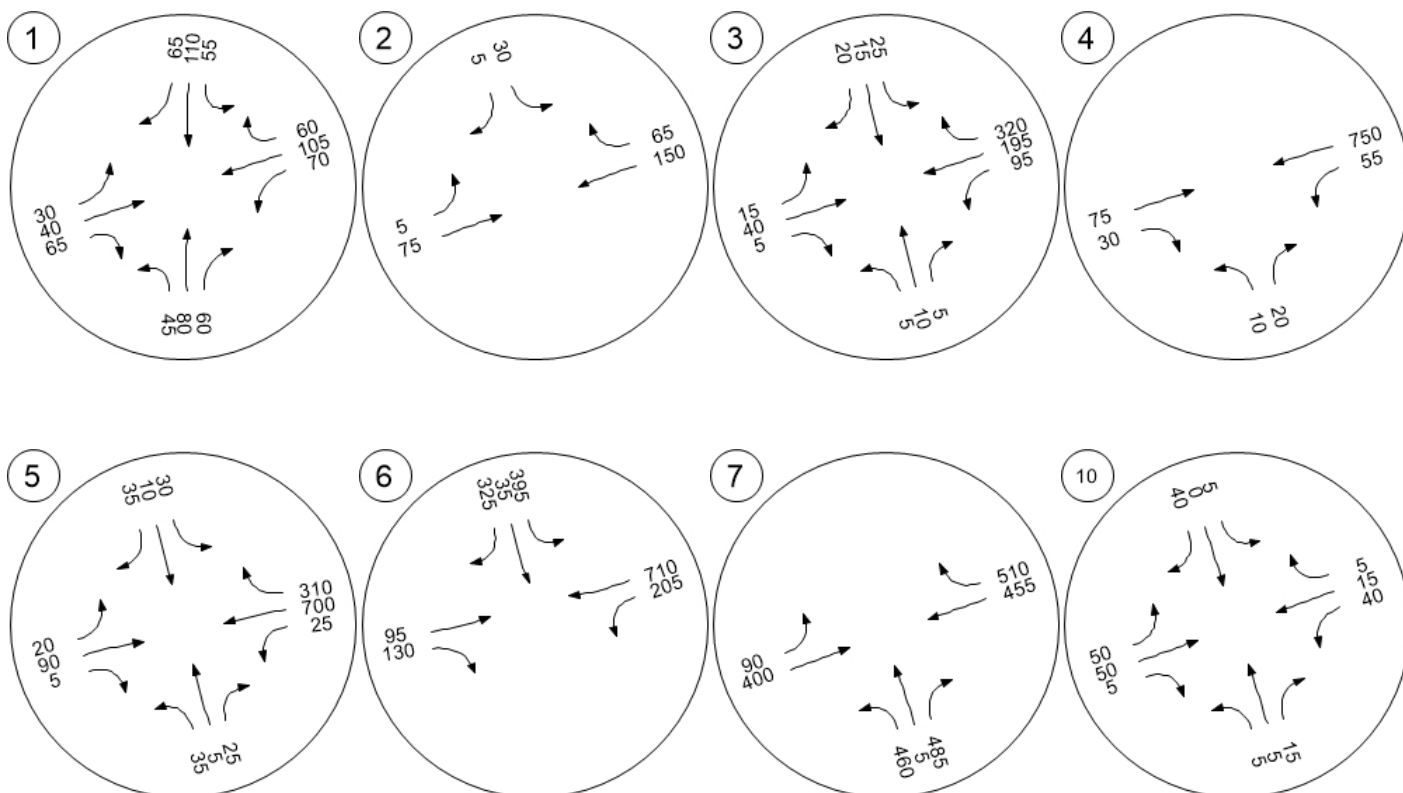


# Lane Configuration and Traffic Control

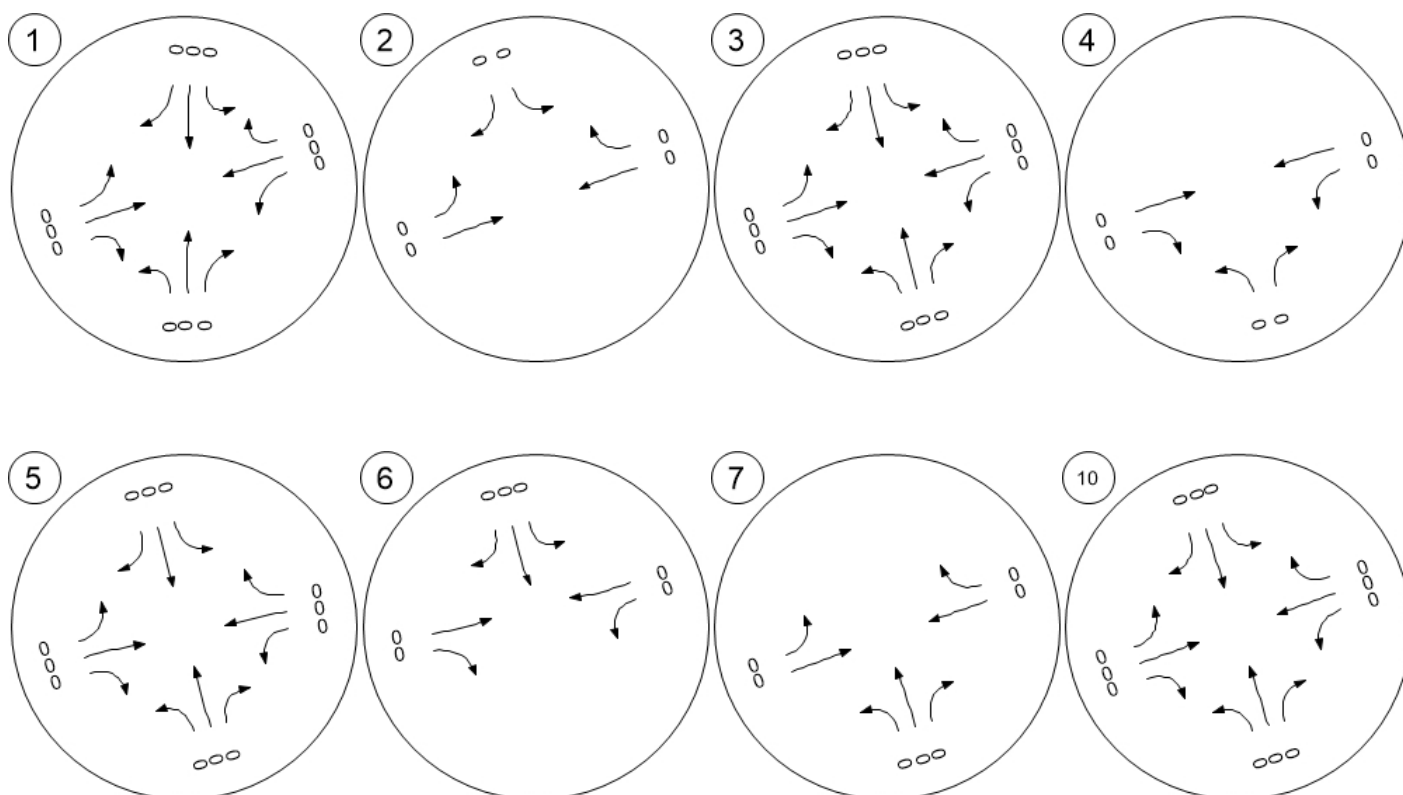




Traffic Volume - Base Volume

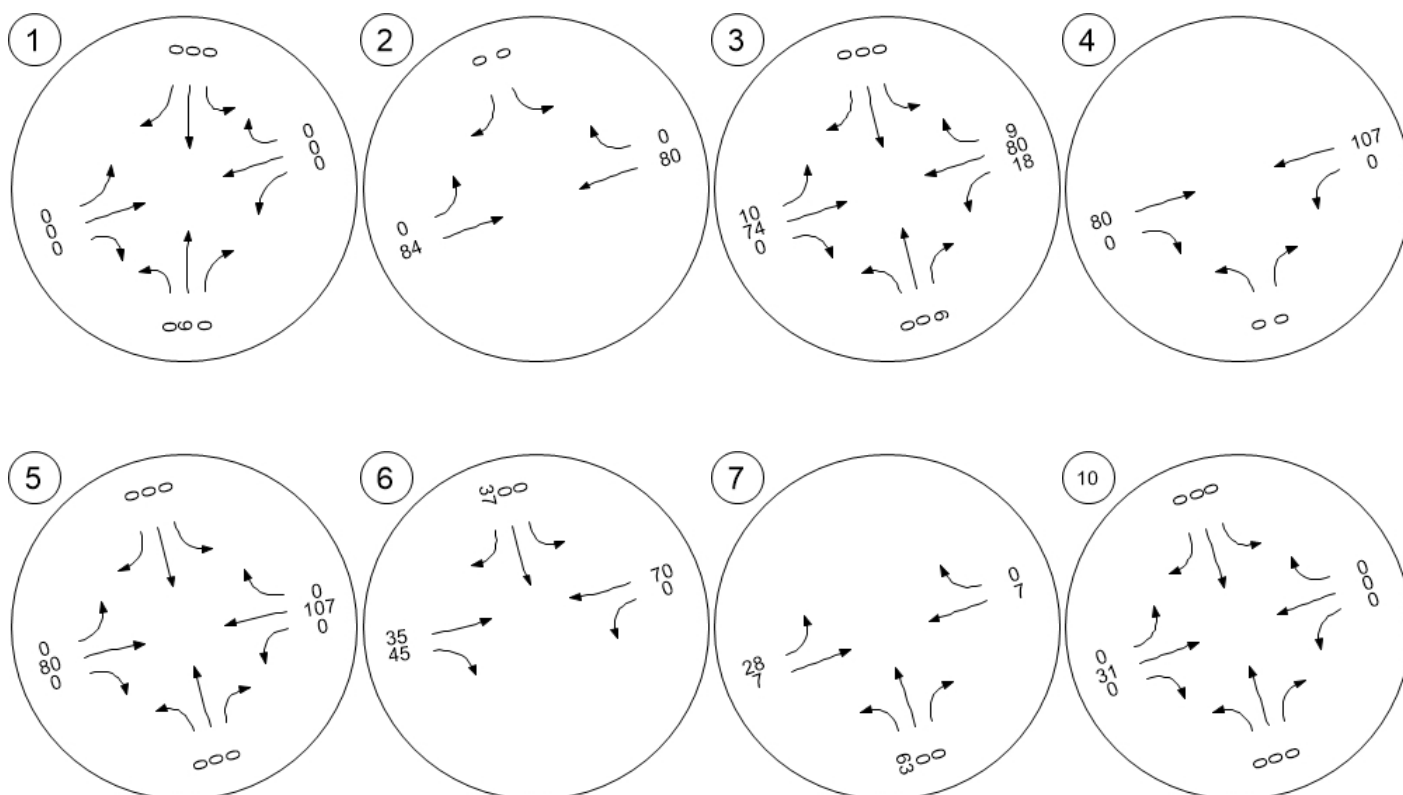


Traffic Volume - In-Process Volume

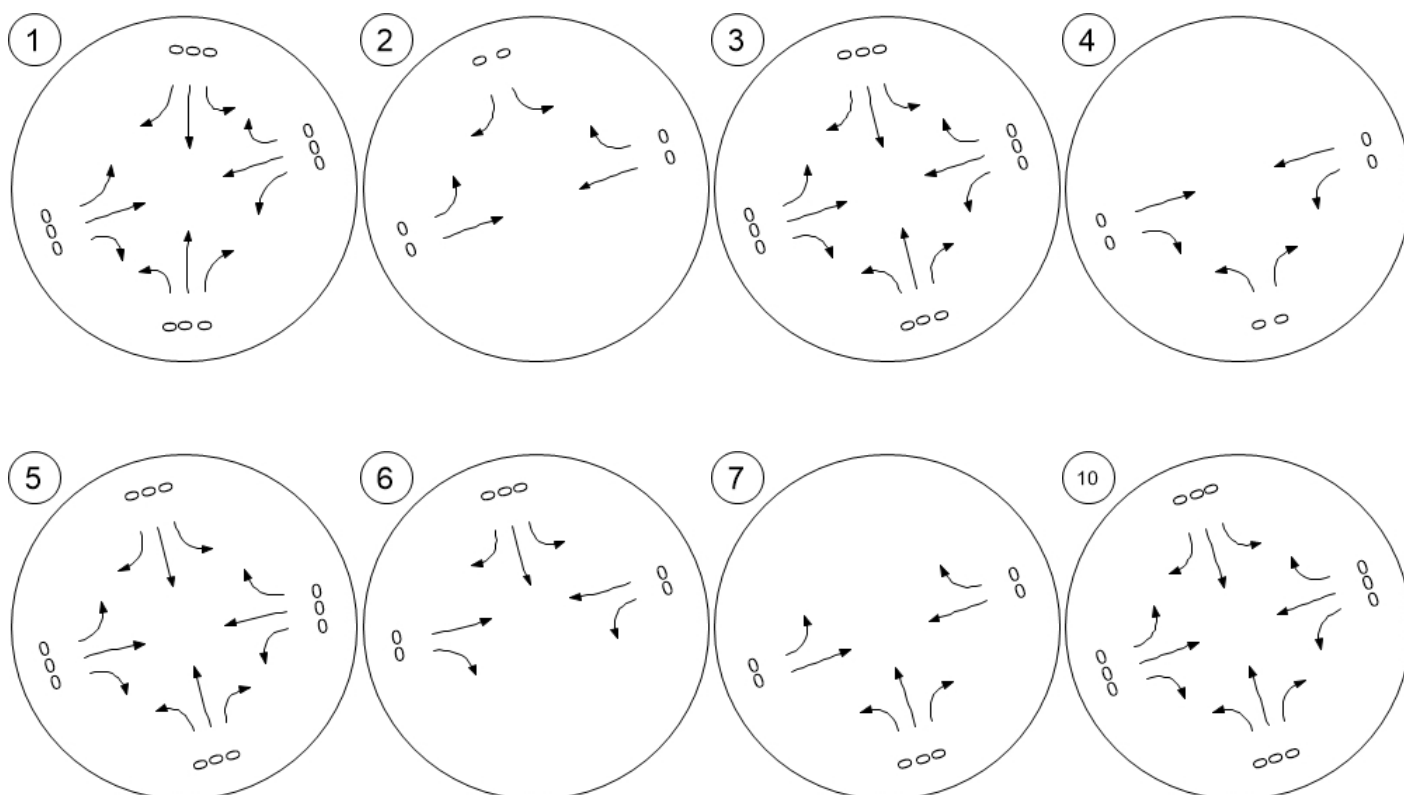




Traffic Volume - Net New Site Trips

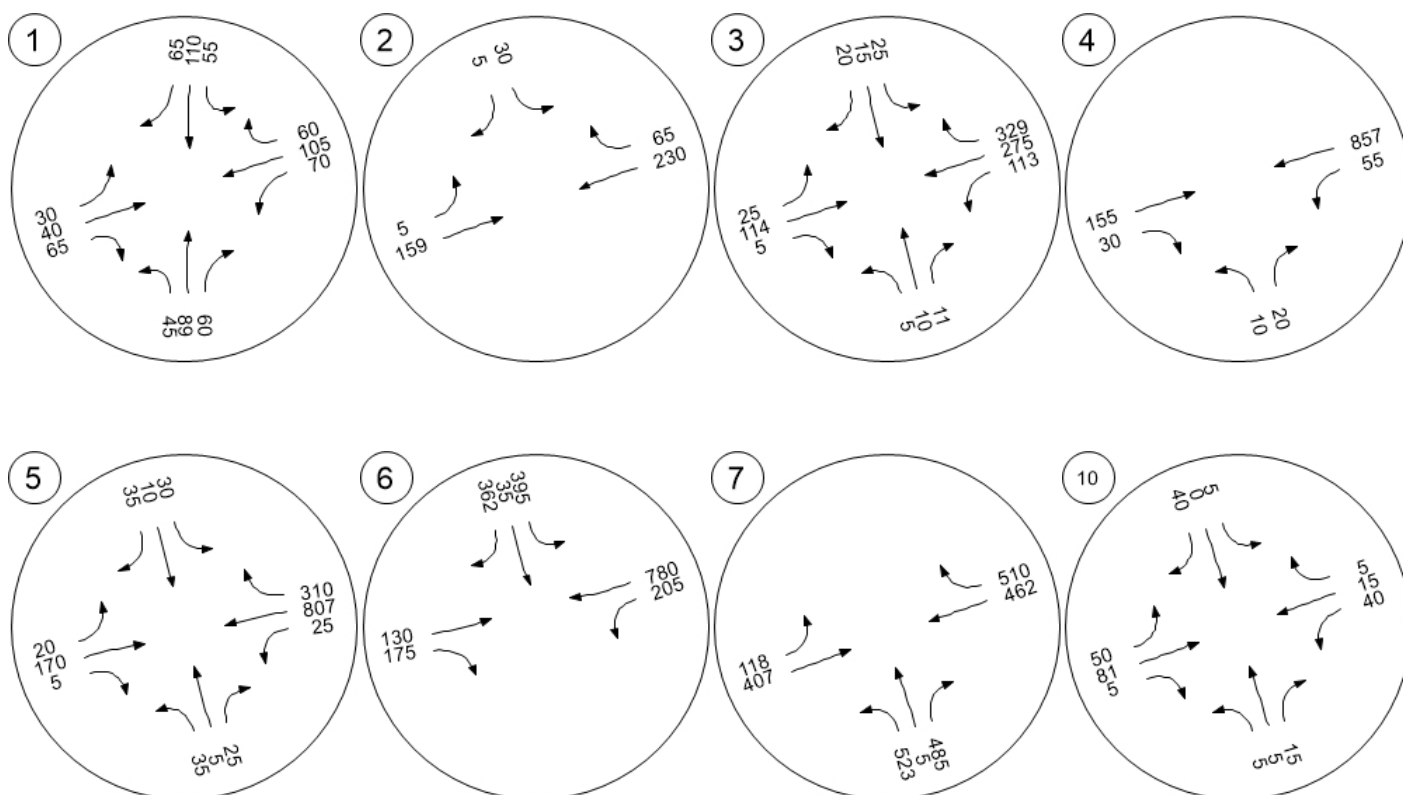


Traffic Volume - Other Volume



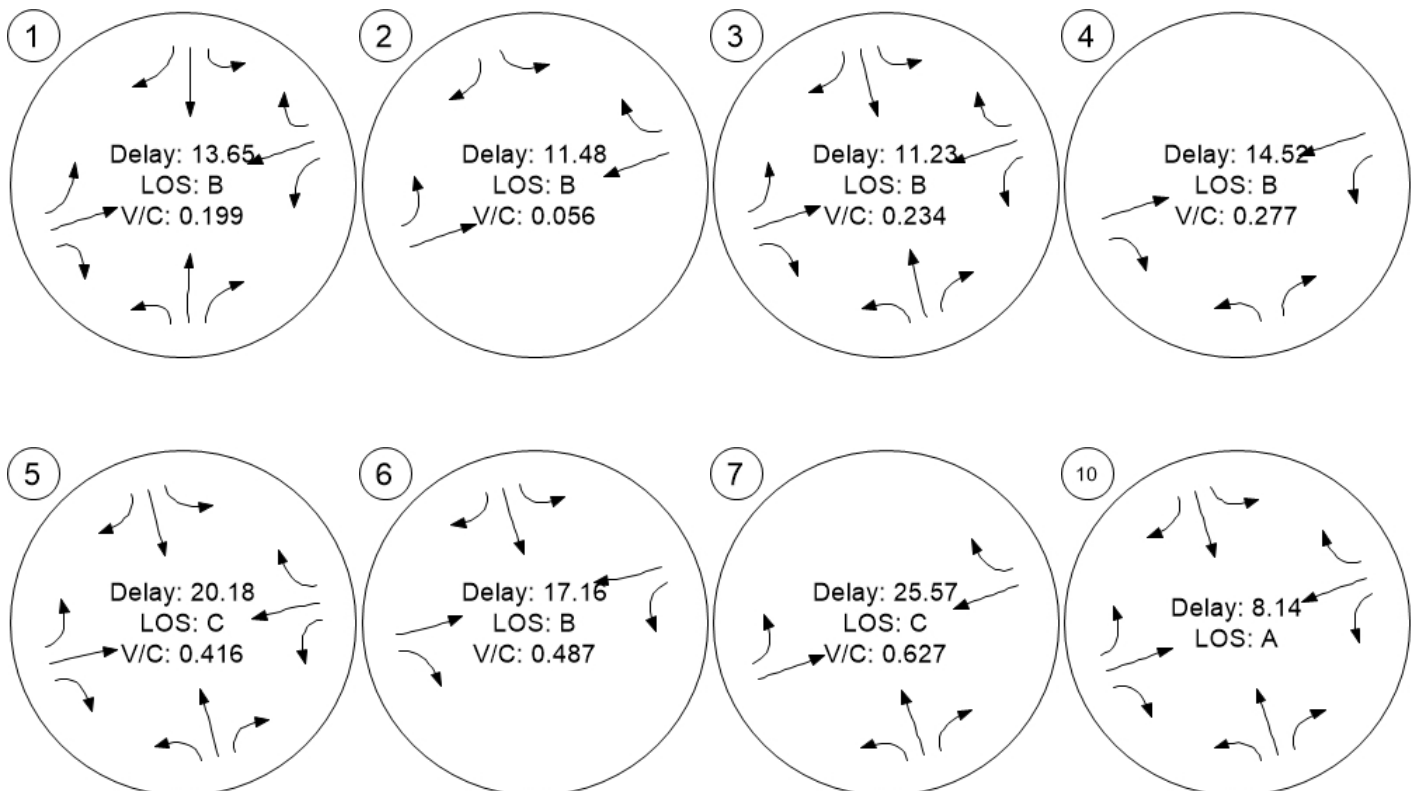


Traffic Volume - Future Total Volume

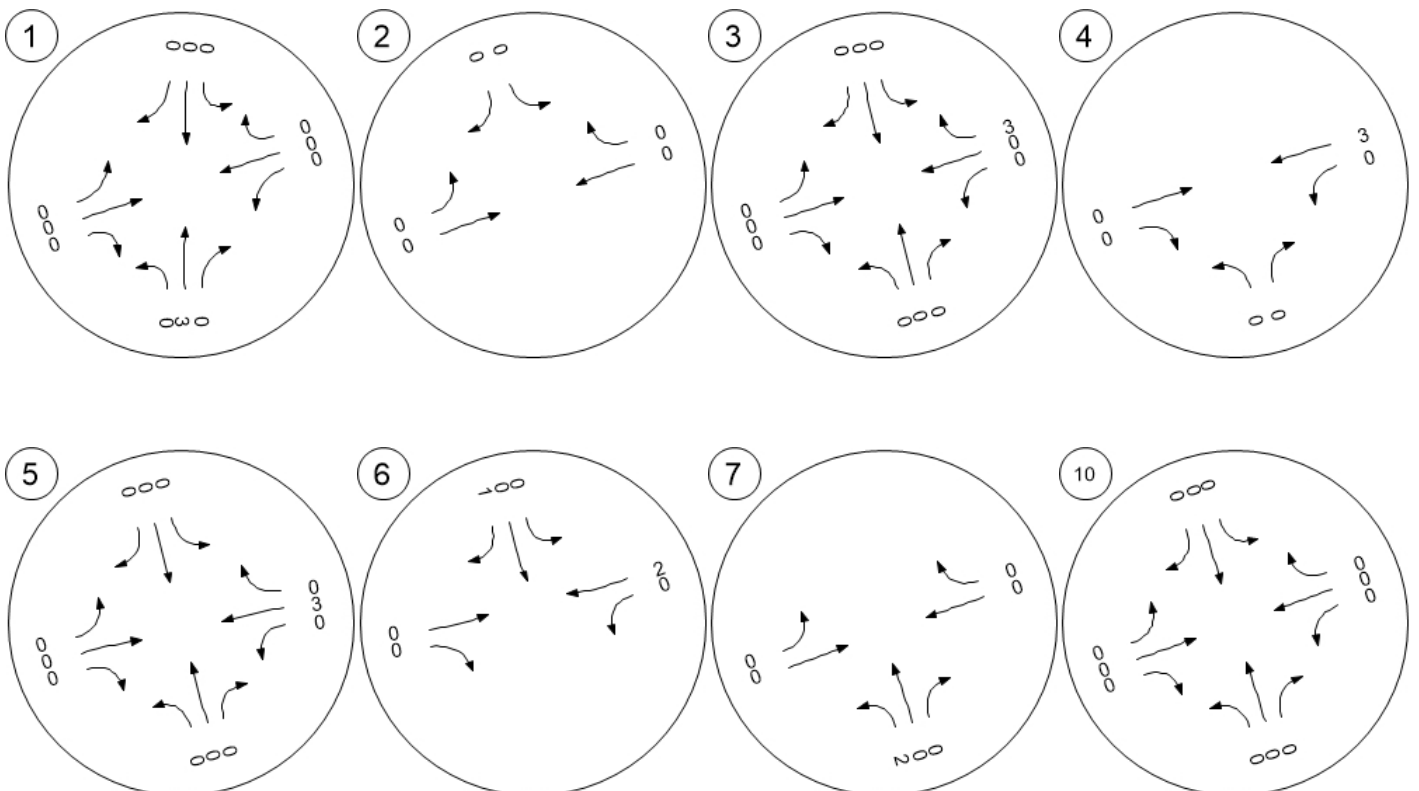




Traffic Conditions

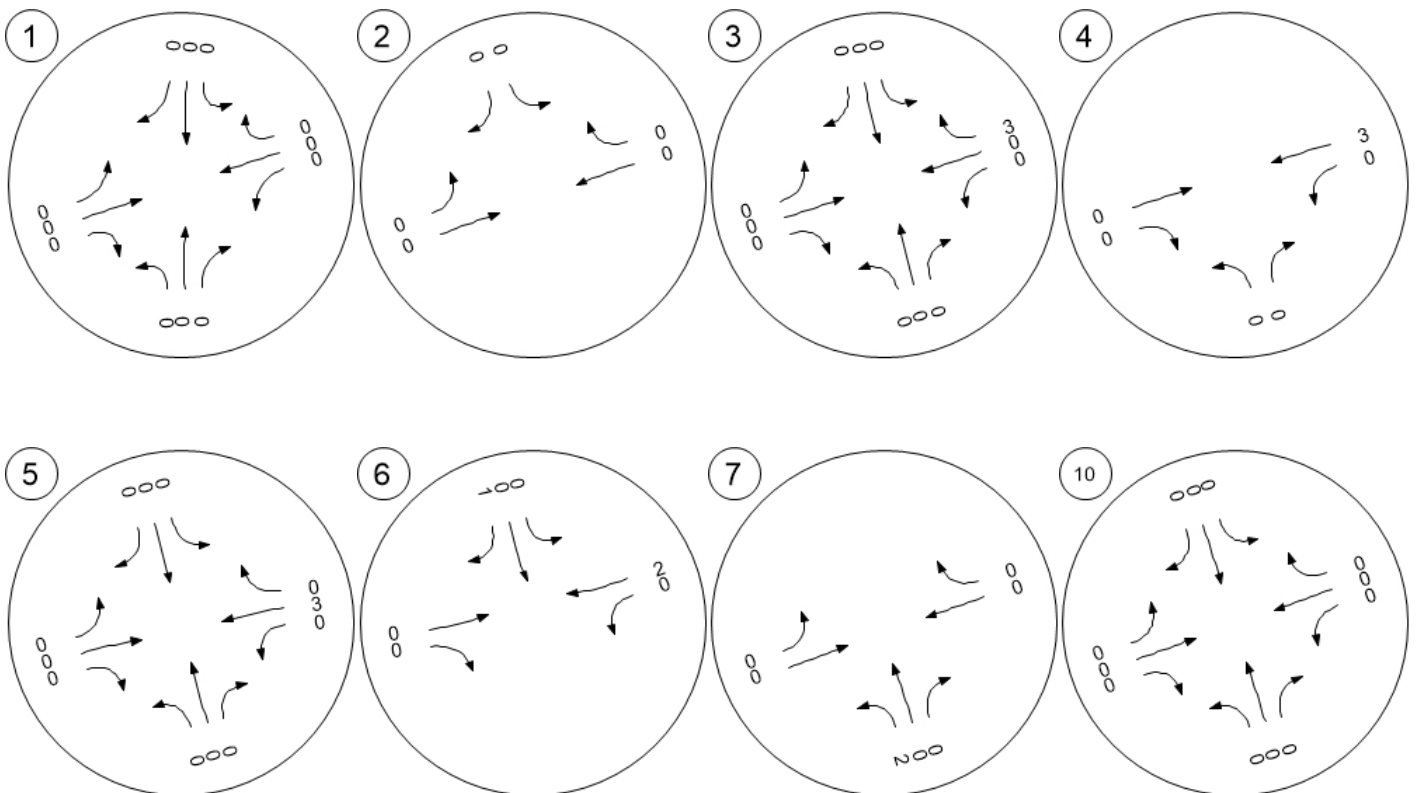


Fair Share - Fair Share Volumes - Zone 18

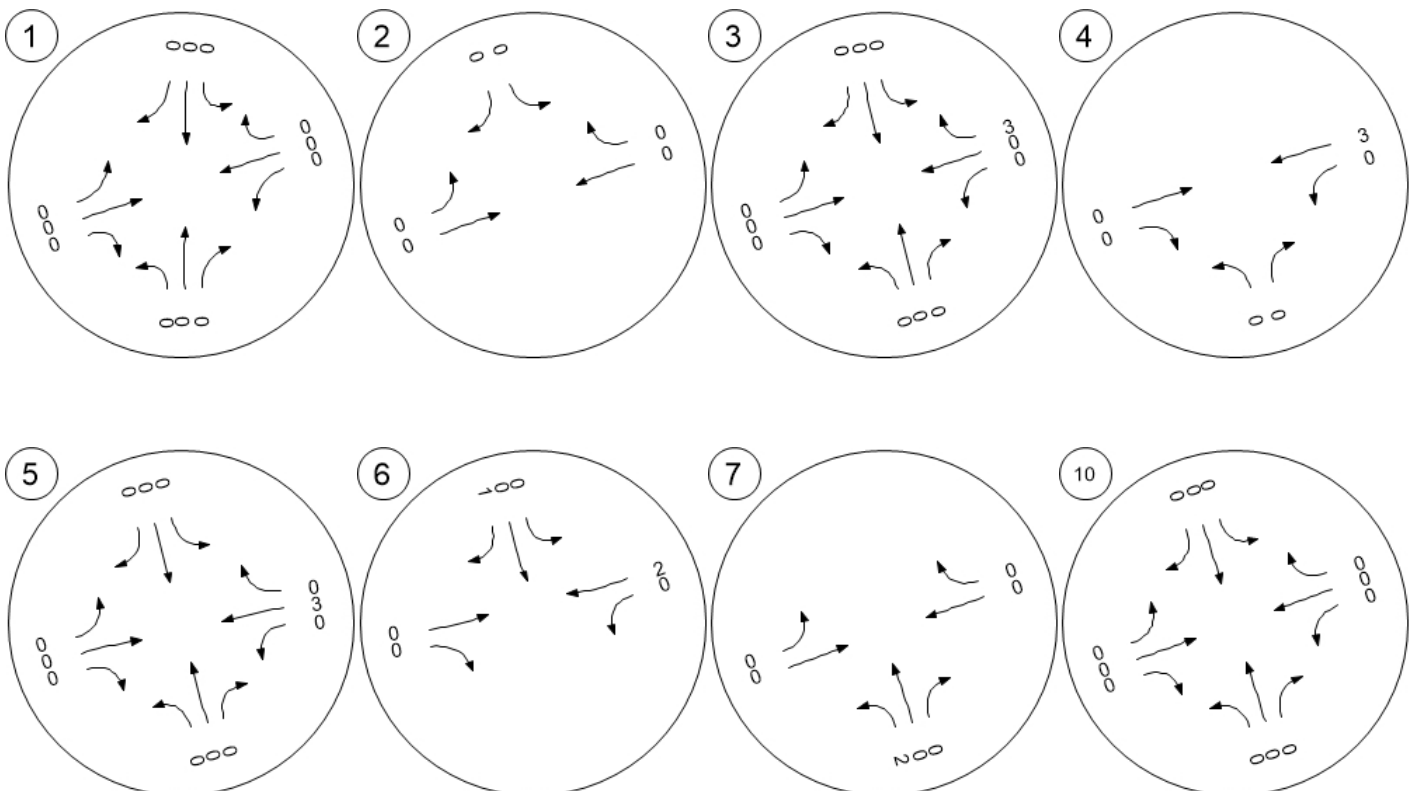




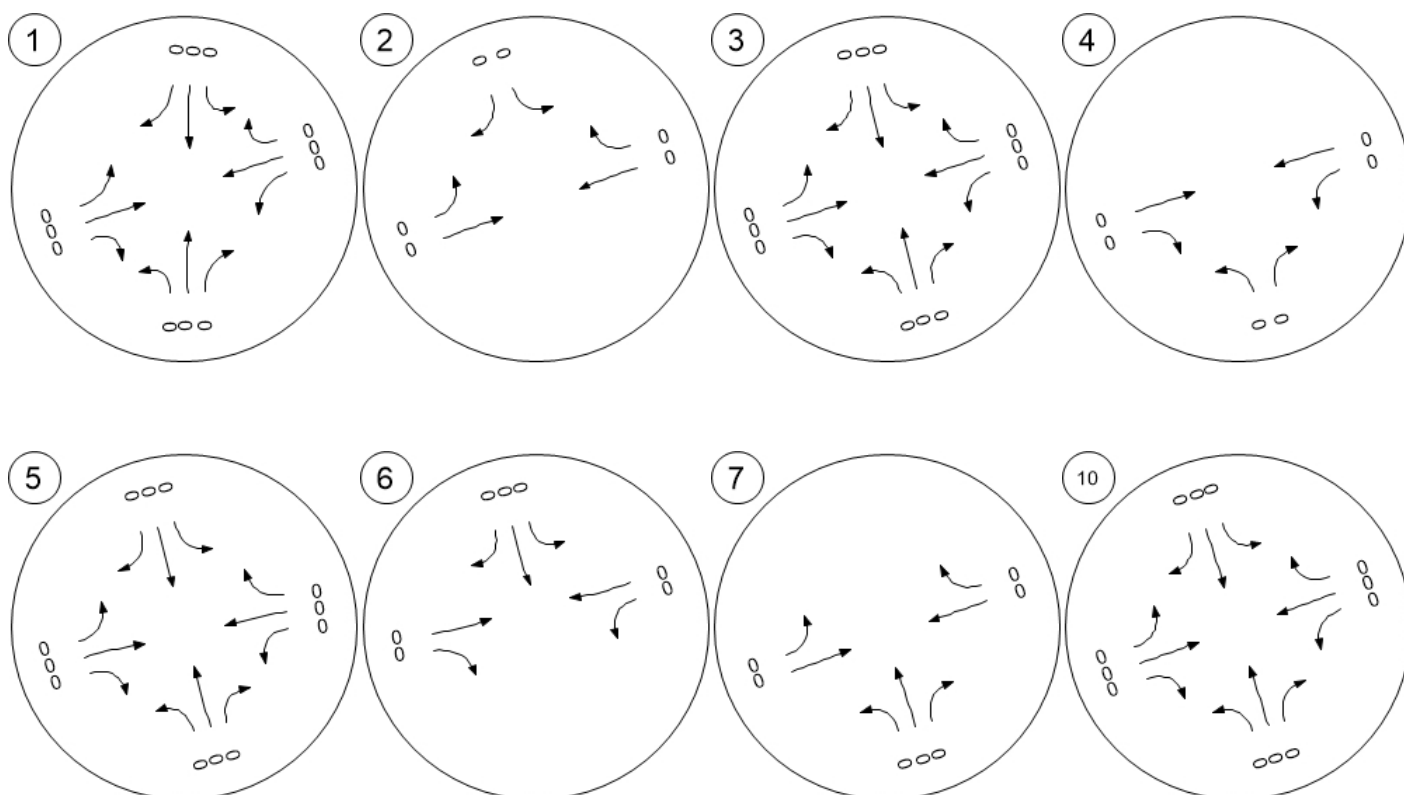
Fair Share - Fair Share Volumes - Zone 19



Fair Share - Fair Share Volumes - Zone 20

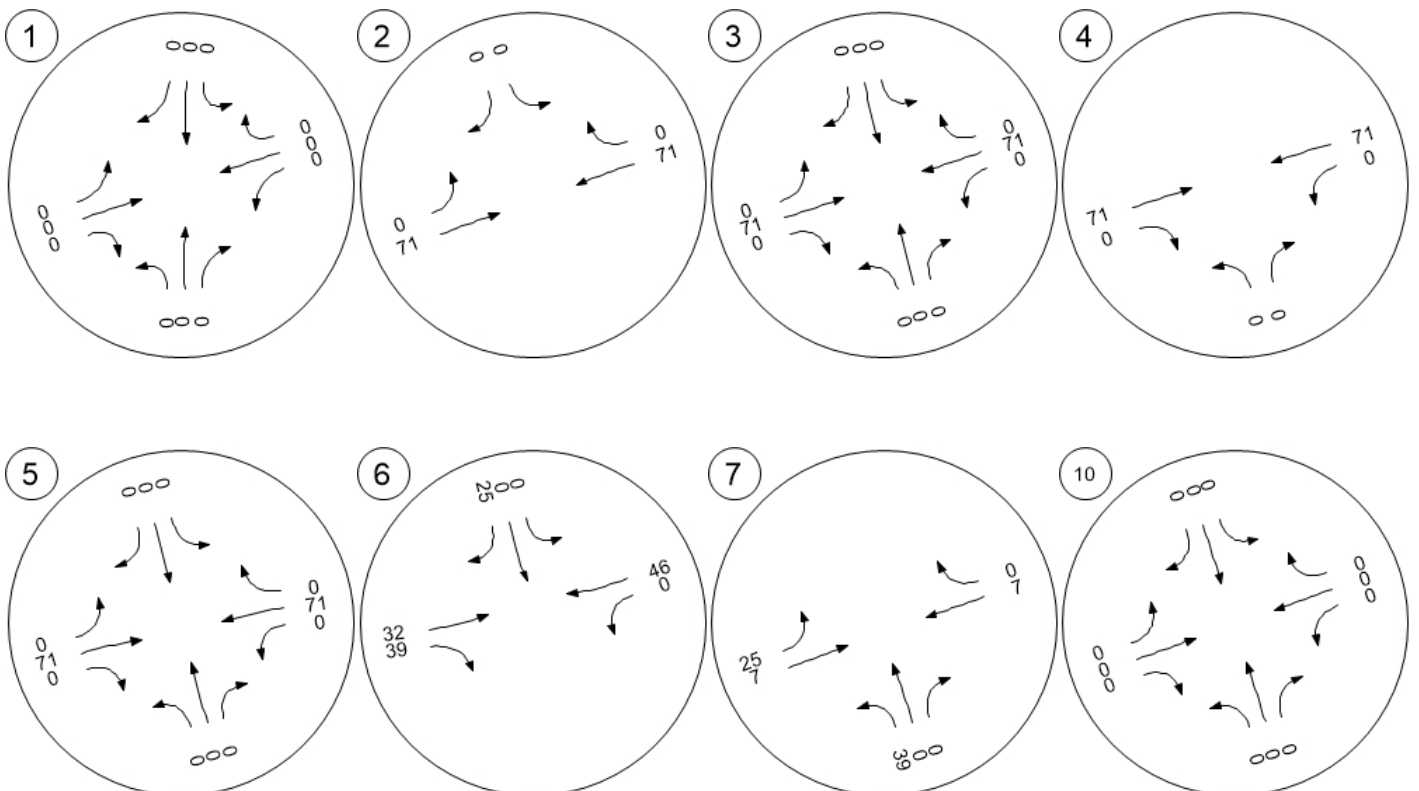


Fair Share - Fair Share Volumes - Zone 21

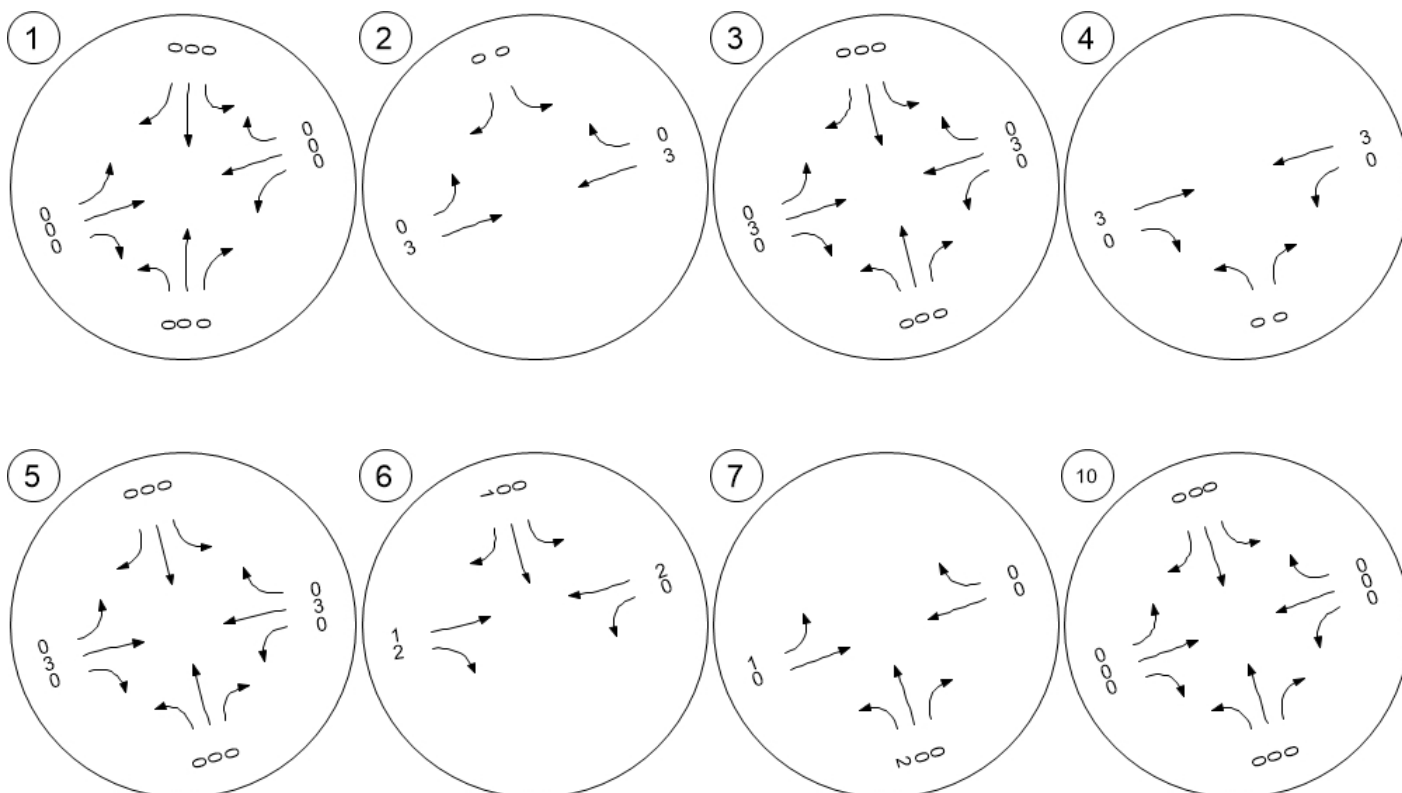




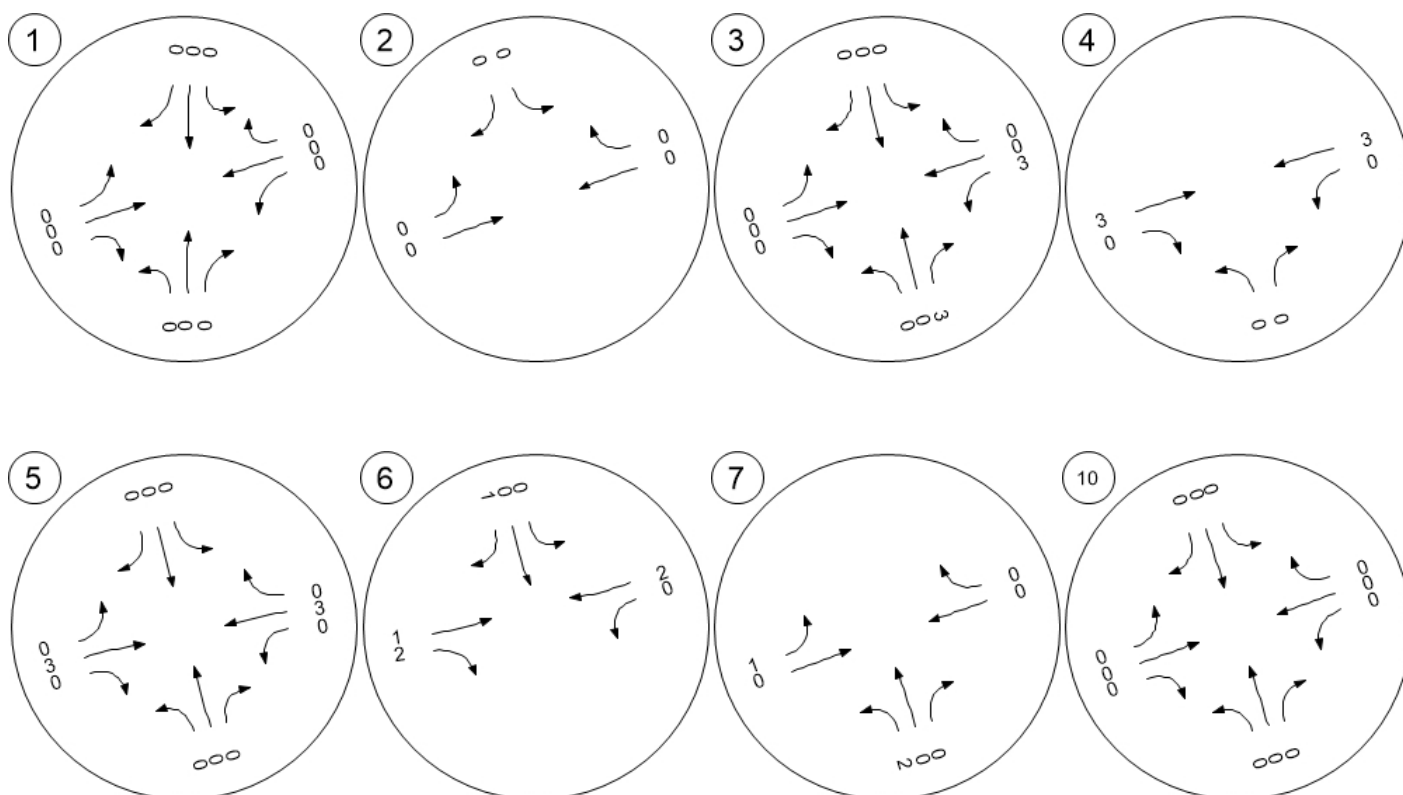
Fair Share - Fair Share Volumes - Zone 22



Fair Share - Fair Share Volumes - Zone 23

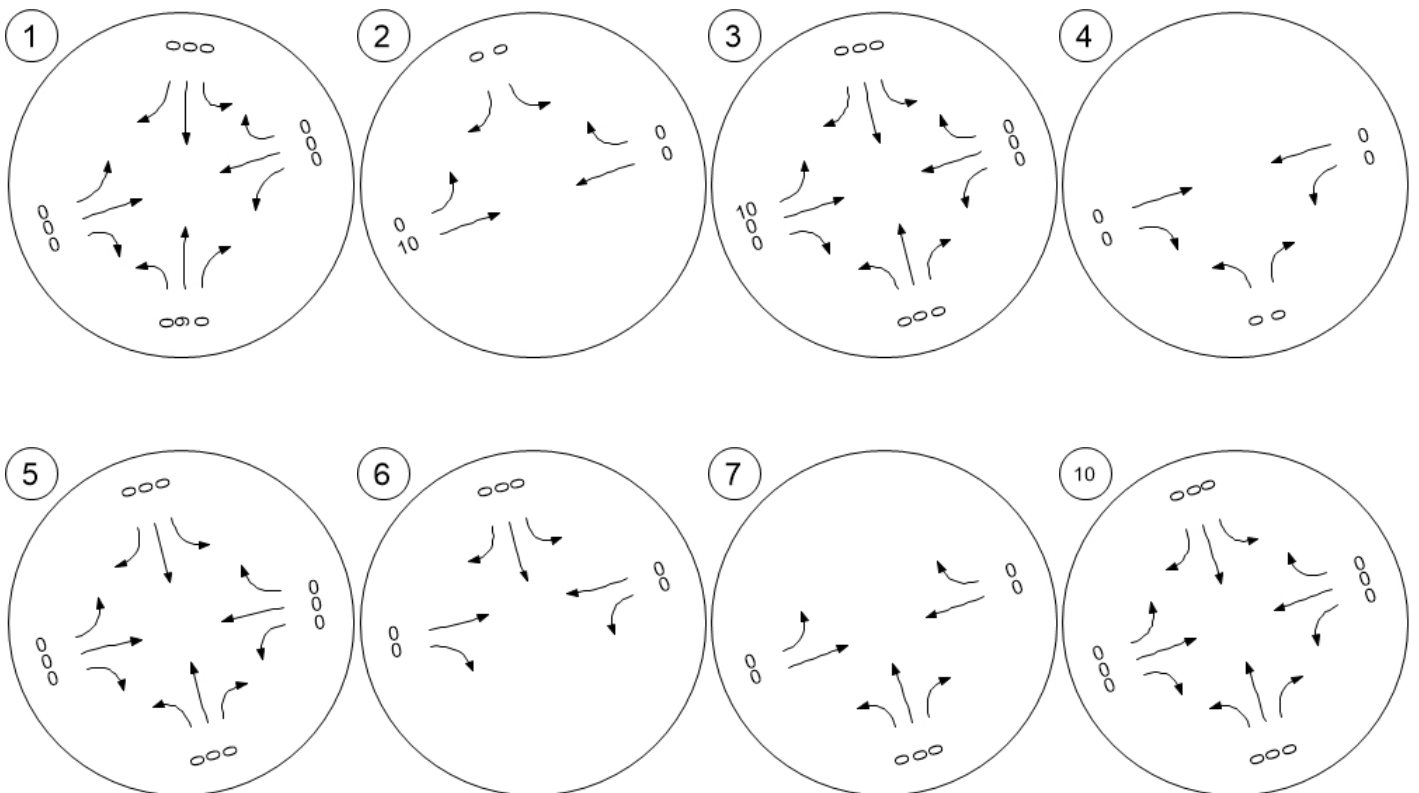


Fair Share - Fair Share Volumes - Zone 24

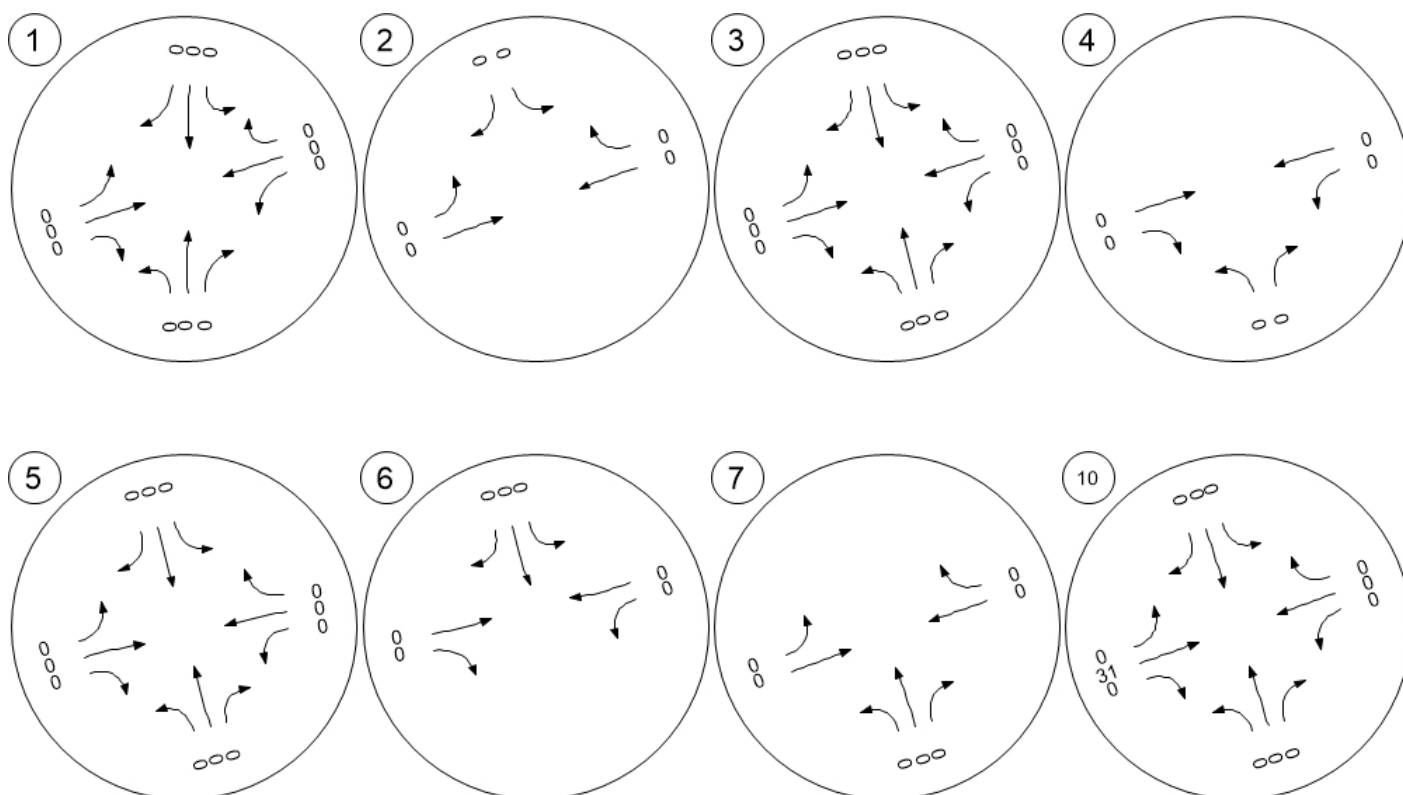




Fair Share - Fair Share Volumes - Zone 25

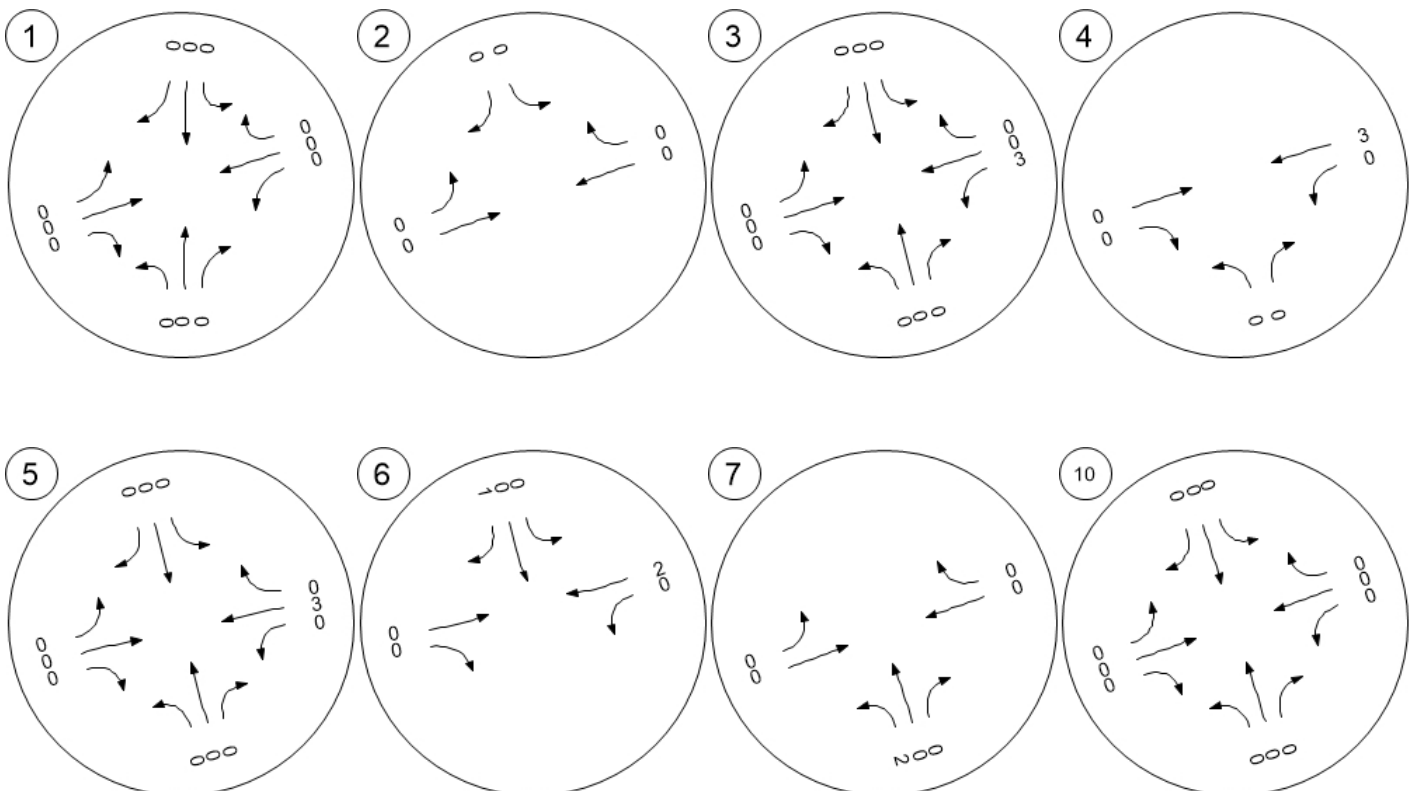


Fair Share - Fair Share Volumes - Zone 26

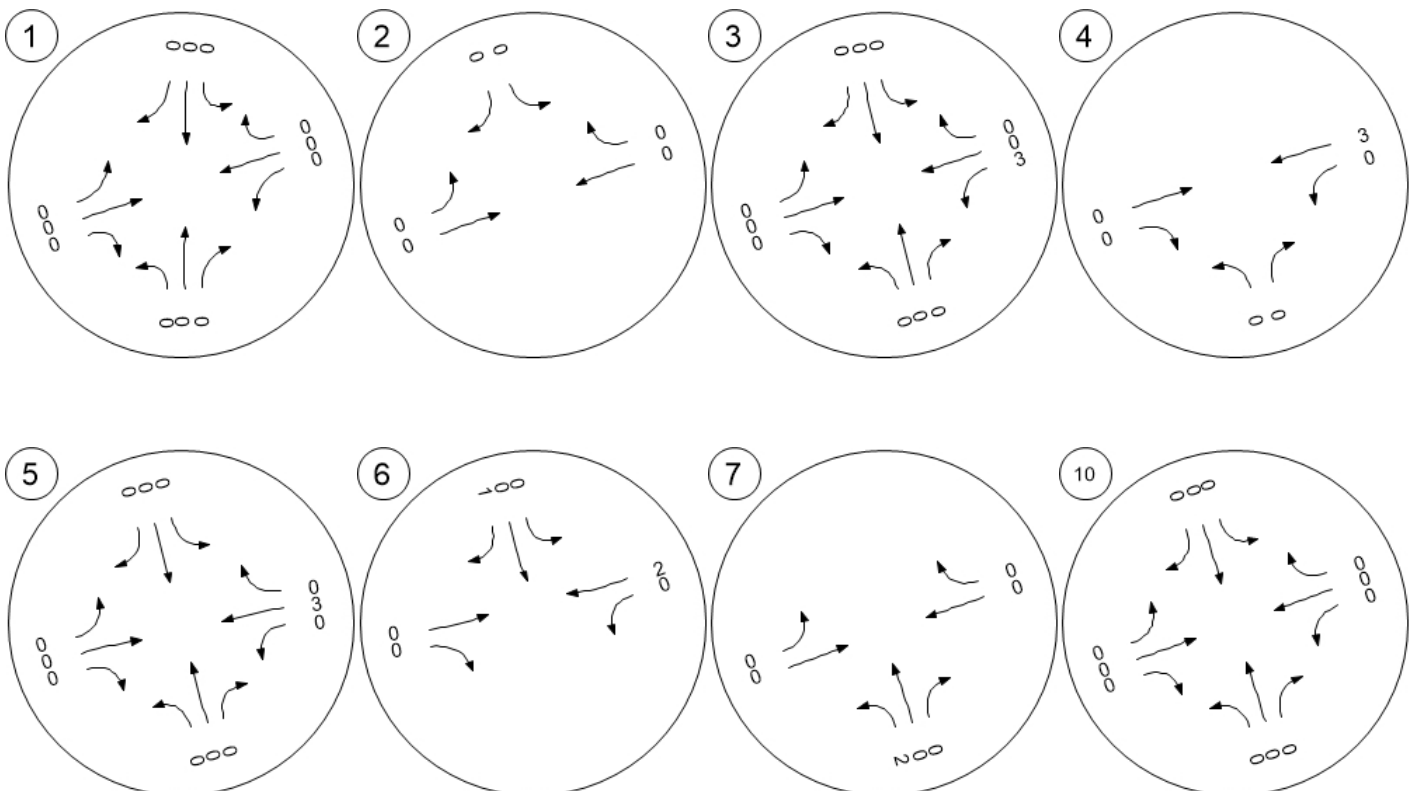




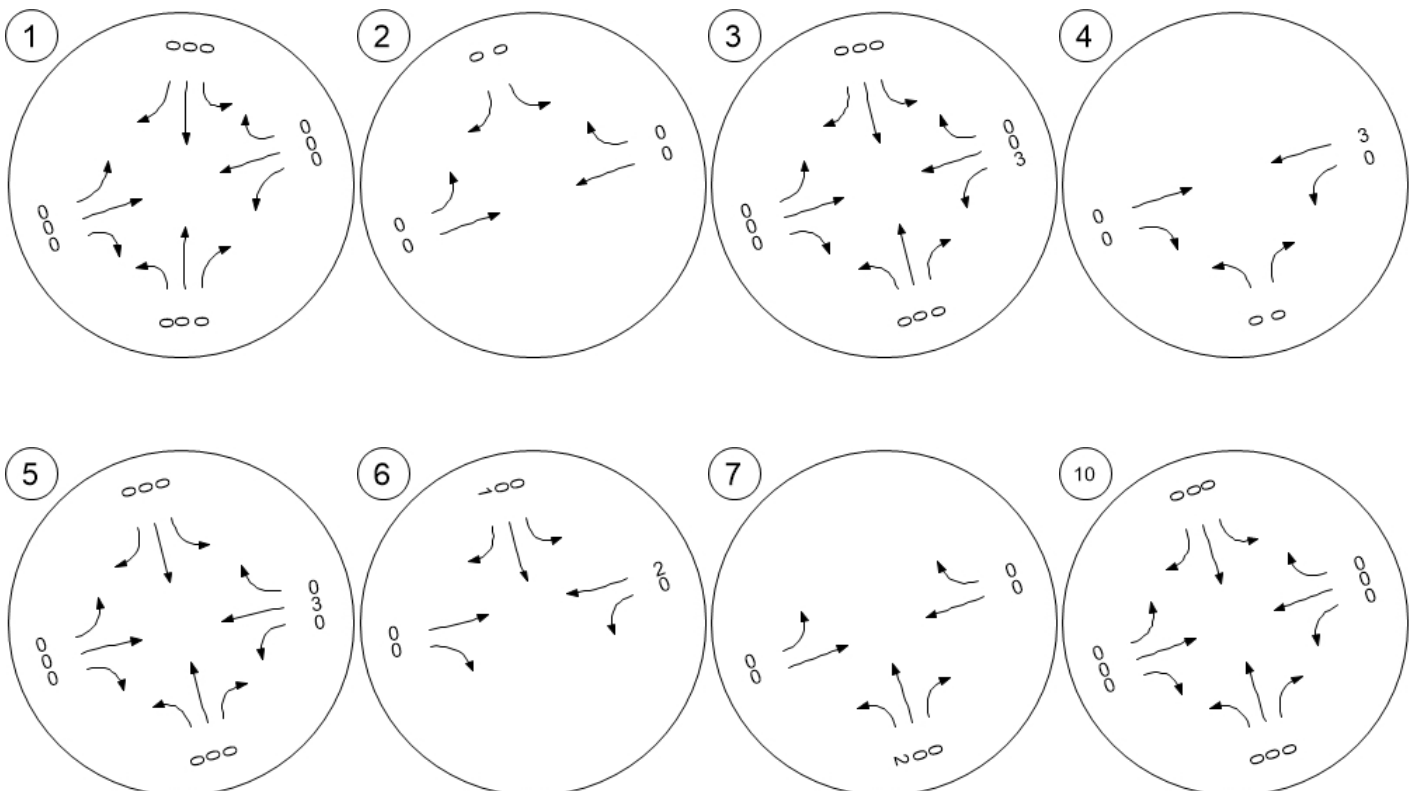
Fair Share - Fair Share Volumes - Zone 27



