



Spaulding Youth Center, Northfield, NH

Technical Appendix

Traffic Impact Study



Spaulding Youth Center, Northfield, NH

Trip Generation and Distribution



To: Robert Bollinger
NHDOT Bureau of Traffic

Date: March 20, 2017

Memorandum

Project #: 52455.00

From: Robin Bousa
Director of Transportation Systems

Re: Trip Generation and Distribution

Meredith Graham
Project Engineer

Spaulding Youth Center Development Proposal
Northfield, NH

As discussed at the project scoping session, there are several concept plans and site layouts under consideration for the Spaulding Youth Center property located in Northfield, NH. At this time, a final conceptual plan has not been identified and the access to the property is still under review. Therefore, a generalized trip generation estimate and gravity distribution model have been developed. In general, the conceptual plans anticipate up to 1,000,000 square feet (sf) of development in multiple buildings throughout the site with primary access via Shaker Road. Potential secondary or emergency access could be provided by Shedd Road.

Trip Generation

For the purpose of the preliminary site access study, trips have been estimated based on a combination of rates published by the Institute of Transportation Engineers (ITE) and local data. Unfortunately, as you know, there are no ITE Land Use Codes (LUC) that would accurately represent the proposed development program. The ITE LUC of 720, Medical-Dental Office Building is not appropriate as this LUC is based on individual buildings that are much smaller (less than 120,000 sf) than the campus proposed. Use of LUC 720 also would not incorporate the potential for internal shared trips between the facilities within a campus setting.

Therefore, the proposed trip generation estimates have been prepared using ITE LUC 610, Hospital combined with local data collected at the Robert G Dodge Business Park located in Biddeford, ME. ITE LUC 610, Hospital has been assumed for half of the potential development. The Hospital data base includes facilities ranging in size from 100,000 sf to 1,800,000 sf – with 5 sites similar in size to the proposed 1,000,000 sf development program. Since this data base includes several very large hospitals, it is assumed that internal capture between uses within the facility is accounted for (which could be similar in nature to the proposed site).

The trip estimates for the remaining 500,000 square are based on rates observed at a local medical office park in Biddeford, ME. Traffic counts collected at this site were used to develop weekday morning and weekday evening trip generation rates for this 183,000 sf park consisting of 8 different buildings. Businesses within the park vary from general health care to dentists, dermatology, eye care, counseling services and a hotel. The trip generation rates developed from this location result in 2.32 trips per 1,000 sf during the weekday morning peak period and 1.96 trips per 1,000 sf during the weekday evening peak period. The weekday morning rate calculated is very similar to ITE LUC 720, but the weekday evening calculated rate is lower than ITE. Again, it is important to note that this particular facility is much smaller than proposed, which likely results in a conservative trip estimate.

As seen in the following table, the trip generation estimate proposed for the Spaulding Youth Center property is expected to generate approximately 1,635 trips (1,160 entering, 475 exiting) during the weekday morning peak period and 1,445 trips (360 entering, 1,085 exiting) during the weekday evening peak period.

2 Bedford Farms Drive
Suite 200
Bedford, NH 03110-6532
P 603.391.3900

Table 1: Trip Generation Estimate

<u>Land Use Type</u>	<u>Square Footage</u>	<u>Weekday Morning Peak Hour</u>			<u>Weekday Evening Peak Hour</u>		
		<u>Total</u>	<u>Enter</u>	<u>Exit</u>	<u>Total</u>	<u>Enter</u>	<u>Exit</u>
Hospital*	500,000	475	300	175	465	175	290
<u>Business Park**</u>	<u>500,000</u>	<u>1,160</u>	<u>860</u>	<u>300</u>	<u>980</u>	<u>185</u>	<u>795</u>
Total	1,000,000	1,635	1,160	475	1,445	360	1,085

* ITE Trip Generation Manual 9th Edition

** Robert G Dodge Business Park Trip Rates

Trip Distribution Gravity Model

A population-based gravity model was prepared to estimate potential trip distribution for the proposed development. For planning purposes, populations within 15, 30, and 45 mile radii were compiled and considered to represent the core or primary business area of the model. Community populations were weighted based on proximity to the site, as well as proximity to other potential nearby competing facilities. These two factors were used to determine the likelihood of the population to work at or visit the site. A map of the model area is enclosed, as well as the Excel spreadsheet of the analysis. It is important to note that the Town of Northfield has suggested that a secondary access via Shedd Road is not desirable at this time. Therefore, the spreadsheet separates these trips that may have used a Shedd Road access/egress in the event that this assumption changes in the future.

Overall, the model estimates that approximately 54% of the site generated traffic would travel via NH 140 west of Shaker Road, 37% via NH 140 east of Shaker Road and 9% via Shaker Road.

Review Request

Given the unique nature of this project, we respectfully request your review and comment on the attached information prior to the completion of the preliminary site access study. We are happy to meet with you to answer any questions or discuss any recommended changes you might have. Thank you in advance for your assistance on this very important project.

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2012)

LANDUSE: Hospital
 LANDUSE CODE: 610

Independent Variable --- 1,000 Sq. Feet Gross Floor Area

JOB NAME: **Northfield Medical Park**
 JOB NUMBER: **52455**

FLOOR AREA (KSF): 500.0

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	17	0.73	13.22	6.12	67.52	463	55	1,780	50%	50%
AM PEAK (ADJACENT ST)	13	0.71	0.95	0.53	5.45	599	100	1,780	63%	37%
PM PEAK (ADJACENT ST)	13	0.64	0.93	0.44	6.94	599	100	1,780	38%	62%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	6,610	3,305	3,305	6,379	3,189	3,189
	AM PEAK (ADJACENT ST)	475	299	176	499	314	184
	PM PEAK (ADJACENT ST)	465	177	288	491	187	305

SATURDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	14	0.75	10.18	4.40	41.80	360	50	1,375	50%	50%
PEAK OF GENERATOR	3	--	2.26	0.92	5.98	152	105	230	50%	50%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	5,090	2,545	2,545	4733	2,366	2,366
	PEAK OF GENERATOR	1,130	565	565	NA	NA	NA

SUNDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	14	0.71	8.91	3.62	39.13	360	60	1,375	50%	50%
PEAK OF GENERATOR	5	--	2.13	1.20	4.85	156	80	230	45%	55%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	4,455	2,228	2,228	3,702	1,851	1,851
	PEAK OF GENERATOR	1,065	479	586	NA	NA	NA

ITE TRIP GENERATION WORKSHEET
 (March 2017)

LANDUSE: Robert G Dodge Business Park
LANDUSE CODE:

Independent Variable --- 1,000 Sq. Feet Gross Floor Area

JOB NAME:
JOB NUMBER:

FLOOR AREA (KSF): 500.0

WEEKDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	-	-	-	-	-	-	-	-	-	-
AM PEAK (ADJACENT ST)	1	--	2.32	-	-	-	-	-	74%	26%
PM PEAK (ADJACENT ST)	1	-	1.96	-	-	-	-	-	19%	81%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	NA	NA	NA	NA	NA	NA
AM PEAK (ADJACENT ST)	1,160	858	302	NA	NA	NA
PM PEAK (ADJACENT ST)	980	186	794	NA	NA	NA

SATURDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	-	--	-	-	-	-	-	-	-	-
PEAK OF GENERATOR	-	--	-	-	-	-	-	-	-	-

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	NA	NA	NA	NA	NA	NA
PEAK OF GENERATOR	NA	NA	NA	NA	NA	NA

SUNDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	-	--	-	-	-	-	-	-	-	-
PEAK OF GENERATOR	-	--	-	-	-	-	-	-	-	-

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	NA	NA	NA	NA	NA	NA
PEAK OF GENERATOR	NA	NA	NA	NA	NA	NA

RGD Business Park Traffic Data Collection and Trip Generation

	Passenger Vehicles		Medium Trucks		Heavy Trucks		Hourly Total	%IN	
	In	Out	In	Out	In	Out			
7:30	71	16	1	1	0	0			
7:45	99	22	2	1	0	0			
8:00	80	15	0	0	0	0			
8:15	72	39	1	1	0	0	421	0.77	
8:30	62	32	2	1	0	0	429	0.74	
8:45	81	36	1	2	0	0	425	0.70	
							Average	425	0.74

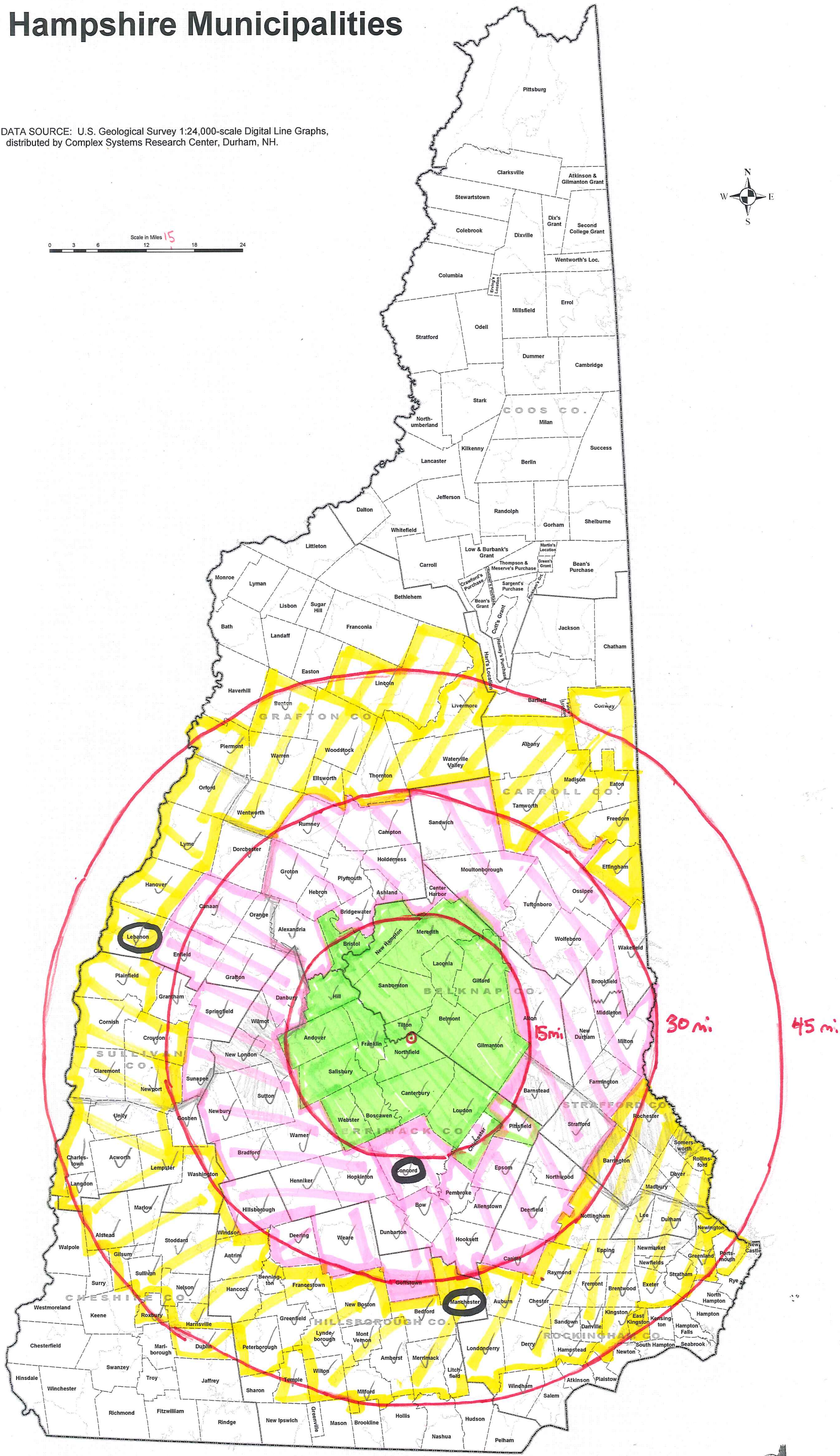
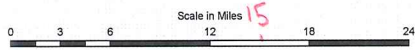
Address	SF	Occupant
29 Barra Rd	8440	York County Dialysis/Fresenius Kidney Care
45 Barra Rd	34697	Holiday Inn
35 Barra Rd	4200	Bolduc Eye Care
9 Healthcare Dr	51376	Southern ME Health Care
61 Barra Rd	6615	Martin's Point Health Care
57 Barra Rd	12045	Community Dental, Dermatology Associates, Seacoast Medical
2 Spring Brook Dr	24028	Counseling Services Inc
46 Barra Rd	41436	McGeachy Medical Building
	182837.00	

4:15	24	57	1	0	0	0			
4:30	23	61	1	0	0	0			
4:45	14	64	0	1	0	0			
5:00	12	106	0	0	0	0	364	0.21	
5:15	9	61	0	0	0	0	352	0.17	
5:30	1	39	0	0	0	0	307		
5:45	7	22	1	1	0	0	259		
							Average	358	0.19

	trips/1000	%In	%Out
AM Rate	2.32	0.74	0.26
PM	1.96	0.19	0.81

New Hampshire Municipalities

DATA SOURCE: U.S. Geological Survey 1:24,000-scale Digital Line Graphs, distributed by Complex Systems Research Center, Durham, NH.





Spaulding Youth Center, Northfield, NH

Traffic Volume Count Data

Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Tilton Rd From East		Shaker Rd From South		Tilton Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:00 AM	3	63	20	3	23	2	114
06:15 AM	0	57	8	3	51	3	122
06:30 AM	1	81	12	3	62	6	165
06:45 AM	3	79	14	2	85	6	189
Total	7	280	54	11	221	17	590
07:00 AM	0	90	24	1	90	4	209
07:15 AM	1	68	17	1	47	6	140
07:30 AM	2	115	19	4	63	5	208
07:45 AM	3	89	11	0	57	5	165
Total	6	362	71	6	257	20	722
08:00 AM	2	75	19	4	49	8	157
08:15 AM	2	66	10	1	48	3	130
08:30 AM	4	83	9	1	49	4	150
08:45 AM	2	88	10	5	43	6	154
Total	10	312	48	11	189	21	591
Grand Total	23	954	173	28	667	58	1903
Apprch %	2.4	97.6	86.1	13.9	92	8	
Total %	1.2	50.1	9.1	1.5	35	3	
Cars	23	944	170	28	657	57	1879
% Cars	100	99	98.3	100	98.5	98.3	98.7
Trucks	0	10	3	0	10	1	24
% Trucks	0	1	1.7	0	1.5	1.7	1.3

Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 132 From North			Route 3 From East			Drwy From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	4	0	14	1	106	8	1	0	0	15	72	2	223
06:15 AM	4	0	12	0	133	8	1	0	1	42	97	1	299
06:30 AM	5	0	19	1	149	17	0	0	0	49	123	2	365
06:45 AM	3	0	23	1	171	18	0	1	0	55	144	1	417
Total	16	0	68	3	559	51	2	1	1	161	436	6	1304
07:00 AM	4	0	27	0	166	2	1	0	0	25	144	1	370
07:15 AM	8	0	34	0	223	3	0	0	0	26	135	1	430
07:30 AM	7	0	38	0	206	7	1	0	0	27	219	2	507
07:45 AM	5	1	21	0	173	12	5	0	0	47	207	7	478
Total	24	1	120	0	768	24	7	0	0	125	705	11	1785
08:00 AM	6	0	24	0	157	8	1	0	0	31	161	4	392
08:15 AM	8	1	36	0	150	8	4	0	0	33	131	4	375
08:30 AM	8	0	31	0	141	12	4	0	1	24	200	4	425
08:45 AM	10	0	22	1	137	10	2	0	0	25	175	3	385
Total	32	1	113	1	585	38	11	0	1	113	667	15	1577
Grand Total	72	2	301	4	1912	113	20	1	2	399	1808	32	4666
Apprch %	19.2	0.5	80.3	0.2	94.2	5.6	87	4.3	8.7	17.8	80.8	1.4	
Total %	1.5	0	6.5	0.1	41	2.4	0.4	0	0	8.6	38.7	0.7	
Cars	63	2	289	4	1879	111	20	1	2	387	1764	32	4554
% Cars	87.5	100	96	100	98.3	98.2	100	100	100	97	97.6	100	97.6
Trucks	9	0	12	0	33	2	0	0	0	12	44	0	112
% Trucks	12.5	0	4	0	1.7	1.8	0	0	0	3	2.4	0	2.4

Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

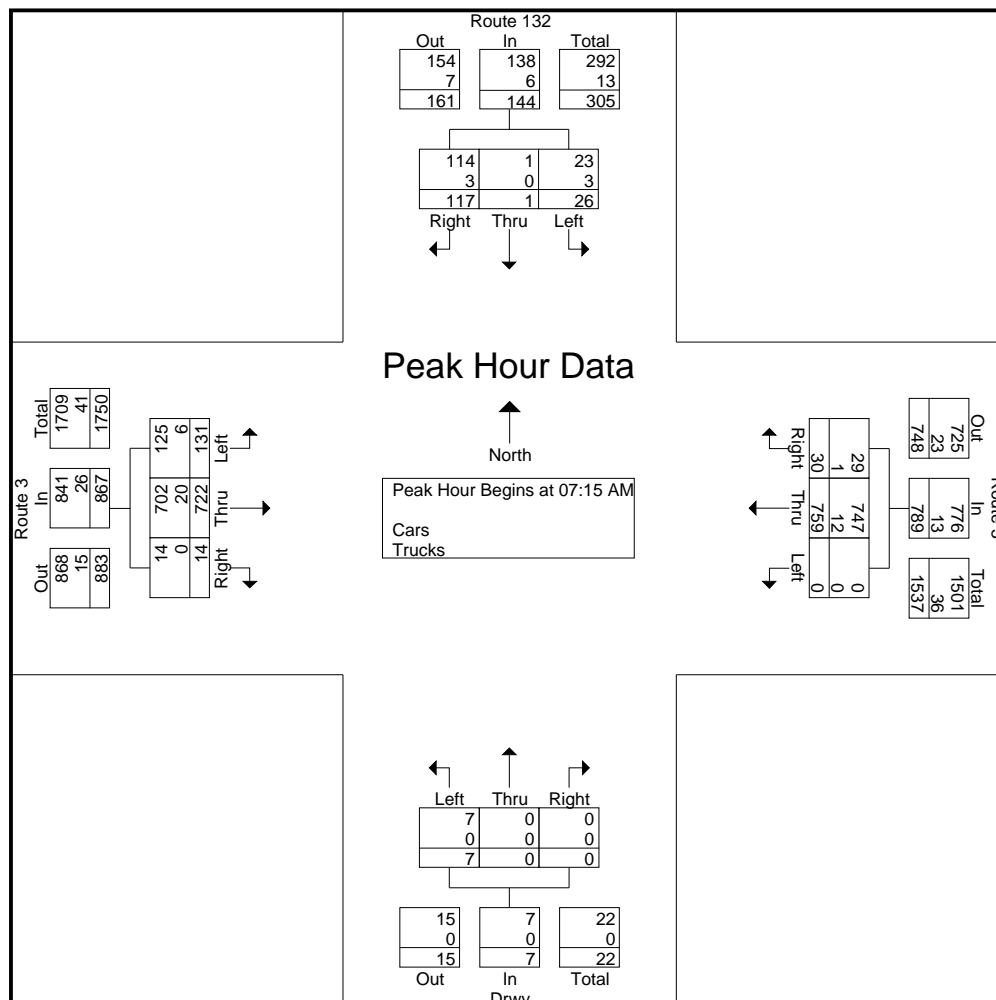
File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 2

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	8	0	34	42	0	223	3	226	0	0	0	0	26	135	1	162	430
07:30 AM	7	0	38	45	0	206	7	213	1	0	0	1	27	219	2	248	507
07:45 AM	5	1	21	27	0	173	12	185	5	0	0	5	47	207	7	261	478
08:00 AM	6	0	24	30	0	157	8	165	1	0	0	1	31	161	4	196	392
Total Volume	26	1	117	144	0	759	30	789	7	0	0	7	131	722	14	867	1807
% App. Total	18.1	0.7	81.2		0	96.2	3.8		100	0	0		15.1	83.3	1.6		
PHF	.813	.250	.770	.800	.000	.851	.625	.873	.350	.000	.000	.350	.697	.824	.500	.830	.891
Cars	23	1	114	138	0	747	29	776	7	0	0	7	125	702	14	841	1762
% Cars	88.5	100	97.4	95.8	0	98.4	96.7	98.4	100	0	0	100	95.4	97.2	100	97.0	97.5
Trucks	3	0	3	6	0	12	1	13	0	0	0	0	6	20	0	26	45
% Trucks	11.5	0	2.6	4.2	0	1.6	3.3	1.6	0	0	0	0	4.6	2.8	0	3.0	2.5



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

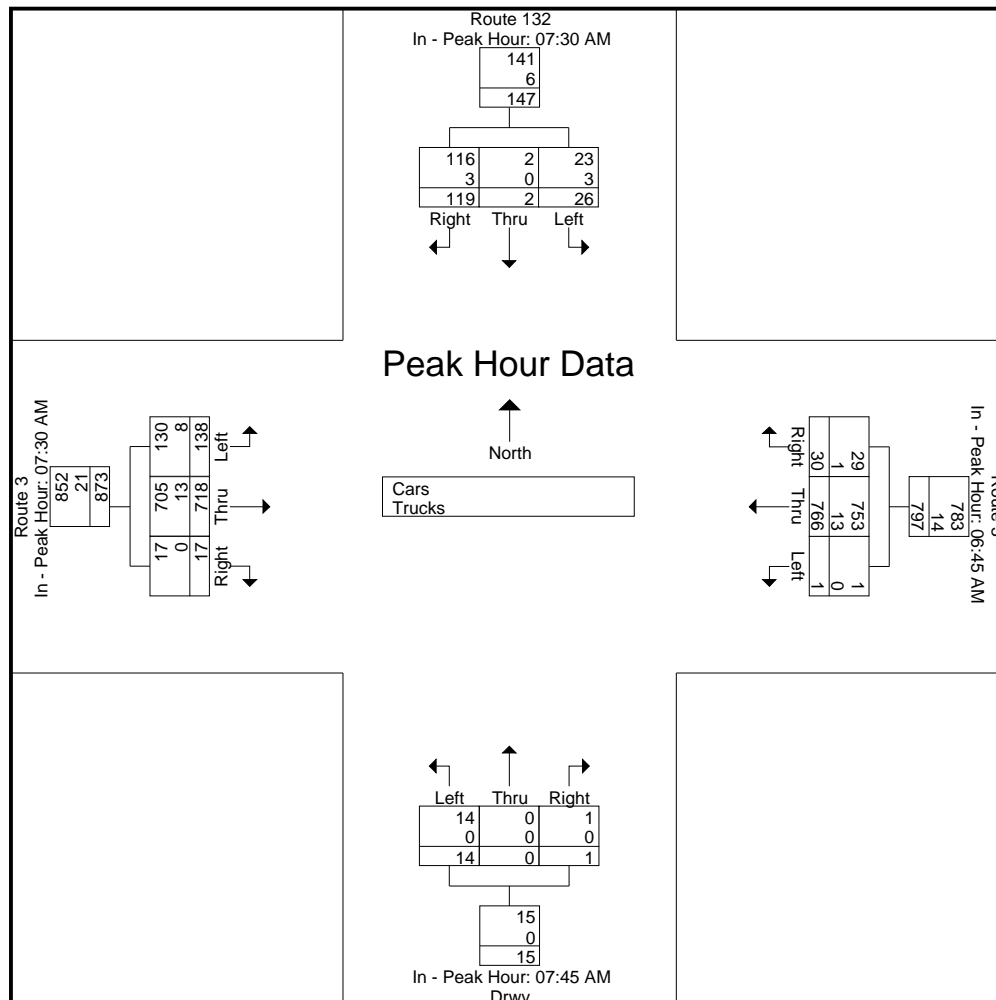
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 3

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				06:45 AM				07:45 AM				07:30 AM			
+0 mins.	7	0	38	45	1	171	18	190	5	0	0	5	27	219	2	248
+15 mins.	5	1	21	27	0	166	2	168	1	0	0	1	47	207	7	261
+30 mins.	6	0	24	30	0	223	3	226	4	0	0	4	31	161	4	196
+45 mins.	8	1	36	45	0	206	7	213	4	0	1	5	33	131	4	168
Total Volume	26	2	119	147	1	766	30	797	14	0	1	15	138	718	17	873
% App. Total	17.7	1.4	81		0.1	96.1	3.8		93.3	0	6.7		15.8	82.2	1.9	
PHF	.813	.500	.783	.817	.250	.859	.417	.882	.700	.000	.250	.750	.734	.820	.607	.836
Cars	23	2	116	141	1	753	29	783	14	0	1	15	130	705	17	852
% Cars	88.5	100	97.5	95.9	100	98.3	96.7	98.2	100	0	100	100	94.2	98.2	100	97.6
Trucks	3	0	3	6	0	13	1	14	0	0	0	0	8	13	0	21
% Trucks	11.5	0	2.5	4.1	0	1.7	3.3	1.8	0	0	0	0	5.8	1.8	0	2.4



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

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Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 4

Groups Printed- Cars

Start Time	Route 132 From North			Route 3 From East			Drwy From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	4	0	14	1	105	8	1	0	0	15	70	2	220
06:15 AM	3	0	12	0	132	8	1	0	1	42	93	1	293
06:30 AM	5	0	18	1	146	17	0	0	0	47	121	2	357
06:45 AM	3	0	23	1	167	18	0	1	0	55	138	1	407
Total	15	0	67	3	550	51	2	1	1	159	422	6	1277
07:00 AM	2	0	25	0	163	1	1	0	0	25	141	1	359
07:15 AM	8	0	33	0	219	3	0	0	0	26	128	1	418
07:30 AM	7	0	38	0	204	7	1	0	0	26	215	2	500
07:45 AM	4	1	21	0	170	11	5	0	0	43	200	7	462
Total	21	1	117	0	756	22	7	0	0	120	684	11	1739
08:00 AM	4	0	22	0	154	8	1	0	0	30	159	4	382
08:15 AM	8	1	35	0	147	8	4	0	0	31	131	4	369
08:30 AM	7	0	28	0	137	12	4	0	1	23	196	4	412
08:45 AM	8	0	20	1	135	10	2	0	0	24	172	3	375
Total	27	1	105	1	573	38	11	0	1	108	658	15	1538
Grand Total	63	2	289	4	1879	111	20	1	2	387	1764	32	4554
Apprch %	17.8	0.6	81.6	0.2	94.2	5.6	87	4.3	8.7	17.7	80.8	1.5	
Total %	1.4	0	6.3	0.1	41.3	2.4	0.4	0	0	8.5	38.7	0.7	

Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

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Weather : Cloudy

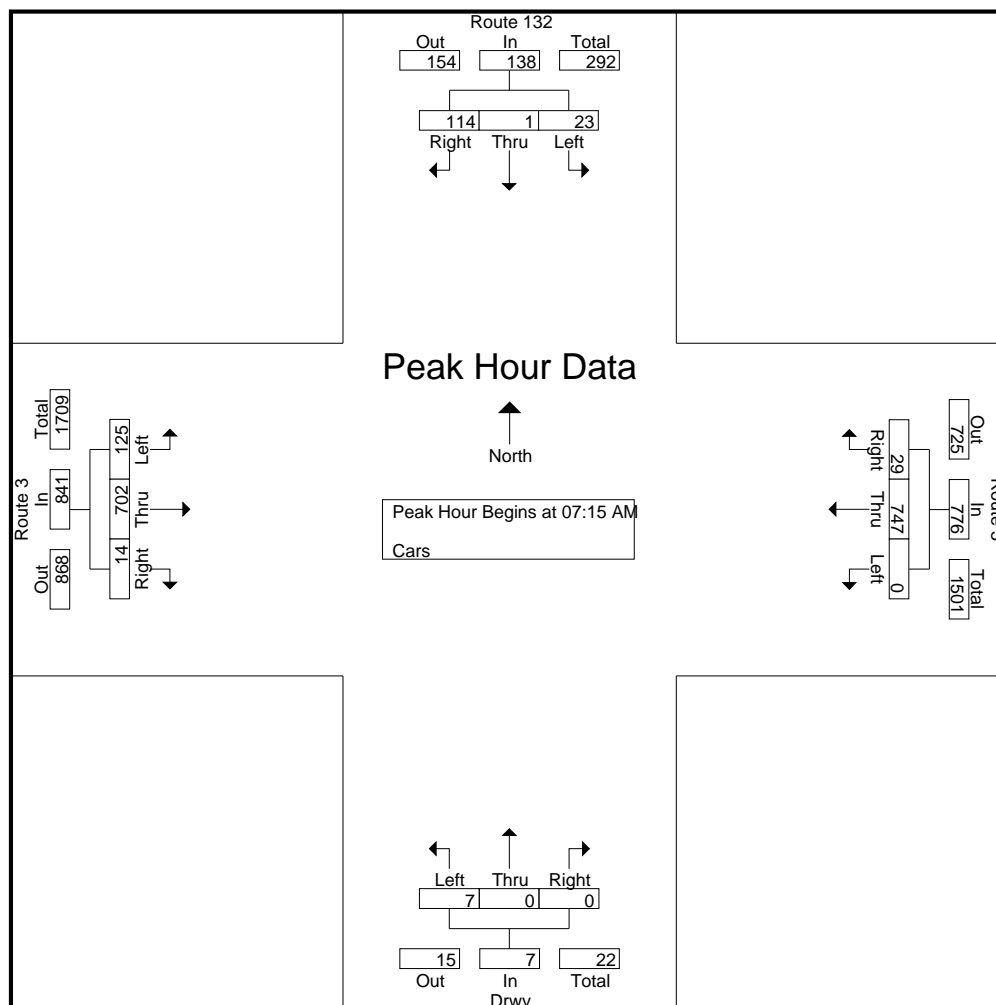
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Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
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Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	8	0	33	41	0	219	3	222	0	0	0	0	26	128	1	155	418
07:30 AM	7	0	38	45	0	204	7	211	1	0	0	1	26	215	2	243	500
07:45 AM	4	1	21	26	0	170	11	181	5	0	0	5	43	200	7	250	462
08:00 AM	4	0	22	26	0	154	8	162	1	0	0	1	30	159	4	193	382
Total Volume	23	1	114	138	0	747	29	776	7	0	0	7	125	702	14	841	1762
% App. Total	16.7	0.7	82.6		0	96.3	3.7		100	0	0		14.9	83.5	1.7		
PHF	.719	.250	.750	.767	.000	.853	.659	.874	.350	.000	.000	.350	.727	.816	.500	.841	.881



