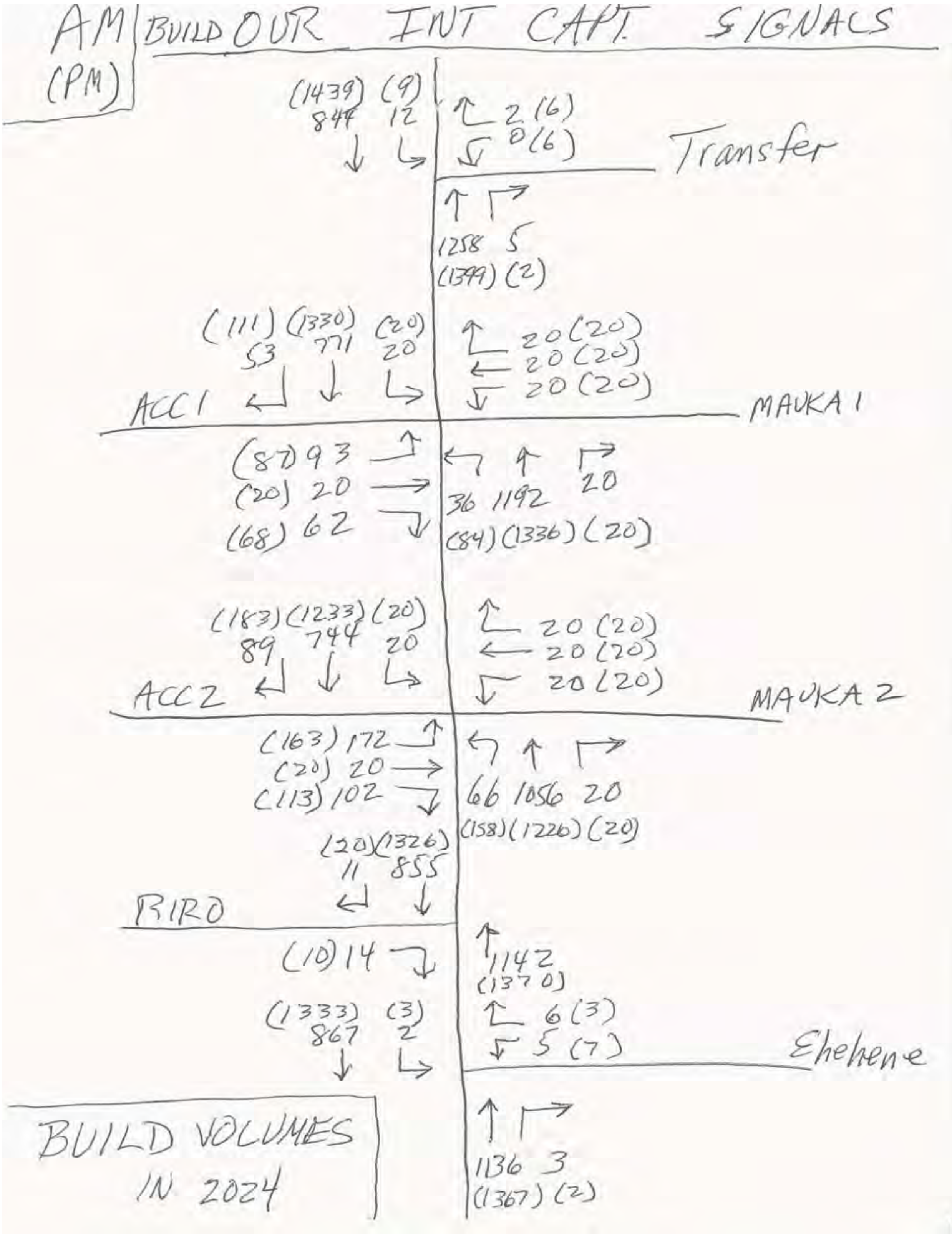
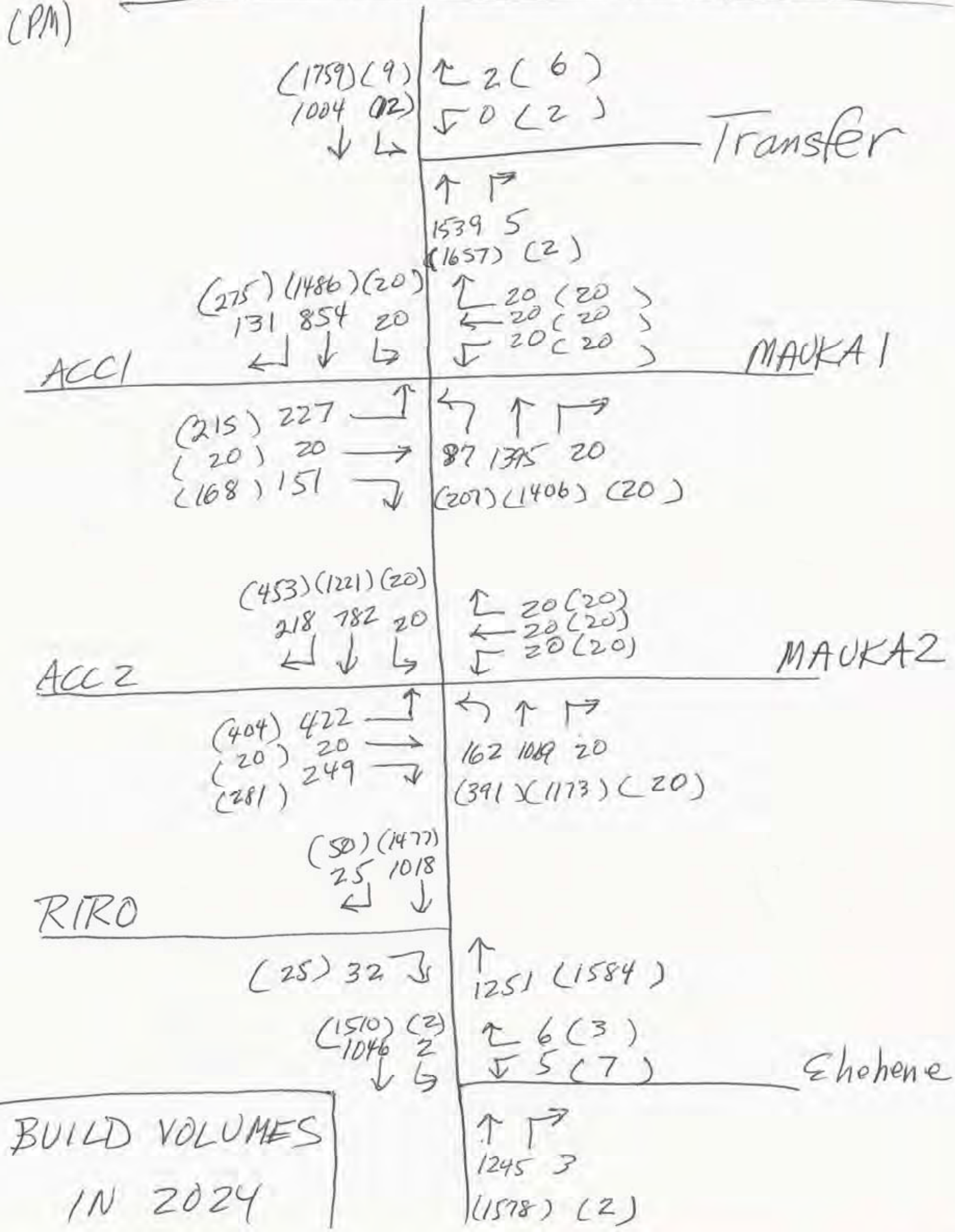

AM (PM)
BUILD OUR INT CAPT. SIGNALS
(1439) (9)
844 12
2 (6)
0 (6)
Transfer
1258 5
(1399) (2)
(111) (1330) (20)
53 771 20
20 (20)
20 (20)
20 (20)
ACC1
MAUKA 1
(87) 93
(20) 20
(68) 62
20
36 1192
(84) (1336) (20)
(183) (1233) (20)
89 744 20
20 (20)
20 (20)
20 (20)
ACC2
MAUKA 2
(163) 172
(20) 20
(113) 102
66 1056 20
(158) (1226) (20)
(20) (1326)
11 855
RIRO
(10) 14
1142
(1370)
(1333) (3)
867 2
6 (3)
5 (7)
Ehehene
BUILD VOLUMES IN 2024
1136 3
(1367) (2)

AM BUILD HDOT INT. CAPT.(25%) SIGNALS
(PM)



BUILD VOLUMES IN 2024

File Name : Ehehene St TMC
Site Code :
Start Date : 2/14/2013

Groups Printed- Unshifted - Bank 1 - Bank 2

	Ehehene St From North					HP HWY from Maalea From East					From South					HP HWY from Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00	0	0	0	0	0	0	123	0	0	123	0	0	0	0	0	0	106	0	0	106	229
06:15	0	0	0	0	0	0	160	0	0	160	0	0	0	0	0	0	91	0	0	91	251
06:30	1	0	0	0	1	1	255	0	0	256	0	0	0	0	0	0	115	1	0	116	373
06:45	0	0	0	0	0	1	211	0	0	212	0	0	0	0	0	0	126	0	0	126	338
Total	1	0	0	0	1	2	749	0	0	751	0	0	0	0	0	0	438	1	0	439	1191
07:00	1	0	0	0	1	0	255	0	0	255	0	0	0	0	0	0	123	0	0	123	379
07:15	1	0	1	0	2	0	275	0	0	275	0	0	0	0	0	0	167	0	0	167	444
07:30	0	0	0	0	0	0	211	0	0	211	0	0	0	0	0	0	136	2	0	138	349
07:45	1	0	0	0	1	0	170	0	1	171	0	0	0	0	0	0	172	0	1	173	345
Total	3	0	1	0	4	0	911	0	1	912	0	0	0	0	0	0	598	2	1	601	1517
08:00	0	0	0	0	0	1	219	0	0	220	0	0	0	0	0	0	159	0	0	159	379
08:15	0	0	0	0	0	1	221	0	0	222	0	0	0	0	0	0	164	0	1	165	387
08:30	0	0	0	0	0	0	214	0	1	215	0	0	0	0	0	0	174	0	2	176	391
08:45	1	0	0	0	1	1	212	0	2	215	0	0	0	0	0	0	170	1	0	171	387
Total	1	0	0	0	1	3	866	0	3	872	0	0	0	0	0	0	667	1	3	671	1544
09:00	0	0	0	0	0	1	158	0	1	160	0	0	0	0	0	0	195	1	0	196	356
09:15	0	0	0	0	0	2	157	0	1	160	0	0	0	0	0	0	214	0	1	215	375
*** BREAK ***																					
Total	0	0	0	0	0	3	315	0	2	320	0	0	0	0	0	0	409	1	1	411	731
*** BREAK ***																					
15:00	0	0	0	0	0	0	235	0	0	235	0	0	0	0	0	0	210	0	0	210	445
15:15	1	0	2	0	3	2	268	0	0	270	0	0	0	0	0	0	239	2	1	242	515
15:30	1	0	0	0	1	1	301	0	1	303	0	0	0	0	0	0	268	0	0	268	572
15:45	1	0	0	0	1	0	286	0	3	289	0	0	0	0	0	0	276	2	0	278	568
Total	3	0	2	0	5	3	1090	0	4	1097	0	0	0	0	0	0	993	4	1	998	2100
16:00	1	0	1	0	2	0	235	0	2	237	0	0	0	0	0	0	255	0	0	255	494
16:15	1	0	0	0	1	0	286	0	0	286	0	0	0	0	0	0	260	2	0	262	549
16:30	1	0	0	0	1	0	261	0	0	261	0	0	0	0	0	0	278	2	2	282	544
16:45	1	0	0	0	1	0	255	0	0	255	0	0	0	0	0	0	277	2	0	279	535
Total	4	0	1	0	5	0	1037	0	2	1039	0	0	0	0	0	0	1070	6	2	1078	2122
17:00	0	0	0	0	0	0	263	0	0	263	0	0	0	0	0	0	296	0	0	296	559
17:15	0	0	0	0	0	2	262	5	0	269	0	0	0	0	0	0	254	1	0	255	524
17:30	1	0	1	0	2	1	210	0	0	211	0	0	0	0	0	0	241	0	0	241	454
17:45	3	0	0	0	3	0	174	0	0	174	0	0	0	0	0	0	251	2	0	253	430
Total	4	0	1	0	5	3	909	5	0	917	0	0	0	0	0	0	1042	3	0	1045	1967
18:00	0	0	0	0	0	0	182	0	0	182	0	0	0	0	0	0	167	0	0	167	349
18:15	0	0	0	0	0	0	162	0	0	162	0	0	0	0	0	0	204	0	0	204	366
Grand Total	16	0	5	0	21	14	6221	5	12	6252	0	0	0	0	0	0	5588	18	8	5614	11887
Apprch %	76.2	0	23.8	0		0.2	99.5	0.1	0.2		0	0	0	0		0	99.5	0.3	0.1		
Total %	0.1	0	0	0	0.2	0.1	52.3	0	0.1	52.6	0	0	0	0	0	0	47	0.2	0.1	47.2	
Unshifted	16	0	5	0	21	14	6177	5	12	6208	0	0	0	0	0	0	5538	18	8	5564	11793
% Unshifted	100	0	100	0	100	100	99.3	100	100	99.3	0	0	0	0	0	0	99.1	100	100	99.1	99.2
Bank 1	0	0	0	0	0	0	28	0	0	28	0	0	0	0	0	0	20	0	0	20	48
% Bank 1	0	0	0	0	0	0	0.5	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.4	0.4
Bank 2	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	30	0	0	30	46
% Bank 2	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0.5	0	0	0.5	0.4

File Name : Ehehene St TMC
Site Code :
Start Date : 2/14/2013
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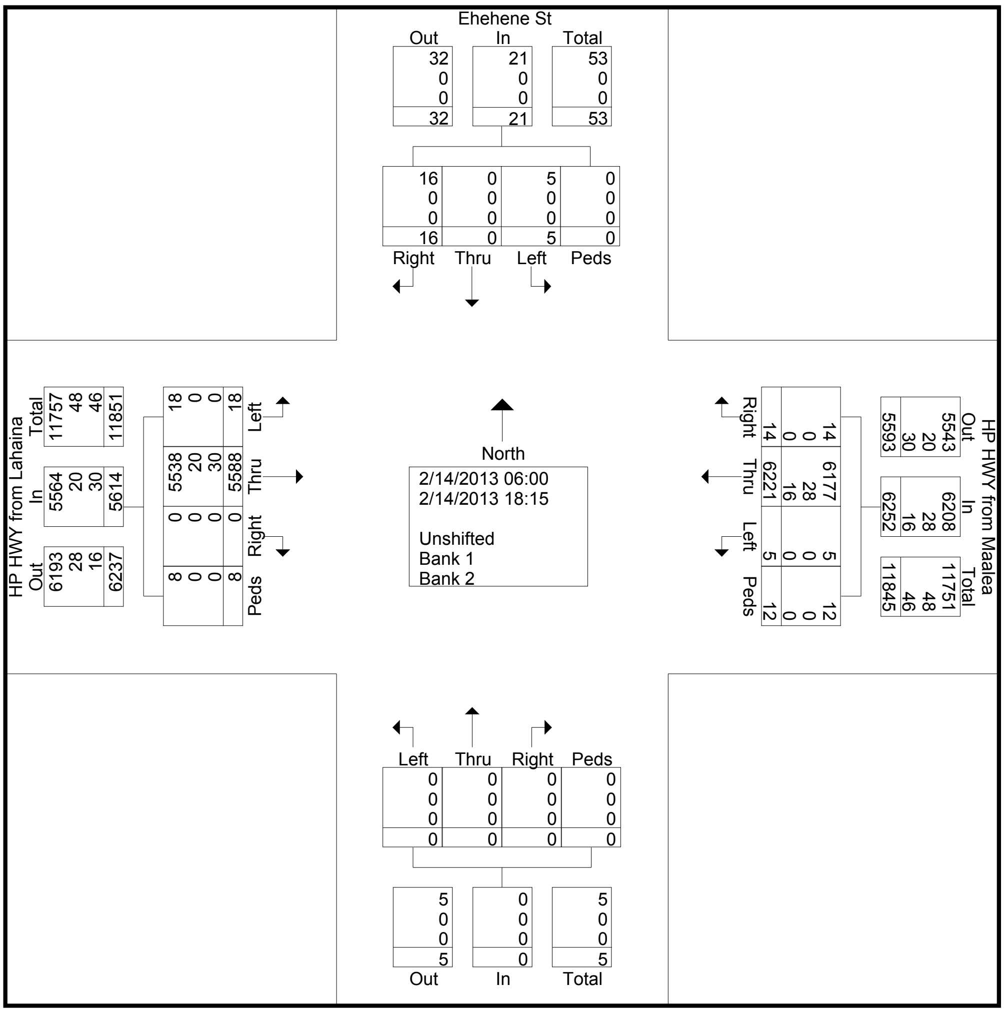

File Name : Ehehene St TMC
Site Code :
Start Date : 2/14/2013
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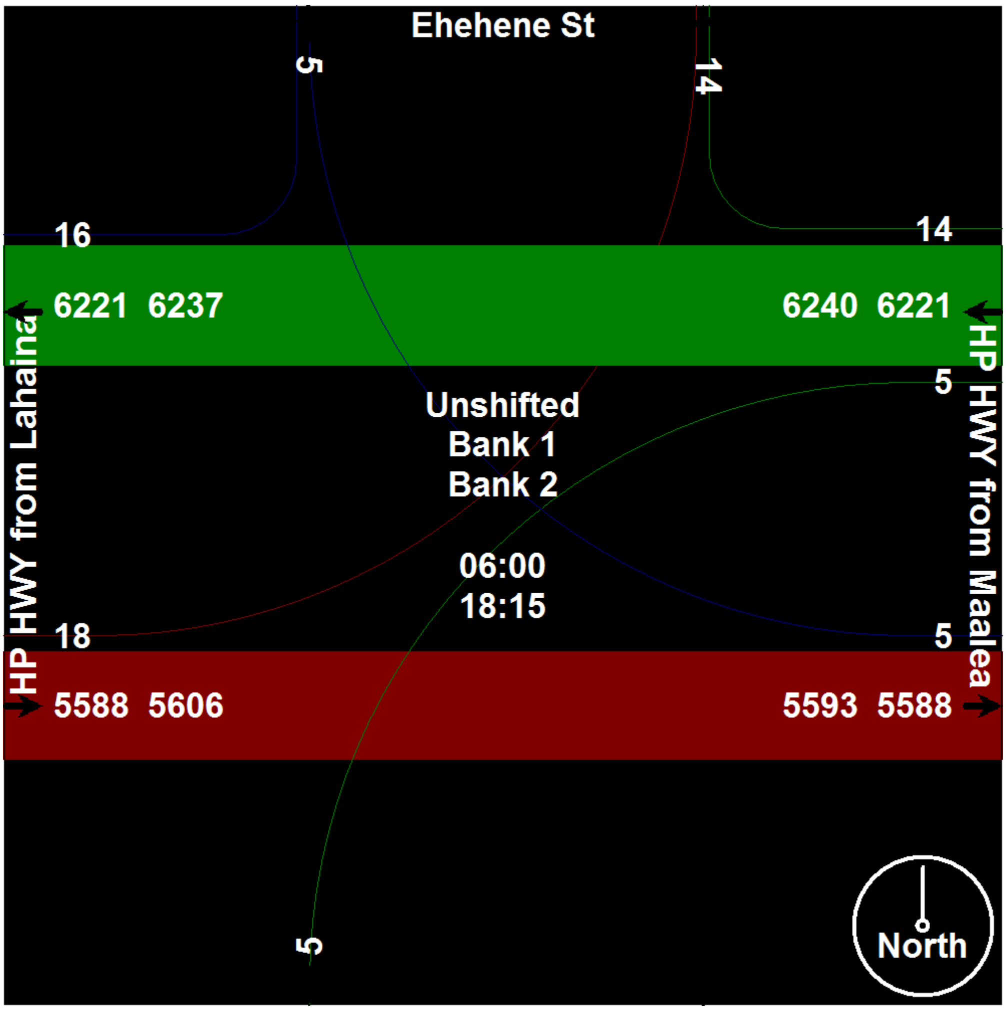

	Ehehene St From North					HP HWY from Maalea From East					From South					HP HWY from Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	0	0	0	**1**	219	0	0	220	0	0	0	0	0	0	159	0	0	159	379
08:15	0	0	0	0	0	1	**221**	0	0	**222**	0	0	0	0	0	0	164	0	1	165	387
08:30	0	0	0	0	0	0	214	0	1	215	0	0	0	0	0	0	**174**	0	**2**	**176**	**391**
08:45	**1**	0	0	0	**1**	1	212	0	**2**	215	0	0	0	0	0	0	170	**1**	0	171	387
Total Volume	1	0	0	0	1	3	866	0	3	872	0	0	0	0	0	0	667	1	3	671	1544
% App. Total	100	0	0	0		0.3	99.3	0	0.3		0	0	0	0		0	99.4	0.1	0.4		
PHF	.250	.000	.000	.000	.250	.750	.980	.000	.375	.982	.000	.000	.000	.000	.000	.000	.958	.250	.375	.953	.987

File Name : Ehehene St TMC
Site Code :
Start Date : 2/14/2013

	Ehehene St From North					HP HWY from Maalea From East					From South					HP HWY from Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	06:30					06:30					06:00					08:30					
+0 mins.	**1**	0	0	0	1	**1**	255	0	0	256	0	0	0	0	0	0	174	0	**2**	176	
+15 mins.	0	0	0	0	0	1	211	0	0	212	0	0	0	0	0	0	170	**1**	0	171	
+30 mins.	1	0	0	0	1	0	255	0	0	255	0	0	0	0	0	0	195	1	0	196	
+45 mins.	1	0	**1**	0	**2**	0	**275**	0	0	**275**	0	0	0	0	0	0	**214**	0	1	**215**	
Total Volume	3	0	1	0	4	2	996	0	0	998	0	0	0	0	0	0	753	2	3	758	
% App. Total	75	0	25	0		0.2	99.8	0	0		0	0	0	0		0	99.3	0.3	0.4		
PHF	.750	.000	.250	.000	.500	.500	.905	.000	.000	.907	.000	.000	.000	.000	.000	.000	.880	.500	.375	.881	
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	1				1		286			286								2			
16:30	1	0	0	0	1	0	261	0	0	261	0	0	0	0	0	0	278	2	2	282	544
16:45	1	0	0	0	1	0	255	0	0	255	0	0	0	0	0	0	277	2	0	279	535
17:00	0	0	0	0	0	0	263	0	0	263	0	0	0	0	0	0	296	0	0	296	559
Total Volume	3	0	0	0	3	0	1065	0	0	1065	0	0	0	0	0	0	1111	6	2	1119	2187
% App. Total	100	0	0	0		0	100	0	0		0	0	0	0		0	99.3	0.5	0.2		
PHF	.750	.000	.000	.000	.750	.000	.931	.000	.000	.931	.000	.000	.000	.000	.000	.000	.938	.750	.250	.945	.978

Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
	15:15					15:30					12:00					16:15				
+0 mins.	**1**	0	**2**	0	**3**	**1**	**301**	0	1	**303**	0	0	0	0	0	0	260	**2**	0	262
+15 mins.	1	0	0	0	1	0	286	0	**3**	289	0	0	0	0	0	0	278	2	**2**	282
+30 mins.	1	0	0	0	1	0	235	0	2	237	0	0	0	0	0	0	277	2	0	279
+45 mins.	1	0	1	0	2	0	286	0	0	286	0	0	0	0	0	0	**296**	0	0	**296**
Total Volume	4	0	3	0	7	1	1108	0	6	1115	0	0	0	0	0	0	1111	6	2	1119
% App. Total	57.1	0	42.9	0		0.1	99.4	0	0.5		0	0	0	0		0	99.3	0.5	0.2	
PHF	1.000																			

File Name : Ehehene St TMC
Site Code :
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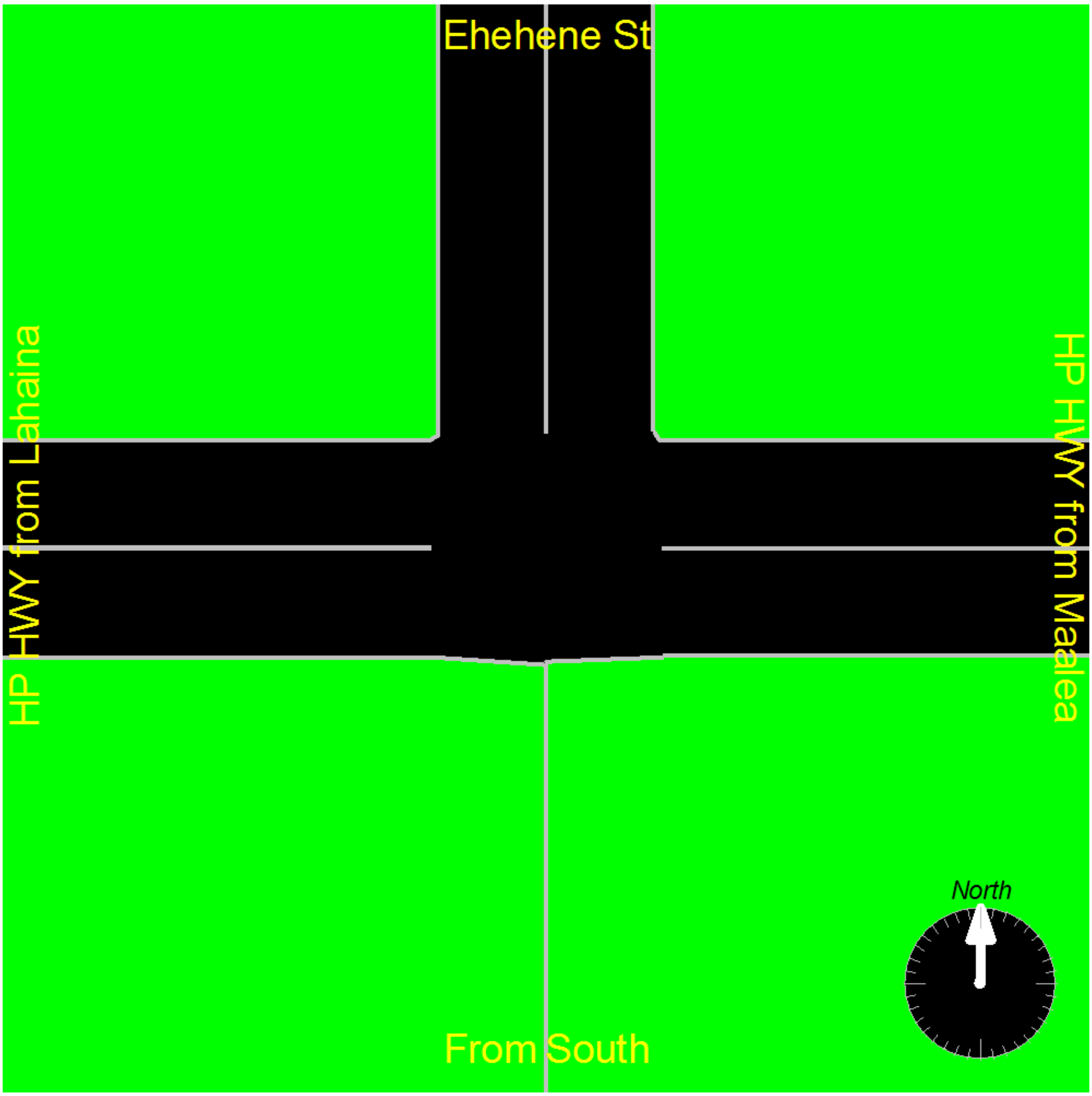

File Name : Not Named 9
Site Code :
Start Date : 2/12/2013
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	Landfill From North					Landfill From East					From Olowalu From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00	0	137	1	1	139	0	0	0	0	0	1	243	0	0	244	0	0	0	0	0	383
07:15	0	158	0	0	158	1	0	0	0	1	2	251	0	0	253	0	0	0	0	0	412
07:30	0	177	0	0	177	0	0	0	0	0	0	220	0	2	222	0	0	0	0	0	399
07:45	0	152	4	0	156	1	0	0	0	1	2	209	0	2	213	0	0	0	0	0	370
Total	0	624	5	1	630	2	0	0	0	2	5	923	0	4	932	0	0	0	0	0	1564
08:00	0	162	2	0	164	4	0	0	0	4	0	191	0	3	194	0	0	0	0	0	362
08:15	0	207	4	2	213	0	0	3	0	3	0	199	0	1	200	0	0	0	0	0	416
08:30	0	187	2	0	189	4	0	0	0	4	2	216	0	1	219	0	0	0	0	0	412
08:45	0	181	4	6	191	2	0	0	0	2	0	173	0	3	176	0	0	0	0	0	369
Total	0	737	12	8	757	10	0	3	0	13	2	779	0	8	789	0	0	0	0	0	1559
*** BREAK ***																					
15:00	0	248	2	1	251	0	0	0	0	0	0	264	0	0	264	0	0	0	0	0	515
15:15	0	271	2	0	273	1	0	3	0	4	0	258	0	0	258	0	0	0	0	0	535
15:30	0	245	1	0	246	2	0	2	0	4	1	286	0	0	287	0	0	0	0	0	537
15:45	0	254	1	0	255	1	0	0	0	1	1	267	0	1	269	0	0	0	0	0	525
Total	0	1018	6	1	1025	4	0	5	0	9	2	1075	0	1	1078	0	0	0	0	0	2112
16:00	0	278	2	1	281	4	0	1	0	5	0	288	0	0	288	0	0	0	0	0	574
16:15	0	259	2	0	261	0	0	0	0	0	0	289	0	3	292	0	0	0	0	0	553
16:30	0	270	2	0	272	0	0	1	0	1	0	260	0	0	260	0	0	0	0	0	533
16:45	0	258	3	1	262	2	0	0	0	2	2	227	0	0	229	0	0	0	0	0	493
Total	0	1065	9	2	1076	6	0	2	0	8	2	1064	0	3	1069	0	0	0	0	0	2153
17:00	0	179	1	0	180	4	0	0	0	4	2	175	0	0	177	0	0	0	0	0	361
17:15	0	265	0	1	266	1	0	0	0	1	3	246	0	0	249	0	0	0	0	0	516
17:30	0	245	2	0	247	3	0	0	0	3	0	216	0	0	216	0	0	0	0	0	466
17:45	0	208	0	0	208	0	0	0	0	0	2	225	0	1	228	0	0	0	0	0	436
Total	0	897	3	1	901	8	0	0	0	8	7	862	0	1	870	0	0	0	0	0	1779
18:00	0	172	0	0	172	1	0	0	0	1	1	159	0	0	160	0	0	0	0	0	333
18:15	0	174	1	0	175	3	0	0	0	3	0	195	0	1	196	0	0	0	0	0	374
Grand Total	0	4687	36	13	4736	34	0	10	0	44	19	5057	0	18	5094	0	0	0	0	0	9874
Apprch %	0	99	0.8	0.3		77.3	0	22.7	0		0.4	99.3	0	0.4		0	0	0	0		
Total %	0	47.5	0.4	0.1	48	0.3	0	0.1	0	0.4	0.2	51.2	0	0.2	51.6	0	0	0	0	0	
Unshifted	0	4618	36	13	4667	33	0	10	0	43	18	5007	0	18	5043	0	0	0	0	0	9753
% Unshifted	0	98.5	100	100	98.5	97.1	0	100	0	97.7	94.7	99	0	100	99	0	0	0	0	0	98.8
Bank 1	0	58	0	0	58	1	0	0	0	1	1	39	0	0	40	0	0	0	0	0	99
% Bank 1	0	1.2	0	0	1.2	2.9	0	0	0	2.3	5.3	0.8	0	0	0.8	0	0	0	0	0	1
Bank 2	0	11	0	0	11	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	22
% Bank 2	0	0.2	0	0	0.2	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.2

Palmetto Traffic Group, LLC

File Name : Not Named 9
Site Code :
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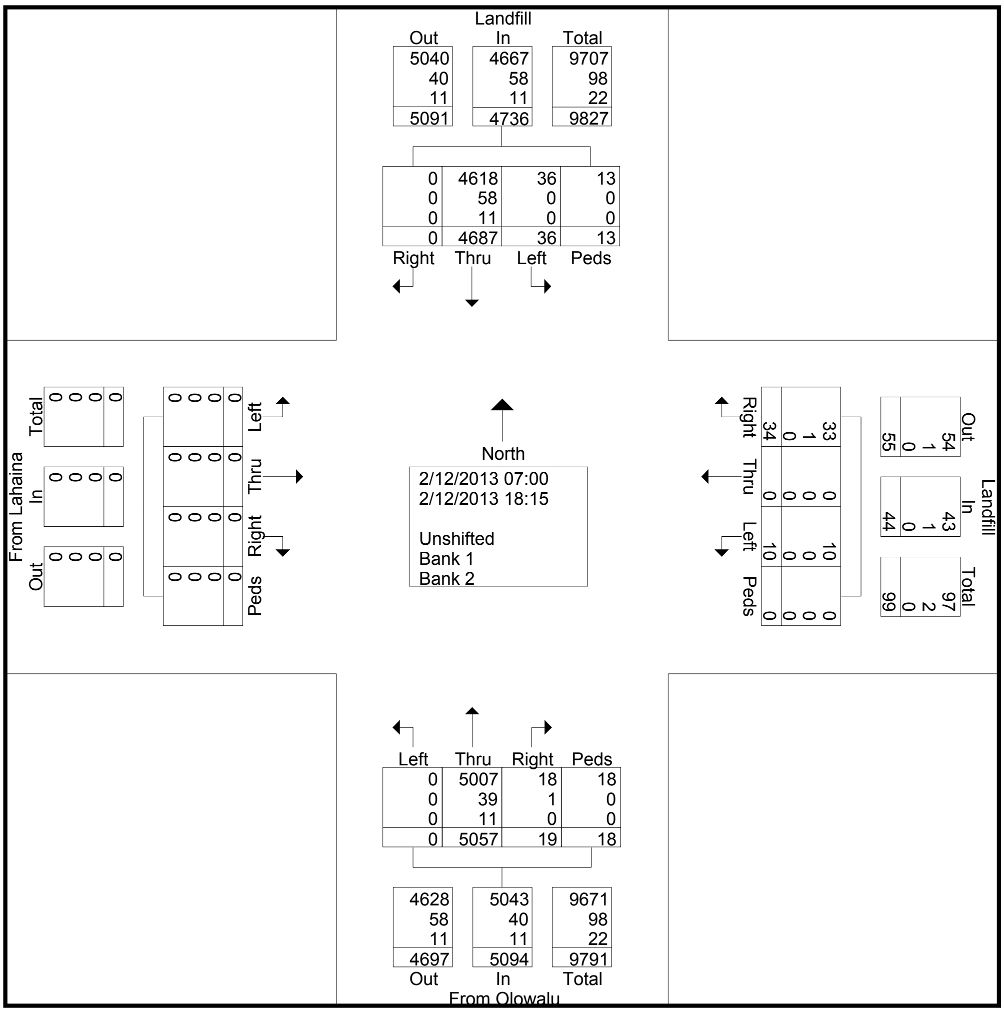

File Name : Not Named 9
Site Code :
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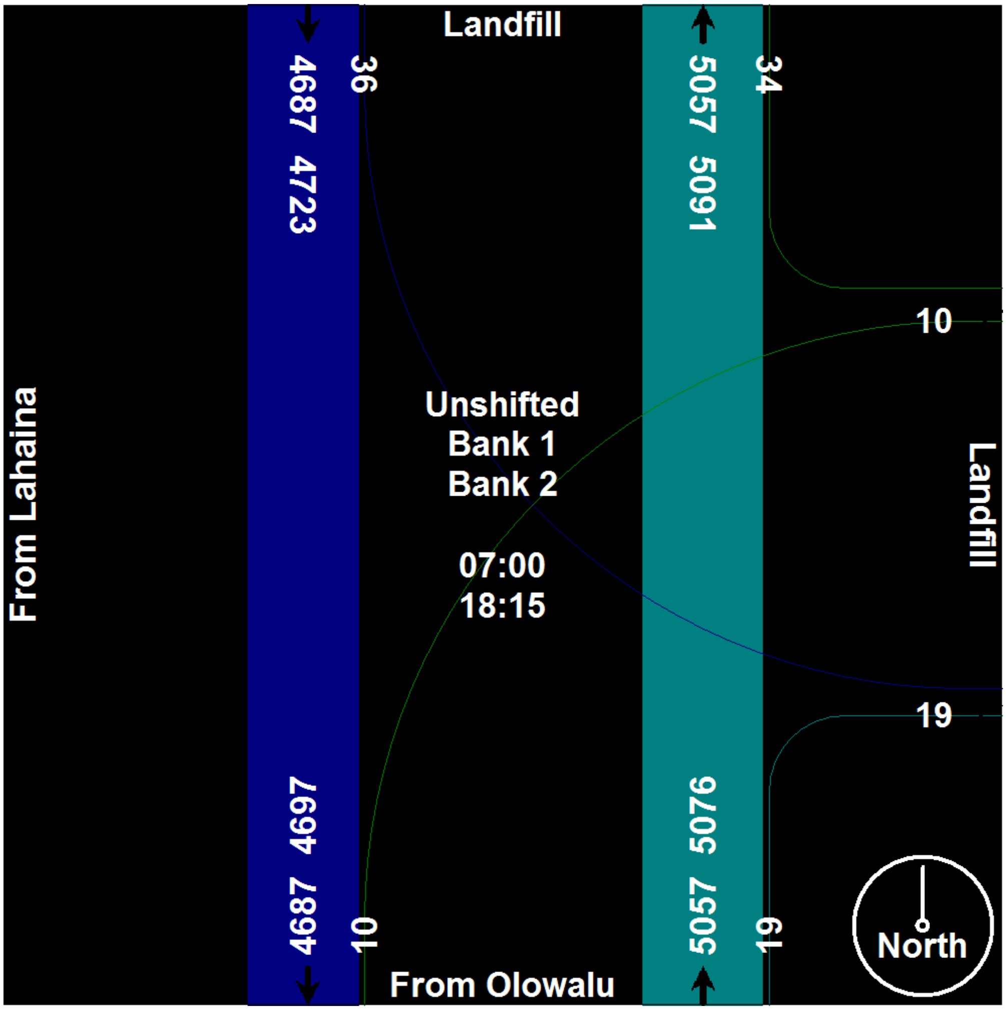
Page No : 3



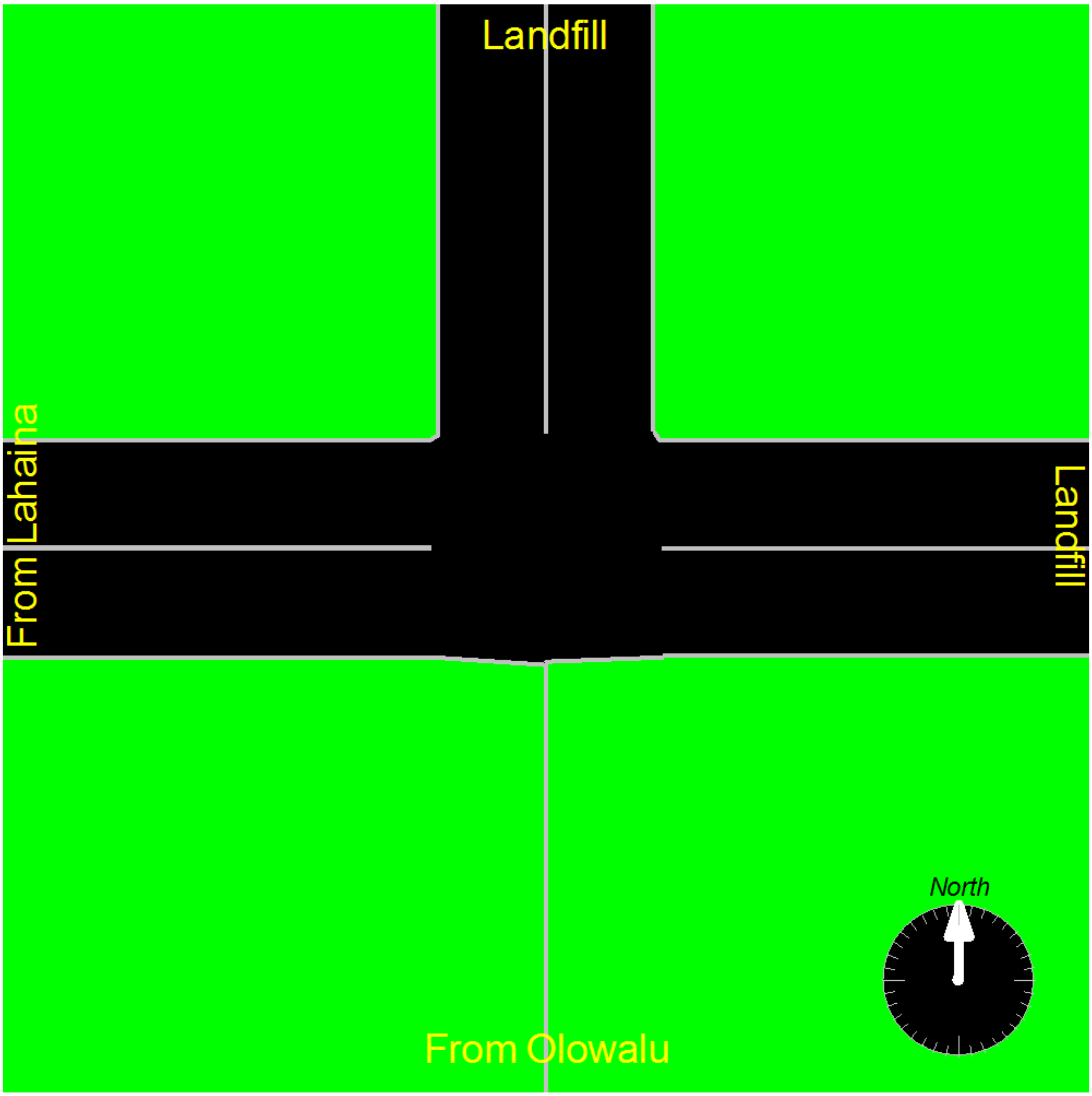
	Landfill From North					Landfill From East					From Olowalu From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	137	1	**1**	139	0	0	0	0	0	1	243	0	0	244	0	0	0	0	0	383
07:15	0	158	0	0	158	**1**	0	0	0	**1**	**2**	**251**	0	0	**253**	0	0	0	0	0	**412**
07:30	0	**177**	0	0	**177**	0	0	0	0	0	0	220	0	**2**	222	0	0	0	0	0	399
07:45	0	152	**4**	0	156	1	0	0	0	1	2	209	0	2	213	0	0	0	0	0	370
Total Volume	0	624	5	1	630	2	0	0	0	2	5	923	0	4	932	0	0	0	0	0	1564
% App. Total	0	99	0.8	0.2		100	0	0	0		0.5	99	0	0.4		0	0	0	0		
PHF	.000	.881	.313	.250	.890	.500	.000	.000	.000	.500	.625	.919	.000	.500	.921	.000	.000	.000	.000	.000	.949