Fair Share - Fair Share Volumes - Zone 28

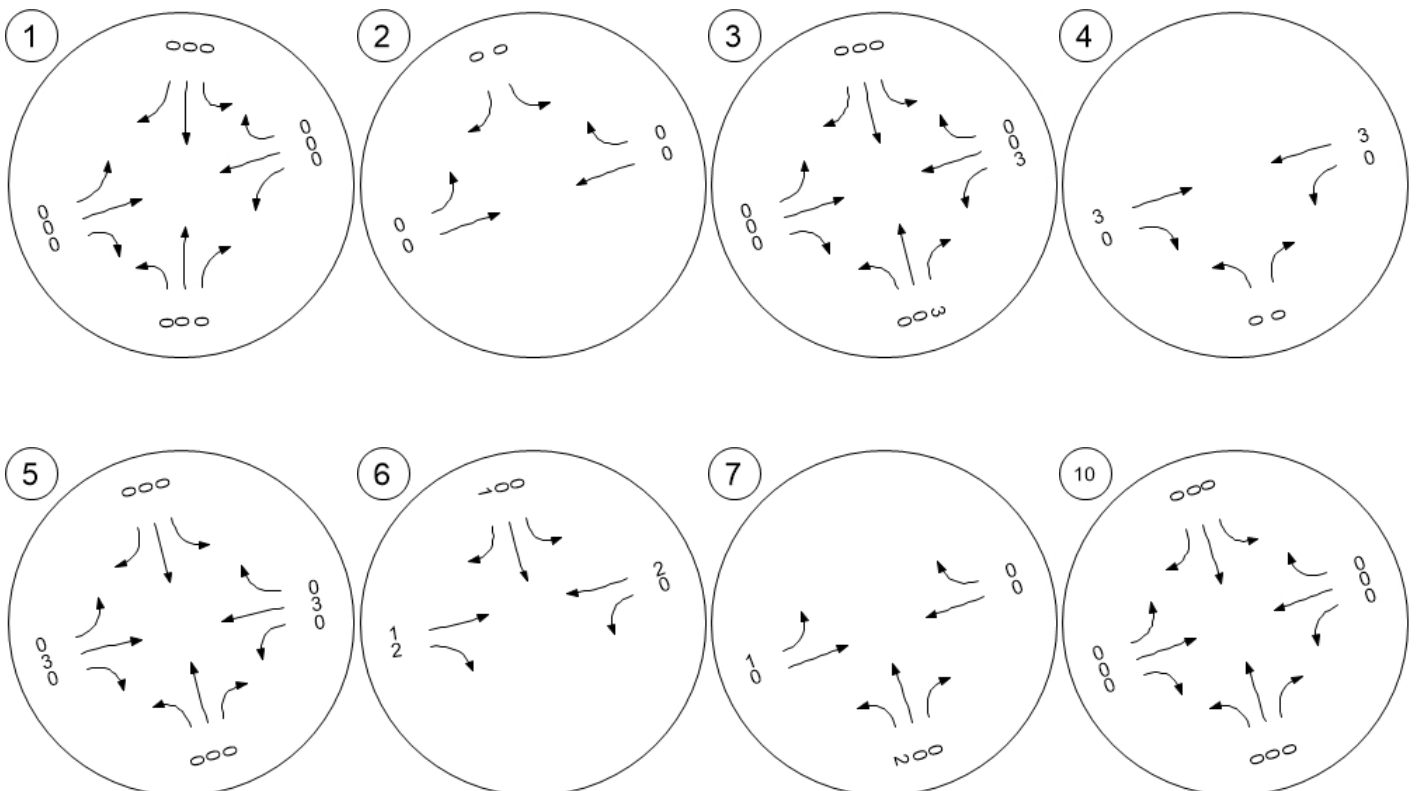


Fair Share - Fair Share Volumes - Zone 29

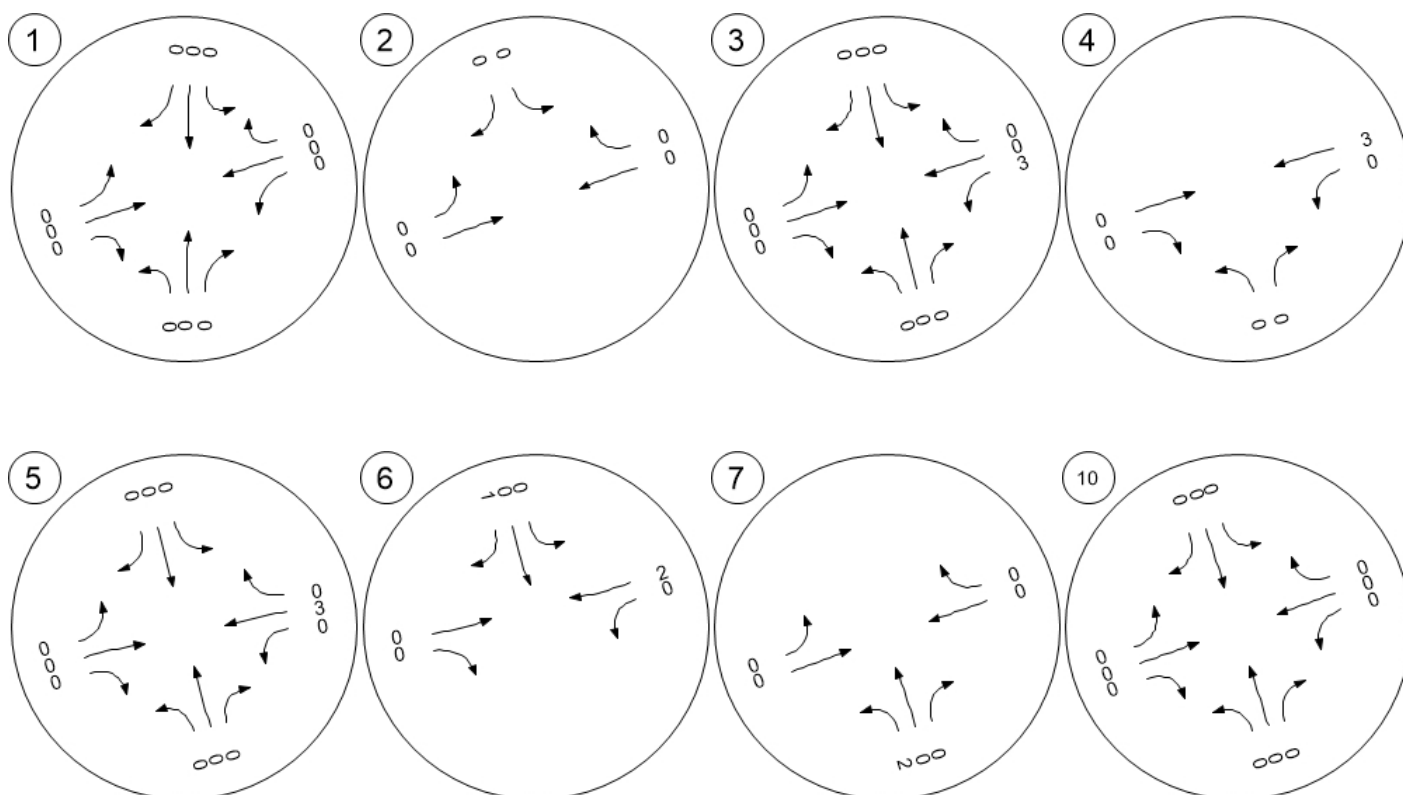




Fair Share - Fair Share Volumes - Zone 32

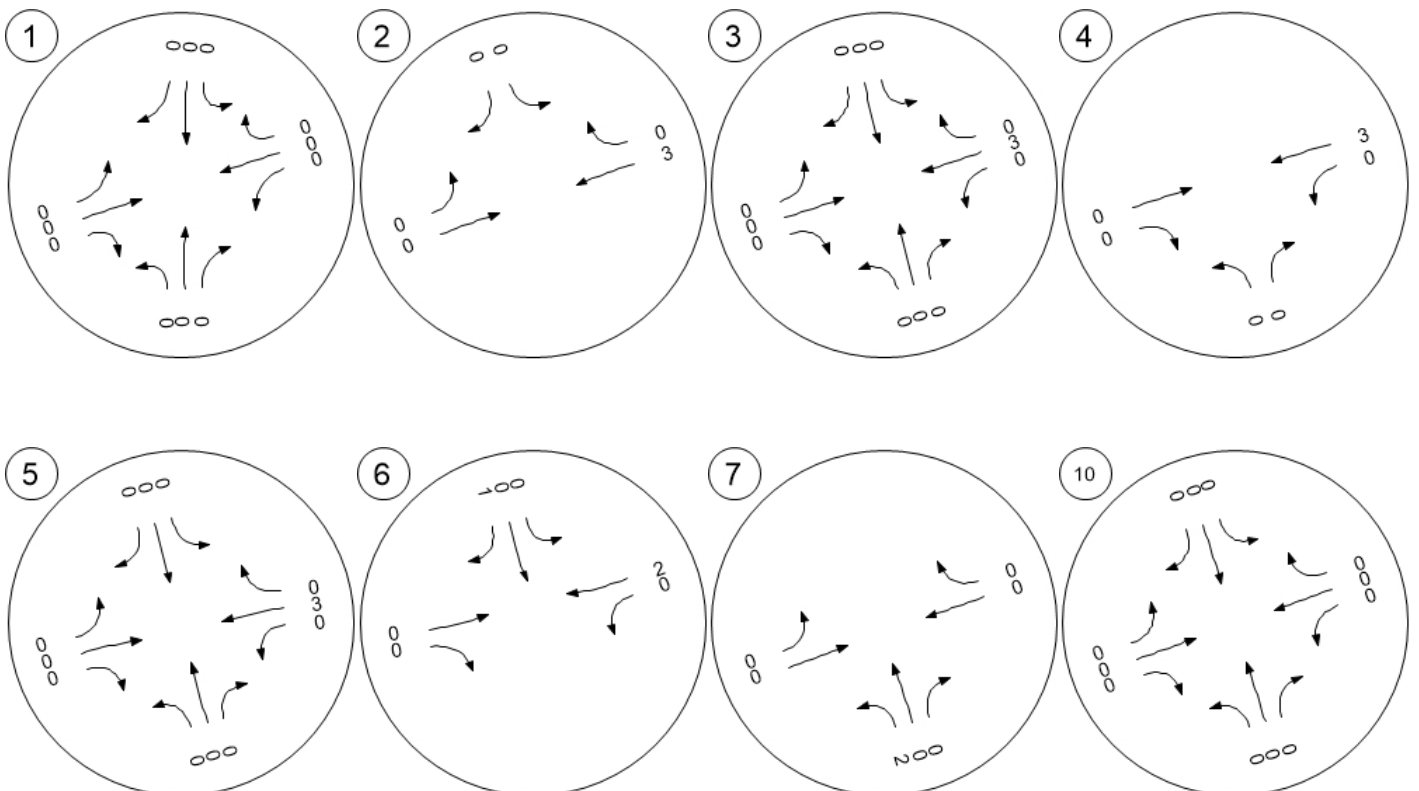


Fair Share - Fair Share Volumes - Zone 33

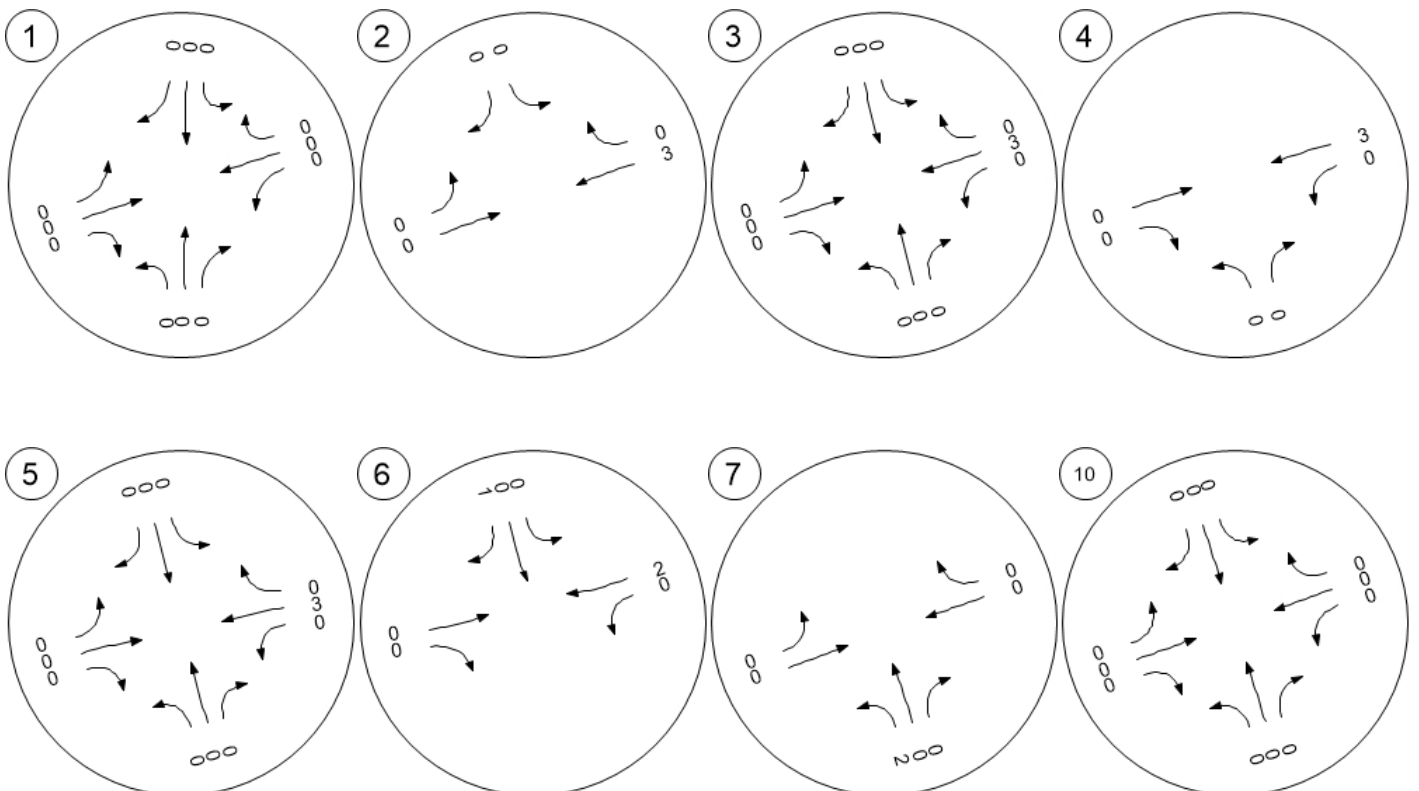




Fair Share - Fair Share Volumes - Zone 34

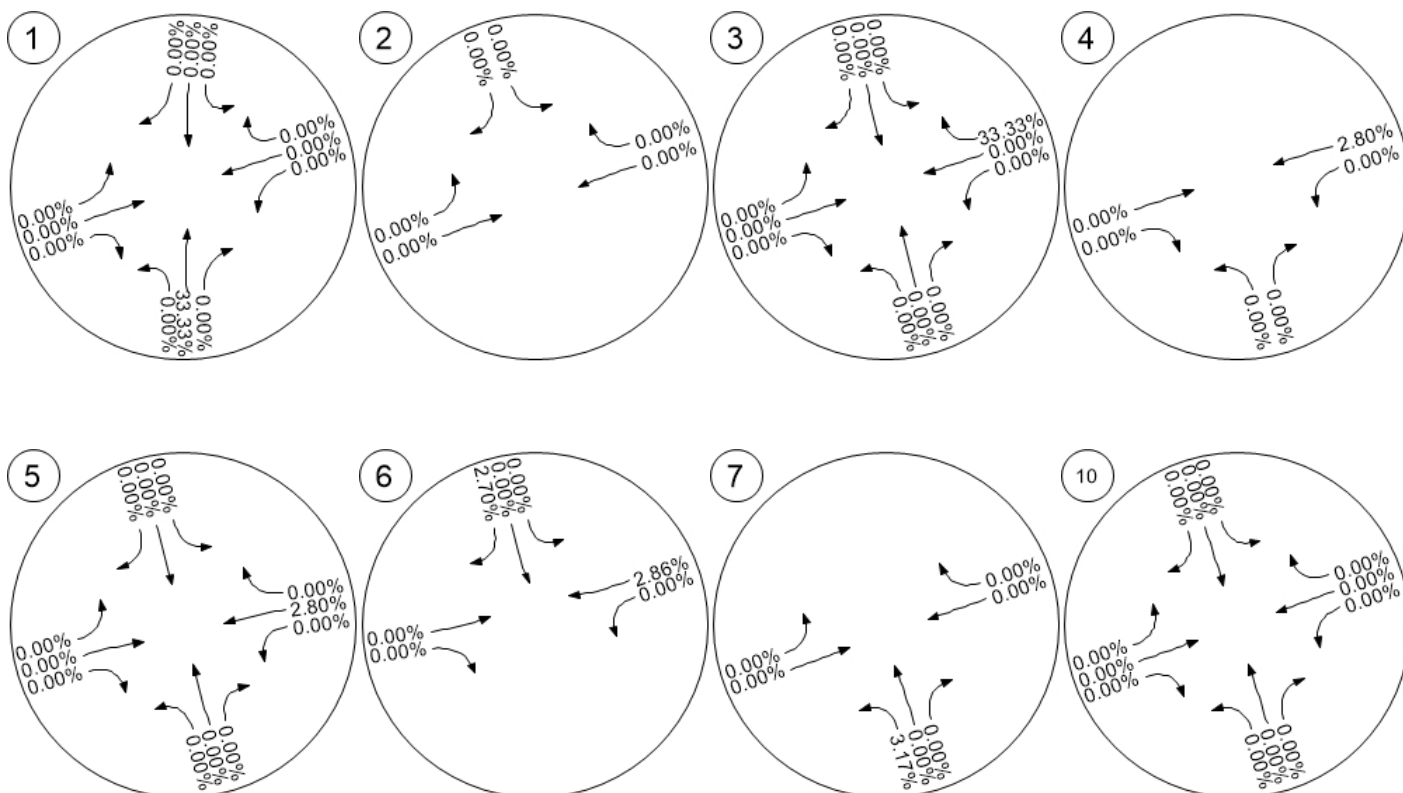


Fair Share - Fair Share Volumes - Zone 35

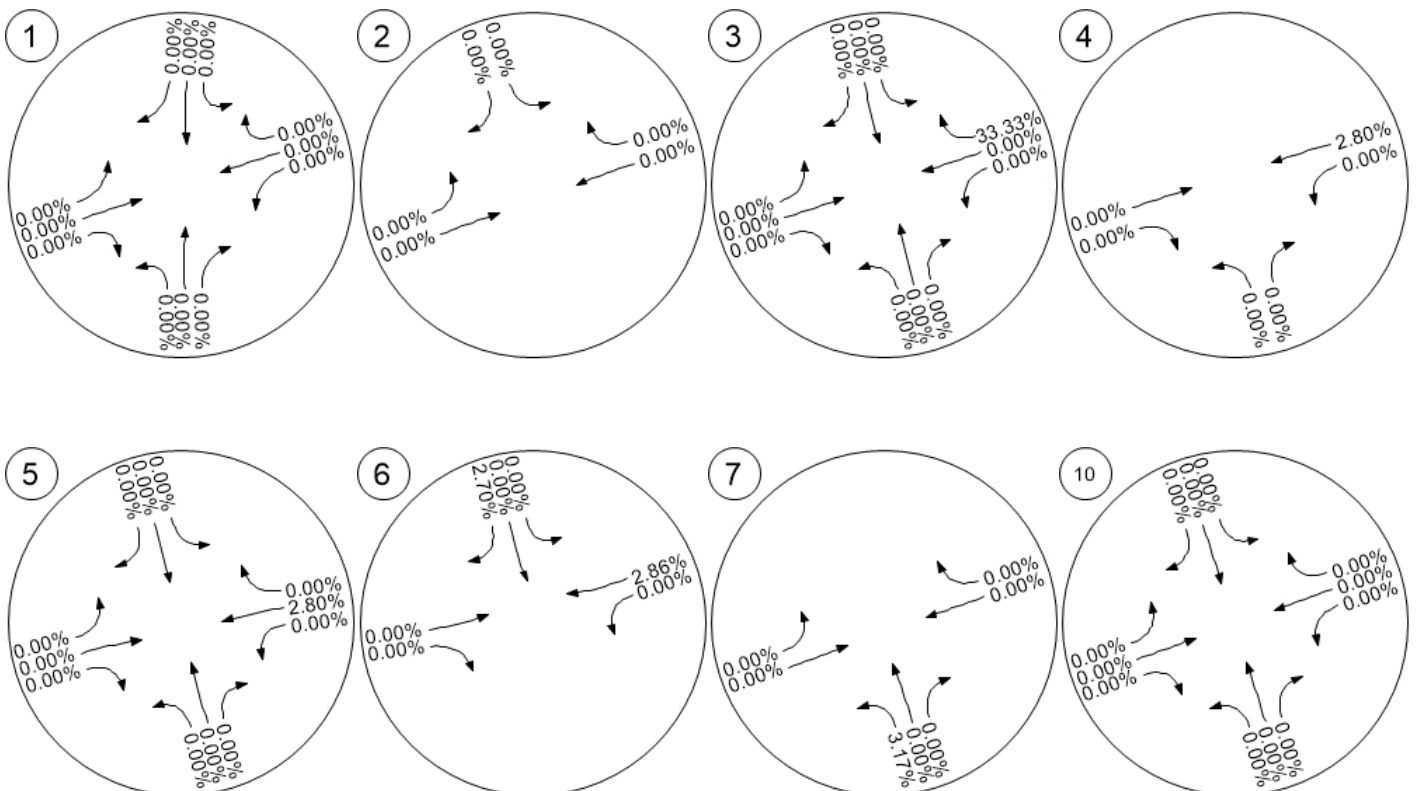




## Fair Share - Fair Share % of Net New Site - Zone 18

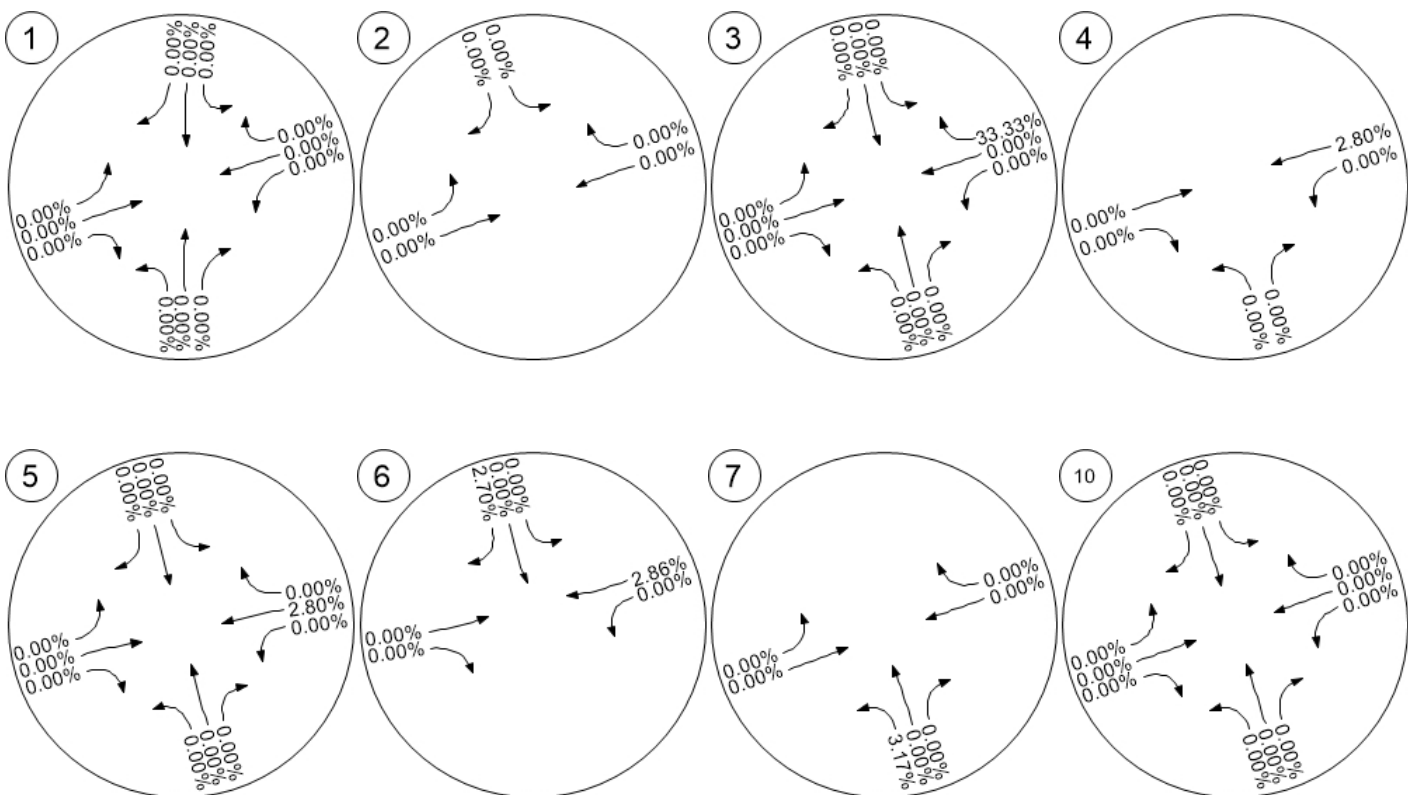


Fair Share - Fair Share % of Net New Site - Zone 19



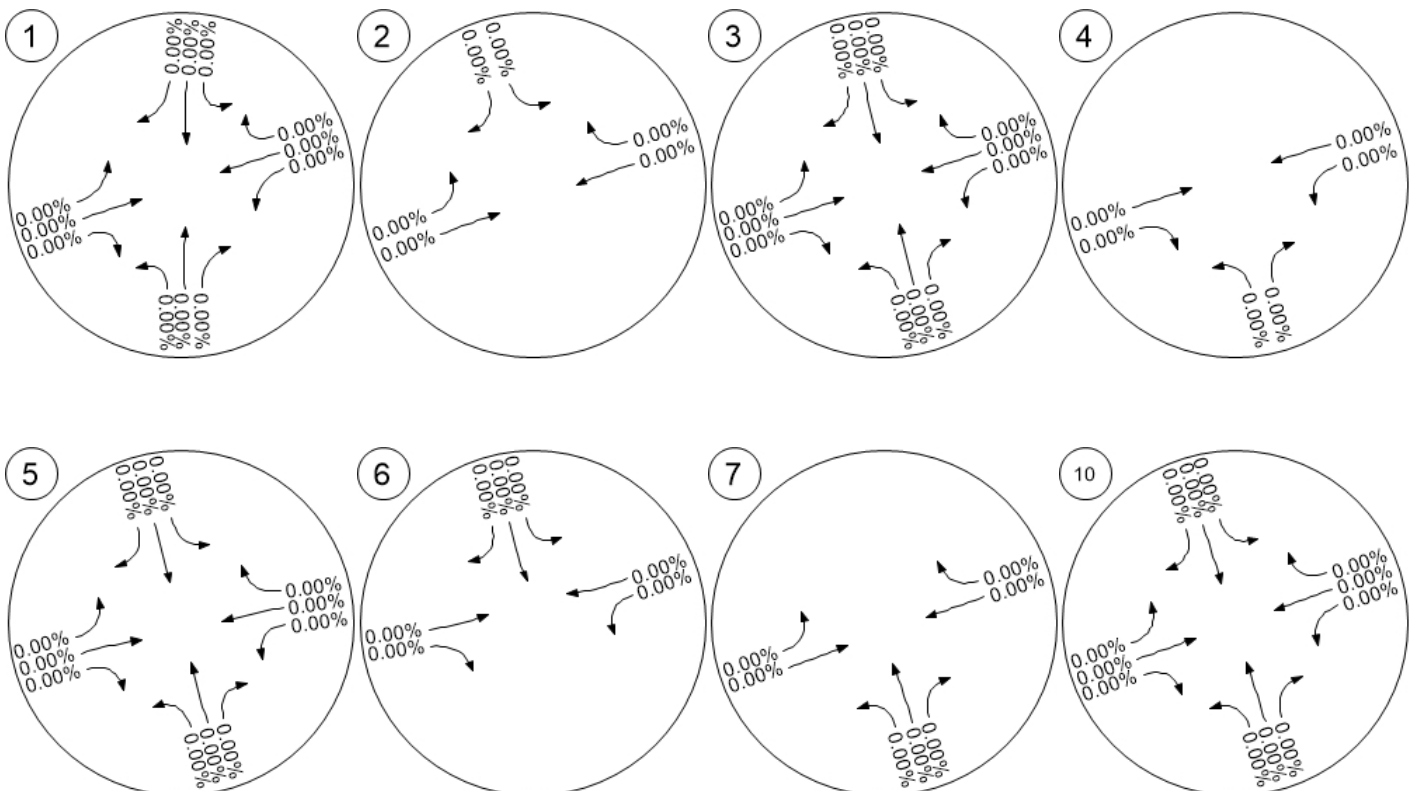


## Fair Share - Fair Share % of Net New Site - Zone 20

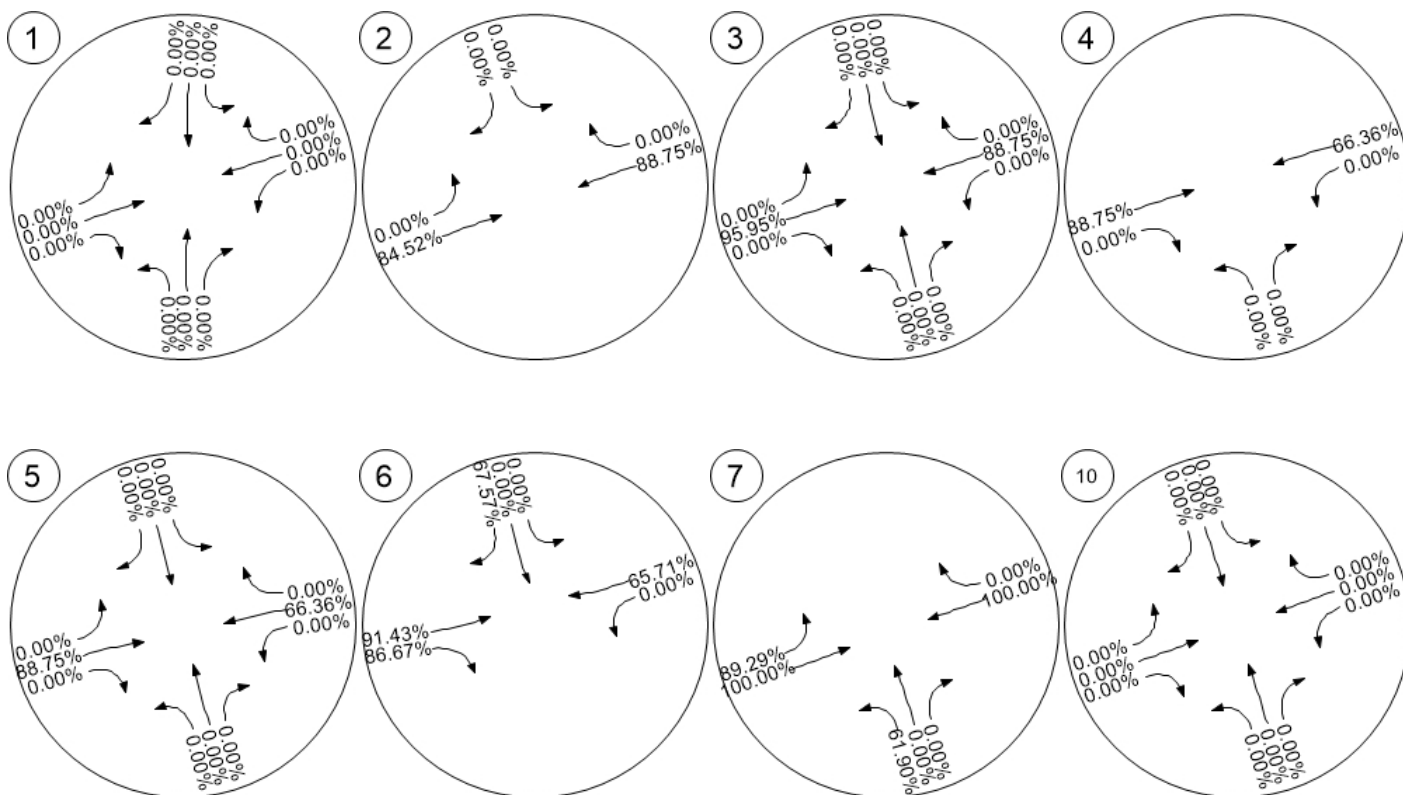




Fair Share - Fair Share % of Net New Site - Zone 21

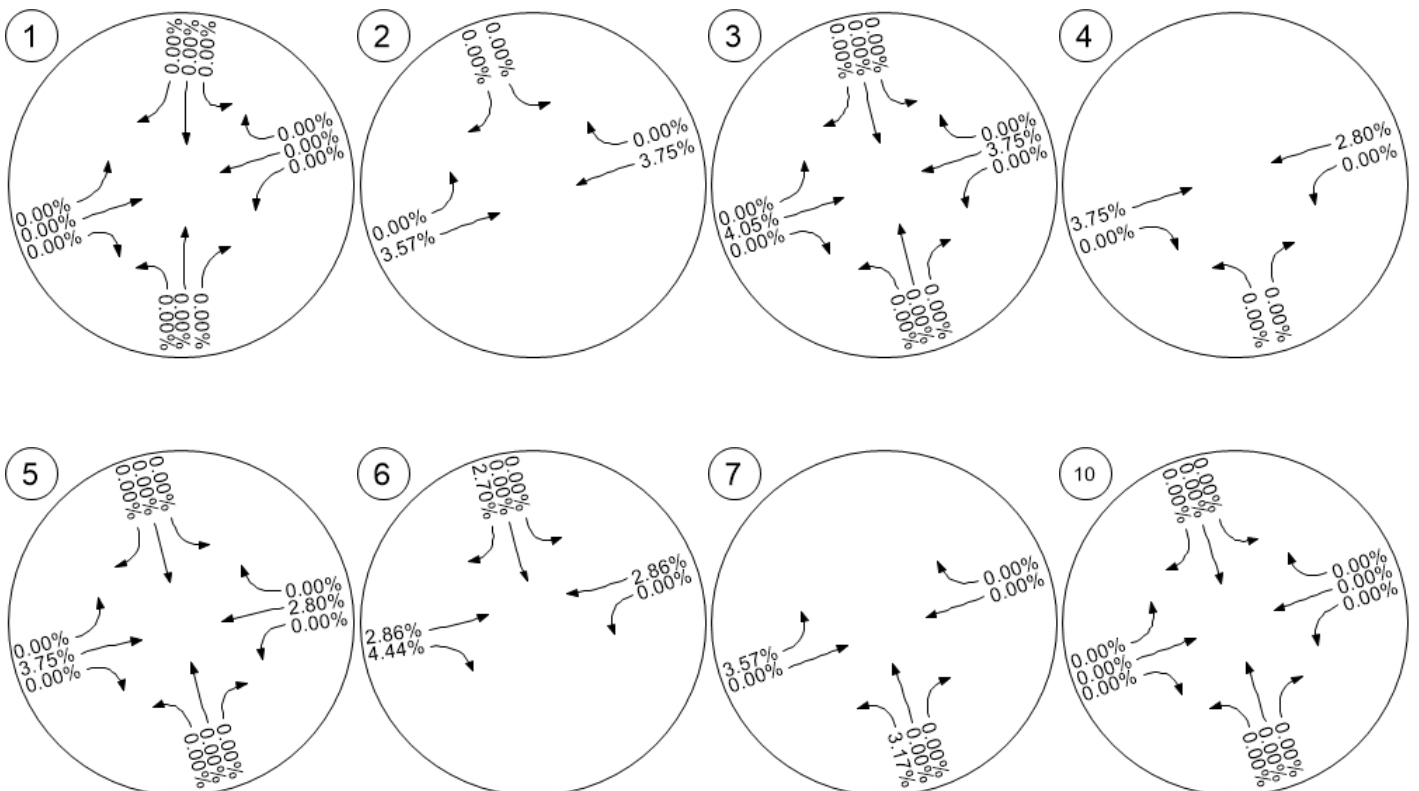


## Fair Share - Fair Share % of Net New Site - Zone 22

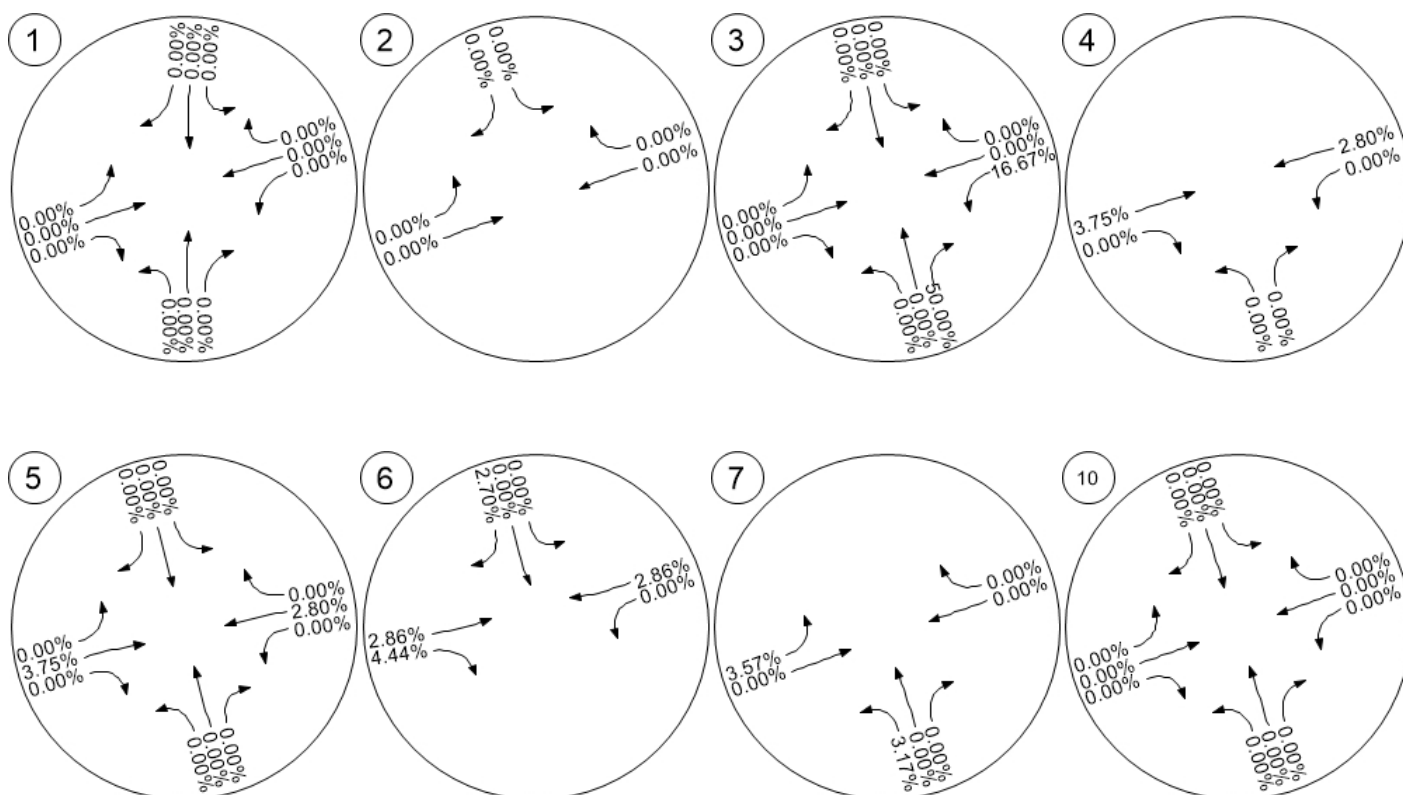




Fair Share - Fair Share % of Net New Site - Zone 23

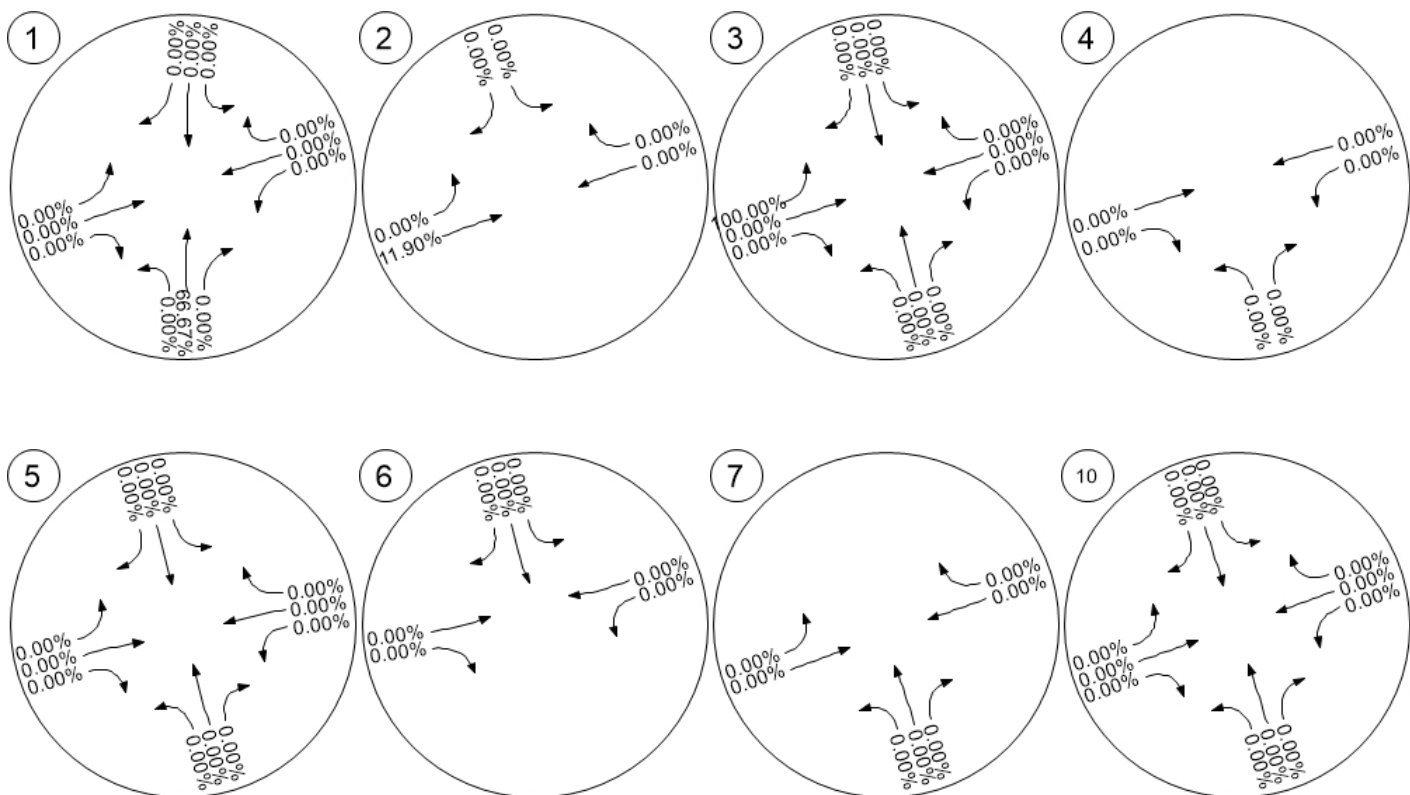


Fair Share - Fair Share % of Net New Site - Zone 24



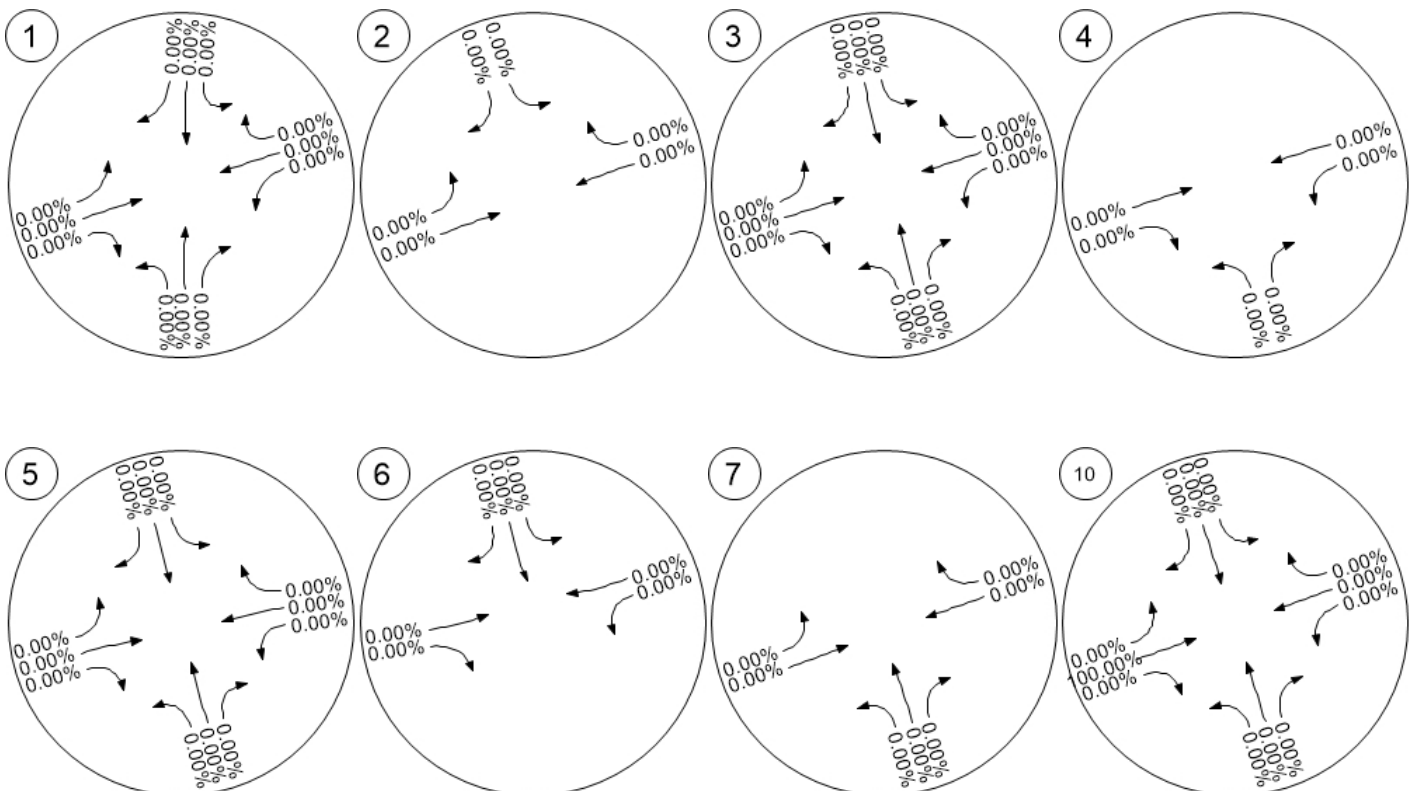


## Fair Share - Fair Share % of Net New Site - Zone 25

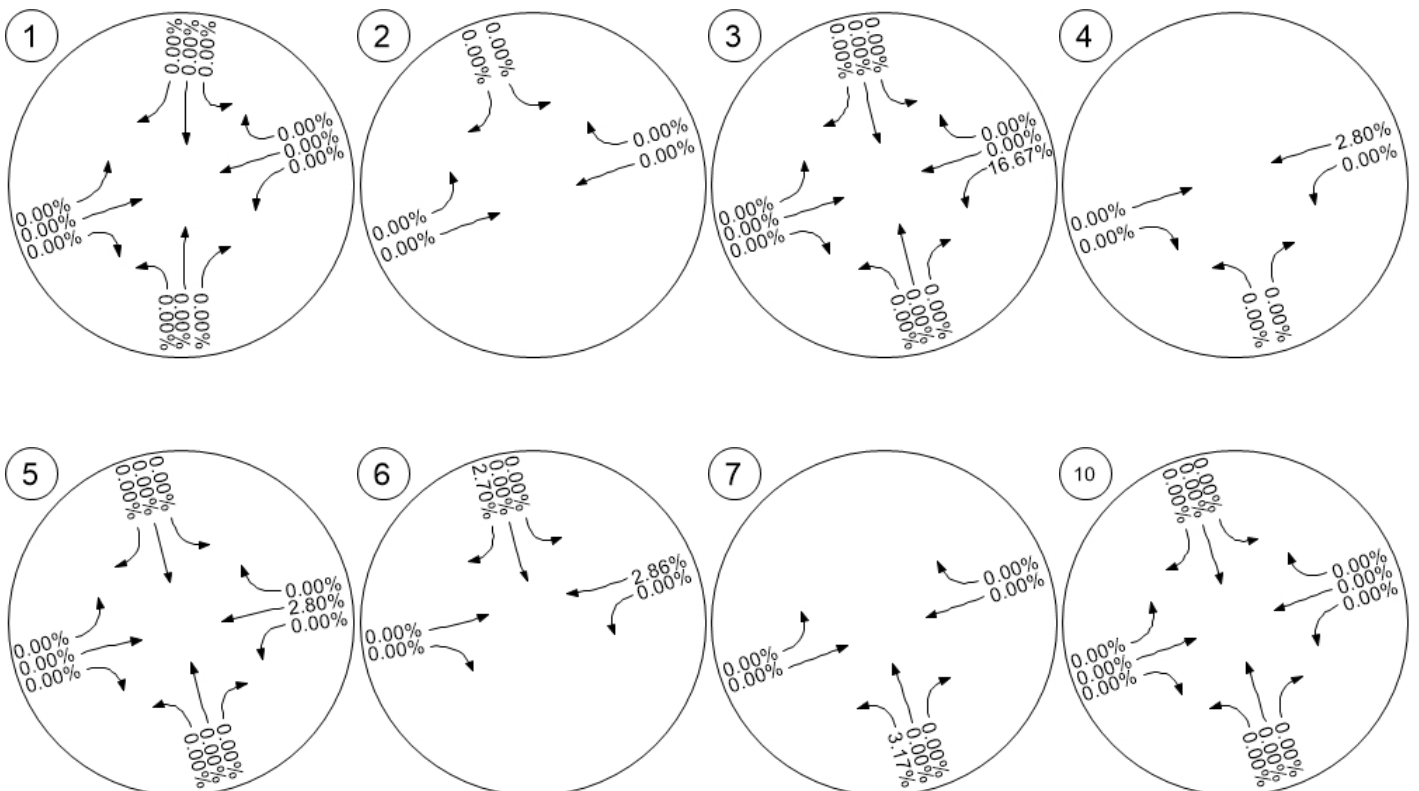




Fair Share - Fair Share % of Net New Site - Zone 26

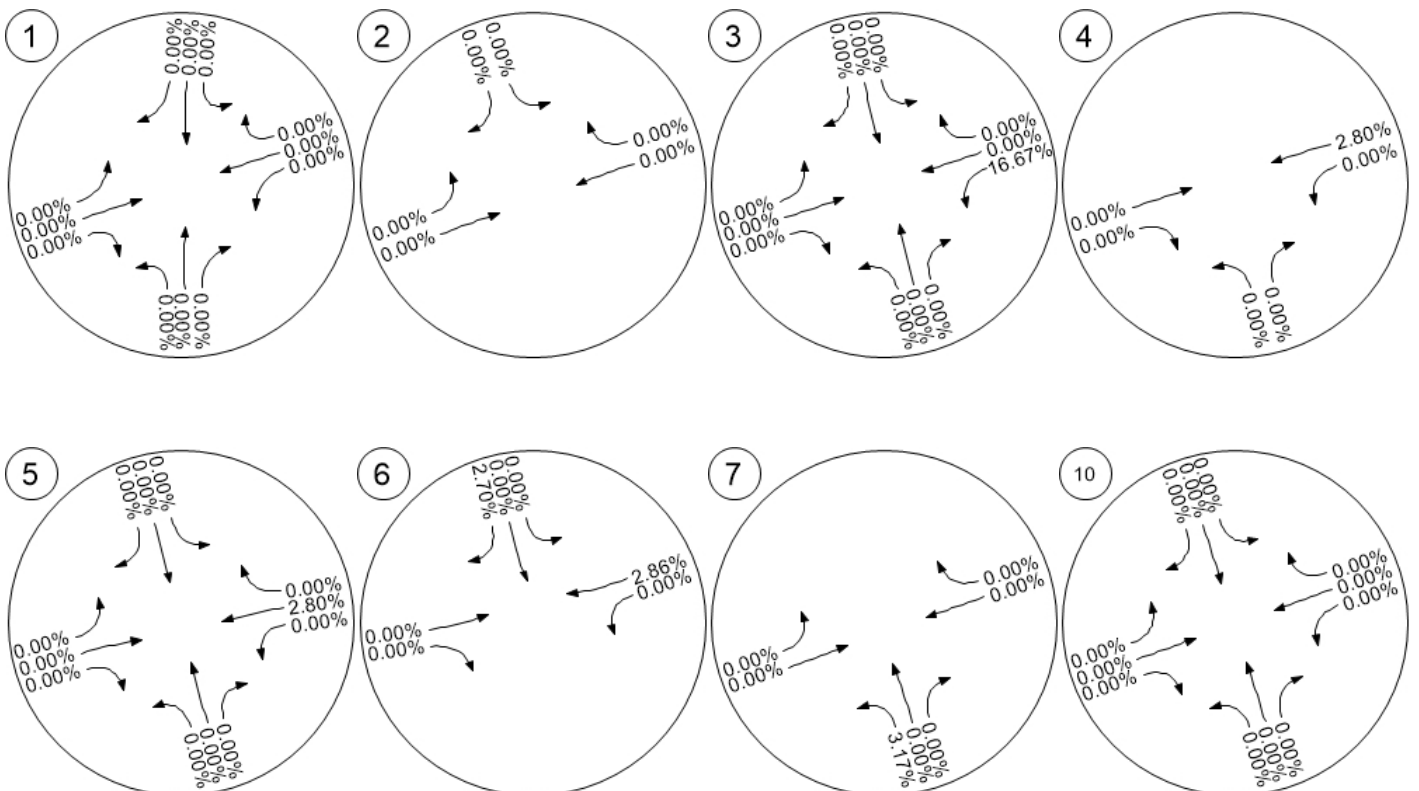


Fair Share - Fair Share % of Net New Site - Zone 27

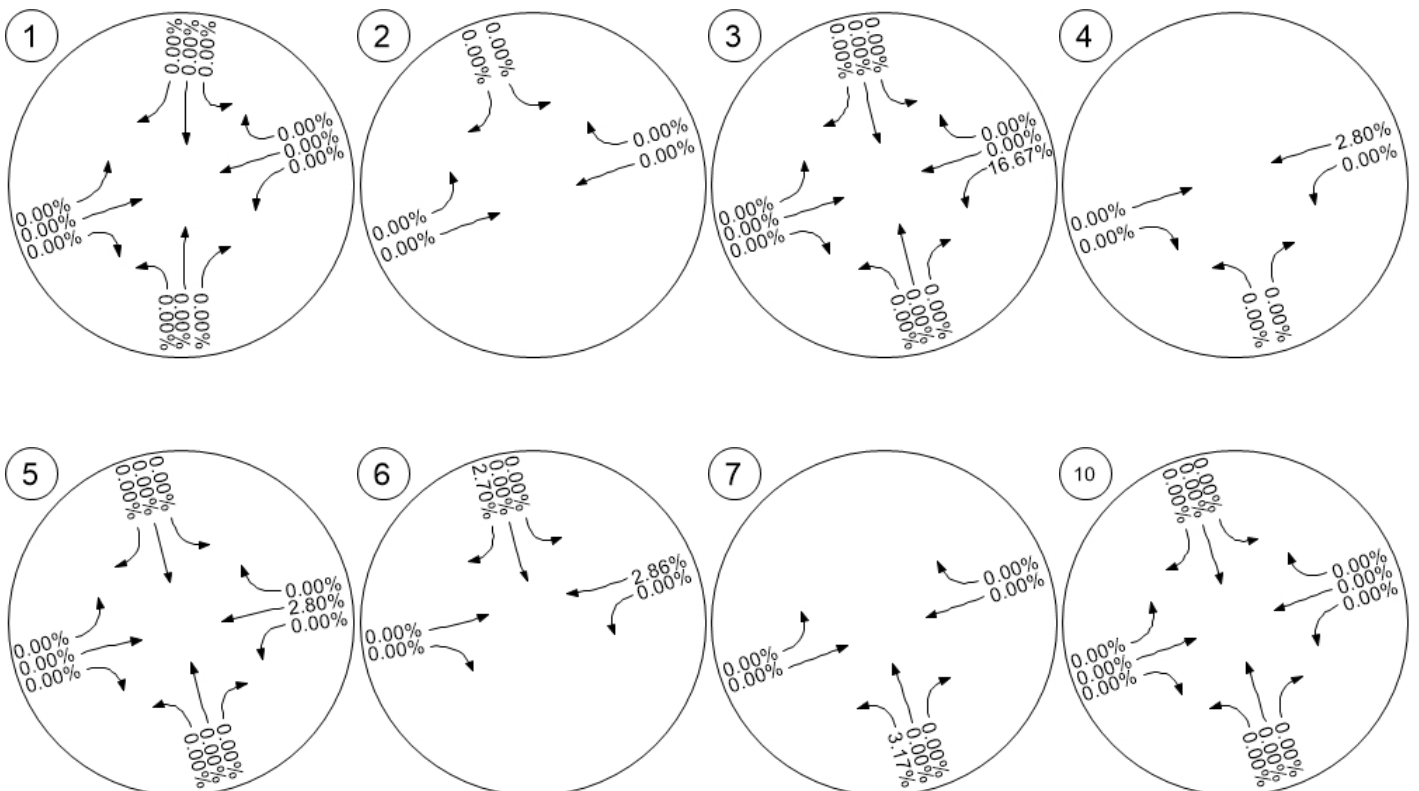




Fair Share - Fair Share % of Net New Site - Zone 28

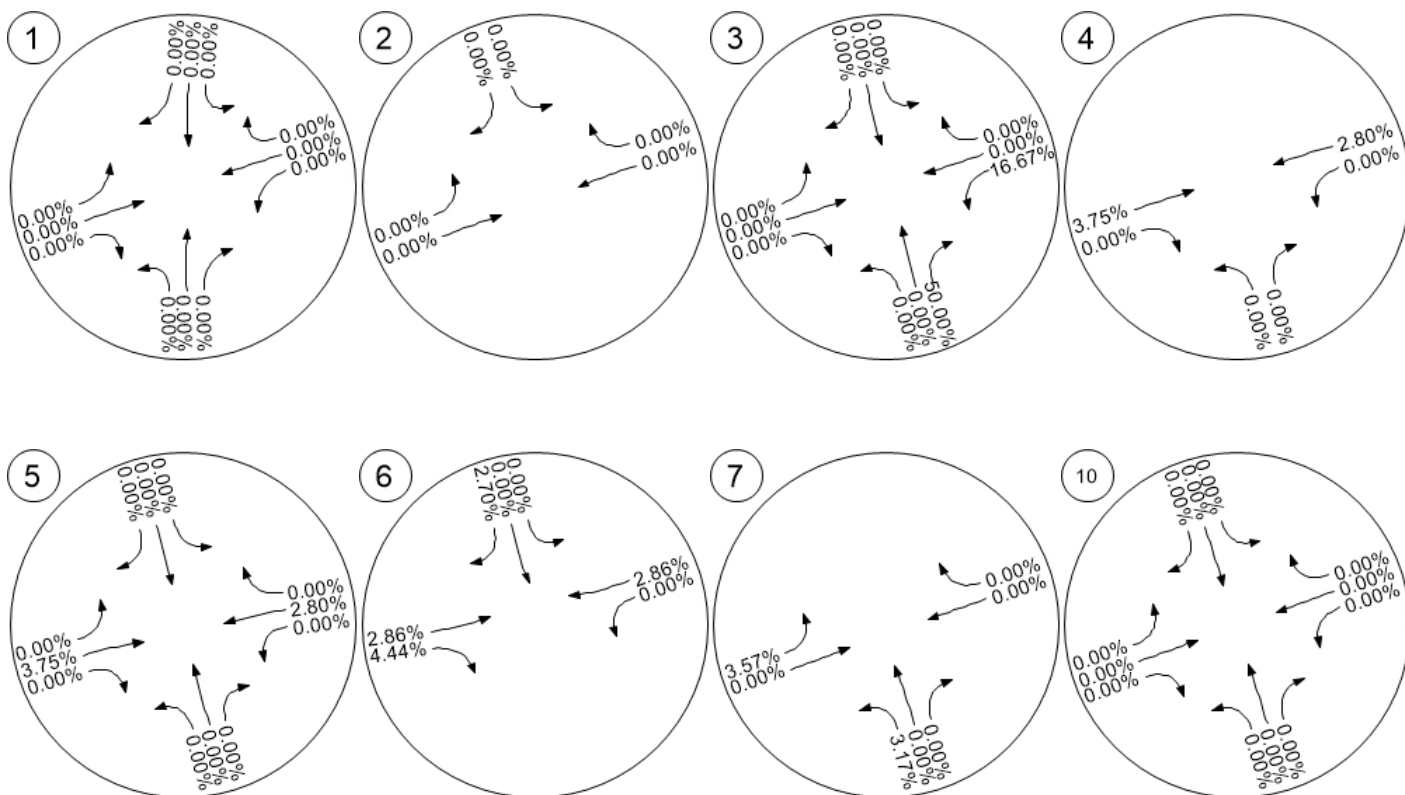


Fair Share - Fair Share % of Net New Site - Zone 29



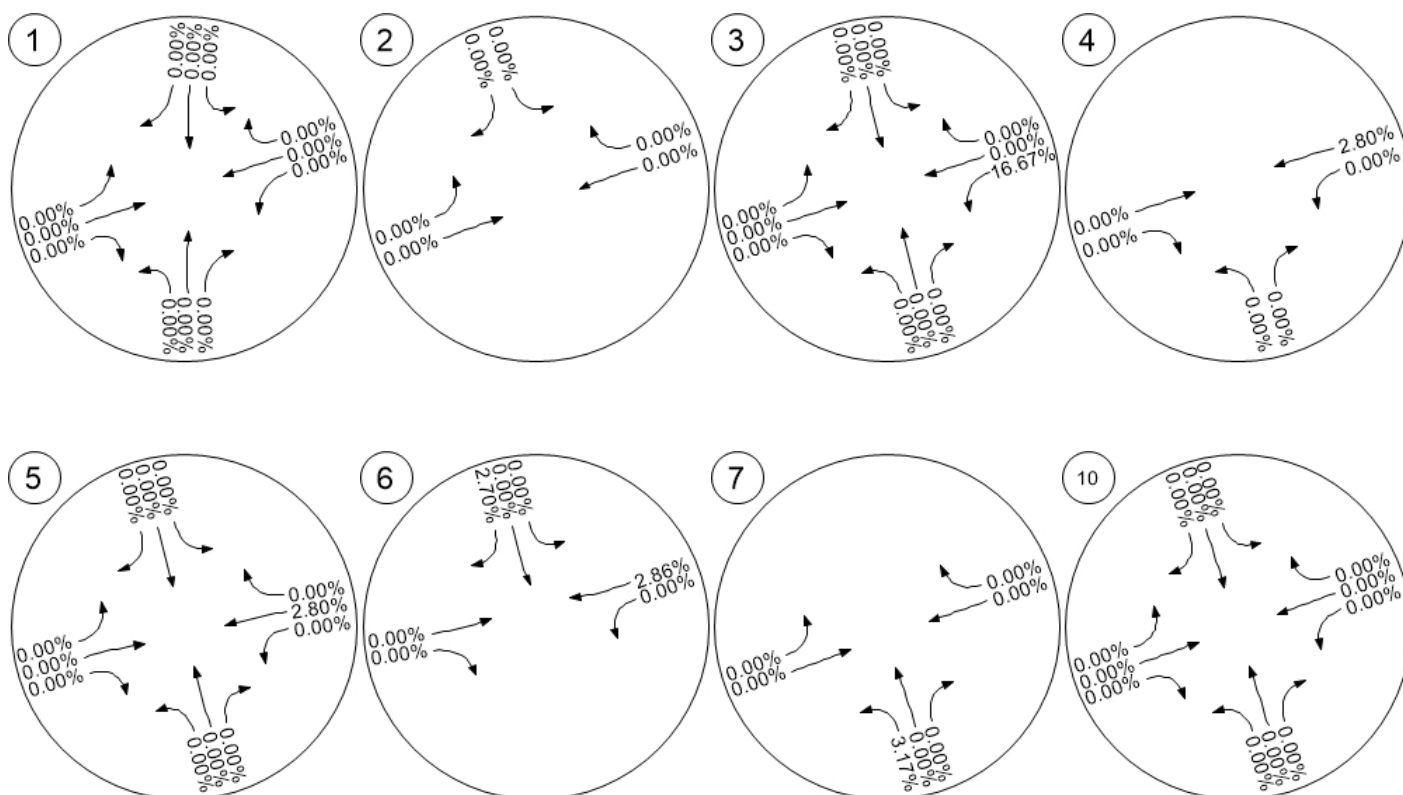


## Fair Share - Fair Share % of Net New Site - Zone 32

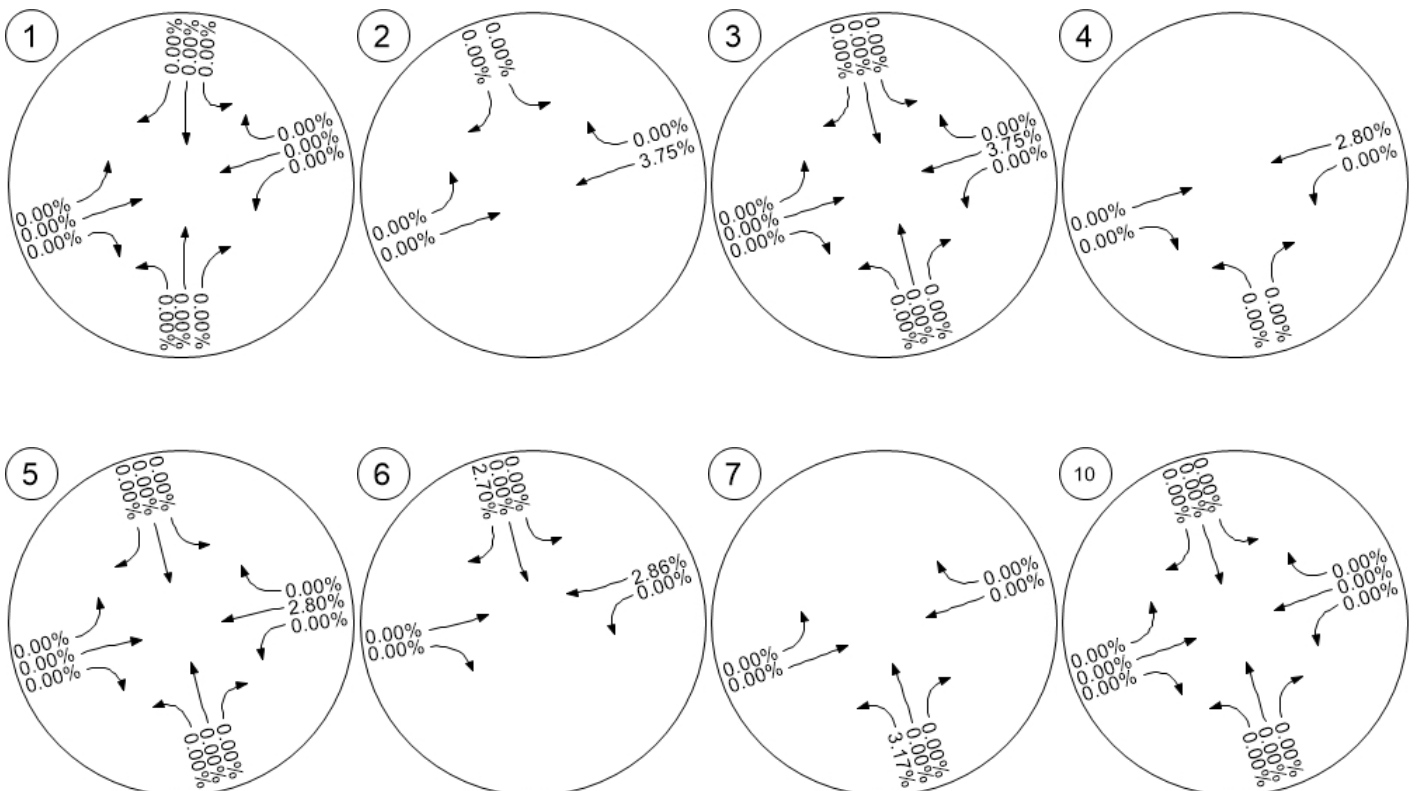




Fair Share - Fair Share % of Net New Site - Zone 33

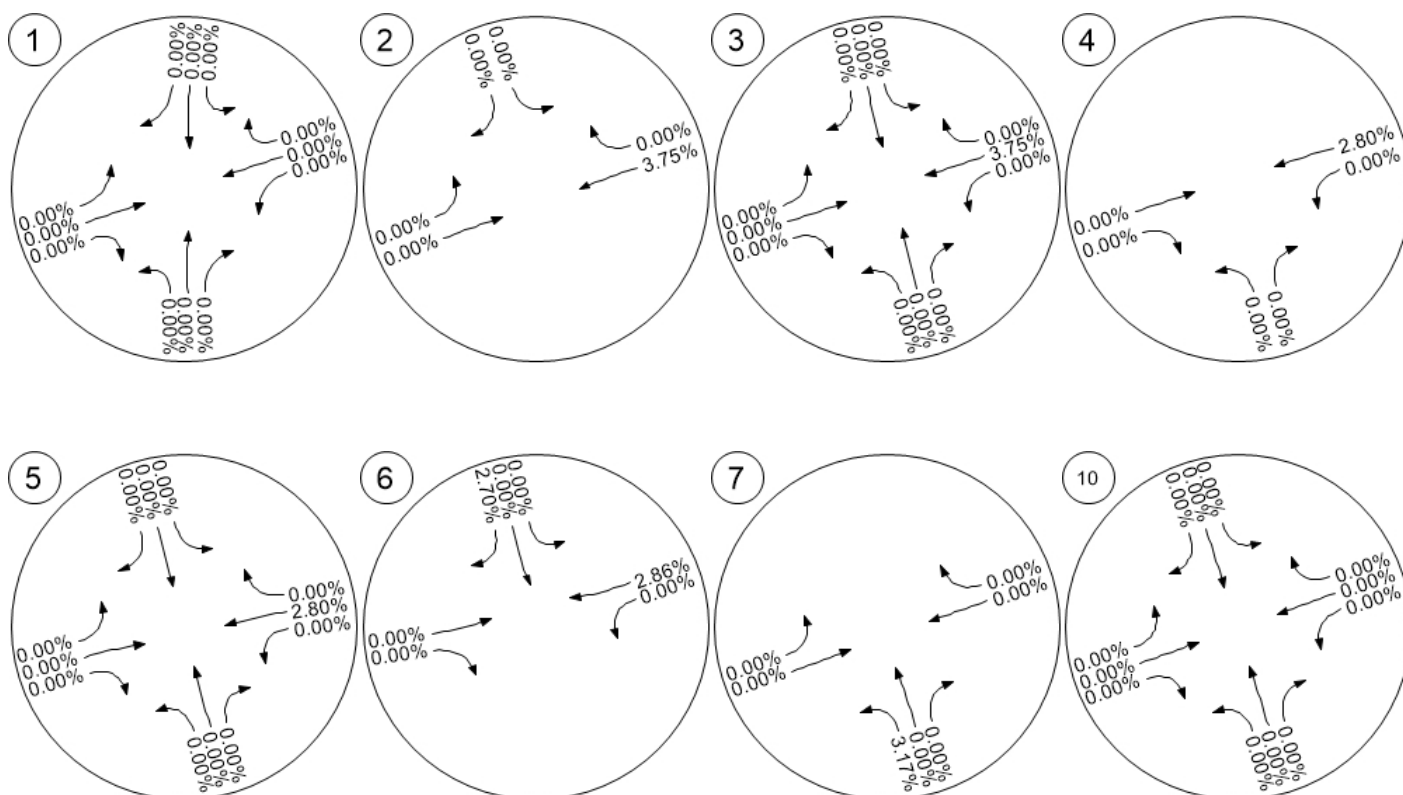


Fair Share - Fair Share % of Net New Site - Zone 34

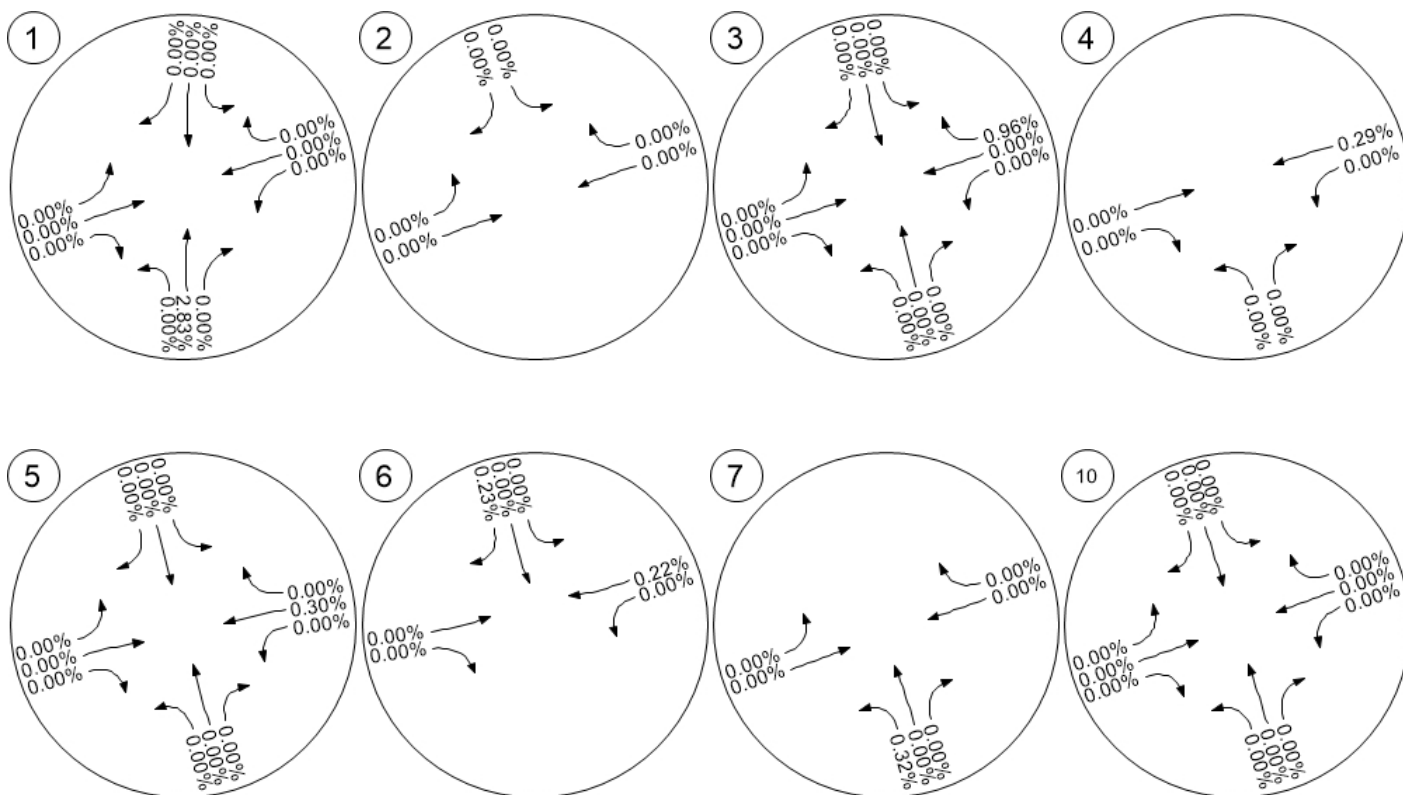




Fair Share - Fair Share % of Net New Site - Zone 35

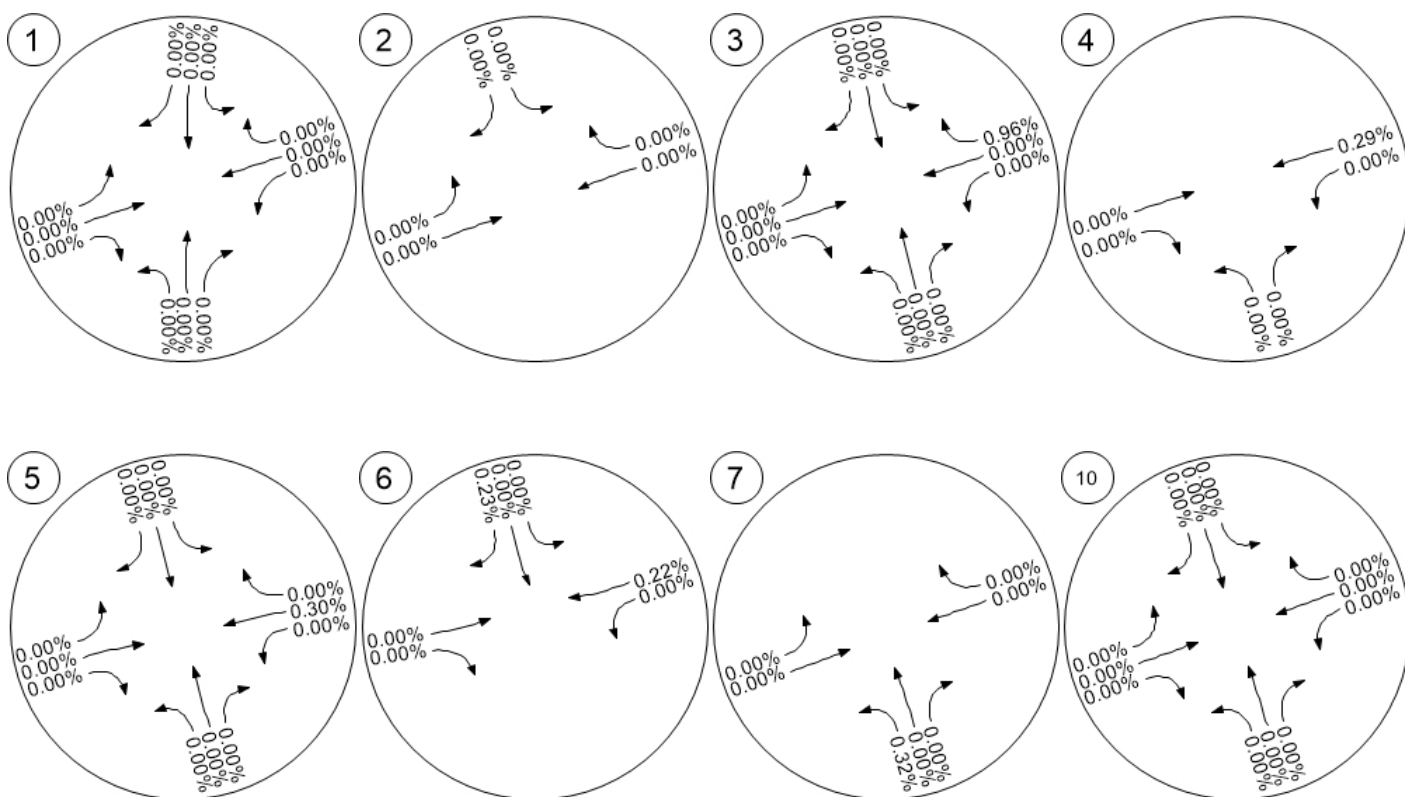


## Fair Share - Fair Share % of Total Analysis - Zone 18



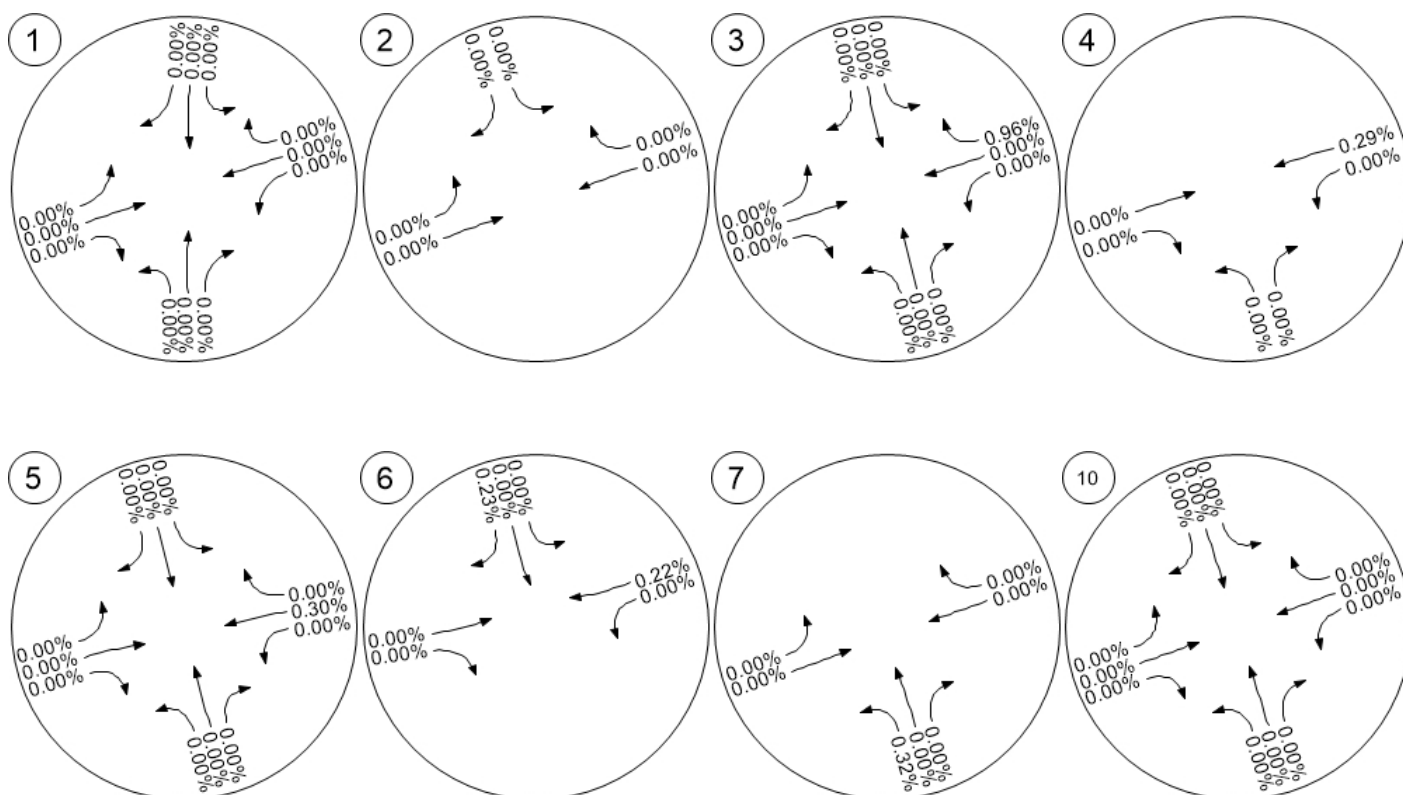


## Fair Share - Fair Share % of Total Analysis - Zone 19

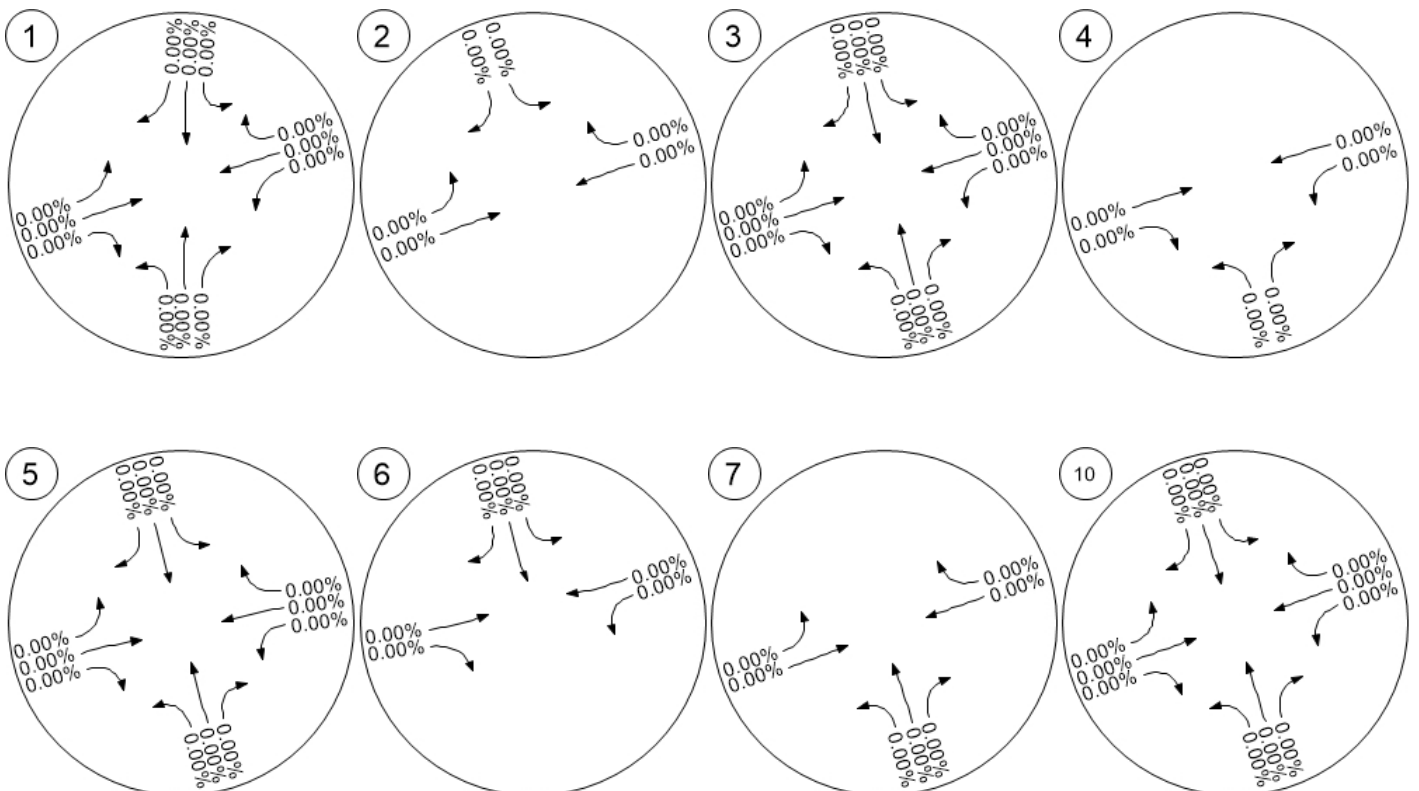




Fair Share - Fair Share % of Total Analysis - Zone 20

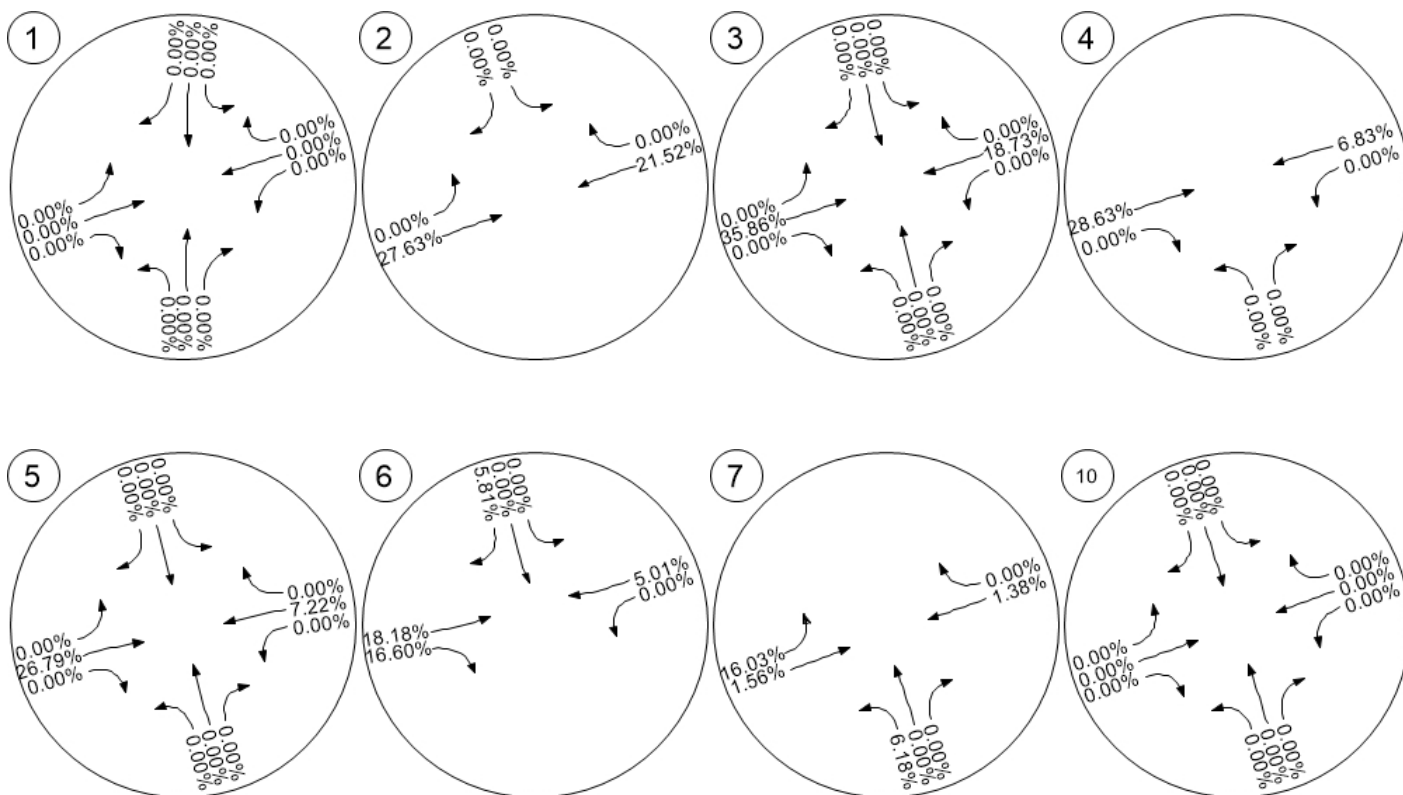


Fair Share - Fair Share % of Total Analysis - Zone 21

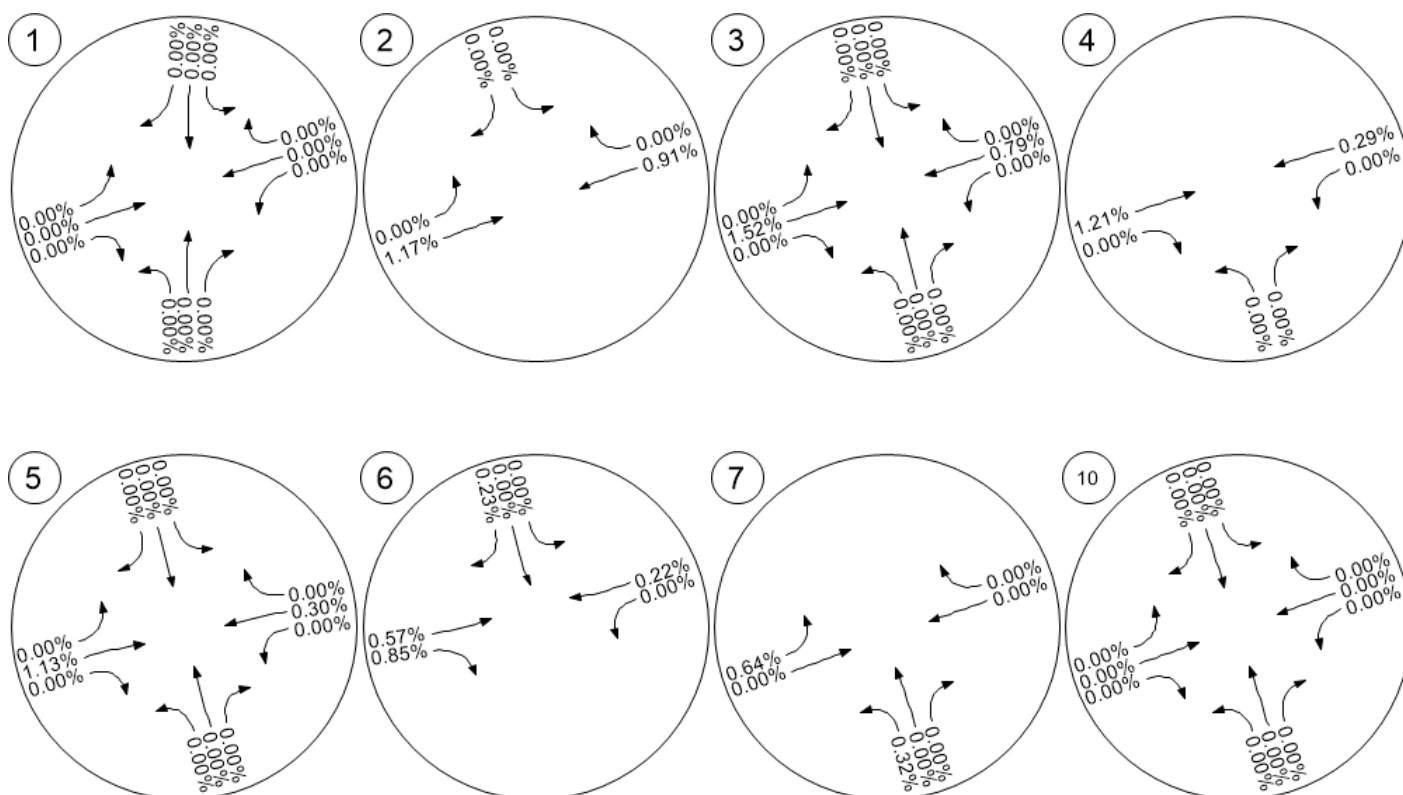




## Fair Share - Fair Share % of Total Analysis - Zone 22

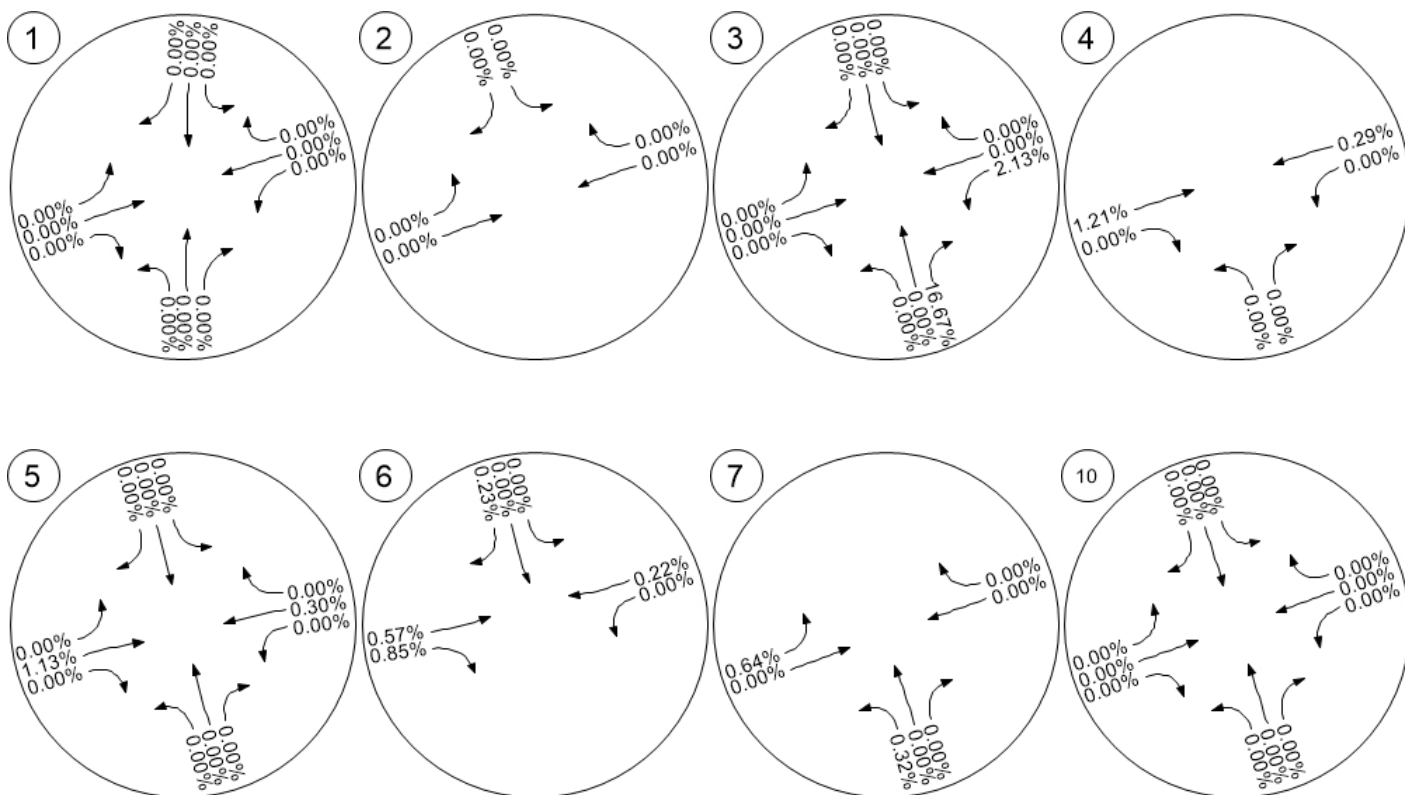


Fair Share - Fair Share % of Total Analysis - Zone 23

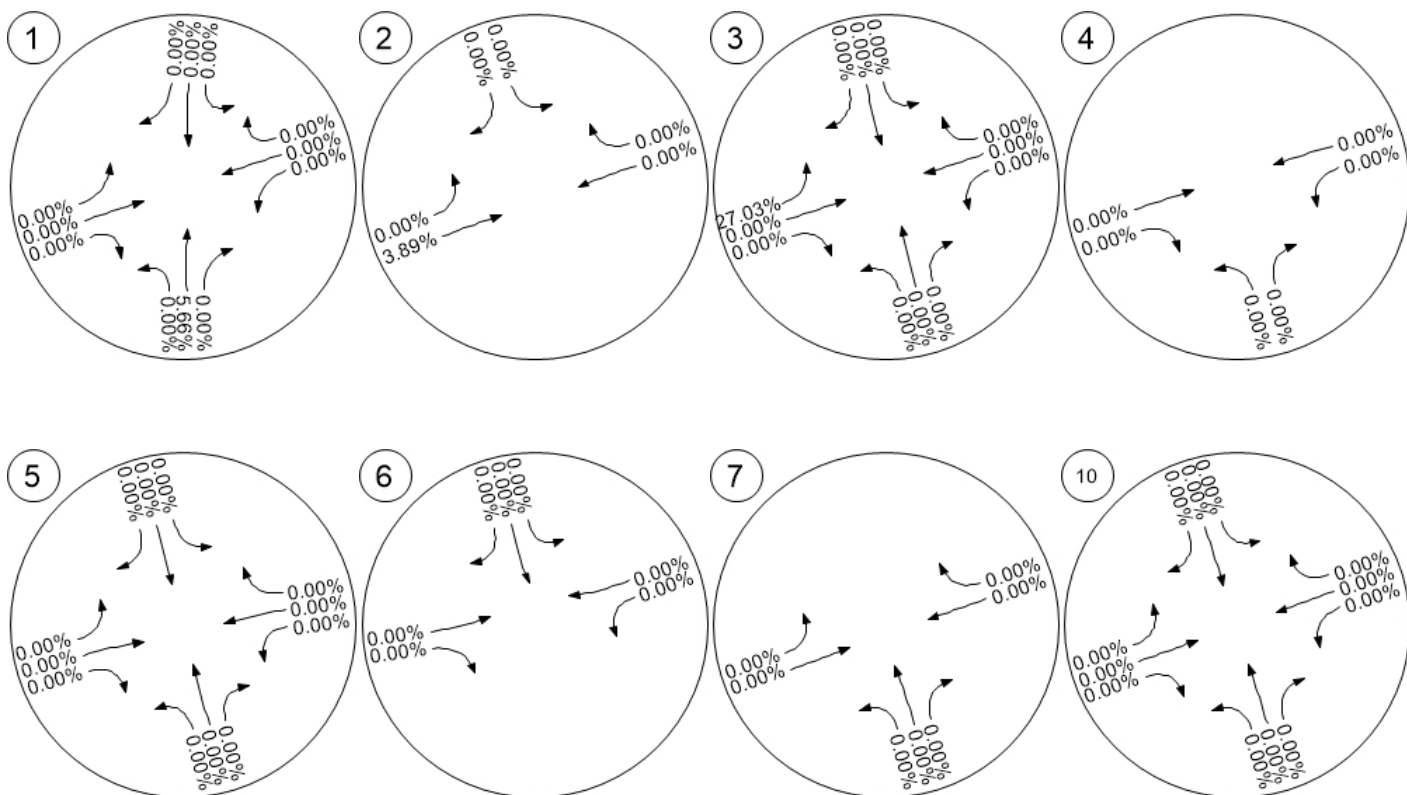




## Fair Share - Fair Share % of Total Analysis - Zone 24

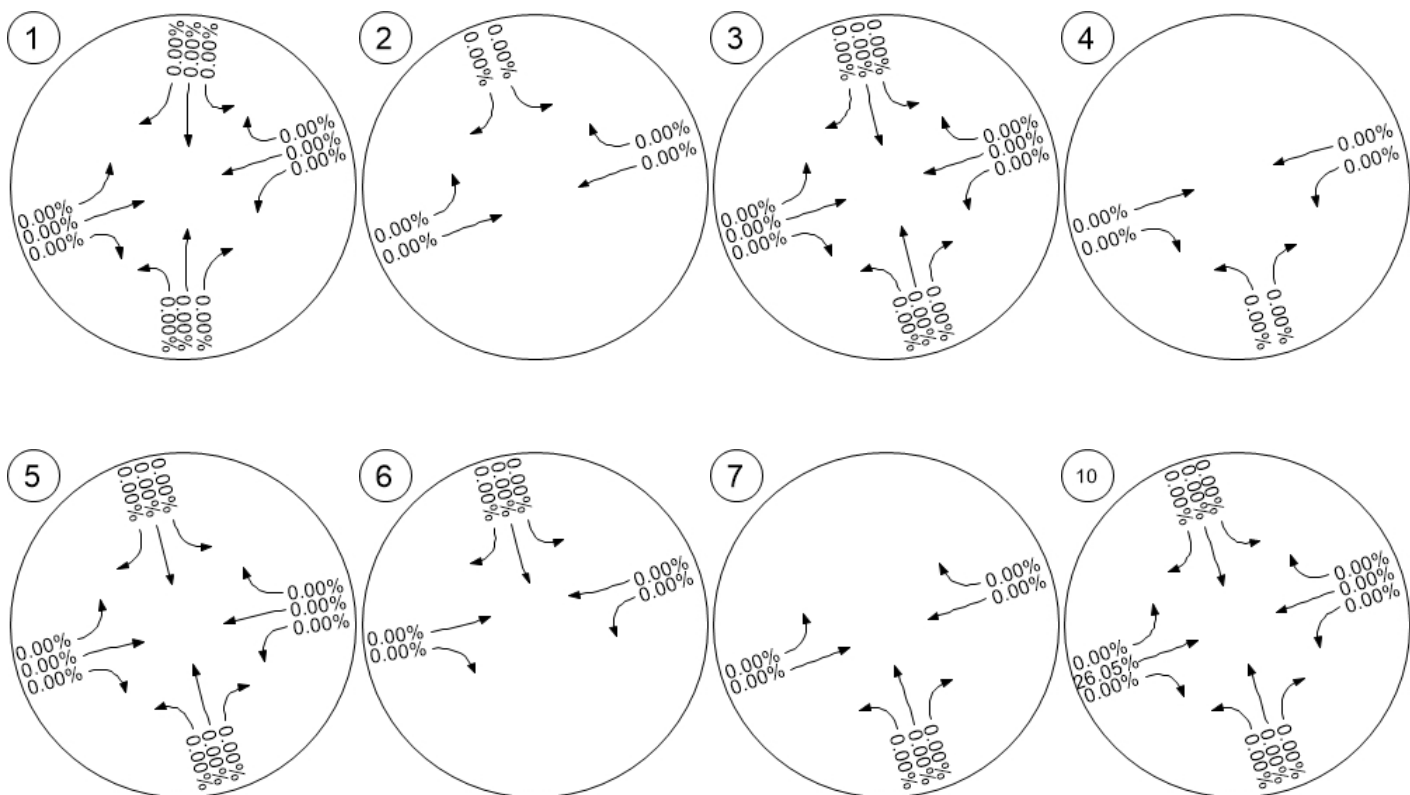


## Fair Share - Fair Share % of Total Analysis - Zone 25

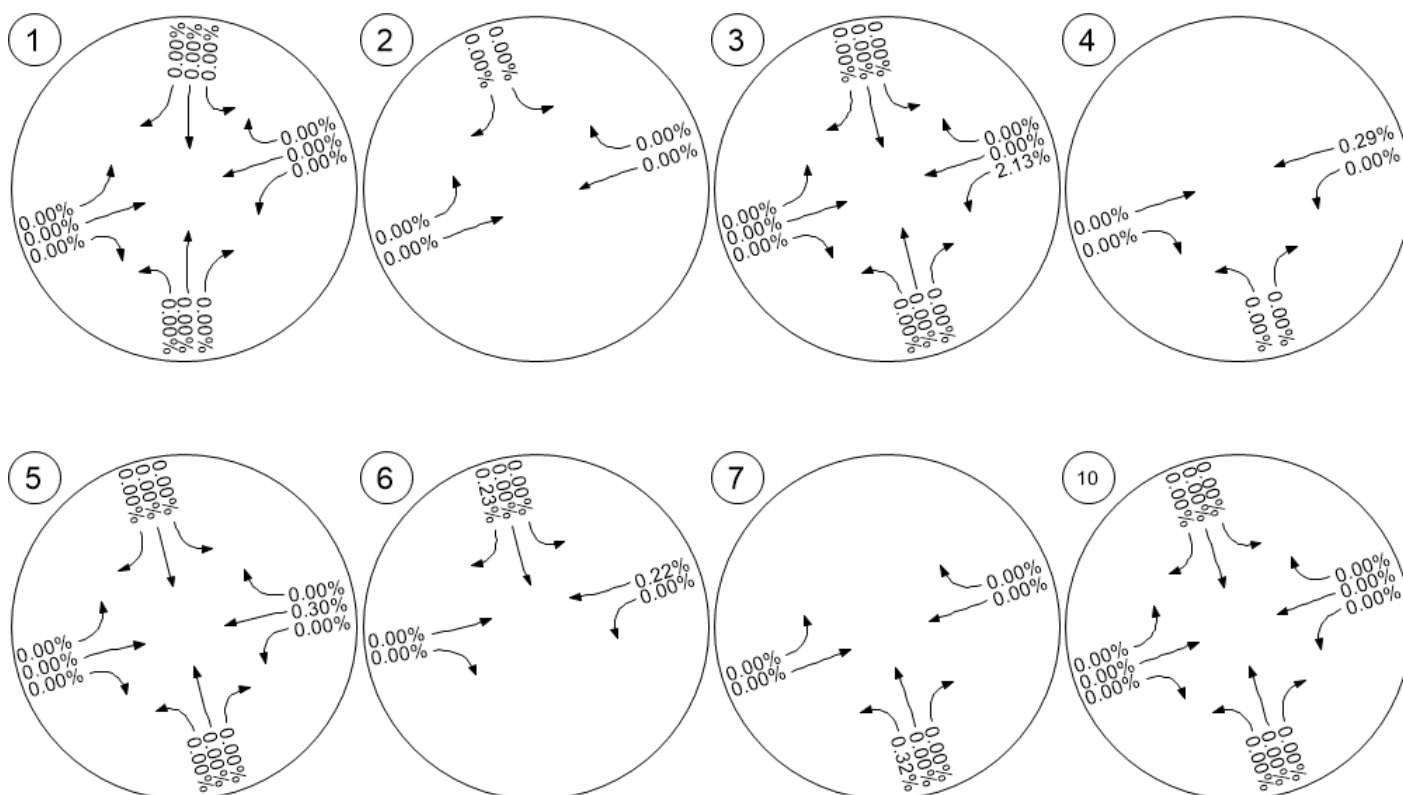




## Fair Share - Fair Share % of Total Analysis - Zone 26

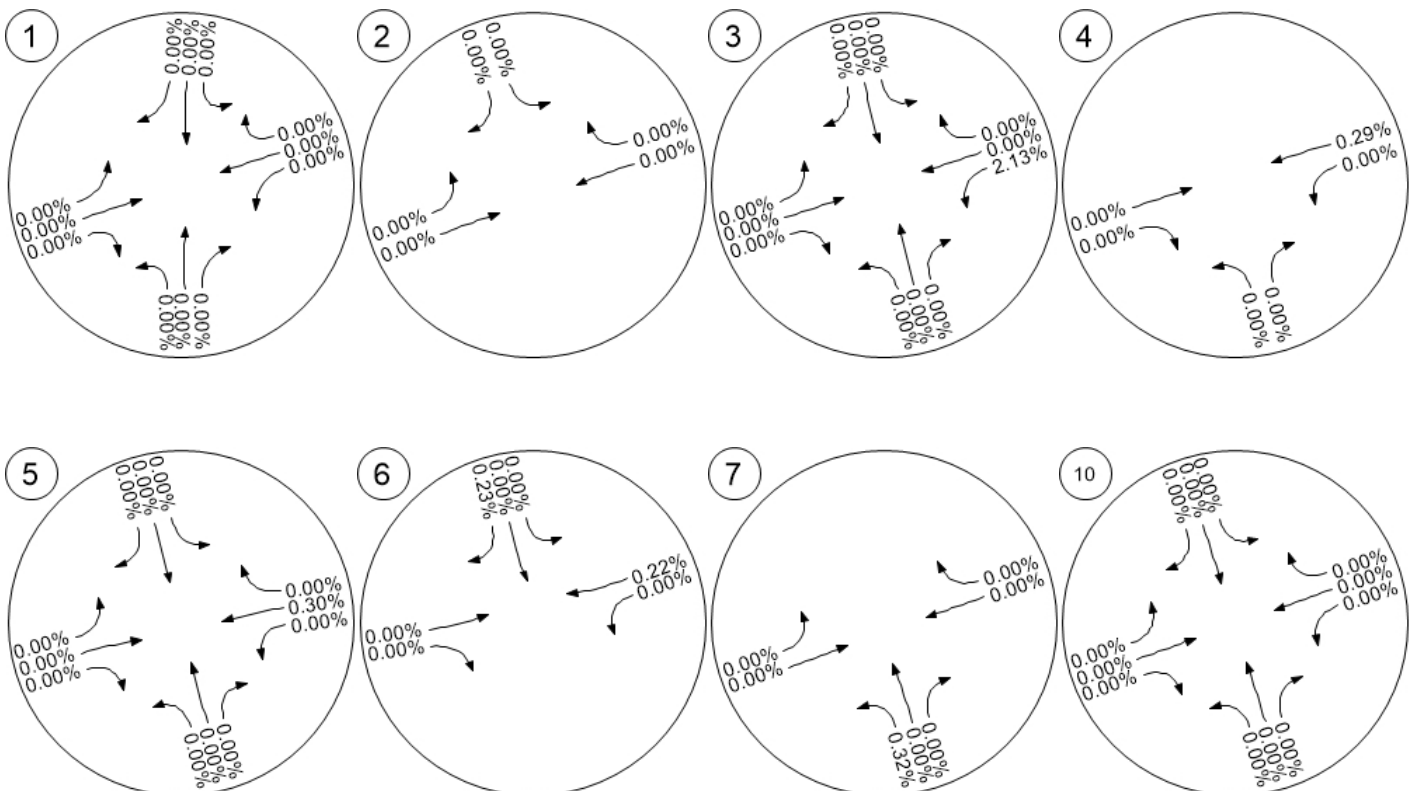


Fair Share - Fair Share % of Total Analysis - Zone 27

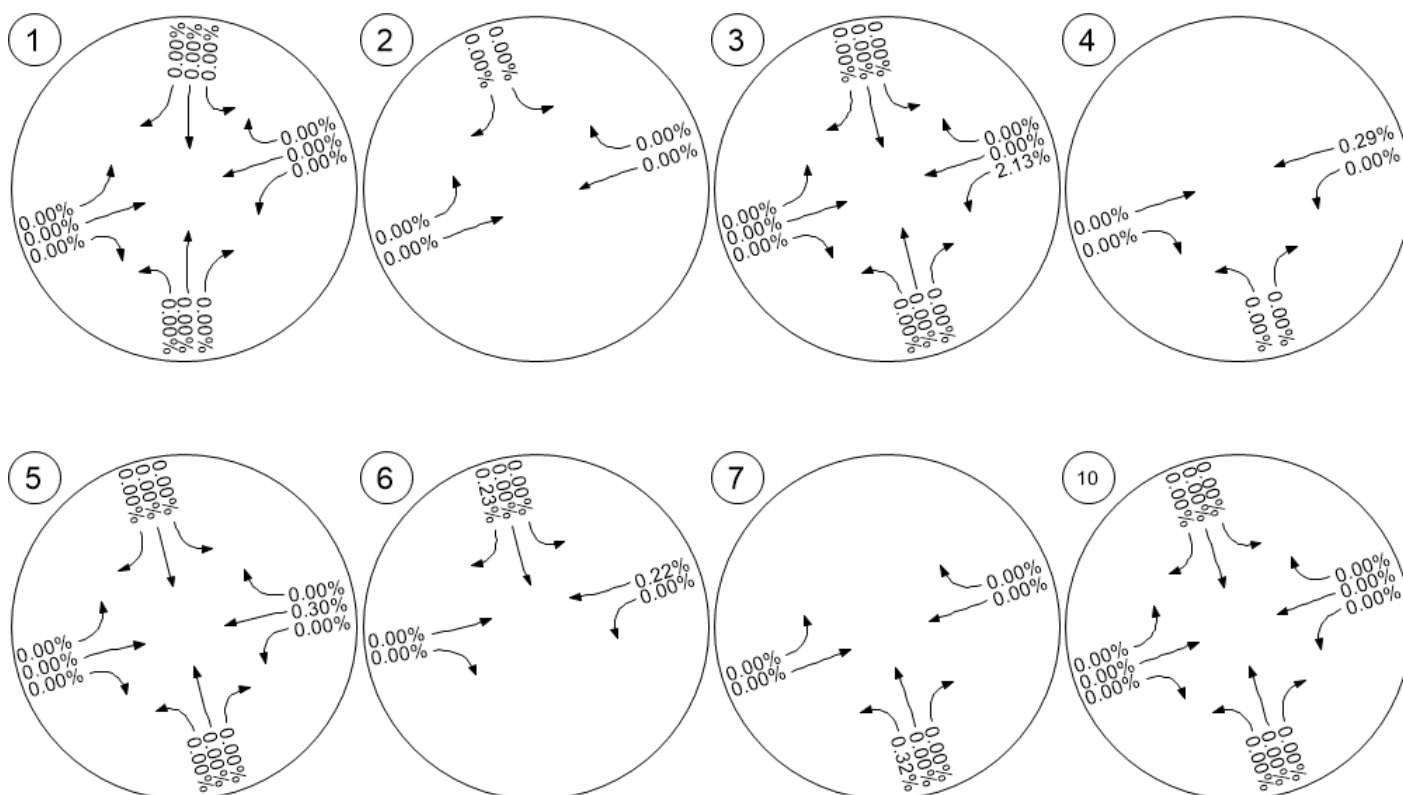




Fair Share - Fair Share % of Total Analysis - Zone 28

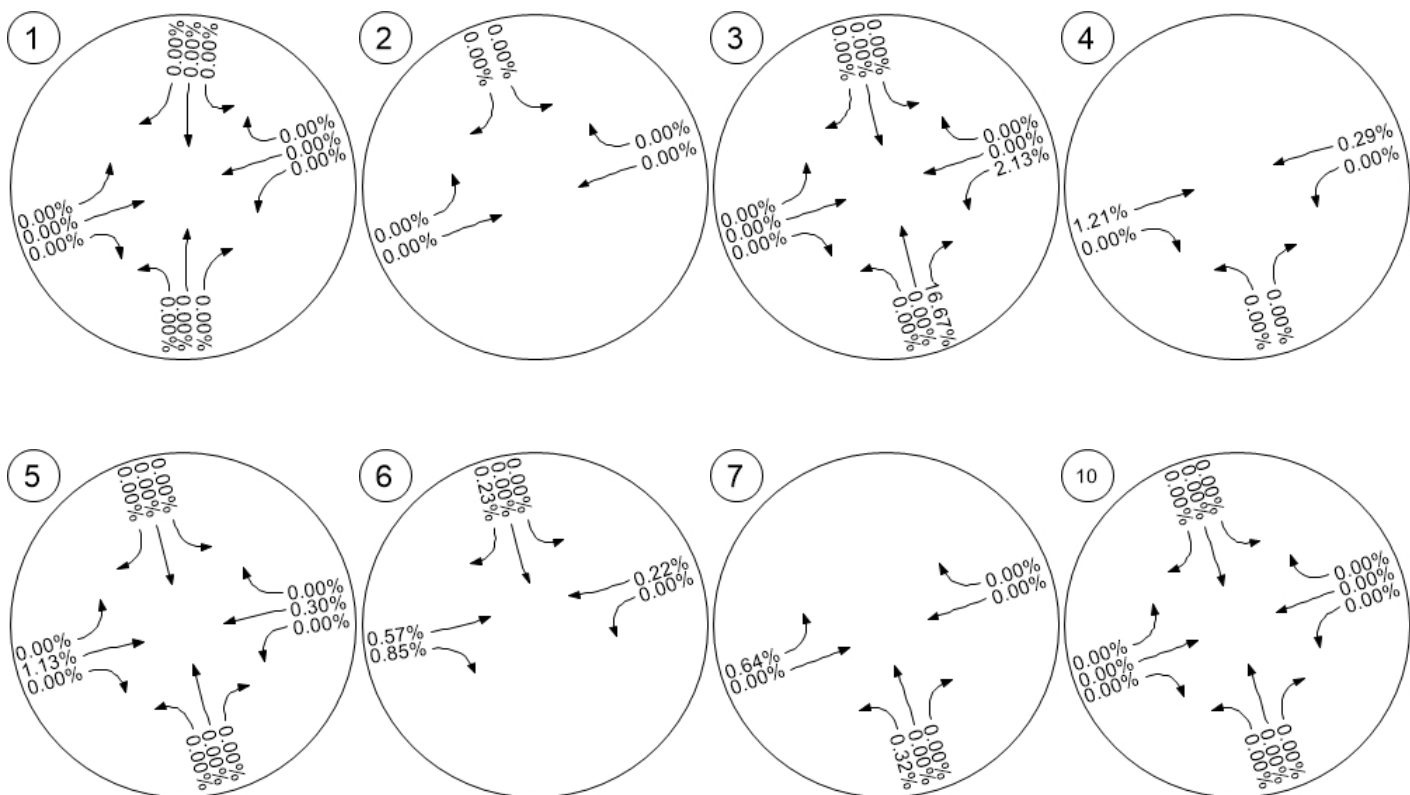


Fair Share - Fair Share % of Total Analysis - Zone 29

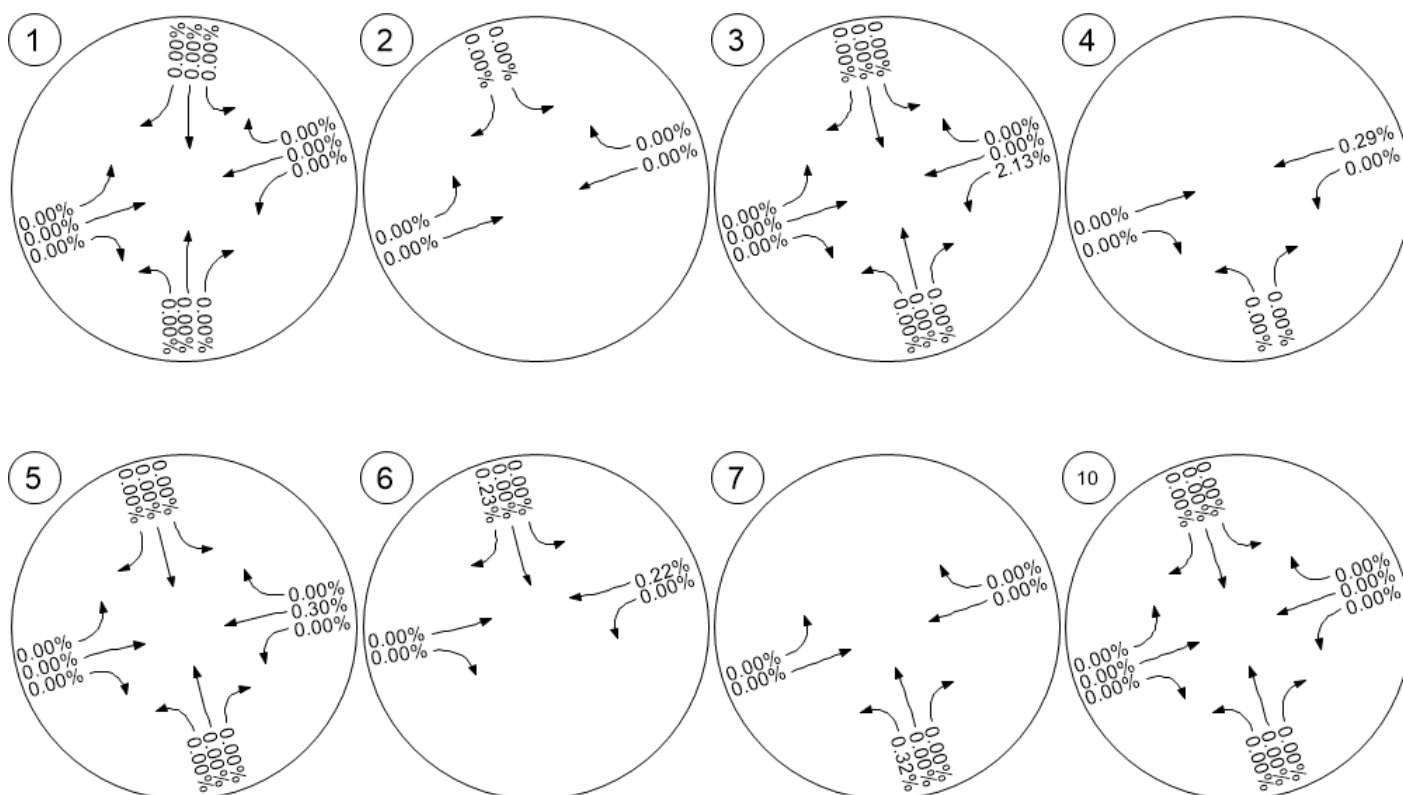




## Fair Share - Fair Share % of Total Analysis - Zone 32

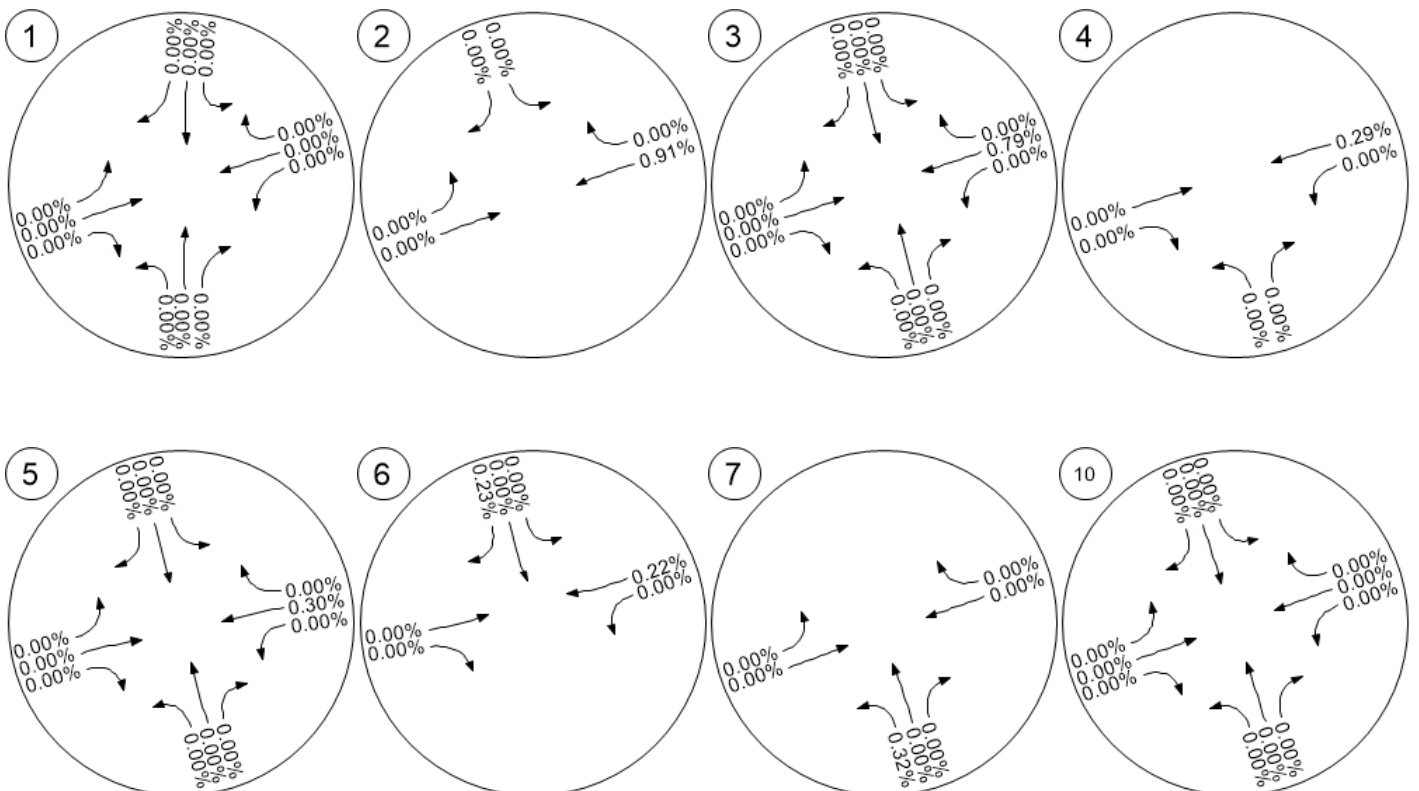


Fair Share - Fair Share % of Total Analysis - Zone 33

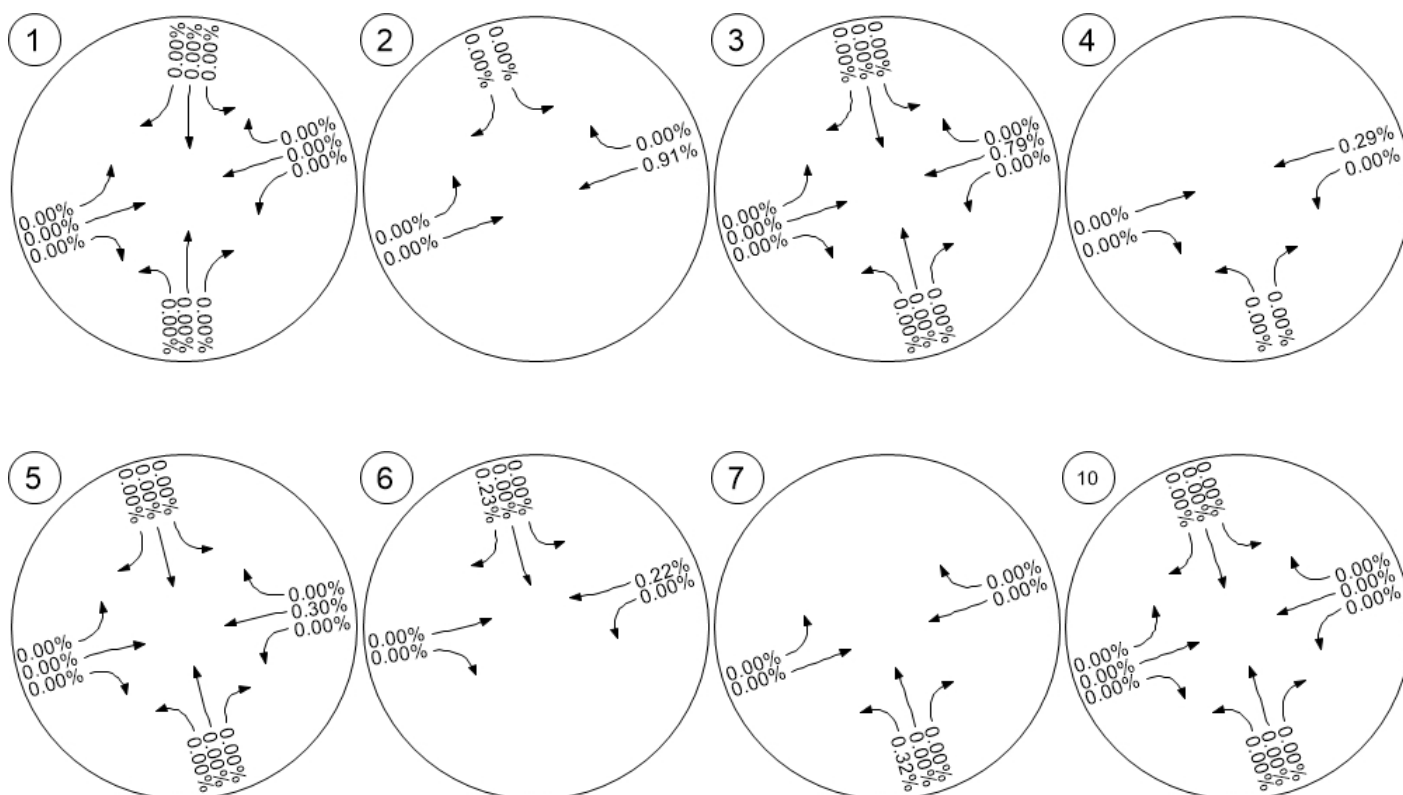




Fair Share - Fair Share % of Total Analysis - Zone 34



Fair Share - Fair Share % of Total Analysis - Zone 35



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

**Intersection Analysis Summary**

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	19th Street / Tidelands Avenue	Signalized	HCM2000	NBT	0.096	12.8	B
2	Bay Marina Drive / Quay Avenue	Two-way stop	HCM2000	SBL	0.059	10.9	B
3	Bay Marina Drive / Tidelands Avenue	Signalized	HCM2000	WBL	0.272	19.5	B
4	Bay Marina Drive / Marina Way	Signalized	HCM2000	WBL	0.298	23.9	C
5	Bay Marina Drive / Cleveland Avenue	Signalized	HCM2000	SBL	0.314	25.5	C
6	I-5 SB Off-Ramp and Bay Marina Drive	Signalized	HCM2000	WBL	0.640	34.4	C
7	I-5 NB On-Ramp and Bay Marina	Signalized	HCM2000	EBL	0.584	17.1	B
10	32nd Street / Tidelands Avenue	All-way stop	HCM2000	EBL		8.2	A





V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value; for all other control types, they are taken for the whole intersection.

**Intersection Level Of Service Report  
#1: 19th Street / Tridelands Avenue**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 12.8  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.096

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	15	40	30	40	60	20	45	65	20	10	5	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	49	30	40	60	20	45	65	20	10	5	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	13	8	11	16	5	12	18	5	3	1	3
Total Analysis Volume [veh/h]	16	53	33	43	65	22	49	71	22	11	5	11
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		



**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	35	0	0	35	0	0	35	0	0	35	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	19	0	0	21	0	0	22	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		no			no			no			no	
Maximum Recall		no			no			no			no	
Pedestrian Recall		no			no			no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	L	C	L	C	C	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	2.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	29	29	29	29
g / C, Green / Cycle	0.41	0.41	0.41	0.41	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.03	0.05	0.05	0.01
Total Saturation Flow Adjustment	0.69	0.92	0.69	0.94	0.79	0.77
s, saturation flow rate [veh/h]	1305	1756	1306	1792	2995	2923
c, Capacity [veh/h]	541	727	541	742	1241	1211
d1, Uniform Delay [s]	12.16	12.63	12.42	12.62	12.60	12.12
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.33	0.29	0.32	0.19	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

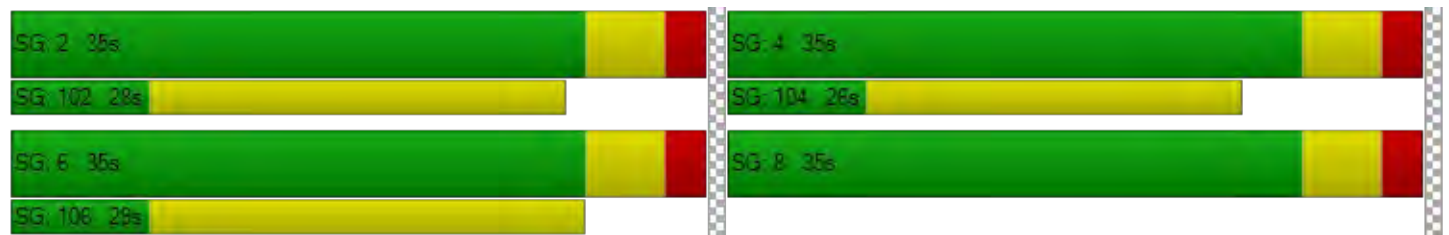
X, volume / capacity	0.03	0.12	0.08	0.12	0.11	0.02
d, Delay for Lane Group [s/veh]	12.26	12.96	12.70	12.94	12.79	12.15
Lane Group LOS	B	B	B	B	B	B
Critical Lane Group	no	yes	no	no	yes	no
50th-Percentile Queue Length [veh]	0.20	1.13	0.56	1.14	0.98	0.18
50th-Percentile Queue Length [ft]	5.09	28.31	14.00	28.61	24.58	4.47
95th-Percentile Queue Length [veh]	0.52	2.72	1.40	2.74	2.38	0.46
95th-Percentile Queue Length [ft]	13.02	67.88	34.93	68.54	59.52	11.47

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	12.26	12.96	12.96	12.70	12.94	12.94	12.79	12.79	12.79	12.15	12.15	12.15
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.85			12.86			12.79			12.15		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.79											
Intersection LOS	B											
Intersection V/C	0.096											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#2: Bay Marina Drive / Quay Avenue**

Control Type: Two-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 10.9  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.059

**Intersection Setup**

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	no		no		no	

**Volumes**

Name						
Base Volume Input [veh/h]	35	5	5	75	120	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	84	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	5	5	159	200	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	1	43	54	3
Total Analysis Volume [veh/h]	38	5	5	173	217	11
Pedestrian Volume [ped/h]	0		0		0	



**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	no	no	no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	no	no	no
Number of Storage Spaces in Median	0	0	0

**Movement, Approach, & Intersection Results**





V/C, Movement V/C Ratio	0.06	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.94	9.29	7.70	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.21	0.21	0.21	0.11	0.00	0.00
95th-Percentile Queue Length [ft]	5.13	5.13	5.34	2.67	0.00	0.00
d_A, Approach Delay [s/veh]	10.74		0.22		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.11					
Intersection LOS	B					

### Intersection Level Of Service Report #3: Bay Marina Drive / Tideland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 19.5  
Level Of Service: B  
Volume to Capacity (v/c): 0.272

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	75.00	100.00	100.00	120.00	100.00	100.00	60.00	100.00	100.00	65.00	100.00	100.00
Speed [mph]	35.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

#### Volumes

Name												
Base Volume Input [veh/h]	20	40	50	200	105	70	45	85	5	10	55	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	6	0	0	0	10	74	0	18	80	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	40	56	200	105	70	55	159	5	28	135	89
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	11	15	54	29	19	15	43	1	8	37	24
Total Analysis Volume [veh/h]	22	43	61	217	114	76	60	173	5	30	147	97
Presence of On-Street Parking	no		yes	no		yes	no		no	no		yes
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	7	8	0	3	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	3.0	3.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	1.0	1.0	0.0
Split [s]	0	40	0	0	40	0	0	30	0	52	38	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	5	5	0
Pedestrian Clearance [s]	0	19	0	0	20	0	0	17	0	10	10	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no			no		no	no	
Maximum Recall		no			no			no		no	no	
Pedestrian Recall		no			no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	L	C	L	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	0.00	0.00
g_i, Effective Green Time [s]	34	34	34	34	24	24	0	0
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.34	0.34	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.22	0.12	0.05	0.05	0.00	0.08
Total Saturation Flow Adjustment	0.48	0.80	0.52	0.83	0.59	0.93	0.00	0.83
s, saturation flow rate [veh/h]	913	1529	996	1576	1119	3532	0	3168
c, Capacity [veh/h]	443	743	484	765	384	1211	103	0
d1, Uniform Delay [s]	9.49	9.93	11.84	10.53	15.97	15.92	35.00	35.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.39	2.99	0.77	0.87	0.26	7.05	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

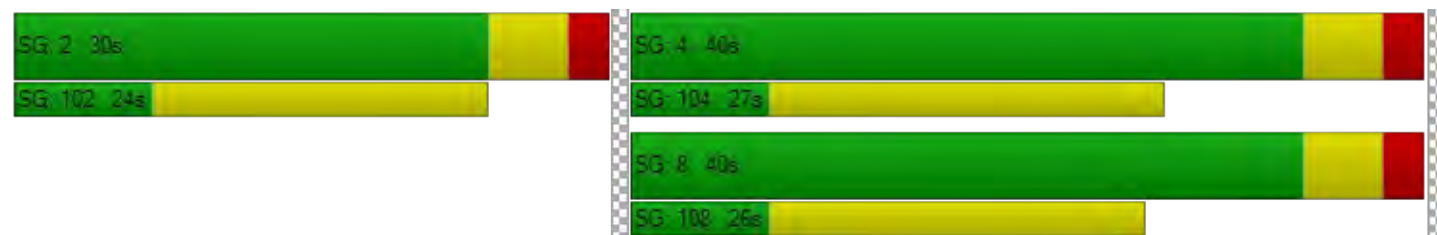
X, volume / capacity	0.05	0.14	0.45	0.25	0.16	0.15	0.29	0.00
d, Delay for Lane Group [s/veh]	9.70	10.33	14.83	11.30	16.84	16.17	42.05	35.00
Lane Group LOS	A	B	B	B	B	B	D	C
Critical Lane Group	no	no	yes	no	yes	no	no	no
50th-Percentile Queue Length [veh]	0.25	1.24	3.24	2.42	0.90	1.38	0.58	2.49
50th-Percentile Queue Length [ft]	6.34	31.06	80.92	60.55	22.52	34.45	14.58	62.30
95th-Percentile Queue Length [veh]	0.65	2.96	6.87	5.37	2.19	3.25	1.45	5.50
95th-Percentile Queue Length [ft]	16.18	73.92	171.83	134.18	54.84	81.27	36.31	137.52

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	9.70	10.33	10.33	14.83	11.30	11.30	16.84	16.17	16.17	42.05	35.00	35.00
Movement LOS	A	B	B	B	B	B	B	B	B	D	C	C
d_A, Approach Delay [s/veh]	10.22			13.18			16.34			35.77		
Approach LOS	B			B			B			D		
d_I, Intersection Delay [s/veh]	19.47											
Intersection LOS	B											
Intersection V/C	0.272											

**Sequence**

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#4: Bay Marina Drive / Marina Way**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 23.9  
 Level Of Service: C  
 Volume to Capacity (v/c): 0.298

**Intersection Setup**

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0
Pocket Length [ft]	115.00	100.00	100.00	100.00	115.00	100.00
Speed [mph]	15.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	yes		no		yes	

**Volumes**

Name						
Base Volume Input [veh/h]	15	70	440	65	110	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	80	0	0	107
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	70	520	65	110	337
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	19	141	18	30	92
Total Analysis Volume [veh/h]	16	76	565	71	120	366