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

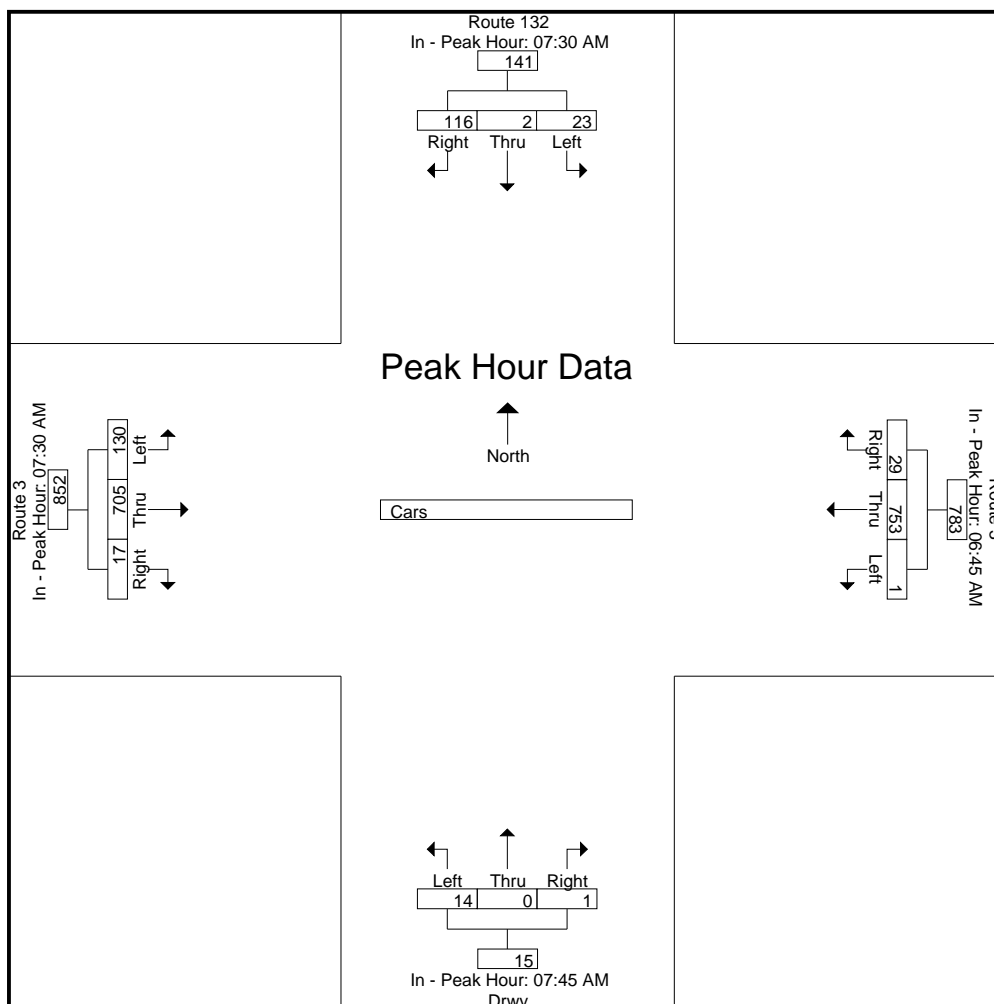
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 6

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				06:45 AM				07:45 AM				07:30 AM			
+0 mins.	7	0	38	45	1	167	18	186	5	0	0	5	26	215	2	243
+15 mins.	4	1	21	26	0	163	1	164	1	0	0	1	43	200	7	250
+30 mins.	4	0	22	26	0	219	3	222	4	0	0	4	30	159	4	193
+45 mins.	8	1	35	44	0	204	7	211	4	0	1	5	31	131	4	166
Total Volume	23	2	116	141	1	753	29	783	14	0	1	15	130	705	17	852
% App. Total	16.3	1.4	82.3		0.1	96.2	3.7		93.3	0	6.7		15.3	82.7	2	
PHF	.719	.500	.763	.783	.250	.860	.403	.882	.700	.000	.250	.750	.756	.820	.607	.852



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 7

Groups Printed- Trucks

Start Time	Route 132 From North			Route 3 From East			Drwy From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	0	0	1	0	0	0	0	0	2	0	3
06:15 AM	1	0	0	0	1	0	0	0	0	0	4	0	6
06:30 AM	0	0	1	0	3	0	0	0	0	2	2	0	8
06:45 AM	0	0	0	0	4	0	0	0	0	0	6	0	10
Total	1	0	1	0	9	0	0	0	0	2	14	0	27
07:00 AM	2	0	2	0	3	1	0	0	0	0	3	0	11
07:15 AM	0	0	1	0	4	0	0	0	0	0	7	0	12
07:30 AM	0	0	0	0	2	0	0	0	0	1	4	0	7
07:45 AM	1	0	0	0	3	1	0	0	0	4	7	0	16
Total	3	0	3	0	12	2	0	0	0	5	21	0	46
08:00 AM	2	0	2	0	3	0	0	0	0	1	2	0	10
08:15 AM	0	0	1	0	3	0	0	0	0	2	0	0	6
08:30 AM	1	0	3	0	4	0	0	0	0	1	4	0	13
08:45 AM	2	0	2	0	2	0	0	0	0	1	3	0	10
Total	5	0	8	0	12	0	0	0	0	5	9	0	39
Grand Total	9	0	12	0	33	2	0	0	0	12	44	0	112
Apprch %	42.9	0	57.1	0	94.3	5.7	0	0	0	21.4	78.6	0	
Total %	8	0	10.7	0	29.5	1.8	0	0	0	10.7	39.3	0	

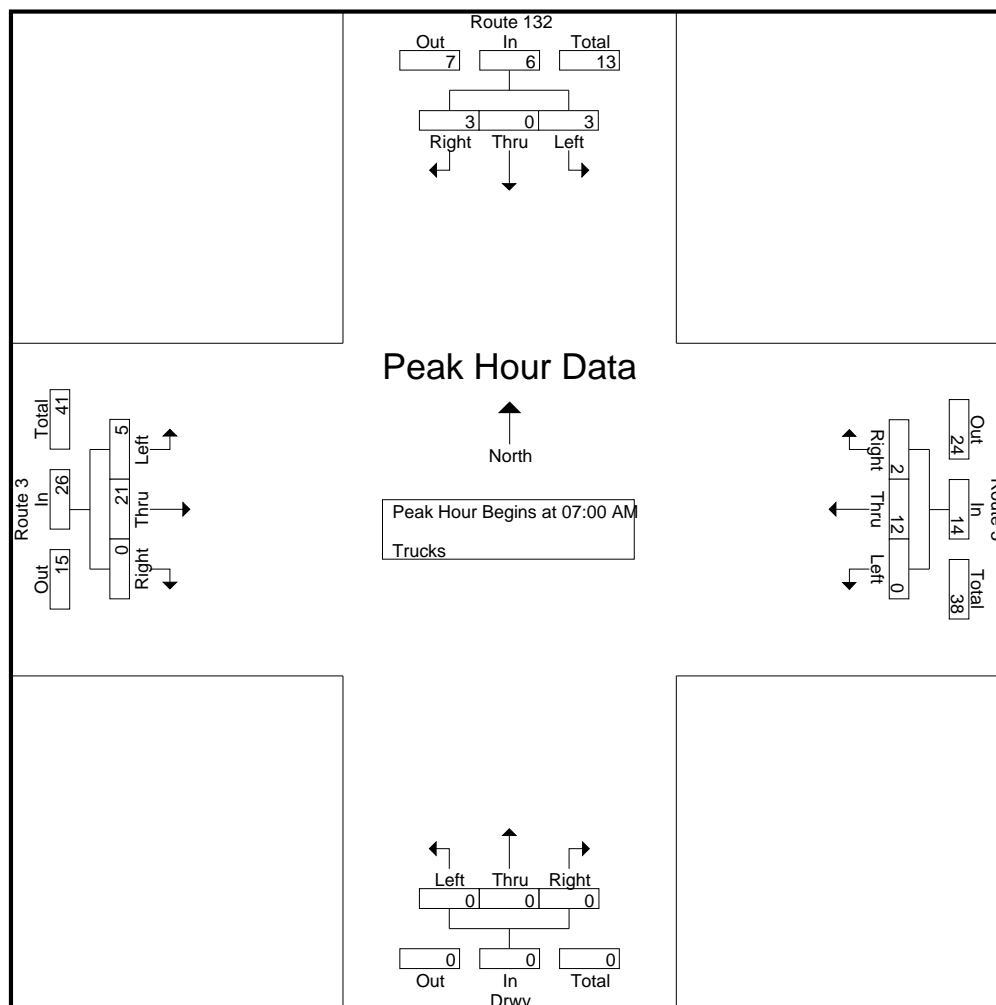
Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 8

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	2	0	2	4	0	3	1	4	0	0	0	0	0	3	0	3	11
07:15 AM	0	0	1	1	0	4	0	4	0	0	0	0	0	7	0	7	12
07:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	1	4	0	5	7
07:45 AM	1	0	0	1	0	3	1	4	0	0	0	0	4	7	0	11	16
Total Volume	3	0	3	6	0	12	2	14	0	0	0	0	5	21	0	26	46
% App. Total	50	0	50		0	85.7	14.3		0	0	0		19.2	80.8	0		
PHF	.375	.000	.375	.375	.000	.750	.500	.875	.000	.000	.000	.000	.313	.750	.000	.591	.719



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

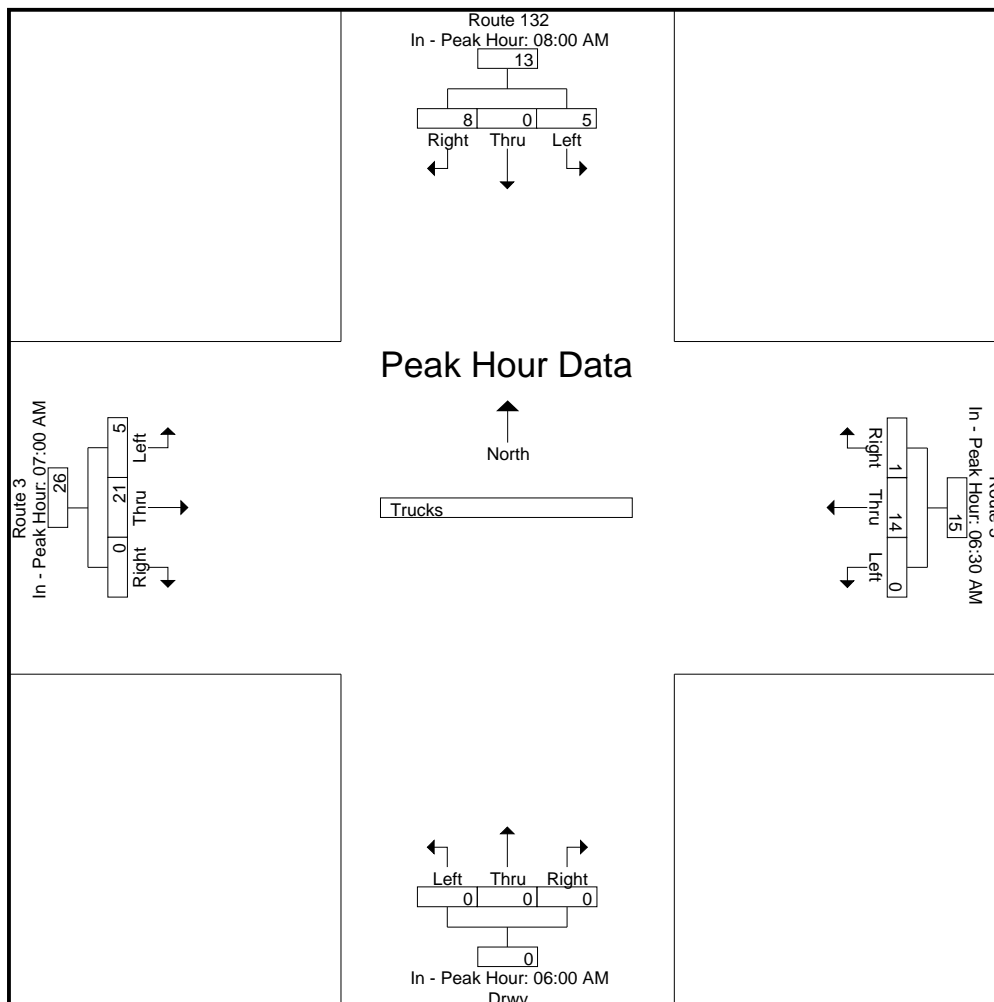
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 9

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				06:30 AM				06:00 AM				07:00 AM			
+0 mins.	2	0	2	4	0	3	0	3	0	0	0	0	0	3	0	3
+15 mins.	0	0	1	1	0	4	0	4	0	0	0	0	0	7	0	7
+30 mins.	1	0	3	4	0	3	1	4	0	0	0	0	1	4	0	5
+45 mins.	2	0	2	4	0	4	0	4	0	0	0	0	4	7	0	11
Total Volume	5	0	8	13	0	14	1	15	0	0	0	0	5	21	0	26
% App. Total	38.5	0	61.5		0	93.3	6.7		0	0	0		19.2	80.8	0	
PHF	.625	.000	.667	.813	.000	.875	.250	.938	.000	.000	.000	.000	.313	.750	.000	.591



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	0	0	

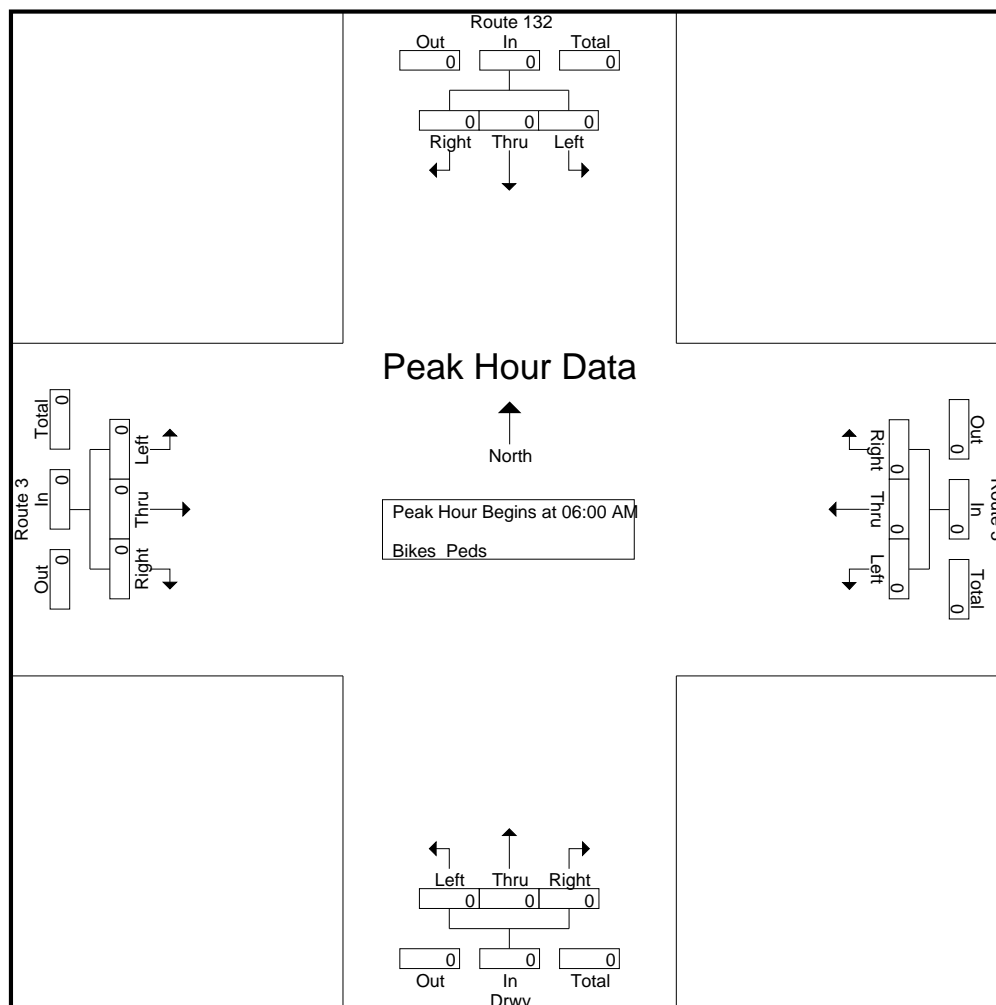
Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 11