File Name : Not Named 9
Site Code :
Start Date : 2/12/2013
Page No : 4

	Landfill From North					Landfill From East					From Olowalu From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	08:00					08:00					07:00					07:00					
+0 mins.	0	162	2	0	164	**4**	0	0	0	**4**	1	243	0	0	244	0	0	0	0	0	
+15 mins.	0	**207**	**4**	2	**213**	0	0	**3**	0	3	**2**	**251**	0	0	**253**	0	0	0	0	0	
+30 mins.	0	187	2	0	189	4	0	0	0	4	0	220	0	**2**	222	0	0	0	0	0	
+45 mins.	0	181	4	**6**	191	2	0	0	0	2	2	209	0	2	213	0	0	0	0	0	
Total Volume	0	737	12	8	757	10	0	3	0	13	5	923	0	4	932	0	0	0	0	0	
% App. Total	0	97.4	1.6	1.1		76.9	0	23.1	0		0.5	99	0	0.4		0	0	0	0		
PHF	.000	.890	.750	.333	.888	.625	.000	.250	.000	.813	.625	.919	.000	.500	.921	.000	.000	.000	.000	.000	
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:30																					
15:30	**0**	**245**	**1**	**0**	**246**	**2**	**0**	2			1										
15:45	0	254	1	0	255	1	0	0	0	1	1	267	0	1	269	0	0	0	0	0	525
16:00	0	278	2	1	281	4	0	1	0	5	0	288	0	0	288	0	0	0	0	0	574
16:15	0	259	2	0	261	0	0	0	0	0	0	289	0	3	292	0	0	0	0	0	553
Total Volume	0	1036	6	1	1043	7	0	3	0	10	2	1130	0	4	1136	0	0	0	0	0	2189
% App. Total	0	99.3	0.6	0.1		70	0	30	0		0.2	99.5	0	0.4		0	0	0	0		
PHF	.000	.932	.750	.250	.928	.438	.000	.375	.000	.500	.500	.978	.000	.333	.973	.000	.000	.000	.000	.000	.953

	Landfill From North					Landfill From East					From Olowalu From South					From Lahaina From West				
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																				
Peak Hour for Each Approach Begins at:																				
	16:00					15:15					15:30					12:00				
+0 mins.	0	**278**	2	**1**	**281**	1	0	**3**	0	4	**1**	286	0	0	287	0	0	0	0	0
+15 mins.	0	259	2	0	261	2	0	2	0	4	1	267	0	1	269	0	0	0	0	0
+30 mins.	0	270	2	0	272	1	0	0	0	1	0	288	0	0	288	0	0	0	0	0
+45 mins.	0	258	**3**	1	262	**4**	0	1	0	**5**	0	**289**	0	**3**	**292**	0	0	0	0	0
Total Volume	0	1065	9	2	1076	8	0	6	0	14	2	1130	0	4	1136	0	0	0	0	0
% App. Total	0	99	0.8	0.2		57.1	0	42.9	0		0.2	99.5	0	0.4		0	0	0	0	
PHF	.000	.958	.750	.500	.957	.500	.000	.500	.000	.700	.500	.978	.000	.333	.973	.000	.000	.000	.000	.000

File Name : Not Named 9
Site Code :
Start Date : 2/12/2013

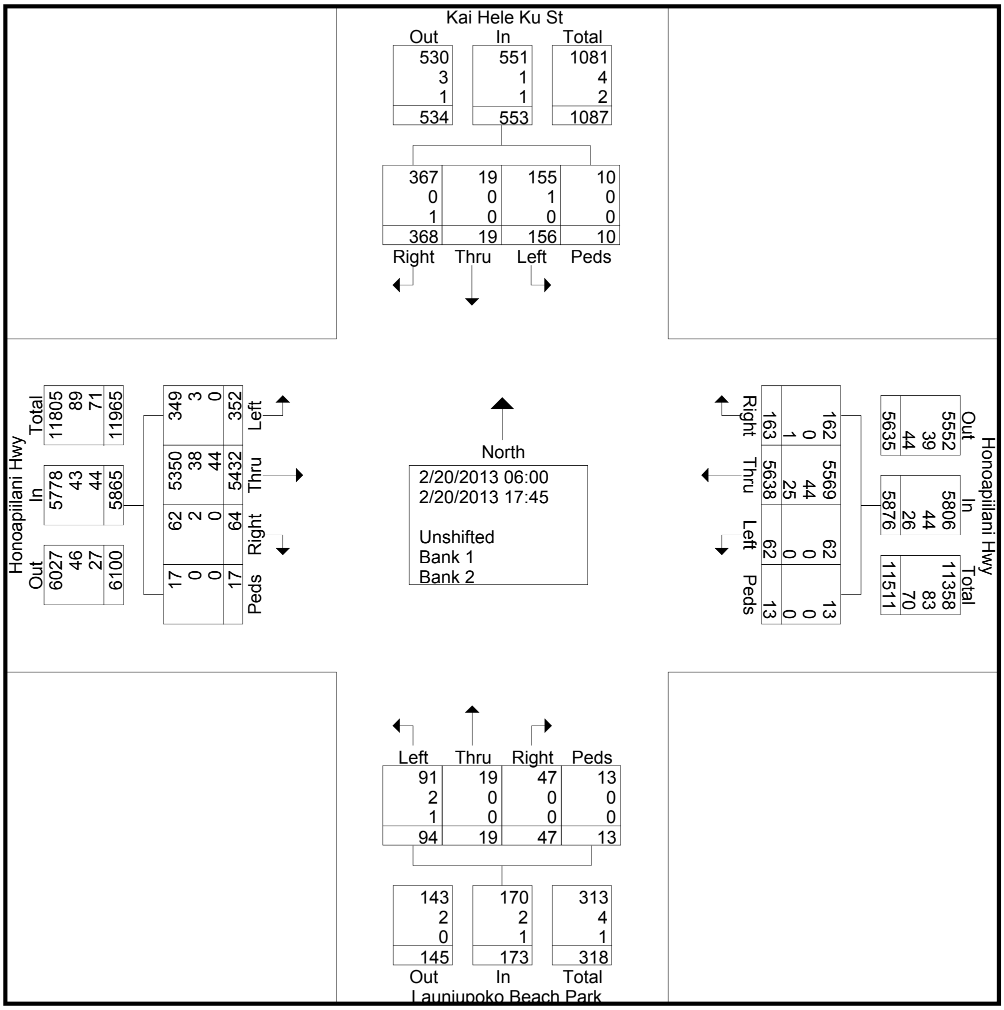


File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

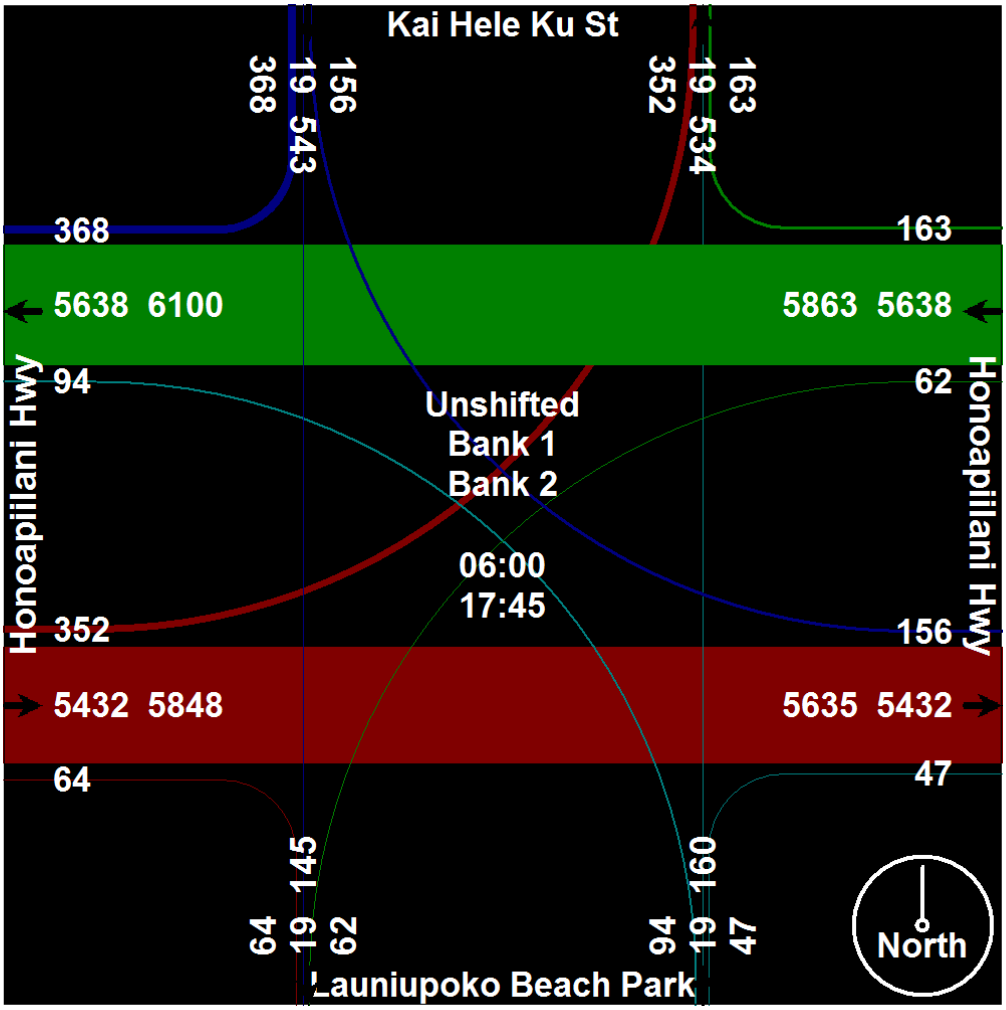
	Kai Hele Ku St From North					Honoapiilani Hwy From East					Launiupoko Beach Park From South					Honoapiilani Hwy From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00	3	0	1	0	4	3	109	0	0	112	0	0	0	0	0	0	74	0	0	74	190
06:15	9	1	3	0	13	1	137	2	0	140	1	0	0	0	1	0	146	4	0	150	304
06:30	12	0	3	0	15	11	167	2	0	180	1	0	0	0	1	0	109	6	0	115	311
06:45	13	0	3	0	16	11	221	1	0	233	0	0	0	0	0	0	126	9	0	135	384
Total	37	1	10	0	48	26	634	5	0	665	2	0	0	0	2	0	455	19	0	474	1189
07:00	23	0	4	0	27	7	210	0	1	218	1	0	1	0	2	3	143	2	1	149	396
07:15	22	1	4	0	27	11	251	1	1	264	1	1	1	0	3	2	137	8	0	147	441
07:30	34	0	1	0	35	6	237	3	0	246	0	0	3	0	3	2	124	6	3	135	419
07:45	16	0	4	0	20	6	181	0	1	188	0	0	4	0	4	4	173	11	0	188	400
Total	95	1	13	0	109	30	879	4	3	916	2	1	9	0	12	11	577	27	4	619	1656
08:00	17	1	3	0	21	8	223	2	0	233	1	0	0	0	1	1	125	14	0	140	395
08:15	20	0	8	0	28	5	222	2	1	230	1	0	1	2	4	4	168	8	0	180	442
08:30	20	1	5	0	26	7	201	4	0	212	0	0	2	0	2	2	157	14	1	174	414
08:45	25	0	5	0	30	13	194	2	0	209	3	0	2	0	5	4	188	10	1	203	447
Total	82	2	21	0	105	33	840	10	1	884	5	0	5	2	12	11	638	46	2	697	1698
*** BREAK ***																					
15:00	16	1	12	0	29	6	241	4	0	251	0	1	8	0	9	5	249	26	3	283	572
15:15	15	3	15	0	33	7	222	0	0	229	6	1	6	0	13	7	256	23	3	289	564
15:30	10	1	12	1	24	5	236	5	0	246	1	1	3	0	5	2	222	16	0	240	515
15:45	15	3	15	0	33	8	233	7	4	252	3	1	7	1	12	3	249	16	2	270	567
Total	56	8	54	1	119	26	932	16	4	978	10	4	24	1	39	17	976	81	8	1082	2218
16:00	20	0	2	0	22	6	269	2	0	277	4	0	8	0	12	0	290	33	0	323	634
16:15	10	2	11	1	24	9	260	4	2	275	3	2	7	2	14	4	277	14	0	295	608
16:30	15	1	11	2	29	6	280	4	2	292	4	5	6	0	15	3	373	23	0	399	735
16:45	10	0	9	3	22	6	291	3	0	300	3	0	3	0	6	3	342	20	0	365	693
Total	55	3	33	6	97	27	1100	13	4	1144	14	7	24	2	47	10	1282	90	0	1382	2670
17:00	14	0	5	0	19	5	296	5	0	306	6	3	9	4	22	4	388	19	2	413	760
17:15	11	3	11	0	25	5	337	2	0	344	2	0	8	0	10	4	356	27	0	387	766
17:30	11	0	5	3	19	7	343	3	1	354	5	3	12	3	23	5	324	24	1	354	750
17:45	7	1	4	0	12	4	277	4	0	285	1	1	3	1	6	2	436	19	0	457	760
Total	43	4	25	3	75	21	1253	14	1	1289	14	7	32	8	61	15	1504	89	3	1611	3036
Grand Total	368	19	156	10	553	163	5638	62	13	5876	47	19	94	13	173	64	5432	352	17	5865	12467
Apprch %	66.5	3.4	28.2	1.8		2.8	95.9	1.1	0.2		27.2	11	54.3	7.5		1.1	92.6	6	0.3		
Total %	3	0.2	1.3	0.1	4.4	1.3	45.2	0.5	0.1	47.1	0.4	0.2	0.8	0.1	1.4	0.5	43.6	2.8	0.1	47	
Unshifted	367	19	155	10	551	162	5569	62	13	5806	47	19	91	13	170	62	5350	349	17	5778	12305
% Unshifted	99.7	100	99.4	100	99.6	99.4	98.8	100	100	98.8	100	100	96.8	100	98.3	96.9	98.5	99.1	100	98.5	98.7
Bank 1	0	0	1	0	1	0	44	0	0	44	0	0	2	0	2	2	38	3	0	43	90
% Bank 1	0	0	0.6	0	0.2	0	0.8	0	0	0.7	0	0	2.1	0	1.2	3.1	0.7	0.9	0	0.7	0.7
Bank 2	1	0	0	0	1	1	25	0	0	26	0	0	1	0	1	0	44	0	0	44	72
% Bank 2	0.3	0	0	0	0.2	0.6	0.4	0	0	0.4	0	0	1.1	0	0.6	0	0.8	0	0	0.8	0.6

File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013
Page No : 2



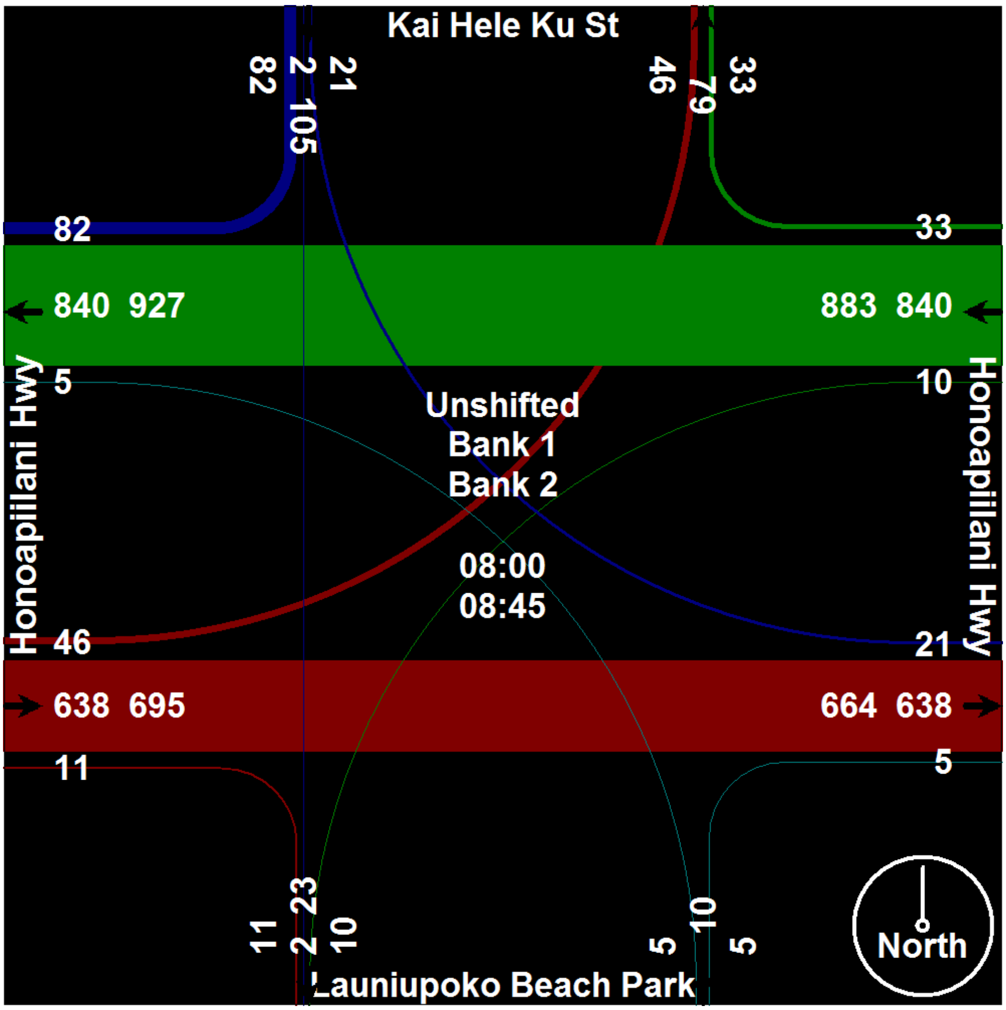
Palmetto Traffic Group, LLC

File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013
Page No : 3



	Kai Hele Ku St From North					Honoapiilani Hwy From East					Launiupoko Beach Park From South					Honoapiilani Hwy From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	17	**1**	3	0	21	8	**223**	2	0	**233**	1	0	0	0	1	1	125	**14**	0	140	395
08:15	20	0	**8**	0	28	5	222	2	**1**	230	1	0	1	**2**	4	**4**	168	8	0	180	442
08:30	20	1	5	0	26	7	201	**4**	0	212	0	0	**2**	0	2	2	157	14	**1**	174	414
08:45	**25**	0	5	0	**30**	**13**	194	2	0	209	**3**	0	2	0	**5**	4	**188**	10	1	**203**	**447**
Total Volume	82	2	21	0	105	33	840	10	1	884	5	0	5	2	12	11	638	46	2	697	1698
% App. Total	78.1	1.9	20	0		3.7	95	1.1	0.1		41.7	0	41.7	16.7		1.6	91.5	6.6	0.3		
PHF	.820	.500	.656	.000	.875	.635	.942	.625	.250	.948	.417	.000	.625	.250	.600	.688	.848	.821	.500	.858	.950

File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013



Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00					06:45					07:00					08:00				
+0 mins.	23	0	**4**	0	27	**11**	221	1	0	233	**1**	0	1	0	2	1	125	**14**	0	140
+15 mins.	22	**1**	4	0	27	7	210	0	**1**	218	1	**1**	1	0	3	**4**	168	8	0	180
+30 mins.	**34**	0	1	0	**35**	11	**251**	1	1	**264**	0	0	3	0	3	2	157	14	**1**	174
+45 mins.	16	0	4	0	20	6	237	**3**	0	246	0	0	**4**	0	**4**	4	**188**	10	1	**203**
Total Volume	95	1	13	0	109	35	919	5	2	961	2	1	9	0	12	11	638	46	2	697
% App. Total	87.2	0.9	11.9	0		3.6	95.6	0.5	0.2		16.7	8.3	75	0		1.6	91.5	6.6	0.3	
PHF	.699	.250	.813	.000	.779	.795	.915	.417	.500	.910	.500	.250	.563	.000	.750	.688	.848	.821	.500	.858

File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013
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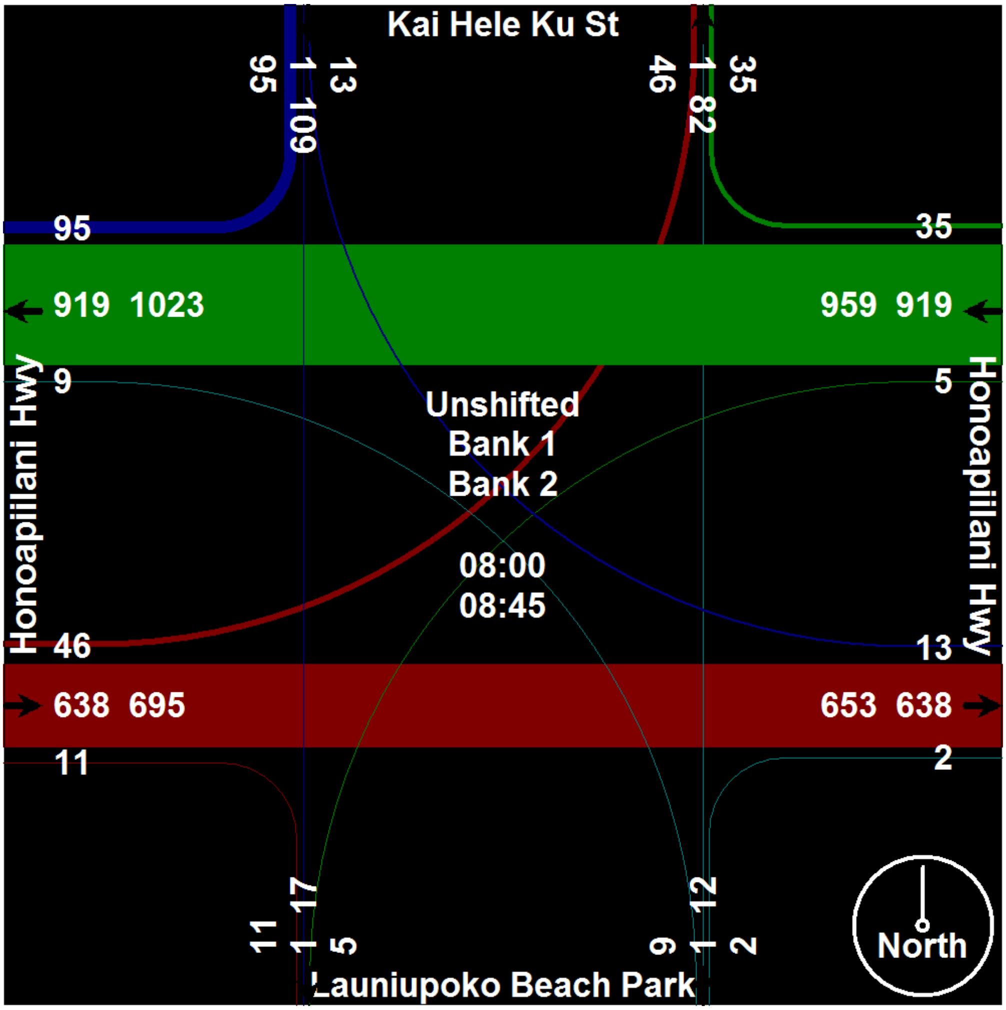
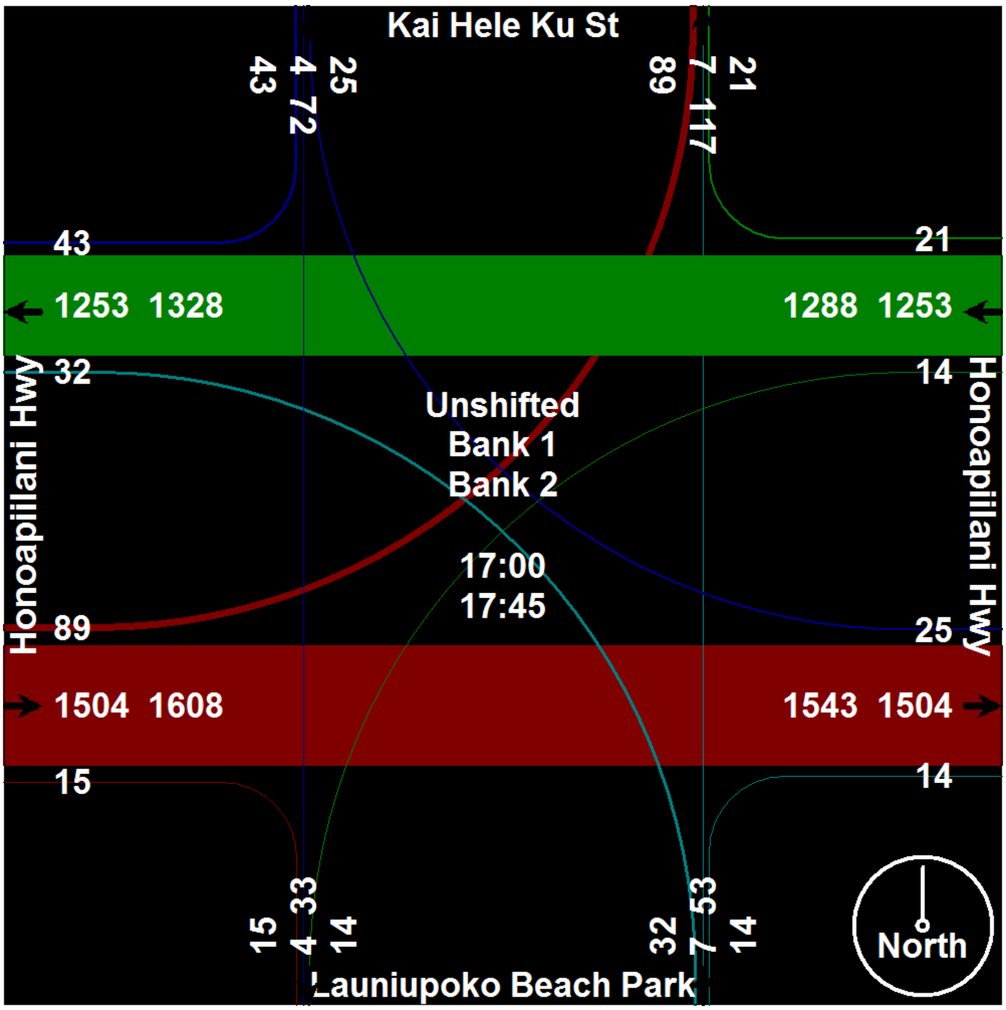


Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

17:00	**14**	0	5	0	19	5	296	**5**	0	306	**6**	**3**	9	**4**	22	4	388	19	**2**	413	760
17:15	11	**3**	**11**	0	**25**	5	337	2	0	344	2	0	8	0	10	4	356	**27**	0	387	**766**
17:30	11	0	5	**3**	19	**7**	**343**	3	**1**	**354**	5	3	**12**	3	**23**	**5**	324	24	1	354	750
17:45	7	1	4	0	12	4	277	4	0	285	1	1	3	1	6	2	**436**	19	0	**457**	760
Total Volume	43	4	25	3	75	21	1253	14	1	1289	14	7	32	8	61	15	1504	89	3	1611	3036
% App. Total	57.3	5.3	33.3	4		1.6	97.2	1.1	0.1		23	11.5	52.5	13.1		0.9	93.4	5.5	0.2		
PHF	.768	.333	.568	.250	.750	.750	.913	.700	.250	.910	.583	.583	.667	.500	.663	.750	.862	.824	.375	.881	.991

File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013



Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	15:00					16:45					16:45					17:00				
+0 mins.	**16**	1	12	0	29	6	291	3	0	300	3	0	3	0	6	4	388	19	**2**	413
+15 mins.	15	**3**	**15**	0	**33**	5	296	**5**	0	306	**6**	**3**	9	**4**	22	4	356	**27**	0	387
+30 mins.	10	1	12	**1**	24	5	337	2	0	344	2	0	8	0	10	**5**	324	24	1	354
+45 mins.	15	3	15	0	33	**7**	**343**	3	**1**	**354**	5	3	**12**	3	**23**	2	**436**	19	0	**457**
Total Volume	56	8	54	1	119	23	1267	13	1	1304	16	6	32	7	61	15	1504	89	3	1611
% App. Total	47.1	6.7	45.4	0.8		1.8	97.2	1	0.1		26.2	9.8	52.5	11.5		0.9	93.4	5.5	0.2	
PHF	.875	.667	.900	.250	.902	.821	.923	.650	.250	.921	.667	.500	.667	.438	.663	.750	.862	.824	.375	.881

File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013
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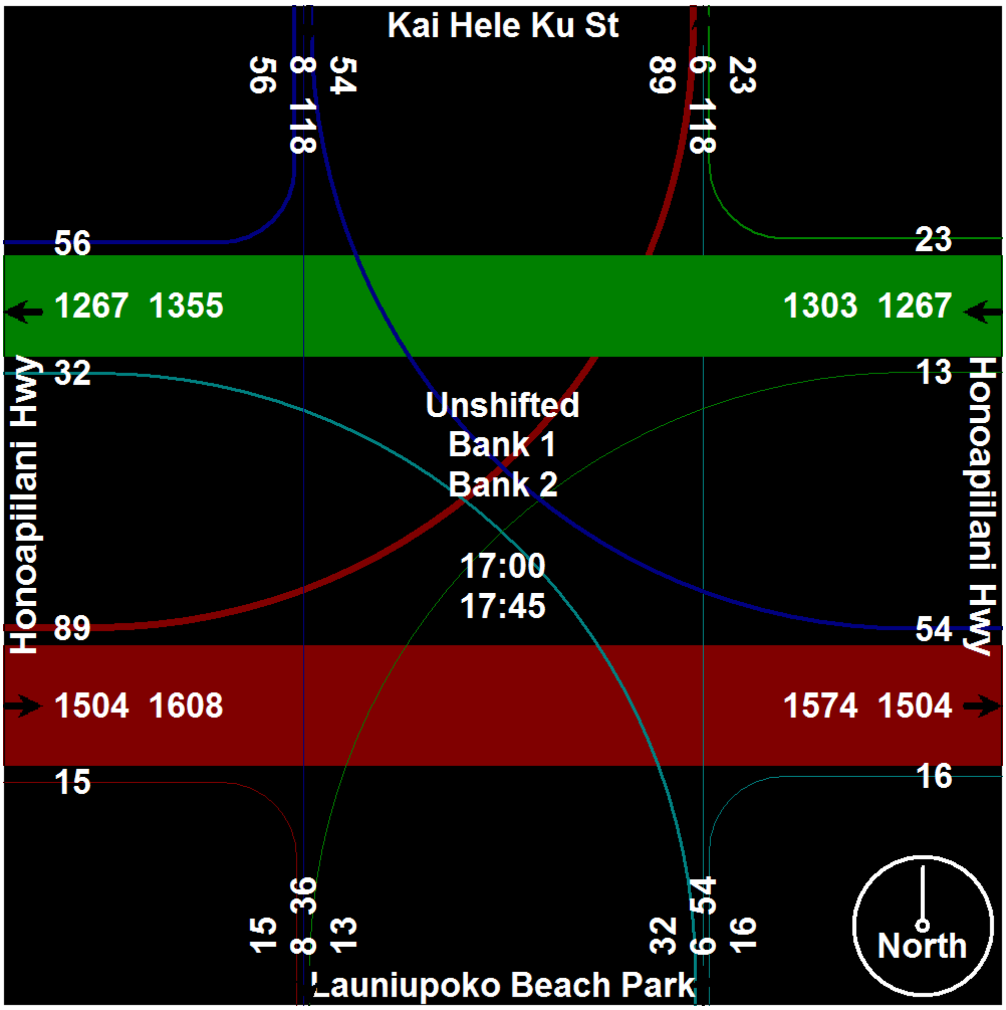
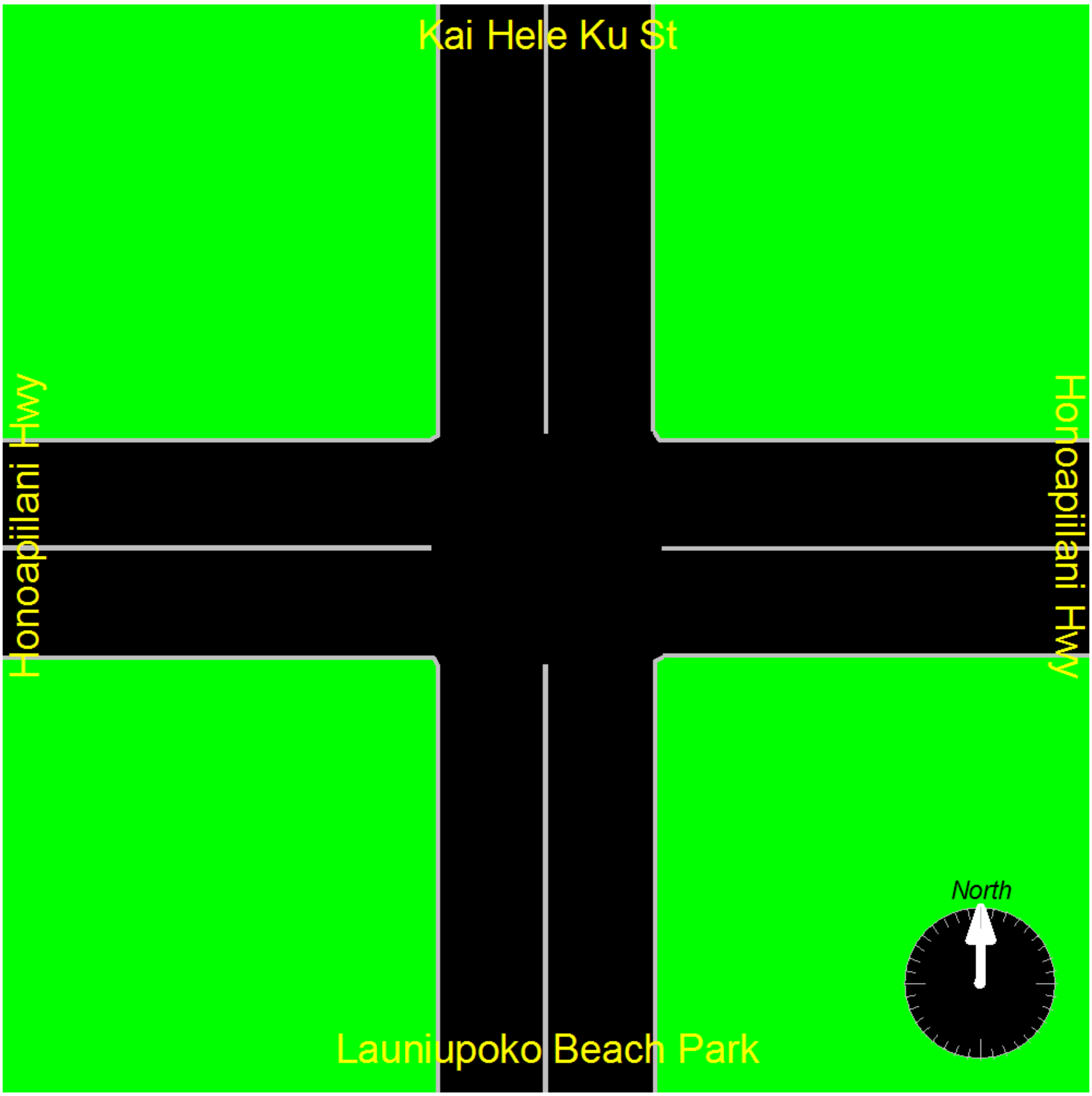


File Name : Launiupoko Beach Park TMC
Site Code : TMC
Start Date : 2/20/2013



File Name : Not Named 10
Site Code : 33333333
Start Date : 2/13/2013
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	Luawai St From North					From Maalea From East					From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00	0	0	0	0	0	0	108	0	0	108	0	0	0	0	0	0	82	1	0	83	191
06:15	0	0	1	0	1	0	164	0	0	164	0	0	0	0	0	0	114	1	0	115	280
06:30	1	0	1	0	2	2	222	0	0	224	0	0	0	0	0	0	72	0	0	72	298
06:45	0	0	0	0	0	0	216	0	0	216	0	0	0	0	0	0	132	0	0	132	348
Total	1	0	2	0	3	2	710	0	0	712	0	0	0	0	0	0	400	2	0	402	1117
07:00	2	0	1	0	3	1	226	0	0	227	0	0	0	0	0	0	116	8	0	124	354
07:15	2	0	1	0	3	1	262	0	0	263	0	0	0	0	0	0	160	0	0	160	426
07:30	1	0	2	0	3	2	212	0	0	214	0	0	0	0	0	0	153	0	0	153	370
07:45	1	0	1	0	2	0	196	0	0	196	0	0	0	0	0	0	129	0	0	129	327
Total	6	0	5	0	11	4	896	0	0	900	0	0	0	0	0	0	558	8	0	566	1477
08:00	1	0	0	1	2	1	235	0	0	236	0	0	0	0	0	0	136	0	1	137	375
08:15	3	0	2	0	5	0	219	0	2	221	0	0	0	0	0	0	175	0	0	175	401
08:30	0	0	0	0	0	1	208	0	0	209	0	0	0	0	0	0	190	0	0	190	399
08:45	0	0	0	0	0	1	182	0	0	183	0	0	0	0	0	0	207	0	2	209	392
Total	4	0	2	1	7	3	844	0	2	849	0	0	0	0	0	0	708	0	3	711	1567
09:00	0	0	0	0	0	0	158	0	8	166	0	0	0	0	0	0	184	0	0	184	350
09:15	0	0	1	0	1	2	164	0	3	169	0	0	0	0	0	0	210	0	2	212	382
*** BREAK ***																					
Total	0	0	1	0	1	2	322	0	11	335	0	0	0	0	0	0	394	0	2	396	732
*** BREAK ***																					
15:00	2	0	0	0	2	1	274	0	0	275	0	0	0	0	0	0	249	3	1	253	530
15:15	0	0	1	0	1	0	286	0	0	286	0	0	0	0	0	0	253	1	0	254	541
15:30	3	0	4	0	7	0	292	0	0	292	0	0	0	0	0	0	280	4	0	284	583
15:45	1	0	5	1	7	1	256	0	0	257	0	0	0	0	0	0	267	2	0	269	533
Total	6	0	10	1	17	2	1108	0	0	1110	0	0	0	0	0	0	1049	10	1	1060	2187
16:00	0	0	3	0	3	1	233	0	3	237	0	0	0	0	0	0	223	1	0	224	464
16:15	0	0	1	0	1	1	263	0	0	264	0	0	0	0	0	0	283	0	0	283	548
16:30	0	0	3	0	3	0	266	0	0	266	0	0	0	0	0	0	264	0	1	265	534
16:45	3	0	0	0	3	0	277	0	0	277	0	0	0	0	0	0	241	2	1	244	524
Total	3	0	7	0	10	2	1039	0	3	1044	0	0	0	0	0	0	1011	3	2	1016	2070
17:00	0	0	2	0	2	0	221	0	0	221	0	0	0	0	0	0	245	0	0	245	468
17:15	2	0	1	0	3	2	225	0	1	228	0	0	0	0	0	0	268	4	0	272	503
17:30	2	0	3	0	5	2	219	0	0	221	0	0	0	0	0	0	253	2	0	255	481
17:45	3	0	2	0	5	0	260	0	0	260	0	0	0	0	0	0	214	5	0	219	484
Total	7	0	8	0	15	4	925	0	1	930	0	0	0	0	0	0	980	11	0	991	1936
18:00	1	0	3	0	4	2	236	0	0	238	0	0	0	0	0	0	189	0	0	189	431
18:15	0	0	0	0	0	1	153	0	0	154	0	0	0	0	0	0	171	1	0	172	326
Grand Total	28	0	38	2	68	22	6233	0	17	6272	0	0	0	0	0	0	5460	35	8	5503	11843
Apprch %	41.2	0	55.9	2.9		0.4	99.4	0	0.3		0	0	0	0		0	99.2	0.6	0.1		
Total %	0.2	0	0.3	0	0.6	0.2	52.6	0	0.1	53	0	0	0	0	0	0	46.1	0.3	0.1	46.5	
Unshifted	28	0	38	2	68	21	6171	0	17	6209	0	0	0	0	0	0	5424	34	8	5466	11743
% Unshifted	100	0	100	100	100	95.5	99	0	100	99	0	0	0	0	0	0	99.3	97.1	100	99.3	99.2
Bank 1	0	0	0	0	0	1	44	0	0	45	0	0	0	0	0	0	11	0	0	11	56
% Bank 1	0	0	0	0	0	4.5	0.7	0	0	0.7	0	0	0	0	0	0	0.2	0	0	0.2	0.5
Bank 2	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	0	25	1	0	26	44
% Bank 2	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0.5	2.9	0	0.5	0.4