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protected	Permissive	Permissive	Permissive	Protected	Permissive
Signal Group	8	3	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lag	-	-	-	Lead	-
Minimum Green [s]	5	0	10	0	2	10
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	4.0	0.0	4.0	0.0	3.0	4.0
All red [s]	2.0	0.0	2.0	0.0	1.0	2.0
Split [s]	38	0	47	0	25	72
Vehicle Extension [s]	3.0	0.0	3.0	0.0	2.0	3.0
Walk [s]	7	0	7	0	0	7
Pedestrian Clearance [s]	24	0	16	0	0	16
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	4.0	0.0	4.0	0.0	2.0	4.0
Minimum Recall	no		no		no	no
Maximum Recall	no		no		no	no
Pedestrian Recall	no		no		no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	R	C	L	C
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00
g_i, Effective Green Time [s]	32	32	41	21	66
g / C, Green / Cycle	0.29	0.29	0.37	0.19	0.60
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.18	0.07	0.10
Total Saturation Flow Adjustment	0.93	0.83	0.92	0.93	0.93
s, saturation flow rate [veh/h]	1770	1583	3487	1770	3547
c, Capacity [veh/h]	515	461	1300	338	2128
d1, Uniform Delay [s]	27.91	29.05	26.47	38.62	9.81
k, delay calibration	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.11	0.77	1.32	2.91	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

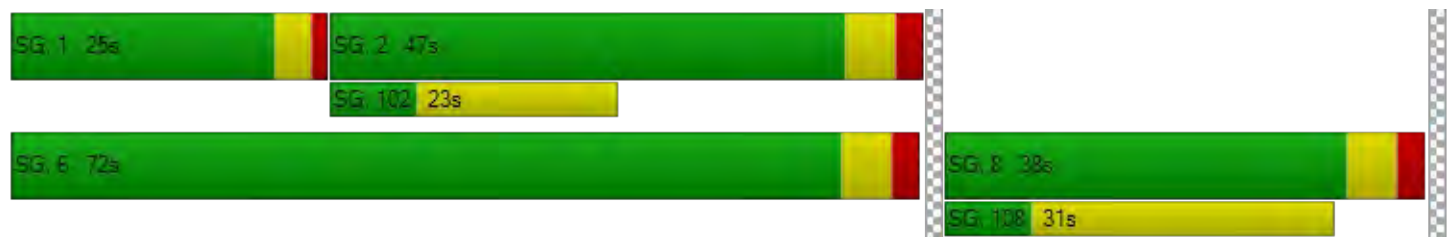
X, volume / capacity	0.03	0.17	0.49	0.36	0.17
d, Delay for Lane Group [s/veh]	28.02	29.82	27.79	41.53	9.99
Lane Group LOS	C	C	C	D	A
Critical Lane Group	no	yes	yes	yes	no
50th-Percentile Queue Length [veh]	0.38	1.88	8.77	3.52	2.91
50th-Percentile Queue Length [ft]	9.41	47.00	219.35	87.93	72.85
95th-Percentile Queue Length [veh]	0.95	4.30	15.56	7.37	6.29
95th-Percentile Queue Length [ft]	23.78	107.48	388.90	184.20	157.24

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	28.02	29.82	27.79	27.79	41.53	9.99
Movement LOS	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	29.51		27.79		17.78	
Approach LOS	C		C		B	
d_I, Intersection Delay [s/veh]	23.91					
Intersection LOS	C					
Intersection V/C	0.298					

**Sequence**

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







### Intersection Level Of Service Report #5: Bay Marina Drive / Cleveland Avenue

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 25.5  
Level Of Service: C  
Volume to Capacity (v/c): 0.314

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	130.00	100.00	100.00
Speed [mph]	30.00			35.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			no		

#### Volumes

Name												
Base Volume Input [veh/h]	30	5	35	320	15	50	35	430	30	65	220	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	80	0	0	107	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	5	35	320	15	50	35	510	30	65	327	115
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	10	87	4	14	10	139	8	18	89	31
Total Analysis Volume [veh/h]	33	5	38	348	16	54	38	554	33	71	355	125
Presence of On-Street Parking	no		no	no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	3	3	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	5	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	15	0	0	15	0	12	27	0	12	27	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		no			no		no	no		no	no	
Maximum Recall		no			no		no	no		no	no	
Pedestrian Recall		no			no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group	L	C	C	L	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	11	11	8	23	8	23
g / C, Green / Cycle	0.16	0.16	0.16	0.11	0.33	0.11	0.33
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.13	0.02	0.12	0.04	0.14
Total Saturation Flow Adjustment	0.93	0.85	0.88	0.93	0.88	0.93	0.90
s, saturation flow rate [veh/h]	1770	1616	3339	1770	5031	1770	3408
c, Capacity [veh/h]	278	254	525	202	1653	202	1120
d1, Uniform Delay [s]	25.34	25.54	28.42	28.06	17.86	28.60	18.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	1.44	11.89	2.05	0.60	4.74	1.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.12	0.17	0.80	0.19	0.36	0.35	0.43
d, Delay for Lane Group [s/veh]	26.21	26.98	40.32	30.11	18.46	33.34	19.57
Lane Group LOS	C	C	D	C	B	C	B
Critical Lane Group	no	yes	yes	yes	no	no	yes
50th-Percentile Queue Length [veh]	0.60	0.80	5.40	0.74	3.55	1.44	4.32
50th-Percentile Queue Length [ft]	15.09	19.96	134.98	18.52	88.85	36.04	108.02
95th-Percentile Queue Length [veh]	1.50	1.96	10.47	1.82	7.43	3.39	8.73
95th-Percentile Queue Length [ft]	37.52	48.96	261.81	45.61	185.81	84.67	218.35

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	26.21	26.98	26.98	40.32	40.32	40.32	30.11	18.46	18.46	33.34	19.57	19.57
Movement LOS	C	C	C	D	D	D	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	26.65			40.32			19.17			21.34		
Approach LOS	C			D			B			C		
d_I, Intersection Delay [s/veh]	25.52											
Intersection LOS	C											
Intersection V/C	0.314											

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



### Intersection Level Of Service Report #6: I-5 SB Off-Ramp and Bay Marina Drive

Control Type: Signalized  
Analysis Method: HCM2000  
Analysis Period: 15 minutes

Delay (sec / veh): 34.4  
Level Of Service: C  
Volume to Capacity (v/c): 0.640

#### Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⇐⇐⇐			⇐⇐			⇐⇐⇐		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

#### Volumes

Name												
Base Volume Input [veh/h]	0	0	0	685	5	130	0	410	375	410	270	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	37	0	35	45	0	70	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	685	5	167	0	445	420	410	340	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	186	1	45	0	121	114	111	92	0
Total Analysis Volume [veh/h]	0	0	0	745	5	182	0	484	457	446	370	0
Presence of On-Street Parking				no		no	no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Protecte	Permiss	Split	Split	Split	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	0	0	0	4	0	0	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	0	0	0	5	0	0	10	0	5	10	0
Maximum Green [s]	0	0	0	0	30	0	0	30	0	30	30	0
Amber [s]	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.6	0.0	3.2	3.6	0.0
All red [s]	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	38	0	0	53	0	25	78	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0	0.0	2.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	16	0
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	2.2	2.6	0.0
Minimum Recall					no			yes		no	yes	
Maximum Recall					no			no		no	no	
Pedestrian Recall					no			no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00



**Lane Group Calculations**

Lane Group		C	R	C	R	L	C
L, Total Lost Time per Cycle [s]		4.60	4.60	4.60	4.60	4.20	4.60
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.60	2.60	2.60	2.60	2.20	2.60
g_i, Effective Green Time [s]		33	33	48	48	21	73
g / C, Green / Cycle		0.29	0.29	0.42	0.42	0.18	0.63
(v / s)_i Volume / Saturation Flow Rate		0.22	0.11	0.14	0.29	0.13	0.10
Total Saturation Flow Adjustment		0.89	0.83	0.93	0.83	0.90	0.93
s, saturation flow rate [veh/h]		3379	1583	3547	1583	3437	3547
c, Capacity [veh/h]		973	456	1480	661	616	2244
d1, Uniform Delay [s]		37.80	33.23	22.81	27.69	44.89	8.73
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.89	2.60	0.59	5.87	7.23	0.16
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity		0.77	0.40	0.33	0.69	0.72	0.16
d, Delay for Lane Group [s/veh]		43.69	35.83	23.40	33.56	52.12	8.89
Lane Group LOS		D	D	C	C	D	A
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		14.07	5.23	6.08	14.18	8.40	2.87
50th-Percentile Queue Length [ft]		351.83	130.84	151.97	354.45	209.90	71.72
95th-Percentile Queue Length [veh]		23.36	10.21	11.53	23.52	15.00	6.21
95th-Percentile Queue Length [ft]		584.01	255.28	288.21	587.92	375.00	155.16

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	43.69	43.69	35.83	0.00	23.40	33.56	52.12	8.89	0.00
Movement LOS				D	D	D		C	C	D	A	
d_A, Approach Delay [s/veh]	0.00			42.15			28.33			32.52		
Approach LOS	A			D			C			C		
d_I, Intersection Delay [s/veh]	34.39											
Intersection LOS	C											
Intersection V/C	0.640											

**Sequence**

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-






**Intersection Level Of Service Report  
#7: I-5 NB On-Ramp and Bay Marina**

Control Type: Signalized  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 17.1  
 Level Of Service: B  
 Volume to Capacity (v/c): 0.584

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			no			no		

**Volumes**

Name												
Base Volume Input [veh/h]	80	5	375	0	0	0	240	855	0	0	600	545
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	63	0	0	0	0	0	28	7	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	5	375	0	0	0	268	862	0	0	607	545
Peak Hour Factor	0.9400	0.9400	0.9400	1.0000	1.0000	1.0000	0.9300	0.9300	1.0000	1.0000	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	1	100	0	0	0	72	232	0	0	163	147
Total Analysis Volume [veh/h]	152	5	399	0	0	0	288	927	0	0	653	586
Presence of On-Street Parking	no		no				no		no	no		no
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	0	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	-	-	-
Minimum Green [s]	0	5	0	0	0	0	5	5	0	0	5	0
Maximum Green [s]	0	30	0	0	0	0	30	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	0.0	0.0	3.2	3.6	0.0	0.0	3.6	0.0
All red [s]	0.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	15	0	0	0	0	11	45	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	0.0	0.0	3.0	5.0	0.0	0.0	5.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	18	0
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.6	0.0	0.0	0.0	0.0	2.2	2.6	0.0	0.0	2.6	0.0
Minimum Recall		no					no	yes			yes	
Maximum Recall		no					no	no			no	
Pedestrian Recall		no					no	no			no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Calculations**

Lane Group	C		L	C	C
L, Total Lost Time per Cycle [s]	4.60		4.20	4.60	4.60
l1_p, Permitted Start-Up Lost Time [s]	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.60		2.20	2.60	2.60
g_i, Effective Green Time [s]	10		7	40	29
g / C, Green / Cycle	0.17		0.11	0.67	0.49
(v / s)_i Volume / Saturation Flow Rate	0.12		0.08	0.26	0.38
Total Saturation Flow Adjustment	0.78		0.90	0.93	0.87
s, saturation flow rate [veh/h]	4467		3437	3547	3295
c, Capacity [veh/h]	774		389	2388	1615
d1, Uniform Delay [s]	23.42		25.74	4.33	12.51
k, delay calibration	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.67		11.91	0.48	3.56
d3, Initial Queue Delay [s]	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00		1.00	1.00	1.00
PF, progression factor	1.00		1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.72		0.74	0.39	0.77
d, Delay for Lane Group [s/veh]	29.08		37.65	4.81	16.06
Lane Group LOS	C		D	A	B
Critical Lane Group	yes		yes	no	yes
50th-Percentile Queue Length [veh]	4.05		3.11	4.22	11.18
50th-Percentile Queue Length [ft]	101.25		77.66	105.60	279.39
95th-Percentile Queue Length [veh]	8.28		6.64	8.57	19.08
95th-Percentile Queue Length [ft]	207.04		165.98	214.33	476.91



**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	29.08	29.08	29.08	0.00	0.00	0.00	37.65	4.81	0.00	0.00	16.06	16.06
Movement LOS	C	C	C				D	A			B	B
d_A, Approach Delay [s/veh]	29.08			0.00			12.60			16.06		
Approach LOS	C			A			B			B		
d_I, Intersection Delay [s/veh]	17.07											
Intersection LOS	B											
Intersection V/C	0.584											

**Sequence**

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







**Intersection Level Of Service Report  
#10: 32nd Street / Tidelands Avenue**

Control Type: All-way stop  
 Analysis Method: HCM2000  
 Analysis Period: 15 minutes

Delay (sec / veh): 8.2  
 Level Of Service: A

**Intersection Setup**

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			35.00			25.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			yes		

**Volumes**

Name												
Base Volume Input [veh/h]	5	0	30	5	0	25	70	10	5	55	5	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	31	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	30	5	0	25	70	41	5	55	5	5
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	8	1	0	7	19	11	1	15	1	1