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

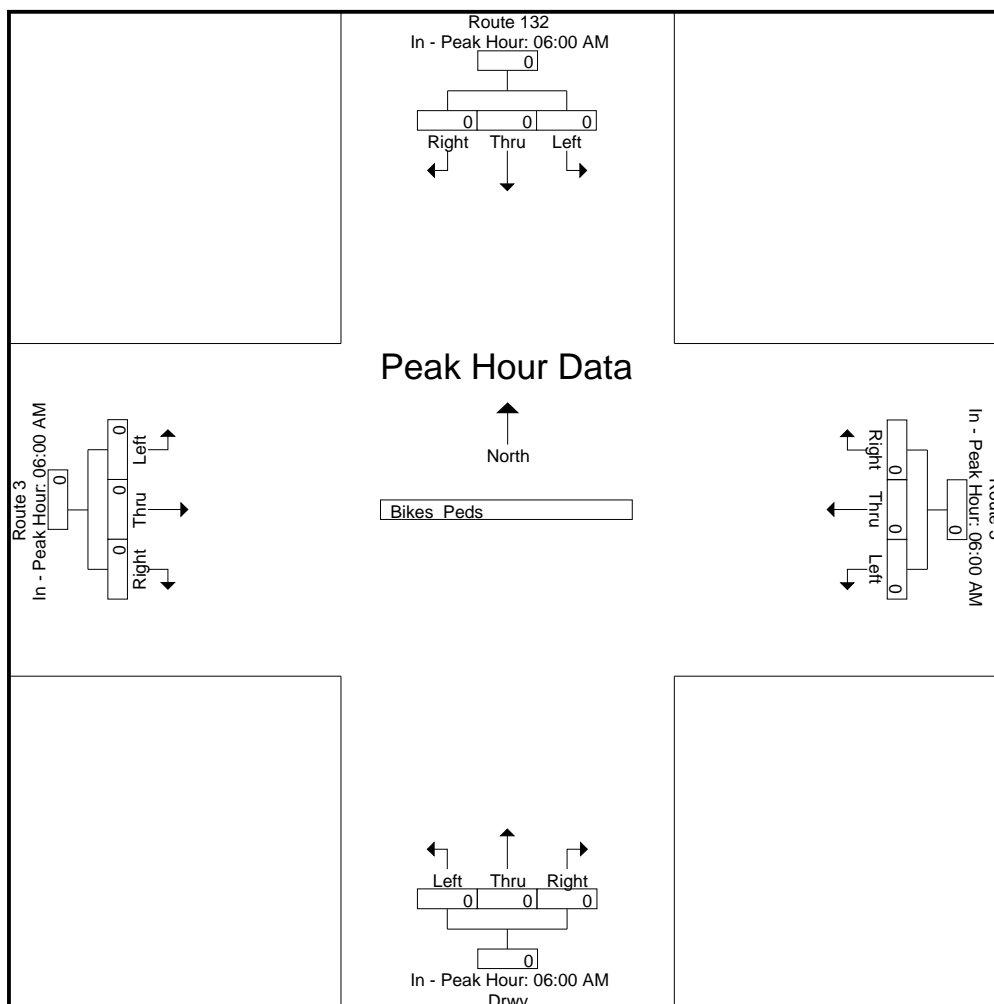
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 12

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM				06:00 AM				06:00 AM				06:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 132 From North			Route 3 From East			Drwy From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	15	3	45	4	194	7	11	3	1	28	201	8	520
03:15 PM	23	1	48	2	200	11	6	0	1	26	225	9	552
03:30 PM	29	2	46	4	236	10	14	0	0	26	240	17	624
03:45 PM	7	2	45	9	256	11	13	2	3	30	239	14	631
Total	74	8	184	19	886	39	44	5	5	110	905	48	2327
04:00 PM	12	0	40	4	226	13	14	1	2	23	229	13	577
04:15 PM	9	2	25	2	236	9	6	3	1	34	246	19	592
04:30 PM	19	2	50	7	236	16	17	1	5	38	256	12	659
04:45 PM	19	4	28	6	201	16	16	2	4	29	242	21	588
Total	59	8	143	19	899	54	53	7	12	124	973	65	2416
05:00 PM	20	2	35	4	212	10	12	1	0	35	257	14	602
05:15 PM	19	2	56	2	197	9	10	4	1	46	233	13	592
05:30 PM	28	1	60	4	213	9	14	1	3	23	258	18	632
05:45 PM	8	1	15	3	204	13	15	2	2	25	202	12	502
Total	75	6	166	13	826	41	51	8	6	129	950	57	2328
Grand Total	208	22	493	51	2611	134	148	20	23	363	2828	170	7071
Aprch %	28.8	3	68.2	1.8	93.4	4.8	77.5	10.5	12	10.8	84.1	5.1	
Total %	2.9	0.3	7	0.7	36.9	1.9	2.1	0.3	0.3	5.1	40	2.4	
Cars	203	22	484	51	2569	132	148	20	23	358	2808	170	6988
% Cars	97.6	100	98.2	100	98.4	98.5	100	100	100	98.6	99.3	100	98.8
Trucks	5	0	9	0	42	2	0	0	0	5	20	0	83
% Trucks	2.4	0	1.8	0	1.6	1.5	0	0	0	1.4	0.7	0	1.2

Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

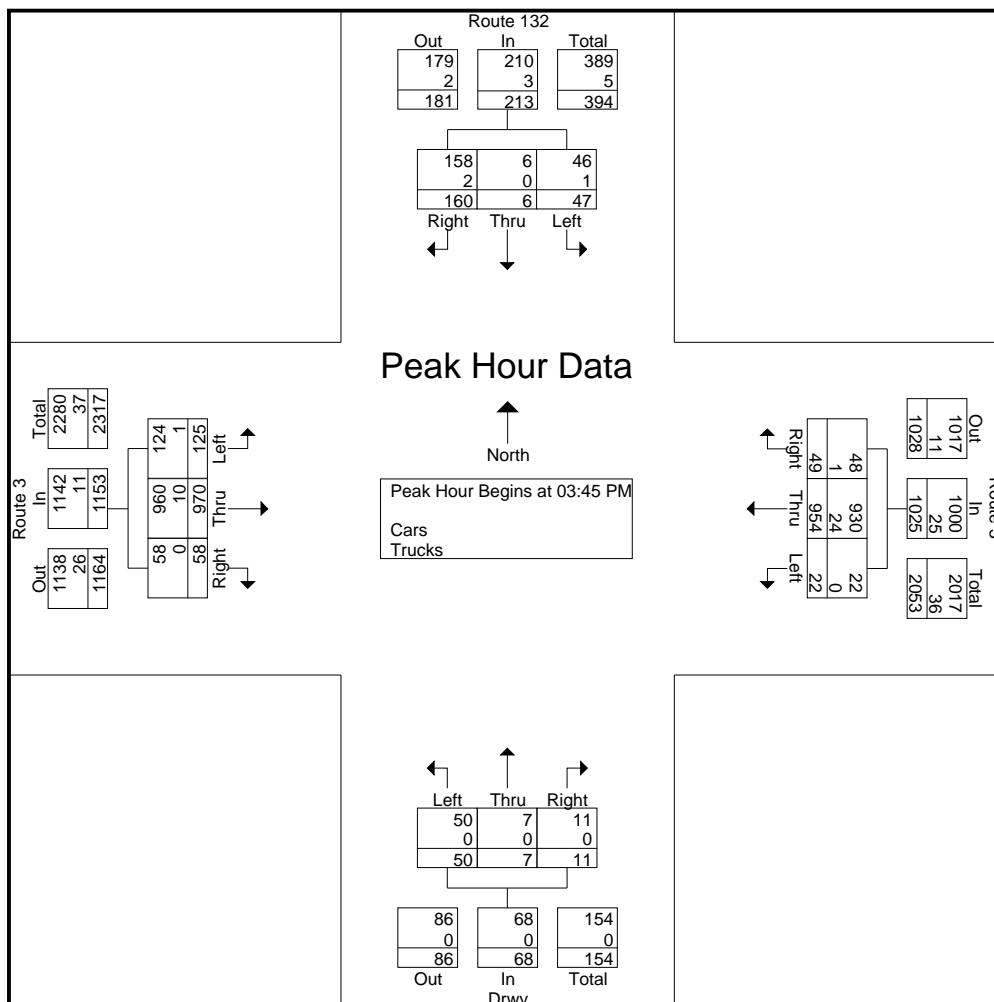
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 2

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:45 PM

03:45 PM	7	2	45	54	9	256	11	276	13	2	3	18	30	239	14	283	631
04:00 PM	12	0	40	52	4	226	13	243	14	1	2	17	23	229	13	265	577
04:15 PM	9	2	25	36	2	236	9	247	6	3	1	10	34	246	19	299	592
04:30 PM	19	2	50	71	7	236	16	259	17	1	5	23	38	256	12	306	659
Total Volume	47	6	160	213	22	954	49	1025	50	7	11	68	125	970	58	1153	2459
% App. Total	22.1	2.8	75.1		2.1	93.1	4.8		73.5	10.3	16.2		10.8	84.1	5		
PHF	.618	.750	.800	.750	.611	.932	.766	.928	.735	.583	.550	.739	.822	.947	.763	.942	.933
Cars	46	6	158	210	22	930	48	1000	50	7	11	68	124	960	58	1142	2420
% Cars	97.9	100	98.8	98.6	100	97.5	98.0	97.6	100	100	100	100	99.2	99.0	100	99.0	98.4
Trucks	1	0	2	3	0	24	1	25	0	0	0	0	1	10	0	11	39
% Trucks	2.1	0	1.3	1.4	0	2.5	2.0	2.4	0	0	0	0	0.8	1.0	0	1.0	1.6



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

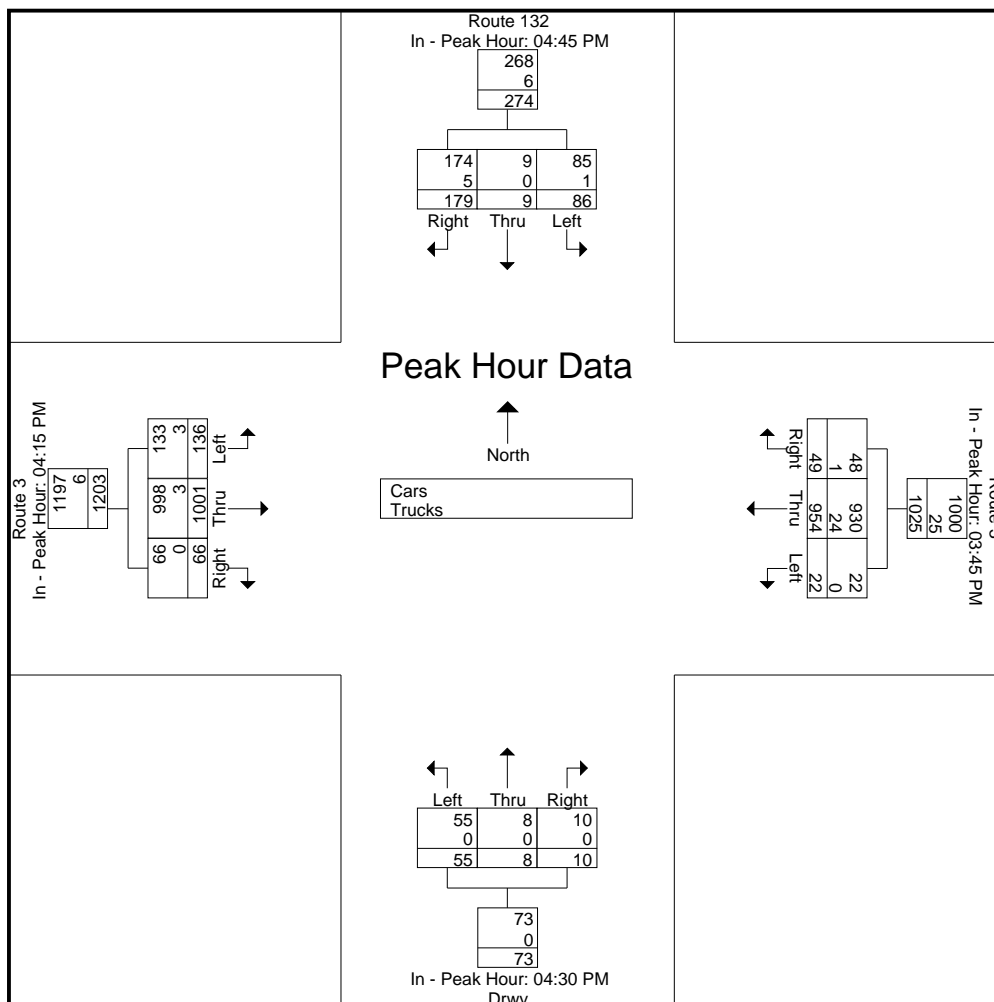
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 3

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM				03:45 PM				04:30 PM				04:15 PM			
+0 mins.	19	4	28	51	9	256	11	276	17	1	5	23	34	246	19	299
+15 mins.	20	2	35	57	4	226	13	243	16	2	4	22	38	256	12	306
+30 mins.	19	2	56	77	2	236	9	247	12	1	0	13	29	242	21	292
+45 mins.	28	1	60	89	7	236	16	259	10	4	1	15	35	257	14	306
Total Volume	86	9	179	274	22	954	49	1025	55	8	10	73	136	1001	66	1203
% App. Total	31.4	3.3	65.3		2.1	93.1	4.8		75.3	11	13.7		11.3	83.2	5.5	
PHF	.768	.563	.746	.770	.611	.932	.766	.928	.809	.500	.500	.793	.895	.974	.786	.983
Cars	85	9	174	268	22	930	48	1000	55	8	10	73	133	998	66	1197
% Cars	98.8	100	97.2	97.8	100	97.5	98	97.6	100	100	100	100	97.8	99.7	100	99.5
Trucks	1	0	5	6	0	24	1	25	0	0	0	0	3	3	0	6
% Trucks	1.2	0	2.8	2.2	0	2.5	2	2.4	0	0	0	0	2.2	0.3	0	0.5



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 4

Groups Printed- Cars

Start Time	Route 132 From North			Route 3 From East			Drwy From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	13	3	44	4	192	7	11	3	1	27	200	8	513
03:15 PM	22	1	47	2	197	11	6	0	1	26	223	9	545
03:30 PM	29	2	46	4	231	10	14	0	0	25	236	17	614
03:45 PM	7	2	44	9	250	11	13	2	3	30	235	14	620
Total	71	8	181	19	870	39	44	5	5	108	894	48	2292
04:00 PM	11	0	40	4	221	13	14	1	2	23	226	13	568
04:15 PM	9	2	24	2	227	8	6	3	1	33	245	19	579
04:30 PM	19	2	50	7	232	16	17	1	5	38	254	12	653
04:45 PM	18	4	27	6	201	16	16	2	4	28	242	21	585
Total	57	8	141	19	881	53	53	7	12	122	967	65	2385
05:00 PM	20	2	35	4	212	10	12	1	0	34	257	14	601
05:15 PM	19	2	56	2	194	8	10	4	1	46	231	13	586
05:30 PM	28	1	56	4	210	9	14	1	3	23	258	18	625
05:45 PM	8	1	15	3	202	13	15	2	2	25	201	12	499
Total	75	6	162	13	818	40	51	8	6	128	947	57	2311
Grand Total	203	22	484	51	2569	132	148	20	23	358	2808	170	6988
Apprch %	28.6	3.1	68.3	1.9	93.4	4.8	77.5	10.5	12	10.7	84.2	5.1	
Total %	2.9	0.3	6.9	0.7	36.8	1.9	2.1	0.3	0.3	5.1	40.2	2.4	