Palmetto Traffic Group, LLC

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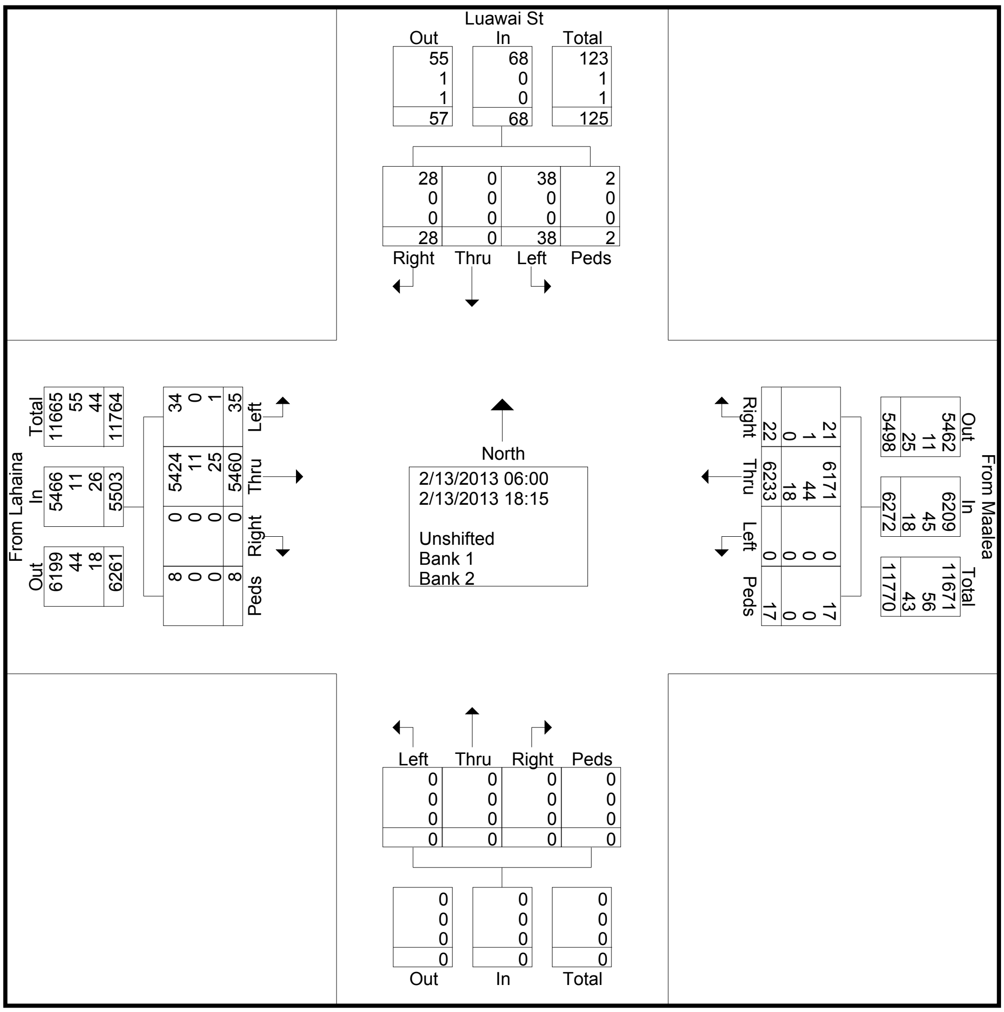
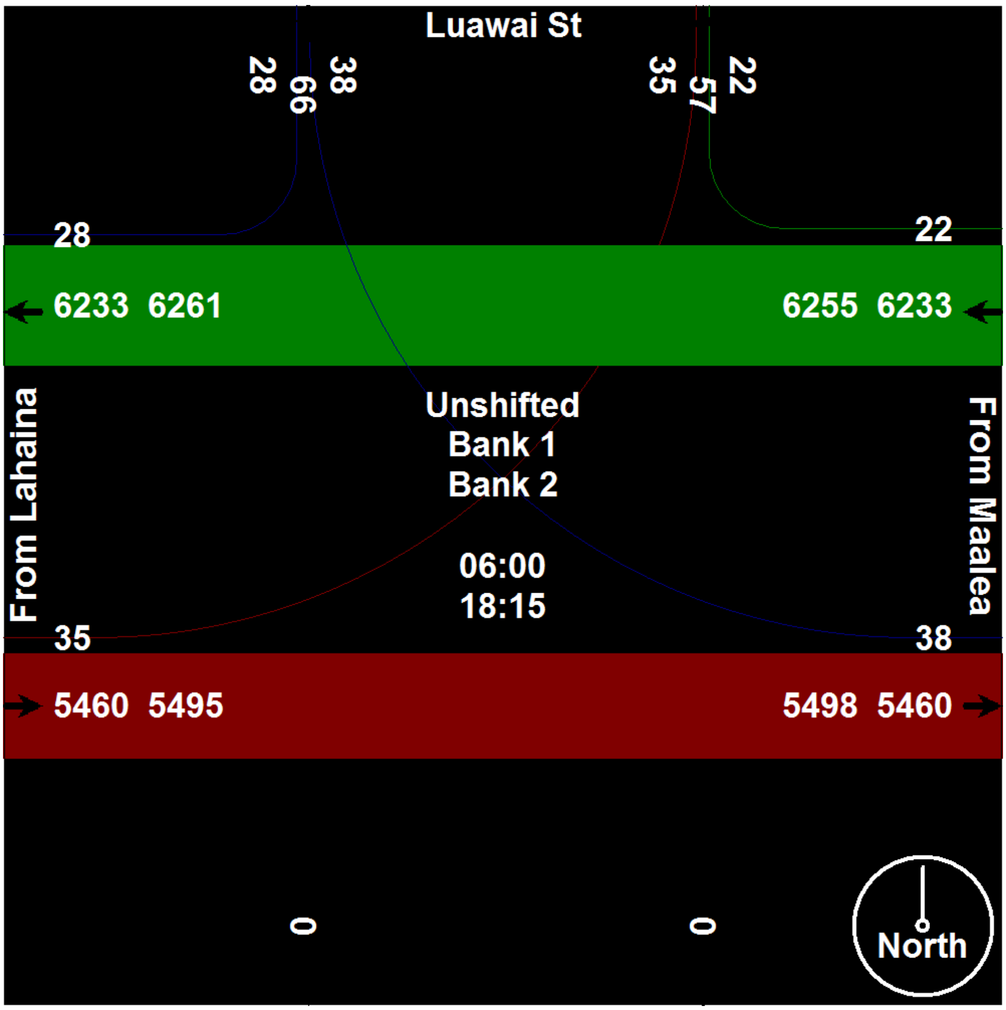


File Name : Not Named 10
Site Code : 33333333
Start Date : 2/13/2013



	Luawai St From North					From Maalea From East					From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	1	0	0	**1**	2	**1**	**235**	0	0	**236**	0	0	0	0	0	0	136	0	1	137	375
08:15	**3**	0	**2**	0	**5**	0	219	0	**2**	221	0	0	0	0	0	0	175	0	0	175	**401**
08:30	0	0	0	0	0	1	208	0	0	209	0	0	0	0	0	0	190	0	0	190	399
08:45	0	0	0	0	0	1	182	0	0	183	0	0	0	0	0	0	**207**	0	**2**	**209**	392
Total Volume	4	0	2	1	7	3	844	0	2	849	0	0	0	0	0	0	708	0	3	711	1567
% App. Total	57.1	0	28.6	14.3		0.4	99.4	0	0.2		0	0	0	0		0	99.6	0	0.4		
PHF	.333	.000	.250	.250	.350	.750	.898	.000	.250	.899	.000	.000	.000	.000	.000	.000	.855	.000	.375	.850	.977

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Site Code : 33333333
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	Luawai St From North					From Maalea From East					From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:30					06:30					06:00					08:30					
+0 mins.	1	0	**2**	0	3	**2**	222	0	0	224	0	0	0	0	0	0	190	0	0	190	
+15 mins.	1	0	1	0	2	0	216	0	0	216	0	0	0	0	0	0	207	0	**2**	209	
+30 mins.	1	0	0	**1**	2	1	226	0	0	227	0	0	0	0	0	0	184	0	0	184	
+45 mins.	**3**	0	2	0	**5**	1	**262**	0	0	**263**	0	0	0	0	0	0	**210**	0	2	**212**	
Total Volume	6	0	5	1	12	4	926	0	0	930	0	0	0	0	0	0	791	0	4	795	
% App. Total	50	0	41.7	8.3		0.4	99.6	0	0		0	0	0	0		0	99.5	0	0.5		
PHF	.500	.000	.625	.250	.600	.500	.884	.000	.000	.884	.000	.000	.000	.000	.000	.000	.942	.000	.500	.938	

Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:00																					
15:00	**2**	**0**	**0**	**0**	**2**	1													1		
15:15	0	0	1	0	1	0	286	0	0	286	0	0	0	0	0	0	253	1	0	254	541
15:30	3	0	4	0	7	0	292	0	0	292	0	0	0	0	0	0	280	4	0	284	583
15:45	1	0	5	1	7	1	256	0	0	257	0	0	0	0	0	0	267	2	0	269	533
Total Volume	6	0	10	1	17	2	1108	0	0	1110	0	0	0	0	0	0	1049	10	1	1060	2187
% App. Total	35.3	0	58.8	5.9		0.2	99.8	0	0		0	0	0	0		0	99	0.9	0.1		
PHF	.500	.000	.500	.250	.607	.500	.949	.000	.000	.950	.000	.000	.000	.000	.000	.000	.937	.625	.250	.933	.938

Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																				
Peak Hour for Each Approach Begins at:																				
	15:15					15:00					12:00					15:00				
+0 mins.	0	0	1	0	1	**1**	274	0	0	275	0	0	0	0	0	0	249	3	**1**	253
+15 mins.	**3**	0	4	0	**7**	0	286	0	0	286	0	0	0	0	0	0	253	1	0	254
+30 mins.	1	0	**5**	**1**	7	0	**292**	0	0	**292**	0	0	0	0	0	0	**280**	**4**	0	**284**
+45 mins.	0	0	3	0	3	1	256	0	0	257	0	0	0	0	0	0	267	2	0	269
Total Volume	4	0	13	1	18	2	1108	0	0	1110	0	0	0	0	0	0	1049	10	1	1060
% App. Total	22.2	0	72.2	5.6		0.2	99.8	0	0		0	0	0	0		0	99	0.9	0.1	
PHF	.333	.000	.650	.250	.643	.500	.949	.000	.000	.950	.000	.000	.000	.000	.000	.000	.937	.625	.250	.933

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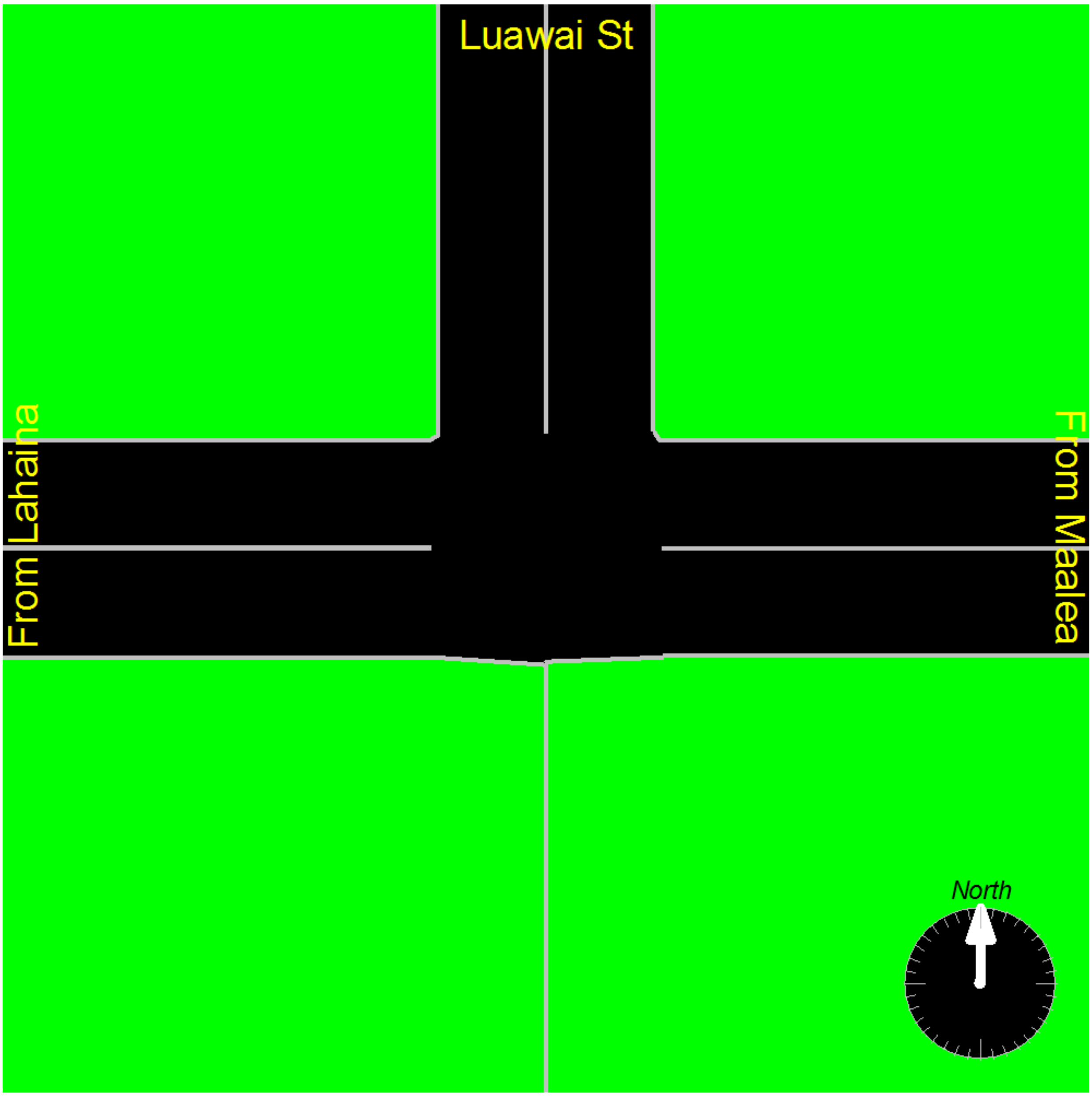

File Name : Not Named 35
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Start Date : 2/13/2013
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Groups Printed- Unshifted - Bank 1

	Olowalu Access Rd From North					From Maalea From East					From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00	1	0	0	0	1	0	224	0	0	224	0	0	0	0	0	0	213	0	0	213	438
06:15	0	0	0	0	0	0	315	0	0	315	0	0	0	0	0	0	226	0	0	226	541
06:30	0	0	1	0	1	2	379	0	0	381	0	0	0	0	0	0	241	0	0	241	623
06:45	2	0	0	0	2	0	388	0	0	388	0	0	0	0	0	0	298	0	0	298	688
Total	3	0	1	0	4	2	1306	0	0	1308	0	0	0	0	0	0	978	0	0	978	2290
07:00	1	0	2	0	3	0	471	0	0	471	0	0	0	0	0	0	221	0	0	221	695
07:15	1	0	0	0	1	0	344	0	3	347	0	0	0	0	0	0	276	0	0	276	624
07:30	1	0	0	0	1	0	322	0	0	322	0	0	0	0	0	0	338	0	0	338	661
07:45	1	0	0	0	1	1	388	6	0	395	0	0	0	0	0	0	224	0	0	224	620
Total	4	0	2	0	6	1	1525	6	3	1535	0	0	0	0	0	0	1059	0	0	1059	2600
08:00	0	0	0	0	0	0	308	0	0	308	0	0	0	0	0	0	206	0	1	207	515
08:15	2	0	0	0	2	1	345	0	2	348	0	0	0	0	0	0	213	1	0	214	564
08:30	0	0	0	0	0	0	214	0	0	214	0	0	0	0	0	0	258	0	0	258	472
08:45	0	0	0	0	0	0	278	0	1	279	0	0	0	0	0	0	264	0	2	266	545
Total	2	0	0	0	2	1	1145	0	3	1149	0	0	0	0	0	0	941	1	3	945	2096
09:00	2	0	0	0	2	1	216	0	1	218	0	0	0	0	0	0	212	0	0	212	432
09:15	0	0	0	0	0	1	263	0	3	267	0	0	0	0	0	0	335	2	1	338	605
*** BREAK ***																					
Total	2	0	0	0	2	2	479	0	4	485	0	0	0	0	0	0	547	2	1	550	1037
*** BREAK ***																					
15:00	1	0	1	1	3	2	0	0	0	2	0	0	0	0	0	0	1	1	0	2	7
15:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
15:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
15:45	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	3
Total	2	0	4	1	7	4	0	0	0	4	0	0	0	0	0	0	1	3	0	4	15
16:00	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
16:15	1	0	1	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
*** BREAK ***																					
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	1	0	1	0	2	4	0	0	0	4	0	0	0	0	0	0	0	1	0	1	7
17:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:15	1	0	0	0	1	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	5
*** BREAK ***																					
17:45	1	0	2	0	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
Total	2	0	2	0	4	6	0	1	0	7	0	0	0	0	0	0	0	0	0	0	11
18:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
18:15	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
Grand Total	17	1	10	1	29	21	4455	7	10	4493	0	0	0	0	0	0	3526	10	4	3540	8062
Apprch %	58.6	3.4	34.5	3.4		0.5	99.2	0.2	0.2		0	0	0	0		0	99.6	0.3	0.1		
Total %	0.2	0	0.1	0	0.4	0.3	55.3	0.1	0.1	55.7	0	0	0	0	0	0	43.7	0.1	0	43.9	
Unshifted	17	1	10	1	29	21	4426	7	10	4464	0	0	0	0	0	0	3509	10	4	3523	8016
% Unshifted	100	100	100	100	100	100	99.3	100	100	99.4	0	0	0	0	0	0	99.5	100	100	99.5	99.4
Bank 1	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	17	0	0	17	46
% Bank 1	0	0	0	0	0	0	0.7	0	0	0.6	0	0	0	0	0	0	0.5	0	0	0.5	0.6

File Name : Not Named 35
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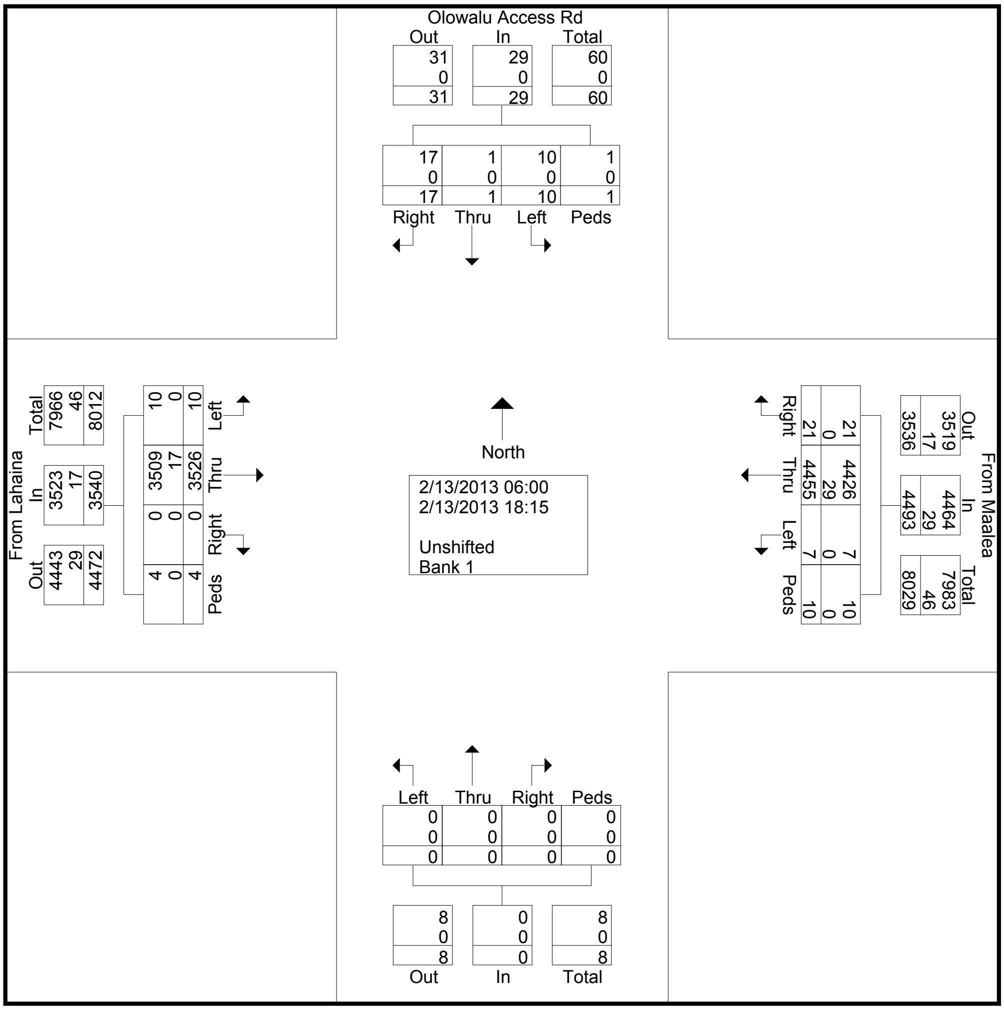
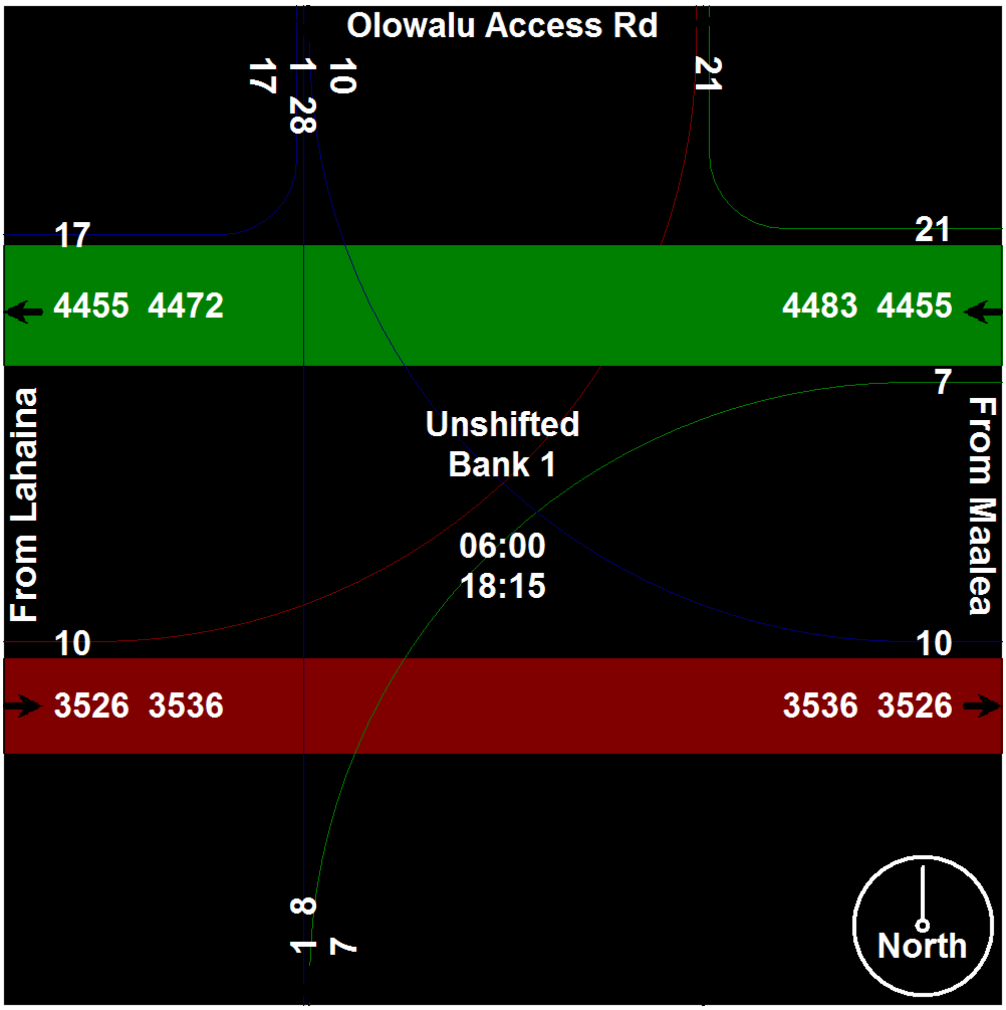


File Name : Not Named 35
Site Code : 77777777
Start Date : 2/13/2013
Page No : 3



	Olowalu Access Rd From North					From Maalea From East					From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45																					
06:45	**2**	0	0	0	2	0	388	0	0	388	0	0	0	0	0	0	298	0	0	298	688
07:00	1	0	**2**	0	**3**	0	**471**	0	0	**471**	0	0	0	0	0	0	221	0	0	221	**695**
07:15	1	0	0	0	1	0	344	0	**3**	347	0	0	0	0	0	0	276	0	0	276	624
07:30	1	0	0	0	1	0	322	0	0	322	0	0	0	0	0	0	**338**	0	0	**338**	661
Total Volume	5	0	2	0	7	0	1525	0	3	1528	0	0	0	0	0	0	1133	0	0	1133	2668
% App. Total	71.4	0	28.6	0		0	99.8	0	0.2		0	0	0	0		0	100	0	0		
PHF	.625	.000	.250	.000	.583	.000	.809	.000	.250	.811	.000	.000	.000	.000	.000	.000	.838	.000	.000	.838	.960

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	Olowalu Access Rd From North					From Maalea From East					From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	06:30					06:30					06:00					06:45					
+0 mins.	0	0	1	0	1	**2**	379	0	0	381	0	0	0	0	0	0	298	0	0	298	
+15 mins.	**2**	0	0	0	2	0	388	0	0	388	0	0	0	0	0	0	221	0	0	221	
+30 mins.	1	0	**2**	0	**3**	0	**471**	0	0	**471**	0	0	0	0	0	0	276	0	0	276	
+45 mins.	1	0	0	0	1	0	344	0	**3**	347	0	0	0	0	0	0	**338**	0	0	**338**	
Total Volume	4	0	3	0	7	2	1582	0	3	1587	0	0	0	0	0	0	1133	0	0	1133	
% App. Total	57.1	0	42.9	0		0.1	99.7	0	0.2		0	0	0	0		0	100	0	0		
PHF	.500	.000	.375	.000	.583	.250	.840	.000	.250	.842	.000	.000	.000	.000	.000	.000	.838	.000	.000	.838	
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:00																					
15:00	1			1	3	2				2							1	1		2	7
15:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
15:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
15:45	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	3
Total Volume	2	0	4	1	7	4	0	0	0	4	0	0	0	0	0	0	1	3	0	4	15
% App. Total	28.6	0	57.1	14.3		100	0	0	0		0	0	0	0		0	25	75	0		
PHF	.500	.000	.333	.250	.583	.500	.000	.000	.000	.500	.000	.000	.000	.000	.000	.000	.250	.750	.000	.500	.536

	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																				
Peak Hour for Each Approach Begins at:																				
	15:00					17:00					12:00					15:00				
+0 mins.	**1**	0	1	**1**	**3**	1	0	0	0	1	0	0	0	0	0	0	**1**	**1**	0	**2**
+15 mins.	0	0	**3**	0	3	**3**	0	**1**	0	**4**	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	1	0	1
Total Volume	2	0	4	1	7	6	0	1	0	7	0	0	0	0	0	0	1	3	0	4
% App. Total	28.6	0	57.1	14.3		85.7	0	14.3	0		0	0	0	0		0	25	75	0	
PHF	.500	.000	.333	.250	.583	.500	.000	.250	.000	.438	.000	.000	.000	.000	.000	.000	.250	.750	.000	.500

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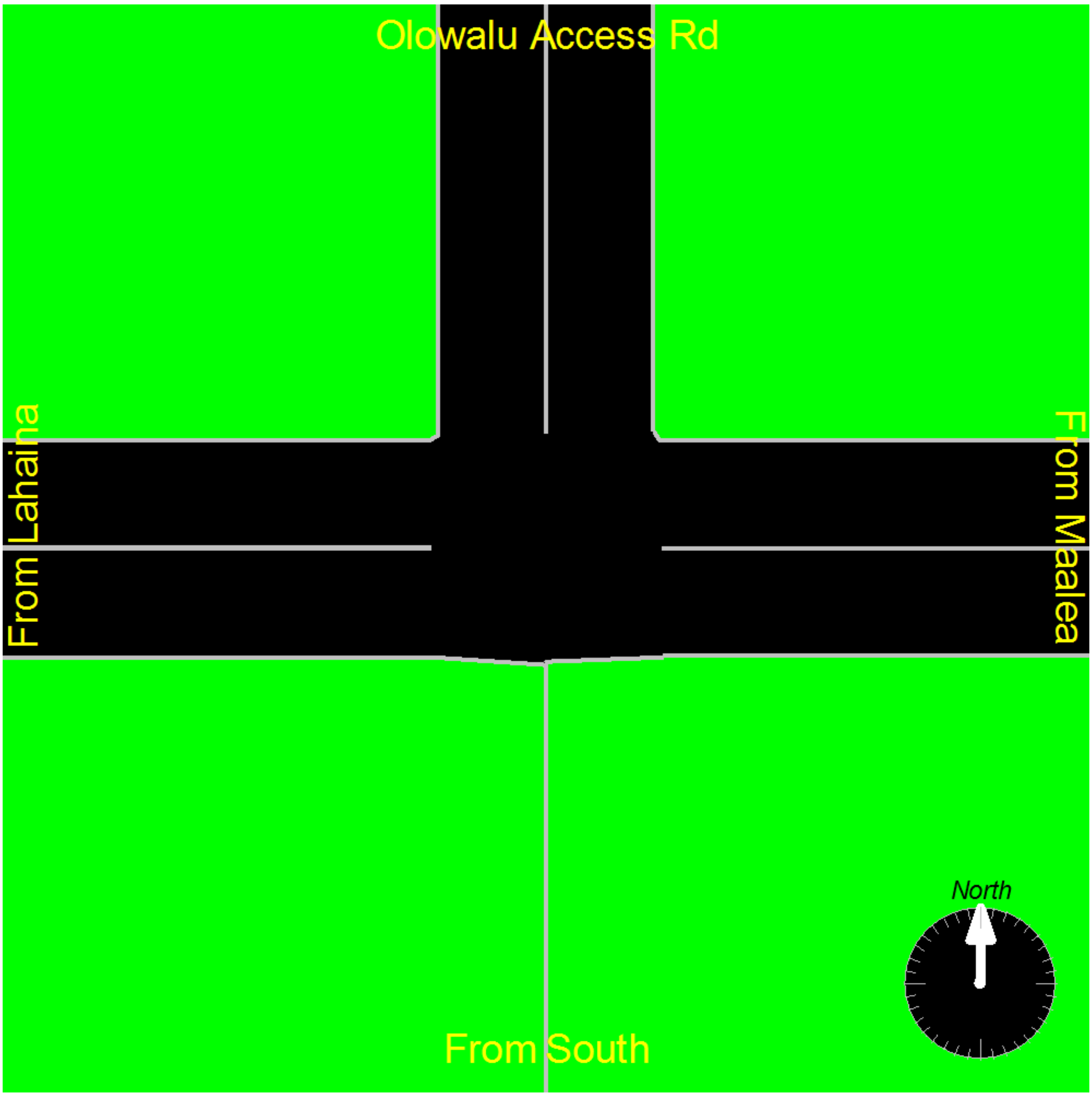

File Name : Not Named 34
Site Code : 77777777
Start Date : 2/12/2013
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	Olowalu Store From North					From Maalea From East					Managers House From South					From Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00	0	0	2	0	2	0	207	0	0	207	1	0	1	0	2	1	172	3	0	176	387
07:15	0	0	0	0	0	0	311	0	0	311	0	0	0	0	0	0	207	0	0	207	518
07:30	2	0	0	0	2	5	286	0	3	294	2	2	2	0	6	1	315	1	0	317	619
07:45	2	0	0	0	2	2	317	0	3	322	2	0	0	0	2	3	391	3	0	397	723
Total	4	0	2	0	6	7	1121	0	6	1134	5	2	3	0	10	5	1085	7	0	1097	2247
08:00	2	0	0	0	2	6	488	4	1	499	1	0	0	0	1	1	374	0	2	377	879
08:15	3	0	0	0	3	7	446	1	0	454	1	0	1	0	2	1	393	0	4	398	857
08:30	2	0	1	0	3	2	416	1	2	421	0	1	0	0	1	1	413	1	0	415	840
08:45	6	0	1	0	7	6	315	3	1	325	1	0	2	0	3	1	302	1	6	310	645
Total	13	0	2	0	15	21	1665	9	4	1699	3	1	3	0	7	4	1482	2	12	1500	3221
*** BREAK ***																					
15:00	8	0	0	0	8	2	296	0	0	298	9	1	3	0	13	6	267	9	0	282	601
15:15	4	0	1	0	5	4	331	11	0	346	0	2	0	0	2	2	364	1	0	367	720
15:30	3	0	2	0	5	1	341	2	0	344	1	0	0	0	1	4	410	3	0	417	767
15:45	3	0	2	0	5	0	378	3	0	381	3	0	3	0	6	5	444	2	0	451	843
Total	18	0	5	0	23	7	1346	16	0	1369	13	3	6	0	22	17	1485	15	0	1517	2931
16:00	1	0	0	0	1	5	373	3	3	384	3	1	2	0	6	2	498	2	1	503	894
16:15	1	0	0	0	1	3	412	2	0	417	1	0	1	0	2	0	459	6	0	465	885
16:30	3	0	0	0	3	0	356	4	0	360	2	0	1	0	3	3	474	4	0	481	847
16:45	2	0	0	0	2	3	414	5	0	422	0	1	1	0	2	2	522	5	1	530	956
Total	7	0	0	0	7	11	1555	14	3	1583	6	2	5	0	13	7	1953	17	2	1979	3582
17:00	4	0	2	0	6	2	333	3	0	338	2	1	3	0	6	6	503	6	1	516	866
17:15	2	0	0	0	2	0	541	6	0	547	1	2	0	0	3	2	511	13	1	527	1079
17:30	1	0	0	0	1	1	433	4	1	439	1	1	2	2	6	4	553	5	0	562	1008
17:45	0	0	1	0	1	0	420	3	0	423	4	0	3	0	7	0	379	5	1	385	816
Total	7	0	3	0	10	3	1727	16	1	1747	8	4	8	2	22	12	1946	29	3	1990	3769
18:00	0	0	0	0	0	0	408	2	0	410	1	0	2	0	3	1	346	9	0	356	769
18:15	3	0	0	0	3	2	438	2	1	443	1	0	3	0	4	1	378	2	0	381	831
Grand Total	52	0	12	0	64	51	8260	59	15	8385	37	12	30	2	81	47	8675	81	17	8820	17350
Apprch %	81.2	0	18.8	0		0.6	98.5	0.7	0.2		45.7	14.8	37	2.5		0.5	98.4	0.9	0.2		
Total %	0.3	0	0.1	0	0.4	0.3	47.6	0.3	0.1	48.3	0.2	0.1	0.2	0	0.5	0.3	50	0.5	0.1	50.8	
Unshifted	52	0	12	0	64	51	8217	59	15	8342	37	12	30	2	81	47	8610	81	17	8755	17242
% Unshifted	100	0	100	0	100	100	99.5	100	100	99.5	100	100	100	100	100	100	99.3	100	100	99.3	99.4
Bank 1	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	0	37	0	0	37	68
% Bank 1	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.4	0.4
Bank 2	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	0	28	0	0	28	40
% Bank 2	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0.3	0	0	0.3	0.2

Palmetto Traffic Group, LLC

File Name : Not Named 34
Site Code : 77777777
Start Date : 2/12/2013
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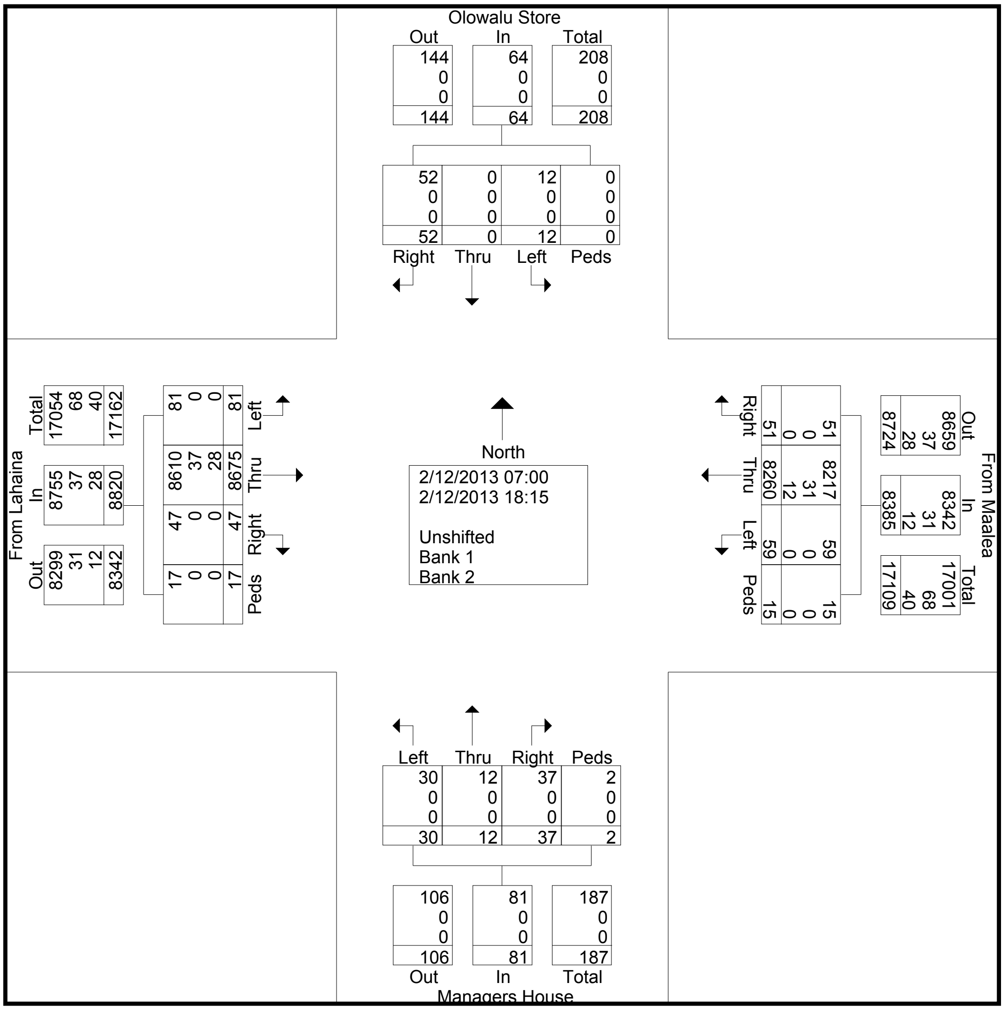
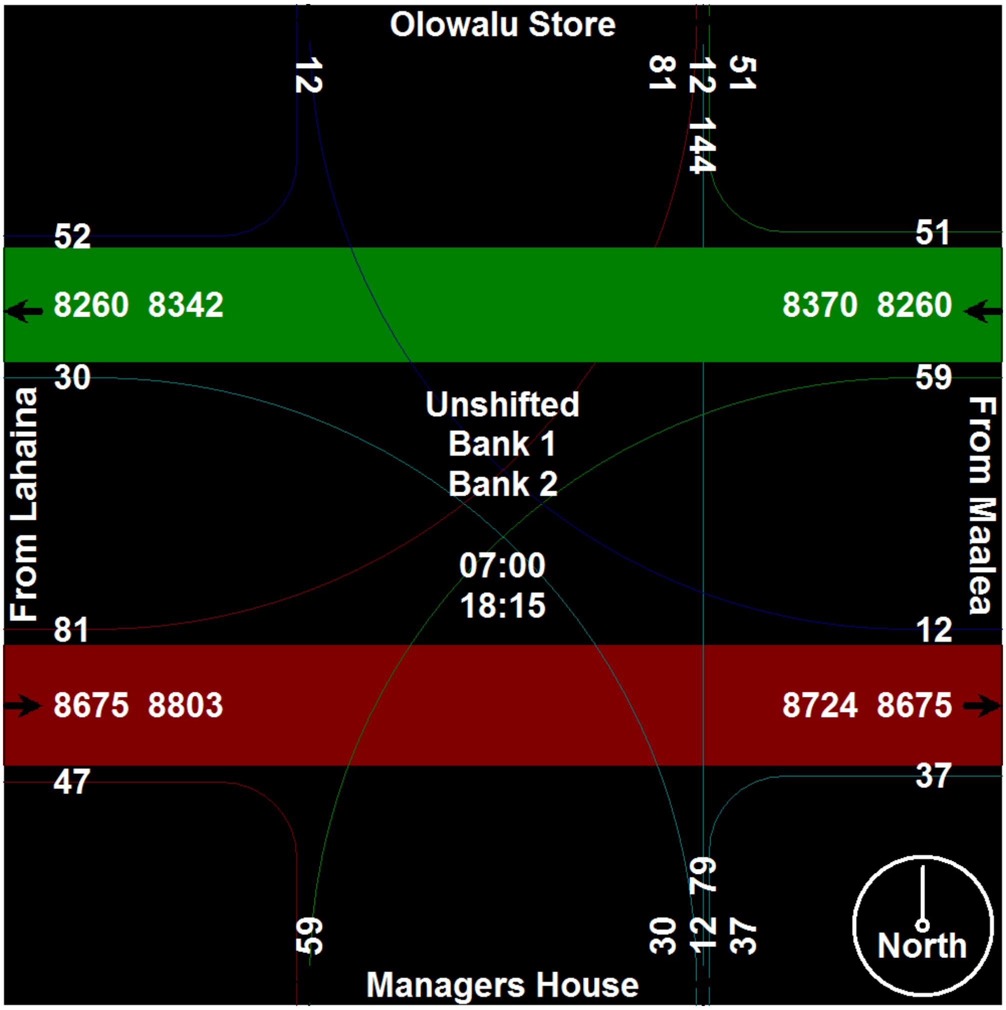
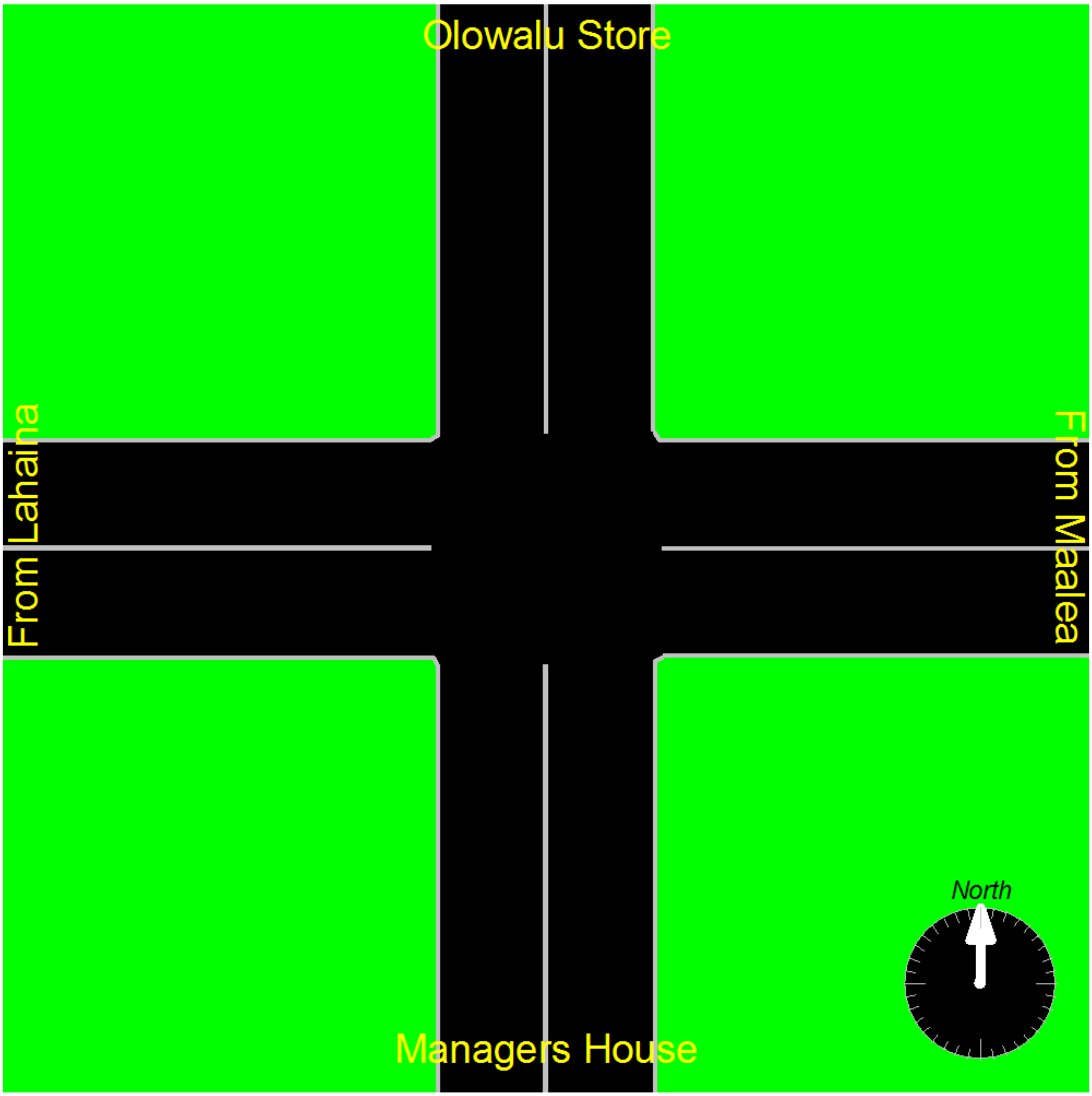


File Name : Not Named 34
Site Code : 77777777
Start Date : 2/12/2013
Page No : 3



File Name : Not Named 34
Site Code : 77777777
Start Date : 2/12/2013



File Name : Pohaku St TMC
Site Code :
Start Date : 2/14/2013
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Groups Printed- Unshifted - Bank 1