Total Analysis Volume [veh/h]	5	0	33	5	0	27	76	45	5	60	5	5
Pedestrian Volume [ped/h]	0			0			0			0		

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**Intersection Settings**

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**Lanes**

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**Movement, Approach, & Intersection Results**

95th-Percentile Queue Length [veh]	0.15	0.02	0.10	0.38	0.19	0.02	0.30	0.02	0.02
95th-Percentile Queue Length [ft]	3.85	0.59	2.58	9.56	4.86	0.44	7.51	0.52	0.45
Approach Delay [s/veh]	7.87	7.46		8.38			8.54		
Approach LOS	A	A		A			A		
Intersection Delay [s/veh]	8.24								
Intersection LOS	A								

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tidelands Avenue	15	49	30	40	60	20	45	65	20	10	5	10	369

ID	Intersection Name	Southbound		Eastbound		Westbound		Total Volume
		Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	35	5	5	159	200	10	414

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	20	40	56	200	105	70	55	159	5	28	135	89	962

ID	Intersection Name	Northbound		Eastbound		Westbound		Total Volume
		Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	15	70	520	65	110	337	1117

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	30	5	35	320	15	50	35	510	30	65	327	115	1537

ID	Intersection Name	Southbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	685	5	167	445	420	410	340	2472

ID	Intersection Name	Northbound			Eastbound		Westbound		Total Volume
		Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	143	5	375	268	862	607	545	2805

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tidelands Avenue	5	0	30	5	0	25	70	41	5	55	5	5	246



## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	19th Street / Tridelands Avenue	Final Base	15	40	30	40	60	20	45	65	20	10	5	10	360
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	9	0	0	0	0	0	0	0	0	0	0	9
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>49</b>	<b>30</b>	<b>40</b>	<b>60</b>	<b>20</b>	<b>45</b>	<b>65</b>	<b>20</b>	<b>10</b>	<b>5</b>	<b>10</b>	<b>369</b>

ID	Intersection Name	Volume Type	Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Thru	Thru	Right	
2	Bay Marina Drive / Quay Avenue	Final Base	35	5	5	75	120	10	250
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	0	84	80	0	164
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>35</b>	<b>5</b>	<b>5</b>	<b>159</b>	<b>200</b>	<b>10</b>	<b>414</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Bay Marina Drive / Tidelands Avenue	Final Base	20	40	50	200	105	70	45	85	5	10	55	80	765
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	6	0	0	0	10	74	0	18	80	9	197
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>20</b>	<b>40</b>	<b>56</b>	<b>200</b>	<b>105</b>	<b>70</b>	<b>55</b>	<b>159</b>	<b>5</b>	<b>28</b>	<b>135</b>	<b>89</b>	<b>962</b>

ID	Intersection Name	Volume Type	Northbound		Eastbound		Westbound		Total Volume
			Left	Right	Thru	Right	Left	Thru	
4	Bay Marina Drive / Marina Way	Final Base	15	70	440	65	110	230	930
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0
		Net New Trips	0	0	80	0	0	107	187
		Other	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>15</b>	<b>70</b>	<b>520</b>	<b>65</b>	<b>110</b>	<b>337</b>	<b>1117</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5	Bay Marina Drive / Cleveland Avenue	Final Base	30	5	35	320	15	50	35	430	30	65	220	115	1350
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	80	0	0	107	0	187
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>30</b>	<b>5</b>	<b>35</b>	<b>320</b>	<b>15</b>	<b>50</b>	<b>35</b>	<b>510</b>	<b>30</b>	<b>65</b>	<b>327</b>	<b>115</b>	<b>1537</b>

ID	Intersection Name	Volume Type	Southbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Thru	Right	Left	Thru	
6	I-5 SB Off-Ramp and Bay Marina Drive	Final Base	685	5	130	410	375	410	270	2285
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	37	35	45	0	70	187
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>685</b>	<b>5</b>	<b>167</b>	<b>445</b>	<b>420</b>	<b>410</b>	<b>340</b>	<b>2472</b>

ID	Intersection Name	Volume Type	Northbound			Eastbound		Westbound		Total Volume
			Left	Thru	Right	Left	Thru	Thru	Right	
7	I-5 NB On-Ramp and Bay Marina	Final Base	80	5	375	240	855	600	545	2700
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	63	0	0	28	7	7	0	105
		Other	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>143</b>	<b>5</b>	<b>375</b>	<b>268</b>	<b>862</b>	<b>607</b>	<b>545</b>	<b>2805</b>

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
10	32nd Street / Tideland Avenue	Final Base	5	0	30	5	0	25	70	10	5	55	5	5	215
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	31	0	0	0	0	31
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		<b>Future Total</b>	<b>5</b>	<b>0</b>	<b>30</b>	<b>5</b>	<b>0</b>	<b>25</b>	<b>70</b>	<b>41</b>	<b>5</b>	<b>55</b>	<b>5</b>	<b>5</b>	<b>246</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Fair Share Volumes

Intersection 1: 19th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	3	0	0	0	0	0	0	0	0	0	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	6	0	0	0	0	0	0	0	0	0	0	6
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	9	0	0	0	0	0	0	0	0	0	0	
Total Analysis Volume	256	848	528	688	1040	352	784	1136	352	176	80	176	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	71	71	0	142
23: NCTF Trucks	0	0	0	3	3	0	6
24: 027-016	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	10	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	3	0	3
Total Volume	0	0	0	84	80	0	
Total Analysis Volume	608	80	80	2768	3472	176	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	3	0	0	0	0	0	0	3	0	0	6
25: Vehicle Movement External	0	0	0	0	0	0	10	0	0	0	0	0	10
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	3	0	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	3	0	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	3	0	0	3
32: 027-029	0	0	3	0	0	0	0	0	0	3	0	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	3	0	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	6	0	0	0	10	74	0	18	80	9	
Total Analysis Volume	352	688	976	3472	1824	1216	960	2768	80	480	2352	1552	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0	0	0	3	3
19: 025-010 B	0	0	0	0	0	3	3
20: 025-010 C	0	0	0	0	0	3	3
21: 027-043	0	0	0	0	0	0	0
22: NCMT Employees	0	0	71	0	0	71	142
23: NCTF Trucks	0	0	3	0	0	3	6
24: 027-016	0	0	3	0	0	3	6
25: Vehicle Movement External	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	3	3
28: 028-007	0	0	0	0	0	3	3
29: 025-010 D	0	0	0	0	0	3	3
32: 027-029	0	0	3	0	0	3	6
33: 027-042	0	0	0	0	0	3	3
34: 026-009 & 027-011	0	0	0	0	0	3	3
35: 027-014 & 027-016	0	0	0	0	0	3	3
Total Volume	0	0	80	0	0	107	
Total Analysis Volume	256	1216	9040	1136	1920	5856	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	3	0	3
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	3	0	3
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	3	0	3
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	71	0	0	71	0	142
23: NCTF Trucks	0	0	0	0	0	0	0	3	0	0	3	0	6
24: 027-016	0	0	0	0	0	0	0	3	0	0	3	0	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0	0	0	0	0	0
27: 028-003	0	0	0	0	0	0	0	0	0	0	3	0	3
28: 028-007	0	0	0	0	0	0	0	0	0	0	3	0	3
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	3	0	3
32: 027-029	0	0	0	0	0	0	0	3	0	0	3	0	6
33: 027-042	0	0	0	0	0	0	0	0	0	0	3	0	3
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	3	0	3
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	0	0	80	0	0	107	0	
Total Analysis Volume	528	80	608	5568	256	864	608	8864	528	1136	5680	2000	



Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	1	0	0	0	2	3
19: 025-010 B	0	0	1	0	0	0	2	3
20: 025-010 C	0	0	1	0	0	0	2	3
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	25	32	39	0	46	142
23: NCTF Trucks	0	0	1	1	2	0	2	6
24: 027-016	0	0	1	1	2	0	2	6
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	0	0	1	0	0	0	2	3
28: 028-007	0	0	1	0	0	0	2	3
29: 025-010 D	0	0	1	0	0	0	2	3
32: 027-029	0	0	1	1	2	0	2	6
33: 027-042	0	0	1	0	0	0	2	3
34: 026-009 & 027-011	0	0	1	0	0	0	2	3
35: 027-014 & 027-016	0	0	1	0	0	0	2	3
Total Volume	0	0	37	35	45	0	70	
Total Analysis Volume	11920	80	2912	7744	7312	7136	5920	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	2	0	0	0	0	0	0	2
19: 025-010 B	2	0	0	0	0	0	0	2
20: 025-010 C	2	0	0	0	0	0	0	2
21: 027-043	0	0	0	0	0	0	0	0
22: NCMT Employees	39	0	0	25	7	7	0	78
23: NCTF Trucks	2	0	0	1	0	0	0	3
24: 027-016	2	0	0	1	0	0	0	3
25: Vehicle Movement External	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0
27: 028-003	2	0	0	0	0	0	0	2
28: 028-007	2	0	0	0	0	0	0	2
29: 025-010 D	2	0	0	0	0	0	0	2
32: 027-029	2	0	0	1	0	0	0	3
33: 027-042	2	0	0	0	0	0	0	2
34: 026-009 & 027-011	2	0	0	0	0	0	0	2
35: 027-014 & 027-016	2	0	0	0	0	0	0	2
Total Volume	63	0	0	28	7	7	0	
Total Analysis Volume	2432	80	6384	4608	14832	10448	9376	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0	0	0	0	0	0
19: 025-010 B	0	0	0	0	0	0	0	0	0	0	0	0	0
20: 025-010 C	0	0	0	0	0	0	0	0	0	0	0	0	0
21: 027-043	0	0	0	0	0	0	0	0	0	0	0	0	0
22: NCMT Employees	0	0	0	0	0	0	0	0	0	0	0	0	0
23: NCTF Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
24: 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
25: Vehicle Movement External	0	0	0	0	0	0	0	0	0	0	0	0	0
26: Vehicle Movement Internal	0	0	0	0	0	0	0	31	0	0	0	0	31
27: 028-003	0	0	0	0	0	0	0	0	0	0	0	0	0
28: 028-007	0	0	0	0	0	0	0	0	0	0	0	0	0
29: 025-010 D	0	0	0	0	0	0	0	0	0	0	0	0	0
32: 027-029	0	0	0	0	0	0	0	0	0	0	0	0	0
33: 027-042	0	0	0	0	0	0	0	0	0	0	0	0	0
34: 026-009 & 027-011	0	0	0	0	0	0	0	0	0	0	0	0	0
35: 027-014 & 027-016	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	31	0	0	0	0	
Total Analysis Volume	80	0	528	80	0	432	1216	720	80	960	80	80	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Fair Share % of Net New Site

Intersection 1: 19th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	33.33%	0	0	0%	0	0	0	0	0	0	0	33.33%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	66.67%	0	0	0%	0	0	0	0	0	0	0	66.67%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	84.52%	88.75%	0	86.64%
23: NCTF Trucks	0	0	0	3.57%	3.75%	0	3.66%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	11.9%	0%	0	5.95%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	3.75%	0	1.88%
35: 027-014 & 027-016	0	0	0	0%	3.75%	0	1.88%
Total	0.00%	0.00%	0.00%	99.99%	100.00%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	33.33%	5.55%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	95.95%	0	0%	88.75%	0%	30.78%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	4.05%	0	0%	3.75%	0%	1.30%
24: 027-016	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
25: Vehicle Movement External	0	0	0%	0%	0	0	100%	0%	0	0%	0%	0%	16.67%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
32: 027-029	0	0	50%	0%	0	0	0%	0%	0	16.67%	0%	0%	11.11%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	16.67%	0%	0%	2.78%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	3.75%	0%	0.62%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	100.00%	0.00%	100.02%	100.00%	99.99%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	2.8%	1.40%
19: 025-010 B	0	0	0%	0	0	2.8%	1.40%
20: 025-010 C	0	0	0%	0	0	2.8%	1.40%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	88.75%	0	0	66.36%	77.57%
23: NCTF Trucks	0	0	3.75%	0	0	2.8%	3.28%
24: 027-016	0	0	3.75%	0	0	2.8%	3.28%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	2.8%	1.40%
28: 028-007	0	0	0%	0	0	2.8%	1.40%
29: 025-010 D	0	0	0%	0	0	2.8%	1.40%
32: 027-029	0	0	3.75%	0	0	2.8%	3.28%
33: 027-042	0	0	0%	0	0	2.8%	1.40%
34: 026-009 & 027-011	0	0	0%	0	0	2.8%	1.40%
35: 027-014 & 027-016	0	0	0%	0	0	2.8%	1.40%
Total	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	88.75%	0	0	66.36%	0	77.57%
23: NCTF Trucks	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
24: 027-016	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
32: 027-029	0	0	0	0	0	0	0	3.75%	0	0	2.8%	0	3.28%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	2.8%	0	1.40%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.00%	



Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	2.7%	0%	0%	0	2.86%	1.39%
19: 025-010 B	0	0	2.7%	0%	0%	0	2.86%	1.39%
20: 025-010 C	0	0	2.7%	0%	0%	0	2.86%	1.39%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	67.57%	91.43%	86.67%	0	65.71%	77.85%
23: NCTF Trucks	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
24: 027-016	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	2.7%	0%	0%	0	2.86%	1.39%
28: 028-007	0	0	2.7%	0%	0%	0	2.86%	1.39%
29: 025-010 D	0	0	2.7%	0%	0%	0	2.86%	1.39%
32: 027-029	0	0	2.7%	2.86%	4.44%	0	2.86%	3.22%
33: 027-042	0	0	2.7%	0%	0%	0	2.86%	1.39%
34: 026-009 & 027-011	0	0	2.7%	0%	0%	0	2.86%	1.39%
35: 027-014 & 027-016	0	0	2.7%	0%	0%	0	2.86%	1.39%
Total	0.00%	0.00%	99.97%	100.01%	99.99%	0.00%	100.03%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	3.17%	0	0	0%	0%	0%	0	0.79%
19: 025-010 B	3.17%	0	0	0%	0%	0%	0	0.79%
20: 025-010 C	3.17%	0	0	0%	0%	0%	0	0.79%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	61.9%	0	0	89.29%	100%	100%	0	87.81%
23: NCTF Trucks	3.17%	0	0	3.57%	0%	0%	0	1.69%
24: 027-016	3.17%	0	0	3.57%	0%	0%	0	1.69%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	3.17%	0	0	0%	0%	0%	0	0.79%
28: 028-007	3.17%	0	0	0%	0%	0%	0	0.79%
29: 025-010 D	3.17%	0	0	0%	0%	0%	0	0.79%
32: 027-029	3.17%	0	0	3.57%	0%	0%	0	1.69%
33: 027-042	3.17%	0	0	0%	0%	0%	0	0.79%
34: 026-009 & 027-011	3.17%	0	0	0%	0%	0%	0	0.79%
35: 027-014 & 027-016	3.17%	0	0	0%	0%	0%	0	0.79%
Total	99.94%	0.00%	0.00%	100.00%	100.00%	100.00%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
23: NCTF Trucks	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	100%	0	0	0	0	100.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Fair Share % of Total Analysis

Intersection 1: 19th Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	4.84%	0	0	0%	0	0	0	0	0	0	0	0.08%
19: 025-010 B	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
20: 025-010 C	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
21: 027-043	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
22: NCMT Employees	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
23: NCTF Trucks	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
24: 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
25: Vehicle Movement External	0	9.68%	0	0	0%	0	0	0	0	0	0	0	0.15%
26: Vehicle Movement Internal	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
27: 028-003	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
28: 028-007	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
29: 025-010 D	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
32: 027-029	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
33: 027-042	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0%	0	0	0%	0	0	0	0	0	0	0	0.00%
Total	0.00%	14.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	

Intersection 2: Bay Marina Drive / Quay Avenue							
Zone ID: Name	Southbound		Eastbound		Westbound		Total
	Left	Right	Left	Thru	Thru	Right	
18: 025-010 A	0	0	0	0%	0%	0	0.00%
19: 025-010 B	0	0	0	0%	0%	0	0.00%
20: 025-010 C	0	0	0	0%	0%	0	0.00%
21: 027-043	0	0	0	0%	0%	0	0.00%
22: NCMT Employees	0	0	0	27.63%	23.91%	0	0.72%
23: NCTF Trucks	0	0	0	1.17%	1.01%	0	0.03%
24: 027-016	0	0	0	0%	0%	0	0.00%
25: Vehicle Movement External	0	0	0	3.89%	0%	0	0.05%
26: Vehicle Movement Internal	0	0	0	0%	0%	0	0.00%
27: 028-003	0	0	0	0%	0%	0	0.00%
28: 028-007	0	0	0	0%	0%	0	0.00%
29: 025-010 D	0	0	0	0%	0%	0	0.00%
32: 027-029	0	0	0	0%	0%	0	0.00%
33: 027-042	0	0	0	0%	0%	0	0.00%
34: 026-009 & 027-011	0	0	0	0%	1.01%	0	0.01%
35: 027-014 & 027-016	0	0	0	0%	1.01%	0	0.01%
Total	0.00%	0.00%	0.00%	32.69%	26.94%	0.00%	

Intersection 3: Bay Marina Drive / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0%	0%	0	0	0%	0%	0	0%	0%	2.83%	0.02%
19: 025-010 B	0	0	0%	0%	0	0	0%	0%	0	0%	0%	2.83%	0.02%
20: 025-010 C	0	0	0%	0%	0	0	0%	0%	0	0%	0%	2.83%	0.02%
21: 027-043	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
22: NCMT Employees	0	0	0%	0%	0	0	0%	28.74%	0	0%	31.28%	0%	0.36%
23: NCTF Trucks	0	0	0%	0%	0	0	0%	1.21%	0	0%	1.32%	0%	0.02%
24: 027-016	0	0	4.48%	0%	0	0	0%	0%	0	6.25%	0%	0%	0.06%
25: Vehicle Movement External	0	0	0%	0%	0	0	14.29%	0%	0	0%	0%	0%	0.09%
26: Vehicle Movement Internal	0	0	0%	0%	0	0	0%	0%	0	0%	0%	0%	0.00%
27: 028-003	0	0	0%	0%	0	0	0%	0%	0	6.25%	0%	0%	0.04%
28: 028-007	0	0	0%	0%	0	0	0%	0%	0	6.25%	0%	0%	0.04%
29: 025-010 D	0	0	0%	0%	0	0	0%	0%	0	6.25%	0%	0%	0.04%
32: 027-029	0	0	4.48%	0%	0	0	0%	0%	0	6.25%	0%	0%	0.06%
33: 027-042	0	0	0%	0%	0	0	0%	0%	0	6.25%	0%	0%	0.04%
34: 026-009 & 027-011	0	0	0%	0%	0	0	0%	0%	0	0%	1.32%	0%	0.01%
35: 027-014 & 027-016	0	0	0%	0%	0	0	0%	0%	0	0%	1.32%	0%	0.01%
Total	0.00%	0.00%	8.96%	0.00%	0.00%	0.00%	14.29%	29.95%	0.00%	37.50%	35.24%	8.49%	

Intersection 4: Bay Marina Drive / Marina Way							
Zone ID: Name	Northbound		Eastbound		Westbound		Total
	Left	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0%	0	0	0.63%	0.00%
19: 025-010 B	0	0	0%	0	0	0.63%	0.00%
20: 025-010 C	0	0	0%	0	0	0.63%	0.00%
21: 027-043	0	0	0%	0	0	0%	0.00%
22: NCMT Employees	0	0	11.01%	0	0	15.01%	0.13%
23: NCTF Trucks	0	0	0.47%	0	0	0.63%	0.01%
24: 027-016	0	0	0.47%	0	0	0.63%	0.01%
25: Vehicle Movement External	0	0	0%	0	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0	0	0%	0.00%
27: 028-003	0	0	0%	0	0	0.63%	0.00%
28: 028-007	0	0	0%	0	0	0.63%	0.00%
29: 025-010 D	0	0	0%	0	0	0.63%	0.00%
32: 027-029	0	0	0.47%	0	0	0.63%	0.01%
33: 027-042	0	0	0%	0	0	0.63%	0.00%
34: 026-009 & 027-011	0	0	0%	0	0	0.63%	0.00%
35: 027-014 & 027-016	0	0	0%	0	0	0.63%	0.00%
Total	0.00%	0.00%	12.42%	0.00%	0.00%	22.57%	

Intersection 5: Bay Marina Drive / Cleveland Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	11.2%	0	0	15.37%	0	0.10%
23: NCTF Trucks	0	0	0	0	0	0	0	0.47%	0	0	0.65%	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0.47%	0	0	0.65%	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	0%	0	0	0%	0	0.00%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0.47%	0	0	0.65%	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0.65%	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.61%	0.00%	0.00%	23.17%	0.00%	



Intersection 6: I-5 SB Off-Ramp and Bay Marina Drive								
Zone ID: Name	Southbound			Eastbound		Westbound		Total
	Left	Thru	Right	Thru	Right	Left	Thru	
18: 025-010 A	0	0	0.46%	0%	0%	0	0.45%	0.00%
19: 025-010 B	0	0	0.46%	0%	0%	0	0.45%	0.00%
20: 025-010 C	0	0	0.46%	0%	0%	0	0.45%	0.00%
21: 027-043	0	0	0%	0%	0%	0	0%	0.00%
22: NCMT Employees	0	0	11.42%	6.17%	7.77%	0	10.45%	0.08%
23: NCTF Trucks	0	0	0.46%	0.19%	0.4%	0	0.45%	0.00%
24: 027-016	0	0	0.46%	0.19%	0.4%	0	0.45%	0.00%
25: Vehicle Movement External	0	0	0%	0%	0%	0	0%	0.00%
26: Vehicle Movement Internal	0	0	0%	0%	0%	0	0%	0.00%
27: 028-003	0	0	0.46%	0%	0%	0	0.45%	0.00%
28: 028-007	0	0	0.46%	0%	0%	0	0.45%	0.00%
29: 025-010 D	0	0	0.46%	0%	0%	0	0.45%	0.00%
32: 027-029	0	0	0.46%	0.19%	0.4%	0	0.45%	0.00%
33: 027-042	0	0	0.46%	0%	0%	0	0.45%	0.00%
34: 026-009 & 027-011	0	0	0.46%	0%	0%	0	0.45%	0.00%
35: 027-014 & 027-016	0	0	0.46%	0%	0%	0	0.45%	0.00%
Total	0.00%	0.00%	16.94%	6.74%	8.97%	0.00%	15.85%	

Intersection 7: I-5 NB On-Ramp and Bay Marina								
Zone ID: Name	Northbound			Eastbound		Westbound		Total
	Left	Thru	Right	Left	Thru	Thru	Right	
18: 025-010 A	0.93%	0	0	0%	0%	0%	0	0.00%
19: 025-010 B	0.93%	0	0	0%	0%	0%	0	0.00%
20: 025-010 C	0.93%	0	0	0%	0%	0%	0	0.00%
21: 027-043	0%	0	0	0%	0%	0%	0	0.00%
22: NCMT Employees	18.14%	0	0	7.91%	0.75%	1.06%	0	0.06%
23: NCTF Trucks	0.93%	0	0	0.32%	0%	0%	0	0.00%
24: 027-016	0.93%	0	0	0.32%	0%	0%	0	0.00%
25: Vehicle Movement External	0%	0	0	0%	0%	0%	0	0.00%
26: Vehicle Movement Internal	0%	0	0	0%	0%	0%	0	0.00%
27: 028-003	0.93%	0	0	0%	0%	0%	0	0.00%
28: 028-007	0.93%	0	0	0%	0%	0%	0	0.00%
29: 025-010 D	0.93%	0	0	0%	0%	0%	0	0.00%
32: 027-029	0.93%	0	0	0.32%	0%	0%	0	0.00%
33: 027-042	0.93%	0	0	0%	0%	0%	0	0.00%
34: 026-009 & 027-011	0.93%	0	0	0%	0%	0%	0	0.00%
35: 027-014 & 027-016	0.93%	0	0	0%	0%	0%	0	0.00%
Total	29.30%	0.00%	0.00%	8.87%	0.75%	1.06%	0.00%	

Intersection 10: 32nd Street / Tidelands Avenue													
Zone ID: Name	Northbound			Southbound			Eastbound			Westbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
18: 025-010 A	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
19: 025-010 B	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
20: 025-010 C	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
21: 027-043	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
22: NCMT Employees	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
23: NCTF Trucks	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
24: 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
25: Vehicle Movement External	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
26: Vehicle Movement Internal	0	0	0	0	0	0	0	40.79%	0	0	0	0	0.96%
27: 028-003	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
28: 028-007	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
29: 025-010 D	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
32: 027-029	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
33: 027-042	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
34: 026-009 & 027-011	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
35: 027-014 & 027-016	0	0	0	0	0	0	0	0%	0	0	0	0	0.00%
Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	40.79%	0.00%	0.00%	0.00%	0.00%	

## Signal Warrants Report For Intersection #2: Bay Marina Drive / Quay Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	210	164	40
2	202	157	38
3	197	154	38
4	168	131	32
5	160	125	30
6	143	112	27
7	132	103	25
8	126	98	24
9	101	79	19
10	95	74	18
11	95	74	18
12	90	71	17
13	82	64	16
14	76	59	14
15	76	59	14
16	74	57	14
17	42	33	8
18	23	18	4
19	21	16	4
20	8	7	2
21	6	5	1
22	6	5	1
23	4	3	1
24	4	3	1

## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	4	374	1	40	No	No	No	No	No	No	No	No	No	No
2	4	359	1	38	No	No	No	No	No	No	No	No	No	No
3	4	351	1	38	No	No	No	No	No	No	No	No	No	No
4	4	299	1	32	No	No	No	No	No	No	No	No	No	No
5	4	285	1	30	No	No	No	No	No	No	No	No	No	No
6	4	255	1	27	No	No	No	No	No	No	No	No	No	No
7	4	235	1	25	No	No	No	No	No	No	No	No	No	No
8	4	224	1	24	No	No	No	No	No	No	No	No	No	No
9	4	180	1	19	No	No	No	No	No	No	No	No	No	No
10	4	169	1	18	No	No	No	No	No	No	No	No	No	No
11	4	169	1	18	No	No	No	No	No	No	No	No	No	No
12	4	161	1	17	No	No	No	No	No	No	No	No	No	No
13	4	146	1	16	No	No	No	No	No	No	No	No	No	No
14	4	135	1	14	No	No	No	No	No	No	No	No	No	No
15	4	135	1	14	No	No	No	No	No	No	No	No	No	No
16	4	131	1	14	No	No	No	No	No	No	No	No	No	No
17	4	75	1	8	No	No	No	No	No	No	No	No	No	No
18	4	41	1	4	No	No	No	No	No	No	No	No	No	No
19	4	37	1	4	No	No	No	No	No	No	No	No	No	No
20	4	15	1	2	No	No	No	No	No	No	No	No	No	No
21	4	11	1	1	No	No	No	No	No	No	No	No	No	No
22	4	11	1	1	No	No	No	No	No	No	No	No	No	No
23	4	7	1	1	No	No	No	No	No	No	No	No	No	No
24	4	7	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:07
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	40
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	414
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
<b>Warrant Met for Intersection</b>	<b>No</b>

## Signal Warrants Report For Intersection #10: 32nd Street / Tidelands Avenue

## Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

## Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

## Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	65	116	35	30
2	62	111	34	29
3	61	109	33	28
4	52	93	28	24
5	49	88	27	23
6	44	79	24	20
7	41	73	22	19
8	39	70	21	18
9	31	56	17	14
10	29	52	16	14
11	29	52	16	14
12	28	50	15	13
13	25	45	14	12
14	23	42	13	11
15	23	42	13	11
16	23	41	12	11
17	13	23	7	6
18	7	13	4	3
19	7	12	4	3
20	3	5	1	1
21	2	3	1	1
22	2	3	1	1
23	1	2	1	1
24	1	2	1	1



## Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	6	181	3	65	No	No	No	No	No	No	No	No	No	No
2	6	173	3	63	No	No	No	No	No	No	No	No	No	No
3	6	170	3	61	No	No	No	No	No	No	No	No	No	No
4	6	145	3	52	No	No	No	No	No	No	No	No	No	No
5	6	137	3	50	No	No	No	No	No	No	No	No	No	No
6	6	123	3	44	No	No	No	No	No	No	No	No	No	No
7	6	114	3	41	No	No	No	No	No	No	No	No	No	No
8	6	109	3	39	No	No	No	No	No	No	No	No	No	No
9	6	87	3	31	No	No	No	No	No	No	No	No	No	No
10	6	81	3	30	No	No	No	No	No	No	No	No	No	No
11	6	81	3	30	No	No	No	No	No	No	No	No	No	No
12	6	78	3	28	No	No	No	No	No	No	No	No	No	No
13	6	70	3	26	No	No	No	No	No	No	No	No	No	No
14	6	65	3	24	No	No	No	No	No	No	No	No	No	No
15	6	65	3	24	No	No	No	No	No	No	No	No	No	No
16	6	64	3	23	No	No	No	No	No	No	No	No	No	No
17	6	36	3	13	No	No	No	No	No	No	No	No	No	No
18	6	20	3	7	No	No	No	No	No	No	No	No	No	No
19	6	19	3	7	No	No	No	No	No	No	No	No	No	No
20	6	8	3	2	No	No	No	No	No	No	No	No	No	No
21	6	5	3	2	No	No	No	No	No	No	No	No	No	No
22	6	5	3	2	No	No	No	No	No	No	No	No	No	No
23	6	3	3	2	No	No	No	No	No	No	No	No	No	No
24	6	3	3	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

## Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	7.9	7.5
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	35	30
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	246	246
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
<b>Warrant Met for Intersection</b>	<b>No</b>	

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Trip generation summary

## Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total trips	% of Total Trips
18: 025-010 A				1.000	3.000	100.00	0.00	3	0	3	1.22
19: 025-010 B				1.000	3.000	100.00	0.00	3	0	3	1.22
20: 025-010 C				1.000	3.000	100.00	0.00	3	0	3	1.22
21: 027-043				1.000	0.000	50.00	50.00	0	0	0	0.00
22: NCMT Employees				1.000	142.000	50.00	50.00	71	71	142	57.96
23: NCTF Trucks				1.000	6.000	50.00	50.00	3	3	6	2.45
24: 027-016				1.000	6.000	50.00	50.00	3	3	6	2.45
25: Vehicle Movement External				1.000	10.000	0.00	100.00	0	10	10	4.08
26: Vehicle Movement Internal				1.000	48.000	0.00	100.00	0	48	48	19.59
27: 028-003				1.000	3.000	100.00	0.00	3	0	3	1.22
28: 028-007				1.000	3.000	100.00	0.00	3	0	3	1.22
29: 025-010 D				1.000	3.000	100.00	0.00	3	0	3	1.22
32: 027-029				1.000	6.000	50.00	50.00	3	3	6	2.45
33: 027-042				1.000	3.000	100.00	0.00	3	0	3	1.22
34: 026-009 & 027-011				1.000	3.000	100.00	0.00	3	0	3	1.22
35: 027-014 & 027-016				1.000	3.000	100.00	0.00	3	0	3	1.22
<b>Added Trips Total</b>								<b>107</b>	<b>138</b>	<b>245</b>	<b>100.00</b>

## NCMT Tank Farm Redevelopment

Vistro File: P:\...\NCTF Analysis (without Tidelands and Quay) - April 27 for appendix.vistro

Scenario 12: Future Year + Project PM

Report File: P:\...\Future PM + Project (without Tidelands).pdf

4/27/2016

## Trip distribution summary

Zone / Gate	Zone 18: 025-010 A			
	To 025-010 A:		From 025-010 A:	
	Share %	Trips	Share %	Trips
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 19: 025-010 B			
	To 025-010 B:		From 025-010 B:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 20: 025-010 C			
	To 025-010 C:		From 025-010 C:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0

Zone / Gate	Zone 21: 027-043			
	To 027-043:		From 027-043:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0

32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>

Zone / Gate	Zone 22: NCMT Employees			
	To NCMT Employees:		From NCMT Employees:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	25	35.00	25
3: Gate	55.00	39	55.00	39
4: Gate	10.00	7	10.00	7
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>71</b>	<b>100.00</b>	<b>71</b>

Zone / Gate	Zone 23: NCTF Trucks			
	To NCTF Trucks:		From NCTF Trucks:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

Zone / Gate	Zone 24: 027-016			
	To 027-016:		From 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0

Zone / Gate	Zone 25: Vehicle Movement External			
	To Vehicle Movement External:		From Vehicle Movement External:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0

25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	65.00	6
14: Gate	0.00	0	35.00	4
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>10</b>

Zone / Gate	Zone 26: Vehicle Movement Internal			
	To Vehicle Movement Internal:		From Vehicle Movement Internal:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	0.00	0	0.00	0
3: Gate	0.00	0	0.00	0
4: Gate	0.00	0	0.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	35.00	17
37: Gate	0.00	0	15.00	7
38: Gate	0.00	0	50.00	24
<b>Total</b>	<b>0.00</b>	<b>0</b>	<b>100.00</b>	<b>48</b>

Zone / Gate	Zone 27: 028-003			
	To 028-003:		From 028-003:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone 28: 028-007			
To 028-007:		From 028-007:	

Zone 29: 025-010 D			
To 025-010 D:		From 025-010 D:	



Zone / Gate	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 32: 027-029			
	To 027-029:		From 027-029:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	1
3: Gate	55.00	2	55.00	2
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0

Zone / Gate	Zone 33: 027-042			
	To 027-042:		From 027-042:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0

38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>3</b>

38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

Zone / Gate	Zone 34: 026-009 & 027-011			
	To 026-009 & 027-011:		From 026-009 & 027-011:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
35: 027-014 & 027-016	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

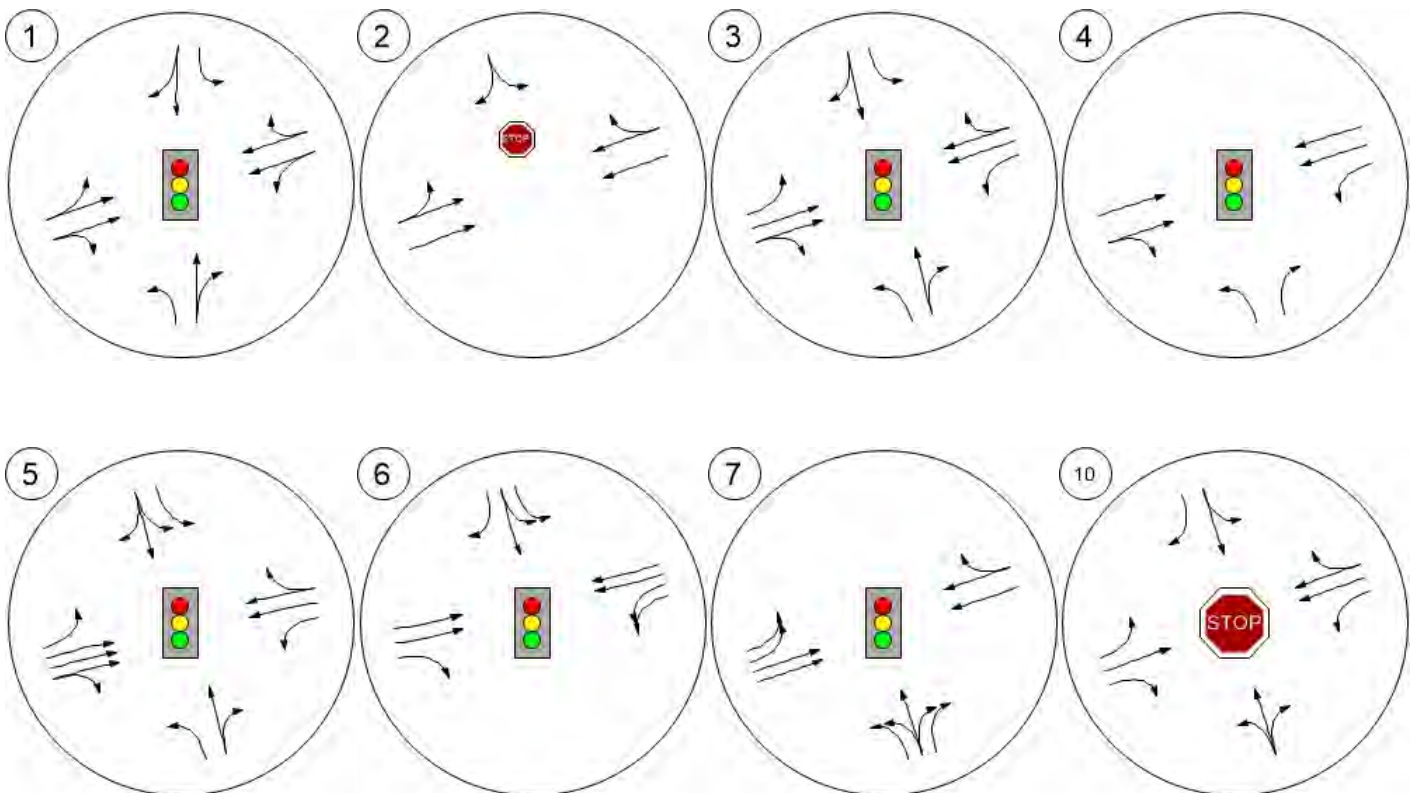
Zone / Gate	Zone 35: 027-014 & 027-016			
	To 027-014 & 027-016:		From 027-014 & 027-016:	
	Share %	Trips	Share %	Trips
18: 025-010 A	0.00	0	0.00	0
19: 025-010 B	0.00	0	0.00	0
20: 025-010 C	0.00	0	0.00	0
21: 027-043	0.00	0	0.00	0
22: NCMT Employees	0.00	0	0.00	0
23: NCTF Trucks	0.00	0	0.00	0
24: 027-016	0.00	0	0.00	0
25: Vehicle Movement External	0.00	0	0.00	0
26: Vehicle Movement Internal	0.00	0	0.00	0
27: 028-003	0.00	0	0.00	0
28: 028-007	0.00	0	0.00	0
29: 025-010 D	0.00	0	0.00	0
30: AC Students	0.00	0	0.00	0
31: AC Adults	0.00	0	0.00	0
32: 027-029	0.00	0	0.00	0
33: 027-042	0.00	0	0.00	0
34: 026-009 & 027-011	0.00	0	0.00	0
2: Gate	35.00	1	35.00	0
3: Gate	55.00	2	55.00	0
4: Gate	10.00	0	10.00	0
11: Gate	0.00	0	0.00	0
14: Gate	0.00	0	0.00	0
15: Gate	0.00	0	0.00	0
36: Gate	0.00	0	0.00	0
37: Gate	0.00	0	0.00	0
38: Gate	0.00	0	0.00	0
<b>Total</b>	<b>100.00</b>	<b>3</b>	<b>100.00</b>	<b>0</b>

## Study Intersections

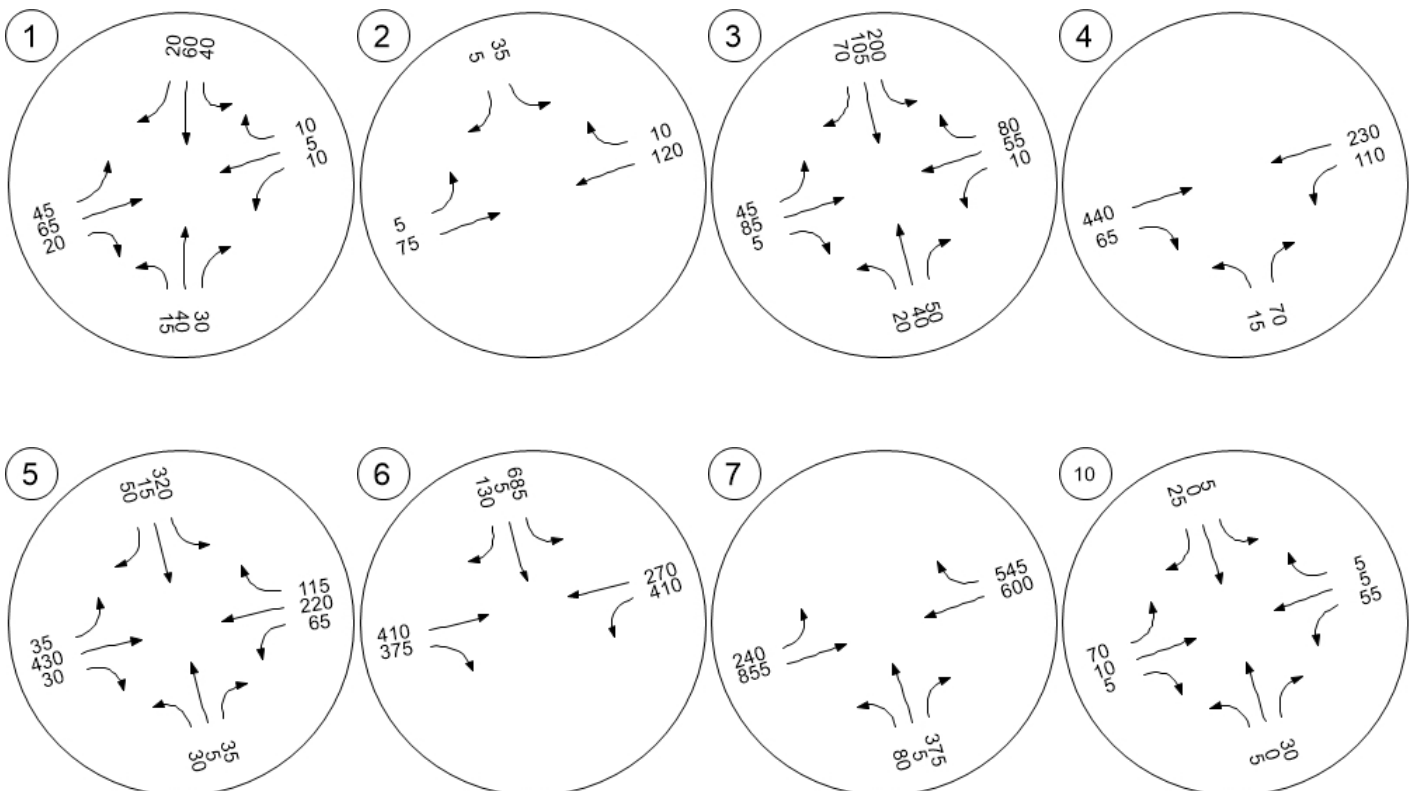




# Lane Configuration and Traffic Control

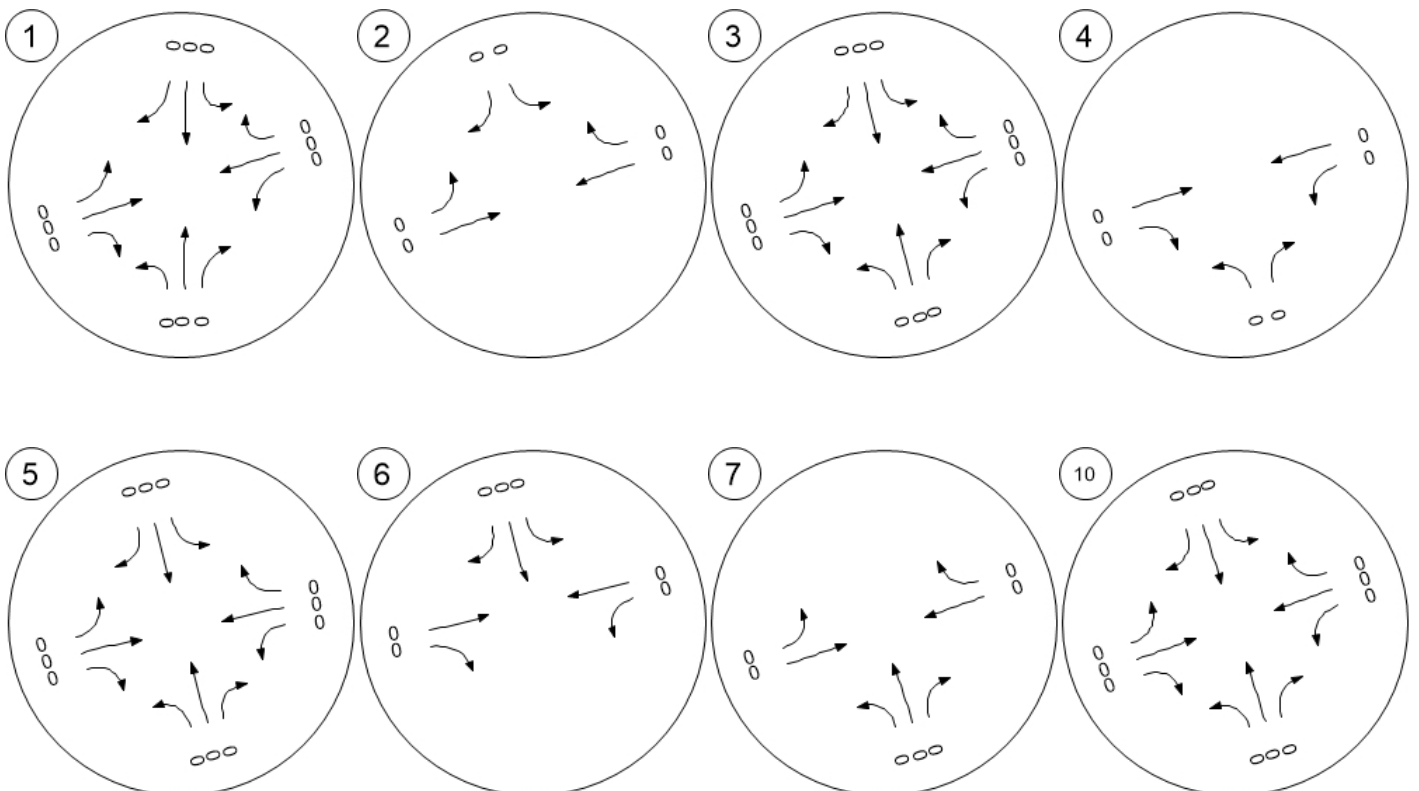


Traffic Volume - Base Volume

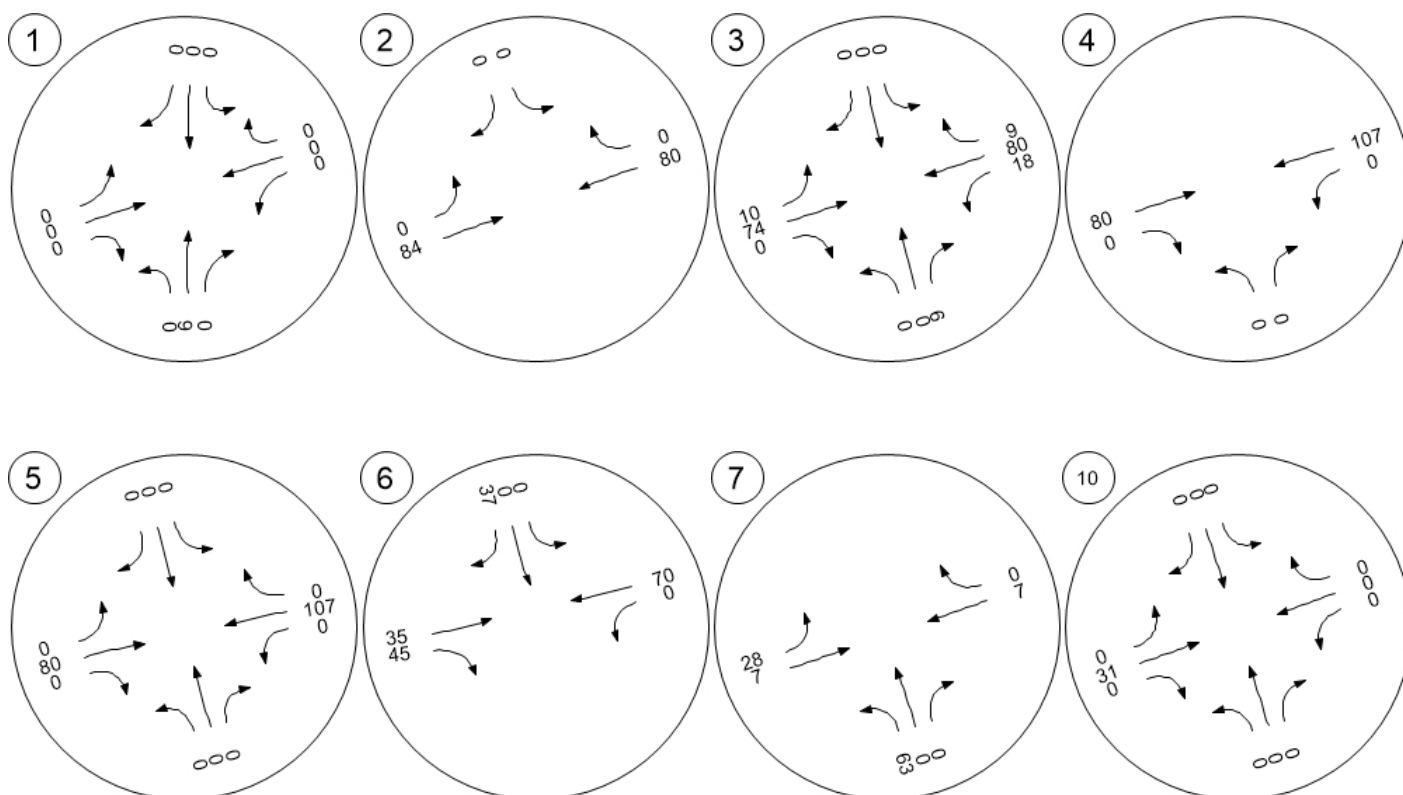




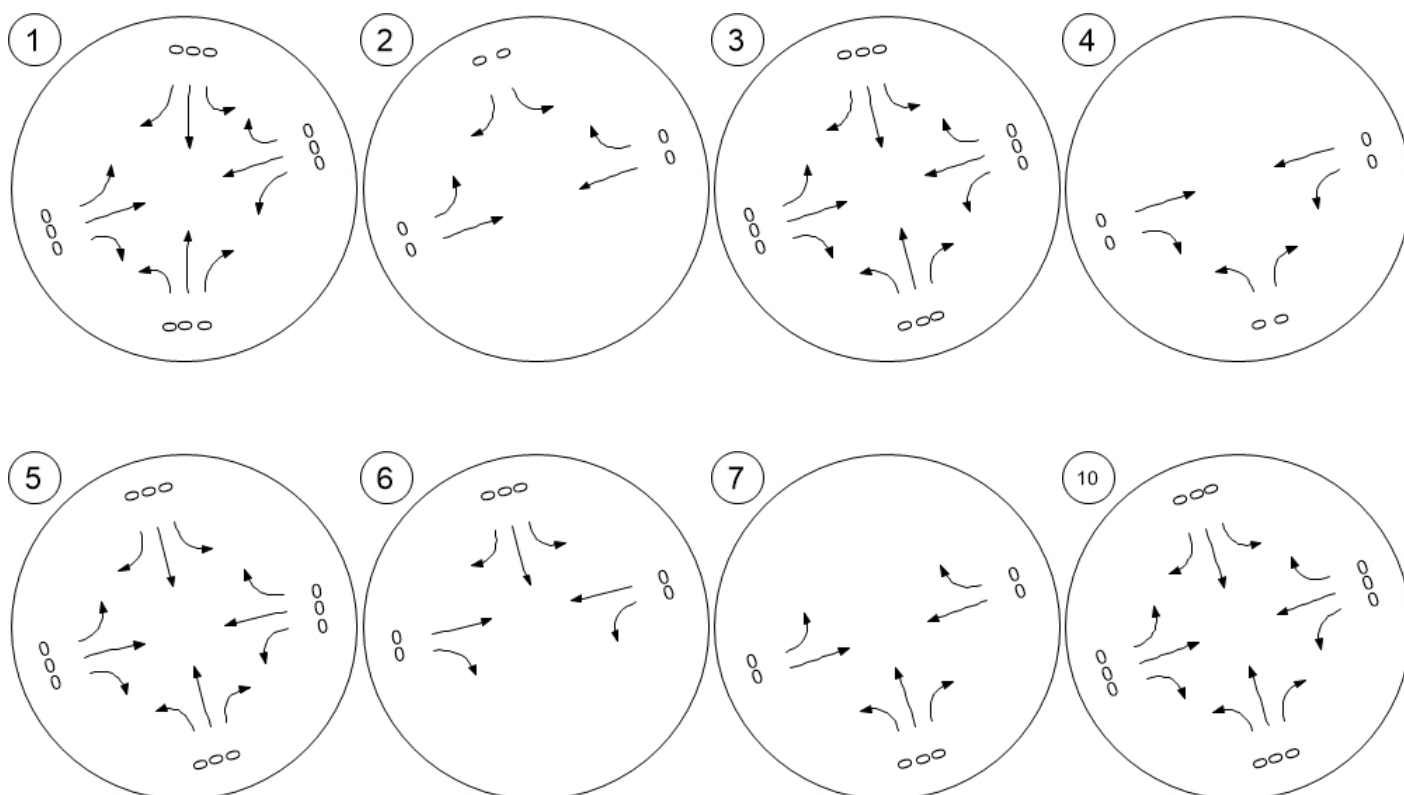
Traffic Volume - In-Process Volume



Traffic Volume - Net New Site Trips

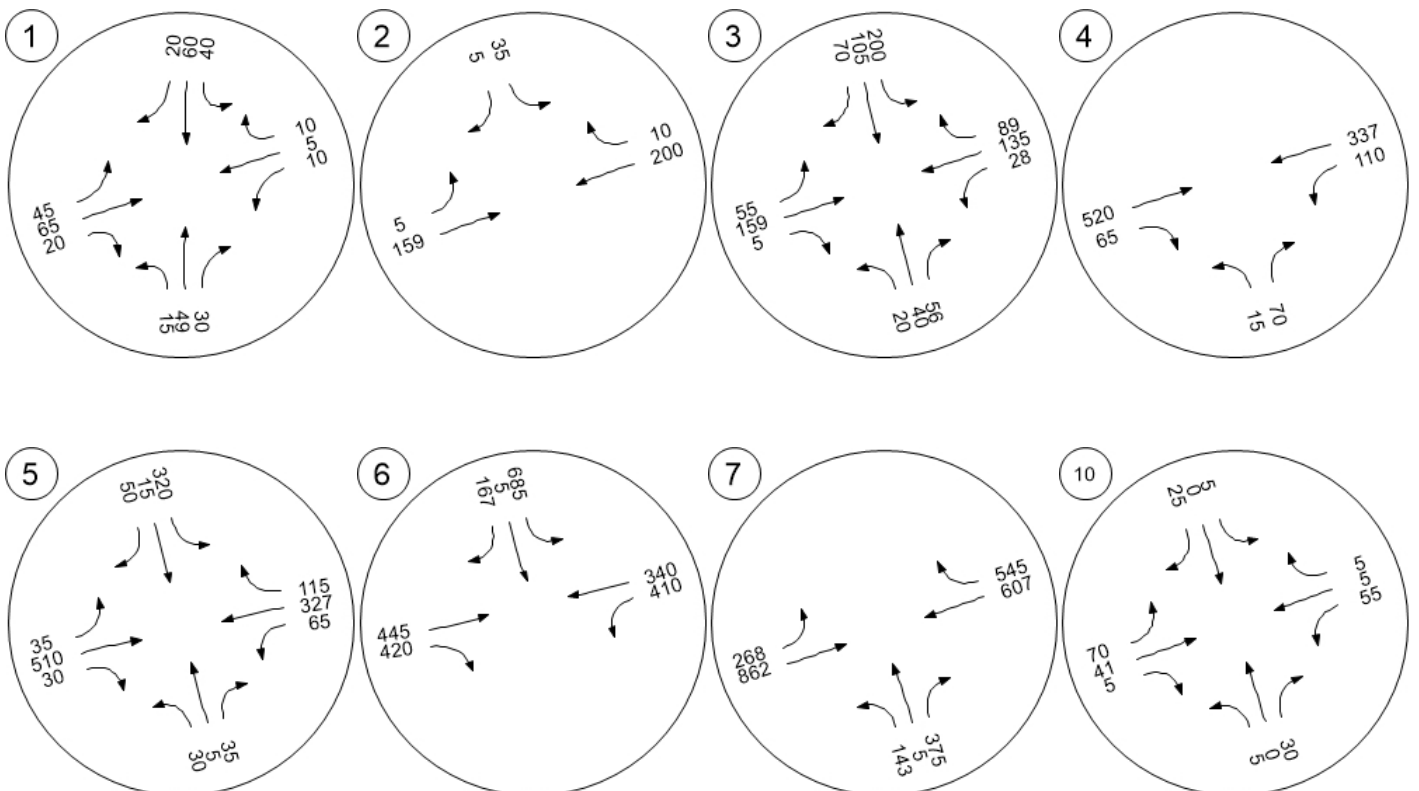


Traffic Volume - Other Volume

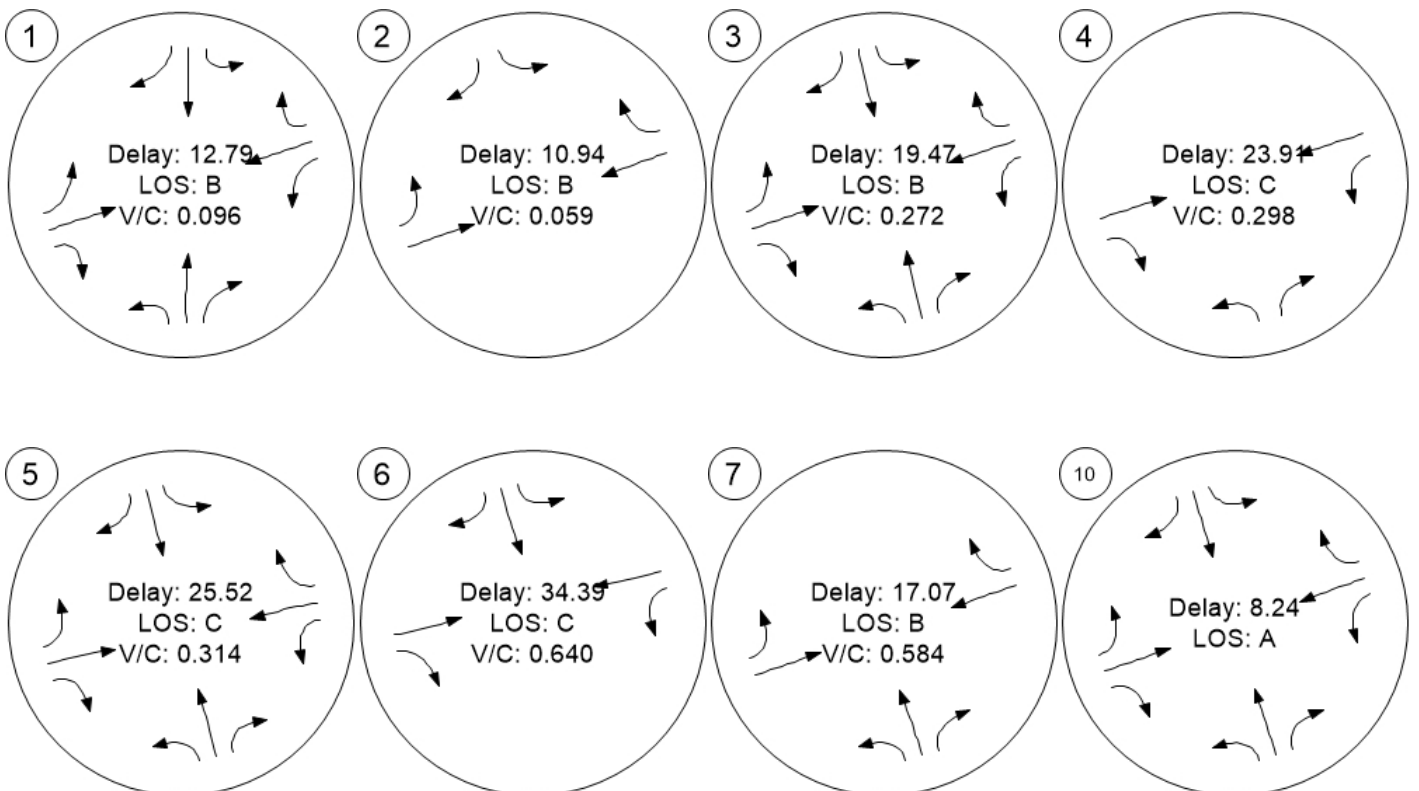




Traffic Volume - Future Total Volume

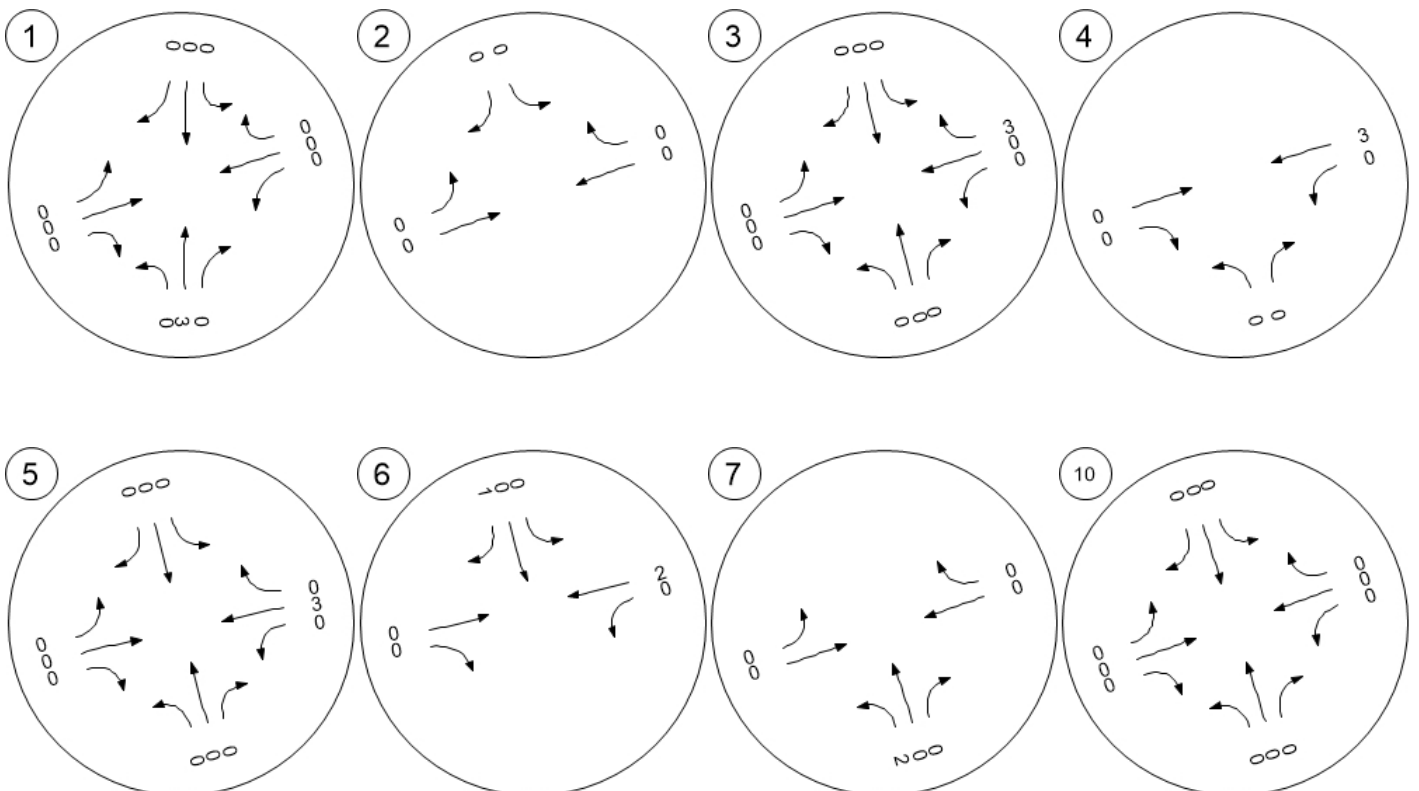


# Traffic Conditions

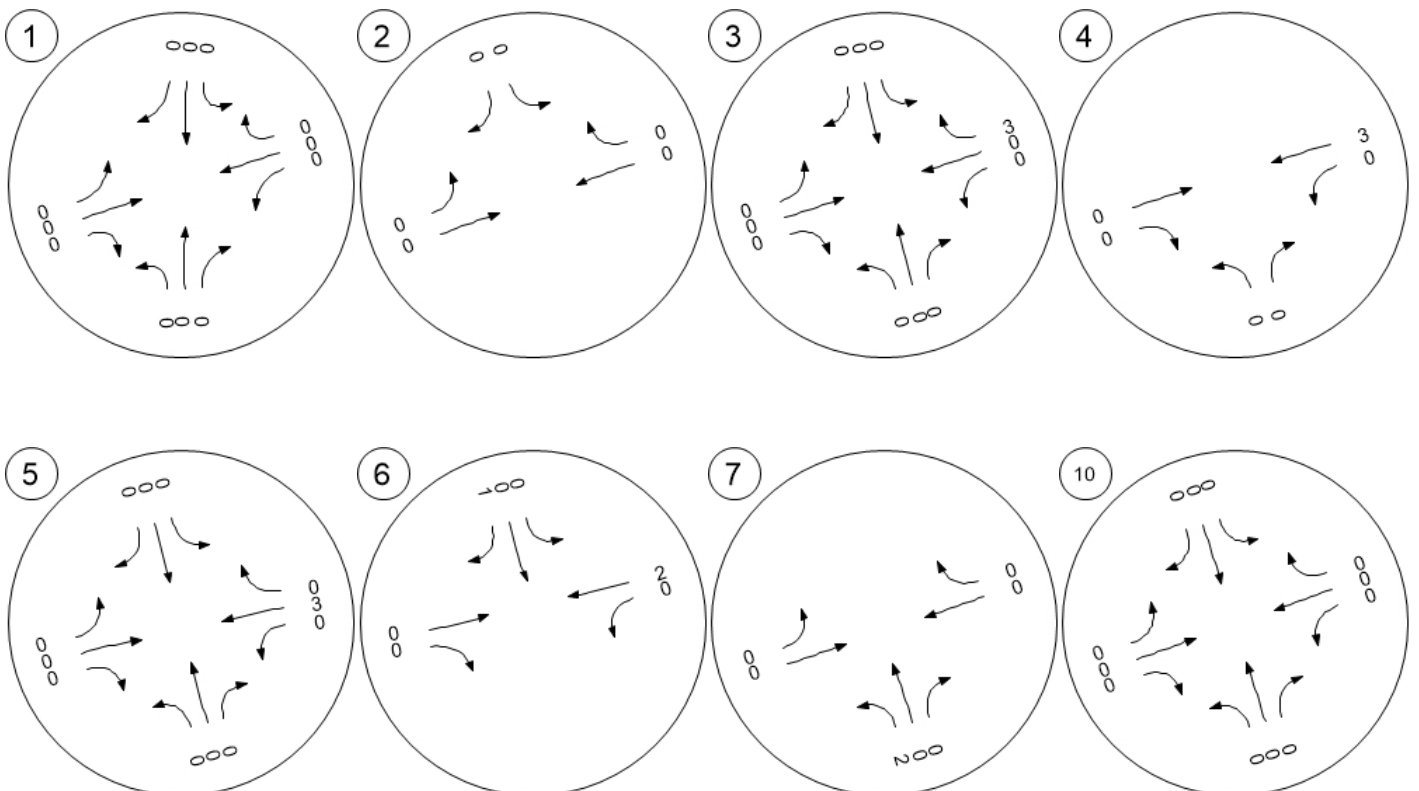




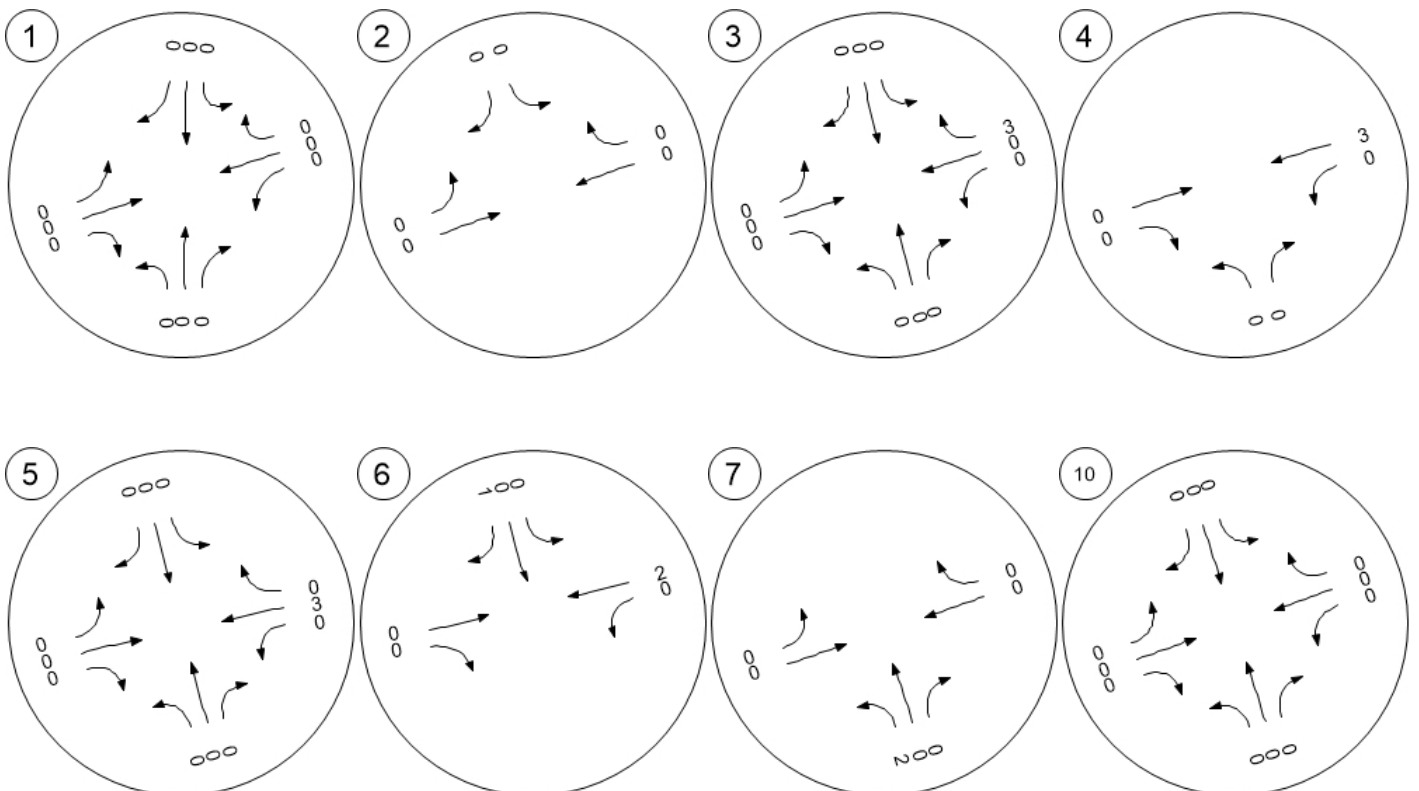
Fair Share - Fair Share Volumes - Zone 18