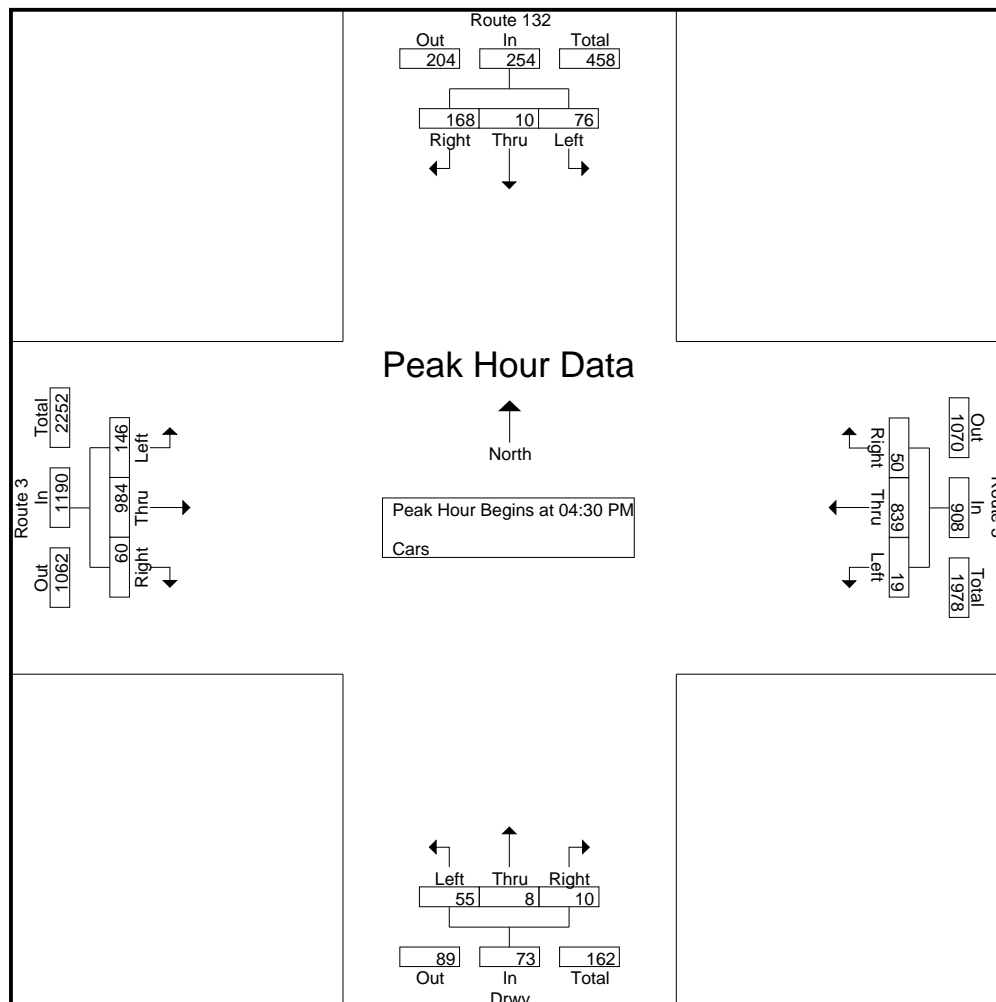
Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 5

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	19	2	50	71	7	232	16	255	17	1	5	23	38	254	12	304	653
04:45 PM	18	4	27	49	6	201	16	223	16	2	4	22	28	242	21	291	585
05:00 PM	20	2	35	57	4	212	10	226	12	1	0	13	34	257	14	305	601
05:15 PM	19	2	56	77	2	194	8	204	10	4	1	15	46	231	13	290	586
Total Volume	76	10	168	254	19	839	50	908	55	8	10	73	146	984	60	1190	2425
% App. Total	29.9	3.9	66.1		2.1	92.4	5.5		75.3	11	13.7		12.3	82.7	5		
PHF	.950	.625	.750	.825	.679	.904	.781	.890	.809	.500	.500	.793	.793	.957	.714	.975	.928



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

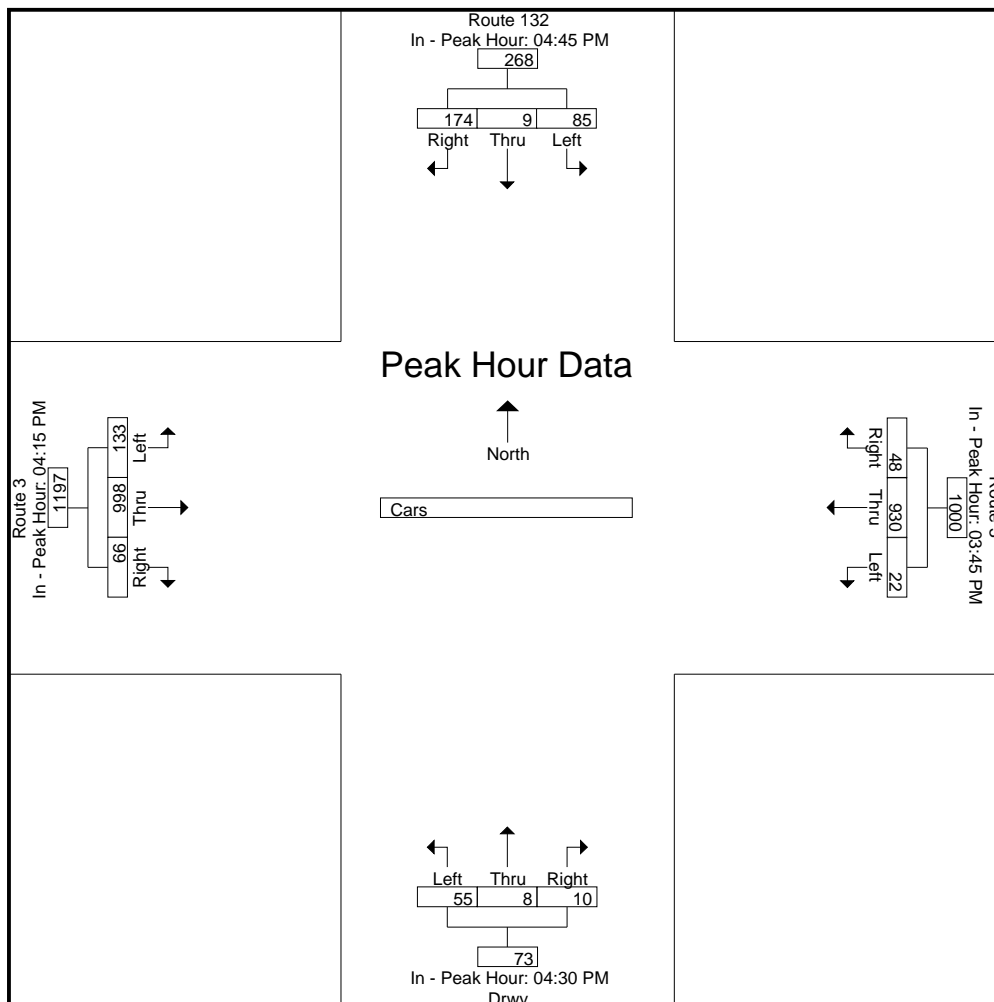
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 6

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM				03:45 PM				04:30 PM				04:15 PM			
+0 mins.	18	4	27	49	9	250	11	270	17	1	5	23	33	245	19	297
+15 mins.	20	2	35	57	4	221	13	238	16	2	4	22	38	254	12	304
+30 mins.	19	2	56	77	2	227	8	237	12	1	0	13	28	242	21	291
+45 mins.	28	1	56	85	7	232	16	255	10	4	1	15	34	257	14	305
Total Volume	85	9	174	268	22	930	48	1000	55	8	10	73	133	998	66	1197
% App. Total	31.7	3.4	64.9		2.2	93	4.8		75.3	11	13.7		11.1	83.4	5.5	
PHF	.759	.563	.777	.788	.611	.930	.750	.926	.809	.500	.500	.793	.875	.971	.786	.981



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 7

Groups Printed- Trucks

Start Time	Route 132 From North			Route 3 From East			Drwy From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	2	0	1	0	2	0	0	0	0	1	1	0	7
03:15 PM	1	0	1	0	3	0	0	0	0	0	2	0	7
03:30 PM	0	0	0	0	5	0	0	0	0	1	4	0	10
03:45 PM	0	0	1	0	6	0	0	0	0	0	4	0	11
Total	3	0	3	0	16	0	0	0	0	2	11	0	35
04:00 PM	1	0	0	0	5	0	0	0	0	0	3	0	9
04:15 PM	0	0	1	0	9	1	0	0	0	1	1	0	13
04:30 PM	0	0	0	0	4	0	0	0	0	0	2	0	6
04:45 PM	1	0	1	0	0	0	0	0	0	1	0	0	3
Total	2	0	2	0	18	1	0	0	0	2	6	0	31
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
05:15 PM	0	0	0	0	3	1	0	0	0	0	2	0	6
05:30 PM	0	0	4	0	3	0	0	0	0	0	0	0	7
05:45 PM	0	0	0	0	2	0	0	0	0	0	1	0	3
Total	0	0	4	0	8	1	0	0	0	1	3	0	17
Grand Total	5	0	9	0	42	2	0	0	0	5	20	0	83
Apprch %	35.7	0	64.3	0	95.5	4.5	0	0	0	20	80	0	
Total %	6	0	10.8	0	50.6	2.4	0	0	0	6	24.1	0	

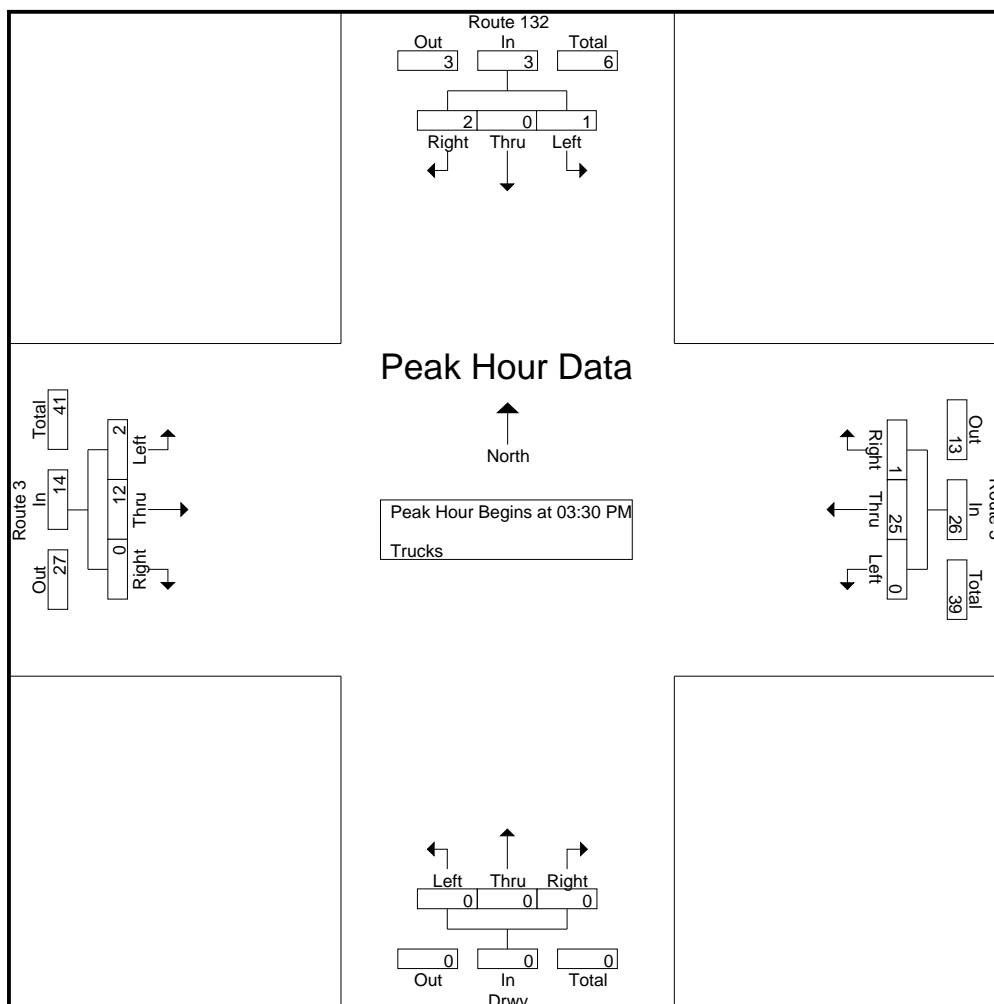
Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 8

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	0	0	0	0	0	5	0	5	0	0	0	0	1	4	0	5	10
03:45 PM	0	0	1	1	0	6	0	6	0	0	0	0	0	4	0	4	11
04:00 PM	1	0	0	1	0	5	0	5	0	0	0	0	0	3	0	3	9
04:15 PM	0	0	1	1	0	9	1	10	0	0	0	0	1	1	0	2	13
Total Volume	1	0	2	3	0	25	1	26	0	0	0	0	2	12	0	14	43
% App. Total	33.3	0	66.7		0	96.2	3.8		0	0	0		14.3	85.7	0		
PHF	.250	.000	.500	.750	.000	.694	.250	.650	.000	.000	.000	.000	.500	.750	.000	.700	.827



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

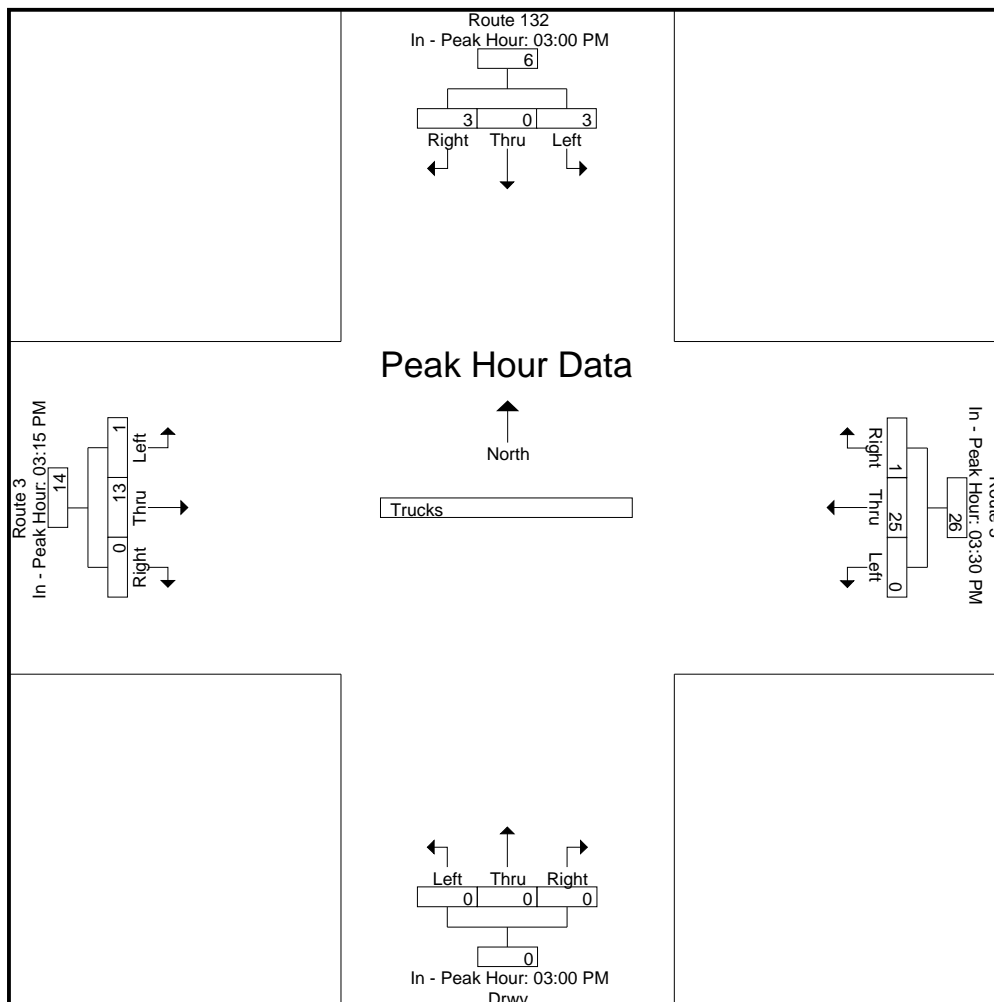
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 9