	Pohaku St From North					HP HWY from Maalea From East					From South					HP WHY from Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00	0	0	0	0	0	3	119	0	0	122	0	0	0	0	0	0	113	0	0	113	235
06:15	1	0	0	0	1	0	164	0	0	164	0	0	0	0	0	0	102	0	0	102	267
06:30	1	0	0	1	2	0	262	0	0	262	0	0	0	0	0	0	139	0	0	139	403
06:45	1	0	0	0	1	0	223	0	0	223	0	0	0	0	0	0	134	0	0	134	358
Total	3	0	0	1	4	3	768	0	0	771	0	0	0	0	0	0	488	0	0	488	1263
07:00	0	0	0	0	0	0	283	0	0	283	0	0	0	0	0	0	161	0	0	161	444
07:15	1	0	1	0	2	4	284	0	0	288	0	0	0	0	0	0	179	1	1	181	471
07:30	0	0	0	0	0	0	219	0	0	219	0	0	0	0	0	0	197	0	0	197	416
07:45	0	0	1	0	1	1	182	0	0	183	0	0	0	0	0	0	184	0	0	184	368
Total	1	0	2	0	3	5	968	0	0	973	0	0	0	0	0	0	721	1	1	723	1699
08:00	1	0	1	0	2	0	225	0	0	225	0	0	0	0	0	0	179	0	0	179	406
08:15	0	0	0	0	0	1	231	0	0	232	0	0	0	0	0	0	172	0	1	173	405
08:30	0	0	0	0	0	1	219	0	1	221	0	0	0	0	0	0	184	0	1	185	406
08:45	0	0	0	0	0	3	215	0	2	220	0	0	0	0	0	0	163	0	0	163	383
Total	1	0	1	0	2	5	890	0	3	898	0	0	0	0	0	0	698	0	2	700	1600
09:00	0	0	1	0	1	0	179	0	1	180	0	0	0	0	0	0	205	0	0	205	386
09:15	2	0	0	0	2	2	170	0	0	172	0	0	0	0	0	0	226	0	1	227	401
*** BREAK ***																					
Total	2	0	1	0	3	2	349	0	1	352	0	0	0	0	0	0	431	0	1	432	787
*** BREAK ***																					
15:00	2	0	0	0	2	0	247	0	0	247	0	0	0	0	0	0	229	0	0	229	478
15:15	2	0	0	0	2	2	275	0	1	278	0	0	0	0	0	0	248	0	0	248	528
15:30	0	0	0	0	0	1	309	0	0	310	0	0	0	0	0	0	274	0	0	274	584
15:45	0	0	2	0	2	1	312	0	1	314	0	0	0	0	0	0	291	1	0	292	608
Total	4	0	2	0	6	4	1143	0	2	1149	0	0	0	0	0	0	1042	1	0	1043	2198
16:00	0	0	0	0	0	4	251	0	0	255	0	0	0	0	0	0	266	0	0	266	521
16:15	2	0	1	0	3	1	296	0	0	297	0	0	0	0	0	0	272	0	0	272	572
16:30	0	0	0	0	0	1	274	0	0	275	0	0	0	0	0	0	289	0	2	291	566
16:45	0	0	0	0	0	1	243	0	0	244	0	0	0	0	0	0	294	0	0	294	538
Total	2	0	1	0	3	7	1064	0	0	1071	0	0	0	0	0	0	1121	0	2	1123	2197
17:00	0	0	0	0	0	1	262	0	0	263	0	0	0	0	0	0	314	0	0	314	577
17:15	0	0	0	0	0	1	273	0	0	274	0	0	0	0	0	0	270	1	0	271	545
17:30	0	0	1	0	1	2	223	0	0	225	0	0	0	0	0	0	245	1	0	246	472
17:45	1	0	0	0	1	2	181	0	0	183	0	0	0	0	0	0	264	2	1	267	451
Total	1	0	1	0	2	6	939	0	0	945	0	0	0	0	0	0	1093	4	1	1098	2045
18:00	0	0	1	0	1	2	174	0	0	176	0	0	0	0	0	0	186	0	0	186	363
18:15	0	0	0	0	0	0	182	0	0	182	0	0	0	0	0	0	214	4	0	218	400
Grand Total	14	0	9	1	24	34	6477	0	6	6517	0	0	0	0	0	0	5994	10	7	6011	12552
Apprch %	58.3	0	37.5	4.2		0.5	99.4	0	0.1		0	0	0	0		0	99.7	0.2	0.1		
Total %	0.1	0	0.1	0	0.2	0.3	51.6	0	0	51.9	0	0	0	0	0	0	47.8	0.1	0.1	47.9	
Unshifted	14	0	9	1	24	34	6454	0	6	6494	0	0	0	0	0	0	5973	10	7	5990	12508
% Unshifted	100	0	100	100	100	100	99.6	0	100	99.6	0	0	0	0	0	0	99.6	100	100	99.7	99.6
Bank 1	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	21	0	0	21	44
% Bank 1	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.3	0.4

Palmetto Traffic Group, LLC

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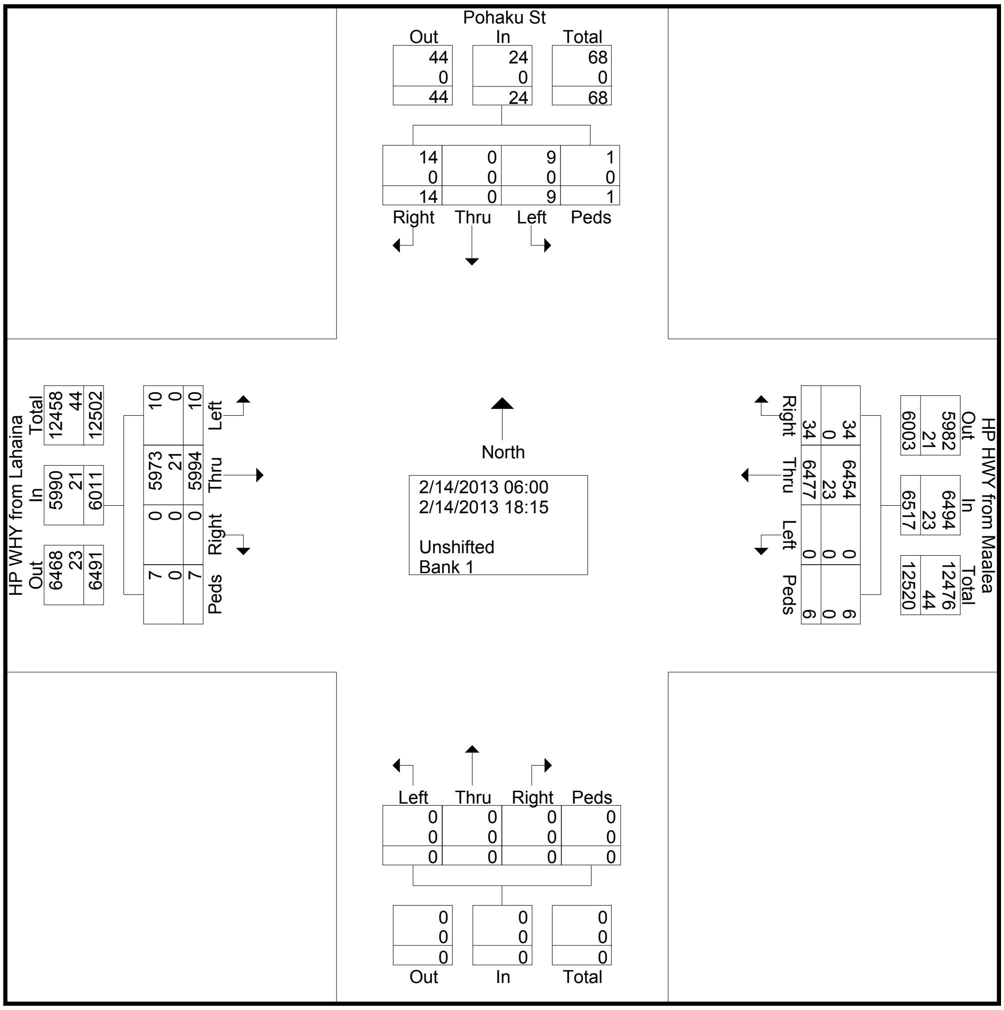

File Name : Pohaku St TMC
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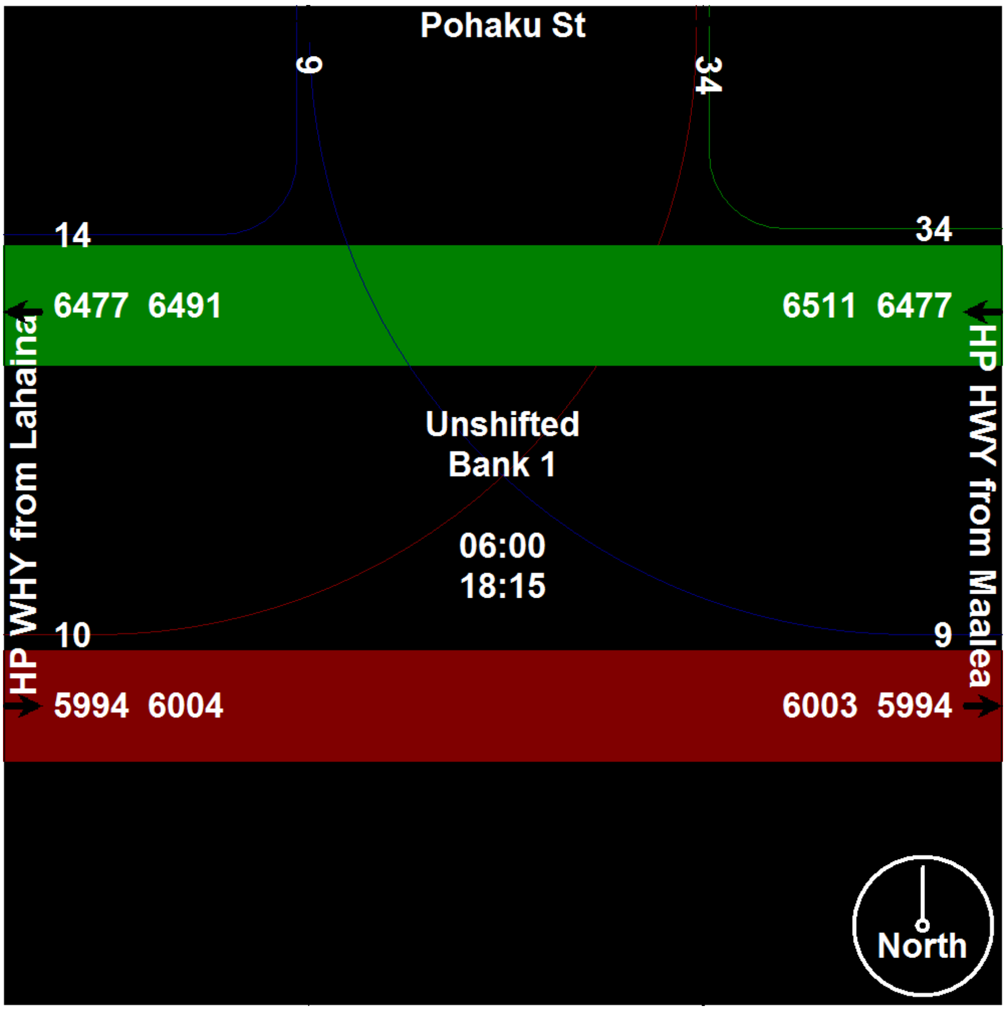

	Pohaku St From North					HP HWY from Maalea From East					From South					HP WHY from Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	0	0	0	0	0	283	0	0	283	0	0	0	0	0	0	161	0	0	161	444
07:15	**1**	0	**1**	0	**2**	**4**	**284**	0	0	**288**	0	0	0	0	0	0	179	**1**	**1**	181	**471**
07:30	0	0	0	0	0	0	219	0	0	219	0	0	0	0	0	0	**197**	0	0	**197**	416
07:45	0	0	1	0	1	1	182	0	0	183	0	0	0	0	0	0	184	0	0	184	368
Total Volume	1	0	2	0	3	5	968	0	0	973	0	0	0	0	0	0	721	1	1	723	1699
% App. Total	33.3	0	66.7	0		0.5	99.5	0	0		0	0	0	0		0	99.7	0.1	0.1		
PHF	.250	.000	.500	.000	.375	.313	.852	.000	.000	.845	.000	.000	.000	.000	.000	.000	.915	.250	.250	.918	.902

Palmetto Traffic Group, LLC

File Name : Pohaku St TMC
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	Pohaku St From North					HP HWY from Maalea From East					From South					HP WHY from Lahaina From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	06:30					06:30					06:00					08:30					
+0 mins.	**1**	0	0	**1**	**2**	0	262	0	0	262	0	0	0	0	0	0	184	0	**1**	185	
+15 mins.	1	0	0	0	1	0	223	0	0	223	0	0	0	0	0	0	163	0	0	163	
+30 mins.	0	0	0	0	0	0	283	0	0	283	0	0	0	0	0	0	205	0	0	205	
+45 mins.	1	0	**1**	0	2	**4**	**284**	0	0	**288**	0	0	0	0	0	0	**226**	0	1	**227**	
Total Volume	3	0	1	1	5	4	1052	0	0	1056	0	0	0	0	0	0	778	0	2	780	
% App. Total	60	0	20	20		0.4	99.6	0	0		0	0	0	0		0	99.7	0	0.3		
PHF	.750	.000	.250	.250	.625	.250	.926	.000	.000	.917	.000	.000	.000	.000	.000	.000	.861	.000	.500	.859	
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 15:30																					
15:30	0	0	0	0	0	1	309	0	0	310	0	0	0	0	0	0	274	0	0	274	584
15:45	0	0	2				312		1	314							291	1		292	608
16:00	0	0	0	0	0	4	251	0	0	255	0	0	0	0	0	0	266	0	0	266	521
16:15	2	0	1	0	3	1	296	0	0	297	0	0	0	0	0	0	272	0	0	272	572
Total Volume	2	0	3	0	5	7	1168	0	1	1176	0	0	0	0	0	0	1103	1	0	1104	2285
% App. Total	40	0	60	0		0.6	99.3	0	0.1		0	0	0	0		0	99.9	0.1	0		
PHF	.250	.000	.375	.000	.417	.438	.936	.000	.250	.936	.000	.000	.000	.000	.000	.000	.948	.250	.000	.945	.940

Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
	15:00					15:30					12:00					16:15				
+0 mins.	**2**	0	0	0	**2**	1	309	0	0	310	0	0	0	0	0	0	272	0	0	272
+15 mins.	2	0	0	0	2	1	**312**	0	**1**	**314**	0	0	0	0	0	0	289	0	**2**	291
+30 mins.	0	0	0	0	0	**4**	251	0	0	255	0	0	0	0	0	0	294	0	0	294
+45 mins.	0	0	**2**	0	2	1	296	0	0	297	0	0	0	0	0	0	**314**	0	0	**314**
Total Volume	4	0	2	0	6	7	1168	0	1	1176	0	0	0	0	0	0	1169	0	2	1171
% App. Total	66.7	0	33.3	0		0.6	99.3	0	0.1		0	0	0	0		0	99.8	0	0.2	
PHF	.500	.000	.250	.000	.750	.438	.936	.000	.250	.936	.000	.000	.000	.000	.000	.000	.931	.000	.250	.932

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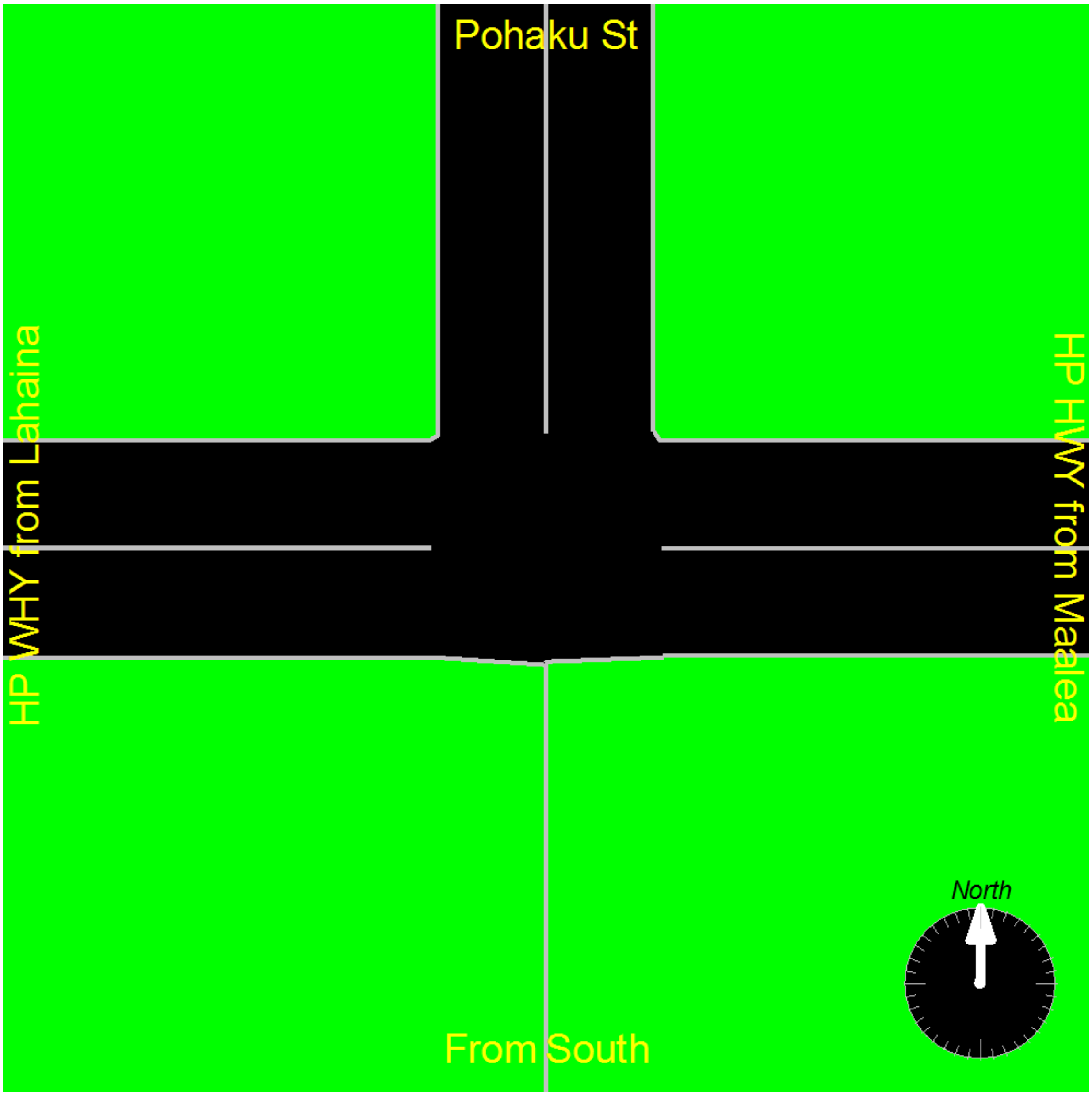


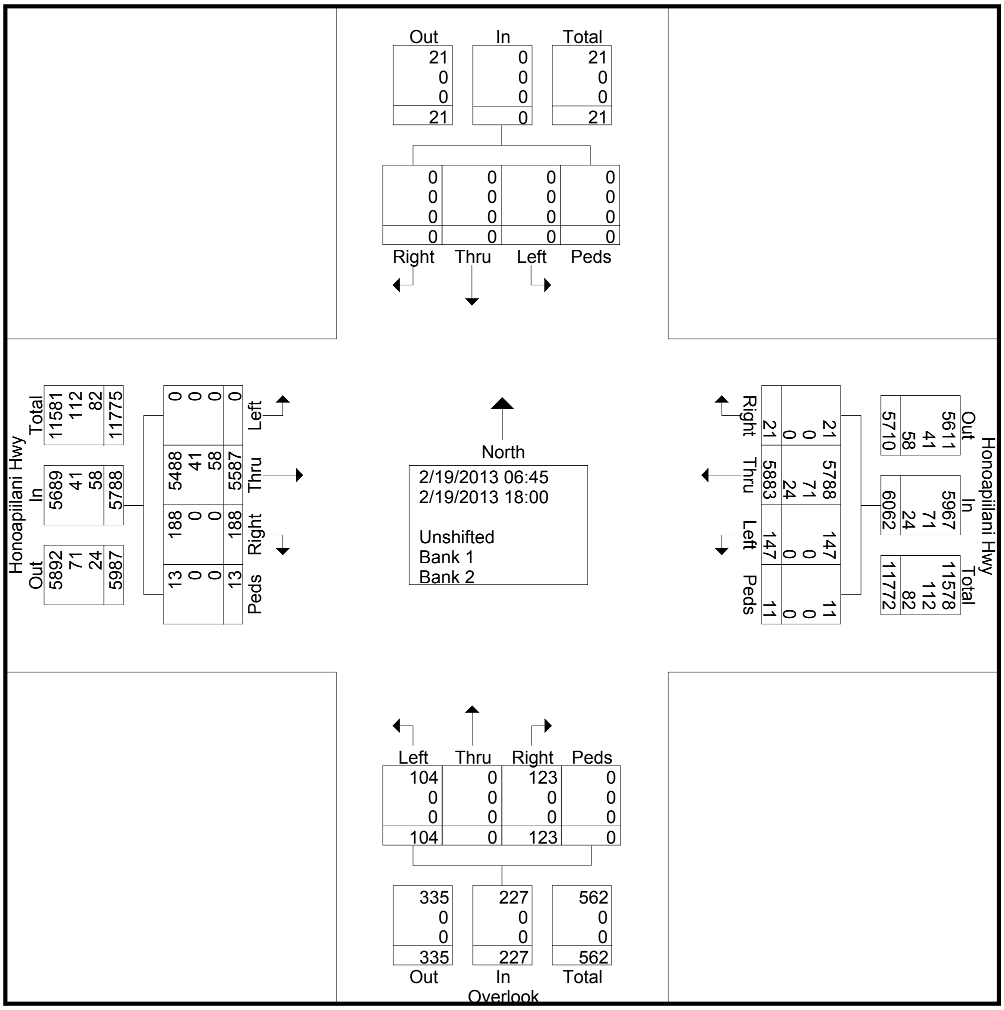
File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

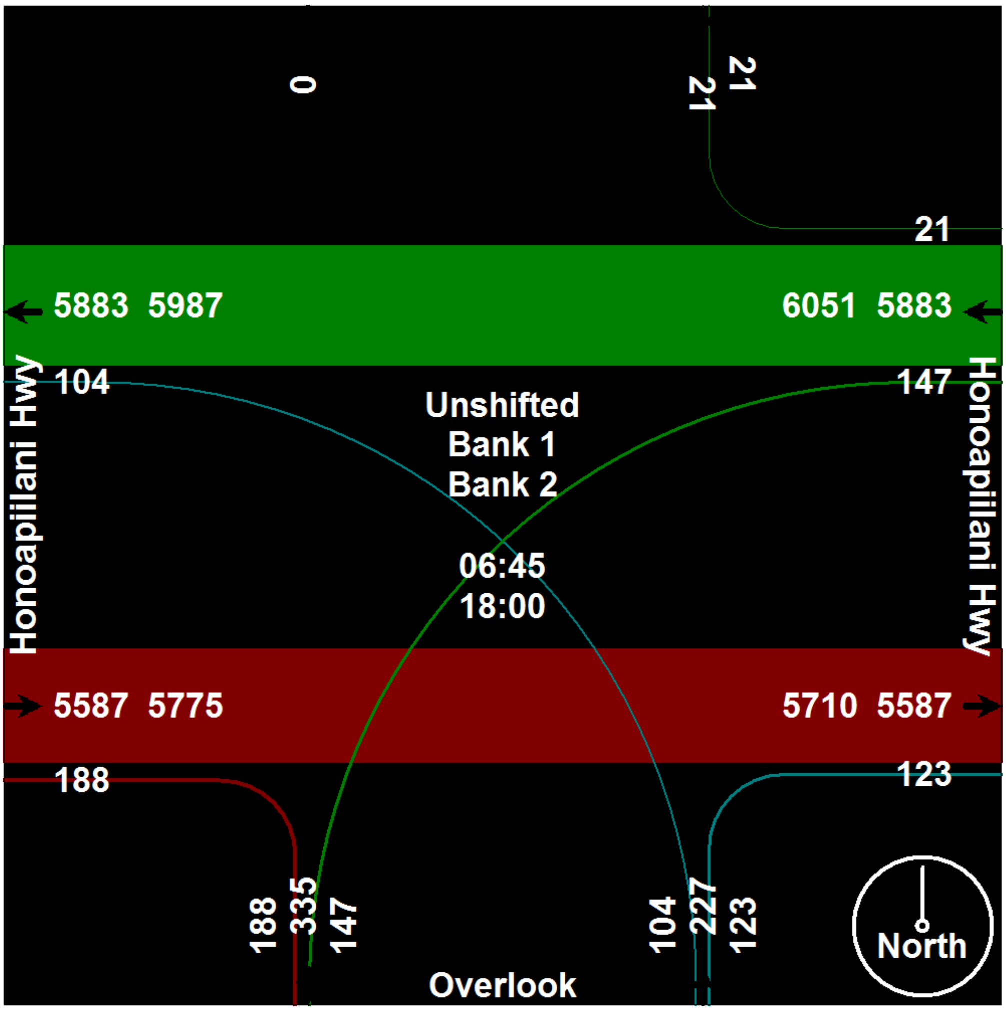
	From North					Honoapiilani Hwy From East					Overlook From South					Honoapiilani Hwy From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:45	0	0	0	0	0	0	232	0	2	234	1	0	0	0	1	2	107	0	0	109	344
Total	0	0	0	0	0	0	232	0	2	234	1	0	0	0	1	2	107	0	0	109	344
07:00	0	0	0	0	0	0	247	0	0	247	1	0	0	0	1	1	121	0	0	122	370
07:15	0	0	0	0	0	0	272	0	2	274	0	0	0	0	0	1	154	0	0	155	429
07:30	0	0	0	0	0	0	334	1	0	335	0	0	0	0	0	3	284	0	0	287	622
07:45	0	0	0	0	0	1	177	2	1	181	3	0	1	0	4	2	158	0	0	160	345
Total	0	0	0	0	0	1	1030	3	3	1037	4	0	1	0	5	7	717	0	0	724	1766
08:00	0	0	0	0	0	0	224	2	0	226	5	0	1	0	6	5	157	0	0	162	394
08:15	0	0	0	0	0	0	232	5	1	238	3	0	0	0	3	8	246	0	1	255	496
08:30	0	0	0	0	0	0	213	11	3	227	8	0	6	0	14	11	221	0	0	232	473
08:45	0	0	0	0	0	0	201	4	1	206	3	0	6	0	9	9	261	0	1	271	486
Total	0	0	0	0	0	0	870	22	5	897	19	0	13	0	32	33	885	0	2	920	1849
09:00	0	0	0	0	0	0	180	11	0	191	13	0	3	0	16	11	184	0	9	204	411
09:15	0	0	0	0	0	0	177	6	0	183	7	0	8	0	15	9	149	0	0	158	356
09:30	0	0	0	0	0	0	160	0	0	160	6	0	1	0	7	6	223	0	0	229	396
*** BREAK ***																					
Total	0	0	0	0	0	0	517	17	0	534	26	0	12	0	38	26	556	0	9	591	1163
*** BREAK ***																					
15:30	0	0	0	0	0	17	236	9	0	262	11	0	9	0	20	9	232	0	0	241	523
15:45	0	0	0	0	0	0	239	17	0	256	10	0	6	0	16	8	275	0	0	283	555
Total	0	0	0	0	0	17	475	26	0	518	21	0	15	0	36	17	507	0	0	524	1078
16:00	0	0	0	0	0	0	391	4	0	395	2	0	14	0	16	15	426	0	0	441	852
16:15	0	0	0	0	0	0	382	10	1	393	5	0	4	0	9	14	319	0	0	333	735
16:30	0	0	0	0	0	0	200	9	0	209	4	0	4	0	8	7	246	0	0	253	470
16:45	0	0	0	0	0	0	227	9	0	236	12	0	5	0	17	12	251	0	0	263	516
Total	0	0	0	0	0	0	1200	32	1	1233	23	0	27	0	50	48	1242	0	0	1290	2573
17:00	0	0	0	0	0	0	404	6	0	410	8	0	10	0	18	21	413	0	1	435	863
17:15	0	0	0	0	0	0	338	10	0	348	5	0	5	0	10	12	412	0	0	424	782
17:30	0	0	0	0	0	0	451	13	0	464	3	0	10	0	13	10	392	0	0	402	879
17:45	0	0	0	0	0	0	193	12	0	205	7	0	4	0	11	4	179	0	0	183	399
Total	0	0	0	0	0	0	1386	41	0	1427	23	0	29	0	52	47	1396	0	1	1444	2923
18:00	0	0	0	0	0	3	173	6	0	182	6	0	7	0	13	8	177	0	1	186	381
Grand Total	0	0	0	0	0	21	5883	147	11	6062	123	0	104	0	227	188	5587	0	13	5788	12077
Apprch %	0	0	0	0		0.3	97	2.4	0.2		54.2	0	45.8	0		3.2	96.5	0	0.2		
Total %	0	0	0	0	0	0.2	48.7	1.2	0.1	50.2	1	0	0.9	0	1.9	1.6	46.3	0	0.1	47.9	
Unshifted	0	0	0	0	0	21	5788	147	11	5967	123	0	104	0	227	188	5488	0	13	5689	11883
% Unshifted	0	0	0	0	0	100	98.4	100	100	98.4	100	0	100	0	100	100	98.2	0	100	98.3	98.4
Bank 1	0	0	0	0	0	0	71	0	0	71	0	0	0	0	0	0	41	0	0	41	112
% Bank 1	0	0	0	0	0	0	1.2	0	0	1.2	0	0	0	0	0	0	0.7	0	0	0.7	0.9
Bank 2	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	58	0	0	58	82
% Bank 2	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0	1	0	0	1	0.7

Palmetto Traffic Group, LLC

File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013
Page No : 2

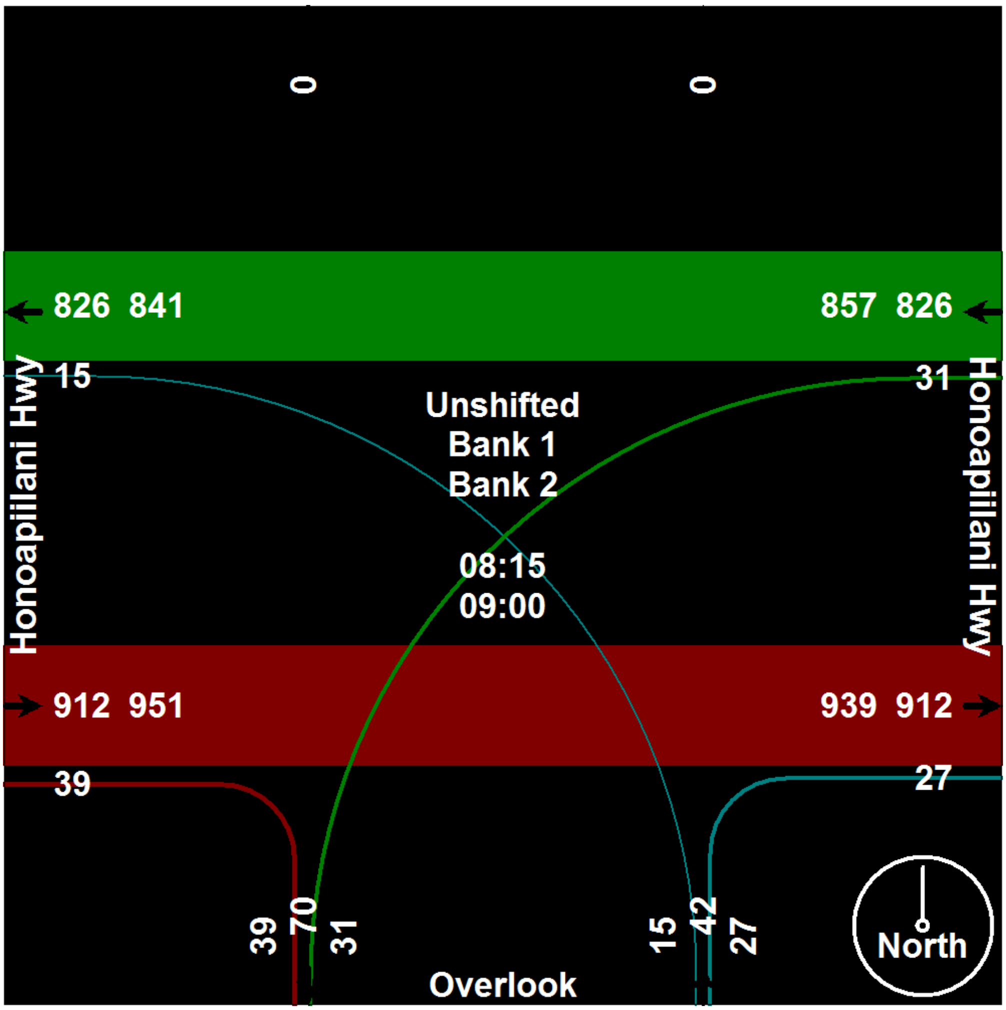


File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013



	From North					Honoapiilani Hwy From East					Overlook From South					Honoapiilani Hwy From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:45 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15																					
08:15	0	0	0	0	0	0	**232**	5	1	**238**	3	0	0	0	3	8	246	0	1	255	**496**
08:30	0	0	0	0	0	0	213	**11**	**3**	227	8	0	**6**	0	14	**11**	221	0	0	232	473
08:45	0	0	0	0	0	0	201	4	1	206	3	0	6	0	9	9	**261**	0	1	**271**	486
09:00	0	0	0	0	0	0	180	11	0	191	**13**	0	3	0	**16**	11	184	0	**9**	204	411
Total Volume	0	0	0	0	0	0	826	31	5	862	27	0	15	0	42	39	912	0	11	962	1866
% App. Total	0	0	0	0		0	95.8	3.6	0.6		64.3	0	35.7	0		4.1	94.8	0	1.1		
PHF	.000	.000	.000	.000	.000	.000	.890	.705	.417	.905	.519	.000	.625	.000	.656	.886	.874	.000	.306	.887	.941

File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013

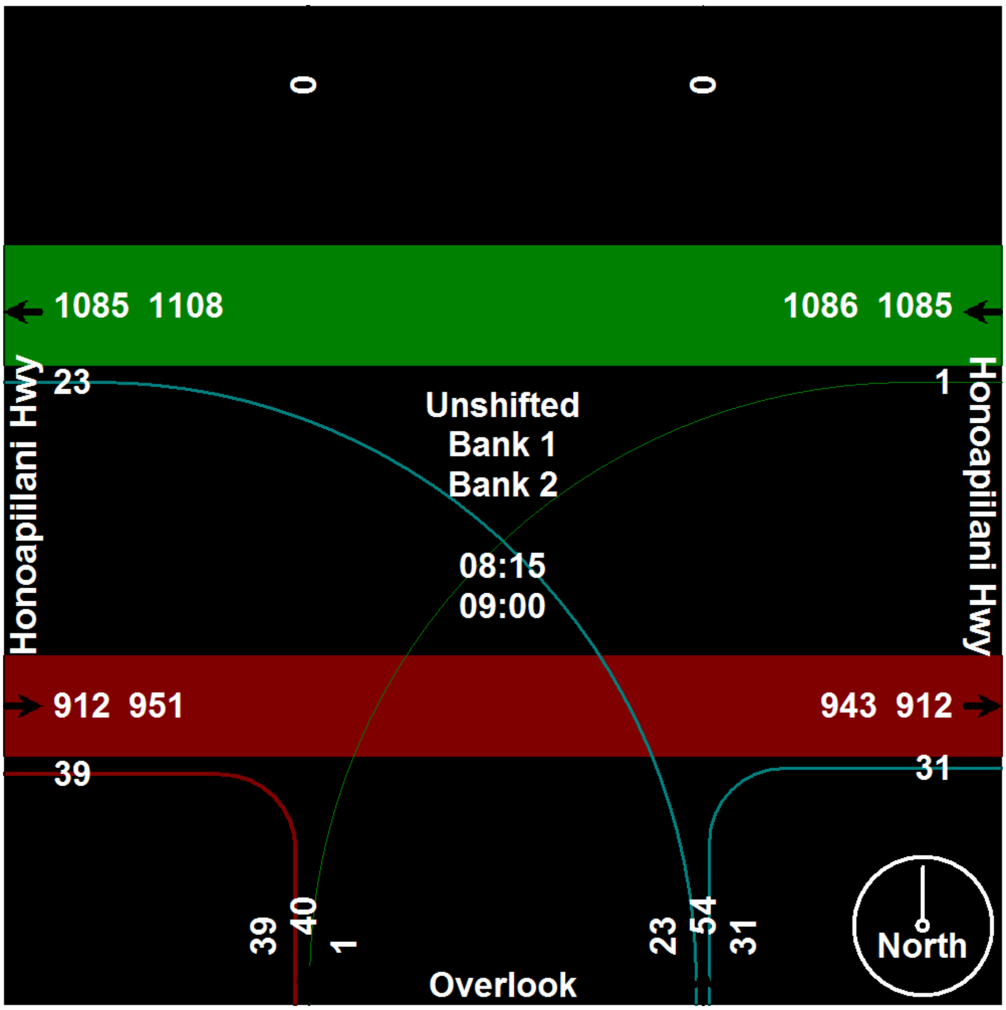


Peak Hour Analysis From 06:45 to 11:45 - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:45					06:45					08:30					08:15				
+0 mins.	0	0	0	0	0	0	232	0	**2**	234	8	0	6	0	14	8	246	0	1	255
+15 mins.	0	0	0	0	0	0	247	0	0	247	3	0	6	0	9	**11**	221	0	0	232
+30 mins.	0	0	0	0	0	0	272	0	2	274	**13**	0	3	0	**16**	9	**261**	0	1	**271**
+45 mins.	0	0	0	0	0	0	**334**	**1**	0	**335**	7	0	**8**	0	15	11	184	0	**9**	204
Total Volume	0	0	0	0	0	0	1085	1	4	1090	31	0	23	0	54	39	912	0	11	962
% App. Total	0	0	0	0		0	99.5	0.1	0.4		57.4	0	42.6	0		4.1	94.8	0	1.1	
PHF	.000	.000	.000	.000	.000	.000	.812	.250	.500	.813	.596	.000	.719	.000	.844	.886	.874	.000	.306	.887

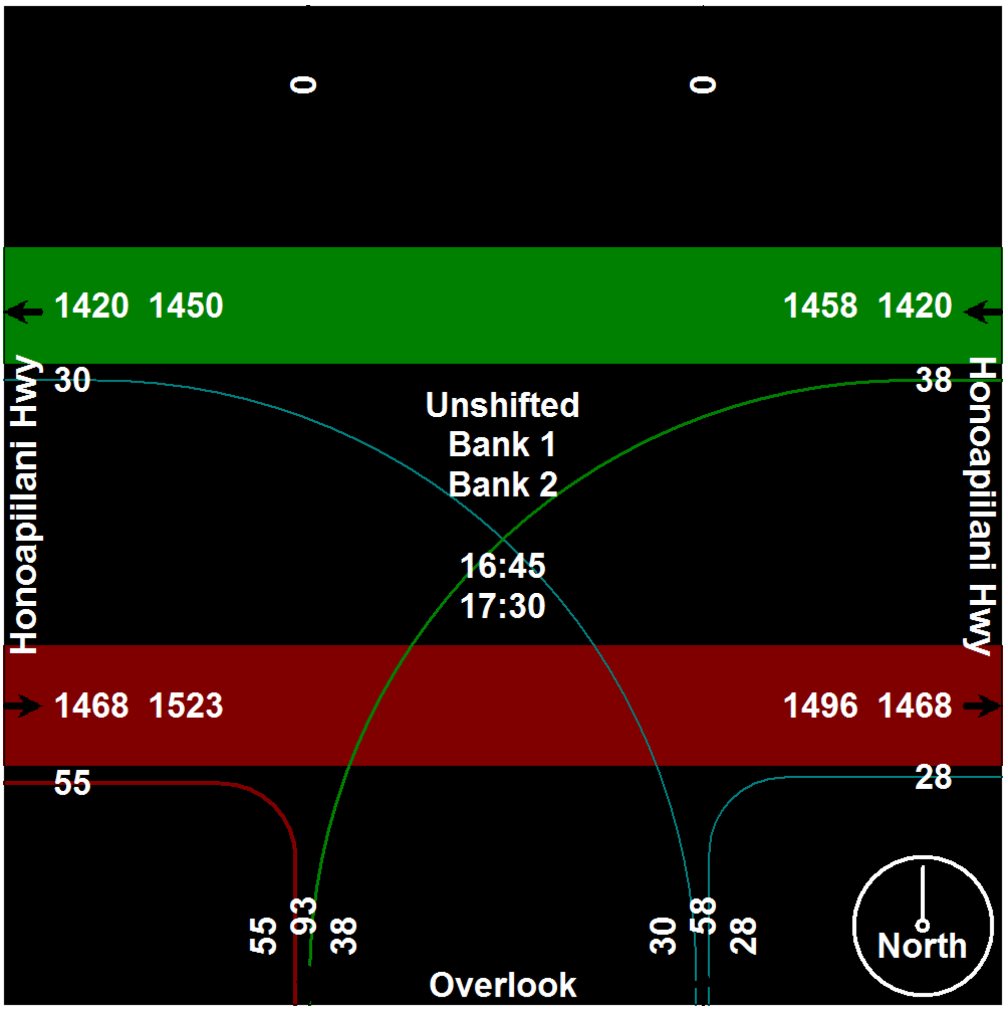
File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013



Peak Hour Analysis From 12:00 to 18:00 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:45

16:45	0	0	0	0	0	0	227	9	0	236	**12**	0	5	0	17	12	251	0	0	263	516
17:00	0	0	0	0	0	0	404	6	0	410	8	0	**10**	0	**18**	**21**	**413**	0	**1**	**435**	863
17:15	0	0	0	0	0	0	338	10	0	348	5	0	5	0	10	12	412	0	0	424	782
17:30	0	0	0	0	0	0	**451**	**13**	0	**464**	3	0	10	0	13	10	392	0	0	402	**879**
Total Volume	0	0	0	0	0	0	1420	38	0	1458	28	0	30	0	58	55	1468	0	1	1524	3040
% App. Total	0	0	0	0		0	97.4	2.6	0		48.3	0	51.7	0		3.6	96.3	0	0.1		
PHF	.000	.000	.000	.000	.000	.000	.787	.731	.000	.786	.583	.000	.750	.000	.806	.655	.889	.000	.250	.876	.865