Fair Share - Fair Share Volumes - Zone 19

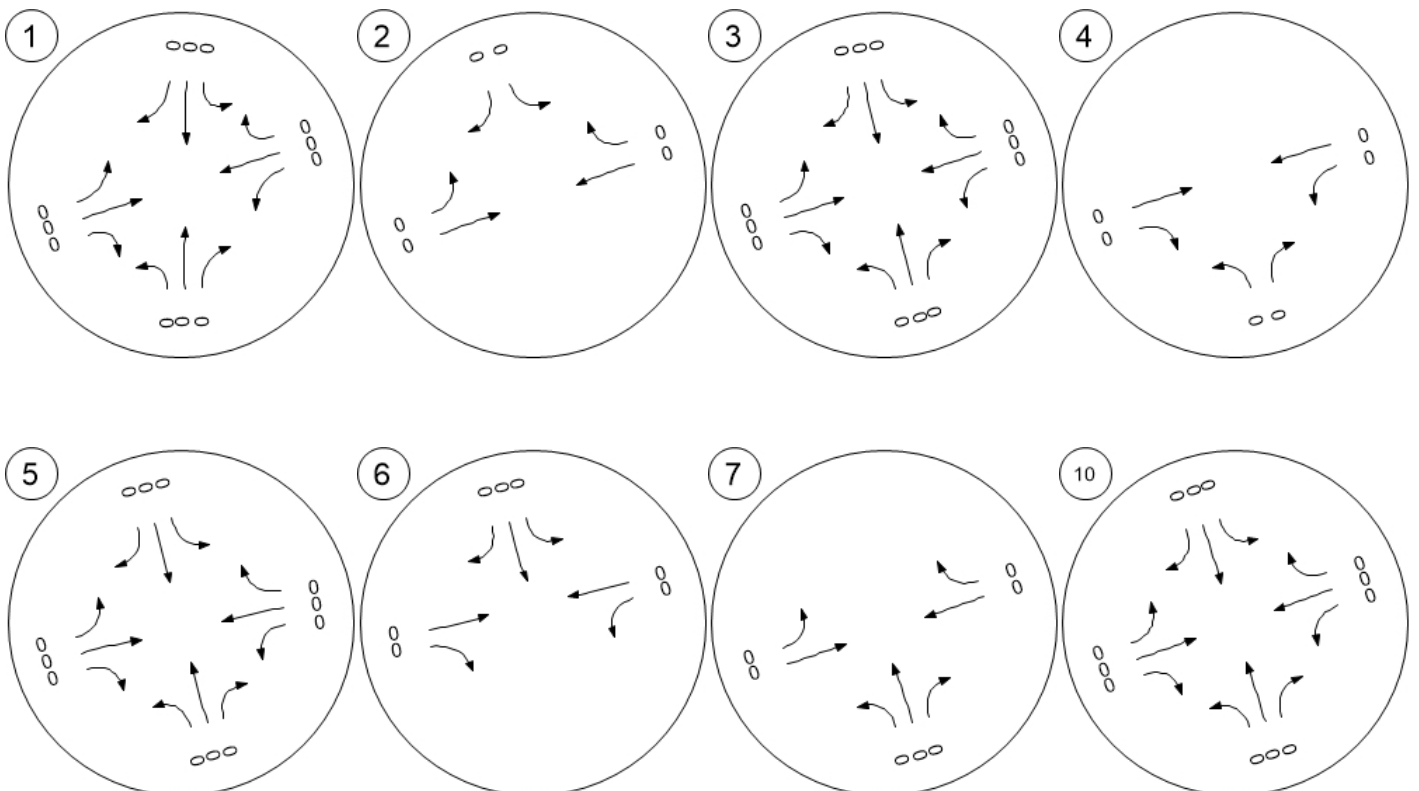


Fair Share - Fair Share Volumes - Zone 20

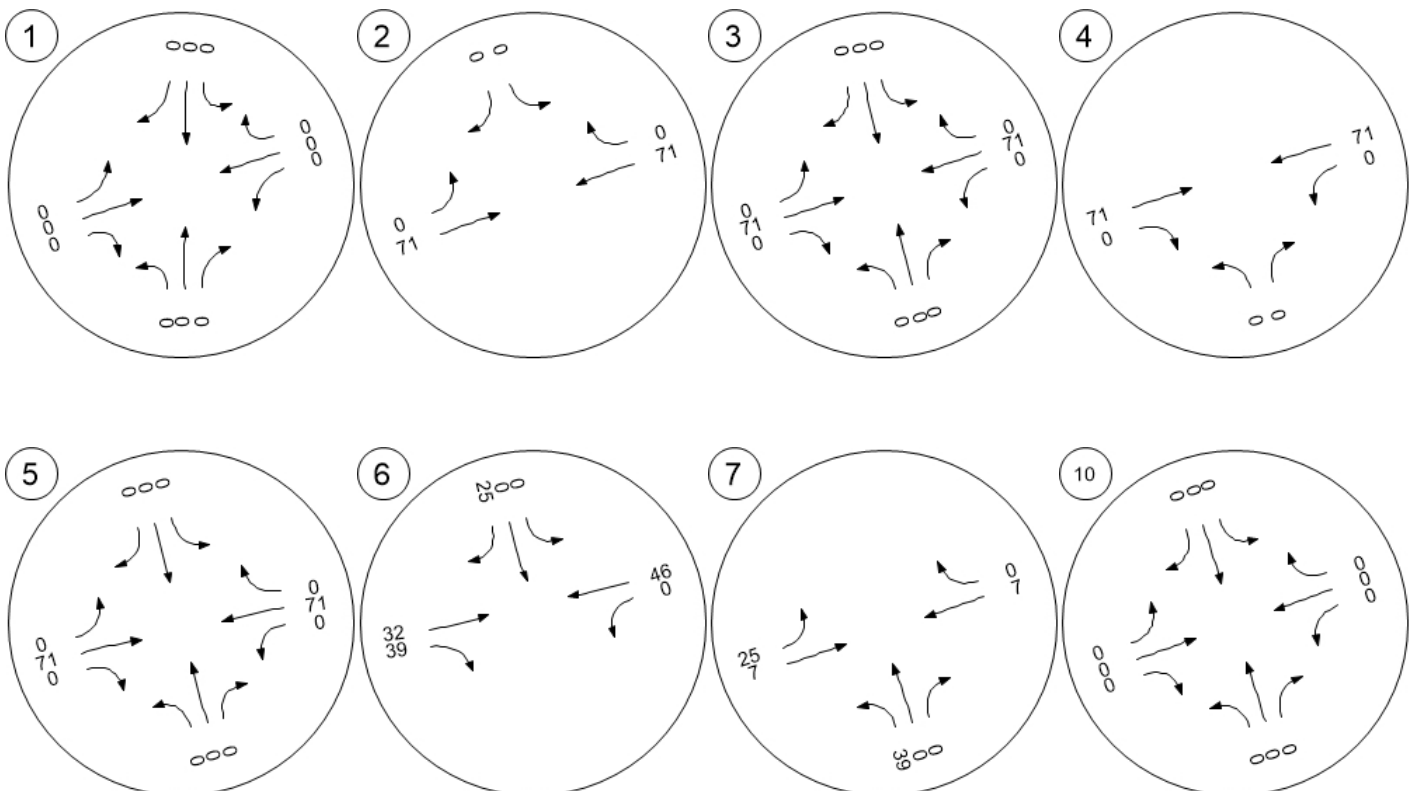




Fair Share - Fair Share Volumes - Zone 21

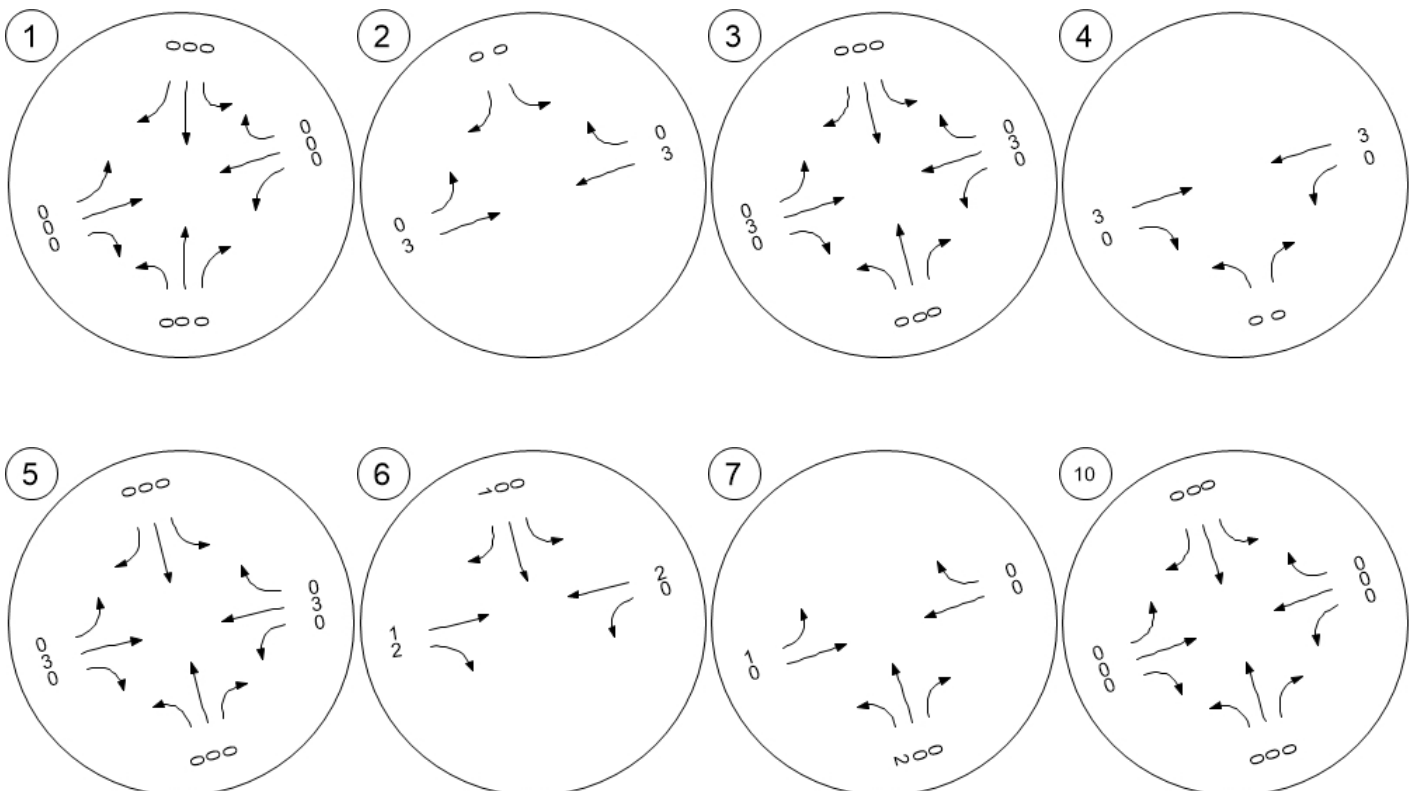


Fair Share - Fair Share Volumes - Zone 22

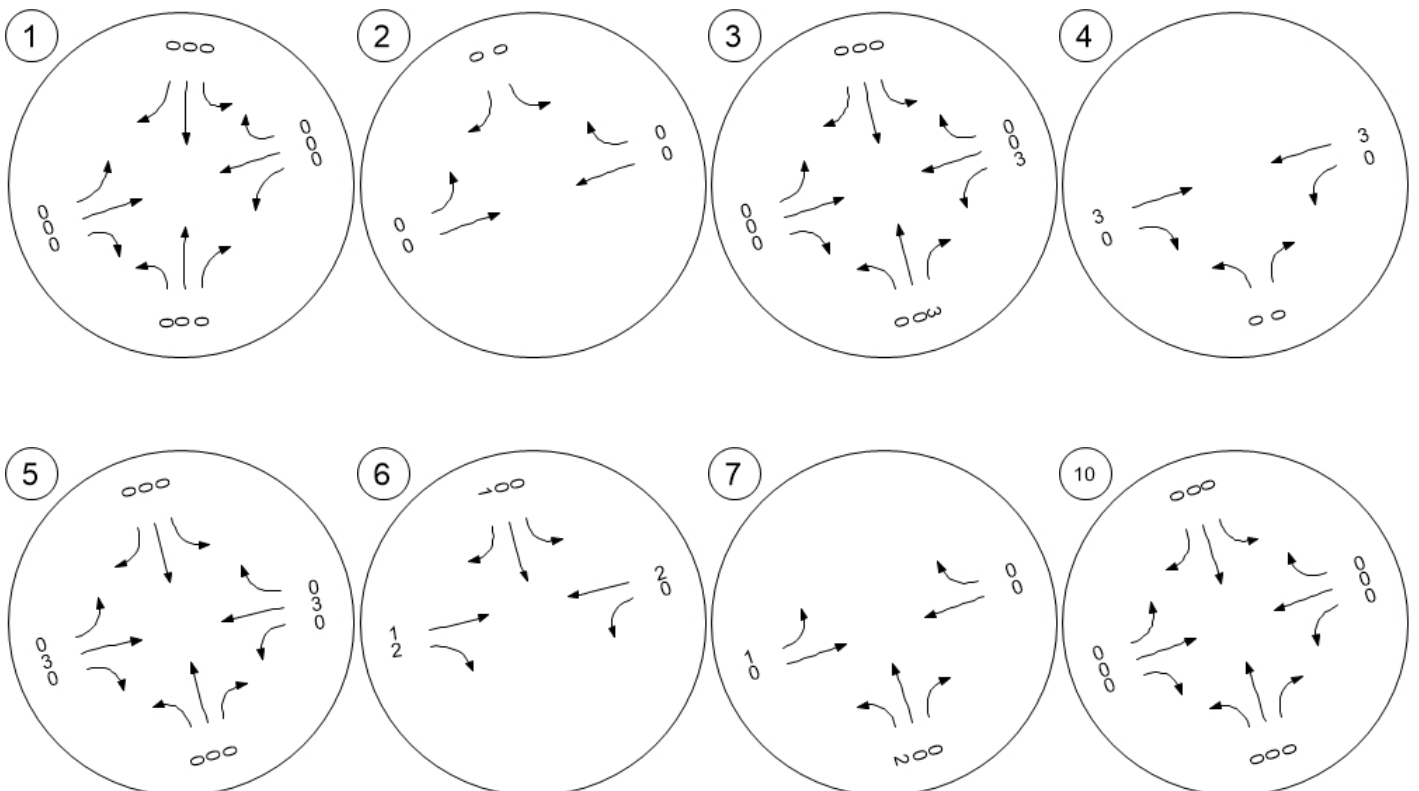




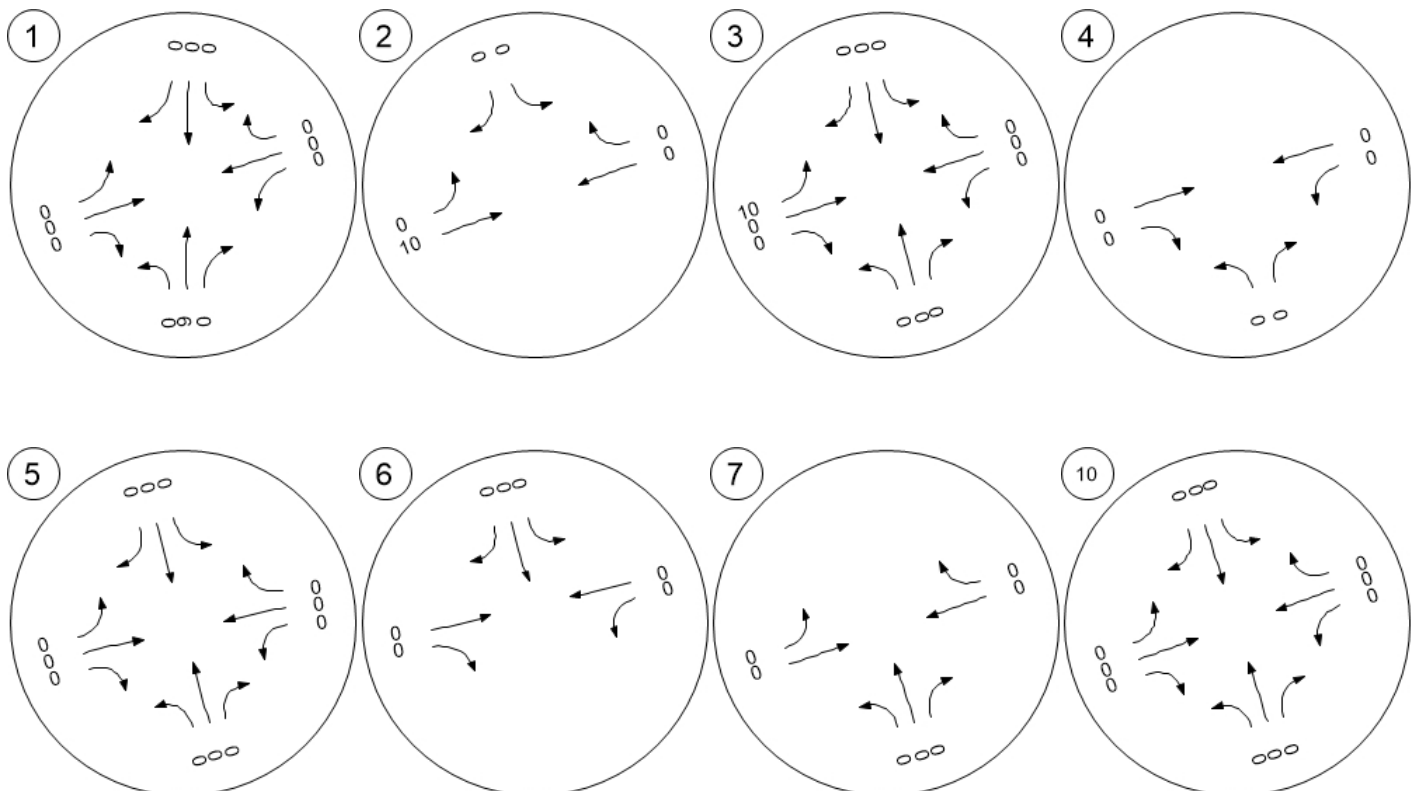
Fair Share - Fair Share Volumes - Zone 23



Fair Share - Fair Share Volumes - Zone 24

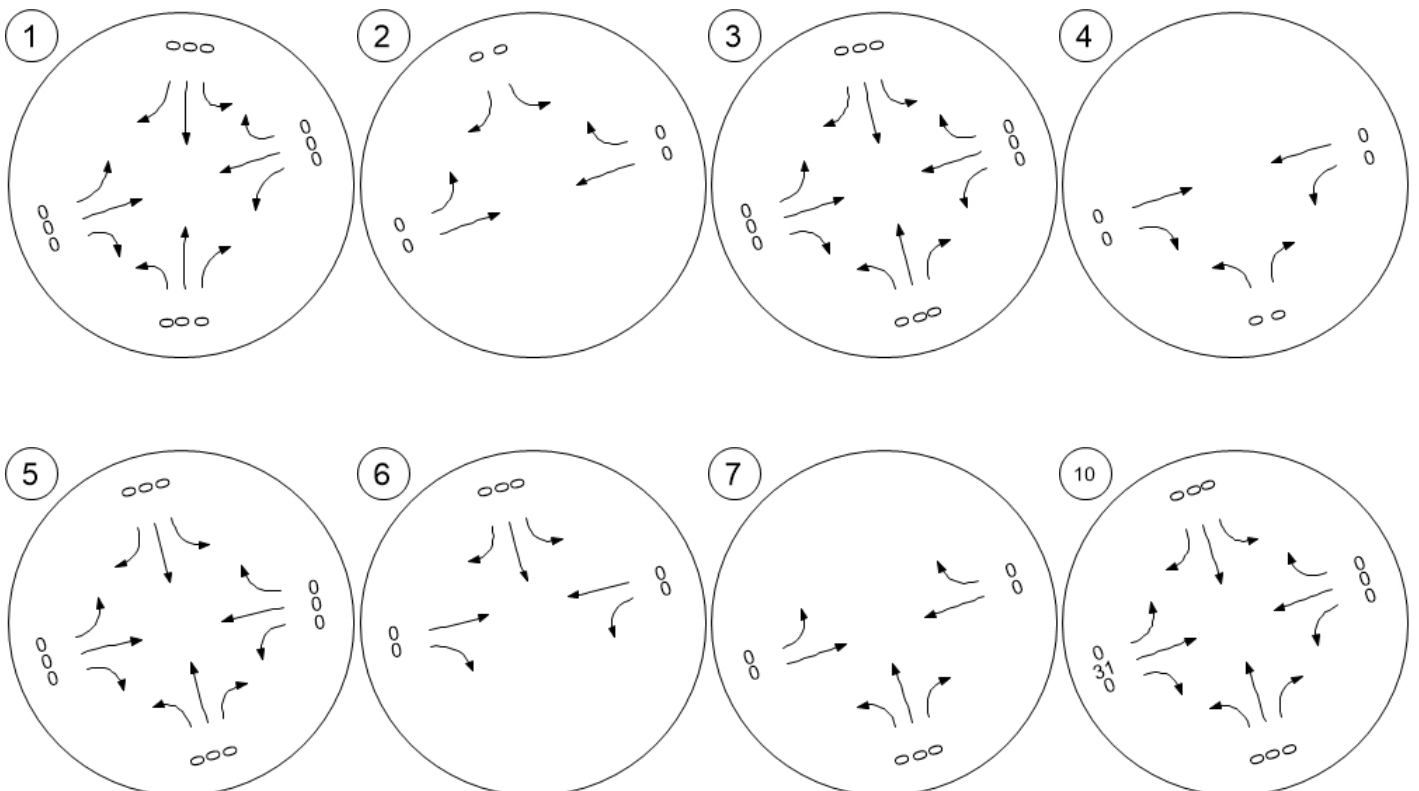


Fair Share - Fair Share Volumes - Zone 25

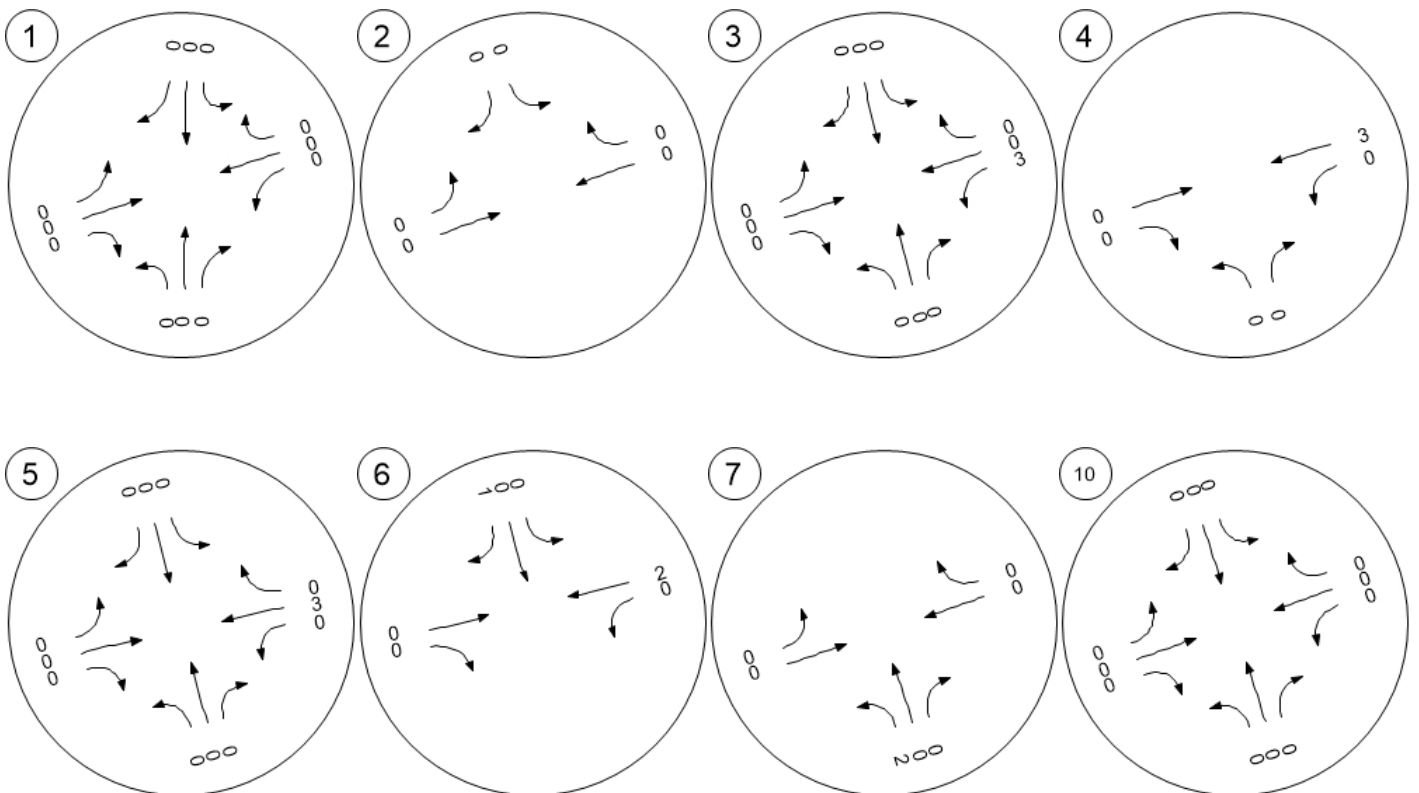




Fair Share - Fair Share Volumes - Zone 26

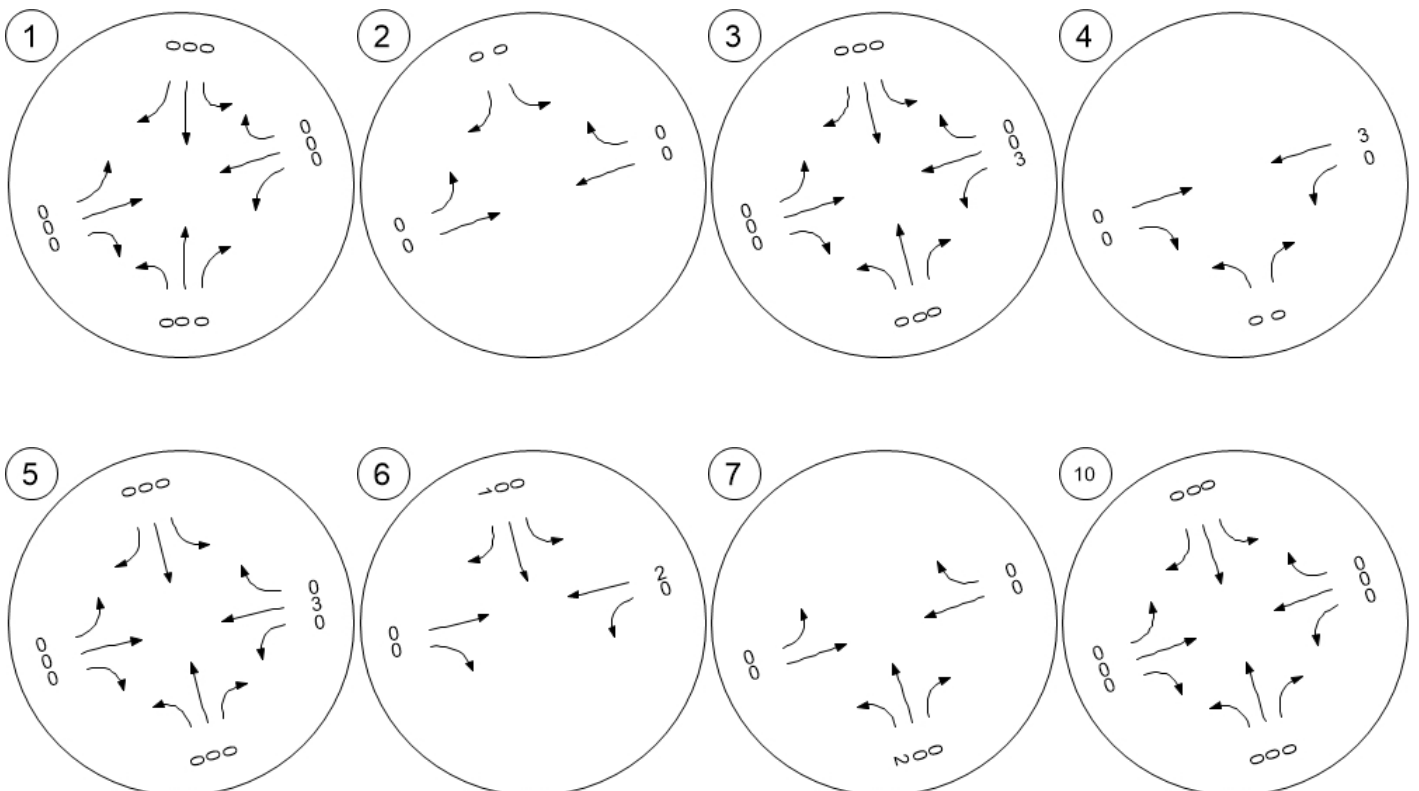


Fair Share - Fair Share Volumes - Zone 27

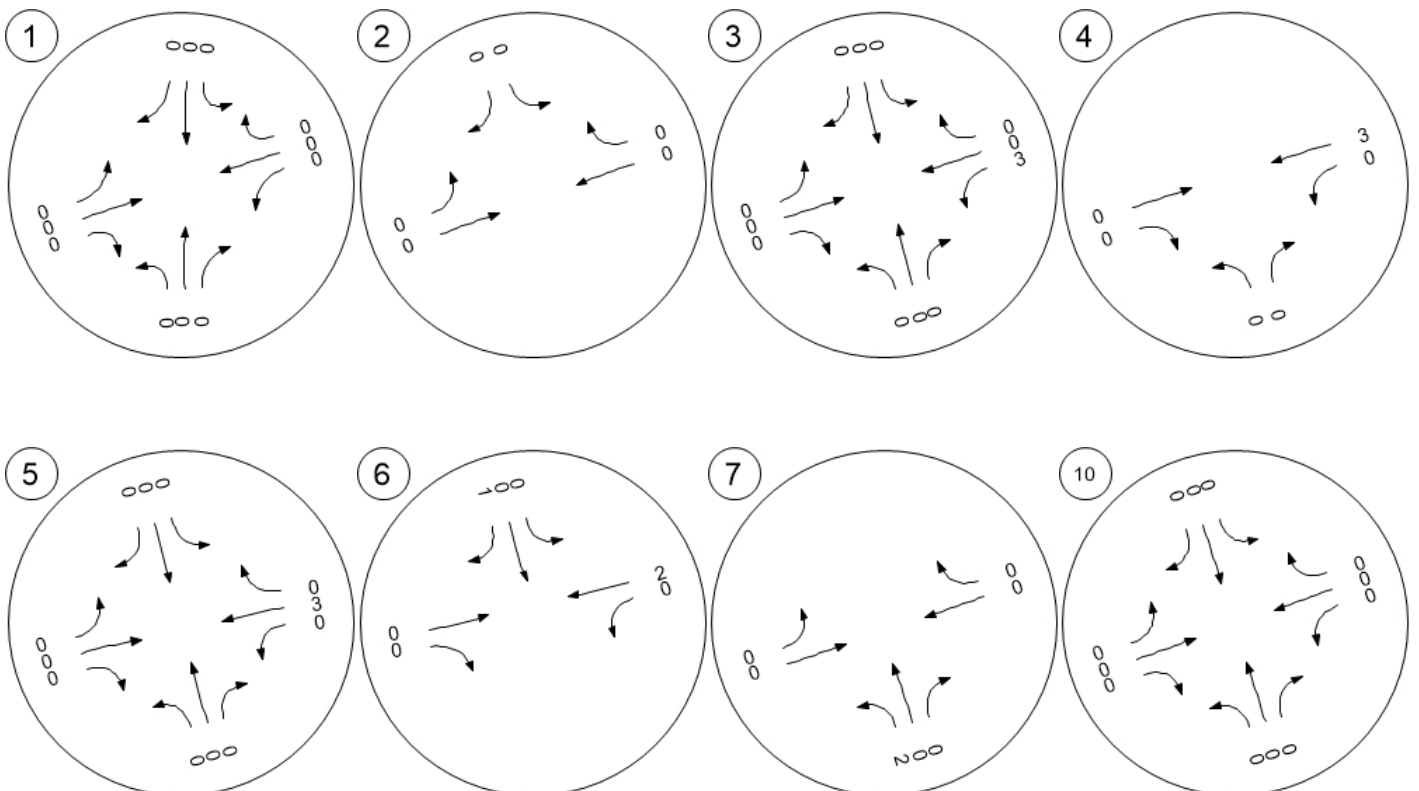




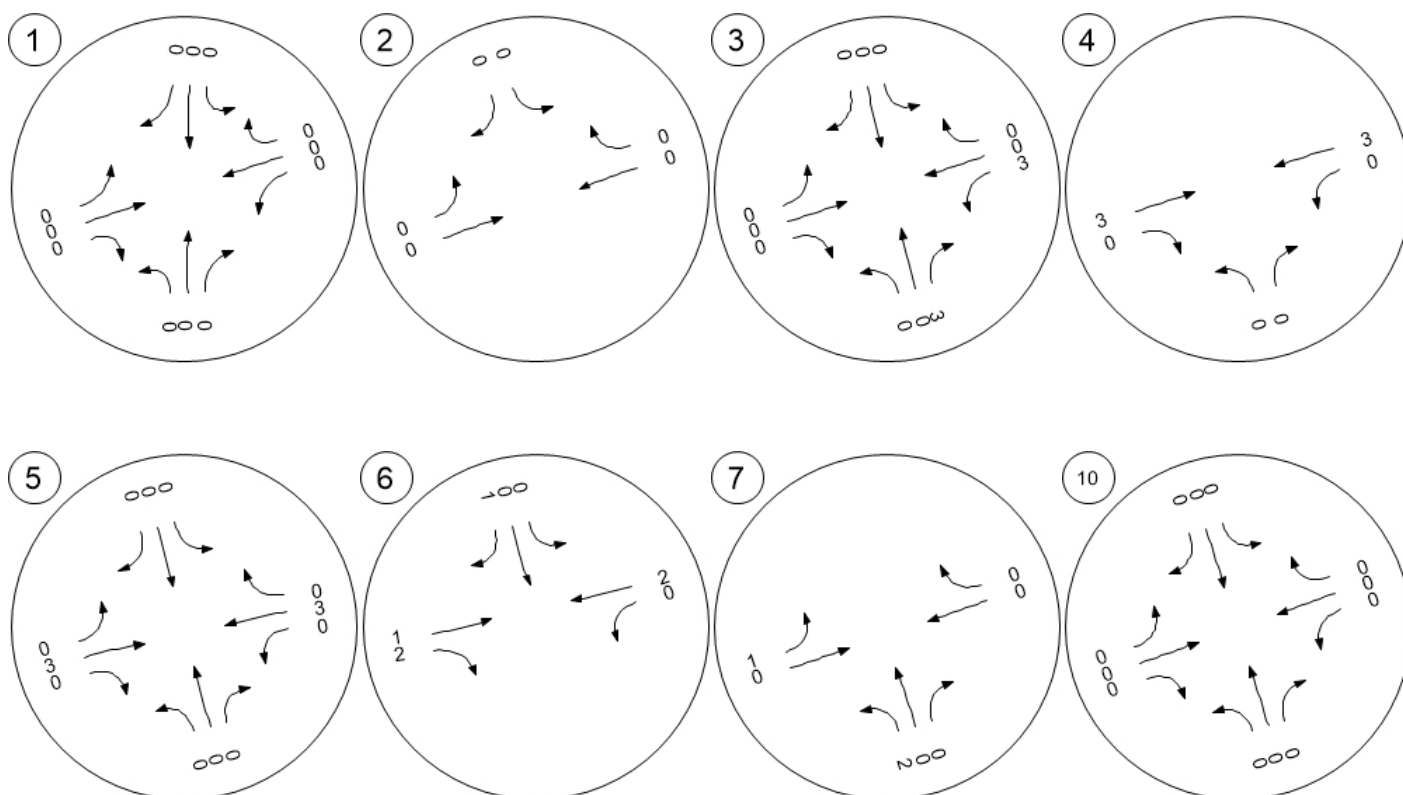
Fair Share - Fair Share Volumes - Zone 28