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:30 PM				03:00 PM				03:15 PM			
+0 mins.	2	0	1	3	0	5	0	5	0	0	0	0	0	2	0	2
+15 mins.	1	0	1	2	0	6	0	6	0	0	0	0	1	4	0	5
+30 mins.	0	0	0	0	0	5	0	5	0	0	0	0	0	4	0	4
+45 mins.	0	0	1	1	0	9	1	10	0	0	0	0	0	3	0	3
Total Volume	3	0	3	6	0	25	1	26	0	0	0	0	1	13	0	14
% App. Total	50	0	50		0	96.2	3.8		0	0	0		7.1	92.9	0	
PHF	.375	.000	.750	.500	.000	.694	.250	.650	.000	.000	.000	.000	.250	.813	.000	.700



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R1

Site Code : 52455001

Start Date : 5/2/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	0	0	

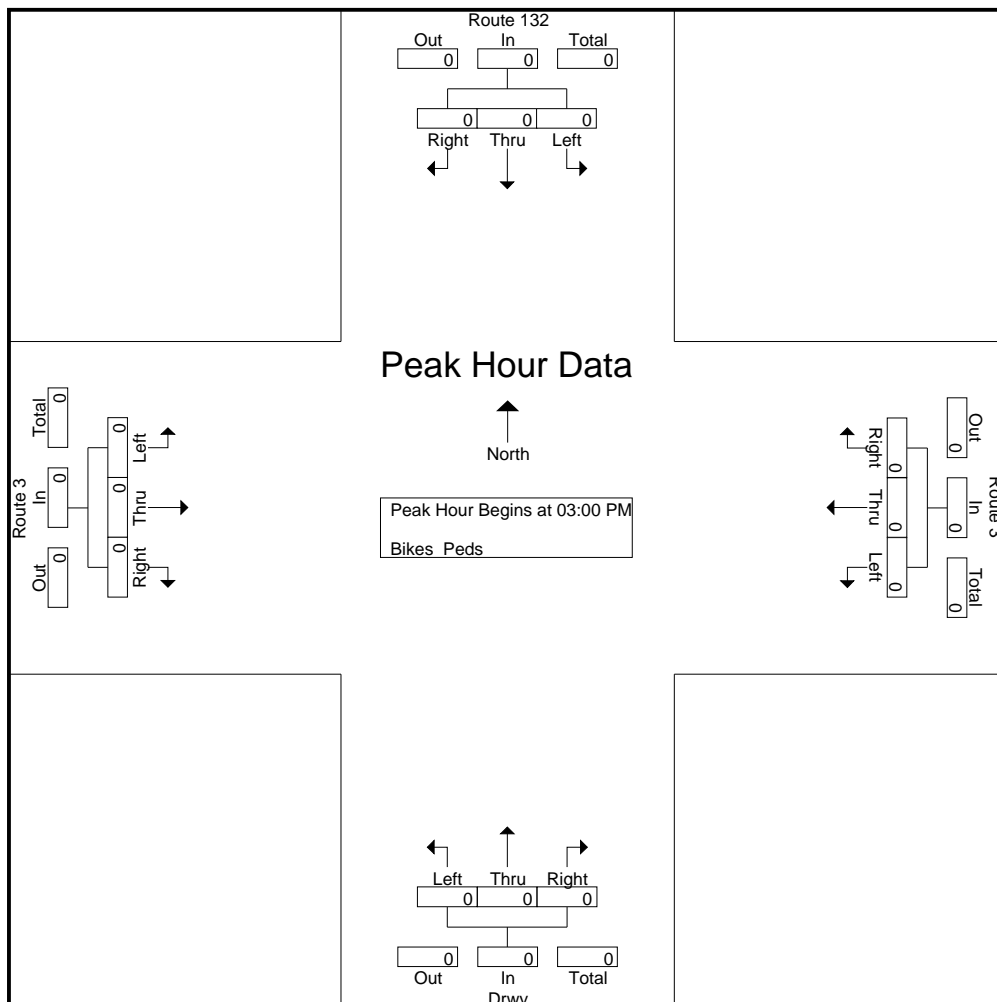
Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 11

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 132 / Driveway
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

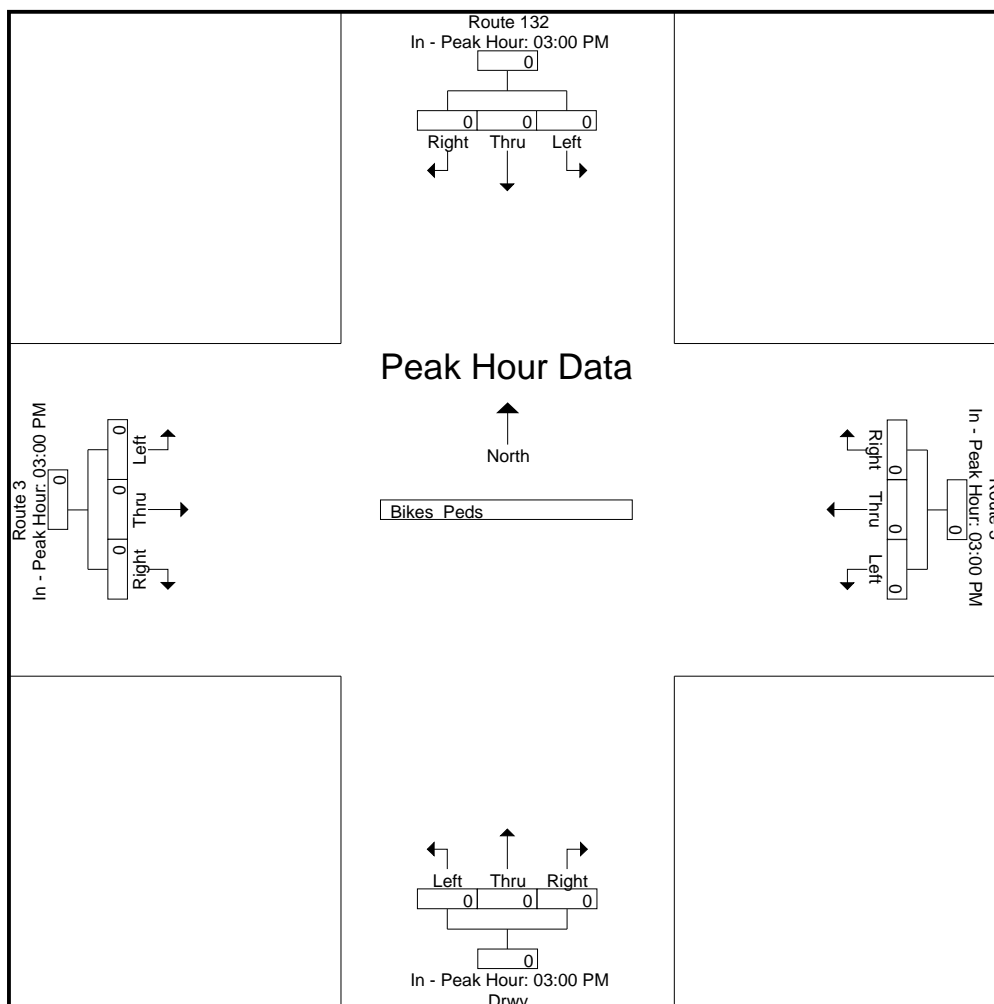
File Name : 524550R1
 Site Code : 52455001
 Start Date : 5/2/2017
 Page No : 12

Start Time	Route 132 From North				Route 3 From East				Drwy From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 93 NB Ramp From North			Route 3 From East			Route 140 From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	21	7	4	13	93	14	50	9	20	4	53	30	318
06:15 AM	25	12	4	23	113	3	43	12	26	11	104	43	419
06:30 AM	51	12	7	20	143	10	63	10	34	11	108	71	540
06:45 AM	47	15	6	29	165	5	54	11	35	10	123	60	560
Total	144	46	21	85	514	32	210	42	115	36	388	204	1837
07:00 AM	64	17	6	11	177	12	78	16	19	12	109	52	573
07:15 AM	64	17	6	26	227	15	96	23	29	18	97	45	663
07:30 AM	89	15	13	25	209	8	85	29	46	17	114	58	708
07:45 AM	88	23	16	28	168	13	71	19	44	13	145	62	690
Total	305	72	41	90	781	48	330	87	138	60	465	217	2634
08:00 AM	68	11	7	13	138	13	53	25	40	18	112	50	548
08:15 AM	56	21	12	31	161	19	55	15	30	12	100	36	548
08:30 AM	66	9	7	21	153	10	61	11	34	12	127	49	560
08:45 AM	60	15	12	21	132	8	65	18	34	12	114	50	541
Total	250	56	38	86	584	50	234	69	138	54	453	185	2197
Grand Total	699	174	100	261	1879	130	774	198	391	150	1306	606	6668
Aprch %	71.8	17.9	10.3	11.5	82.8	5.7	56.8	14.5	28.7	7.3	63.3	29.4	
Total %	10.5	2.6	1.5	3.9	28.2	1.9	11.6	3	5.9	2.2	19.6	9.1	
Cars	669	139	86	243	1835	115	706	179	377	142	1263	584	6338
% Cars	95.7	79.9	86	93.1	97.7	88.5	91.2	90.4	96.4	94.7	96.7	96.4	95.1
Trucks	30	35	14	18	44	15	68	19	14	8	43	22	330
% Trucks	4.3	20.1	14	6.9	2.3	11.5	8.8	9.6	3.6	5.3	3.3	3.6	4.9

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

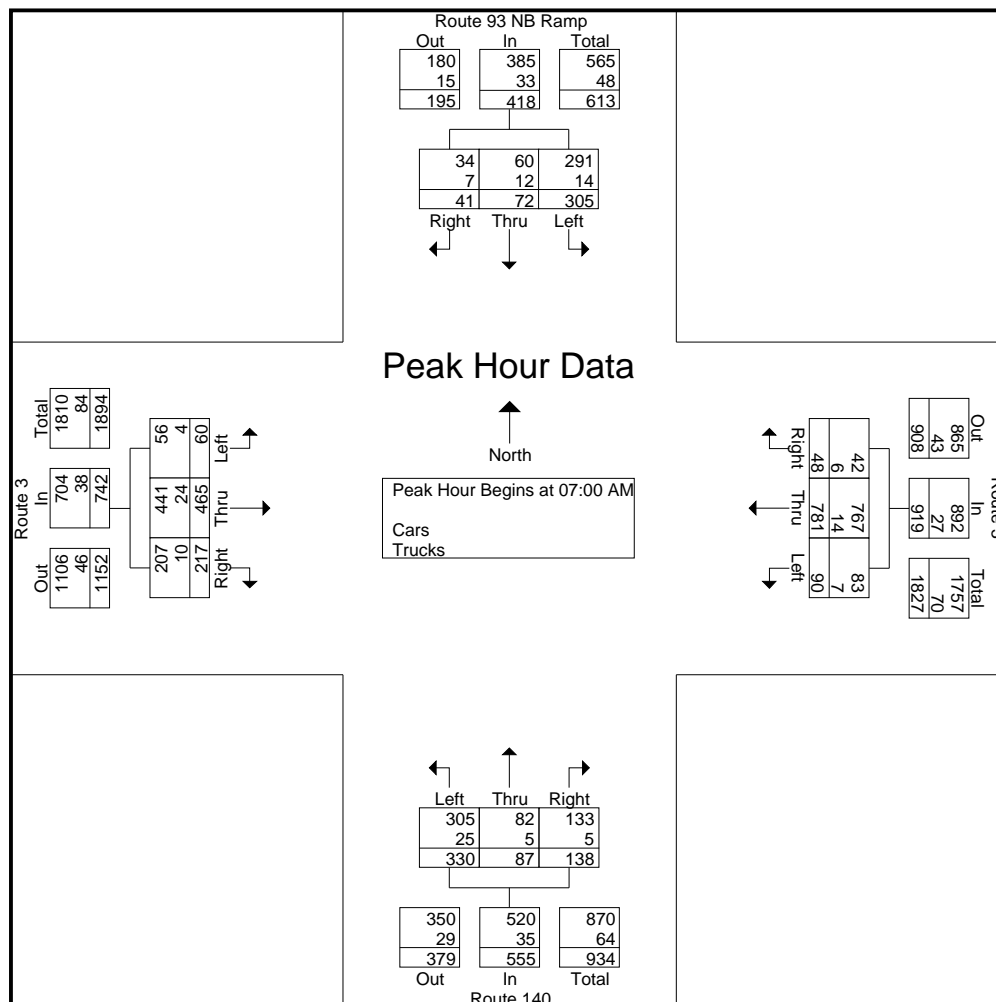
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 2

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	64	17	6	87	11	177	12	200	78	16	19	113	12	109	52	173	573
07:15 AM	64	17	6	87	26	227	15	268	96	23	29	148	18	97	45	160	663
07:30 AM	89	15	13	117	25	209	8	242	85	29	46	160	17	114	58	189	708
07:45 AM	88	23	16	127	28	168	13	209	71	19	44	134	13	145	62	220	690
Total Volume	305	72	41	418	90	781	48	919	330	87	138	555	60	465	217	742	2634
% App. Total	73	17.2	9.8		9.8	85	5.2		59.5	15.7	24.9		8.1	62.7	29.2		
PHF	.857	.783	.641	.823	.804	.860	.800	.857	.859	.750	.750	.867	.833	.802	.875	.843	.930
Cars	291	60	34	385	83	767	42	892	305	82	133	520	56	441	207	704	2501
% Cars	95.4	83.3	82.9	92.1	92.2	98.2	87.5	97.1	92.4	94.3	96.4	93.7	93.3	94.8	95.4	94.9	95.0
Trucks	14	12	7	33	7	14	6	27	25	5	5	35	4	24	10	38	133
% Trucks	4.6	16.7	17.1	7.9	7.8	1.8	12.5	2.9	7.6	5.7	3.6	6.3	6.7	5.2	4.6	5.1	5.0