File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013

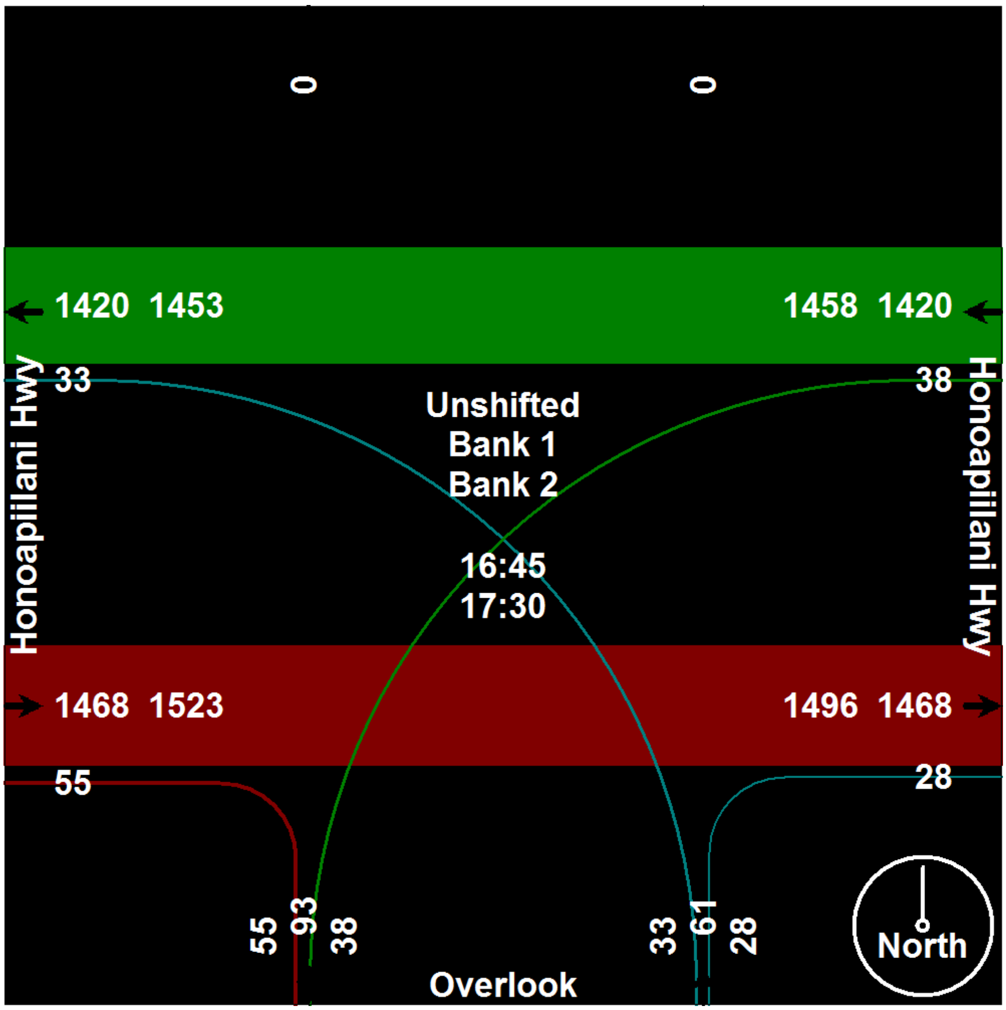


Peak Hour Analysis From 12:00 to 18:00 - Peak 1 of 1

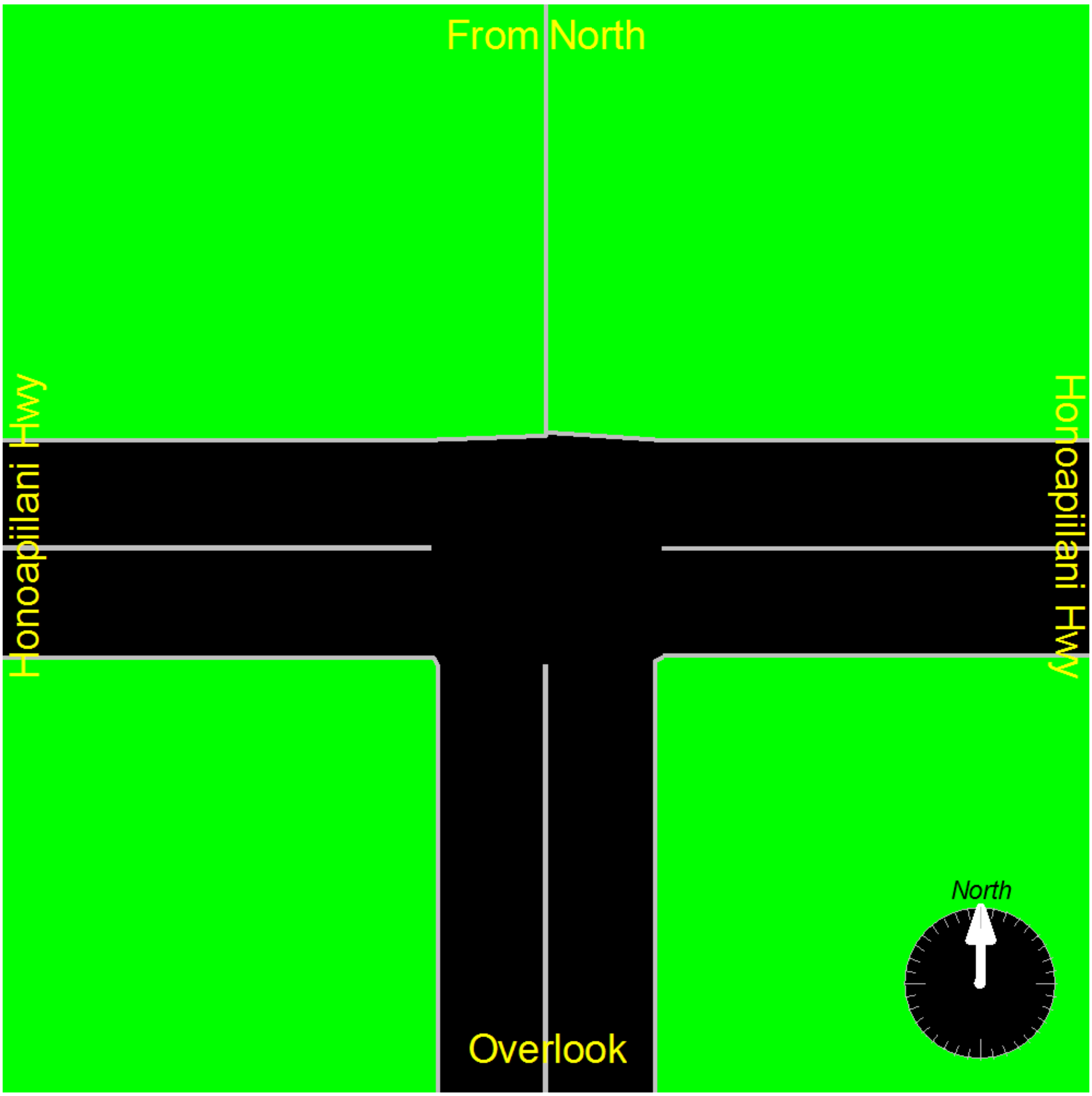
Peak Hour for Each Approach Begins at:

	12:00					16:45					15:30					16:45				
+0 mins.	0	0	0	0	0	0	227	9	0	236	**11**	0	9	0	**20**	12	251	0	0	263
+15 mins.	0	0	0	0	0	0	404	6	0	410	10	0	6	0	16	**21**	**413**	0	**1**	**435**
+30 mins.	0	0	0	0	0	0	338	10	0	348	2	0	**14**	0	16	12	412	0	0	424
+45 mins.	0	0	0	0	0	0	**451**	**13**	0	**464**	5	0	4	0	9	10	392	0	0	402
Total Volume	0	0	0	0	0	0	1420	38	0	1458	28	0	33	0	61	55	1468	0	1	1524
% App. Total	0	0	0	0		0	97.4	2.6	0		45.9	0	54.1	0		3.6	96.3	0	0.1	
PHF	.000	.000	.000	.000	.000	.000	.787	.731	.000	.786	.636	.000	.589	.000	.763	.655	.889	.000	.250	.876

File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013
Page No : 7



File Name : Not Named 12
Site Code : TMC
Start Date : 2/19/2013



Roger D. Dyar, P.E.
231 Tollison Road
Seneca, SC 29672
864-360-7921

HP Hwy Eastbound from 0213A
Site Code:
Station ID:

Latitude: 0' 0.0000 Undefined

Start Time	Mon 18-Feb-13	Tue 19-Feb-13	Wed 20-Feb-13	Thu 21-Feb-13	Fri 22-Feb-13		Average Day		Sat 23-Feb-13	Sun 24-Feb-13		Week Average		
12:00 AM	*	*	*	**718**	**827**		**772**		0	0		**386**		
01:00	*	*	*	549	472		510		0	0		255		
02:00	*	*	*	544	444		494		0	0		247		
03:00	*	*	*	449	407		428		0	0		214		
04:00	*	*	*	333	290		312		0	0		156		
05:00	*	*	*	190	200		195		0	0		98		
06:00	*	*	*	116	102		109		0	0		54		
07:00	*	*	*	42	38		40		0	0		20		
08:00	*	*	*	34	30		32		0	0		16		
09:00	*	*	*	42	25		34		0	0		17		
10:00	*	*	*	101	55		78		0	0		39		
11:00	*	*	*	114	95		104		0	0		52		
12:00 PM	*	*	*	368	328		348		0	0		174		
01:00	*	*	*	592	520		556		0	0		278		
02:00	*	*	*	695	**620**		658		**1**	0		329		
03:00	*	*	*	890	410		650		0	0		325		
04:00	*	*	986	1008	0		665		0	0		399		
05:00	*	*	1028	1042	0		690		0	0		414		
06:00	*	*	993	992	0		662		0	0		397		
07:00	*	*	812	783	0		532		0	0		319		
08:00	*	*	882	**1104**	0		662		0	0		397		
09:00	*	*	926	1064	0		663		0	0		398		
10:00	*	*	**1128**	948	2		**693**		0	0		**416**		
11:00	*	*	1026	1024	0		683		0	0		410		
Day Total	0	0	7781	13742	4865		10570		1	0		5810		
% Avg. WkDay	0.0%	0.0%	73.6%	130.0%	46.0%									
% Avg. Week	0.0%	0.0%	133.9%	236.5%	83.7%		181.9%		0.0%	0.0%				
AM Peak	-	-	-	00:00	00:00	-	00:00	-	-	-	-	00:00	-	-
Vol.	-	-	-	718	827	-	772	-	-	-	-	386	-	-
PM Peak	-	-	22:00	20:00	14:00	-	22:00	-	14:00	-	-	22:00	-	-
Vol.	-	-	1128	1104	620	-	693	-	1	-	-	416	-	-

Roger D. Dyar, P.E.
231 Tollison Road
Seneca, SC 29672
864-360-7921

HP Hwy Eastbound from 0213A
Site Code:
Station ID:

Latitude: 0' 0.0000 Undefined

Start Time	Mon 25-Feb-13	Tue 26-Feb-13	Wed 27-Feb-13	Thu 28-Feb-13	Fri 01-Mar-13		Average Day		Sat 02-Mar-13	Sun 03-Mar-13		Week Average		
12:00 AM	0	0	**7**	0	0		**1**		0	0		**1**		
01:00	0	0	0	0	0		0		0	0		0		
02:00	0	0	0	0	0		0		0	0		0		
03:00	0	0	0	0	0		0		0	0		0		
04:00	0	0	0	0	0		0		0	0		0		
05:00	0	0	0	0	0		0		0	0		0		
06:00	0	0	0	0	0		0		0	0		0		
07:00	0	0	0	0	0		0		0	0		0		
08:00	0	0	0	0	0		0		0	0		0		
09:00	0	0	0	0	0		0		0	0		0		
10:00	0	0	0	0	0		0		0	0		0		
11:00	0	0	0	0	0		0		0	0		0		
12:00 PM	0	0	0	0	0		0		0	0		0		
01:00	0	0	0	0	0		0		0	0		0		
02:00	0	0	0	0	0		0		0	0		0		
03:00	0	0	0	0	0		0		0	0		0		
04:00	0	0	0	0	0		0		0	**3**		0		
05:00	0	0	0	0	0		0		0	0		0		
06:00	0	0	0	0	0		0		0	0		0		
07:00	0	0	0	0	0		0		0	0		0		
08:00	0	0	0	0	0		0		0	0		0		
09:00	0	0	0	0	0		0		0	0		0		
10:00	0	0	0	0	0		0		0	0		0		
11:00	0	0	0	0	0		0		0	0		0		
Day Total	0	0	7	0	0		1		0	3		1		
% Avg. WkDay	0.0%	0.0%	700.0%	0.0%	0.0%									
% Avg. Week	0.0%	0.0%	700.0%	0.0%	0.0%		100.0%		0.0%	300.0%				
AM Peak	-	-	00:00	-	-	-	00:00	-	-	-	-	00:00	-	-
Vol.	-	-	7	-	-	-	1	-	-	-	-	1	-	-
PM Peak	-	-	-	-	-	-	-	-	-	16:00	-	-	-	-
Vol.	-	-	-	-	-	-	-	-	-	3	-	-	-	-

Roger D. Dyar, P.E.
231 Tollison Road
Seneca, SC 29672
864-360-7921

HP Hwy Eastbound from 0213A
Site Code:
Station ID:

Latitude: 0' 0.0000 Undefined

Start Time	Mon 04-Mar-13	Tue 05-Mar-13	Wed 06-Mar-13	Thu 07-Mar-13	Fri 08-Mar-13		Average Day		Sat 09-Mar-13	Sun 10-Mar-13		Week Average		
12:00 AM	0	*	*	*	*		0		*	*		0		
01:00	0	*	*	*	*		0		*	*		0		
02:00	0	*	*	*	*		0		*	*		0		
03:00	0	*	*	*	*		0		*	*		0		
04:00	0	*	*	*	*		0		*	*		0		
05:00	0	*	*	*	*		0		*	*		0		
06:00	**2**	*	*	*	*		**2**		*	*		**2**		
07:00	0	*	*	*	*		0		*	*		0		
08:00	0	*	*	*	*		0		*	*		0		
09:00	0	*	*	*	*		0		*	*		0		
10:00	0	*	*	*	*		0		*	*		0		
11:00	0	*	*	*	*		0		*	*		0		
12:00 PM	0	*	*	*	*		0		*	*		0		
01:00	0	*	*	*	*		0		*	*		0		
02:00	0	*	*	*	*		0		*	*		0		
03:00	0	*	*	*	*		0		*	*		0		
04:00	**2**	*	*	*	*		**2**		*	*		**2**		
05:00	*	*	*	*	*		*		*	*		*		
06:00	*	*	*	*	*		*		*	*		*		
07:00	*	*	*	*	*		*		*	*		*		
08:00	*	*	*	*	*		*		*	*		*		
09:00	*	*	*	*	*		*		*	*		*		
10:00	*	*	*	*	*		*		*	*		*		
11:00	*	*	*	*	*		*		*	*		*		
Day Total	4	0	0	0	0		4		0	0		4		
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%									
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%		100.0%		0.0%	0.0%				
AM Peak	06:00	-	-	-	-	-	06:00	-	-	-	-	06:00	-	-
Vol.	2	-	-	-	-	-	2	-	-	-	-	2	-	-
PM Peak	16:00	-	-	-	-	-	16:00	-	-	-	-	16:00	-	-
Vol.	2	-	-	-	-	-	2	-	-	-	-	2	-	-

Grand Total	4	0	7788	13742	4865	10575	1	3	5815
ADT		ADT 746		AADT 746					

Roger D. Dyar, P.E.
231 Tollison Road
Seneca, SC 29672
864-360-7921

HP Hwy machine 9 Westbound from 0213
Site Code:
Station ID:
HP Hwy Eastbound

Latitude: 0' 0.0000 Undefined

Start Time	Mon 11-Feb-13	Tue 12-Feb-13	Wed 13-Feb-13	Thu 14-Feb-13	Fri 15-Feb-13	Average Day	Sat 16-Feb-13	Sun 17-Feb-13	Week Average
12:00 AM	*	*	687	672	0	453	0	0	272
01:00	*	*	748	784	0	511	0	0	306
02:00	*	*	856	837	0	564	0	0	339
03:00	*	*	916	997	0	638	0	0	383
04:00	*	*	986	**1037**	0	**674**	0	0	**405**
05:00	*	*	1046	916	0	654	0	0	392
06:00	*	*	**1075**	804	0	626	0	0	376
07:00	*	*	962	856	0	606	0	0	364
08:00	*	*	712	864	0	525	0	0	315
09:00	*	*	558	758	0	439	0	0	263
10:00	*	*	456	356	0	271	0	0	162
11:00	*	*	374	403	0	259	0	0	155
12:00 PM	*	*	275	302	0	192	0	0	115
01:00	*	*	134	157	0	97	0	0	58
02:00	*	*	66	79	0	48	0	0	29
03:00	*	*	36	26	0	21	0	0	12
04:00	*	*	29	14	0	14	0	0	9
05:00	*	*	55	26	0	27	0	0	16
06:00	*	*	87	93	0	60	0	0	36
07:00	*	*	227	202	0	143	0	0	86
08:00	*	*	526	490	0	339	0	0	203
09:00	*	*	**1026**	**978**	0	**668**	0	0	**401**
10:00	*	*	872	846	0	573	0	0	344
11:00	*	*	782	568	0	450	0	0	270
Day Total	0	0	13491	13065	0	8852	0	0	5311
% Avg. WkDay	0.0%	0.0%	152.4%	147.6%	0.0%				
% Avg. Week	0.0%	0.0%	254.0%	246.0%	0.0%	166.7%	0.0%	0.0%	

AM Peak	-	-	06:00	04:00	-	-	04:00	-	-	-	-	04:00	-	-
Vol.	-	-	1075	1037	-	-	674	-	-	-	-	405	-	-
PM Peak	-	-	21:00	21:00	-	-	21:00	-	-	-	-	21:00	-	-
Vol.	-	-	1026	978	-	-	668	-	-	-	-	401	-	-

Roger D. Dyar, P.E.
231 Tollison Road
Seneca, SC 29672
864-360-7921

HP Hwy machine 9 Westbound from 0213
Site Code:
Station ID:
HP Hwy Eastbound

Latitude: 0' 0.0000 Undefined

Start Time	Mon 18-Feb-13	Tue 19-Feb-13	Wed 20-Feb-13	Thu 21-Feb-13	Fri 22-Feb-13		Average Day		Sat 23-Feb-13	Sun 24-Feb-13		Week Average		
12:00 AM	0	0	0	0	0		0		0	**4**		1		
01:00	0	0	0	0	0		0		0	0		0		
02:00	0	0	0	0	0		0		0	0		0		
03:00	0	0	0	0	0		0		0	0		0		
04:00	0	0	0	0	0		0		0	0		0		
05:00	0	0	0	0	0		0		0	0		0		
06:00	0	0	0	0	0		0		0	0		0		
07:00	**2**	0	0	0	0		0		0	0		0		
08:00	1	**12**	0	0	0		**3**		0	0		**2**		
09:00	2	0	0	0	0		0		0	0		0		
10:00	0	0	0	0	0		0		0	0		0		
11:00	0	0	0	0	0		0		0	0		0		
12:00 PM	0	0	0	0	0		0		0	0		0		
01:00	0	0	0	0	0		0		0	0		0		
02:00	0	0	0	0	0		0		0	0		0		
03:00	0	0	0	0	0		0		0	**2**		0		
04:00	0	0	0	0	0		0		0	0		0		
05:00	0	0	0	0	0		0		0	0		0		
06:00	0	0	0	0	0		0		0	0		0		
07:00	0	0	0	0	0		0		0	0		0		
08:00	0	0	0	0	0		0		0	0		0		
09:00	0	0	0	0	0		0		0	0		0		
10:00	0	0	0	0	0		0		0	0		0		
11:00	0	0	0	0	0		0		0	2		0		
Day Total	5	12	0	0	0		3		0	8		3		
% Avg. WkDay	166.7%	400.0%	0.0%	0.0%	0.0%									
% Avg. Week	166.7%	400.0%	0.0%	0.0%	0.0%		100.0%		0.0%	266.7%				
AM Peak	07:00	08:00	-	-	-	-	08:00	-	-	00:00	-	08:00	-	-
Vol.	2	12	-	-	-	-	3	-	-	4	-	2	-	-
PM Peak	-	-	-	-	-	-	-	-	-	15:00	-	-	-	-
Vol.	-	-	-	-	-	-	-	-	-	2	-	-	-	-

Grand Total	5	12	13491	13065	0	8855	0	8	5314
ADT		ADT 12,746		AADT 12,746					

Traffic Count Data for Vehicle Classification on HP Hwy

Unit Type:	PicoCount 2500 V2.20													
Serial Number:	12032464													
ID:	12032464													
Location:	Pohaku St													
Comments:														
Dwell 1:	55 ms													
Dwell 2:	55 ms													
Measurements:	English													
Start Date:	2/16/2013													
Start Time:	10:00													
Export Version:	Class V1.02													
Scheme:	FHWA													
Scheme ID:	1													
Interval:	15 Min													
Title:	East Bound Classes													
	Motorcycle	PC	2axle trk	buses	su 2 axl	truck 3axl	su4	su4less	du5	du6+	mult5less	mult6	mult7+	
Date/Time	Class #1	Class #2	Class #3	Class #4	Class #5	Class #6	Class #7	Class #8	Class #9	Class #10	Class #11	Class #12	Class #13	Total
02/16/2013 10:00 - 10:14	2	81	12	0	5	0	0	0	0	0	0	0	0	100
02/16/2013 10:15 - 10:29	0	71	13	0	2	1	0	0	0	0	0	0	0	87
02/16/2013 10:30 - 10:44	0	73	16	0	6	2	0	0	0	0	0	0	0	97
02/16/2013 10:45 - 10:59	0	60	10	0	4	1	0	0	0	0	0	0	0	75
02/16/2013 11:00 - 11:14	0	91	13	0	5	1	0	0	0	0	0	0	0	110
02/16/2013 11:15 - 11:29	0	90	14	0	3	0	0	0	0	0	0	1	0	108
02/16/2013 11:30 - 11:44	1	102	19	1	5	0	0	0	0	0	0	1	0	129
02/16/2013 11:45 - 11:59	0	72	13	0	1	0	0	0	0	0	0	0	0	86
02/16/2013 12:00 - 12:14	7	104	14	1	2	0	1	0	0	0	0	0	0	129
02/16/2013 12:15 - 12:29	0	117	13	1	7	1	0	0	1	0	0	0	0	140
02/16/2013 12:30 - 12:44	2	107	9	0	5	0	0	0	0	0	0	0	0	123
02/16/2013 12:45 - 12:59	0	138	16	0	5	2	0	0	0	0	0	1	0	162
02/16/2013 13:00 - 13:14	0	117	14	2	3	0	0	1	0	0	0	0	0	137
02/16/2013 13:15 - 13:29	3	136	20	0	6	0	0	1	0	0	1	0	1	168
02/16/2013 13:30 - 13:44	1	134	22	0	6	1	0	0	0	0	0	0	0	164
02/16/2013 13:45 - 13:59	2	149	17	0	9	1	0	0	0	0	0	0	0	178
02/16/2013 14:00 - 14:14	3	135	18	1	4	1	0	0	0	0	0	0	0	162
02/16/2013 14:15 - 14:29	0	117	12	0	1	0	0	0	0	0	0	0	1	131
02/16/2013 14:30 - 14:44	6	62	3	0	3	0	2	0	0	0	0	0	0	76
02/16/2013 14:45 - 14:59	2	26	2	0	1	0	1	0	0	0	0	0	0	32
02/16/2013 15:00 - 15:14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/2013 15:15 - 15:29	2	44	7	1	2	0	0	0	0	0	0	0	1	57
02/16/2013 15:30 - 15:44	0	53	7	1	0	0	3	0	0	0	0	0	1	65
02/16/2013 15:45 - 15:59	0	30	5	0	2	0	0	0	0	0	0	1	0	38

Traffic Count Data for Vehicle Classification on HP Hwy

02/16/2013 16:00 - 16:14	1	120	16	0	2	0	3	0	0	0	0	1	0	143
02/16/2013 16:15 - 16:29	2	41	4	0	1	0	2	0	0	0	0	0	0	50
02/16/2013 16:30 - 16:44	7	53	2	0	2	0	0	0	0	0	0	0	1	65
02/16/2013 16:45 - 16:59	1	114	12	2	2	1	0	0	0	0	0	0	0	132
02/16/2013 17:00 - 17:14	1	133	14	1	6	1	1	0	0	0	0	0	0	157
02/16/2013 17:15 - 17:29	0	111	12	1	4	1	1	0	0	0	0	0	0	130
02/16/2013 17:30 - 17:44	3	98	12	1	3	0	0	0	1	0	0	0	1	119
02/16/2013 17:45 - 17:59	6	140	18	0	2	0	1	0	0	0	0	1	0	168
02/16/2013 18:00 - 18:14	4	130	14	0	3	1	2	0	0	0	0	0	0	154
02/16/2013 18:15 - 18:29	2	134	14	0	3	0	0	1	0	0	0	0	0	154
02/16/2013 18:30 - 18:44	0	97	8	0	7	0	0	0	0	0	0	0	0	112
02/16/2013 18:45 - 18:59	1	129	20	1	5	1	2	0	0	0	0	0	0	159
02/16/2013 19:00 - 19:14	2	161	16	2	3	1	1	0	0	0	0	0	0	186
02/16/2013 19:15 - 19:29	2	138	21	0	3	1	0	0	0	0	0	0	0	165
02/16/2013 19:30 - 19:44	0	121	12	0	1	0	0	0	0	0	0	0	0	134
02/16/2013 19:45 - 19:59	0	24	0	0	0	0	0	0	0	0	0	0	0	24
	63	3853	484	16	134	18	20	3	2	0	1	6	6	4606
		3916	4337	500	150	152	38	23	5	2	1	7	12	4612
			Cars	Buses	Trucks	Total								
			4337	16	253	4606								
				0.3%	5.5%									
			94.2%		5.8%		56	0.012158						
								3 axle	240	0.052038	USE 5%			

Traffic Count for Classification Directional

Unit Type:	PicoCount 2500 V2.20													
Serial Number:	12032464													
ID:	12032464													
Location:														
Comments:														
Dwell 1:	55 ms													
Dwell 2:	55 ms													
Measurements:	English													
Start Date:	2/16/2013													
Start Time:	10:00													
Export Version:	Class V1.02													
Scheme:	FHWA													
Scheme ID:	1													
Interval:	15 Min													
Title:	West Bound Classes													
	Motorcycle	PC	2axle trk	buses	su 2 axl	truck 3axl	su4	su4less	du5	du6+	mult5less	mult6	mult7+	
Date/Time	Class #1	Class #2	Class #3	Class #4	Class #5	Class #6	Class #7	Class #8	Class #9	Class #10	Class #11	Class #12	Class #13	Total
02/16/2013 10:00 - 10:14	0	136	29	0	10	1	0	0	0	0	0	0	0	176
02/16/2013 10:15 - 10:29	0	158	31	0	8	3	0	0	1	0	0	0	0	201
02/16/2013 10:30 - 10:44	2	133	42	2	4	1	0	0	0	0	0	0	0	184
02/16/2013 10:45 - 10:59	3	137	42	3	11	1	1	1	0	0	0	0	0	199
02/16/2013 11:00 - 11:14	1	154	44	0	9	0	0	0	0	0	0	0	0	208
02/16/2013 11:15 - 11:29	0	141	33	0	14	1	0	0	0	0	0	0	0	189
02/16/2013 11:30 - 11:44	1	140	18	0	9	3	1	0	0	0	0	0	0	172
02/16/2013 11:45 - 11:59	2	123	43	0	8	0	0	0	0	0	0	0	0	176
02/16/2013 12:00 - 12:14	2	121	33	0	8	1	0	1	0	0	0	0	0	166
02/16/2013 12:15 - 12:29	4	111	24	0	8	2	0	0	0	0	0	0	0	149
02/16/2013 12:30 - 12:44	1	103	25	0	15	0	1	0	0	0	0	0	0	145
02/16/2013 12:45 - 12:59	1	124	21	3	8	0	0	0	0	0	0	0	0	157
02/16/2013 13:00 - 13:14	0	93	28	2	8	0	1	0	0	0	0	0	0	132
02/16/2013 13:15 - 13:29	0	70	18	0	11	2	0	0	0	0	0	1	0	102
02/16/2013 13:30 - 13:44	1	91	25	0	10	2	0	0	0	0	0	0	0	129
02/16/2013 13:45 - 13:59	0	83	12	0	12	0	0	0	0	0	0	0	0	107
02/16/2013 14:00 - 14:14	0	74	24	1	5	2	1	0	0	0	0	0	0	107
02/16/2013 14:15 - 14:29	0	95	21	0	10	1	0	1	0	0	0	0	0	128
02/16/2013 14:30 - 14:44	0	57	17	1	5	0	0	2	0	0	0	0	0	82
02/16/2013 14:45 - 14:59	0	20	4	0	1	0	0	1	0	0	0	0	0	26
02/16/2013 15:00 - 15:14	0	8	2	0	1	0	0	0	0	0	0	0	0	11
02/16/2013 15:15 - 15:29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/2013 15:30 - 15:44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/2013 15:45 - 15:59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/2013 16:00 - 16:14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/2013 16:15 - 16:29	0	13	4	0	1	0	0	0	0	0	0	0	0	18

Traffic Count for Classification Directional

02/16/2013 16:30 - 16:44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/16/2013 16:45 - 16:59	1	17	5	0	3	0	0	0	0	0	0	0	0	26
02/16/2013 17:00 - 17:14	0	94	28	2	7	0	1	0	0	0	0	0	0	132
02/16/2013 17:15 - 17:29	1	80	25	1	7	1	0	1	0	0	0	0	0	116
02/16/2013 17:30 - 17:44	2	81	21	1	8	0	0	1	0	0	0	0	0	114
02/16/2013 17:45 - 17:59	1	68	26	2	8	0	0	0	0	0	0	0	0	105
02/16/2013 18:00 - 18:14	1	62	10	0	10	0	0	4	0	0	0	0	0	87
02/16/2013 18:15 - 18:29	1	80	26	2	6	1	0	1	0	0	0	0	0	117
02/16/2013 18:30 - 18:44	0	41	8	1	2	0	0	0	0	0	0	0	0	52
02/16/2013 18:45 - 18:59	1	43	15	0	1	0	0	0	0	0	0	0	0	60
02/16/2013 19:00 - 19:14	0	56	16	0	9	0	0	0	0	0	0	0	0	81
02/16/2013 19:15 - 19:29	0	65	22	0	4	0	0	0	0	0	0	0	0	91
02/16/2013 19:30 - 19:44	0	71	18	1	9	0	0	0	0	0	0	0	0	99
02/16/2013 19:45 - 19:59	1	19	1	1	1	0	0	0	0	0	0	0	0	23
	27	2962	761	23	251	22	6	13	1	0	0	1	0	4067
		2989	3723	784	274	273	28	19	14	1	0	1	1	4067
						43								
			Cars	Buses	Trucks	Total								
			3723	23	321	4067								
				0.6%	7.9%									
			91.5%		8.5%									
							Heavy trk	0.010573						
							3 axle	0.010573	2%+ trucks					
							2 axle	0.989427						

Traffic Count HP Hwy Near Old Landfill

Unit Type:	PicoCount 2500 V2.14			
Serial Number:	12032373			
ID:				
Location:				
Comments:				
Dwell:	55 ms			
Measurements:	English			
Start Date:	2/11/2013			
Start Time:	21:00			
Export Version:	Volume V1.03			
Interval:	60 Min			
Title:	Vehicle Volume			
Date/Time	Westbound	Eastbound	Total	
02/11/2013 21:00 - 21:59	0	0	0	
02/11/2013 22:00 - 22:59	973	897	1870	
02/11/2013 23:00 - 23:59	875	872	1747	
02/12/2013 00:00 - 00:59	682	673	1355	
02/12/2013 01:00 - 01:59	438	426	864	
02/12/2013 02:00 - 02:59	486	307	793	
02/12/2013 03:00 - 03:59	346	323	669	
02/12/2013 04:00 - 04:59	258	190	448	
02/12/2013 05:00 - 05:59	162	158	320	
02/12/2013 06:00 - 06:59	92	56	148	
02/12/2013 07:00 - 07:59	50	41	91	
02/12/2013 08:00 - 08:59	39	25	64	
02/12/2013 09:00 - 09:59	48	68	116	
02/12/2013 10:00 - 10:59	91	91	182	
02/12/2013 11:00 - 11:59	144	337	481	
02/12/2013 12:00 - 12:59	433	705	1138	
02/12/2013 13:00 - 13:59	638	881	1519	
02/12/2013 14:00 - 14:59	765	719	1484	
02/12/2013 15:00 - 15:59	934	705	1639	
02/12/2013 16:00 - 16:59	964	642	1606	
02/12/2013 17:00 - 17:59	1098	711	1809	
02/12/2013 18:00 - 18:59	877	799	1676	
02/12/2013 19:00 - 19:59	857	994	1851	
02/12/2013 20:00 - 20:59	994	1042	2036	
02/12/2013 21:00 - 21:59	1096	1026	2122	
02/12/2013 22:00 - 22:59	1085	999	2084	
02/12/2013 23:00 - 23:59	989	890	1879	26374
02/13/2013 00:00 - 00:59	657	617	1274	
02/13/2013 01:00 - 01:59	457	453	910	
02/13/2013 02:00 - 02:59	521	384	905	

Traffic Count HP Hwy Near Old Landfill

02/13/2013 03:00 - 03:59	389	334	723	
02/13/2013 04:00 - 04:59	233	177	410	
02/13/2013 05:00 - 05:59	198	119	317	
02/13/2013 06:00 - 06:59	75	86	161	
02/13/2013 07:00 - 07:59	64	46	110	
02/13/2013 08:00 - 08:59	64	40	104	
02/13/2013 09:00 - 09:59	73	56	129	
02/13/2013 10:00 - 10:59	65	115	180	
02/13/2013 11:00 - 11:59	184	292	476	
02/13/2013 12:00 - 12:59	428	711	1139	
02/13/2013 13:00 - 13:59	594	875	1469	
02/13/2013 14:00 - 14:59	727	810	1537	
02/13/2013 15:00 - 15:59	959	606	1565	
02/13/2013 16:00 - 16:59	1041	646	1687	
02/13/2013 17:00 - 17:59	990	744	1734	
02/13/2013 18:00 - 18:59	947	855	1802	
02/13/2013 19:00 - 19:59	867	991	1858	
02/13/2013 20:00 - 20:59	997	1021	2018	
02/13/2013 21:00 - 21:59	1107	959	2066	
02/13/2013 22:00 - 22:59	1030	944	1974	
02/13/2013 23:00 - 23:59	1010	827	1837	26385
02/14/2013 00:00 - 00:59	732	655	1387	
02/14/2013 01:00 - 01:59	512	471	983	
02/14/2013 02:00 - 02:59	506	389	895	
02/14/2013 03:00 - 03:59	379	374	753	
02/14/2013 04:00 - 04:59	308	191	499	
02/14/2013 05:00 - 05:59	177	254	431	
02/14/2013 06:00 - 06:59	67	79	146	
02/14/2013 07:00 - 07:59	43	29	72	
02/14/2013 08:00 - 08:59	45	43	88	
02/14/2013 09:00 - 09:59	55	59	114	
02/14/2013 10:00 - 10:59	105	109	214	
02/14/2013 11:00 - 11:59	156	287	443	
02/14/2013 12:00 - 12:59	478	698	1176	
02/14/2013 13:00 - 13:59	621	899	1520	
02/14/2013 14:00 - 14:59	701	828	1529	
02/14/2013 15:00 - 15:59	897	592	1489	
02/14/2013 16:00 - 16:59	1038	661	1699	
02/14/2013 17:00 - 17:59	937	712	1649	
02/14/2013 18:00 - 18:59	870	796	1666	
02/14/2013 19:00 - 19:59	824	1034	1858	
02/14/2013 20:00 - 20:59	916	1011	1927	
02/14/2013 21:00 - 21:59	1076	1041	2117	

Traffic Count HP Hwy Near Old Landfill

02/14/2013 22:00 - 22:59	1114	1007	2121	
02/14/2013 23:00 - 23:59	998	834	1832	26608
02/15/2013 00:00 - 00:59	691	641	1332	
02/15/2013 01:00 - 01:59	540	543	1083	
02/15/2013 02:00 - 02:59	608	451	1059	
02/15/2013 03:00 - 03:59	474	351	825	
02/15/2013 04:00 - 04:59	365	269	634	
02/15/2013 05:00 - 05:59	246	177	423	
02/15/2013 06:00 - 06:59	139	84	223	
02/15/2013 07:00 - 07:59	66	38	104	
02/15/2013 08:00 - 08:59	34	30	64	
02/15/2013 09:00 - 09:59	52	43	95	
02/15/2013 10:00 - 10:59	70	118	188	
02/15/2013 11:00 - 11:59	172	314	486	
02/15/2013 12:00 - 12:59	454	681	1135	
02/15/2013 13:00 - 13:59	655	880	1535	

3

2:45 pm

15 minute speed study @ Olowalu Store

# of cars SB	speed
1.	37
2.	39
3.	41
4.	40
5.	39
6.	43
7.	46
8.	42
9.	40
10.	40
11.	51
12.	39
13.	39
14.	38
15.	34
16.	37
17.	40
18.	39
19.	38
20.	40
21.	40
22.	41
23.	44
24.	43
25	36

# of cars	speed
26	39
27	38
28	38
29	37
30	39
31	40
32	44
33	43
34	44
35	37
36	39
37	36
38	41
39	40
40	42
41	42
42	44
43	47
44	46
45	45
46	41
47	40
48	41
49	43
50	41
51	42
52	44

# of cars	speed
53	41
54	44
55	43
56	44
57	46
58	43
59	44
60	40
61	41
62	39
63	42
64	43
65	41
66	41
67	43
68	40
69	40
70	41
71	39
72	44
73	43
74	45
75	46
76	47
77	40
78	43
79	44
80	41
81	40
82	39
83	36
84	40

15 minute speed study Traffic going WB

# of cars	speed
1	43
2	43
3	42
4	41
5	45
6	46
7	40
8	41
9	42
10	43
11	47
12	46
13	44
14	43
15	47
16	49
17	51
18	51
19	50
20	52
21	48
22	48
23	49
24	45
25	47
26	46
27	47
28	47
29	44
30	44
31	45

East Bound	Time EB	West Bound Time	East Bound	WB	EB	WB
Shaw Rd - Lahaina	0	31:57	0	41:09	0	38:10
Launiupoko Beach Park	3:16	28:19	3:42	37:49	3:39	34:04
Landfill	5:37	22:40	6:03	32:35	6:26	28:36
Olowalu General Store	7:26	17:44	7:57	27:47	8:31	24:18
Luawai St.	8:04	16:26	8:36	26:01	9:10	23:17
Olowalu Access Rd	8:07	16:01	8:52	25:31	9:34	23:01
Ehehene St.	9:49	13:28	10:26	19:30	10:55	19:34
Pohaku St	10:43	11:23	11:11	18:07	11:45	16:41
Papalaua Beach Park	11:59	10:01	12:13	17:02	12:47	12:49
Scenic overlook	16:31	5:04	16:46	6:14	17:29	5:11
~~Maalaea Rd/PIP Hwy~~ North Kihei Rd	20:21	0	20:25	0	22:14	0
	~~Avg sp 41.7~~	~~Avg sp 27.5~~	~~Avg sp~~	~~Avg sp 21.7~~ ~~4:35~~ start time 4:35		

Travel Run distance = 14.9mph

~~Scenic outlook notes~~

Launiupoko TMC

Green Light Phase Timing

Cycle #	Time
1	11:13
2	5:51
3	8:46
4	3:39
5	3:39
6	3:41
7	7:38
8	3:41
9	7:23
10	3:30
11	7:47
12	3:47
13	3:49
14	3:27
15	3:37
16	3:42
17	3:41
18	4:05
19	3:16
20	3:41
21	3:41

Cycle#	Time
22	3:36
23	3:51
24	3:41
25	3:40
26	7:30
27	3:17
28	3:39
29	4:07
30	2:59
31	5:02
32	4:47
33	4:12
34	[illegible]

car

SB Approach

1 car – 10 sec wait time
1 car – 5 sec wait time
1 car – 1:30 wait time
2 car – 4:09 wait time
1 – 1:13 wait time
2 – 2:22 wait time
2 – 38 sec wait time
1 – 2:34 wait time
2 – 2:57 wait time
1 – 53 sec wait time
2 – 3:32 wait time
1 – 2:21 wait time
2 – 3:30 wait time
1 – 2:58 wait time
2 – 2:41 wait time
2 – 2:42 wait time
1 – 2:21 wait time
1 – 3:37 wait time
1 – 2:51 wait time
1 – 2:36 wait time
2 – 3:45 wait time
2 – 2:36 wait
1 – 2:51 wait
1 – 2:44 wait
1 – 1:04 wait
1 – 2:28 wait
5 – 2:52 wait
2 – 2:59 wait

2 – 4:35 wait
1 – 1:37 wait
1 – 2:26 wait
2 – 3:02 wait

	EB	WB	EB	WB	EB	WB
Shaw Rd Lahaina	0	20:45	0	20:14	0	20:22
Launiupoko Beach Park	3:41	17:17	3:23	16:58	3:39	17:21
Landfill	6:02	14:58	5:44	14:33	5:53	14:59
Olowalu General Store	7:58	13:11	7:33	12:42	7:44	12:53
Luawai St.	8:38	12:28	8:17	12:24	8:22	12:17
Olowalu Access Rd	8:48	12:17	8:30	11:59	8:34	12:01
Ehehene St	10:20	10:49	10:00	10:20	10:11	10:34
Pohaku St.	11:08	9:57	10:44	9:26	10:56	9:45
Papalaua Beach Park	12:31	8:54	11:42	8:18	11:58	8:47
Scenic overlook	16:35	4:44	16:08	3:50	16:23	4:09
North Kihie Rd	21:37	0	21:00	0	21:15	0

distance 14.9 miles

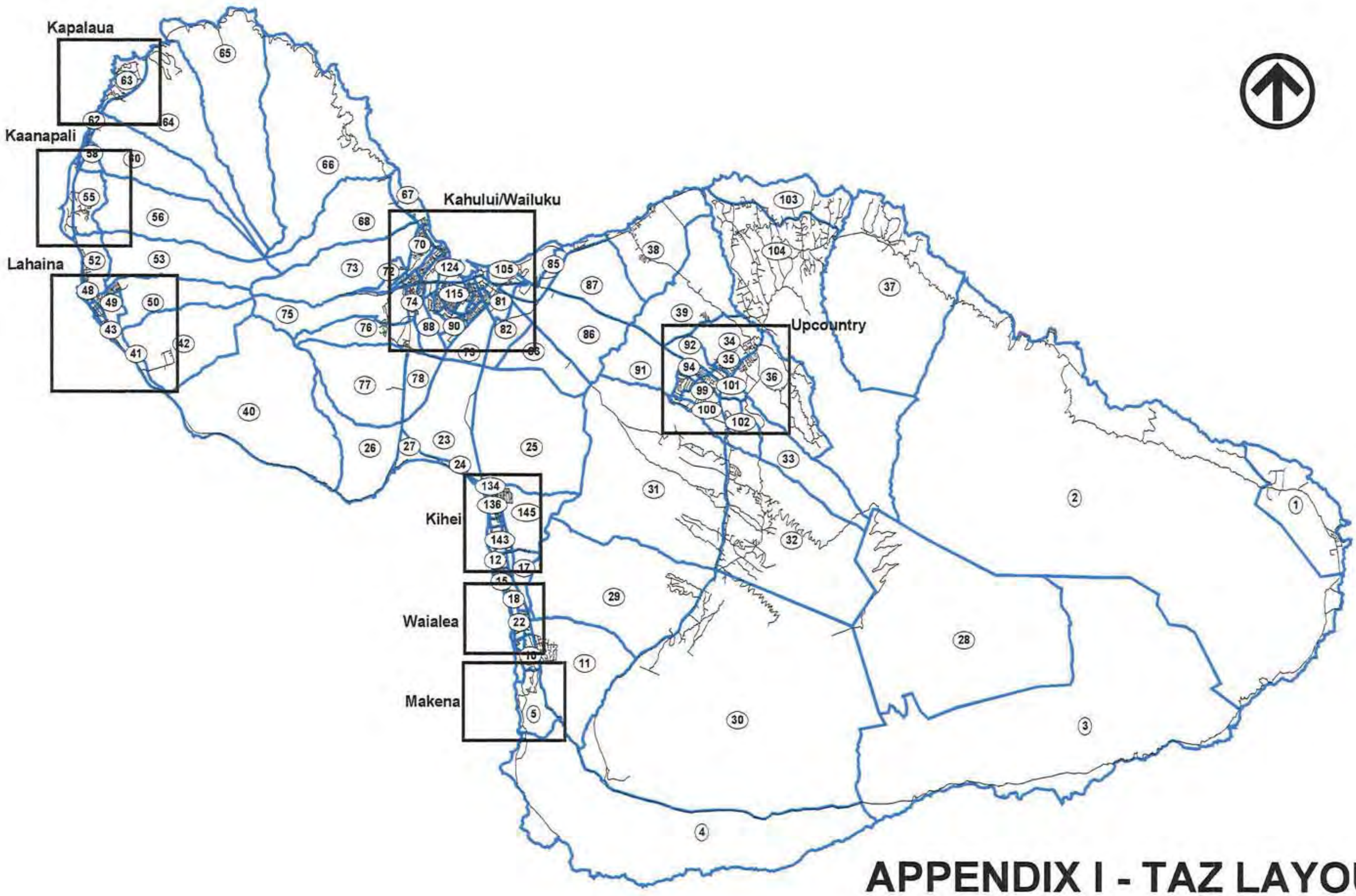
	WB	EB	WB	EB	WB	EB
North Kihei Rd	0	20:37	0	21:11		
Scenic overlook	4:31	15:58	4:01	16:04		
Papalaua Beach	7:59	12:29	7:31	12:14		
Ukumehame Beach park	9:14	11:27	8:40	11:02		
mile marker 14	11:40	9:18	11:10	8:58		
Olowalu General Store	13:10	7:57	12:37	7:28		
Land fill	14:58	6:11	14:31	5:40		
Launiupoko Beach Park	17:39	3:45	16:49	3:25		
Shaw St - Lahaina	20:41	0	20:02	0		0