Fair Share - Fair Share Volumes - Zone 29

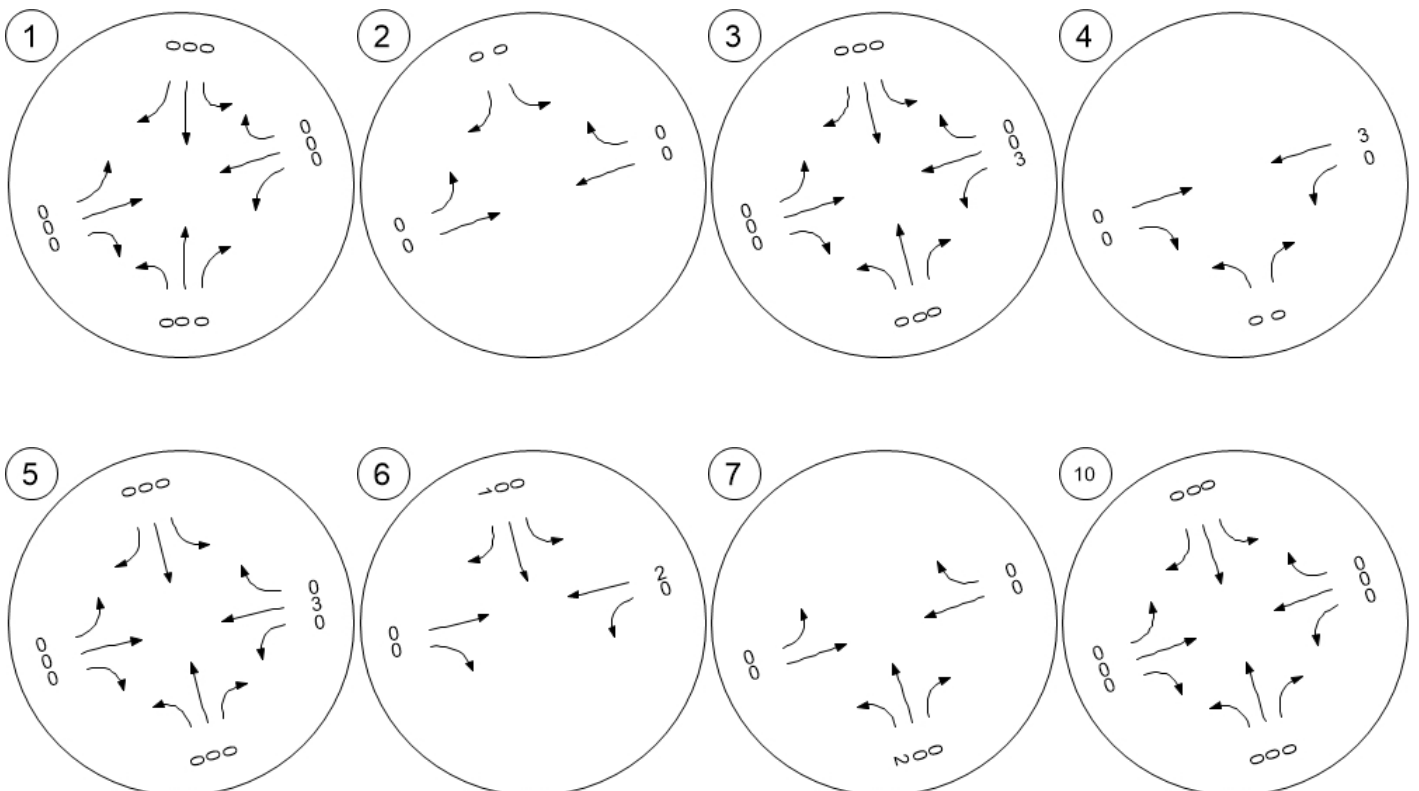


Fair Share - Fair Share Volumes - Zone 32

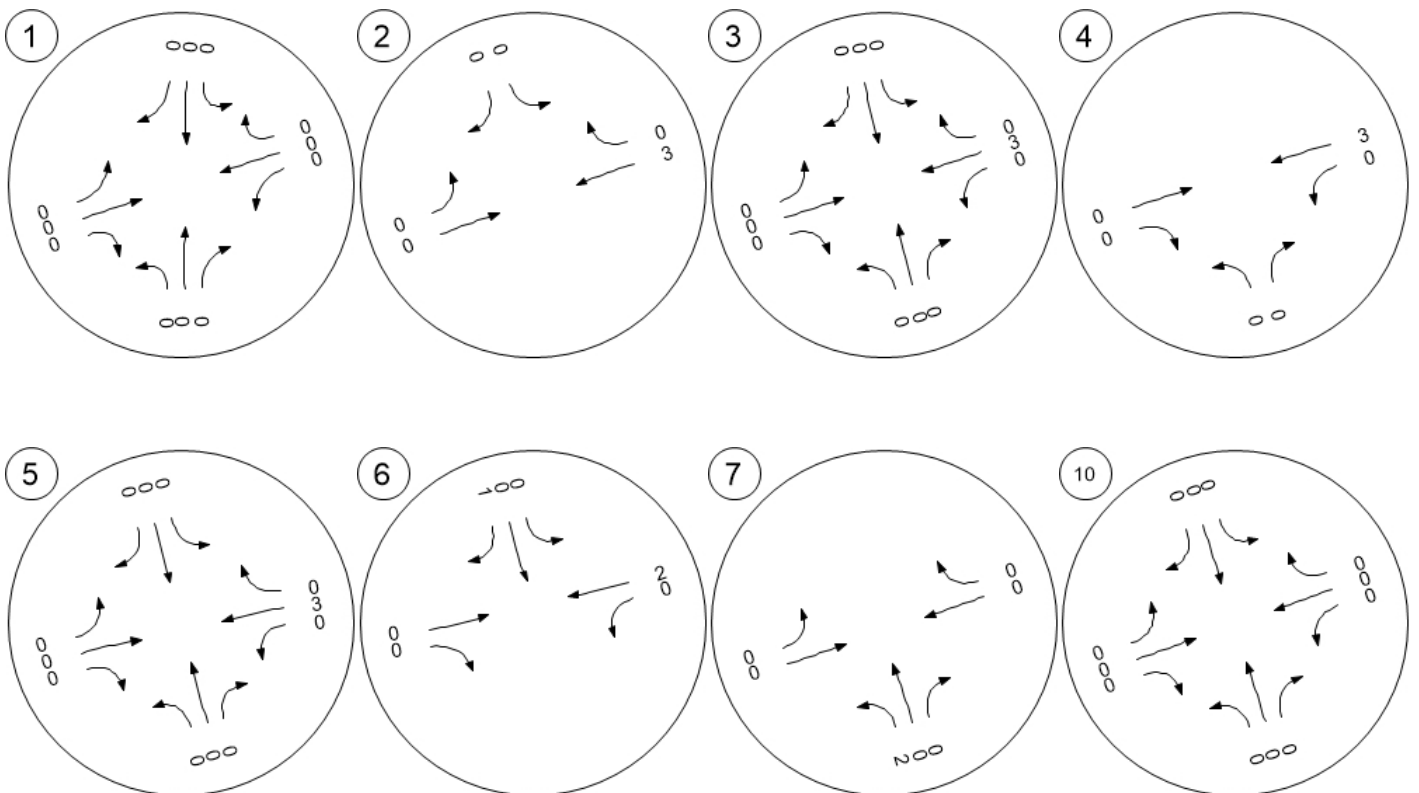




Fair Share - Fair Share Volumes - Zone 33

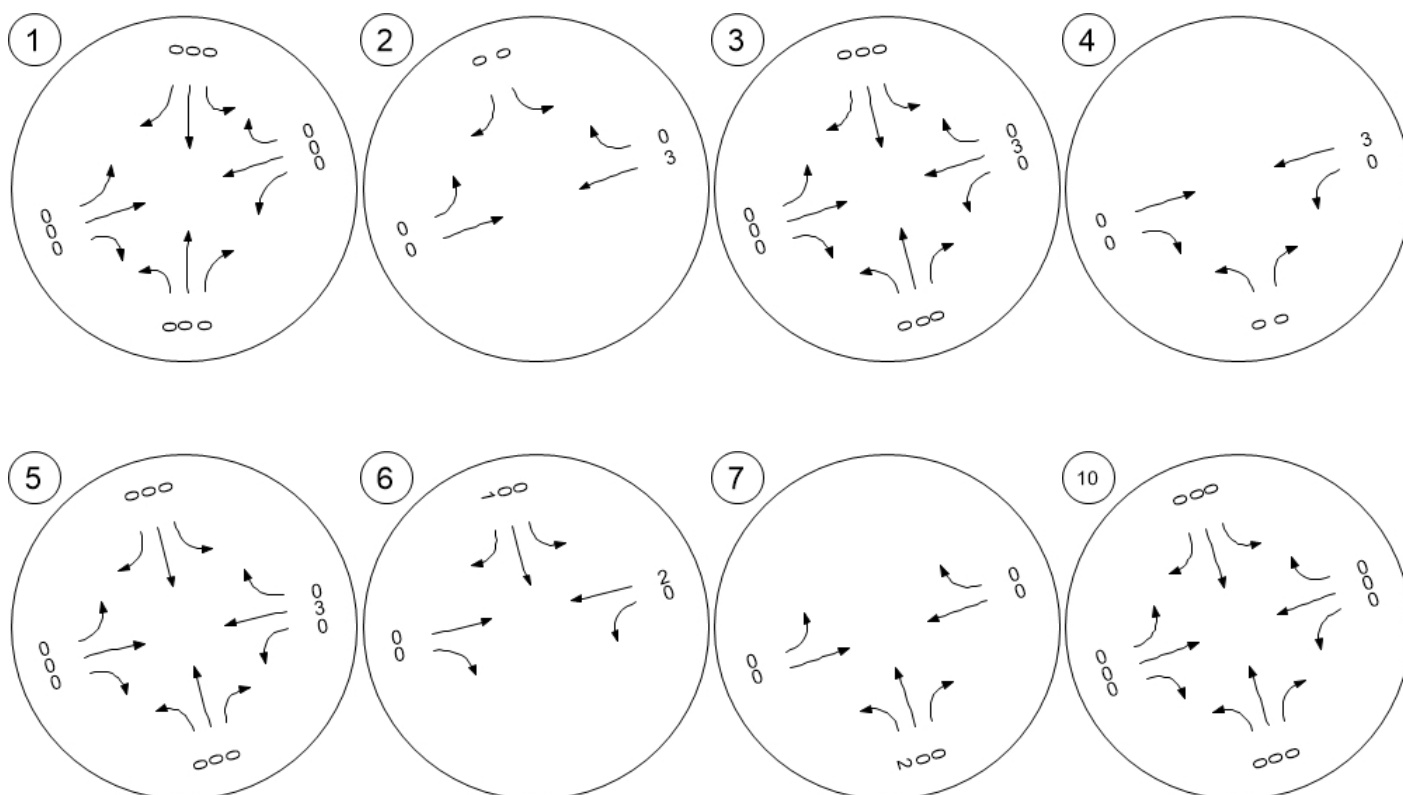


Fair Share - Fair Share Volumes - Zone 34

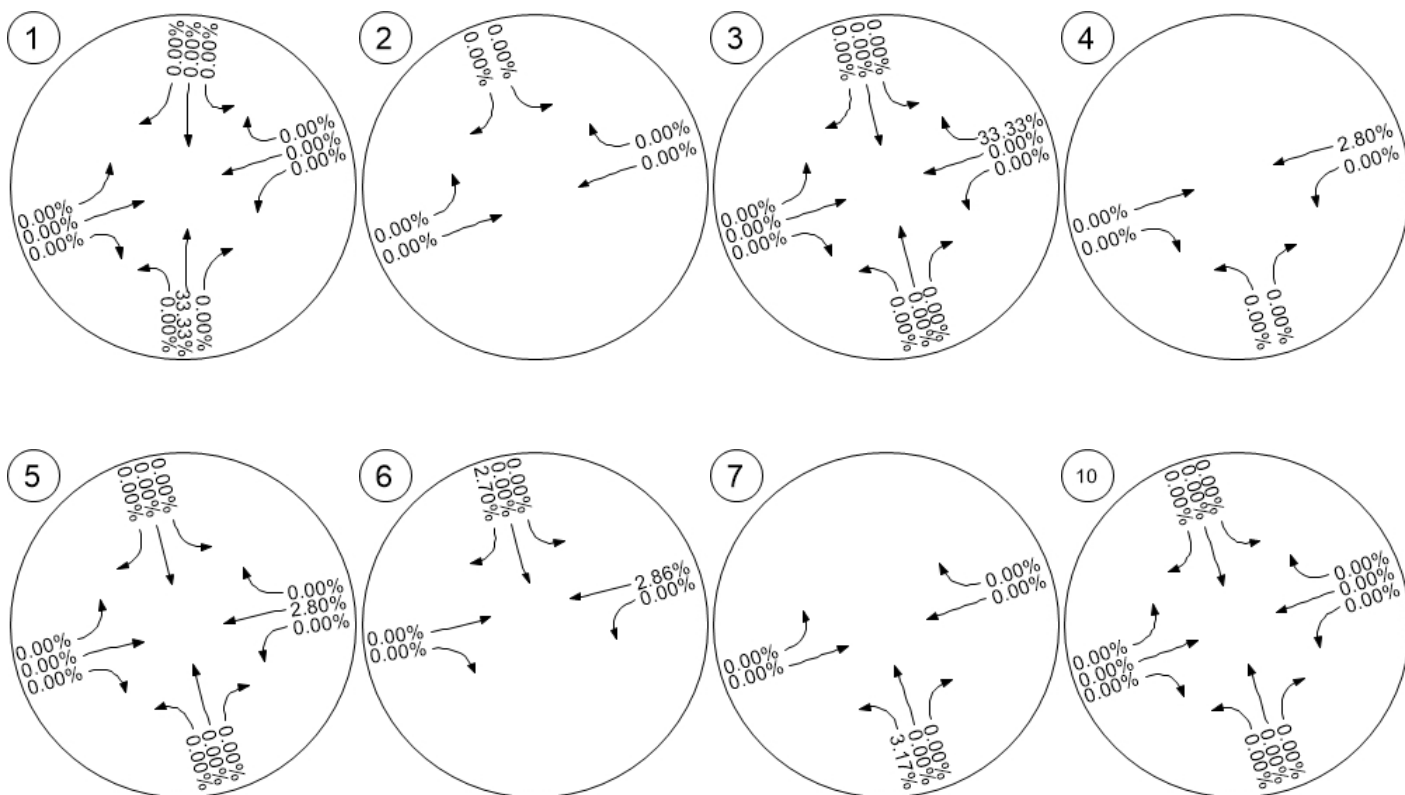




Fair Share - Fair Share Volumes - Zone 35

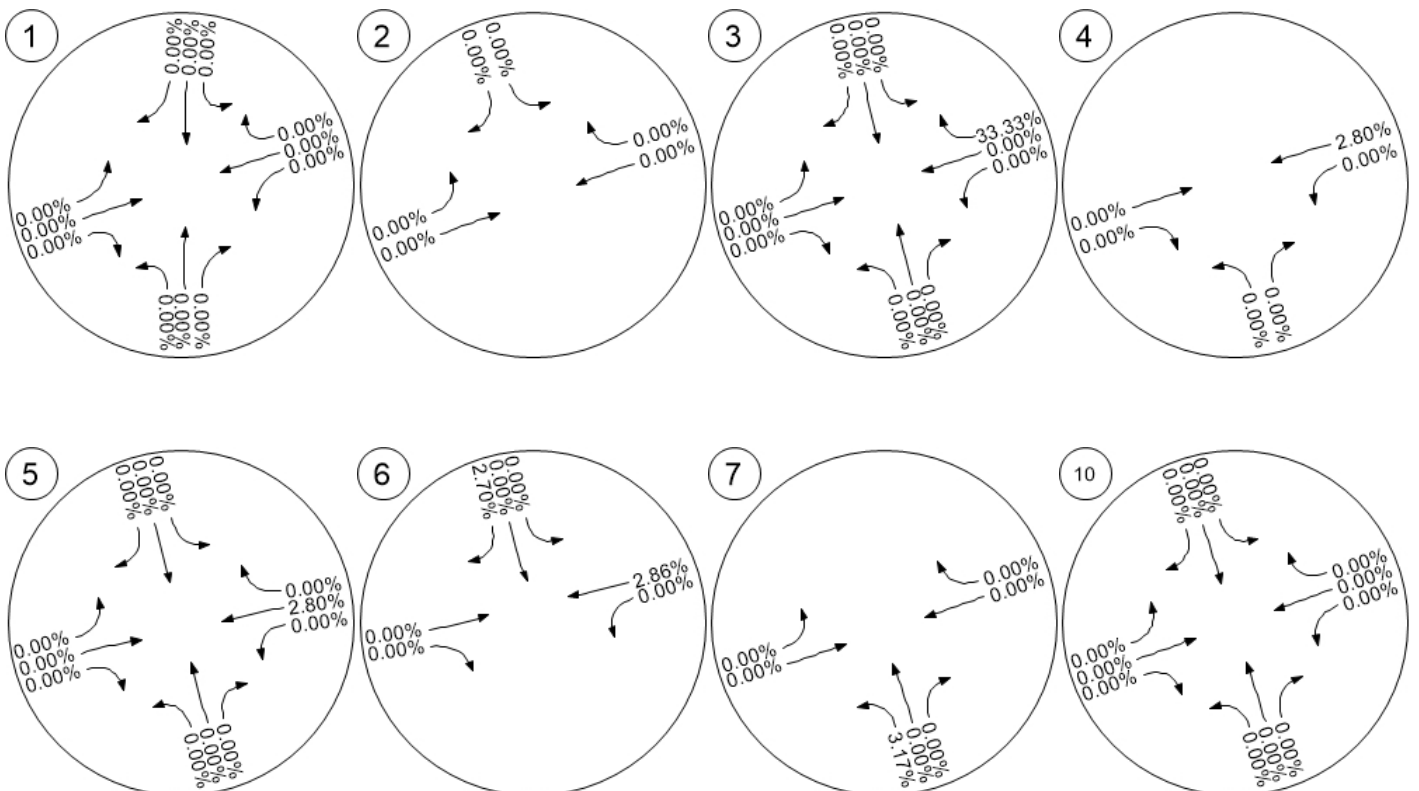


## Fair Share - Fair Share % of Net New Site - Zone 18

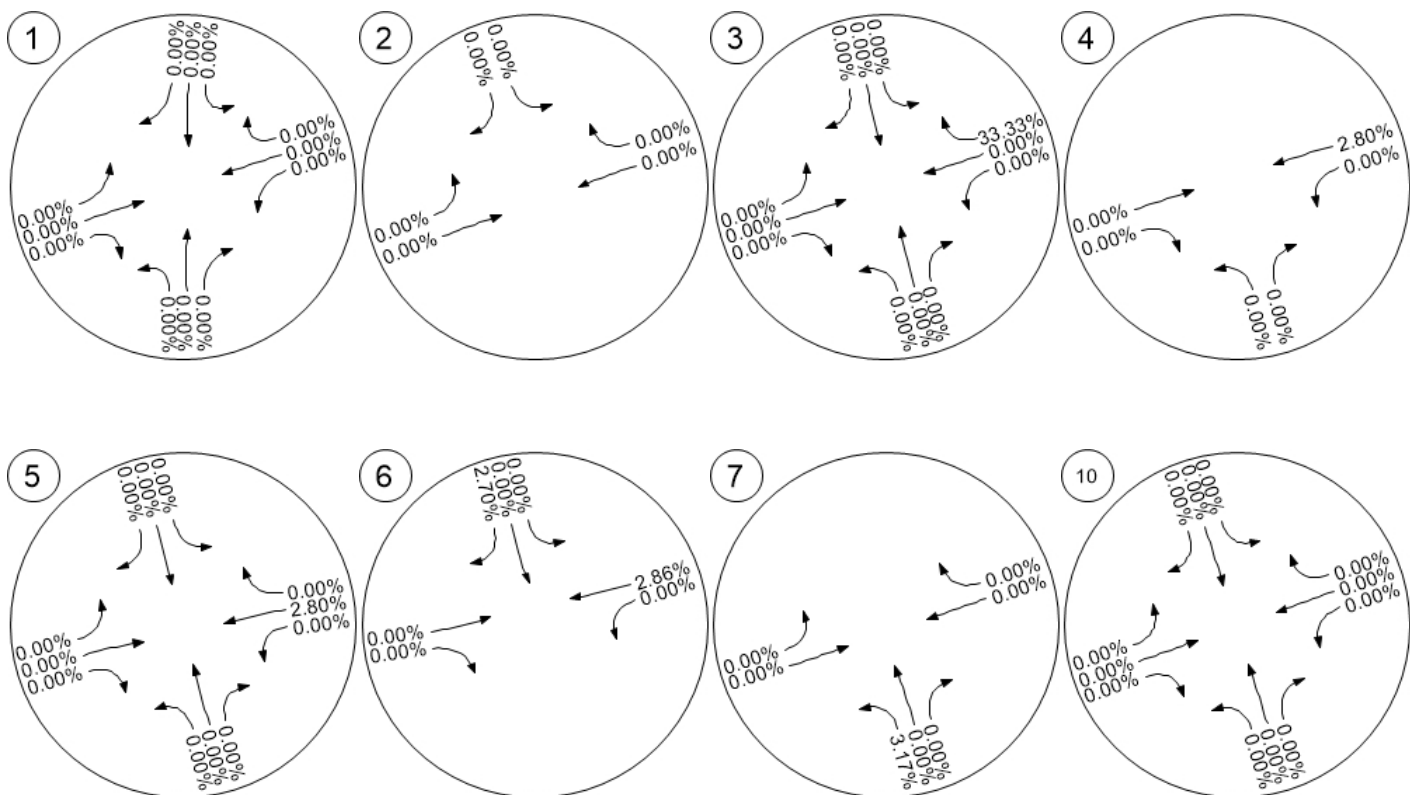




Fair Share - Fair Share % of Net New Site - Zone 19

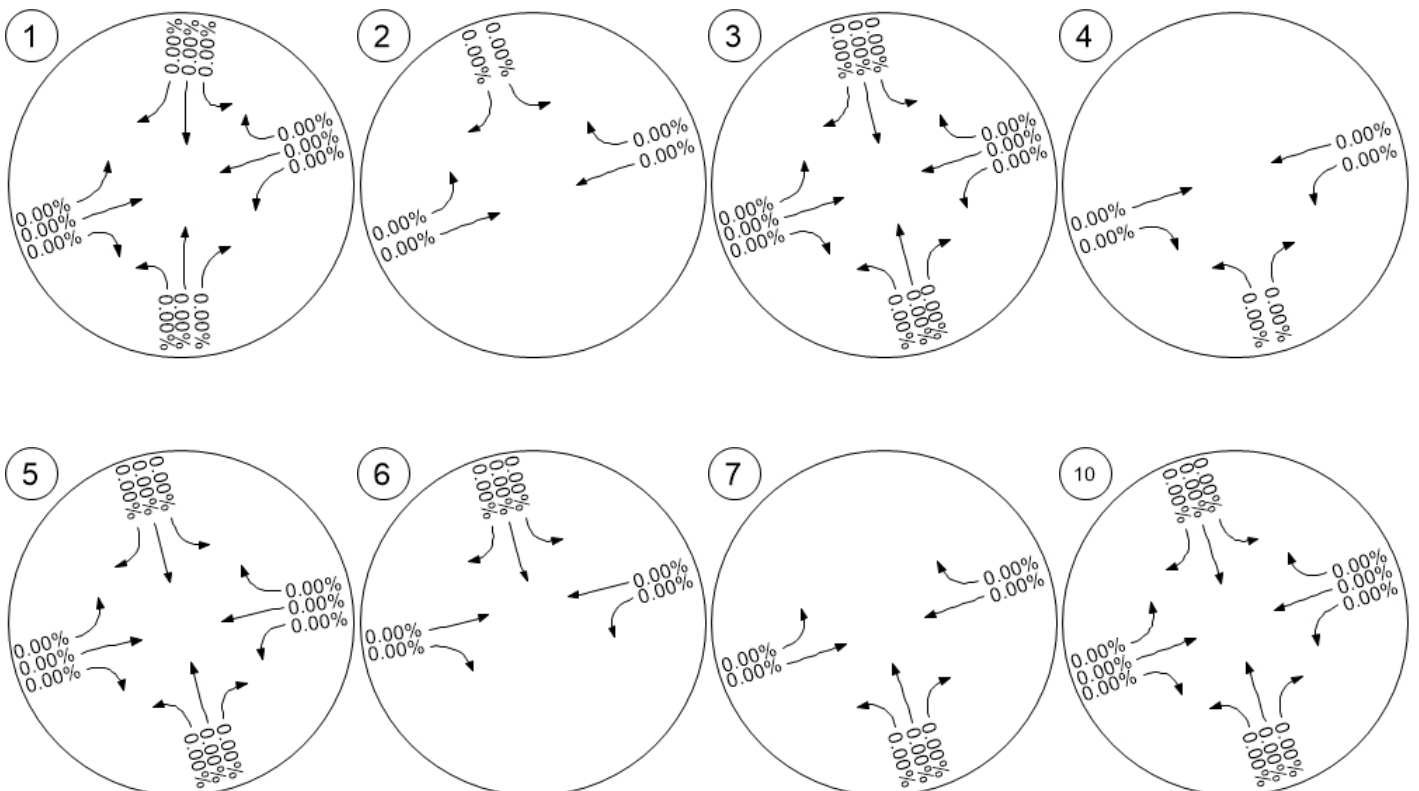


## Fair Share - Fair Share % of Net New Site - Zone 20



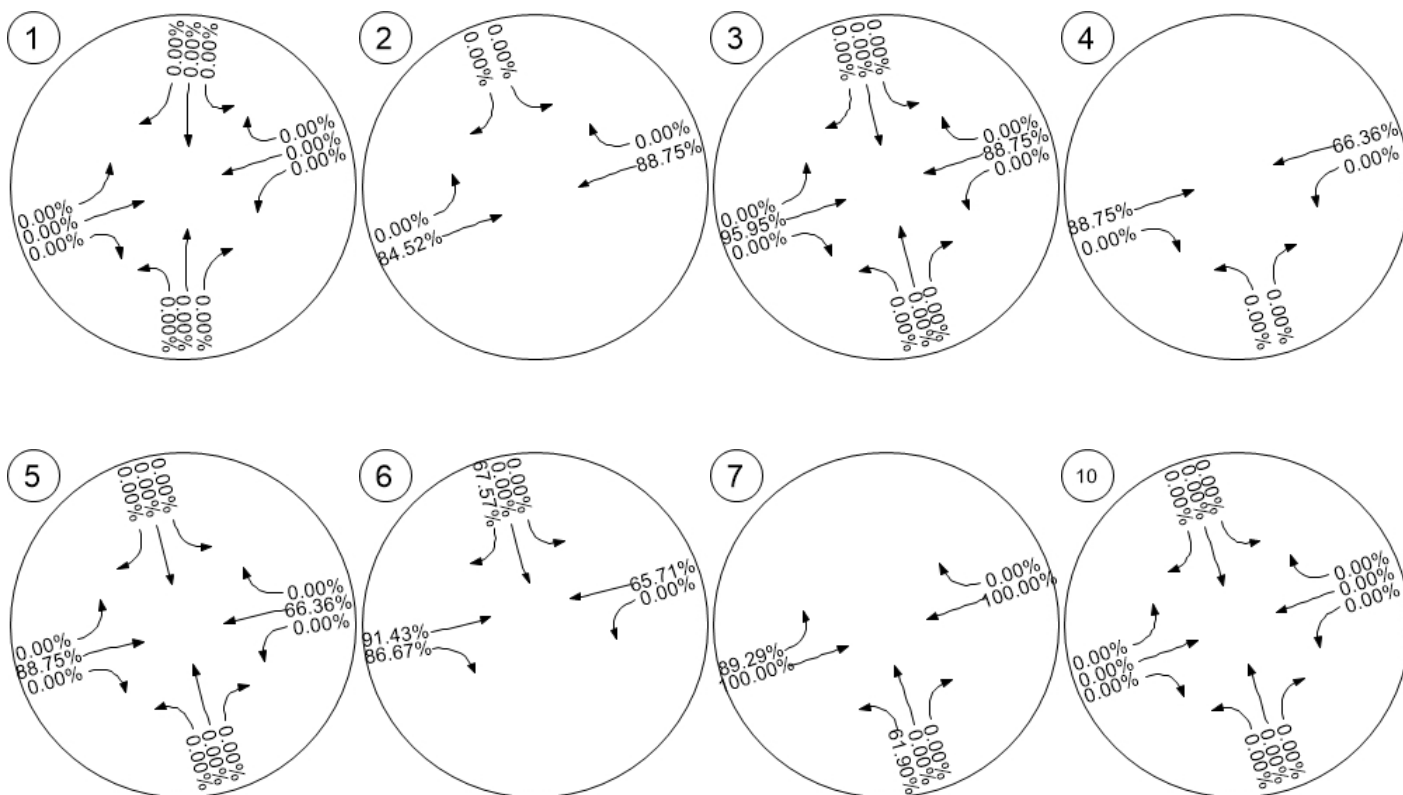


Fair Share - Fair Share % of Net New Site - Zone 21

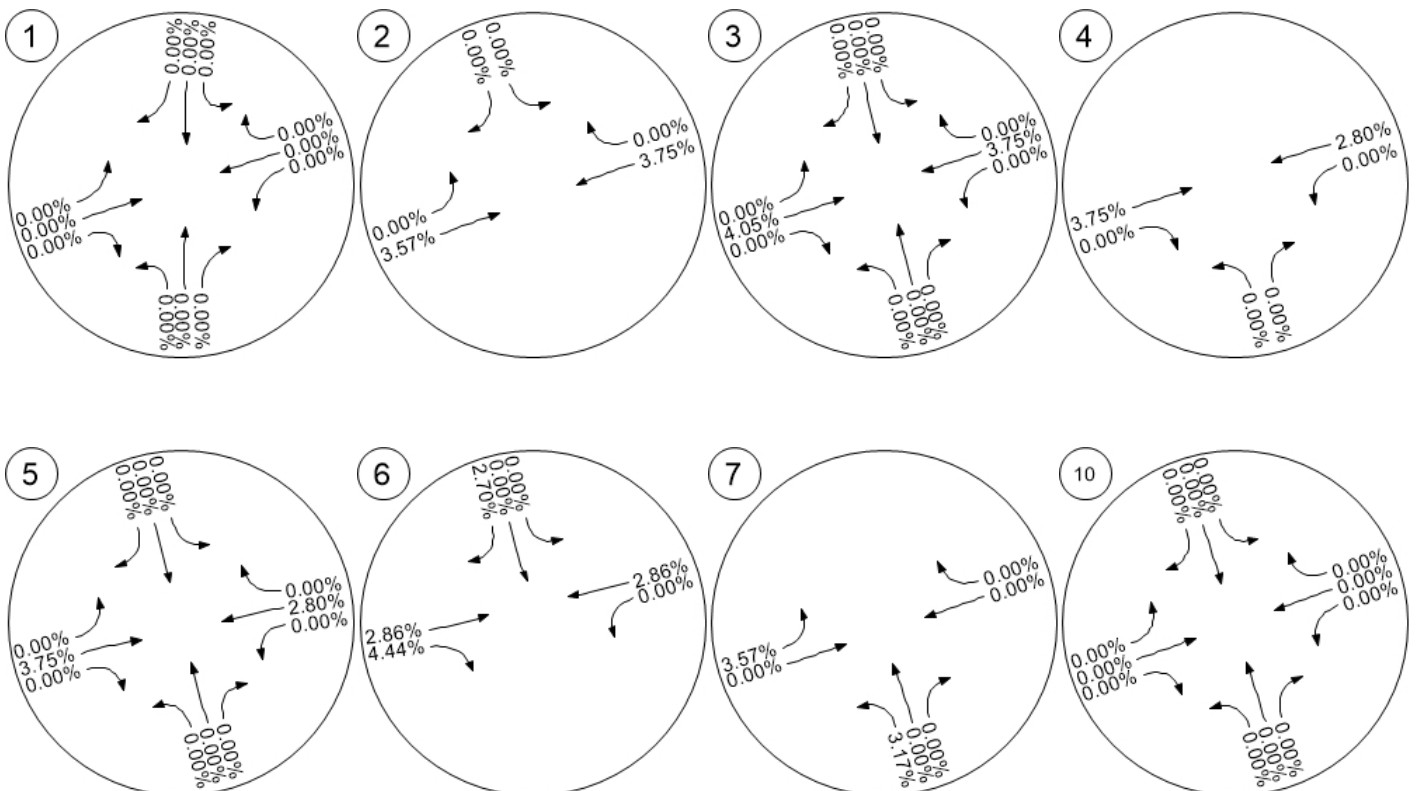




## Fair Share - Fair Share % of Net New Site - Zone 22

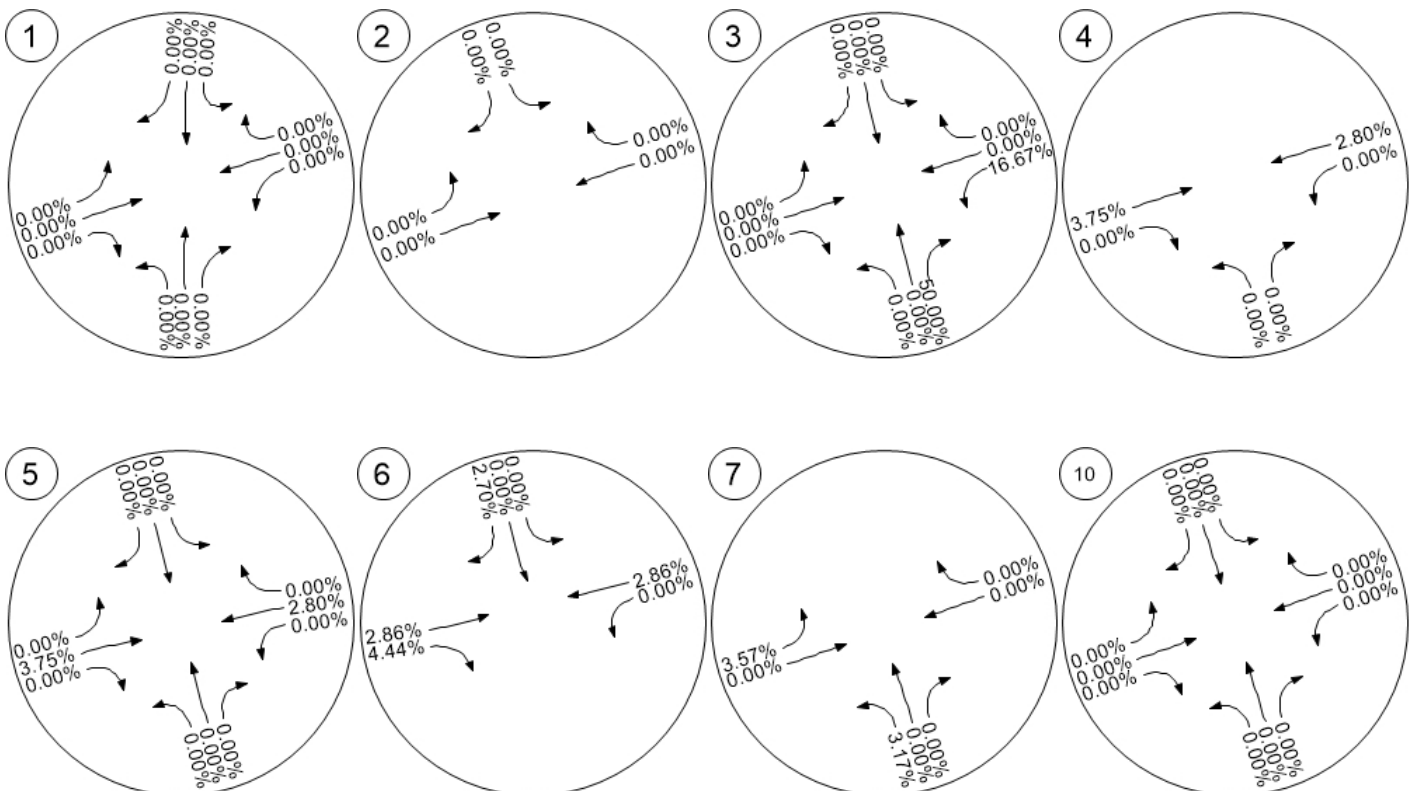


Fair Share - Fair Share % of Net New Site - Zone 23

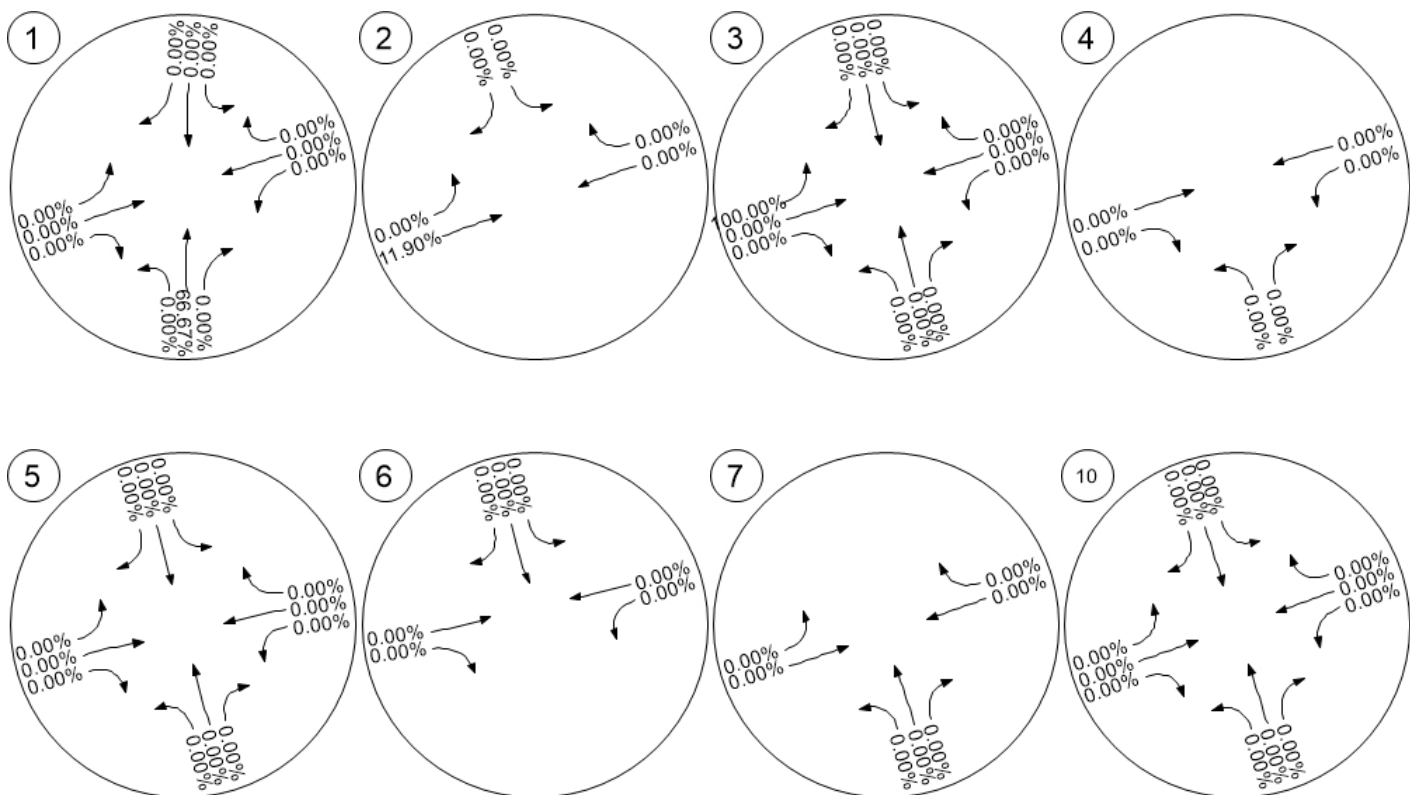




Fair Share - Fair Share % of Net New Site - Zone 24

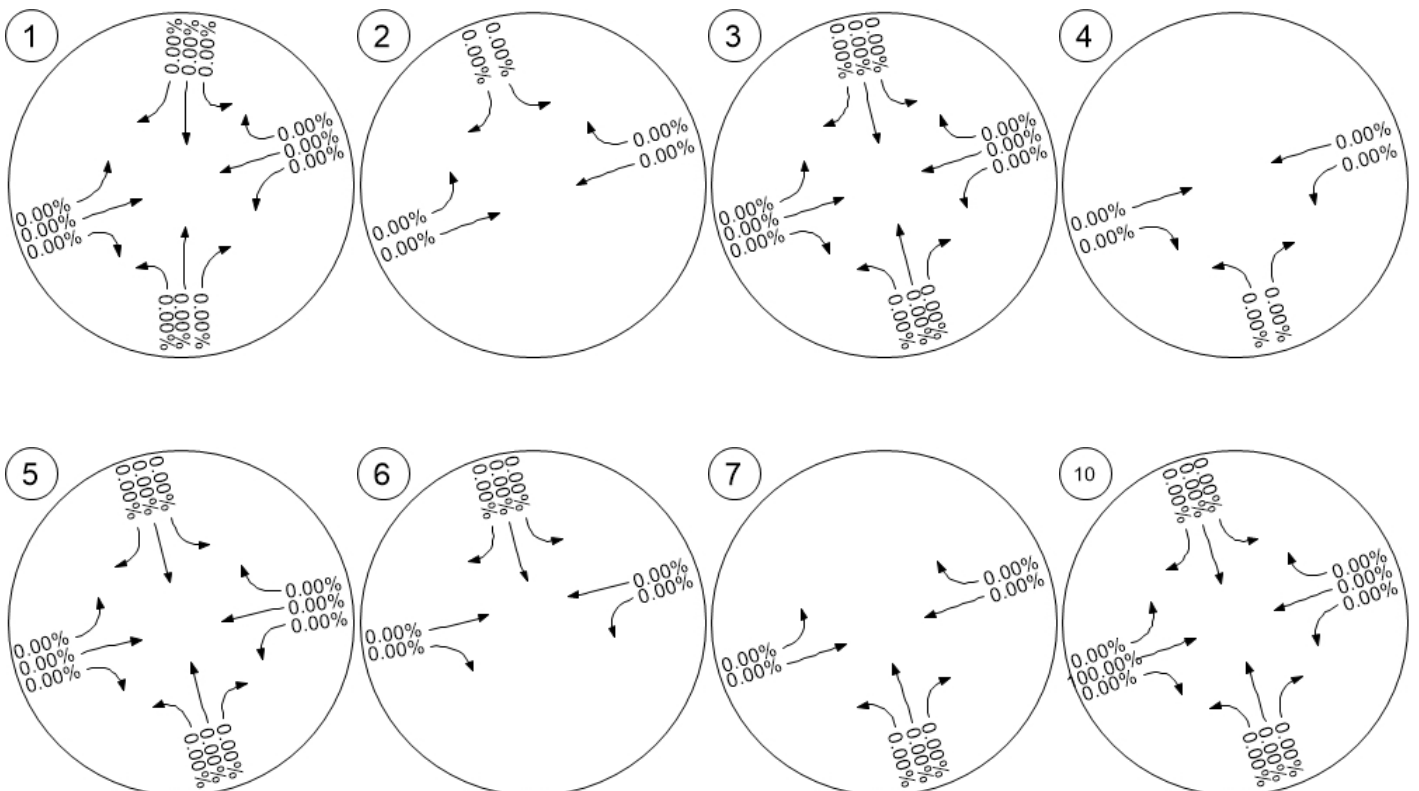


## Fair Share - Fair Share % of Net New Site - Zone 25



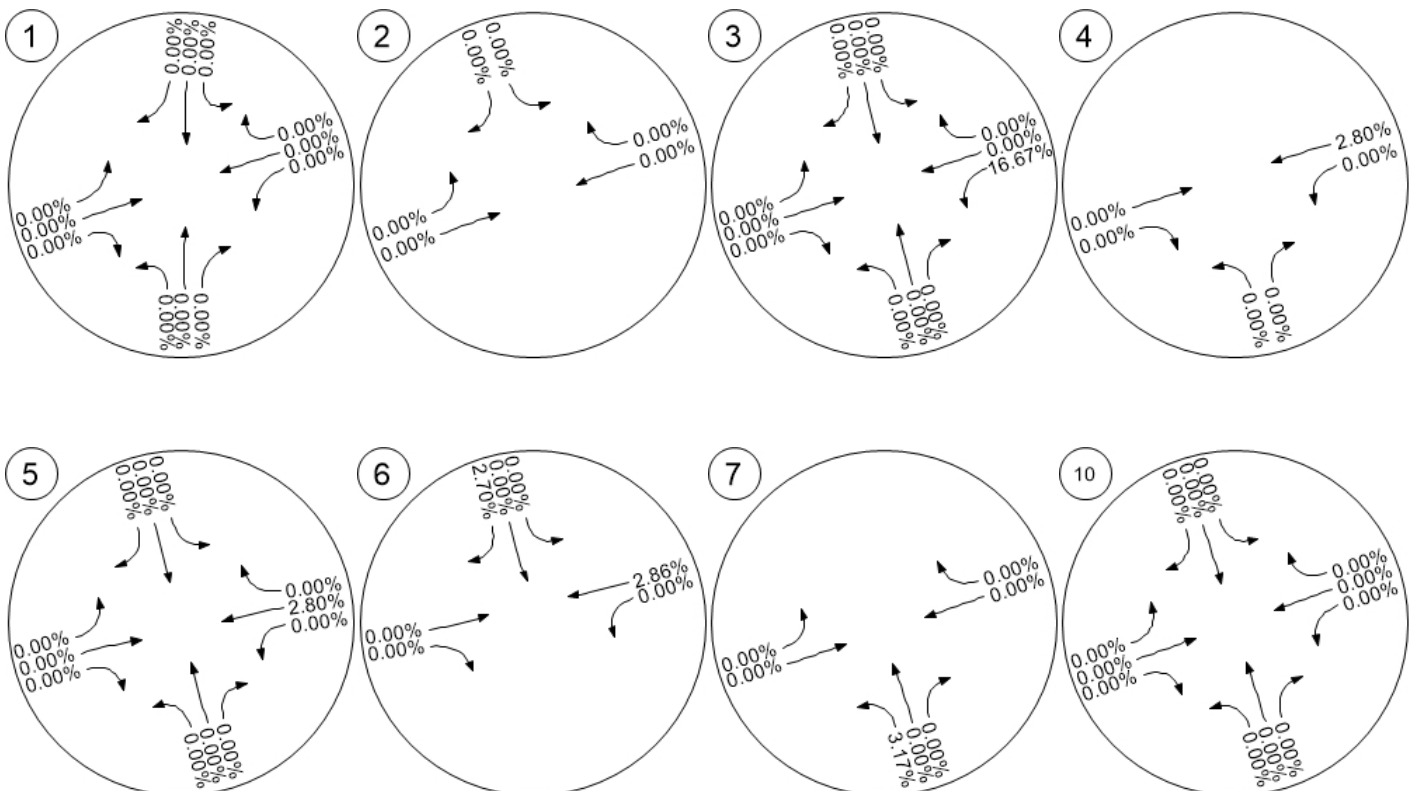


Fair Share - Fair Share % of Net New Site - Zone 26

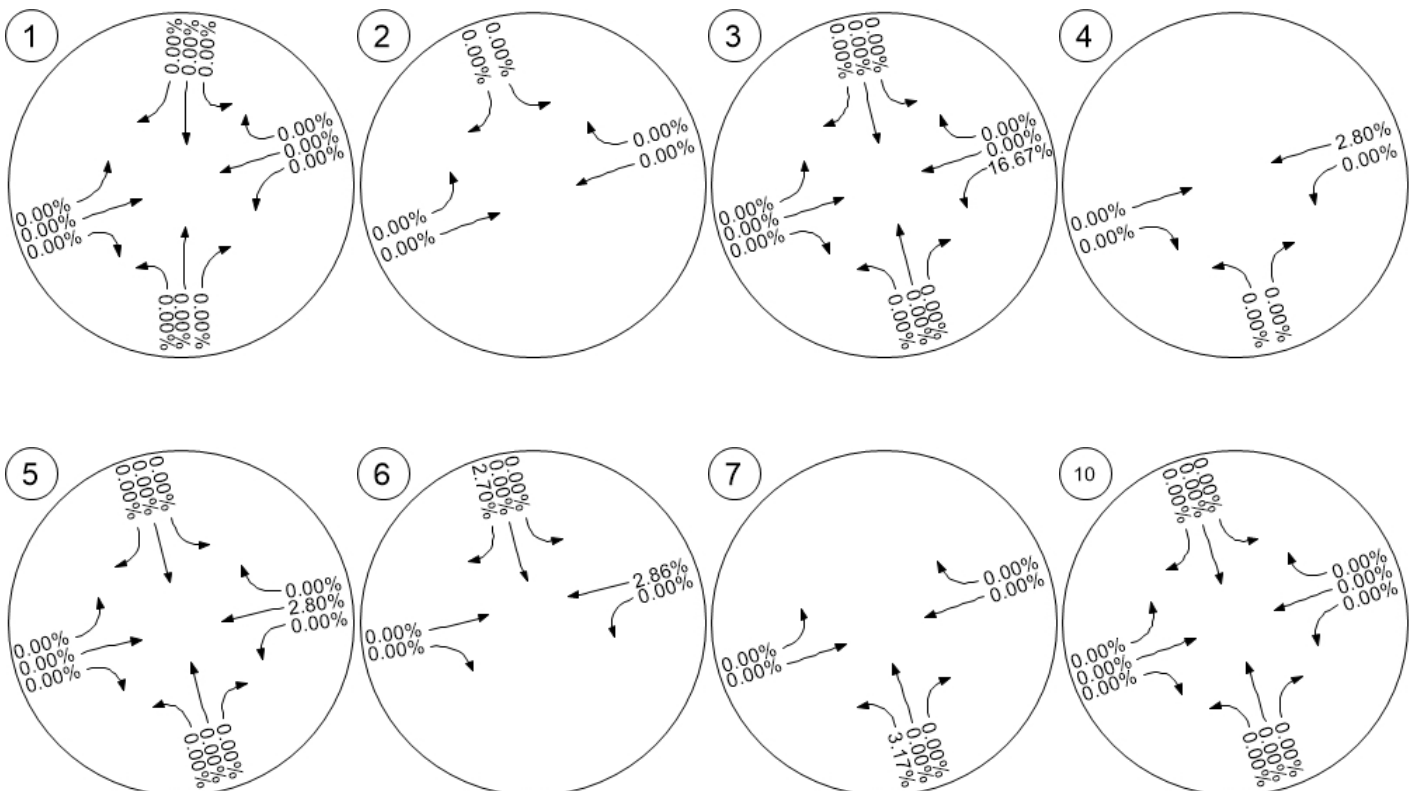




Fair Share - Fair Share % of Net New Site - Zone 27

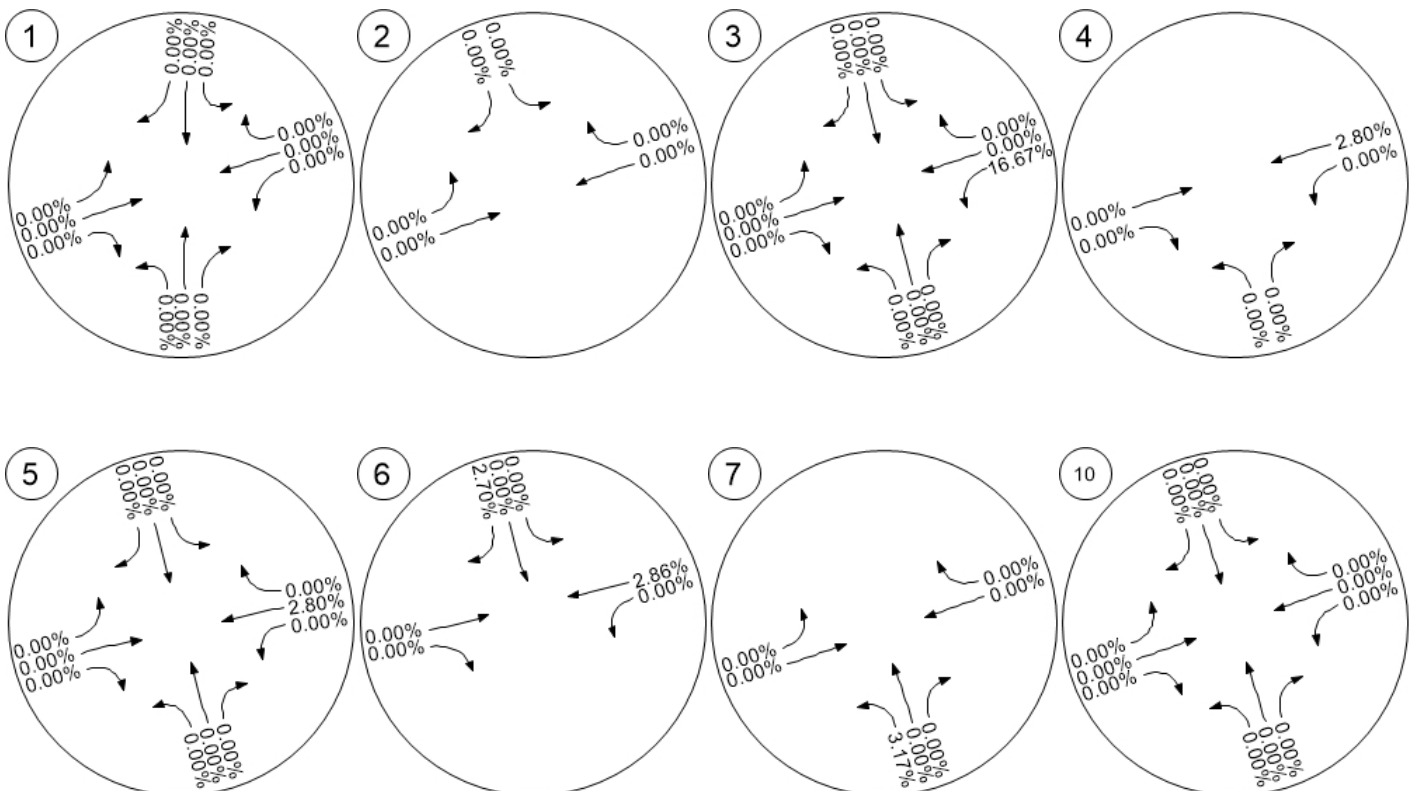


Fair Share - Fair Share % of Net New Site - Zone 28

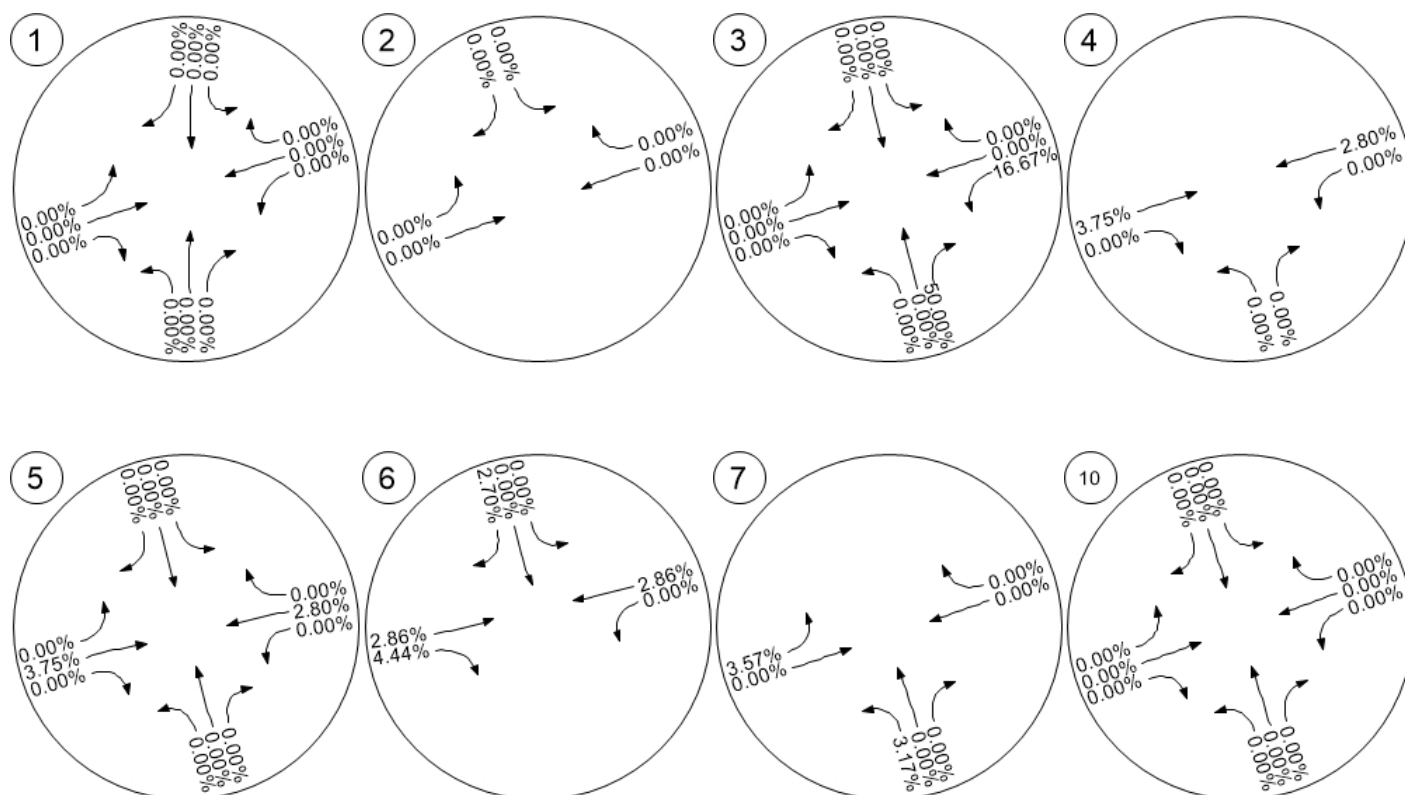




Fair Share - Fair Share % of Net New Site - Zone 29

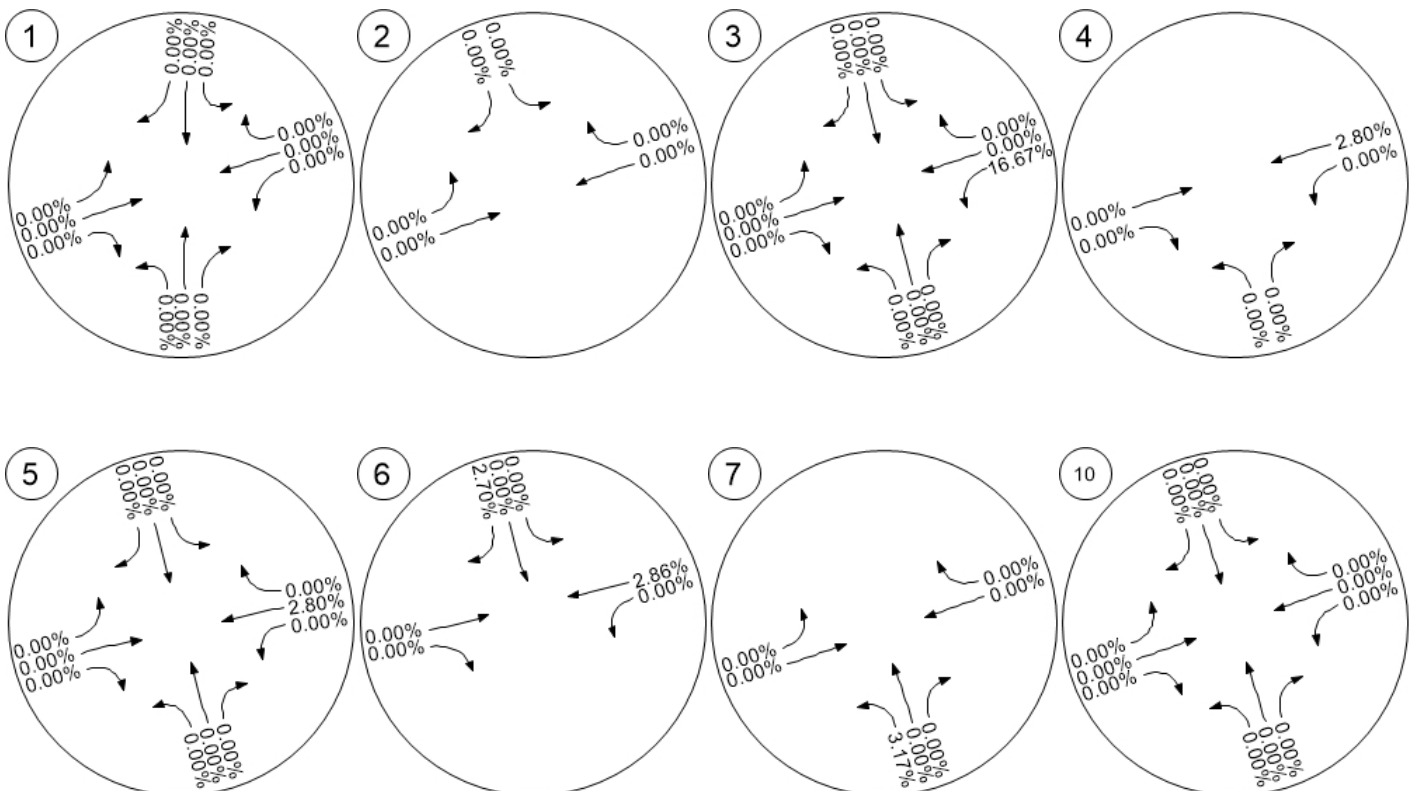


## Fair Share - Fair Share % of Net New Site - Zone 32



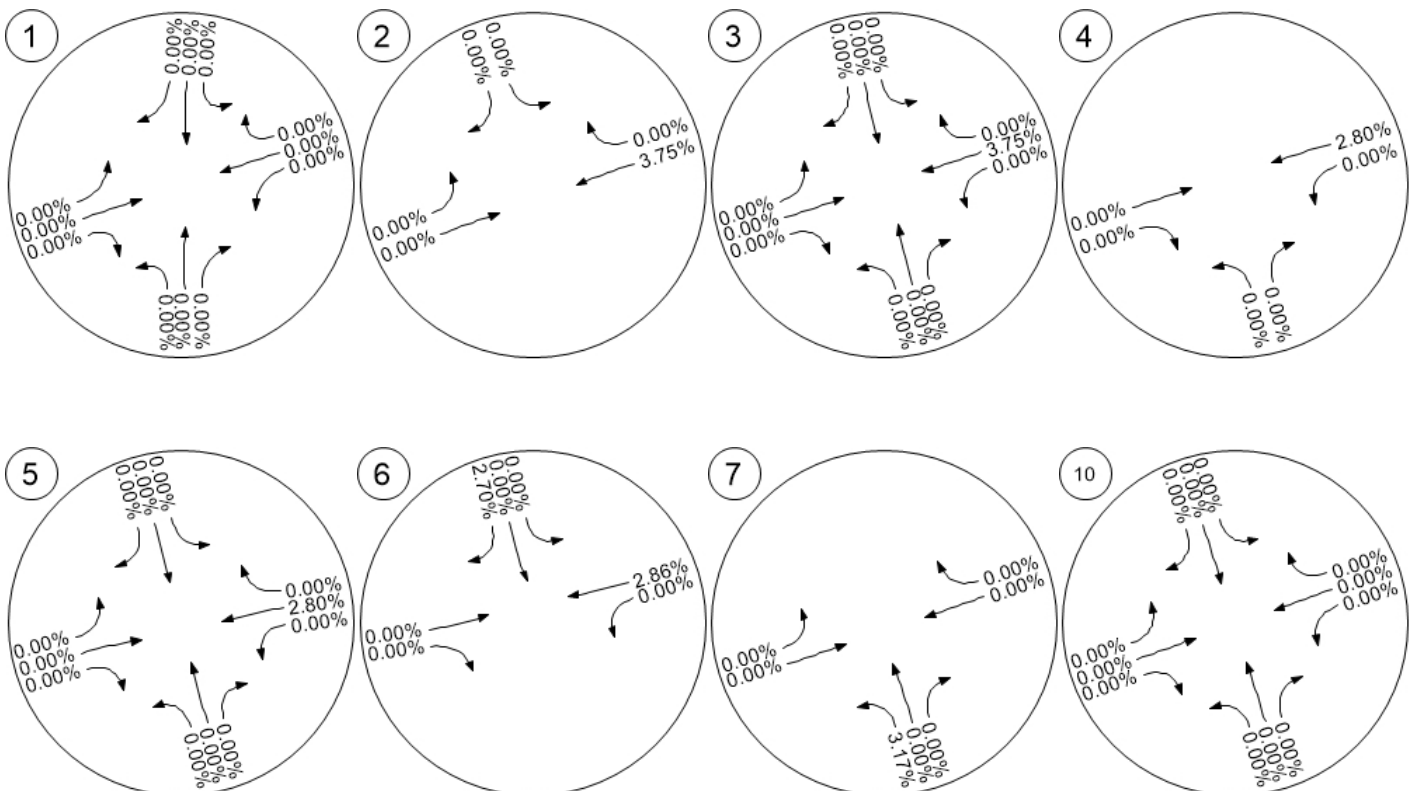


Fair Share - Fair Share % of Net New Site - Zone 33

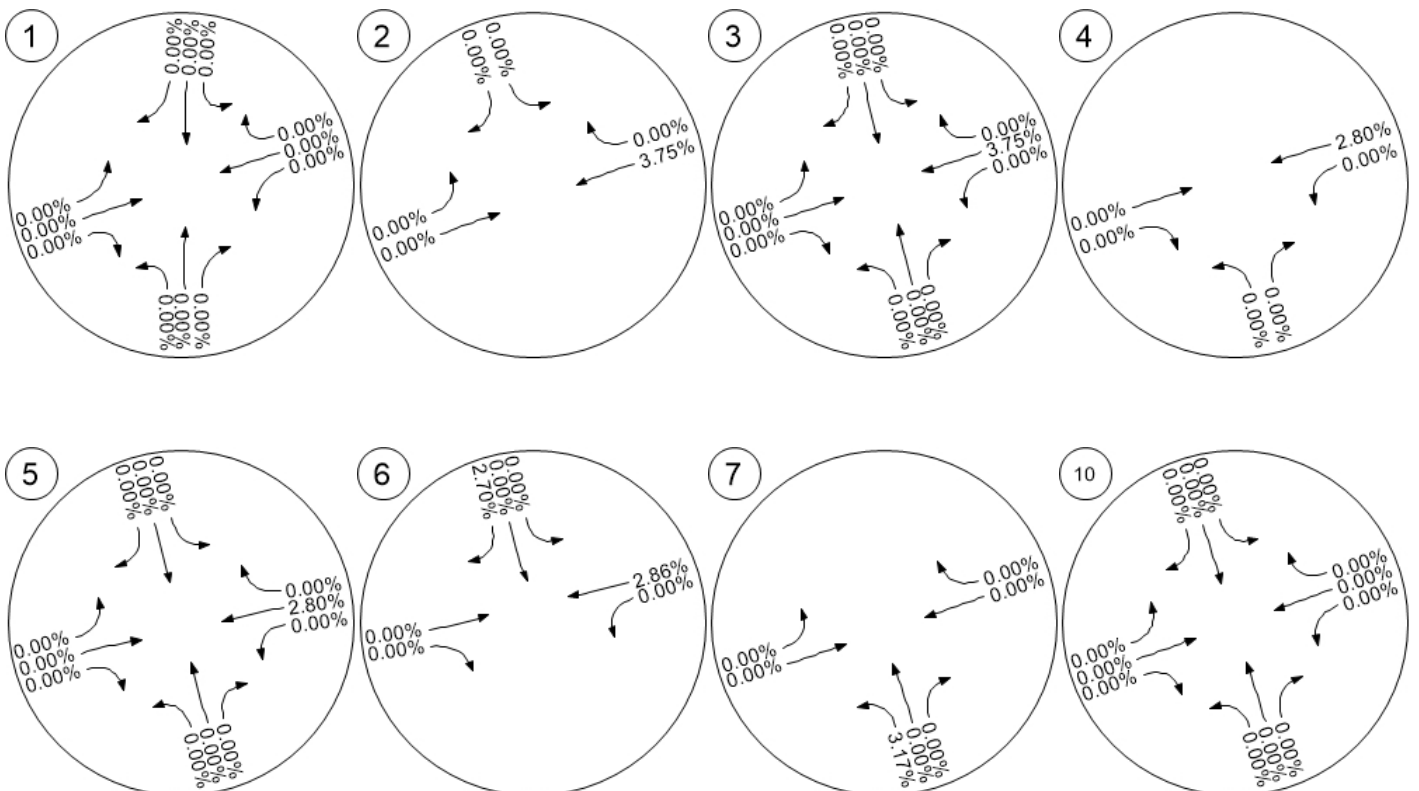




Fair Share - Fair Share % of Net New Site - Zone 34

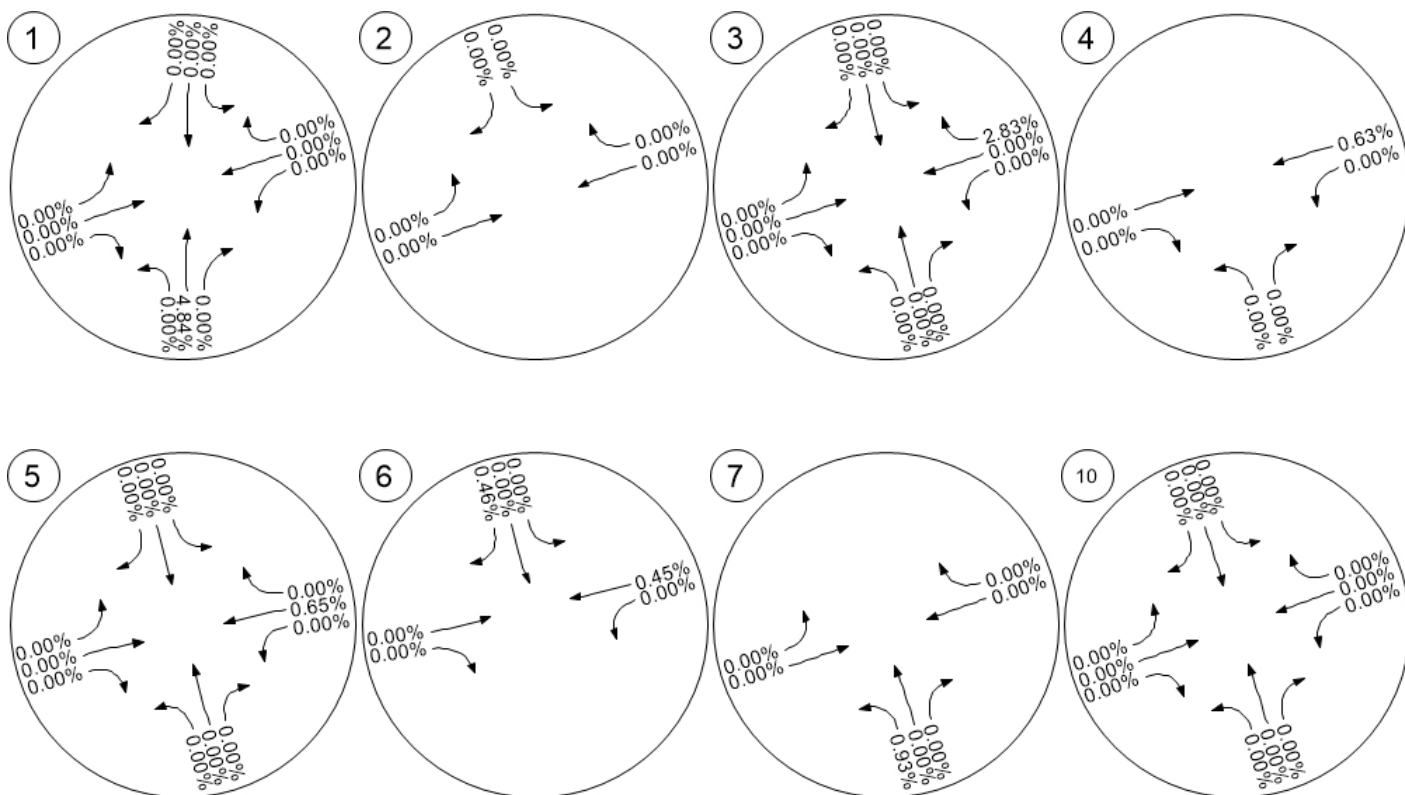


Fair Share - Fair Share % of Net New Site - Zone 35

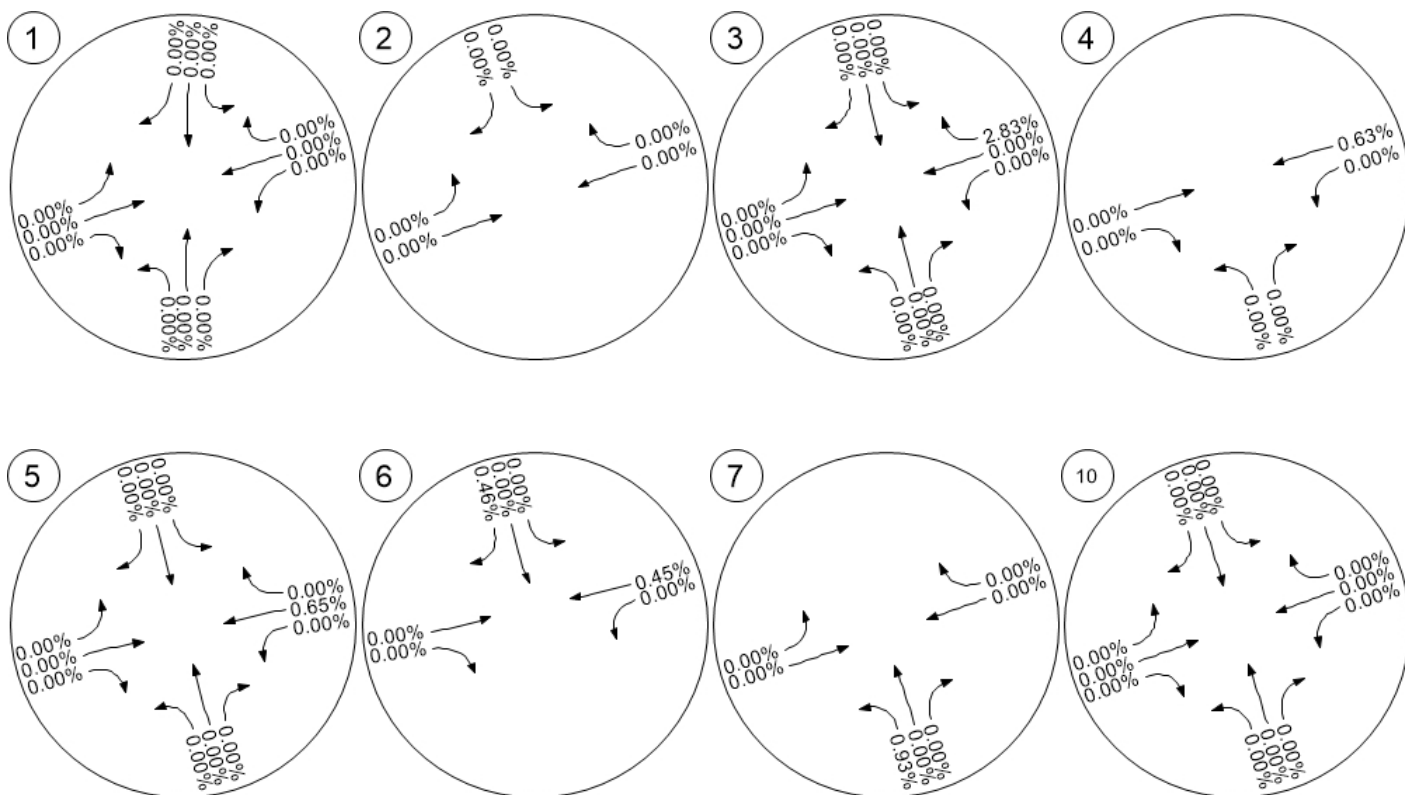




## Fair Share - Fair Share % of Total Analysis - Zone 18

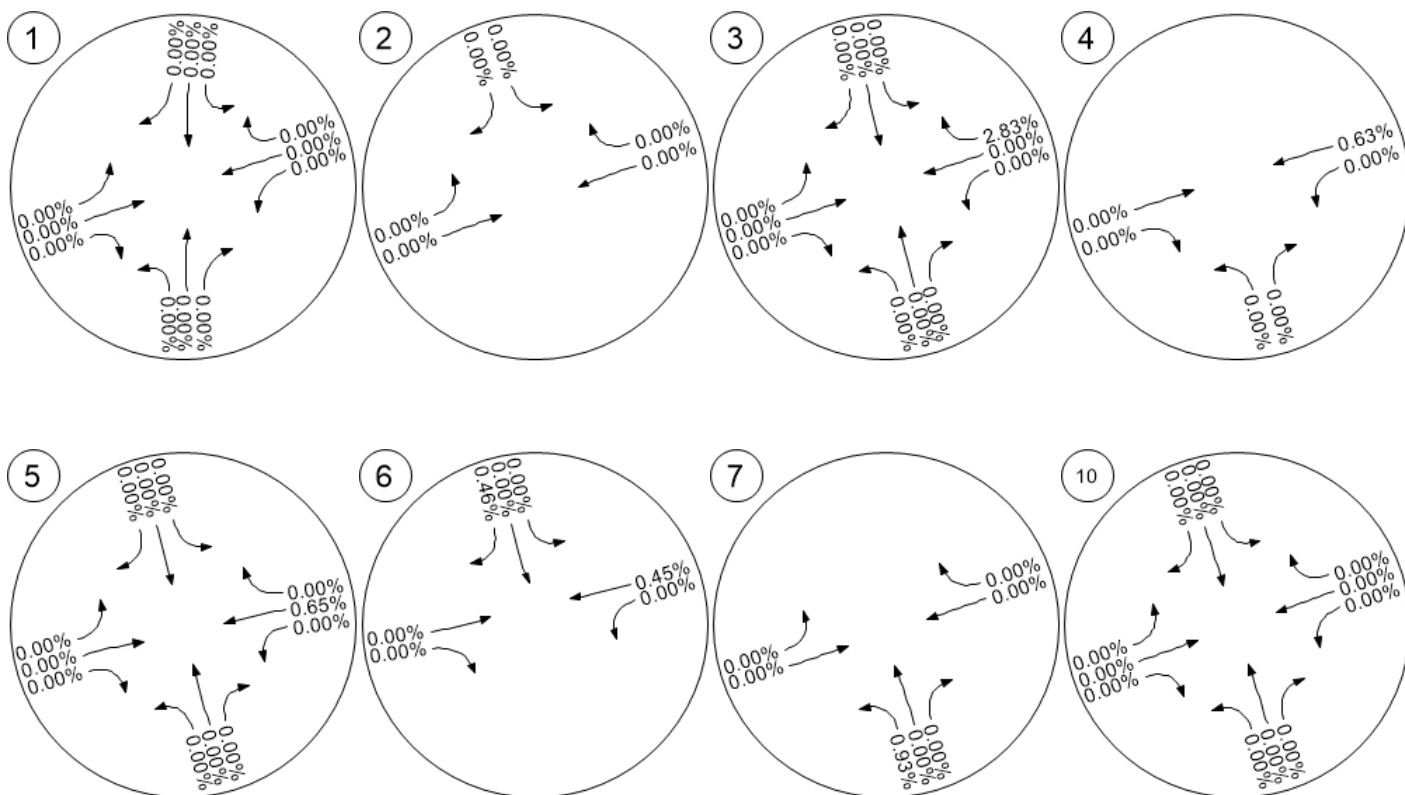


## Fair Share - Fair Share % of Total Analysis - Zone 19



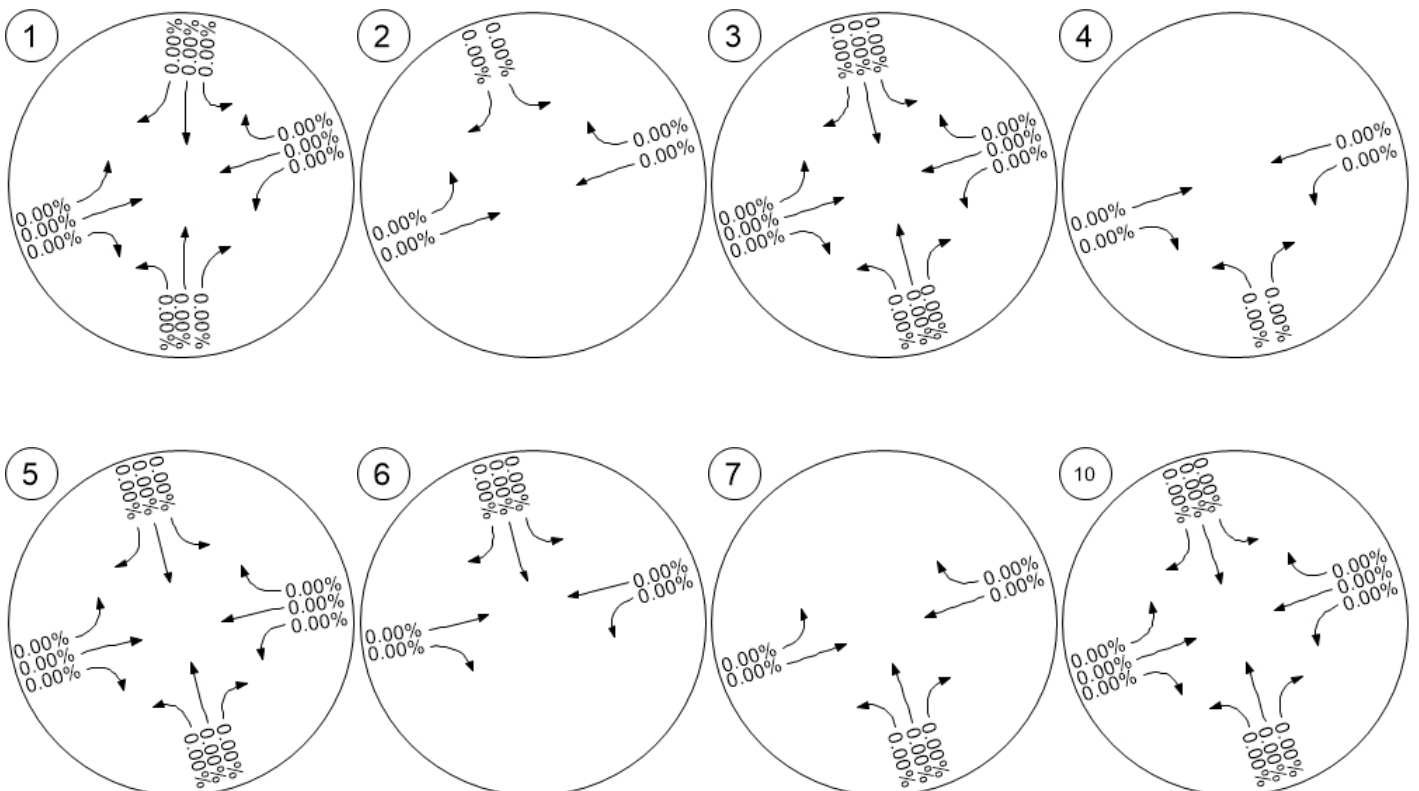


## Fair Share - Fair Share % of Total Analysis - Zone 20

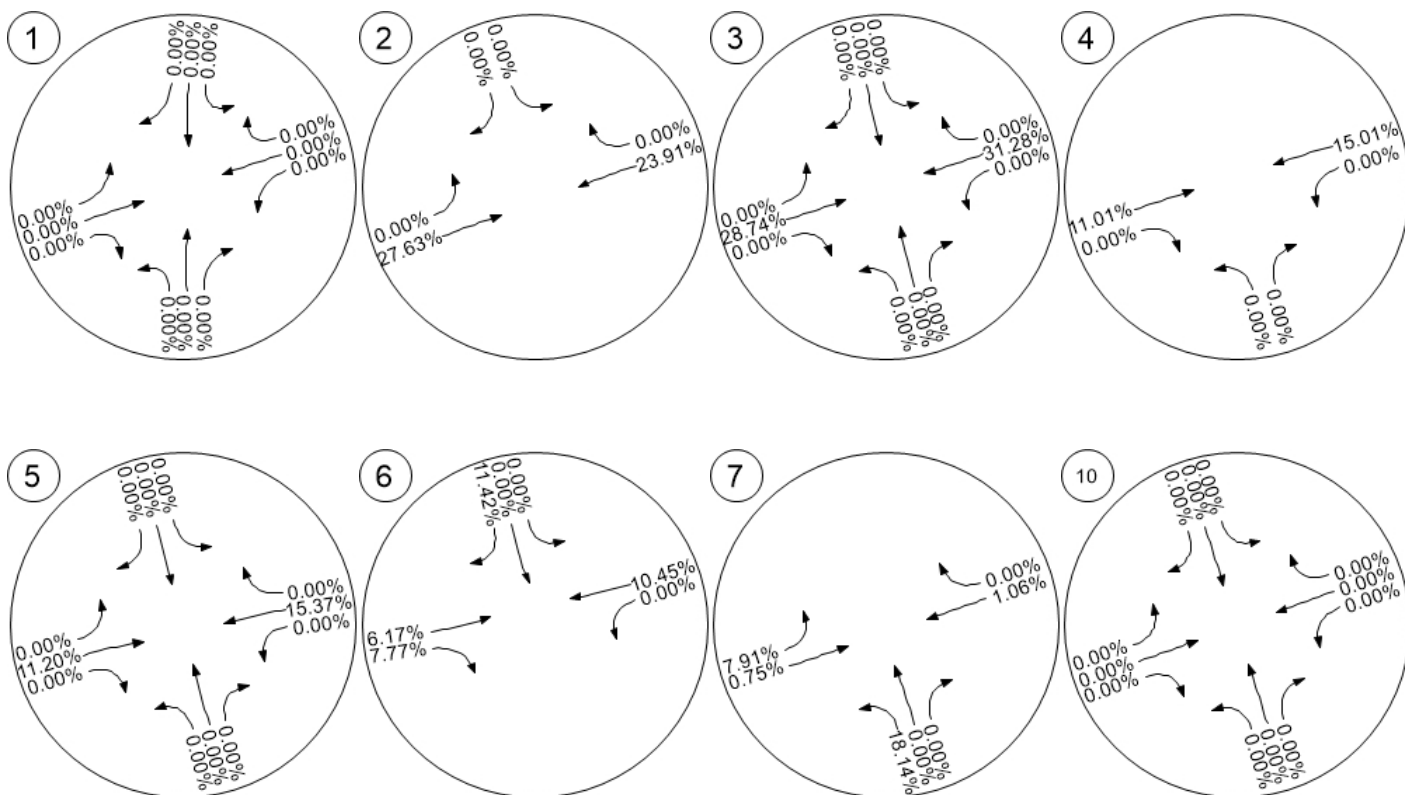




Fair Share - Fair Share % of Total Analysis - Zone 21

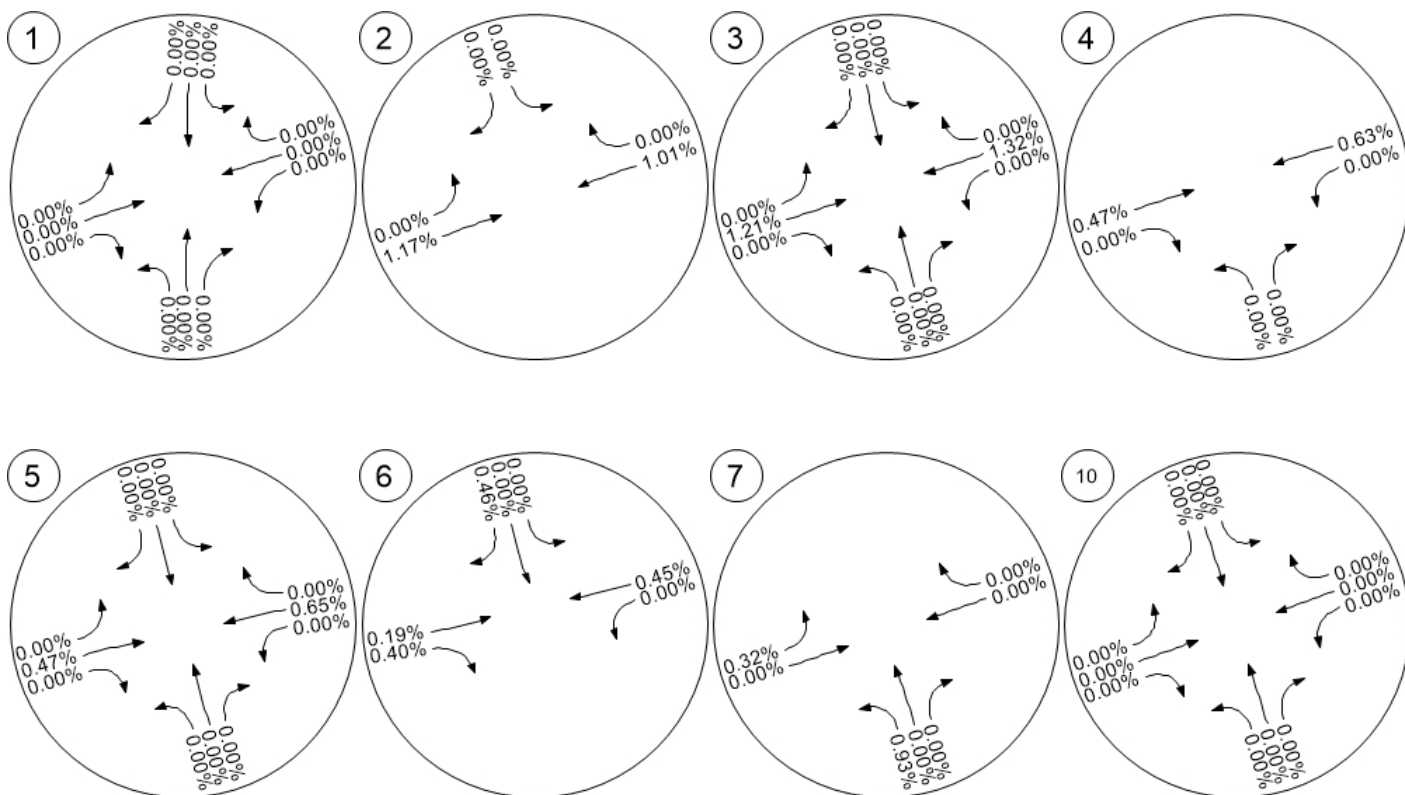


## Fair Share - Fair Share % of Total Analysis - Zone 22

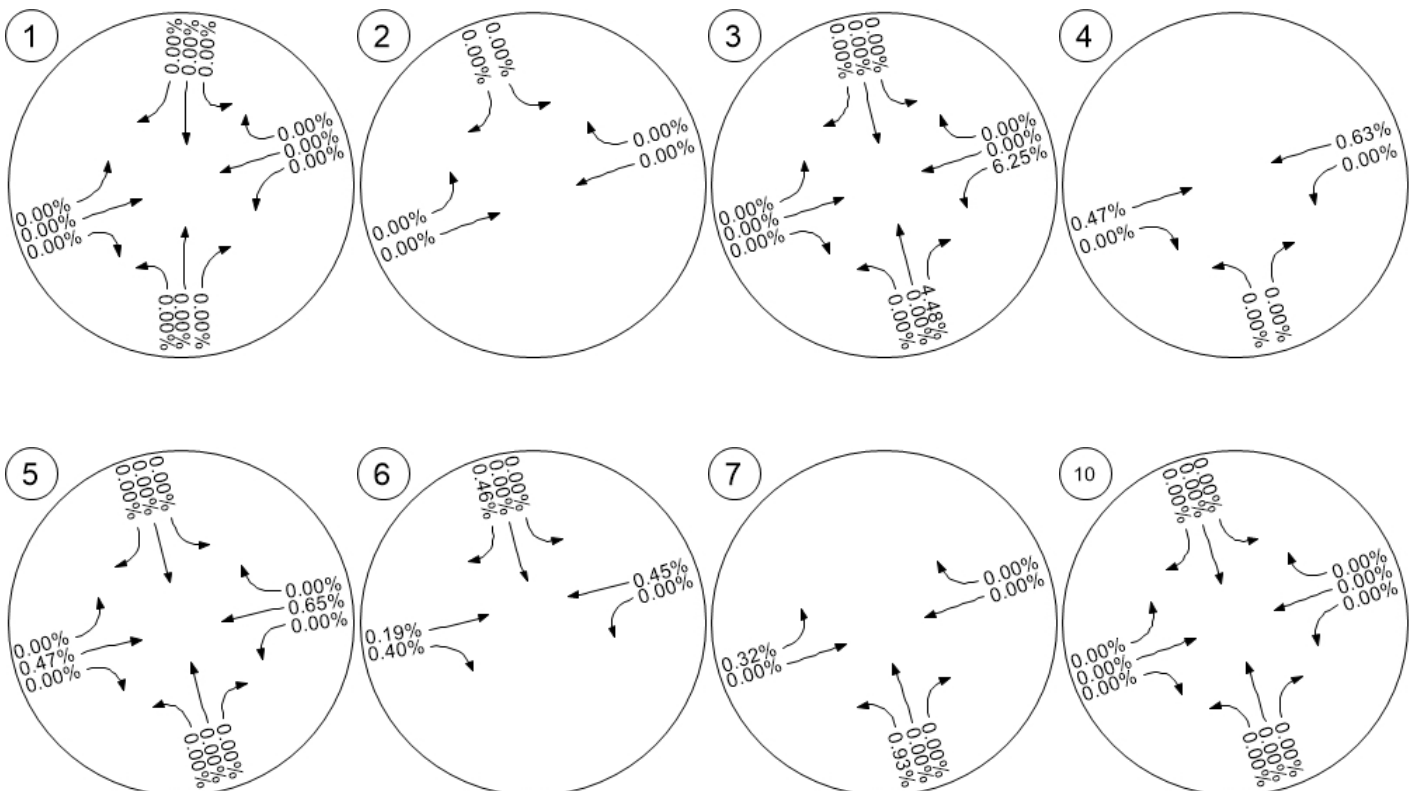




## Fair Share - Fair Share % of Total Analysis - Zone 23

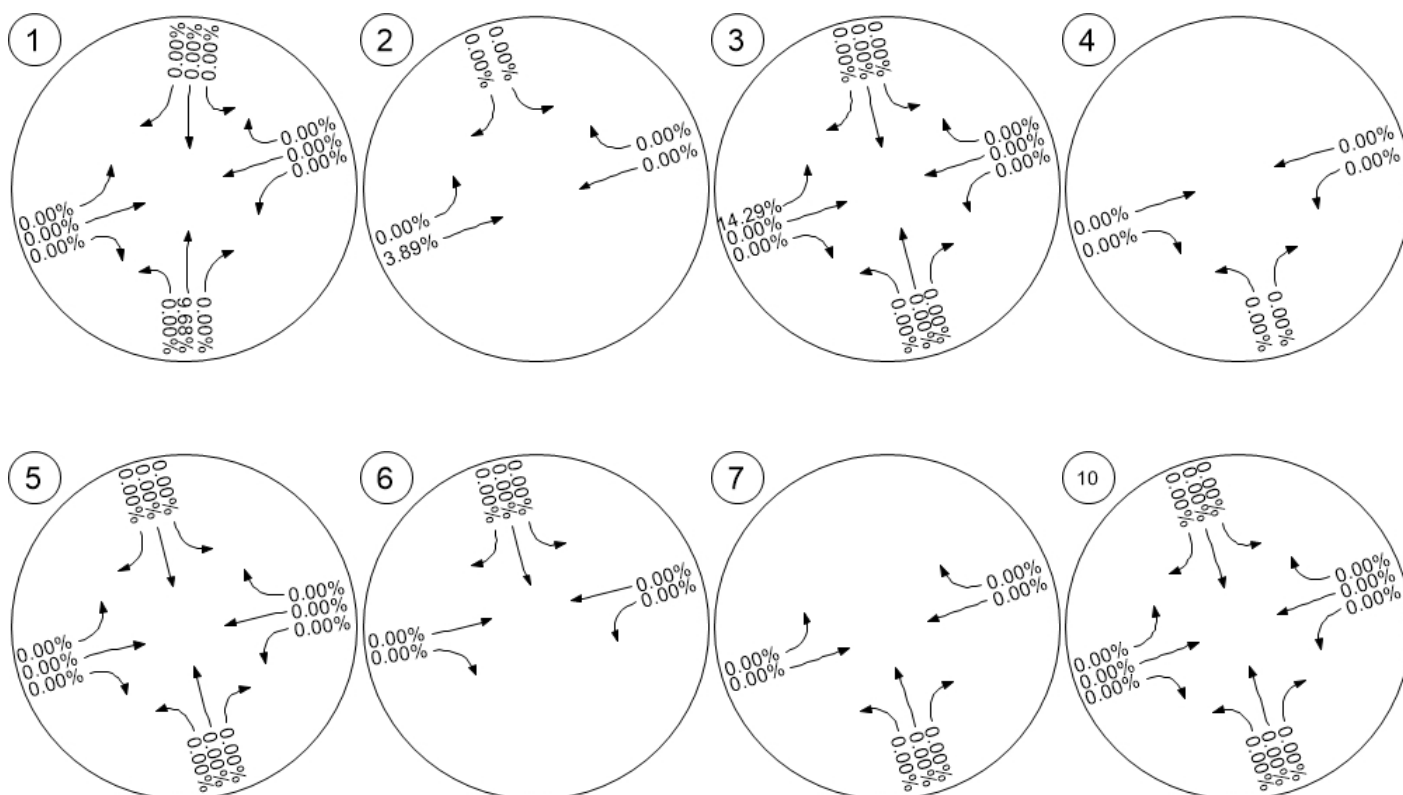


Fair Share - Fair Share % of Total Analysis - Zone 24