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

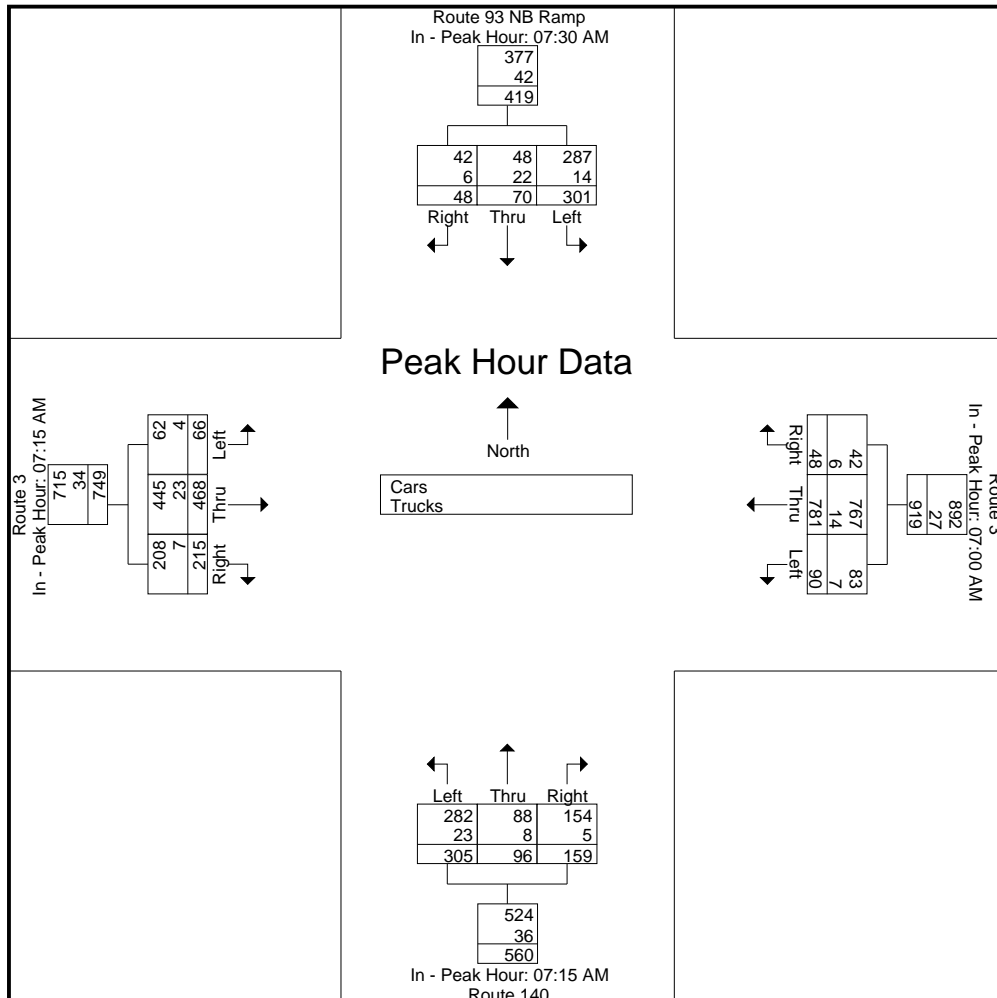
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 3

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:00 AM				07:15 AM				07:15 AM			
+0 mins.	89	15	13	117	11	177	12	200	96	23	29	148	18	97	45	160
+15 mins.	88	23	16	127	26	227	15	268	85	29	46	160	17	114	58	189
+30 mins.	68	11	7	86	25	209	8	242	71	19	44	134	13	145	62	220
+45 mins.	56	21	12	89	28	168	13	209	53	25	40	118	18	112	50	180
Total Volume	301	70	48	419	90	781	48	919	305	96	159	560	66	468	215	749
% App. Total	71.8	16.7	11.5		9.8	85	5.2		54.5	17.1	28.4		8.8	62.5	28.7	
PHF	.846	.761	.750	.825	.804	.860	.800	.857	.794	.828	.864	.875	.917	.807	.867	.851
Cars	287	48	42	377	83	767	42	892	282	88	154	524	62	445	208	715
% Cars	95.3	68.6	87.5	90	92.2	98.2	87.5	97.1	92.5	91.7	96.9	93.6	93.9	95.1	96.7	95.5
Trucks	14	22	6	42	7	14	6	27	23	8	5	36	4	23	7	34
% Trucks	4.7	31.4	12.5	10	7.8	1.8	12.5	2.9	7.5	8.3	3.1	6.4	6.1	4.9	3.3	4.5



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 4

Groups Printed- Cars

Start Time	Route 93 NB Ramp From North			Route 3 From East			Route 140 From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	21	7	4	12	92	14	49	9	20	4	51	30	313
06:15 AM	24	12	3	22	111	3	42	11	24	10	103	40	405
06:30 AM	51	11	5	16	141	9	53	8	33	11	105	69	512
06:45 AM	45	13	6	29	160	4	50	9	32	10	120	58	536
Total	141	43	18	79	504	30	194	37	109	35	379	197	1766
07:00 AM	62	17	4	10	171	12	66	14	18	12	105	48	539
07:15 AM	62	13	5	23	224	13	91	21	29	18	90	44	633
07:30 AM	84	12	11	25	206	8	80	29	45	15	107	56	678
07:45 AM	83	18	14	25	166	9	68	18	41	11	139	59	651
Total	291	60	34	83	767	42	305	82	133	56	441	207	2501
08:00 AM	66	8	7	13	133	10	43	20	39	18	109	49	515
08:15 AM	54	10	10	28	157	17	51	14	29	10	96	36	512
08:30 AM	60	9	6	19	146	10	52	9	33	12	125	48	529
08:45 AM	57	9	11	21	128	6	61	17	34	11	113	47	515
Total	237	36	34	81	564	43	207	60	135	51	443	180	2071
Grand Total	669	139	86	243	1835	115	706	179	377	142	1263	584	6338
Apprch %	74.8	15.5	9.6	11.1	83.7	5.2	55.9	14.2	29.9	7.1	63.5	29.4	
Total %	10.6	2.2	1.4	3.8	29	1.8	11.1	2.8	5.9	2.2	19.9	9.2	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

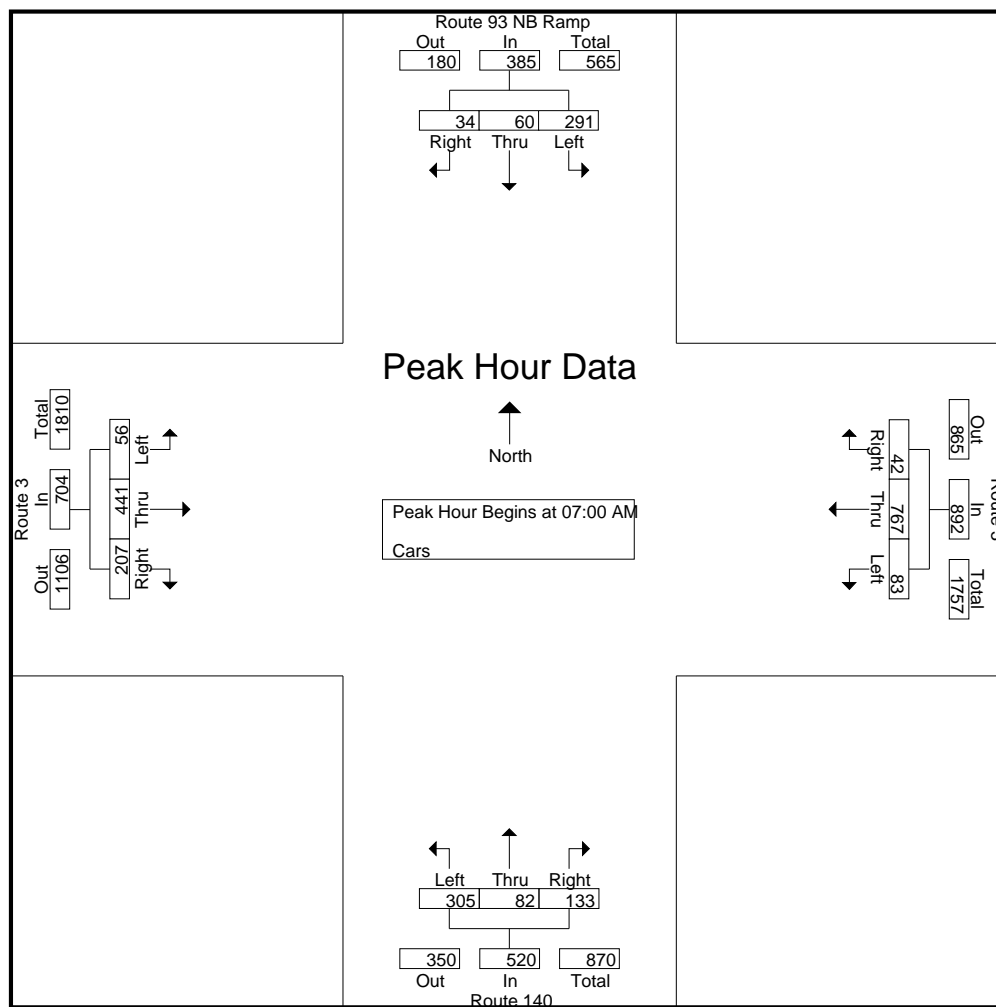
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 5

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	62	17	4	83	10	171	12	193	66	14	18	98	12	105	48	165	539
07:15 AM	62	13	5	80	23	224	13	260	91	21	29	141	18	90	44	152	633
07:30 AM	84	12	11	107	25	206	8	239	80	29	45	154	15	107	56	178	678
07:45 AM	83	18	14	115	25	166	9	200	68	18	41	127	11	139	59	209	651
Total Volume	291	60	34	385	83	767	42	892	305	82	133	520	56	441	207	704	2501
% App. Total	75.6	15.6	8.8		9.3	86	4.7		58.7	15.8	25.6		8	62.6	29.4		
PHF	.866	.833	.607	.837	.830	.856	.808	.858	.838	.707	.739	.844	.778	.793	.877	.842	.922



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

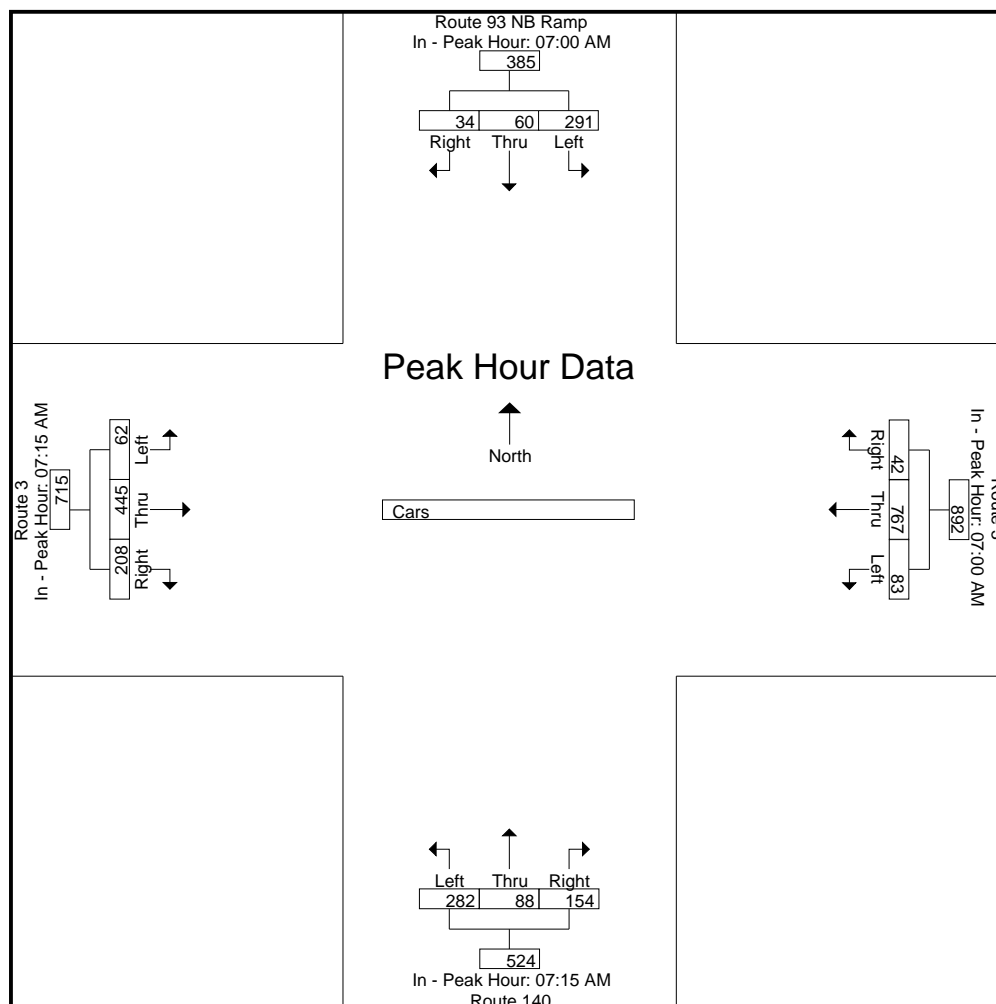
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 6

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:15 AM				07:15 AM			
+0 mins.	62	17	4	83	10	171	12	193	91	21	29	141	18	90	44	152
+15 mins.	62	13	5	80	23	224	13	260	80	29	45	154	15	107	56	178
+30 mins.	84	12	11	107	25	206	8	239	68	18	41	127	11	139	59	209
+45 mins.	83	18	14	115	25	166	9	200	43	20	39	102	18	109	49	176
Total Volume	291	60	34	385	83	767	42	892	282	88	154	524	62	445	208	715
% App. Total	75.6	15.6	8.8		9.3	86	4.7		53.8	16.8	29.4		8.7	62.2	29.1	
PHF	.866	.833	.607	.837	.830	.856	.808	.858	.775	.759	.856	.851	.861	.800	.881	.855



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 7

Groups Printed- Trucks

Start Time	Route 93 NB Ramp From North			Route 3 From East			Route 140 From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	0	1	1	0	1	0	0	0	2	0	5
06:15 AM	1	0	1	1	2	0	1	1	2	1	1	3	14
06:30 AM	0	1	2	4	2	1	10	2	1	0	3	2	28
06:45 AM	2	2	0	0	5	1	4	2	3	0	3	2	24
Total	3	3	3	6	10	2	16	5	6	1	9	7	71
07:00 AM	2	0	2	1	6	0	12	2	1	0	4	4	34
07:15 AM	2	4	1	3	3	2	5	2	0	0	7	1	30
07:30 AM	5	3	2	0	3	0	5	0	1	2	7	2	30
07:45 AM	5	5	2	3	2	4	3	1	3	2	6	3	39
Total	14	12	7	7	14	6	25	5	5	4	24	10	133
08:00 AM	2	3	0	0	5	3	10	5	1	0	3	1	33
08:15 AM	2	11	2	3	4	2	4	1	1	2	4	0	36
08:30 AM	6	0	1	2	7	0	9	2	1	0	2	1	31
08:45 AM	3	6	1	0	4	2	4	1	0	1	1	3	26
Total	13	20	4	5	20	7	27	9	3	3	10	5	126
Grand Total	30	35	14	18	44	15	68	19	14	8	43	22	330
Apprch %	38	44.3	17.7	23.4	57.1	19.5	67.3	18.8	13.9	11	58.9	30.1	
Total %	9.1	10.6	4.2	5.5	13.3	4.5	20.6	5.8	4.2	2.4	13	6.7	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