4

Trip Distribution Calcs Sheet

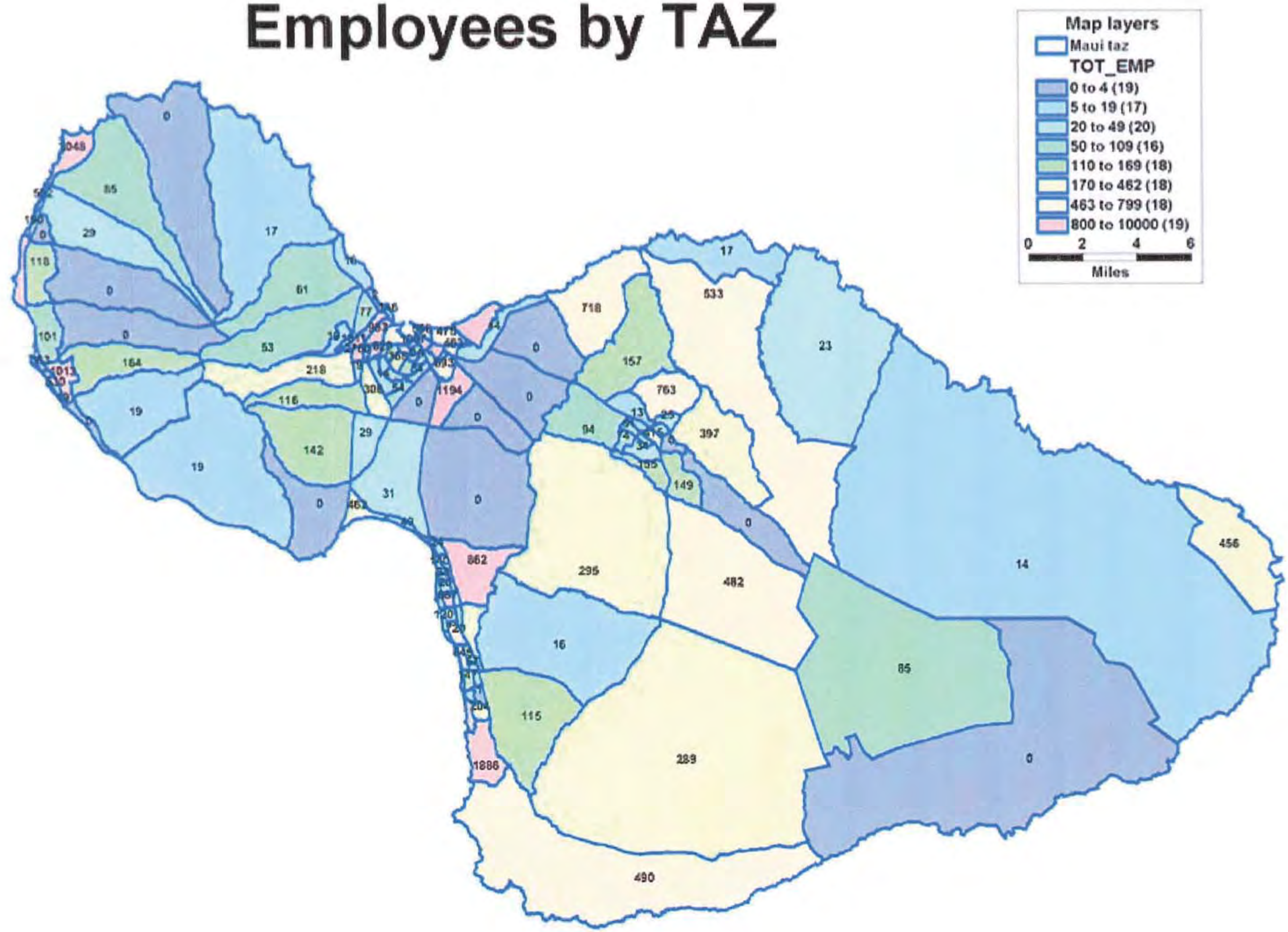
				NEW							PB									
				tot	in	in fm S	in fm N	out	out to S	out to N	tot	in	out	tot	in fm N	in fm S	out to N	out to S	in	out
		0.35	acc1	179	61	25	37	118	47	71	66	28	37	245	14	14	19	19	90	155
		0.58	acc2	296	102	41	61	195	78	117	109	47	62	405	23	23	31	31	148	257
		0.07	riro	36	12	5	7	24	9	14	13	6	7	49	3	3	4	4	18	31
			tot	511	175	70	105	336	134	202	188	81	107	699	41	41	54	54	256	443
					0.342466			0.657534				0.430851	0.569149							
				NEW							PB									
				tot	in			out			tot	in	out	tot					in	out
from north		0.35	acc1	229	0.20	0.14	0.21	0.15	0.14	0.21	121	0.18	0.17	349					0.00	0.00
		0.58	acc2	379	0.33	0.23	0.35	0.25	0.23	0.35	200	0.30	0.28	579					0.00	0.00
		0.07	riro	46	0.04	0.03	0.04	0.03	0.03	0.04	24	0.04	0.03	70					0.00	0.00
			tot	653	375	0.40	0.60	278	0.40	0.60	345	181	164	998					556	442
					0.574273			0.425727				0.524638	0.475362							
					0.57			0.43				0.52	0.48						0.00	0.00
				NEW							PB									
				tot	in			out			tot	in	out	tot					in	out
		0.35	acc1	229	0.20			0.15			121	0.18	0.17	349					0.00	0.00
from south	0.4	0.58	acc2	379	0.33			0.25			200	0.30	0.28	579					0.00	0.00
		0.07	riro	46	0.04			0.03			24	0.04	0.03	70					0.00	0.00
			tot	653	375			278			345	181	164	998					556	442
					0.574273			0.425727				0.524638	0.475362							
					0.57			0.43				0.52	0.48						0.00	0.00

5

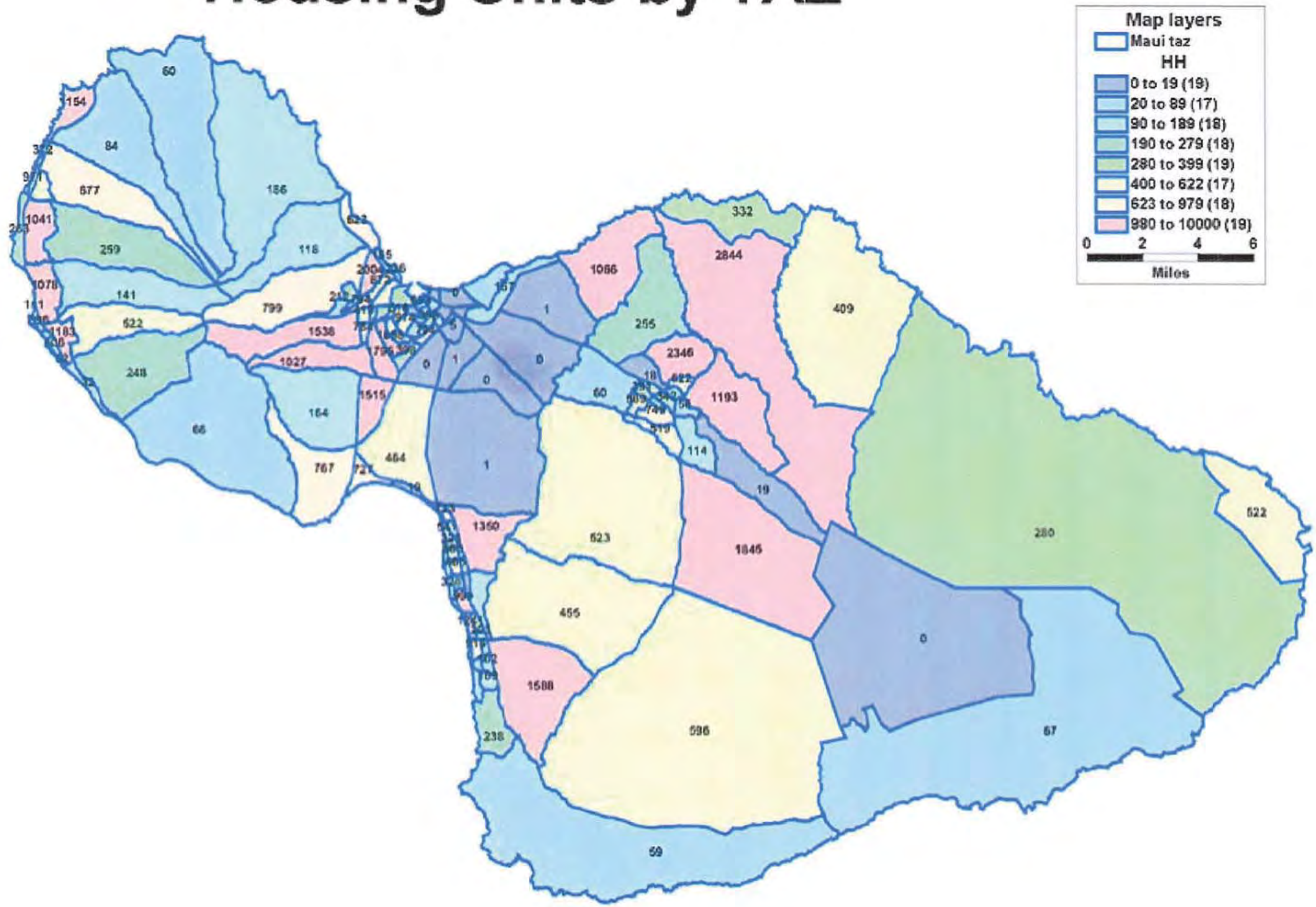


APPENDIX I - TAZ LAYOUT

Employees by TAZ



Housing Units by TAZ



Trips in 1990 and 2020 By Community Name and By Purpose

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3				1990						2020		
4			Home Based Work	Home Based Other	Non-Home Based	Visitors	Total	Home Based Work	Home Based Other	Non-Home Based	Visitors	Total
5	Community Name	aka 1997 LRTP										
6	West Maui	Lahaina										
7	Kihei-Makena	Kihei-Makena										
8	Wailuku-Kahului	Wailuku-Kahului										
9	Makawao-Pukalani-Kula	Makawao-Pukalani-Kula										
10	Paia-Haiku	Paia-Haiku										
11	Hana	Hana										
12	Total Daily Trips		43,260	89,660	65,590	35,140	233,650	69,050	143,130	114,250	59,850	386,280
13	A.M. Peak Hour		8,980	4,490	1,450	2,600	17,520	14,340	7,170	2,520	4,430	28,460
14	P.M. Peak Hour		9,070	5,050	2,210	4,220	20,550	14,470	8,050	3,840	7,190	33,550
15												
16	**Percentage of Total Trips by Purpose Daily**		**18.5%**	**38.4%**	**28.1%**	**15.0%**		**17.9%**	**37.1%**	**29.6%**	**15.5%**	
17	**Percentage of Total Trips by Purpose AM**		**51.3%**	**25.6%**	**8.3%**	**14.8%**		**50.4%**	**25.2%**	**8.9%**	**15.6%**	
18	**Percentage of Total Trips by Purpose PM**		**44.1%**	**24.6%**	**10.8%**	**20.5%**		**43.1%**	**24.0%**	**11.4%**	**21.4%**	
19												
20												
21			1990 LRTP Daily Trips		2020 LRTP Daily Trips							
22		From	To/from	To/from	To/from	To/from						
23		Site by Purpose	Lahaina	All others	Lahaina	All others						
24		HBW	12,899	30,361	19,426	49,624						
25		HBO	16,431	73,229	20,230	122,900						
26		NHB	10,475	55,115	20,969	93,281						
27		Visitor	21,547	13,593	32,943	26,907						
28		Total	61,352	172,298	93,568	292,712						
29			26.3%	73.7%	26.3%	73.7%						
30	Daily 1990 % by Purpose							2020 % by Purpose				
31	18.5%	HBW	29.8%	70.2%	28.1%	71.9%		17.9%				
32	38.4%	HBO	18.3%	81.7%	14.1%	85.9%		37.1%				
33	28.1%	NHB	16.0%	84.0%	18.4%	81.6%		29.6%				
34	15.0%	Visitor	61.3%	38.7%	55.0%	45.0%		15.5%				
35		Total	26.3%	73.7%	24.2%	75.8%						
36												
37												
38												
39												
40												
41												
42		Example of 5000	To Lahaina (left out)	All others (right out)								
43		5000	276	650								
44		5000	352	1567								
45		5000	224	1179								
46		5000	461	291								
47		Total	1313	3687								

6

[design principles for mobility]

Sustainable Design Principles and Practices
For Vehicle Trip Reduction and Mobility Fee Credits

Acknowledgments

The study team would like to extend a sincere thanks to the City of Jacksonville Planning and Development Staff whose diligence and desire to create a better system for the City directly contributed to making this effort a reality:

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Foreword

> *"If we can develop and design streets so that they are wonderful, fulfilling places to be — community-building places, attractive for all people — then we will have successfully designed about one-third of the city directly and will have had an immense impact on the rest."—Allan Jacobs, Great Streets*

The sweeping, statewide Growth Management changes enacted during the 2011 Legislative session has provided an air of uncertainty with respect to the State's role in future comprehensive planning and oversight. Despite this situation, a proverbial "Let cities be cities" mantra has emerged as the new framework and potentially offers an opportunity for local governments to be progressive and visionary in their approach to planning and development. The City of Jacksonville's adopted 2030 Mobility Plan is ahead of this curve and establishes a new paradigm for infrastructure planning, design, and implementation with a multimodal emphasis. This Plan identifies future transportation infrastructure needs, and uses a simple fee structure based on vehicle miles traveled to fund prioritized improvements throughout designated mobility zones. Unlike the previous concurrency management system, the Mobility Plan is the first effort to truly link the impacts of development to capital expenditures. Perhaps most signficantly, this new approach also creates a system that is supportive of a more predictable, decision-making environment—one of the most significant variables that can make development firms uneasy about investment.

This Guide has been developed by the City of Jacksonville Planning and Development Department with a twofold purpose: (1); to document the various approaches to adjusting trip generation based of design principles, and (2); to provide examples of how the approach chosen by the City can be utilized to maximize trip reduction adjustments for a variety of development typologies. Such trip adjustments are designed to function as an incentive instrument to encourage infill development opportunities and create a built environment supportive of transportation mode choice.

Beyond representing a mere "carrot" to mobility fee reduction, there is tremendous long-term value in encouraging sustainable development opportunities for the City of Jacksonville—development which encompasses real choice in mobility and housing, provides a stronger sense of identity and character, discourages sprawl, and ultimately restores vitality to the places that are important to residents. On behalf of the Planning and Development Department, we hope you find this Guide useful to support and reward desired development outcomes.

Sincerely,

William Killingsworth, Director

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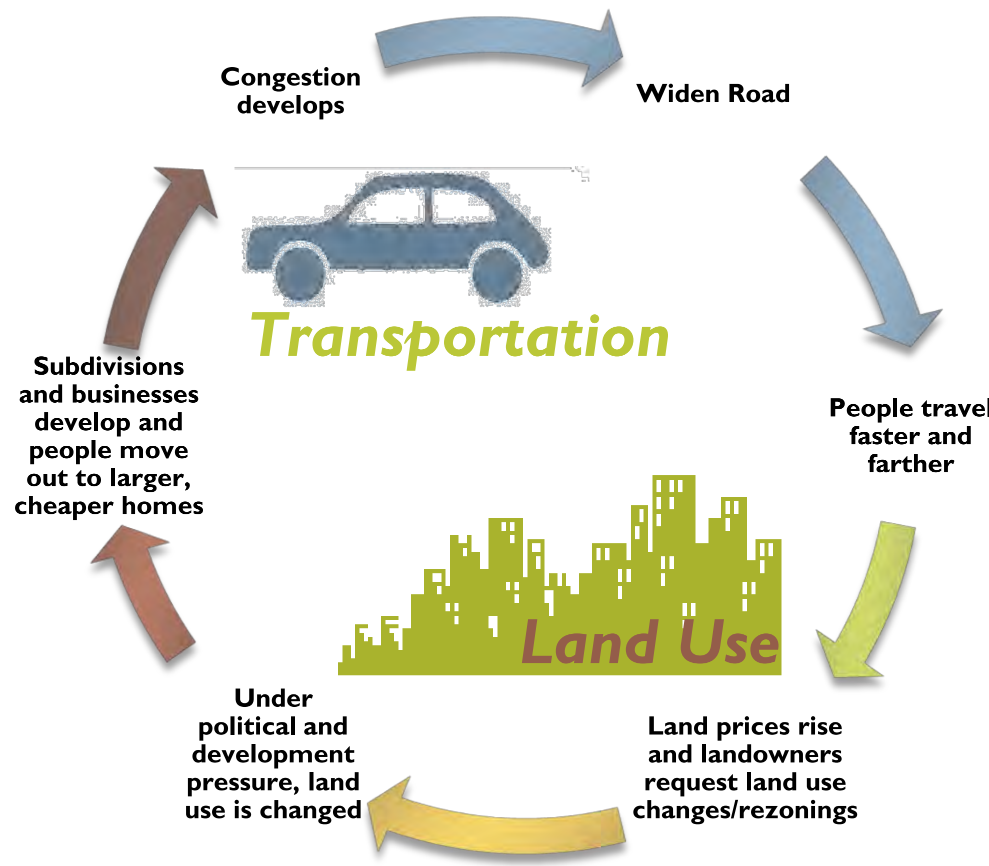
Context

From Concurrency Management to Mobility Planning
The City of Jacksonville's recent and on-going mobility planning efforts, both in response to Florida's Senate Bill 360 and the many shortcomings of the City's existing Fair Share system, establishes a new, comprehensive framework for transportation planning and concurrency management practices. While transportation concurrency as a policy was designed to ensure that development would ostensibly pay for itself, the system has had the effect of running contrary to many of the goals and objectives of comprehensive planning and growth management principles. Many of these unintended consequences consist of the following:

- → singular focus on PM peak hour level of service for vehicular traffic only
- → disregard to relationship and significance of other modes
- → failure to recognize the fundamental link between supply and demand in travel behavior
- → encouragement of sprawl and unsustainable development patterns
- → disincentive for infill or redevelopment activities
- → unfair and unpredictable mitigation (Fair Share/proportionate share) costs



Conventional concurrency practices ignore fundamental supply and demand principles in transportation and travel behavior.

The City's Fair Share procedures for transportation funding have long been reflective of these inefficiences and inequities. Amidst the backdrop of increasingly narrow sources of revenue and antiquated gas tax financing mechanisms, the adopted 2030 Mobility Plan:

- → Provides innovative approaches and long-term solutions to more effectively address the nexus between transportation and land use decisions. This includes the flexibility to support and fund multimodal improvements associated with future travel demand and provide an incentive for quality growth and development.
- → Works in concert with the complementary fee system to reduce leap-frog development, better deal with potential cross-jurisdictional transportation impacts, and provide equity in terms of local stakeholders sharing in the costs, processes, and impacts of transportation decisions—with the ultimate goal being a unified transportation system that promotes **compact, mixed use, and energy-efficient development.**

High density, transit-oriented redevelopment, such as shown above, would generally be financially discouraged under traditional concurrency/Fair Share requirements.

City of Jacksonville 2030 Multimodal Transportation Study and Mobility Plan

While the fee alone won't achieve the goal of funding all of the City's transportation needs, it represents a more equitable and predictable approach addressing the needs of transit users, bicyclists, and pedestrians that have largely been ignored under the existing Fair Share concurrency system, which focuses mainly on the automobile.

The City's Mobility Plan specifically incorporates a number of strategies that are designed to link urban form, transportation and the multimodal environment. The fee system will enable new development to proceed following the payment of a vehicle-miles traveled (VMT)-based assessment that will be collected to fund prioritized multimodal improvements throughout designated "mobility zones" in the City. A key component of the formula includes trip adjustment parameters. These are designed to provide a credit structure to the mobility fee to reward or incentivize quality growth and development. The adjustments directly translate into a percent reduction applied to a project's calculated daily trip generation. This is designed to encourage mixed-use as well as infill and redevelopment opportunities, enhancing the multimodal network by incorporating livable and sustainable design elements.

ITE Trip Generation Limitations

Fundamental to this consideration for a trip reduction mechanism, is the recognition of the shortcomings associated with a universal application of Institute of Transportation Engineers (ITE) trip generation and internal capture procedures for project trip estimation. While a valuable resource for traffic impact assessments, the majority of sites that are surveyed for the purpose of developing the range of per unit rates and linear equations for trip estimation (*Trip Generation, 8th Edition*, 2008) are based primarily on suburban locations. These sites typically reflect individual, segregated uses whose trips are by private vehicle and whose origins and destinations generally lie outside of the development. In addition, most of these sites are characterized by having little or no transit service, nearby pedestrian amenities, or travel demand management (TDM) programs to reduce dependency on private automobile travel. Most of the marketing of these sites is tied to the availability of free and abundant parking.

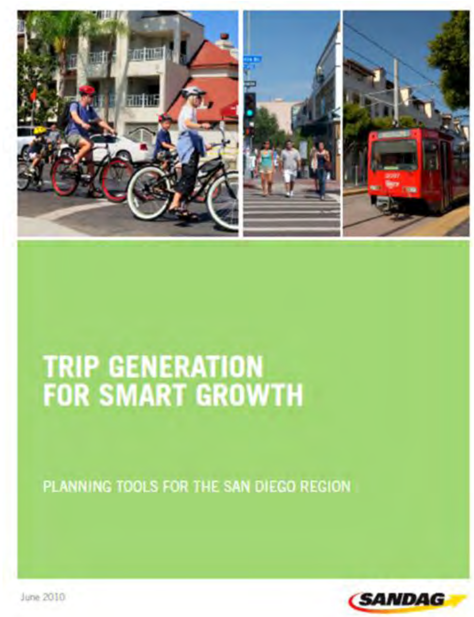
For mixed-use projects, ITE's current procedure for estimating internal capture, or the proportion of trips that remain within the development, provides a downward adjustment to the preliminary estimate of external trip generation. These reductions, however, also have many shortcomings:

- → The method is based upon look-up tables from a "limited number of multi-use sites in Florida" (specifically three sites analyzed by the Florida Department of Transportation, *Trip Generation Handbook*, 2004, p. 130). The accuracy of such a forecast is dependent upon how closely the site being analyzed corresponds to the characteristics of the three sites developed for the look-up tables.
- → The land use types in these tables are also limited to three uses—residential, retail, and office—thus the traffic reducing impacts of other mixed uses cannot be assessed.
- → The scale of development is also overlooked. In other words, a large site with many trip productions and attractions is more likely to produce larger internal capture than a small site, but the look-up tables don't provide higher percentages to account for this distinction.
- → The land use and transportation context of development is also disregarded. This means that a project or site with well- integrated and diverse uses, served by transit, would not be appropriately accounted for in the procedure.

The ITE manual recognizes these limitations, and accordingly, advises that users modify rates at particular sites that do exhibit the above characteristics. The desire, however, for standardization, substantial documented evidence, and general conservativism, results in a widespread reliance on the prescribed, suburban-oriented methodology. Without another mechanism or alternative methodology to appropriately account for use mix, density, location, and multimodal features, trip estimates will continue to be overstated leading to higher exactions and/or negotiated payments than should be the case. This approach will also continue to discourage desirable projects within designated infill areas and other targeted locations.

Current Research

The above shortcomings have represented the foundation of a body of literature and research on travel activity and trip generation associated with mixed use development. In 2010, the US EPA conducted research on 239 mixed-use developments in Seattle, Portland, Sacramento, Houston, Atlanta and Boston. The household surveys revealed statistically meaningful relationships between site characteristics and the amount of vehicle travel generated. These mixed-use sites were found to reduce traffic impacts (above and beyond what is typically estimated using conventional ITE internal capture look up tables) relative to single-use suburban development. This is due to the diverse on-site



activities that capture a large share of trips internally. In addition, the siting of development within walkable areas with good transit access, and central, efficient locations helps reduce trip lengths.

Additionally, other jurisdictions, particularly in California, have begun to implement new trip reduction elements tied to the benefits of density, mix of use, and design in development. Some of these include the URBEMIS model with operational measures specifically developed to address California air quality standards, San Diego Area Government's Smart Growth Toolbox, and a variety of specific vehicle trip reduction and transportation demand management programs implemented around the Country. These efforts represent logical and tested references for Jacksonville in order to provide an incentive system for desired development. The documentation and selection of such practices and principles will, more importantly, help guide decision-makers and planners of mixed use projects on the appropriate package of design features likely to minimize traffic generation, GHG emissions, and produce a standard, replicable analysis technique to quantify the impacts of new mixed use development proposals.

"Unless developers are rewarded for the trip reducing impacts of well designed and location-efficient mixed-use projects, the market incentive to build such projects with relatively small ecological footprints is substantially removed." *–Mark Feldman, Evidence on Mixed Use Trip Generation—Local Validation of the National Survey*

While it would be naïve to suggest that this credit system would be the sole determining factor in the development decision-making process, Jacksonville can no longer afford a regulatory environment that discourages creating sustainable, mixed use places. This Guide will explore in greater detail principles and best practices associated with reducing vehicular travel demand and enhancing multimodal mobility, ultimately ensuring that mixed use development in desired locations will be rewarded.

Implementing Other Planning Efforts

The City of Jacksonville has a tradition of planning excellence in long-range, district and neighborhood planning initiatives. Many of these great efforts, however, have resulted too often in "plans of intent" with implementation efforts stymied because of little political and/or economic will. The recently adopted 2030 Mobility Plan provides a unique opportunity to implement the collective visions and objectives articulated in the City's Planning District and Neighborhood Action Plans. Over the course of the past decade, the City has developed a series of local plans focused on generating everything from community revitalization and reinvestment to enhancing mobility and housing choices.

The integrated set of Guiding Principles from the most recent Vision Plans establishes a foundation for the development of specific design parameters for a mobility credit system. Major themes reinforce capitalizing on each community's uniqueness, promoting mixed-use and infill development, providing a variety of transportation choices and encouraging economic growth, while enhancing and preserving open space. The principles and example applications will reflect a variety of place types and targeted enhancement areas identified with an eye on linking the potential fees generated by new development to mobility improvements recommended in these plans, in addition to those prioritized in the 2030 Mobility Plan. This approach is intended to create a system that can fund and support mobility throughout the City—especially in the context of long-term community objectives identified in the area Vision Plans.

Design Principles and Best Practices

"Erosion of cities by automobiles...proceeds as a kind of nibbling, small nibbles at first, but eventually hefty bites...A street is widened here, another is straightened there, a wide avenue is converted to one-way flow...more land goes into parking...No one step in this process is, in itself, crucial. But cumulatively the effect is enormous...City character is blurred until every place becomes more like every other place, all adding up to No place."—*Jane Jacobs, The Death and Life of Great American Cities*

Placemaking

This section will explore in detail the principles and discrete elements that collectively work together to reduce vehicular traffic generation and enhance overall mobility. First consider the following scenarios:

1. There's a new neighborhood store near your home within walking distance. Although a few short blocks away, a long continuous dead-end street prohibits direct access. The alternative solution involves leaving the neighborhood and traversing along the adjacent arterial roadway with no sidewalks en route to make the experience safe and enjoyable. The solution is to drive to the store.
2. You've spent a great portion of your summer day chauffeuring your kids from school to sports practice, and then you're picking up your elderly aunt for her doctor's appointment. Wouldn't it be nice if your children could walk to school by themselves and not worry about speeding motorists? Your aunt would also like to get around by herself, but she walks slowly and wouldn't dare take a chance with impatient drivers on those wide streets.
3. The old train station used to be the real heart of downtown. As it exists today, it's completely deteriorated and lifeless. While there is a place to sit and wait for the local bus, the experience leaves much to be desired. The adjacent storefronts have closed and trains are no more. It's no wonder that people actually prefer to drive.
4. The neighborhood shopping district certainly isn't what it used to be. While the new mall has grown into a bustling place, it lacks the interesting mix of people, walkability, and the commercial and community activities and character that defined your neighborhood main street. On the other hand, the last time you visited the old "main street" it was fairly bleak, especially after being widened to accommodate faster traffic and the main retailer displaced by the larger one at the mall. The intimacy and accessibility that made people like to go there are gone, and so is the sense of place.

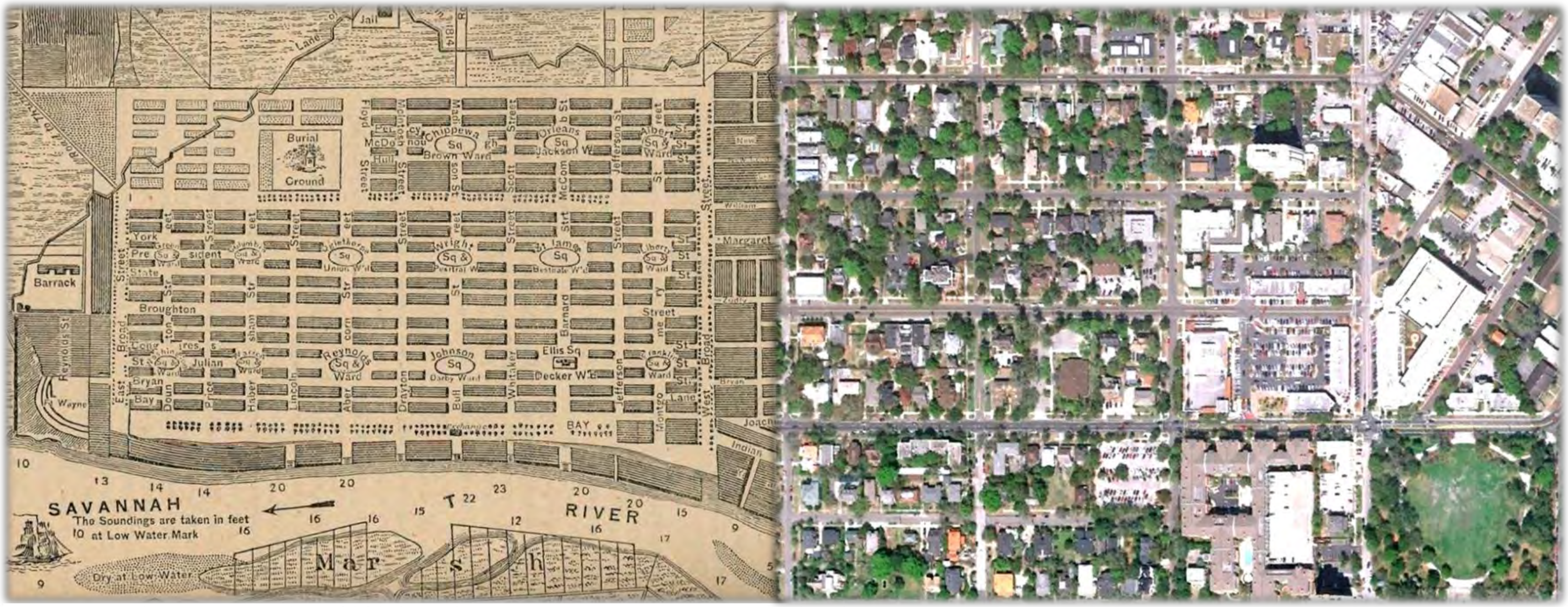
These represent a microcosm of what many of us have become accustomed to experiencing in our everyday lives and commutes, and have come to define much of our City's landscape. The City's adopted Vision Plans clearly indicate a preference for an alternative approach to development and reinvestment, one that preserves and enhances existing neighborhoods and commercial centers, provides multimodal connectivity options, and improves quality of life. Much of this begins with a simple rethinking of our streets as public spaces for the ebb and flow of people and not exclusively automobiles. In many respects, simply looking to our past can provide our City with lessons on how to create lasting and valuable communities that are multimodal by nature. Whether it's Riverside-Avondale, San Marco, and Springfield in our own backyard, or Savannah,

Historic Riverside/Avondale walking experience

Charleston, or Nantucket by design, the collective and integrated elements of all these places has been reinforcing multimodal travel and mobility for over a century.

The previous scenarios also emphasize the importance of *placemaking* as it contributes to enhancing mobility. This concept is both a process and a philosophy. While it generally refers to the act of designing spaces, and in particular public spaces, that attract people because of their interesting qualities, it's also a reflection of a community's needs and desires about places in their lives and the potential experiences and inspiration these places offer. When thinking about what makes such places special, and in particular the important elements that contribute to the sense of place, it often comes down to form and design. In this respect, the pattern and assembly of streets, block sizes and distance, and the configuration and placement of buildings play an essential role in the outcome and quality of the transportation and mobility environment.

While a major emphasis of the City's Mobility planning efforts is to be able to fund multimodal improvements, it is perhaps even more critical to ensure that these improvements are supported by form and design elements that will sustainably support their use. It's quite remarkable to consider the uncomplicated, historical lessons in city-building and urban design of our American Forefathers in terms of offering great insight into how to achieve such results, even in the context of improving contemporary suburban development. Approaching development and redevelopment with a placemaking philosophy will serve to increase the likelihood that projects will be located and designed in a manner which maximizes both long term community planning goals and individual financial incentives.



This historical Savannah map from 1818 (above) and present day, historic Riverside (right) in Jacksonville illustrates the simple assembly of streets and blocks and public squares that fundamentally contribute to pedestrian, bicycle, and transit utilization.

Alternative Methods

Recognizing the importance of placemaking and urban design, additional mixed-use and transit-oriented development, infill and new location-efficient development (collectively referred to as Smart Growth), many jurisdictions and planning agencies across the country have begun to employ new methods to encourage these activities. While traditional tax abatements and subsidies will continue to be utilized as a financial means to attract development to urban centers and other desirable locations, a number of jurisdictions have also begun to adopt alternative methods to more accurately assess the impacts of this type of development. As discussed in the first section, current ITE-based trip generation and parking supply guidelines are based on conventional suburban development, which tend to overestimate the vehicular trip impacts of Smart Growth sites and do not generally account for the distinction between truly urban, walkable, and transit-friendly mixed-use projects and more auto-centric, suburban, development. In many locations that require impact fees or exactions tied to adequate public facilities requirements (such as transportation concurrency in Florida), this would likely impose a larger cost burden on both developers and local governments to provide more roadway and parking capacity associated with these types of projects than is necessary. Recognizing this issue, other jurisdictions are exploring the use of new tools and methods, within the development approval process. These approaches are designed to allow for an adjustment in the number of trips and/or provide additional credits specifically tied to projects that are urban or infill in nature, support complementary mixes of uses, provide safe bicycle and pedestrian access, and present real connections to transit modes. The resulting cost savings also presents a greater opportunity to reduce the impacts to potential homebuyers and renters.

What is Location Efficiency?

While the concept of energy efficiency is a familiar term, locations can be efficient too. Compact neighborhoods with walkable streets, access to transit, and a wide variety of stores and services have high *location efficiency*. They require less time, money, and greenhouse gas emissions for residents to meet their everyday travel requirements.

The savings have been shown to add up for households and communities. Transportation costs can range from 15% of household income in location efficient neighborhoods to over 30% in inefficient locations. Greenhouse gas emissions fluctuate too, depending on household reliance on costly, carbon-intensive automobile travel. *(Center for Neighborhood Technology)*

Supporting Studies and Best Practices

While there is variation in terms of how the trip estimation and/or credits may be calculated or applied, the basis for most of the practices proposed in this document reflect what are known as the "**D**" variables, originally coined by Cervero and Kockelman (1997) as often overlooked indices of travel demand and mode choice. The three original "Ds" are ***density, diversity***, and ***design***. Since then, others have been added as relevant indicators including, ***destinations*** (in terms of accessibility), ***distances*** (such as to transit), ***demographics*** (concentration of employees and households within walking distance), and ***development*** scale. These are representative of the underlying framework for the select variables in the California-based URBEMIS model among other approaches discussed in this section. In the context of urban, mixed-used development projects, travel can generally be conceived as a series of choices dependent upon the extent of these "D" variables—such that a particular site's densities, form, and/or enhanced accessibility will largely influence the probability that a traveler will remain within a development or travel outside or to walk, bike, or use transit. In summary these major characteristics include:

- → ***Density:*** More people and jobs per acre (and/or greater jobs/housing balance) is often a fundamental planning objective of Smart Growth. This is effective at reducing VMT and increasing the mode share, especially when integrated with increased mix of uses, accessibility, and good urban design. Density also promotes infill and redevelopment, minimizing Greenfield, and exurban development.
- → ***Diversity:*** The degree of use mix is often an indicator of the jobs/housing balance, as well as the variety of retail and non-retail employment within

walking/bicycling distance or a short driving distance. The mixing of residential and non-residential uses tends to reduce vehicle trips and VMT, and increases the likelihood of mobility choice.

→ ***Design:*** Development that is designed at the scale of the pedestrian will tend to be more compact and interconnected, including increased street network density and sidewalk completeness, inviting public plazas and spaces, and minimized off-street parking or parking directed to the street or rear of buildings. This increases the safety, convenience, and comfort of the pedestrian environment, yielding a walkable, urban form that is also correlated to reduced vehicle travel and VMT.

→ ***Destination Accessibility:*** Infill and redevelopment is by nature location-efficient development, encouraging the creation of new, vibrant activity centers near existing transportation nodes and support infrastructure, providing greater accessibility to other population and activity centers. This serves to reduce travel time and VMT, and also increases the ability to directly connect via transit.

→ ***Transit Proximity:*** A simple characteristic that considers the number of people and jobs within ½ mile of transit stops. If paired properly with the preceding "D's", this would serve to increase the number of people choosing to walk or bike to the transit service and minimize driving and parking.

CITY OF PORTLAND, OREGON

Collectively and cumulatively, the "D" factors have been shown to play a significant role in both trip reduction and local parking requirements in a number of locations. In the City of Portland Oregon, for example:

→ Trips are reduced an additional 5% at mixed use developments with at least 24 dwelling units per gross acre and 15% or more of the floor area devoted to commercial or light industrial uses

→ Trips are reduced 2% if 41-60% of buildings in a zone are oriented toward the street.

→ Trips are reduced 5% if 60-100% of buildings in a zone are oriented toward the street.

→ Trips are reduced 3% if the Pedestrian Environmental Factor[1] *(an index that indicates the quality of walking conditions in urban areas)* equals 9 to 12.

→ Trips are reduced 1% if it is adjacent to bicycle path and secure bicycle storage is provided.

→ In a central business district, trips are reduced 40%, plus 12% if the Pedestrian Environmental Factor is 9 to 11, and 14% if Pedestrian Environmental Factor is 12.

IMPACTS OF NEW URBANISM AND TOD

A 2003 study by the National Resources Defense Council examined the impacts of Smart Growth principles and "D" variables on two Nashville area New Urbanist neighborhoods. Compared with other nearby neighborhoods, the two communities, with modestly higher density, use mix, and connectivity, yielded 25 percent less per capita VMT. **The results of the study suggested that the combination of better transportation accessibility and a modest increase in land-use density can produce measurable benefits even when both sites are generally automobile-oriented and suburban in character**.

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[1] *A component of Portland, OR's "Making the Land Use, Transportation, Air Quality Connection (LUTRAQ)" demonstration project in 1996 to develop methodologies for creating alternative suburban land use patterns and design standards and evaluating their impacts on automobile dependency and mobility, the Pedestrian Environmental Factor (PEF) represents a composite measure of "pedestrian friendliness" scoring parameters such as sidewalk continuity, ease of crossings, local street characteristics, and topography using a range of 4-12 (4 being the lowest and 12 being the highest) in order to improve accuracy of several transportation submodels in Portland.*

A similar 2005 study of a North Carolina neighborhood found that residents generated 22 percent fewer automobile trips and took three times as many walking trips than residents of an otherwise similar neighborhood, even when controlling for demographic factors and travel preferences.

In addition, a 2008 report by the Transit Cooperative Research Program (TCRP) examining actual mixed-use, transit-oriented development (TOD) sites in metropolitan Philadelphia, Washington, Portland, and San Francisco determined that, on average, **car trips were reduced by 49 percent in the morning peak period and 48 percent in the evening peak, compared to what would be expected from the standard ITE estimates typically used by municipalities.**

Much of the supporting research and case studies indicated that neighborhoods with favorable density, mix, street design, and regional accessibility features typically have **20 to 40 percent fewer vehicles and vehicle trips** than otherwise comparable, automobile-dependent communities.

PREVIOUS TRAVEL BEHAVIOR RESEARCH

An extensive body of literature exists on trip generation and the effects of land use and urban form on travel behavior. Much of the current research reflects the growing national interest in building data that expands upon the existing ITE trip generation rates to account for mixed-use and location efficient development within a multi-modal context. Previous research, such as that by Crane (1996), Levinson and Wynn (1963), and Cervero and Kockelman (1996, 1997, and 2002), provides a substantial assessment of the linkage between urban form and density and travel outcomes. The significance, in particular, of population and employment densities as predictors of travel behavior is nearly indisputable and perhaps the strongest predictor compared to all other built environment attributes.

A study of 28 California communities using the 1990 Census information suggested that **doubling neighborhood density resulted in a 25% reduction in the number of cars and VMT per household**. Studies have also found that land use mix and street patterns exert tremendous influence upon travel behavior. One study conducted in 1996 of 44 of the largest metropolitan areas in the U.S. found that having grocery stores and other consumer services within 300 feet of one's residence tended to encourage commuting by mass transit, walking and bicycling. While another series of studies by Kulash, et.al. (1990) and Mcnally and Ryan (1992) strongly suggest that traditional grid circulation patterns with well-connected and continuous sidewalks support less driving and have been shown **to reduce VMT by as much as 57 percent** compared with VMT in looped cul-de-sacs and other similarly-designed street networks.