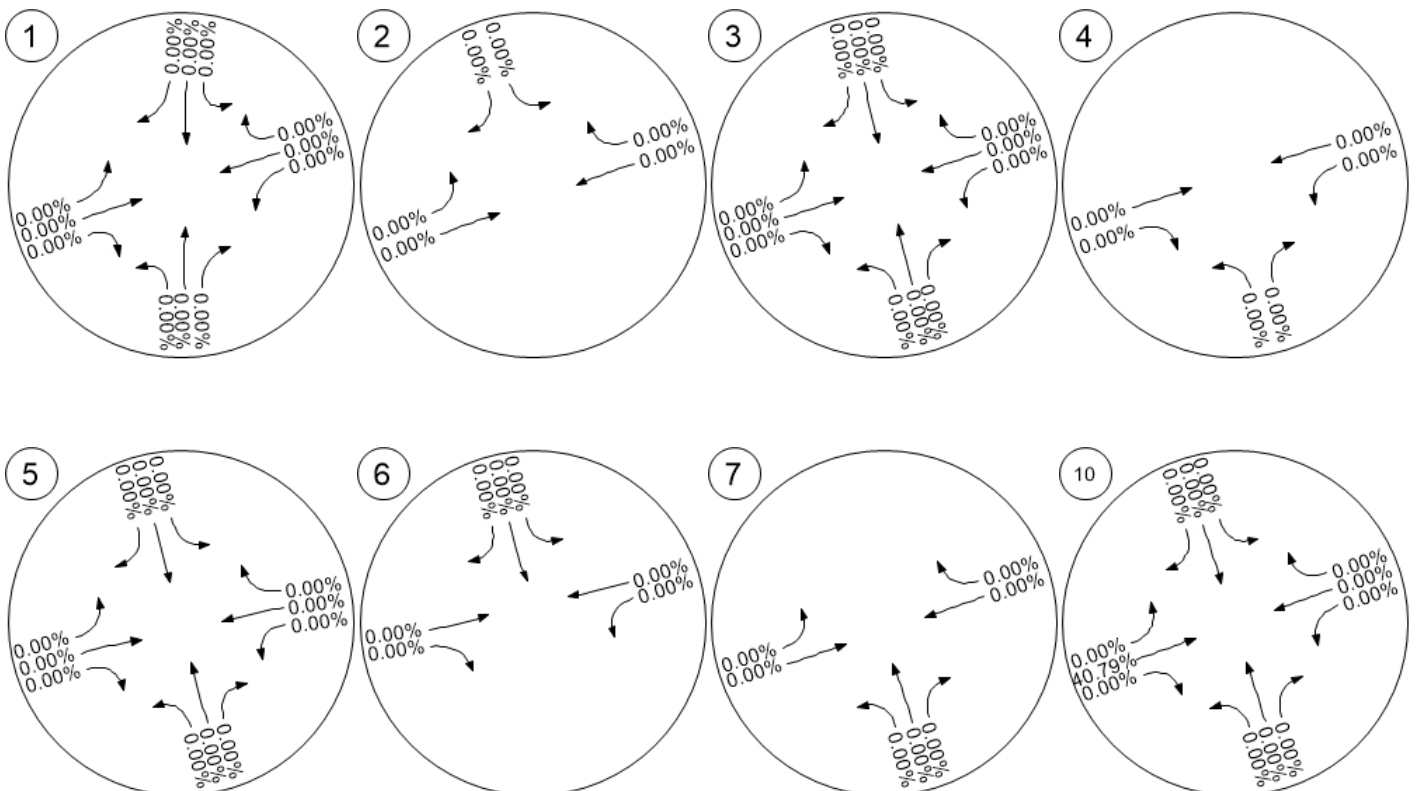




Fair Share - Fair Share % of Total Analysis - Zone 25

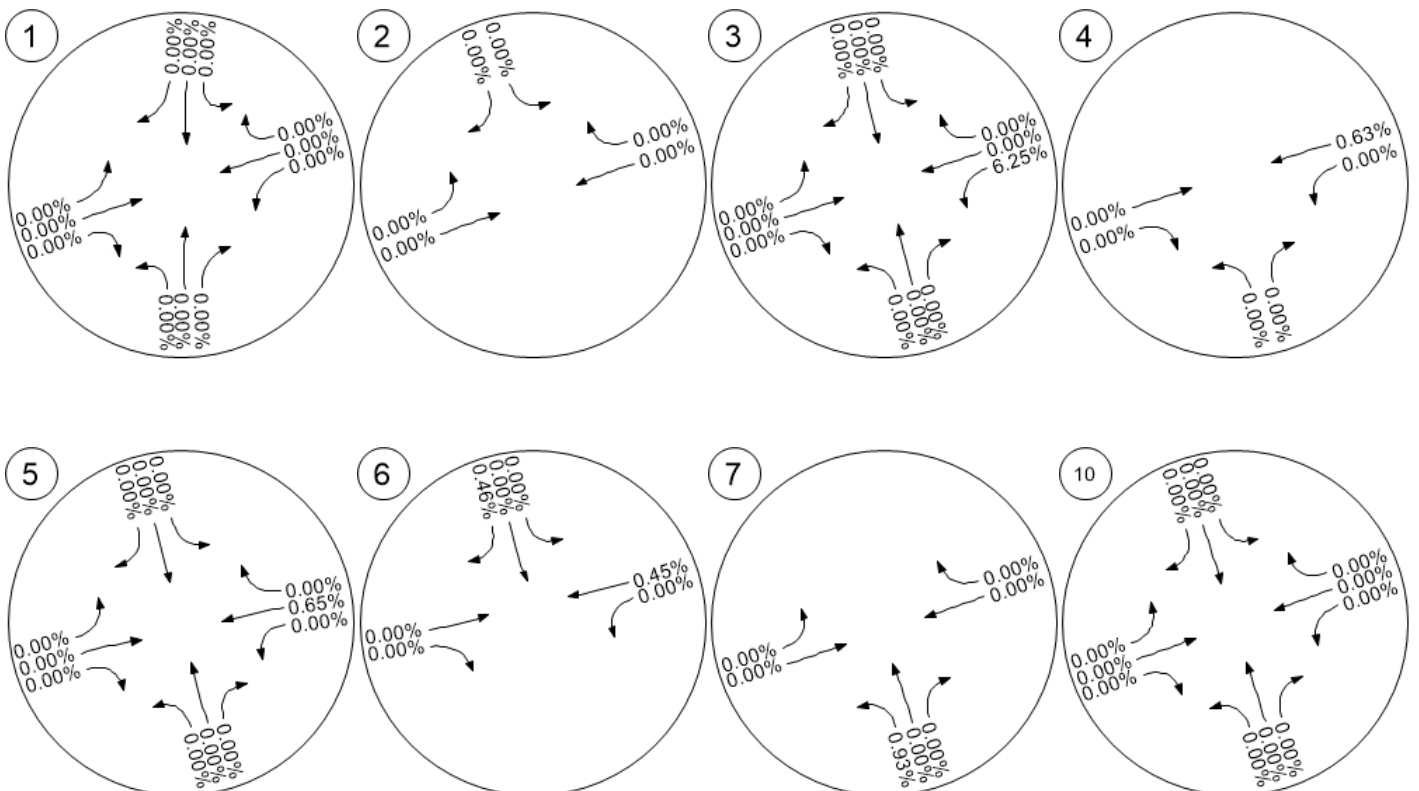


Fair Share - Fair Share % of Total Analysis - Zone 26

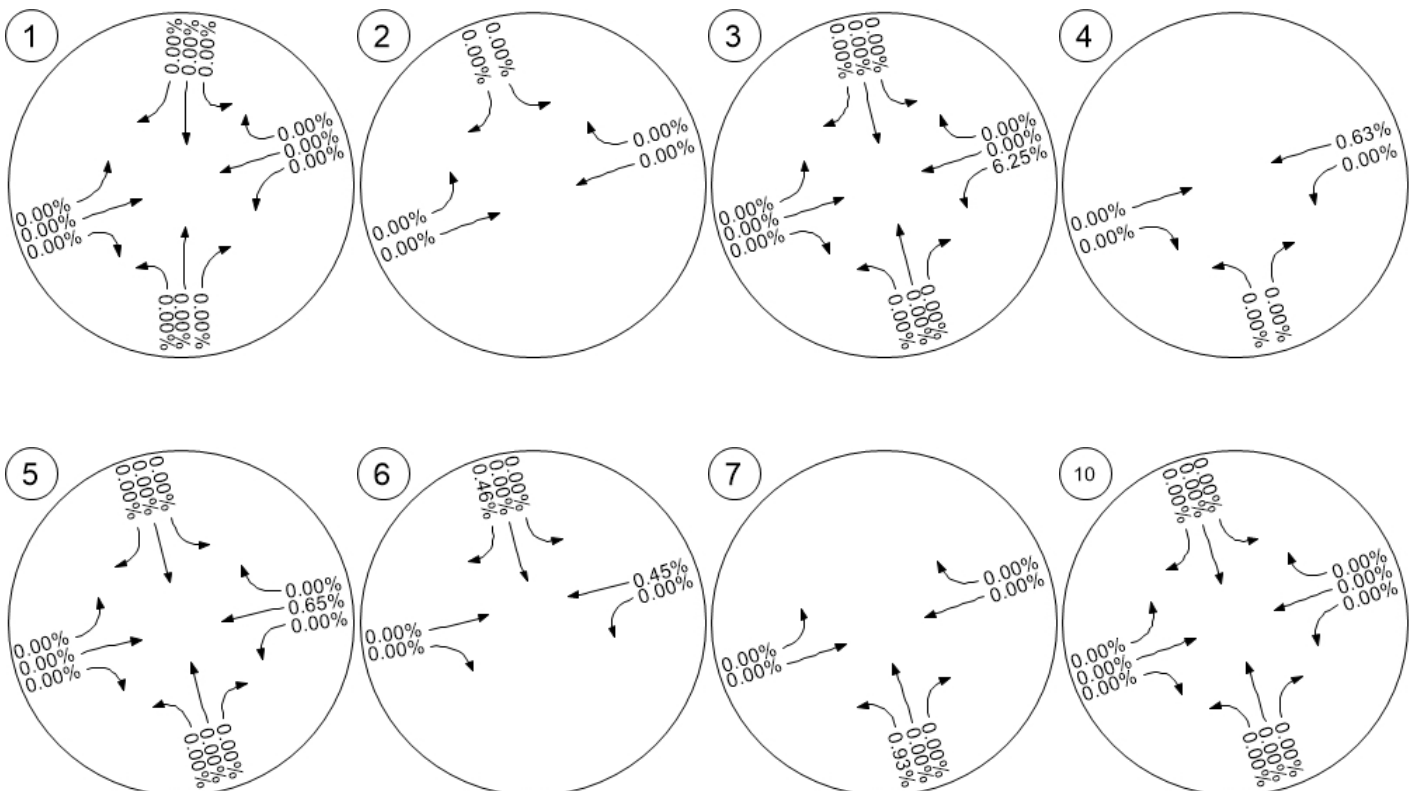




Fair Share - Fair Share % of Total Analysis - Zone 27

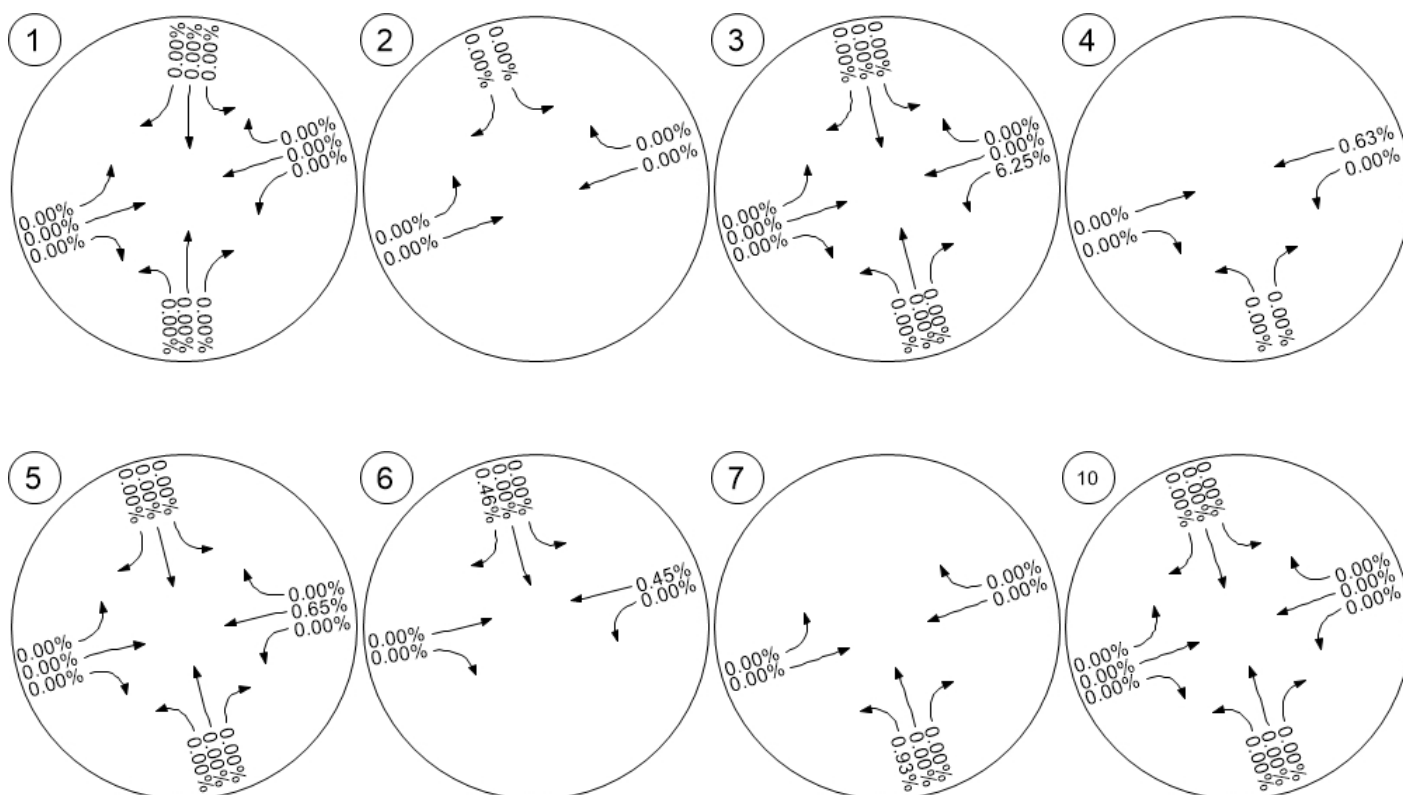


Fair Share - Fair Share % of Total Analysis - Zone 28

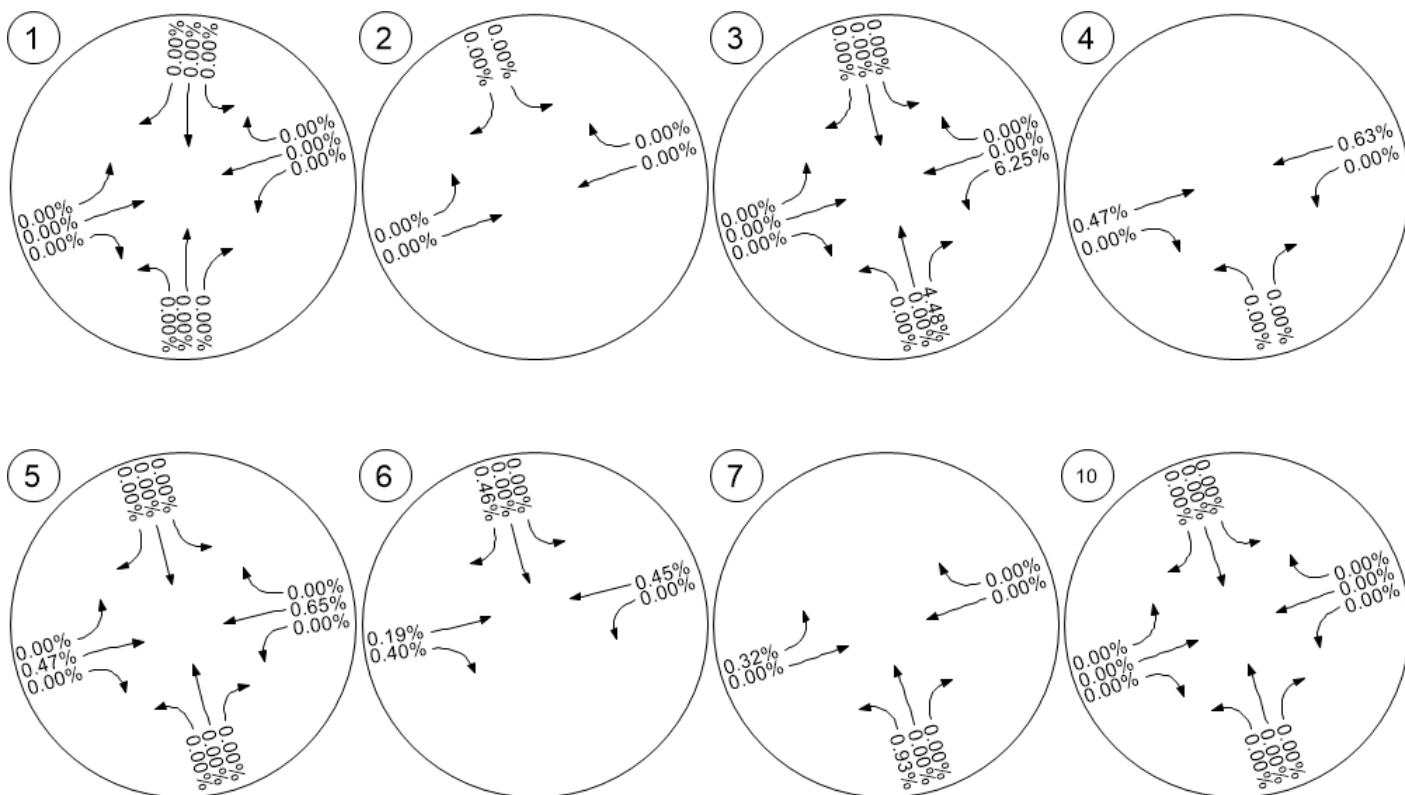




Fair Share - Fair Share % of Total Analysis - Zone 29

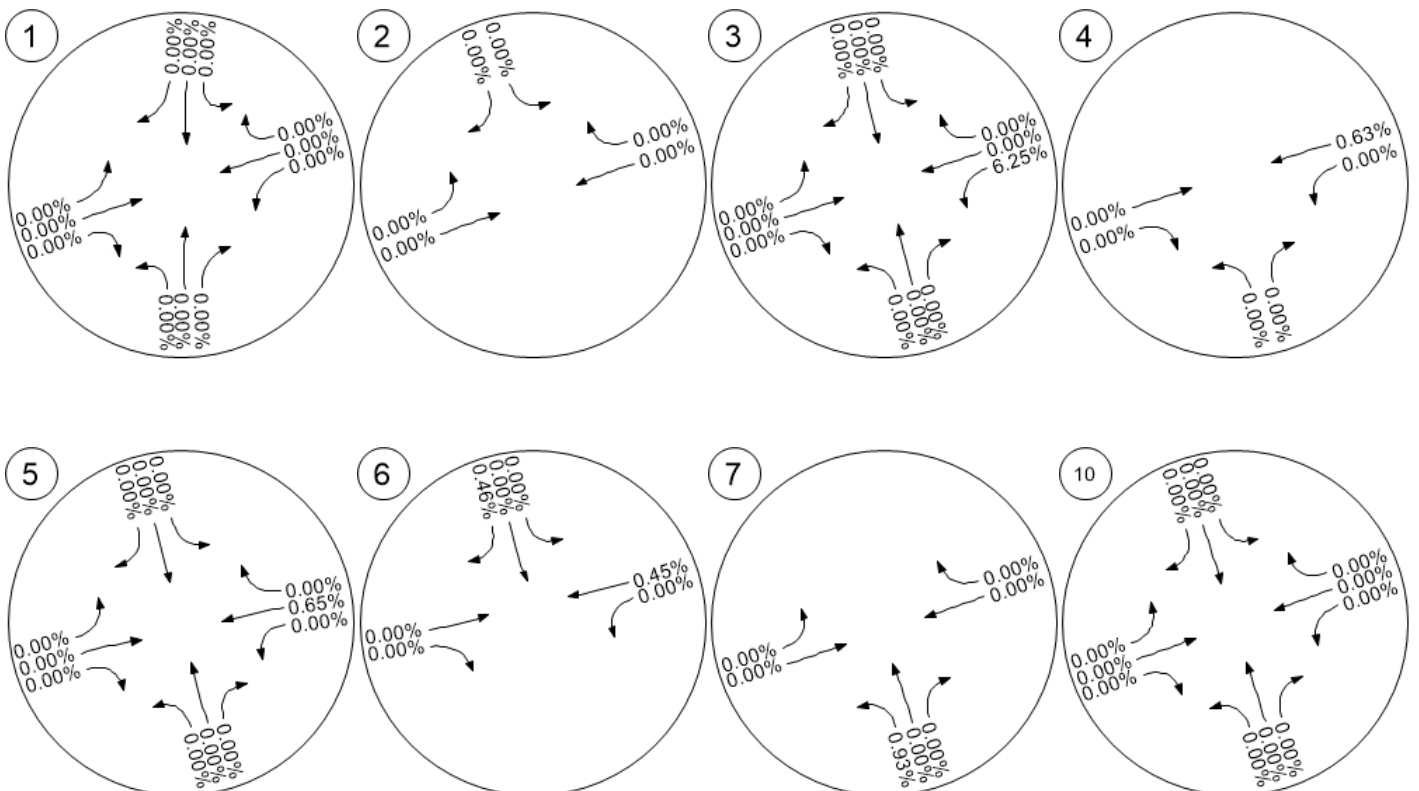


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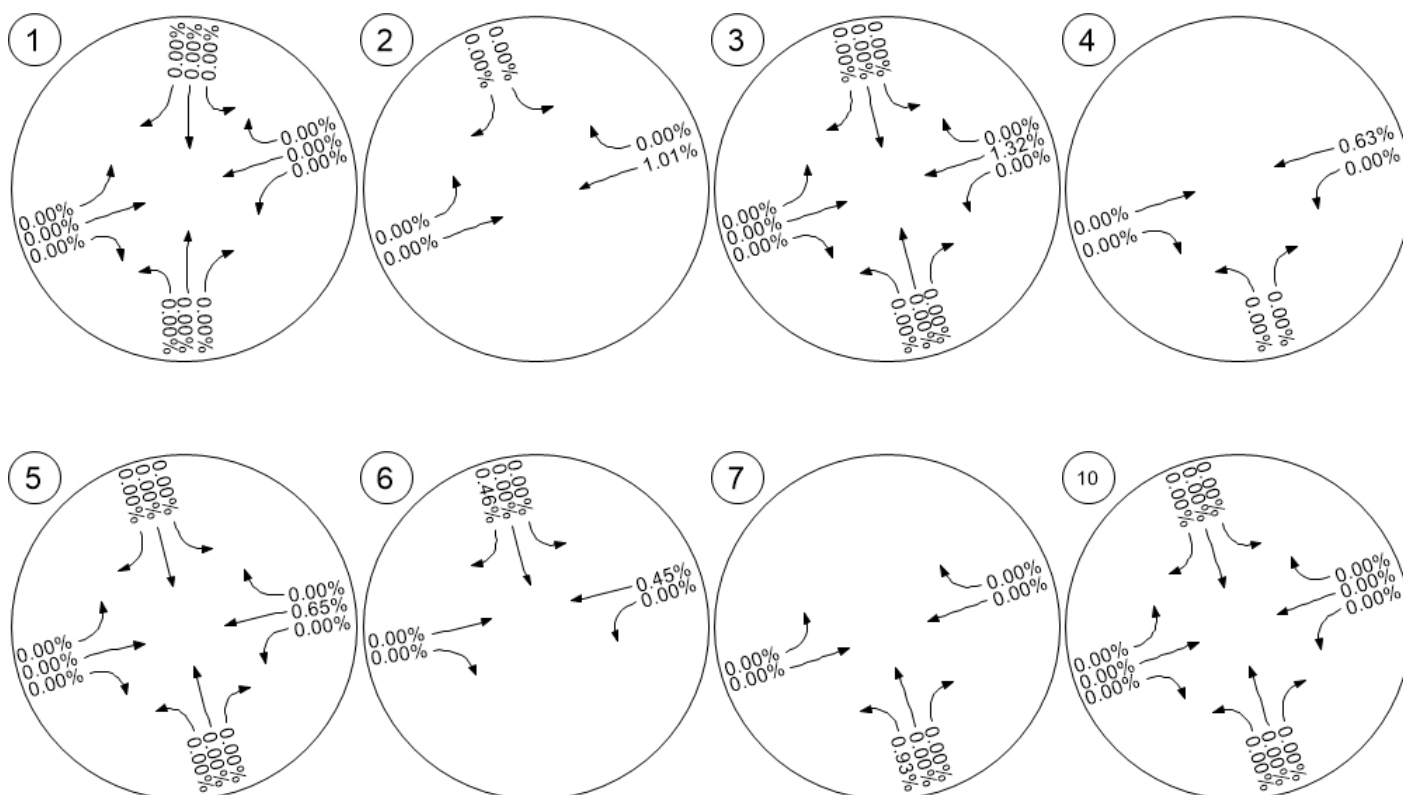




Fair Share - Fair Share % of Total Analysis - Zone 33

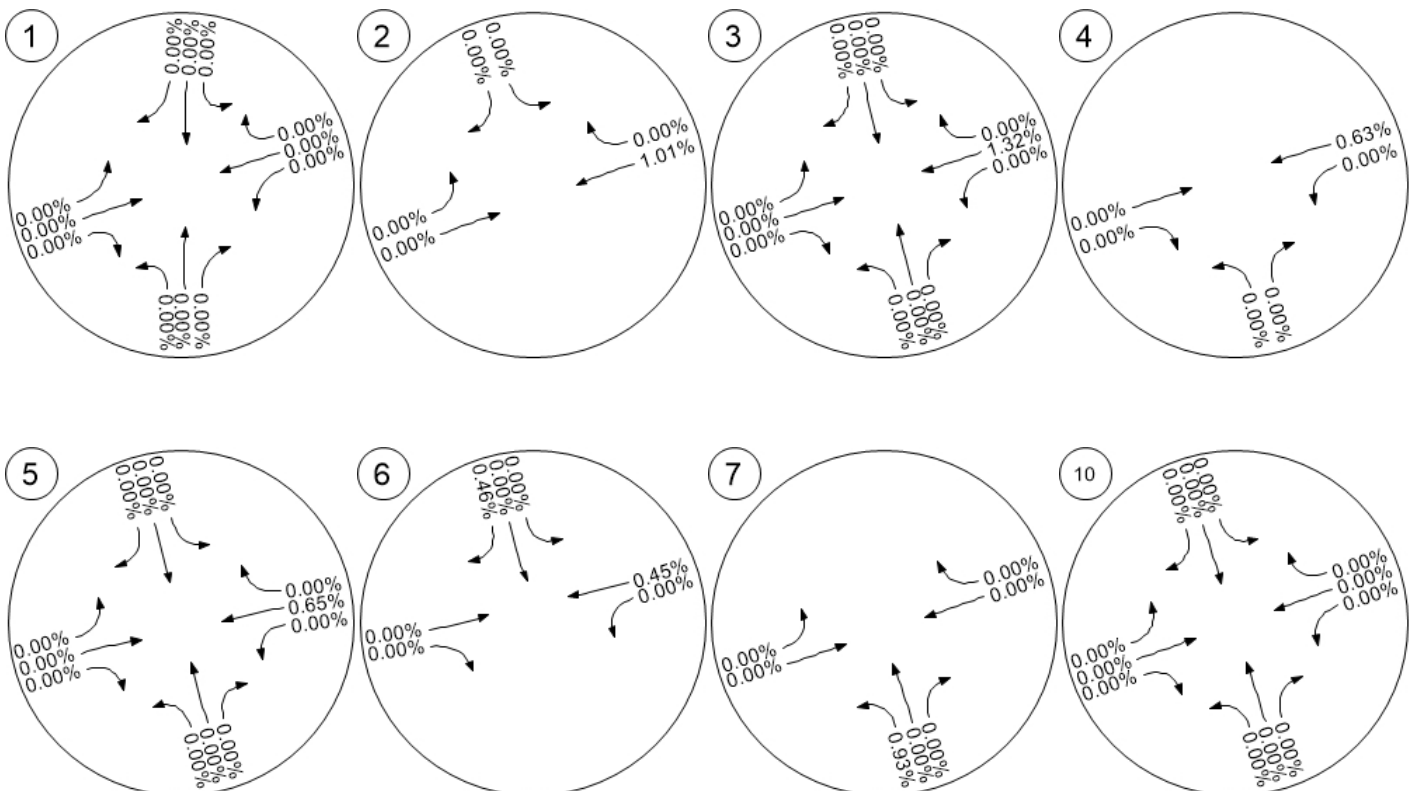


Fair Share - Fair Share % of Total Analysis - Zone 34





Fair Share - Fair Share % of Total Analysis - Zone 35

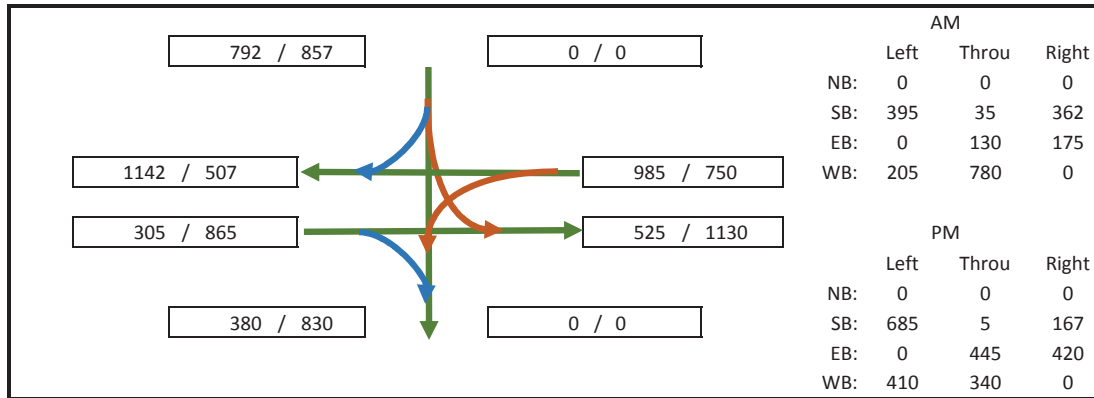


# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

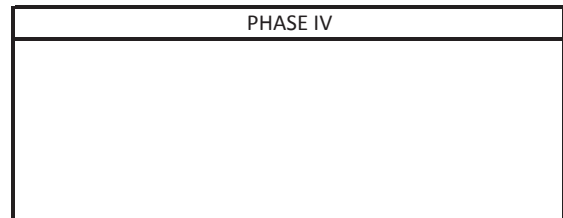
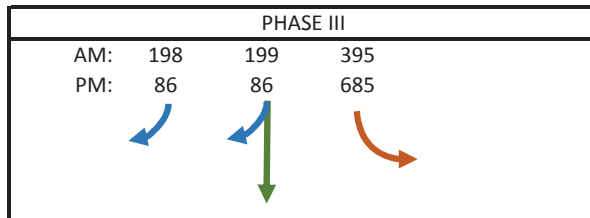
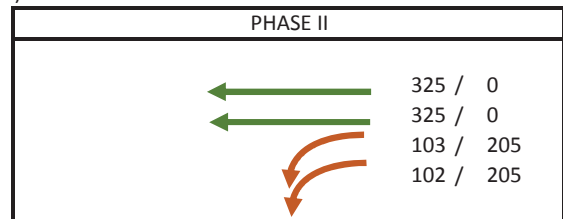
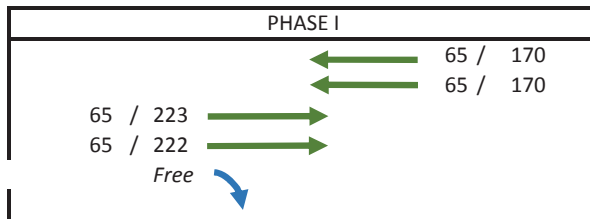
INTERSECTION: I-5 SB / Bay Marina Drive  
 ALTERNATIVE: Future Year + Project Conditions

DIST. CO. RTE I-5 SB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

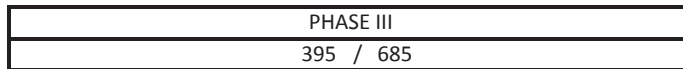
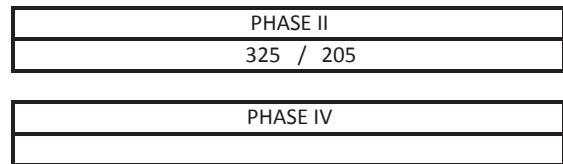
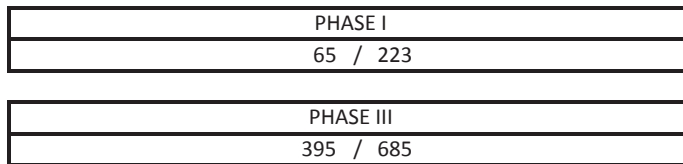
## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR



TOTAL OPERATING LEVEL (ILV/HR):

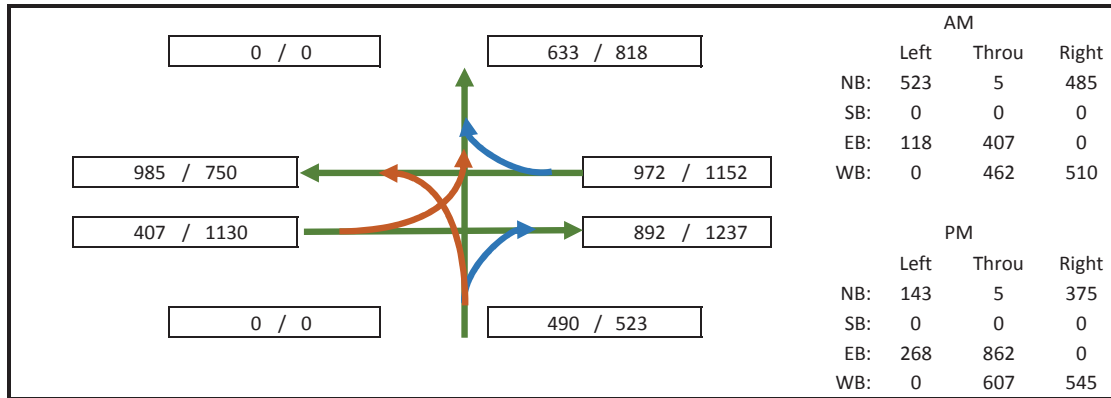
AM:	785	UNDER CAPACITY
PM:	1113	UNDER CAPACITY

# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

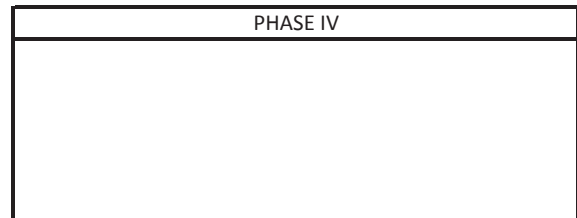
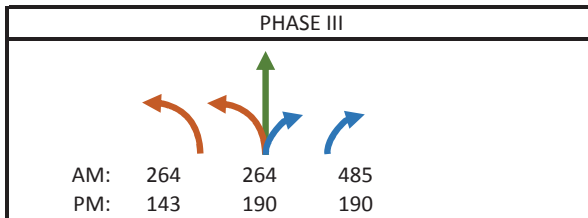
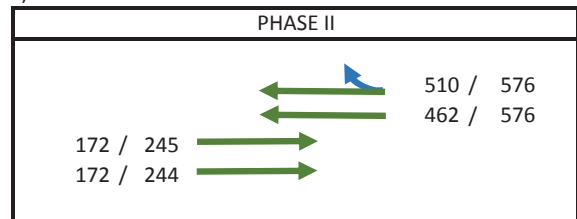
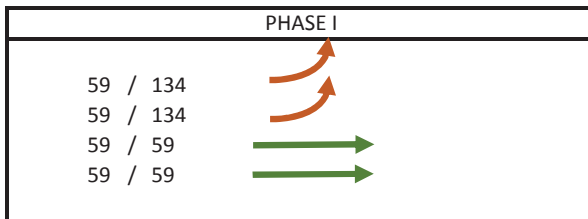
INTERSECTION: I-5 NB / Bay Marina Drive  
 ALTERNATIVE: Future Year + Project Conditions

DIST. CO. RTE I-5 NB  
 PM: SCC  
 DATE: 9/4/2013  
 TIME:

## DEMAND TRAFFIC FLOWS



## LANE VOLUMES (ILV/HR)



## CRITICAL LANE VOLUMES PER HOUR

PHASE I
59 / 134

PHASE III
485 / 190

PHASE II
510 / 576

PHASE IV
/

TOTAL OPERATING LEVEL (ILV/HR):

AM: 1054	UNDER CAPACITY
PM: 900	UNDER CAPACITY

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## **Appendix P**

### **Parking Occupancy Worksheets**



# National City Marina 10 Parking Demand

Time	Pier 32 Marina	Pepper Park	W 32nd Street
9 AM	127	34	12
12 PM	131	87	11
3 PM	137	98	22
6 PM	127	80	20

## Pepper Park Break Down

	9 AM	12 PM	3 PM	6 PM
Short Spaces	34	73	73	65
Long Spaces		12	16	6
Illegally Parked	0	2	9	9
<b>Total</b>	<b>34</b>	<b>87</b>	<b>98</b>	<b>80</b>

## Capacity

Short Spaces	73
Long Spaces	17
ADA	3