Trip Reduction Factors, City of Portland, 1995

Minimum FAR	Mixed Use	Commercial Near Bus	Commercial Near LRT Station	Mixed Use Near Bus	Mixed Use Near LRT
No Minimum	----	1.0%	2.0%	----	----
0.5	1.9%	1.9%	2.9%	2.7%	3.9%
0.75	2.4%	2.4%	3.7%	3.4%	4.9%
1.0	3.0%	3.0%	5.0%	4.3%	6.7%
1.25	3.6%	3.6%	6.7%	5.1%	8.9%
1.5	4.2%	4.2%	8.9%	6.0%	11.9%
1.75	5.0%	5.0%	11.6%	7.1%	15.5%
2.0	7.0%	7.0%	15.0%	10.0%	20.0%

FAR=floor area ratio, or ratio of floor space to land area; LRT=light rail transit. "Mixed Use", in this case, means commercial, restaurants, office and light industry with 30 percent or more floor area devoted to residential. "Near Bus" or "Near LRT" means location within one-quarter mile of a bus corridor or LRT station.

Portland State University is currently conducting research in order to specifically "account for how the built environment (both land use and transportation) influences travel behavior including number of trips, trip length, mode choice, and determine trip rates that reflect the entire activity spectrum of different development/place typologies." This important effort is designed to explore the impact of different development types on the transportation system for three primary purposes:
(1) To avoid over supplying the transportation and infrastructure system for the surrounding land uses;
(2) Prioritized strategies and investment options to encourage more compact, mixed-use areas with more transportation choices and
(3) Avoid creating regulatory and/or financial barriers to compact form as envisioned by local, regional and statewide plans.

Parking and Transportation Demand Management (TDM) Considerations

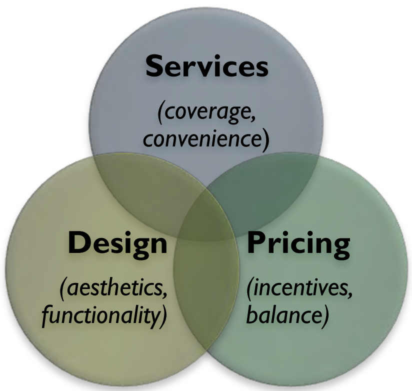
Parking pricing strategies also have an effect upon vehicle trips. Shifting from free to cost-recovery parking (prices that actually reflect the cost of providing parking facilities) typically reduces automobile commuting 10 to 30 percent (Comsis Corporation, 1993). Shifting from free parking to a $6 daily fee in Downtown Portland was shown to reduce automobile commutes 21 percent. The elasticity of vehicle trips with respect to parking price is typically found to be -0.1 to -0.3. This means that a 10 percent parking fee increase reduces vehicle use by 1 to 3 percent (Litman, 2006). In a survey of automobile commuters in 1998 (Kuppam, et. al) nearly 35 percent stated that they would consider shifting to another mode if required to pay daily parking fees of $1 to $3 in suburban locations and $3 to $8 in urban locations. The following tables illustrate the typical reductions in automobile commute trips that result from various parking fees in various geographic locations.

Vehicle Trips Reduced by Daily Parking Fees in Various Locations (2005)

Worksite Setting	$1.35	$2.70	$4.00	$5.40
Low Density Suburb	6.5%	15.1%	25.3%	36.1%
Activity Center	12.3%	25.1%	37.0%	46.8%
Regional central business district/corridor	17.5%	31.8%	42.6%	50.0%

Comsis Corporation, 1993

Of course the effects of pricing on parking and trip reduction are dependent upon the particular situation and context including price structure, quality of parking and alternative modes provided at the location, demographics, and enforcement. Furthermore subsidized or underpriced parking is a market distortion that violates basic principles of economic efficiency, which require that consumers should be able to decide whether or not to purchase a particular good, and that prices reflect full marginal costs. Paying for parking facilities indirectly is unfair and inefficient because it fails to reward consumers who reduce the parking costs they impose.



The most effective TDM programs combine services, design, and pricing strategies to reduce single-occupancy vehicle trips.

Transportation Demand Management (TDM) policies and programs, which encourage more efficient travel behavior, can be implemented as an alternative to road and parking facility capacity expansion. Examples of these strategies include, but are not limited to, such measures as: ridesharing, flexible work hours and telecommuting, tolling and congestion pricing, and enhanced bicycle and transit-supportive facilities. TDM affects land use indirectly, by reducing the need to increase road and parking facility capacity, providing incentives to businesses and consumers to favor more accessible, compact development with improved mobility choices. Other management programs, such as *commute trip reduction* programs (*formal programs that give commuters resources and incentives to reduce their automobile trips*), can also reduce affected automobile trips by 10 to 30 percent compared with what would otherwise occur. According to Litman (2006) "Smart Growth, in and of itself, can be considered the land use component of TDM, and TDM can be considered the transportation component of Smart Growth."

Visualizing TDM—In a July 1999 issue of the Tampa Tribune, entitled "Packing Pavement", the left graphic illustrates how to get more out of the existing system and potentially reduce single-occupancy auto commute trips. While road capacity cannot (for the most part) be increased in a traditional urban center, there are alternative opportunities to increase the capacity and efficiency of the transit and transportation system. 40 people are shown in each image.

Residents of Tampa Bay in their cars..

... then sitting where their cars had been

Now the same number of people are sitting in an invisible bus...

...and now they are walking or biking.

While most TDM programs are aimed primarily at reducing peak hour congestion, the cumulative benefits of these programs, particularly telecommuting and transit improvements, tend to decrease the overall daily traffic generated on the system, thereby supporting the basis of Jacksonville's 2030 Mobility Plan. Numerous jurisdictions across the country have implemented TDM and commute trip reduction programs over the last two decades:

To encourage better transportation planning considerations in large scale and planned unit development projects along high growth corridors, the **City of Atlanta** adopted a program which provides trip reduction measures, such as vanpool subsidies, ridesharing, and public transit incentives, during development agreement processes as a condition for rezoning approvals in such areas.

Parking Management Options

Parking "**cash out**" programs provide commuters who would typically be offered subsidized parking at their workplace the cash equivalent of the "free" parking space, encouraging employees to use alternative transportation or transit. The program was enacted as law in California (§ 43845), applicable only to employers with 50 or more employees in non- attainment air quality basins, after studies showed that cash allowances in lieu of parking subsidies increased alternative means of travel improving air quality and reducing congestion.

"**Unbundling**" is another tool that allows the price of a parking space, typically included as part of the monthly lease of an apartment or condominium purchase, to be separated from the cost of the unit. This allows the developer to construct fewer parking spaces associated with residential units and increases affordability. Moreover, the option provides potential buyers or renters the economic choice of purchasing a parking space or not, especially if they do not own a car and use alternative transportation.

In **North Brunswick, NJ**, in an effort to reduce commute traffic along congested routes during peak hours, the town adopted a mandatory program whereby businesses with more than 50 employees would be required to promote ridesharing, park and ride usage, and offer preferential parking for participants. The program is annually monitored through employer-sponsored travel surveys and includes a $500 per month fine for non-compliance.

King County, WA, through its "Commute Partnerships Program", enacted as state law in 1996, developed partnerships with nearly 425 employers in the area to reduce single occupancy vehicle trips. The County shares employers' initial contribution to fund such measures as subsidies for transit, vanpooling, carpooling, and bicycling and walking. The program has resulted in a 40 percent reduction in drive-alone commuting at the participating work locations.

The following matrix provides a useful summary of the most effective principles and methods that influence both mobility outcomes and population health, in terms of promotion of walking and/or bicycling.

Design and Programmatic Factors Influencing Travel Outcomes

Factor	Definition	Travel Impacts
Density	People or jobs per unit of land area (acre or hectare).	Increased density tends to reduce per capita vehicle travel. Each 10% increase in urban densities typically reduces per capita VMT by 2-3%.
Diversity or Mix	Degree that related land uses (housing, commercial, institutional) are truly mixed. Not to be confused with "multi-use", this would refer to the extent that complimentary land uses are contained in the same building.	Increased land use mix tends to reduce per capita vehicle travel, and increases use of alternative modes, particularly walking for errands. Neighborhoods with good land use mix typically have 5-15% lower vehicle-miles.
Regional Accessibility ("Destinations")	Location of development relative to regional urban center.	Improved accessibility reduces per capita vehicle mileage. Residents of more central neighborhoods typically drive 10-30% fewer vehicle-miles than residents of more dispersed, urban fringe locations.
Centeredness	Portion of commercial, employment and other activities in major activity centers.	Increased centeredness increases use of alternative commute modes. Typically 20-50% of commuters to major commercial centers drive alone, compared with 80-90% of commuters to dispersed locations.
Connectivity	Degree that walkways and roads are connected and allow direct travel between destinations.	Improved roadway connectivity can reduce vehicle mileage, and improved walkway connectivity tends to increase walking and cycling.
Roadway design and management	Scale, design and management of streets.	More multi-modal street design and management increases use of alternative modes. Traffic calming tends to reduce vehicle travel and increase walking and cycling.
Walking and Cycling environment	Quantity and quality of sidewalks, crosswalks, paths and bike lanes, and the level of pedestrian security.	Improved walking and cycling conditions increases non-motorized travel and can reduce automobile travel, particularly if implemented with land use mix, transit improvements, and incentives to reduce driving.
Transit quality and accessibility	Quality of transit service and degree to which destinations are transit accessible.	Improved transit service quality increases transit ridership and can reduce automobile trips, particularly for urban commuting.
Parking supply and management	Number of parking spaces per building unit or acre, and how parking is managed.	Reduced parking supply, increased parking pricing and increased application of other parking management strategies can significantly reduce per capita vehicle travel. Cost-recovery parking pricing (charging motorists directly for the cost of providing parking) typically reduces automobile trips by 10-30%.
Site design	The layout and design of buildings and parking facilities.	More multi-modal site design can reduce automobile trips, particularly if implemented with improved transit services.
Mobility Management	Various programs and strategies that encourage more efficient travel patterns.	Mobility management policies and programs can significantly reduce vehicle travel by affected trips. Vehicle travel reductions of 10-30% are common.

Litman, 2006

CALTRANS TRIP GENERATION RATE STUDY

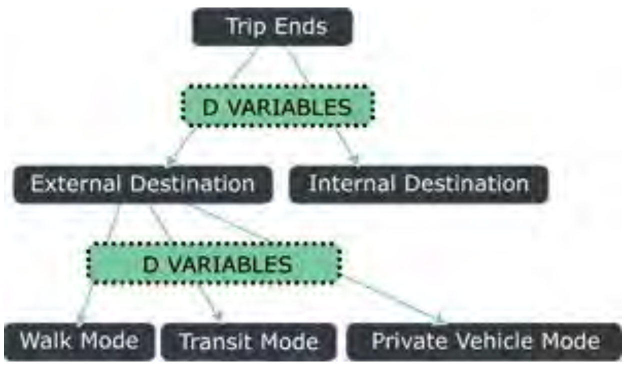
In 2009, the California Department of Transportation (CALTRANS) conducted a two-phase research project to establish a database of empirical trip generation studies for various types of infill development, to standardize data collection and analysis methodology, and to coordinate the findings with the Institute of Transportation Engineers (ITE) for a future publication. Field surveys were conducted at a number of urban infill sites in California in order to develop rates and a database for common infill land use categories to supplement the existing ITE trip generation data.

The preliminary data collected from 27 sites; including those in San Francisco, Berkeley, Oakland, Los Angeles, Santa Monica, Pasadena, and San Diego, indicate that the observed trip rates were generally lower when compared to established ITE rates. Although some individual buildings were equal or higher than the established ITE rates, the weighted average observed rates of the residential sites was **27 to 28 percent lower than the ITE rates**. For the non-residential sites, the weighted average of the observed rates was **26 to 50 percent less.**

While the data collection efforts were postponed in early 2009 as a result of the impacts of the economic downturn on the validity of the trip generation data, the study does begin to formally establish the beginnings of an urban infill trip generation database that could be used in lieu of conventional, suburban rates. More research will be needed to test additional locations in order to confirm and establish potential rates for wider use.

US EPA STUDY & MIXED-USE METHOD (MXD)

A recent national study conducted by the US Environment Protection Agency, in response to the limited offerings of the current ITE *Trip Generation Handbook*, developed a new methodology to more accurately predict the traffic impact of mixed-use developments. This study evaluated household travel surveys from 239 mixed-use developments in Seattle, Portland, Sacramento, Houston, Atlanta, and Boston. Each of the sites varied in population and employment densities, land use mix, presence or absence of transit, and location within a particular region.



The MXD method, as developed by Fehr and Peers, improves vehicle trip generation estimates for mixed-use developments by measuring the degree to which site characteristics such as density, mix of uses, transit frequency, and walkability reduce vehicle trips.

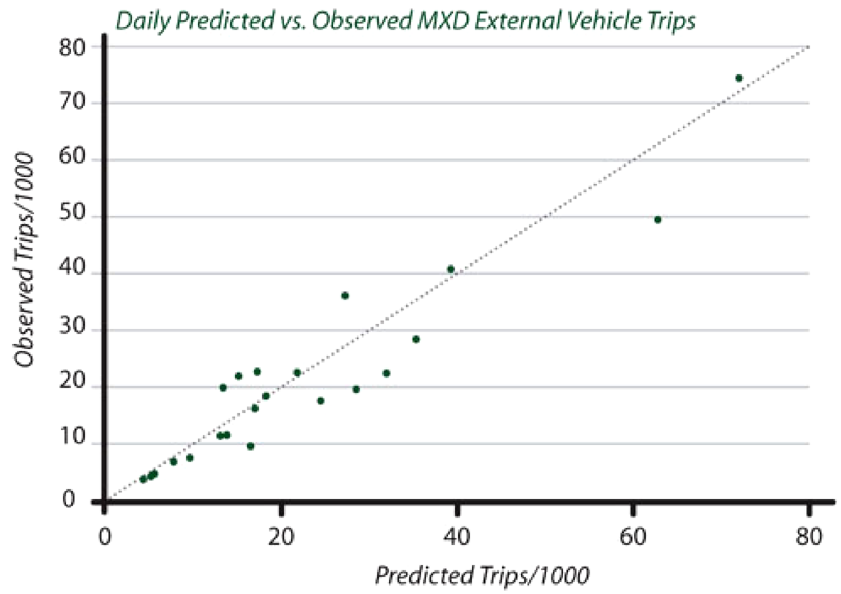
The study found statistical relationships between site development characteristics and the amount of vehicle travel generated based on the use of Hierarchical Linear Modeling (HLM). More importantly, the model produces an equation that more accurately predicts the amount of driving that a development will create and corrects the deficiencies of outmoded, suburban-based equations.

This model, called MXD (for "mixed-use development"), is specifically designed to predict the probabilities of travel choices which can result in the reduction of external vehicle trips to and from a mixed-use development. In this study, each of the seven "D" variables (as described previously) was tested for their ability to predict the travel characteristics of mixed use sites, including models for the choice of internal destinations, choice of walking or bicycling, and choice of transit. The model-generated probabilities were combined with the "raw" ITE rates to predict a "net" number of trips made to and from the particular mixed-use site by private vehicle. **The results indicate a very strong correlation between the impacts of the "D" variables and the reduction in private vehicle trips**. More importantly, the results were also validated in 22 additional sites in Florida and California by comparing with field traffic counts.

SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG)

In 2010, the metropolitan planning organization for the surrounding San Diego region (SANDAG) adopted the MXD methodology and guidelines as an update to the previous *San Diego Traffic Generators Manual*. Its report *Trip Generation for Smart Growth: Planning Tools for the San Diego Region* provided guidelines to local jurisdictions regarding the adjustments of trip generation rates and parking demand associated with Smart Growth developments. The method is also under review by the Institute of Transportation Engineers for wider adoption, and is undergoing evaluation by panels of experts and practitioners in California as part of a study to assess its acceptability for use in development reviews required under state law. The SANDAG Smart Growth Concept Map provides place type thresholds (including specific sites known as Smart Growth Opportunity Areas, or SGOAs) with minimum residential, employment, and transit service targets, and applies the MXD method to 57 specific SGOAs as a means to ground-truth the model in the San Diego region. Based on the results of the analysis, **it was shown that the method estimated and observed an average vehicle trip reduction of 24 percent relative to the standard approach and ranged as high as 47 percent in Downtown San Diego.**

The study is also accompanied by an interactive spreadsheet tool applying the MXD method to assist users in calculating trip reduction rates at specific sites or larger planning areas in California. It is made available to local jurisdictions if they choose to utilize it as part of the development approval process. The spreadsheet can be fully completed by the user inputting their own data, or data can be provided by the SANDAG Service Bureau for a fee. The data needed to perform the trip adjustments are all examples of one or more of the "Ds" that are known to influence travel behavior. This data includes:



The scatter plot above compares the predicted trips of the MXD model to actual observed trips of 22 sites in California and Florida, with the dashed line representing a perfect prediction. The relatively small scatter indicates that the model does an accurate job of predicting net external trips, accounting for the "D" characteristics.

Site-Specific Information:

- → Land Area (of project site in acres)
- → Number of Intersections
- → Is Transit (Bus or Rail) Present Within the Site?
- → Number of Dwelling Units or Population (separated by single family, multi-family)
- → Retail KSF or Employment (separated as specifically as possible)
- → Office KSF or Employment (non-medical and medical if possible)
- → Industrial KSF or Employment (light industrial, manufacturing, or warehouse if possible)
- → Hotel, Motel, Movie Theater (rooms, rooms, and screens)
- → School (by number of students for University, High School, Middle School, or Elementary)
- → Miscellaneous Trips (any special generators or anticipated trips not captured above)

Surrounding Area Variables (assumptions can be developed via a GIS database or travel demand model if necessary):

- → Is the site in a CBD or TOD? (Central Business District or Transit-Oriented Development)
- → Employment: Local (within one mile of the project, but not including the project)
- → Employment: Regional (within a 30 minute transit trip including the project)

Information Attainable From Census or Other National Data Sources (but site-specific is always better if available):

- → Average Vehicles Owned Per Dwelling Unit
- → Average Household Size (by dwelling type is best)
- → Jobs per KSF (retail, office, light industrial, manufacturing, warehousing, misc. uses)
- → Jobs per Unit (hotel room, movie screen, student)
- → Trip Purpose Splits (home-based and non-home-based splits per land use type and time period)
- → Average Trip Lengths (external trips from home-based and non-home-based trips. Not needed to compute vehicle trip reduction, but can be used to estimate VMT as a secondary result.)

URBEMIS MODEL

In 2005, Nelson/Nygaard Consulting Associates developed a mitigation component of a model developed for California air quality control districts to calculate the expected air quality impact of development proposals. Recognizing the limitations of relying solely on the published ITE trip generation rates for estimating traffic associated with higher density, mixed-use development, the URBEMIS tool enables trip adjustments to the standard ITE rates—functioning as a 'plug-in' to standard traffic study methodology.

Through a joint effort between the state's air quality control districts and Department of Transportation examining all of the data influencing trip generation, a series of formulas were adopted which provide vehicle trip reductions and related emissions outputs based on key locational, design, and programmatic factors (the majority of which represent the universal "D" variables). **Most importantly, this model provides an opportunity for jurisdictions to "reward" those developments that are located close to transit service, incorporate higher density and use mix, walking and bicycling features, affordable housing, parking management and pricing, transit service discounts, and other TDM programs.** The inclusion of such measures, collectively, can provide significant reductions relative to the base ITE trip generation estimates.

URBEMIS Trip Reduction Components

	Residential (1)	Non-Residential
Physical Measures		
Net Residential Density	Up to 55%	N/A
Mix of Uses	Up to 9%	Up to 9%
Local-Serving Retail	2%	2%
Transit Service	Up to 15%	Up to 15%
Pedestrian/Bicycle Friendliness	Up to 9%	Up to 9%
Physical Measures subtotal	*Up to 90%*	*Up to 35%*
Demand Management and Similar Measures (require specific commitments through development agreement)		
Affordable Housing	Up to 4%	N/A
Parking Supply (2)	N/A	No limit
Parking Pricing/Cash Out	N/A	Up to 25%
Free Transit Passes	25% * reduction for transit service	25% * reduction for transit service
Telecommuting (3)	N/A	No limit
Other TDM Programs	N/A	Up to 2%, plus 10% of the credit for transit and ped/bike friendliness
Demand Management subtotal (4)	*Up to 7.75%*	*Up to 31.65%*

Notes:

(1) For residential uses, the percentage reductions shown apply to the ITE average trip generation rate for single-family detached housing. For other residential land use types, some level of these mitigation measures is implicit in ITE average trip generation rates, and the percentage reduction will be lower.

(2) Only if greater than sum of other trip reduction measures.

(3) Not additive with other trip reduction measures.

(4) Excluding credits for parking supply and telecommuting, which have no limits.

The trip reduction measures represent operational mitigation components of the larger URBEMIS model, which can be used to calculate expected air quality impacts nationwide. The model is currently in widespread use by air quality districts and other planning agencies in California and other states. While the URBEMIS software package includes the ability to also provide construction and area source emissions data, the operational mitigation components and related equations can be included as a separate worksheet directly linked with a jurisdiction's standard trip generation and internal capture spreadsheet. The key factors for trip reduction capture the environmental setting, or the character of the surrounding neighborhood, and those measures added by the proposed development.

The recommended area of analysis includes a ½ mile radius surrounding the project or the entire project area, whichever is larger. The analysis is suitable for a variety of locations and development typologies ranging from smaller, infill projects to larger, multi-use projects. The following table summarizes the available URBEMIS mitigation measures and possible trip reduction percentages for both residential and non-residential sites. The key "D" characteristics include net residential density, diversity or mix of uses, level of transit service and bicycle and pedestrian friendliness. In addition, the presence of local serving retail ("destinations") is also important as it represents a determining factor in the choice to drive off site or walk or bike or use transit for services and accounts for the overall jobs-population balance.

Physical Measures

As mentioned, high net residential density provides one of the strongest correlations with reduced automobile use. **The density formula provides the greatest weight among each of the physical variables** in terms of trip reduction. Projects with higher household densities are provided a greater trip reduction percentage than those with lower densities.

The mix of uses/local serving retail components are designed to capture the possible availability of services within a ½ mile walking distance of the site, based upon an ideal jobs-housing balance of 1.5 jobs per household.

An index of transit service is also calculated via a formula that is designed to capture the amount (frequency and service span) and quality of transit service (speed) factors which generally predict the degree of ridership. While a greater weight is given to rail or dedicated shuttle service modes within ½ mile of a site, the frequency of bus service within ¼ mile of the site is also included.

"Ideal" Land Use Mixing

Conventional zoning practices and the dependency on automobile travel have contributed to the largely segregated activities within the urban realm. The blend of non-residential and residential uses locates trip attractions within a more comfortable walking distance of homes and is an almost necessary precondition for walkability and active, pedestrian streets. "People are also more likely to walk when there are specific and nearby places to go," as Christopher Alexander puts it in his seminal work, "A Pattern Language".

There are many views on what makes an "ideal" land use mix. As a general rule the following breakdown is a good starting point and has been shown to be particularly supportive of transit and TOD development:

Housing: 20-60%
Commercial/Offices: 30-70%
Public/Open Space: 5-15%

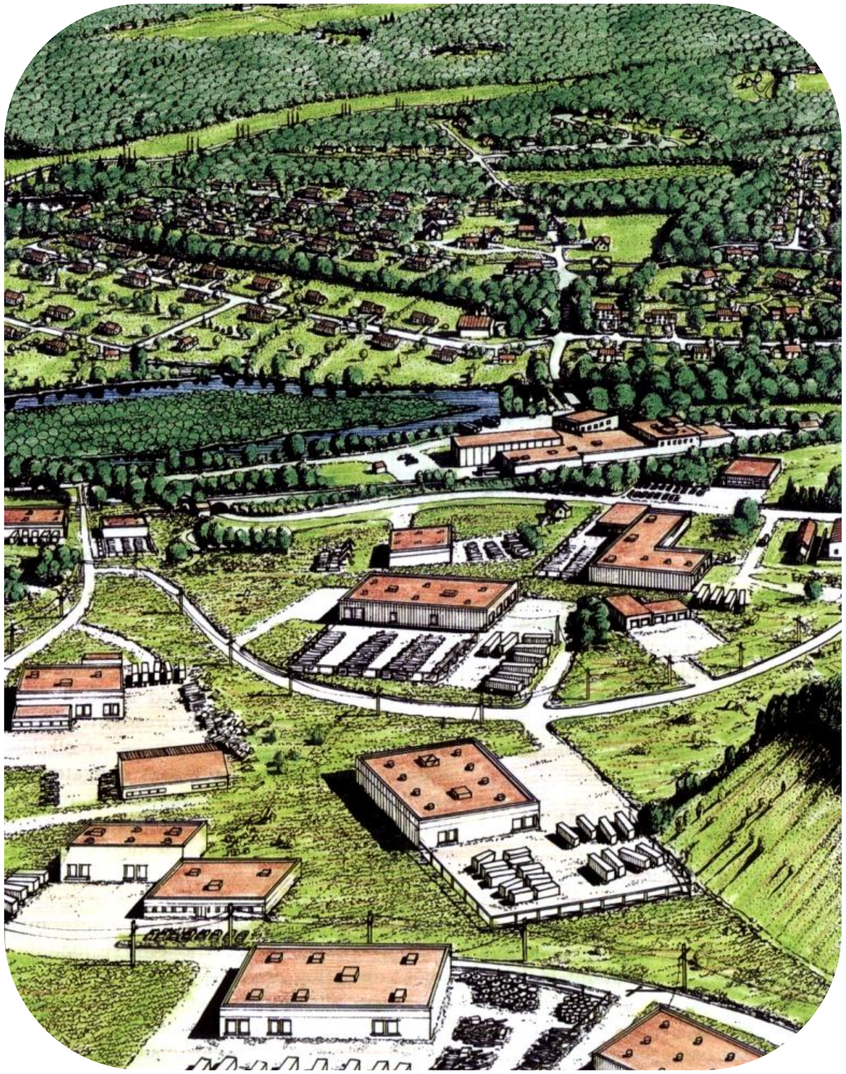
Finally, the bicycle/pedestrian service index is based upon three important variables including: intersection density (a measure of street connectivity), sidewalk completeness, and bicycle network completeness. Trip deductions of up to 9 percent are available with this measure assuming an intersection density of 1,300 legs per square mile (roughly a dense grid network with four way intersections every 300 feet). While other factors such as motor vehicle volumes and speed, roadway widths, urban design, and the extent of separation between pedestrians and vehicles are also significant factors, the inputs required for such would overcomplicate data collection and may dramatically change following development or occupancy.

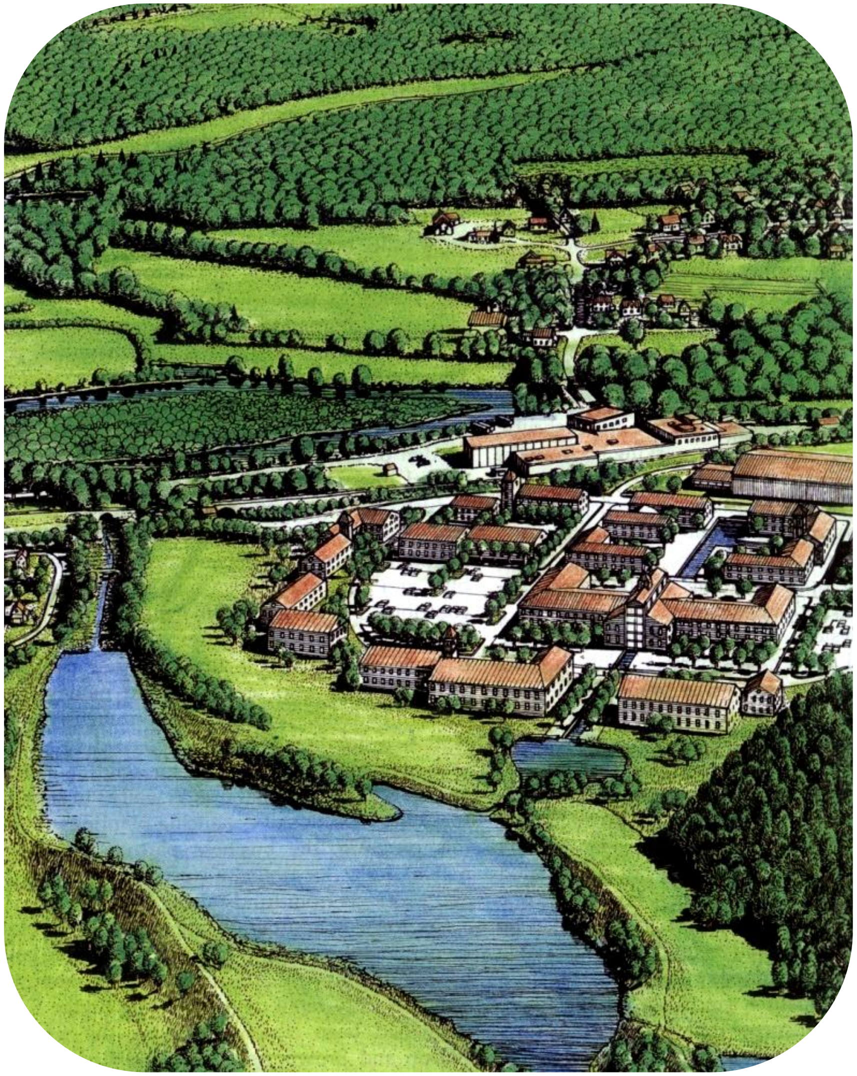
The URBEMIS tool provides maximum possible values for each of the physical design measures. To achieve the maximum reduction, for example, a development would typically need to be constructed at 160 units per acre, include the maximum level of transit service, the best possible use mix and local-serving retail, and have a bicycle/pedestrian factor equivalent to complete sidewalk and bicycle lane coverage within a compact grid of blocks no longer than 300 feet per side. This would result in an 81 percent reduction from the average single-family home trip rate. While the spreadsheet formulas associated with the design and density variables enable a possible 90 percent reduction, such an outcome would only be possible with densities nearing 380 units per acre, three times the average density of San Francisco's Chinatown, for example.

Density Considerations

In some cases, the residential densities of particular projects being evaluated may be so low that the URBEMIS-based spreadsheet model will result in a negative trip reduction percentage. In such instances, it is advisable to adjust the trip adjustment calculation to zero out the result if negative so that trips are not added to a project's net daily external trip estimation. The customary internal capture, pass-by, and/or diverted link adjustments may still be applied to such projects, but would not receive any of the trip credits as a result of the physical design and density measures.

Recognizing the impact of density on trip reduction outcomes, proposed residential projects in suburban and rural areas that typically represent low density, single-family subdivisions with segregated outparcels of commercial/retail are likely to receive little if any credits. In such scenarios, projects should consider clustering their development plans around neighborhood commercial centers and providing additional open space or conservation easements. This could enable projects on large tracts of land which are preserving vast portions of property to open space to have this acreage removed from the density calculation. This would greatly increase the opportunity for design credits. For example if a project that consists of 5,000 acres proposes to incorporate higher density, mixed use villages over only 2,500 acres, with the remaining as dedicated open space, this amount should be removed from the units/acre denominator.





The above left concept illustrates conventional suburban design on a large, greenfield site. By contrast, the use of creative development and clustering of the same number of units and non-residential square footage on the same site can result in greater internal trip capture while also preserving community character and valuable open space. (Courtesy of Randall Arendt's "Rural By Design—Maintaining Small Town Character")

Other Demand Management or Similar Measures

The tool also permits additional, discretionary trip reduction measures such as the inclusion of affordable housing, the amount of free/priced parking, availability of transit passes, or other transportation demand management programs. As discussed previously, parking pricing can exert a tremendous influence on vehicle trips (in many cases yielding 10 to 30 percent reductions) depending on the amount charged. Parking cash out and "unbundled" parking programs are other effective tools that can encourage transit use and expand mobility options. These can also minimize the amount of land area that would otherwise be devoted to parking based on typical ratio requirements. The only valid and measurable way, however, for these to be included as variables within the scope of a trip reduction program would be to adopt some sort of legally-binding development agreement with a jurisdiction at least prior to issuance of Certificate of Occupancy (COA). Since TDM is fundamentally programmatic and relies largely on voluntary participation, a binding agreement would serve to guarantee that such measures would be implemented by the developer.

Selected Approach

The City of Jacksonville's 2030 Mobility Plan references the use of a "trip reduction adjustment procedure" as a means to reduce a development's mobility fee, provided the development meets specific design and location criteria to support both alternative transportation use and reduced vehicle miles traveled. The transportation element of the City's Comprehensive Plan also includes specific policies that support trip reduction assessments, particularly the establishment of non-motorized transportation and transit-based networks throughout the City as well as pedestrian-oriented design elements as per the Downtown Master Plan.

The basic principles of the mobility fee and supporting credit/adjustment system are designed to support a variety of transportation modes; reduce VMT and generated vehicle emissions; promote compact and interconnected land development form; and improve the health and quality of life for the City's residents.

As discussed, the fee system also provides a unique opportunity for the City to implement the mobility-related Guiding Principles established by the adopted Vision Plans, while encouraging developers to capitalize on the benefits of infill and redevelopment at specific locations identified in the Plans.

The URBEMIS model captures the most effective design principles which have been shown to influence mobility choices, but is also flexible enough so as to not circumvent the City's established trip generation and internal capture methodologies. Rather the tool adds depth to the City's procedures, providing a "super internal capture" element to the final trip estimation that would more objectively account for the effects of the surrounding neighborhood and proposed development characteristics.

The City's mobility fee approach is designed to capture the relationship between location and VMT. Part of this framework includes the establishment of Development Areas (as shown in the following "Mobility Fee Development Areas" Map) with corresponding average trip lengths. There are five Development Areas which represent the general spectrum of the built environment of the City from higher densities in the Downtown core to the lower density outer suburban and rural areas towards the edge of the City's limits. The average VMT of each development area is shown on the following:

Development Area	Average Trip Lengths (VMT)
1) Downtown Development Area	9.09
2) Urban Priority Area	9.24
3) Urban Development Area	9.46
4) Suburban Development Area	10.28
5) Rural Development Area	12.27

A fixed, City-wide cost per VMT has been established as a part of the fee formula. This cost was determined based upon the calculated growth of VMT between 2010 and 2030 as a denominator of the estimated City-wide transportation and mobility infrastructure project needs identified in the Mobility Plan. Based upon the current estimate of transportation projects, this cost is $24.31.

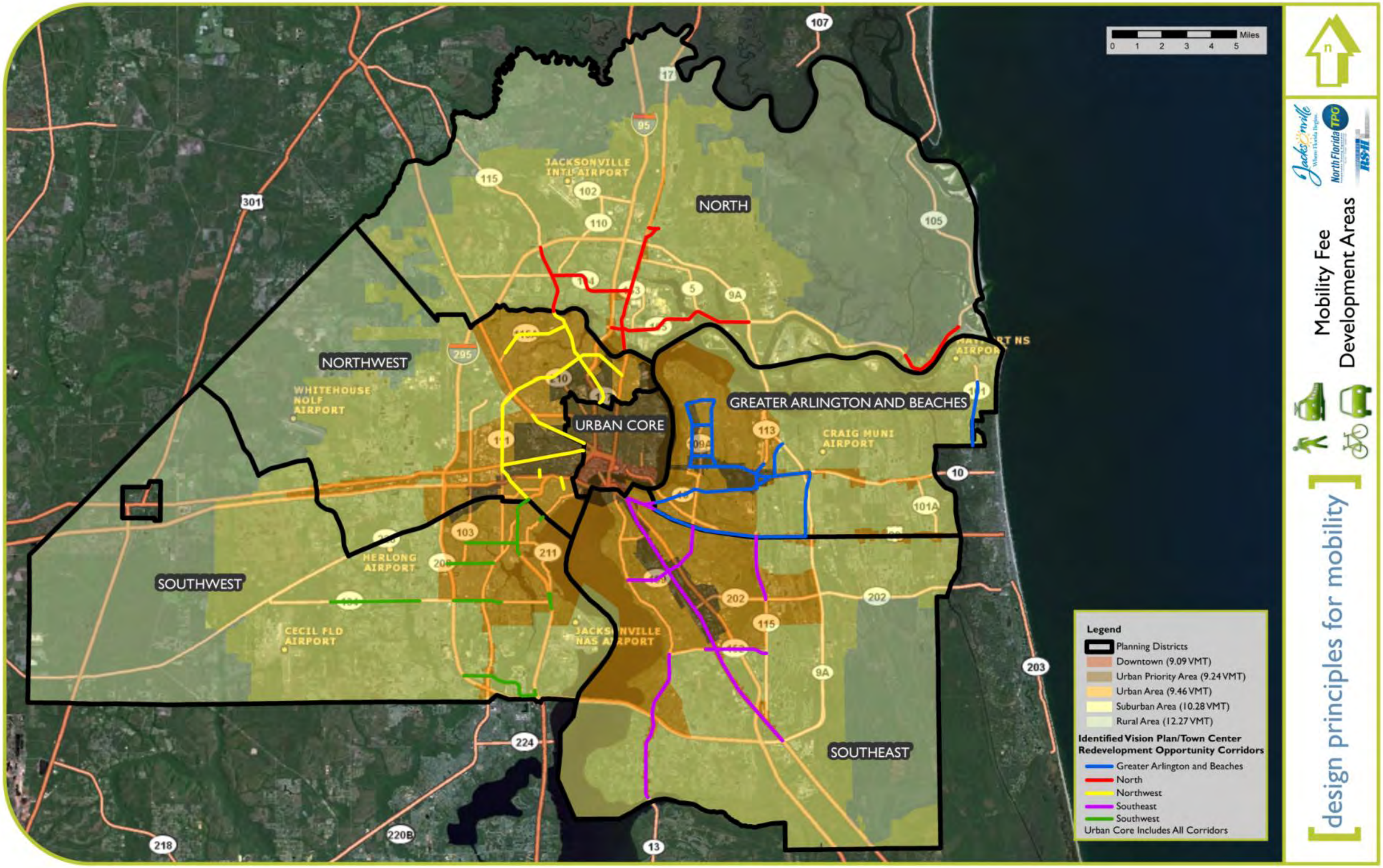
It is expected that every five years the Plan and component cost per VMT will be adjusted to reflect updated transportation improvement needs and costs and/or changes in VMT.

The base, quantitative formula, for the purposes of estimating a developer's mobility fee for the transportation impacts generated by a proposed development, equals:

→ the cost per vehicle miles traveled (A); multiplied by the average trip lengths (VMT) per development area (B); multiplied by the daily trips generated by the proposed development (C); subtracted by the trip reduction adjustments (as calculated by the URBEMIS-based spreadsheet tool, for example) assessed to the proposed development, such that:

Mobility Fee Formula=A x B x (C – *trip reduction adjustments*)

The following section "Application of Principles to Development Typologies" provides sample calculations for a number of development typologies.


Miles
0 1 2 3 4 5
NORTH
NORTHWEST
URBAN CORE
GREATER ARLINGTON AND BEACHES
SOUTHWEST
SOUTHEAST
JACKSONVILLE INTL AIRPORT
WHITEHOUSE NOLF AIRPORT
HERLONG AIRPORT
CECIL FLD AIRPORT
JACKSONVILLE NAS AIRPORT
CRAIG MUNI AIRPORT
Legend
Planning Districts
Downtown (9.09 VMT)
Urban Priority Area (9.24 VMT)
Urban Area (9.46 VMT)
Suburban Area (10.28 VMT)
Rural Area (12.27 VMT)
Identified Vision Plan/Town Center Redevelopment Opportunity Corridors
Greater Arlington and Beaches
North
Northwest
Southeast
Southwest
Urban Core Includes All Corridors
Mobility Fee Development Areas
[design principles for mobility]

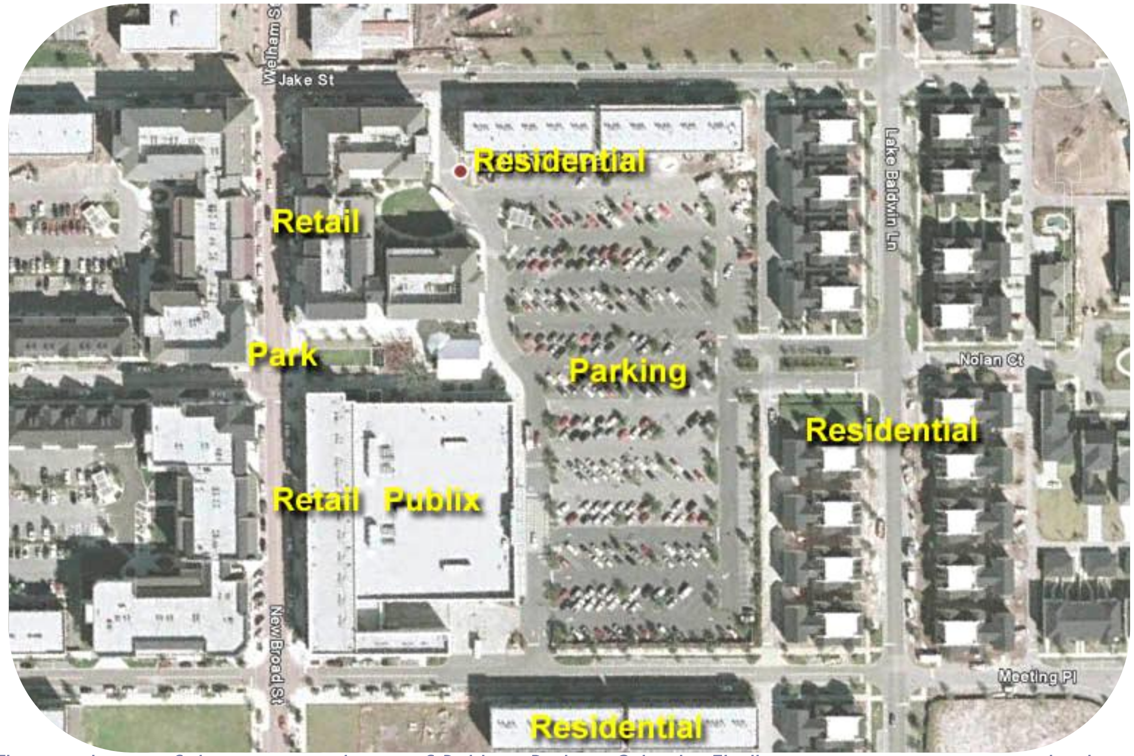
The Credit Framework

In addition to the standard internal capture, pass-by, and/or diverted trips that are subtracted from a development's gross daily trip estimation, the design-based variables of the URBEMIS model serve as the additional layer of possible trip reduction adjustments. An adjustment may also be credited to the gross daily trip estimation in order to account for the number of trips associated with an existing use. The City presently provides credit for the number of trips associated with existing or historic uses (such as previous uses located on vacant or abandoned sites) in the context of redevelopment.

In addition, a TDM credit can also be applied at the discretion of the City. This percentage reduction is contingent upon the proposed demand management program to be implemented by the developer.

Based upon the case study review provided in this section, a range of 5 to 30 percent is recommended, with the higher reductions based upon the combination of features such as priced parking, employee cash out options, and/or formal commute trip reduction programs established through a development agreement.

For example, if a developer proposed a new mixed-use project on an existing commercial strip or office location, the developer would be credited the amount of daily trips associated with the existing use. The developer would thereby only be subject to paying a fee associated with the trips that are above and beyond what the existing use generated. If the developer also proposes a formal commute trip reduction or other approved TDM option, a credit associated with such program will also be applied. In terms of the entitlement benefits of redevelopment, the combination of these credits along with the URBEMIS-based trip adjustments could result in a scenario under which no mobility fees are imposed to the developer. Section 3 tests a number of scenarios using these procedures to illustrate the potential costs associated with different development typologies and locations.



The aerial view of the commercial core of Baldwin Park in Orlando, FL illustrates a creative way to develop a mixed use site and potentially maximize trip reduction credits. While free parking is present, it is hidden behind building liners that are oriented against the street to create enclosure and foster walkablility. The uses are directly and safely accessible, by foot or bicycle, to a variety of residential types and densities.

Notably, the average VMT of each development area within the fee formula represents a type of credit or incentive in and of itself. As such, proposed development that is within or in proximity to Urban and Downtown Areas that generates less VMT would potentially be assessed a reduced mobility fee (depending on the use) comparable to what might be assessed if located in the Suburban or Rural Areas (with higher VMT). This approach captures the intent of location efficiency, serving to reward development that is located in desirable locations with existing infrastructure.

As is the case with ensuring that potential TDM measures are fully implemented to receive trip reduction credits, a development agreement may also need to be drafted to provide surety with respect to adjustments associated with density and/or employment, for example. Such an agreement may include provisions for periodic site plan review or employment verification after issuance of Certificate of Occupancy (COA) to make certain that credits were applied appropriately.

Mobility Credit Banking System

In particular cases of redevelopment, the combination of the number of vehicle trips associated with an existing or historical use, high internal capture, and the URBEMIS-based trip reduction and/or TDM credits may result in a net surplus of daily external trips. Such instances are more likely to occur with high density, mixed-use redevelopment proposed on sites that are currently generating an equal or higher number of vehicle trips, such as shopping centers or other auto-oriented uses. These results illustrate how the "D" variables of the URBEMIS model work to provide a greater amount of credits to such projects. The advantage in these cases is twofold:

One, it clearly provides a fiscal incentive to explore the right location for infill and redevelopment and two, it reinforces the City's Vision Plan Guiding Principles and overall sound planning objectives. As such, the real potential for a market-based incentive to redevelopment could result.

It is clear that certain locations and development typologies will likely have greater opportunities than others for surplus outcomes. In this respect, development areas and mobility zones that are benefiting from catalyst redevelopment as a result surplus trip opportunities should not be able to transfer potential surplus trips to other zones for financial benefit. For example, this would avoid projects in remote Suburban or Rural Development areas which do not incorporate the appropriate design and density elements to benefit from surplus trips associated with projects and locations in other zones which do demonstrate recommended design practices in order to offset their mobility fee costs. This procedure will also better ensure that mobility fees generated in the area can be spent on capital improvement projects that are directly related to the impacts of the corresponding development activity and continue to further redevelopment incentives.

Chapter 655 of the City's Ordinance Code, "Concurrency and Mobility Management System", outlines the procedure for credits associated with trip reduction adjustments. For capital improvement project consistency and rational nexus purposes, any surplus trips shall be transferred only between projects within the same development area and same mobility zone. The potential transfer of these surplus trips to another project within the same development area and mobility zone will occur at the time a potential recipient project enters into a new Mobility Fee Contract. This contract memorializes an agreement between the City and landowner regarding the arrangement of credits and/or payment schedule for a phased development pattern.

Marketing and Monitoring Vehicle Trip Reduction

The City's mobility fee and credit framework, as a replacement for the complex and often "unfair" fair-share concurrency system, offers a more transparent and easily understood methodology in the context of the entitlement process. More importantly, it provides a means to fund and support multimodal travel.

While it exists as one component of the overall concurrency system, (i.e. parks and recreation/water/sewer/schools, etc.) it presents the Planning and Development Department with a unique opportunity to begin to develop and market an overall Vehicle/Commute Trip Reduction Program. Such an initiative would work to encourage more efficient commute travel throughout the City, providing commuters resources and incentives to use alternative modes. The program would also directly support the mobility fee credit system, by encouraging awareness of walking, bicycling, transit use, and other TDM strategies that may indirectly encourage redevelopment activities.

In addition, recognizing that impact fees are often viewed negatively by the market as a regulatory barrier to development, actively promoting the benefits of such a program and the incentives available in a collaborative manner may reduce such negative perceptions and/or eliminate the adversarial environment that can characterize development approval processes. An important part of this strategy includes the development of partnerships, with public and private entities, to develop a range of tools and demonstrate leadership to foster buy-in.

The development of such programs that can be feasibly adopted by private businesses, such as telecommuting or parking management, will also provide the opportunity to establish additional mobility fee credits (i.e., Demand Management Measures). Specific strategies that warrant consideration through partnering with agencies and businesses include:

- → Dissemination and periodic updating of information on all available transit services to and from the worksite
- → Advertising, promoting and making available for purchase on the worksite any programs offered by transit authorities
- → Use of social media such as Facebook to promote and create awareness of program
- → Employer sponsored shuttle service to transit stops
- → Recommendations to individual employees of employee-specific travel options to reduce VMT
- → Incentives and assistance for bicycle commuting including secure parking facilities, shower/changing facilities, and education and training programs
- → Coordinating, facilitating and providing subsidies for employer-sponsored rideshare programs
- → Preferential parking for carpools and vanpools
- → Employer-paid transit/vanpool programs where the employer provides at least $30 per month, for example, in benefits or the full value of commuting costs
- → Expanding opportunities for alternative work schedules including telecommuting, compressed work weeks and/or flexible schedules to facilitate ridesharing
- → Elimination or reduction of parking subsidies for single-occupant vehicles
- → Parking "Cash Outs"

While formal adoption of such a program is not required, implementation of such would positively contribute to the City's goals and objectives supporting a reduction in VMT and related emissions through the use of alternative transportation mobility options.

In recent years there has been an emphasis in performance-based planning for the purpose of demonstrating measurable outcomes of policy initiatives. The monitoring and evaluation of the mobility fee program represents a valuable and necessary step to ensure effective performance.

According to the adopted Mobility Plan, the Planning and Development Department will conduct review and analysis of the Plan every five years, assessing the impact of mobility-related strategies and multimodal improvements to ensure positive Plan outcomes. This includes, but is not limited to, reduced VMT, increased accessibility, the mitigation of multiple transportation deficiencies, and the promotion of sustainable development. Such review will assist in the establishment of priorities and ranking of projects while also supporting future land use element goals and objectives. The mobility fee credit system and related components provides the City with additional tools to effectively monitor the short and long-term influence of design and programmatic impacts on mobility, as well as the placemaking and the quality of life elements that are most important to a community.

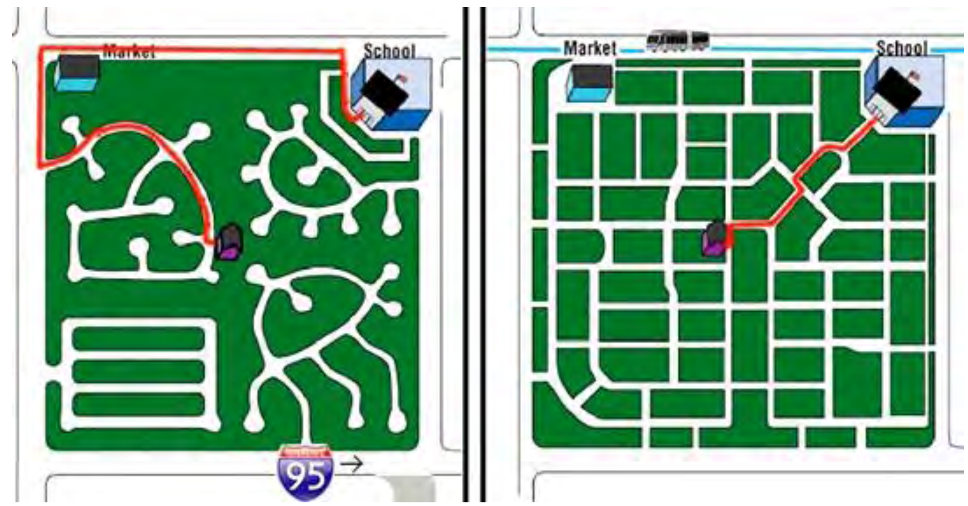
Streets, Blocks and Buildings

While the previous practices and case studies provide substantial evidence linking design and density to reduced vehicle travel, it can really be simplified into those historic lessons of the past and starting with the streets! Central to placemaking, and particularly walkability, is the simple assembly of streets, blocks, and buildings. These elements of the urban environment are perhaps the most deterministic of real choice and experience of mobility—namely providing a safe and comfortable option to travel via foot, bicycle, and/or transit. In other words, how each of these are collectively scaled and configured will also determine the extent of both mobility support and credit maximization that results in a substantial mobility fee reduction.

The following section outlines many of the general principles of streets, blocks, and buildings (reinforcing the relationship between public and private spaces) that can work to increase development incentives and most importantly, the sense of place and quality of the built environment.

STREETS

Streets, in recent decades, have been designed as spaces to ***move through***, rather than places to purposefully ***come to***. The street should not be seen as a dividing line among communities, but rather places and passageways facilitating economic and social interactions, along with providing a means to travel. In this sense, the street can provide a better balance among users of all modes. As the "bones" of our communities, streets have the tremendous capacity to support development activity that is mixed, interconnected, and likewise supportive of enhanced mobility: Simple elements such as the ***patterns, hierarchy, configuration, and detail*** of streets often determine how walkable or bicycle-friendly a given place may be. A single street should be part of a larger street network



The above graphic illustrates contrasting approaches to connectivity and mobility support. The left scenario is generally not conducive to walking or bicycling, as one is forced to use the higher speed arterial to access school or shopping opportunities. The left also increases vehicular congestion on the arterial network as there are minimal access and egress points.

that is well-connected and supports continuity of movement within the overall network to encourage concentrated activity centers and mixing of uses.

Streets are also generally classified according to the volumes of vehicles. This approach works against the creation of transit-supportive, walkable places because the resulting design of such facilities favors larger rights-of-way and higher speed limits. In this sense, the land use context should be determined first followed by street design in order to better accommodate all forms of mobility. Vertical elements, including buildings and landscaping and other elements influence the character and scale of streets, including the speed of traffic. Right-of-way widths should be proportionally related to the adjacent building heights and the numbers of lanes balance vehicle flow and pedestrian crossing considerations.

Ultimately, to ensure that streets encourage multimodal use, some of the major guiding principles in design include:

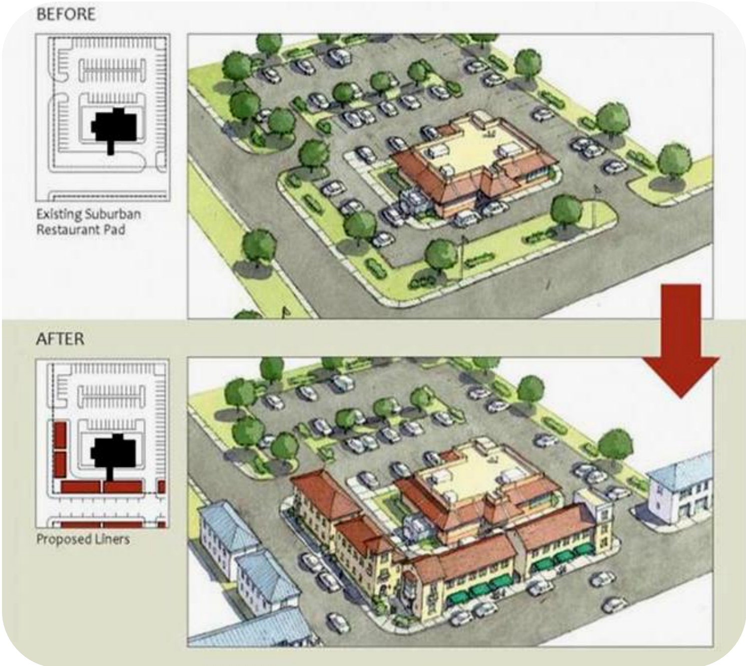
- → Minimized block radii to slow cars down at intersections and allow pedestrians to cross streets relatively quickly;
- → Landscaped medians to reduce the apparent width of streets; (allow for pedestrian refuge)
- → Two-way (versus one-way) streets that improve pedestrian crossing safety;
- → Reduced lane widths to, for example, 10 or 11 feet;
- → Street vehicle speeds that are compatible with adjacent uses, such as 25 to 30 mph (or better yet, establish design speeds equal to posted speeds);
- → Removal of "free" right-turn lane slips, unless a refuge island is available;
- → Properly designed curbs and sidewalks at intersections that accommodate the impaired;
- → On-street parking to protect pedestrians from the actual and perceived danger of moving traffic;
- → Conceiving the street corridor as a center of activity rather than a barrier to activities on either side
- → Adoption of a Complete Streets or Context-Sensitive Design Policy

BLOCKS

The traditional block provides the nexus between the building fabric and the public realm of cities. Block size and configuration also plays a tremendous role in facilitating walkability and when designed at the appropriate scale, provides for a mutually beneficial relationship between people and vehicles within an urban space. The shorter the length of a block, (ideally 250 to 500 feet) the more pedestrian-friendly a place is generally. A grid of relatively short blocks also allows single buildings to easily reach the edges of blocks at a variety of densities and directs parking to be located away from the sidewalk to the street. City blocks also define the community's fabric and character. A rectangular or square block can accommodate a variety of lot widths and depths, which influences the range of building types and densities. The longer and more irregular the block, the less likely that the building envelope will be close enough to the setback line to define any sense of enclosure which would serve to calm traffic and increase pedestrian and bicycle mobility. Finally, regularly planted trees along blocks establish the overall rhythm and scale of the street as well as that of the sidewalk. Landscaping attributes along blocks affect light, temperature, and views, which ultimately contribute to an individual's experience of place—and whether walking is a comfortable and safe option.

BUILDINGS

Buildings fundamentally express the importance of our public shared institutions and improving the daily working and home life of a community. For all practical and symbolic purposes, they represent the permanent fixtures in the landscape and the city. A building's configuration and placement on a lot and its relationship to other buildings and the street not only determines the character of a particular site or settlement, but also greatly influences the degree of balanced, safe, and comfortable mobility. While *use*, to a minor degree, plays a role in determining the nature of access and whether it is safe for walking or bicycling (i.e. a large, truck-dependent warehousing facility with direct connection to a major highway), this element has regrettably outweighed the importance of design and form. It has also been the driving force



Adding proposed building liners to the existing, parking-dominated outparcel functions to create a more pedestrian-oriented environment and provides valuable character and sense of place to a community.

behind most zoning and land development regulations. This has resulted in fragmentation and disconnection of parts of a city or community from each other. By contrast, buildings designed and organized by reference to their type and not solely their function, employing common architectural features, will enable adaptive changes in use over time without compromising form and making them obsolete. ***Density*** and ***form*** of buildings should prioritize neighborhood and/or district context, emphasizing predictable and physical outcomes versus abstract standards and floor area ratios (FAR) which favor buildings as exclusive and singular objects.

There is also a mutual dependence between the built form and the landscape form. The relationship of buildings to the street and public realm is reciprocal. The extent of building frontage to the public realm emphasizes the character of streets and open spaces within a block and greatly influences the mode and volume of travel.

In the context of the City's Mobility Plan and Fee system, how a developer approaches a particular site in light of these considerations can greatly influence both mobility and entitlement outcomes. For example, a developer may decide to redevelop an existing, underutilized, strip shopping center in an area of established neighborhoods served by well-connected sidewalks and transit service. A site plan proposal could replace much of the vacant existing parking lot with new street and block interventions to accommodate higher density, mixed-use buildings. The plan could also incorporate greater connectivity to adjacent centers and the neighborhood via multi-use paths; the numerous existing curb cuts along the adjacent arterial may be replaced by safer and efficient shared access points; the buildings may be designed to front the newly constructed blocks establishing a greater sense of arrival and enclosure. Each of these new design attributes can work to increase mobility, achieving desired community planning goals, and may substantially reduce transportation-related exactions.

Within the appropriate assembly of buildings, blocks, and streets, this pyramid illustrates a hierarchy of mobility-friendly urban design features from the most basic elements fostering walkability and transit use, to those that represent nice additions.

1. Existing Conditions

The following series (Courtesy of Steve Price) shows the transition of an arterial roadway "tamed" by traffic calming techniques, including a "road diet," (reduction or conversion of traffic lanes for safety and aesthetics) as well as other urban design strategies embodying the "Streets, Blocks, and Buildings" principles creating a more walkable, livable, mobility-friendly environment.

The existing automobile- driven "Main Street" is improved with public investments in sidewalk and access management improvements, raised medians, landscaping and lighting to calm traffic and begin to create enclosure and a sense of place.

2. Road "Diet" and Public Streetscape Enhancements

3. Additional Public/Private Investment and Vibrant Multimodal Environment

*Private buildings and investment follow the public improvements with increased densities and diversity of uses oriented to the street. The improved street and block elements create a "**come to**" versus "**move through**" environment. This better supports a balanced mobility system that accommodates bicyclists, pedestrians, and vehicle traffic.*

1. Existing Conditions

This example of before and after photos illustrates the transformation of an existing, underperforming shopping center, or "greyfield" location into a new, walkable, main street.

2. New Infill Mixed-Use Development and Streetscaping on Existing Parking Lot

The existing auto-oriented shopping center is improved with a combination of mixed-use, multi-story redevelopment and landscaping, lighting, and on-street parking. The proposed "street intervention" within the existing parking lot establishes the framework from which to create the mobility-supportive environment.


3. Further Infill Development

The initial improvements catalyze additional infill development along the adjacent blocks, with increased densities and diversity of uses oriented to the street. The replacement of the existing big box stores on the right with sidewalk-oriented mixed use development provides a great example of how a developer can also achieve additional density-based mobility fee credits

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Application of Principles to Development Typologies

Development Place Types and Locations

The previous section offered a range of approaches that have been shown to provide vehicle trip reductions. The physical design measures and corresponding equations within the URBEMIS model provides a user-friendly trip reduction framework that can easily be linked to the City of Jacksonville's current trip generation and internal capture methodologies. To illustrate the value of the system to the development community and local planning agencies, this section will explore a number of locations and place typologies throughout the City to determine the effects of the design variables and location-efficiencies (as measured by the average trip lengths per Development Areas) on vehicle trips and resulting mobility fees. Place typologies are a useful way to describe the scale and character of different development patterns, be they various forms of residential neighborhoods or shopping centers. Typologies

The urban-to-rural transect provides an alternative means to organize and develop land according to context and generally emphasizes the importance of form and connectivity over use

can also be used to describe the scale and type of development at an even higher level such as the corridor or district. As it relates to mixed use development, typologies can provide a common language for decision-making in the context of development outcomes. This approach enables a wider audience to understand key development decision points related to idealized scenarios and real-life places within their community at the same time. The urban-to-rural transect has become a practical tool to illustrate planning and street design, recognizing that there may be a range of development scales, uses, and forms depending on the local and regional land use context and the transportation modes, service and accessibility.

In the context of the City's Development Areas, a basic range of place types that describe the general scale and character of the variety of development patterns within the City can be best categorized according to the following categories beginning on page 34. Recognizing that there is no "one size fits all" approach to

Portland's TOD Station Area Typologies

Not all markets in a region, no matter how many cool looking plans have been created, are ready for more urban types of development. Portland's approach shows what types of investments are suitable for the different types of places that exist in their region. Every place is ready for some type of investment, but doing a specific plan for each one could be time consuming and result in lot of money spent needlessly. By mapping urban form and transit orientation against the market strength of a transit district, a typology of place and investment types emerges. The value of this plan is to show where investments should be targeted that will actually move the market in the right direction.
Courtesy of Reconnecting America: People, Places, Possibility.

Smart Growth that can be uniformly applied to all areas, these categories are broad enough to capture the numerous forms and assembly of commercial, office, residential, industrial and/or mixed-use development that may be suitable within each:

→ ***Metropolitan Centers (Downtown Development Area)***: The Central Business District (CBD), or the region's primary business, civic, commercial, and cultural centers, such as Downtown Jacksonville. These areas usually consist of mid to high-rise residential, office, and commercial buildings, with high levels of concentrated employment and numerous transportation services and/or hubs. The areas also draw heavily from throughout and beyond a particular region's borders.

→ ***Urban/Town Centers (Urban Priority/Urban Development Areas)***: Characterized as a major, sub-regional business, civic, commercial, and cultural centers, such as Southpoint or the St. Johns Town Center, for example. Other potential, transit-oriented sites, such as large, older, underutilized shopping centers (i.e., Town and Country/Regency Square Shopping Malls) that could be redeveloped at a scale to accommodate greater intensities and regional demand may also be included. Building types represented often include low to mid-rise residential, office, and commercial. The areas typically have medium to high levels of professional and service employment that draws from both the immediate area and throughout the region. Like Metropolitan centers, such areas could support high frequency corridor and transit lines (such as Bus Rapid Transit or Commuter Rail Service) and related TOD development, but are typically served by high frequency local bus and shuttle service.

→ ***Community/Neighborhood Centers (Urban/Suburban Development Areas)***: Such areas are generally inclusive of low-rise residential, office, and commercial buildings. Housing and neighborhoods are generally within walking or biking distance to transit stops, typically served by local bus service. In Jacksonville, such areas are typically auto-oriented and include strip shopping centers with outparcels and/or smaller office and commercial employment that draws from nearby communities and neighborhoods. However, mixed-use sites such as Tapestry Park, which exhibit transit-supportive design features for new development, are also represented.

→ ***Rural Villages (Rural Development Area):*** These are communities typically located in the outer suburban or rural areas that consist of largely residential (single-family) and limited low-rise employment buildings that draw from nearby rural/suburban areas. They may have a concentrated local road network that supports a "main street" village, with increased density and mix of building types that could support local transit service. Such areas in Jacksonville may include the Dinsmore or Bayard areas or the ICI Rural Village Planned Unit Development.

→ ***Special Use Centers (All Development Areas)***: Generally consist of dedicated employment areas consisting of medical, educational, or industrial-based facilities, including a variety of low, mid, or high rise buildings. They are typically characterized by one type of non-residential land use that draws from throughout a region or sub-region. The Jacksonville International Airport and nearby distribution centers, University of North Florida, and Baptist Medical Center Complex, represent such place types.

Other typologies can be used to describe the range of development patterns at a smaller scale. This is designed to illustrate the assembly and form of particular uses such as single family neighborhoods or shopping centers within a particular area or district. Depending on the development area context there may be a variety of shopping types potentially represented where the design and user experience is reflective of the mobility context. For example, most of the conventional shopping centers in suburban areas are typically single-use, commercial strips with or without outparcels dominated by free and abundant parking. The design and accessibility of such uses mutually support the automobile as the main mode of transportation. Other modes such as walking or transit are possible, but not generally supported, given the lack of density, distances to other uses, and the infrastructure designed to support vehicle traffic.

Shopping place types such as the more urbanist **Tapestry Park** or **Riverside Market Square Publix Plaza** still support vehicle accessibility and parking but are designed at a more "human scale" with walkable and transit-oriented densities and greater mix of uses to create a balanced mobility environment. The graphics beginning on page 36 illustrates a range of shopping center typologies within Jacksonville from single-use, auto-oriented sites to more walkable locations and designs.

While *placemaking* is a vital part of enhancing mobility, keep in mind that not every place is a "Place". In many districts and neighborhoods within the City it may be quite obvious to tell what building types and forms are appropriate, but there are other areas where it's less clear what "form" is evident. Such areas may include large acreages of parcels in non-prime suburban locations, low density industrial zones, as well as environmentally-constrained redevelopment sites. Within many of these locations there is little or no surrounding context where an existing fabric is discernable and where a spectrum of future possible forms exists.

Key elements of city-building and placemaking, including a focus on streets, blocks, paths, edges, nodes, and districts, are quite valuable and also serve as a reminder that not every place within the City deserves equal attention. While the City could decide on and establish a preferred cafeteria of suitable building and place types for these fringe and or non-prime locations, it is not clear that it should. The best strategy may be to apply place type and form standards on those areas with the greatest potential for density, walkability, and transit-oriented development patterns.

Large big box retail and grocery stores can also be redesigned to fit a variety of place types to infuse local or neighborhood context elements and also support balanced mobility outcomes. The Congaree Vista District Publix in Columbia, SC (left), the Riverside Market Square Publix (middle) and the Downtown Orlando Publix (right) show that successful grocery stores can be designed uniquely to fit neighborhoods, with mix of uses, limited surface parking and buildings oriented to the street.

Beach Blvd. Strip center

Conventional, single-use suburban strip center with parking oriented to front and vehicle access generally provided by one or two driveway openings off high speed arterial.

Target Plaza

Larger community or subregional shopping "power center" with outparcels, dominated by free and abundant parking. While such sites are often within walking or biking distance to residential uses, the transportation environment and design speeds do not support the safe access of these modes.

Tapestry Park

Urbanist, mixed-use retail center newly constructed in suburban with angled on-street parking and directly adjacent to multi-family residential units in rear. Directly accessible, by walking or biking to regional employment center.

5 Points

Older, commercial district within comfortable and direct walking distance to established, single and multi-family residential neighborhood

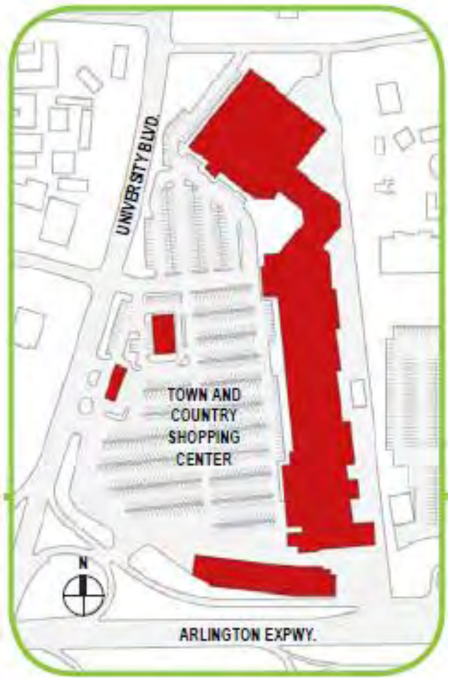
Riverside Market Square

Creative approach to conventional grocery store-anchored shopping center, employing variety of commercial uses adjacent to street and directly accessible to high density residential and transit options.

Downtown (Laura Street)

Downtown retail shopping place type, generally employing greatest amount of density and use mix.

With respect to maximizing potential trip reduction credits, it is expected that the lower-density, single-use sites would receive the lowest percentage reduction in external vehicle trips. The proposed density of a particular site accounts for the greatest impact on the trip reduction outcome, followed by the use mix and the corresponding transit and bicycle and pedestrian environment. The individual test sites in this section represent both hypothetical locations and development pro formas in addition to actual sites that are in various stages of development. This exercise will illustrate the credit differences and corresponding mobility fees that could be expected in light of the influence of the "D" variables.



Town and Country Shopping Center existing footprint (Source: Zyscovich Architects, 2009)

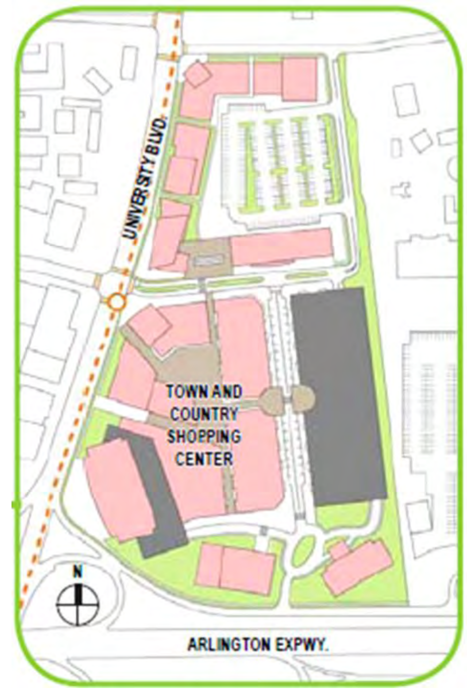
Test Site 1:
Town and Country Shopping Center (Hypothetical Mixed-Use Redevelopment)

Located in the Arlington area at 903 University Boulevard North, the Town and Country Shopping Center was constructed in 1953 as a multi-tenant shopping center. This shopping center currently has over 203,658 square feet of existing retail space on a 19.21 acre parcel. Currently there are three outparcels including a McDonald's restaurant, a BP Gas Station and a Vystar ATM facility.

The property has direct frontage along University Boulevard, and access from the Arlington Expressway to the immediate south. According to available real estate information published in August of 2009, the shopping center is "located with easy access to more than 200,000 residents within 5 miles and has over 106,000 square feet of vacant space ready to lease with occupancy of 48%."

The City of Jacksonville's Vision Plan for Greater Arlington and Beaches prepared by Zyscovich Architects in 2009 has identified the Town and Country Shopping Center as a prime location for redevelopment. The Vision Plan identified the site as ideal for mixed use development, especially given the site's proximity to established neighborhoods and Downtown. The site can provide convenient retail as well as entertaintment for the residents as well as adjacent neighborhoods. The Vision for the redevelopment plan calls for a pedestrian-friendly environment that is connected to adjacent schools and neighborhoods. Along the back edge of the site a parking structure is envisioned to accommodate residents and visitors. A major transit hub serving the development along University Boulevard is also contemplated in the Vision Plan. The images to the left and right illustrate the existing footprint and how the site could be potentially redeveloped transforming an underutilized shopping center into a true urban gateway into the District.

The redevelopment plan illustrated for the existing Town and Country Shopping Center also strongly supports the the City's Vision Plan Guiding Principles as specifically referenced in the *Greater Arlington/Beaches Vision Plan.*



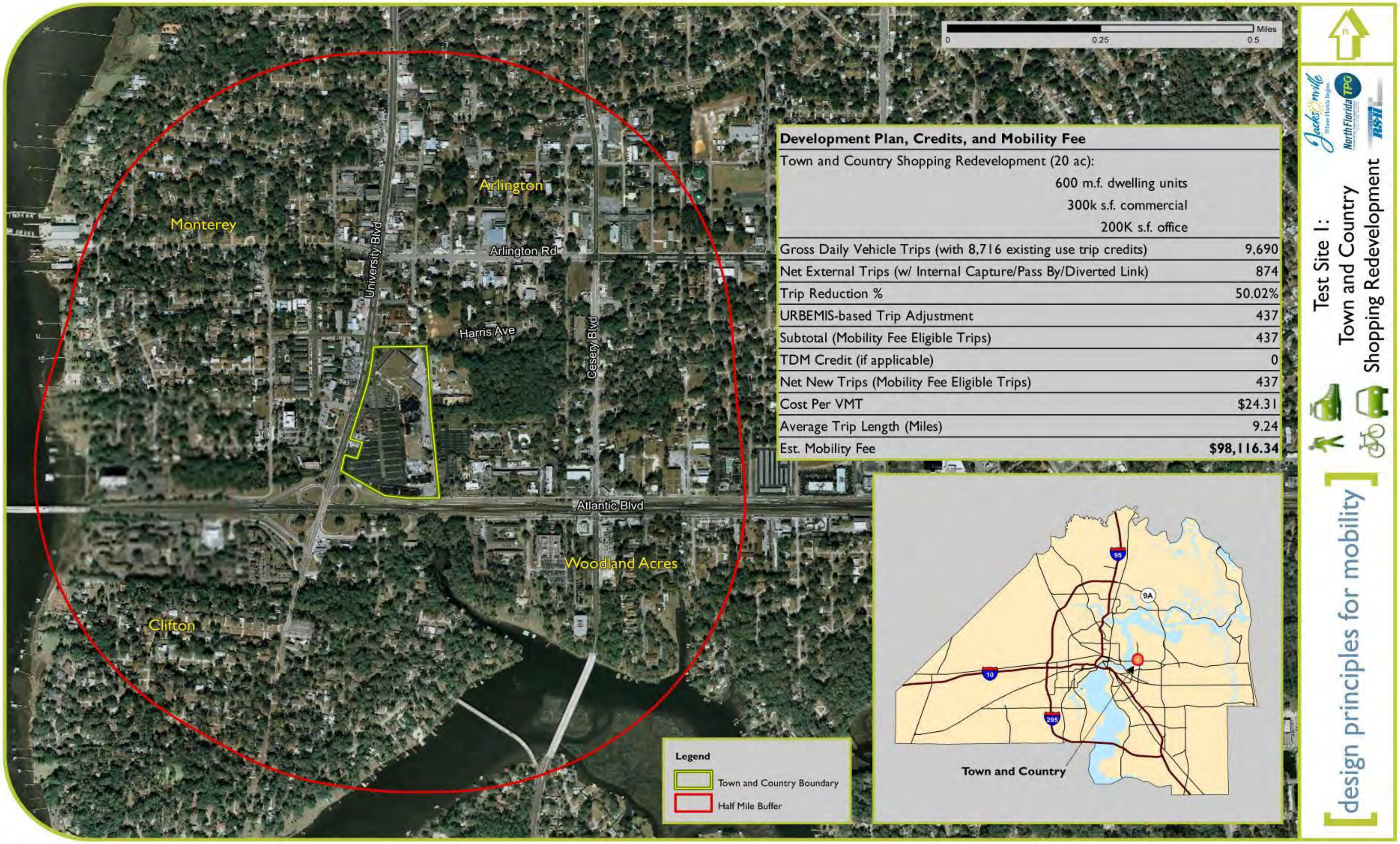
Town and Country Shopping Center proposed plan (Source: Zyscovich Architects, 2009)

Under the mobility fee scenario, the hypothetical redevelopment plan for Town and Country consists of 600 mid rise apartment units, 300,000 square feet of commercial retail, and 200,000 square feet of office park. (For all projects, this information is input into the City's trip generation model which is then linked to the corresponding URBEMIS worksheet model). Based on the analysis, the proposed household density is approximately 30 units per acre. As discussed, this variable yields the greatest influence on trip reduction and as such provides a 36.9% trip adjustment.

As shown in the following mobility fee table, the combination of project use mix and the multimodal features within ½ mile of the Town and Country Shopping Center boundary provides an additional 13% credit, yielding a total design-based trip reduction adjustment of 50%. This percentage is applied to the 874 net external trips, inclusive of the existing trips associated with the existing 203K shopping center, and the internal capture, pass-by, and diverted link trips deductions. This results in 437 trips that would be eligible for the mobility fee. In addition, the site may be eligible for a TDM credit, implemented through a development agreement, which would provide an additional trip reduction.

Looking west towards the Mathews Bridge, the Town and Country Shopping Center's strategic location relative to Downtown provides opportunity to establish a revitalized urban gateway into the Arlington district.

Applying the $24.31 cost per VMT and the average trip length of 9.24 miles due to the project's urban priority development area location, the estimated fee is $98,116. For the scale of the development, this is a marked decrease in what would have been paid under the City's current Fair Share scenario. Even after applying the existing use trip credit, the estimated gross Fair Share assessment is $1,385,661 as a result of the need to mitigate the two failing links of University Boulevard (from the Arlington Expressway north to Arlington Road) and the Mathews Bridge Expressway (from University Boulevard to the Haines Street Expressway). This example highlights the strong influence of the design based principles and the local area land use and transportation context on reducing trips at a high density development. More importantly, it illustrates the added community value of transforming an older, underutilized suburban shopping center into a vibrant destination supporting a variety of mobility choices.



Development Plan, Credits, and Mobility Fee	
Town and Country Shopping Redevelopment (20 ac): 600 m.f. dwelling units; 300k s.f. commercial; 200K s.f. office	
Gross Daily Vehicle Trips (with 8,716 existing use trip credits)	9,690
Net External Trips (w/ Internal Capture/Pass By/Diverted Link)	874
Trip Reduction %	50.02%
URBEMIS-based Trip Adjustment	437
Subtotal (Mobility Fee Eligible Trips)	437
TDM Credit (if applicable)	0
Net New Trips (Mobility Fee Eligible Trips)	437
Cost Per VMT	$24.31
Average Trip Length (Miles)	9.24
Est. Mobility Fee	**$98,116.34**

Test Site 2: Pecan Park/I-95 Multiuse Development (Hypothetical Greenfield Development)

As a hypothetical comparison to the Town and Country redevelopment site, the same development pro forma was applied to the currently vacant northwest quadrant of I-95 and Pecan Park Road. This location, on the Northside of Jacksonville north of JIA, consists of three parcels totaling 127 acres held in separate ownership. The two smaller parcels directly adjacent to the interchange are currently zoned commercial (CCG-1), while the larger, adjoining parcel to the immediate west is zoned planned unit development (PUD) with a business park (BP) land use. The site is directly between the I-95 corridor to the east and the adjacent, 527-unit Bainebridge Estates single family development to the immediate west. In addition, its general proximity to the International Airport and the River City Marketplace regional shopping center to the south, make the site well-suited for a variety of potential development types including, residential, office and retail. Entitlement history indicates that the area was largely programmed for industrial park use with a mix of retail/commercial.

Vacant PUD parcel looking east toward I-95 interchange along Pecan Park Road

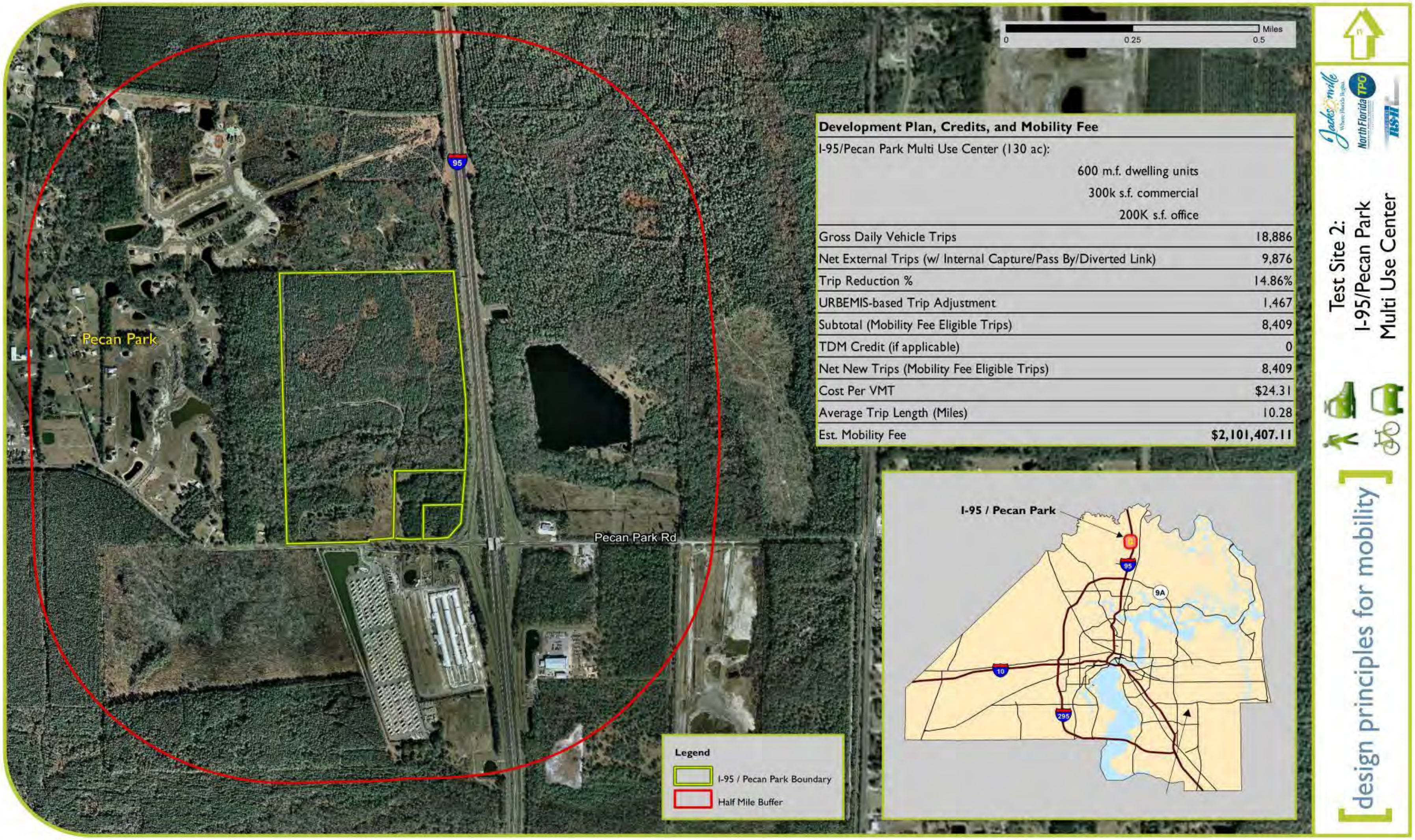
Bainebridge Estates single family development immediately west of the Pecan Park site

Whether attributed to current, industrial market realities or other economic factors, the site currently has no development activity outside of timber production. Regardless of the intended use or current entitlement status, the purpose of this exercise is to illustrate the difference in mobility fee outcome relative to the potential Town and Country redevelopment use. Under this illustration, it is assumed that the hypothetical, multi-use development plan is spread over the three parcels as a single PUD.

Notably, the most recent Fair Share associated with the larger, PUD parcel was estimated at $998,073 for 1.2 million square feet of warehousing use only. While this assessment was reduced following the enactment of the City's industrial incentive ordinance (relaxing transportation concurrency standards for such uses) it is assumed that a much higher Fair Share would result under the hypothetical development plan.

From a trip generation perspective, a minor difference in daily external trips occurs as a result of the conversion of the 600 mid rise apartment units at the Town and Country location to 300 low rise apartments and 300 condominium units. This change was to account for the relatively low density characteristics of the area, recognizing that urban-scale, mid to high-rise apartments would likely not be suited to this context. However, the 200,000 square feet of office park, and 300,000 square feet of commercial remain the same. A major advantage provided to Town and Country is the existing use trip credit.

When applying the URBEMIS-based mitigation factors, a comparatively modest reduction in vehicle trips occurs with the Pecan Park site. This is largely attributed to the substantial difference in densities among the two locations, with Pecan Park yielding 4.62 units per acre (compared with 30 units per acre at Town and Country). This provides a 6.79% density-based reduction in external vehicle trips. In addition, given the lack of transit service, virtually no measurable bicycle/pedestrian connectivity, or any local serving retail, the site receives no credits for such variables. This case assumes that no TDM credits have been applied to the site, recognizing that transit service to the area is non-existent. The combined trip reduction adjustment is 14.86% based on the planned use mix and modest densities. Factoring in the location's average trip length of 10.28 miles applied to the fixed cost per VMT, the estimated mobility fee is calculated at $2,101,407 under the proposed scenario. While it remains to be seen how the PUD or the adjacent commercial parcels will develop, incorporating additional densities, interconnectivity and multimodal provisions may contribute to additional design-based or TDM trip adjustments.



Development Plan, Credits, and Mobility Fee	
I-95/Pecan Park Multi Use Center (130 ac):	
600 m.f. dwelling units	
300k s.f. commercial	
200K s.f. office	
Gross Daily Vehicle Trips	18,886
Net External Trips (w/ Internal Capture/Pass By/Diverted Link)	9,876
Trip Reduction %	14.86%
URBEMIS-based Trip Adjustment	1,467
Subtotal (Mobility Fee Eligible Trips)	8,409
TDM Credit (if applicable)	0
Net New Trips (Mobility Fee Eligible Trips)	8,409
Cost Per VMT	$24.31
Average Trip Length (Miles)	10.28
Est. Mobility Fee	**$2,101,407.11**