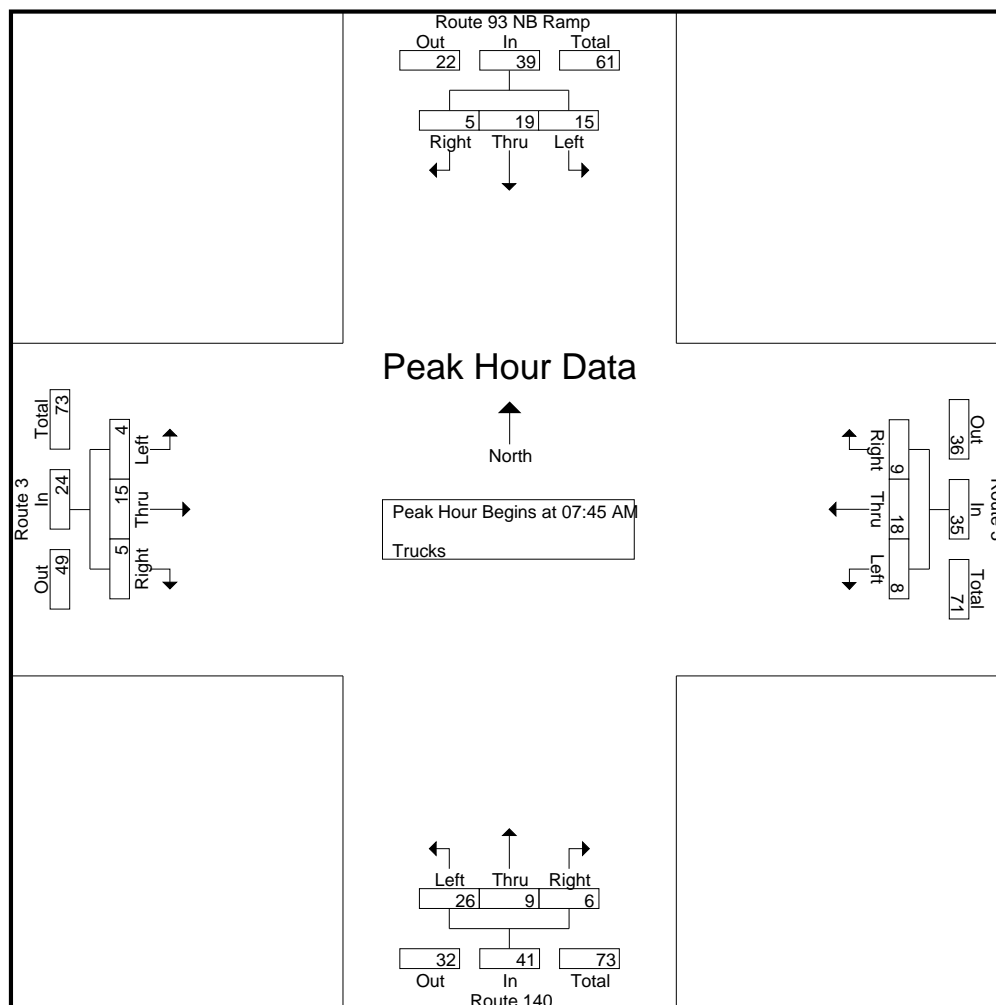
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 8

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	5	5	2	12	3	2	4	9	3	1	3	7	2	6	3	11	39
08:00 AM	2	3	0	5	0	5	3	8	10	5	1	16	0	3	1	4	33
08:15 AM	2	11	2	15	3	4	2	9	4	1	1	6	2	4	0	6	36
08:30 AM	6	0	1	7	2	7	0	9	9	2	1	12	0	2	1	3	31
Total Volume	15	19	5	39	8	18	9	35	26	9	6	41	4	15	5	24	139
% App. Total	38.5	48.7	12.8		22.9	51.4	25.7		63.4	22	14.6		16.7	62.5	20.8		
PHF	.625	.432	.625	.650	.667	.643	.563	.972	.650	.450	.500	.641	.500	.625	.417	.545	.891



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

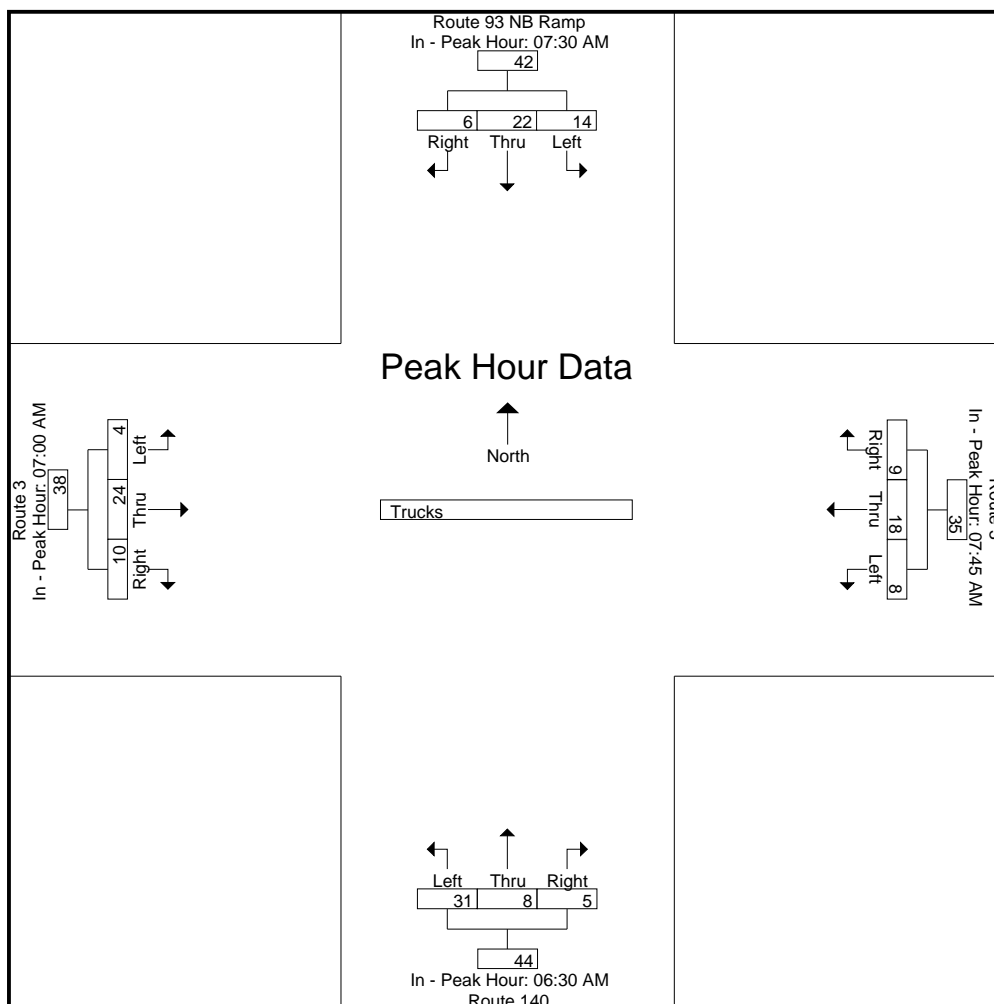
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 9

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM				07:45 AM				06:30 AM				07:00 AM			
+0 mins.	5	3	2	10	3	2	4	9	10	2	1	13	0	4	4	8
+15 mins.	5	5	2	12	0	5	3	8	4	2	3	9	0	7	1	8
+30 mins.	2	3	0	5	3	4	2	9	12	2	1	15	2	7	2	11
+45 mins.	2	11	2	15	2	7	0	9	5	2	0	7	2	6	3	11
Total Volume	14	22	6	42	8	18	9	35	31	8	5	44	4	24	10	38
% App. Total	33.3	52.4	14.3		22.9	51.4	25.7		70.5	18.2	11.4		10.5	63.2	26.3	
PHF	.700	.500	.750	.700	.667	.643	.563	.972	.646	1.000	.417	.733	.500	.857	.625	.864



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Grand Total	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	2
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

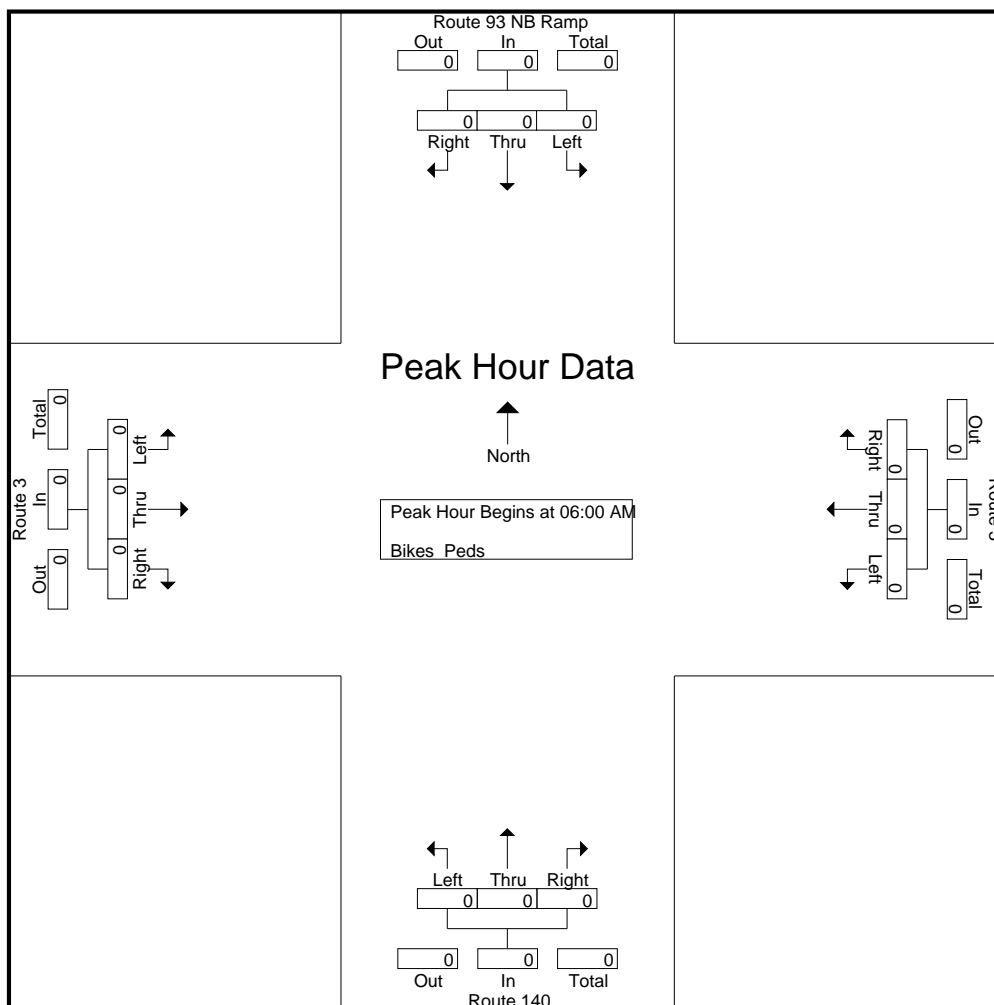
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 11

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

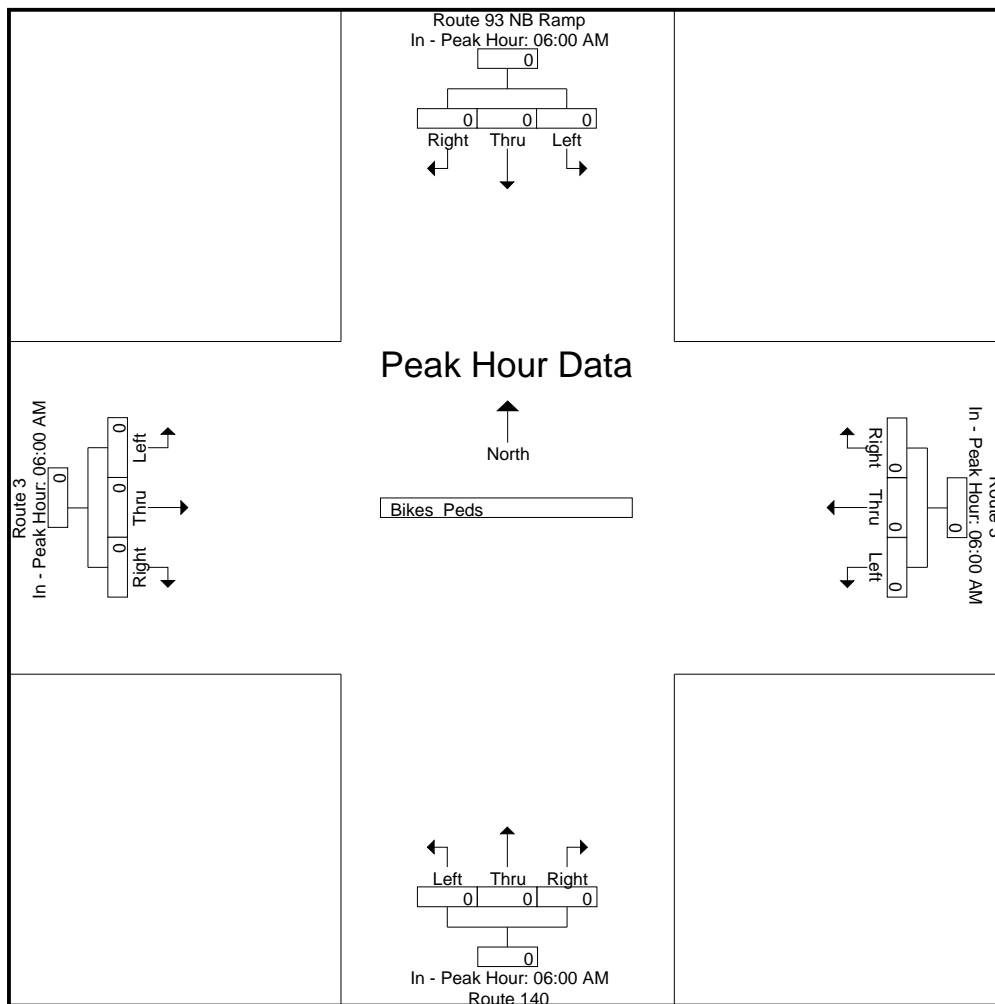
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 12

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM				06:00 AM				06:00 AM				06:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 93 NB Ramp From North			Route 3 From East			Route 140 From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	71	14	21	32	192	17	58	13	29	39	160	80	726
03:15 PM	82	22	17	41	187	25	68	21	35	28	153	86	765
03:30 PM	76	12	16	42	216	34	91	24	45	46	163	82	847
03:45 PM	87	22	24	38	240	33	64	15	42	39	181	75	860
Total	316	70	78	153	835	109	281	73	151	152	657	323	3198
04:00 PM	89	14	15	38	212	32	77	25	36	43	140	84	805
04:15 PM	95	17	24	40	203	28	74	17	50	40	170	75	833
04:30 PM	114	21	33	46	224	32	78	20	35	36	170	74	883
04:45 PM	88	20	28	46	191	26	56	14	45	45	169	84	812
Total	386	72	100	170	830	118	285	76	166	164	649	317	3333
05:00 PM	118	20	16	41	186	18	74	28	58	46	138	87	830
05:15 PM	115	32	27	43	224	41	66	13	44	27	169	92	893
05:30 PM	136	27	27	44	193	30	65	11	29	41	129	82	814
05:45 PM	72	25	20	30	173	36	67	16	40	33	139	86	737
Total	441	104	90	158	776	125	272	68	171	147	575	347	3274
Grand Total	1143	246	268	481	2441	352	838	217	488	463	1881	987	9805
Apprch %	69	14.8	16.2	14.7	74.6	10.8	54.3	14.1	31.6	13.9	56.5	29.6	
Total %	11.7	2.5	2.7	4.9	24.9	3.6	8.5	2.2	5	4.7	19.2	10.1	
Cars	1117	222	264	475	2392	337	813	208	482	458	1868	954	9590
% Cars	97.7	90.2	98.5	98.8	98	95.7	97	95.9	98.8	98.9	99.3	96.7	97.8
Trucks	26	24	4	6	49	15	25	9	6	5	13	33	215
% Trucks	2.3	9.8	1.5	1.2	2	4.3	3	4.1	1.2	1.1	0.7	3.3	2.2

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

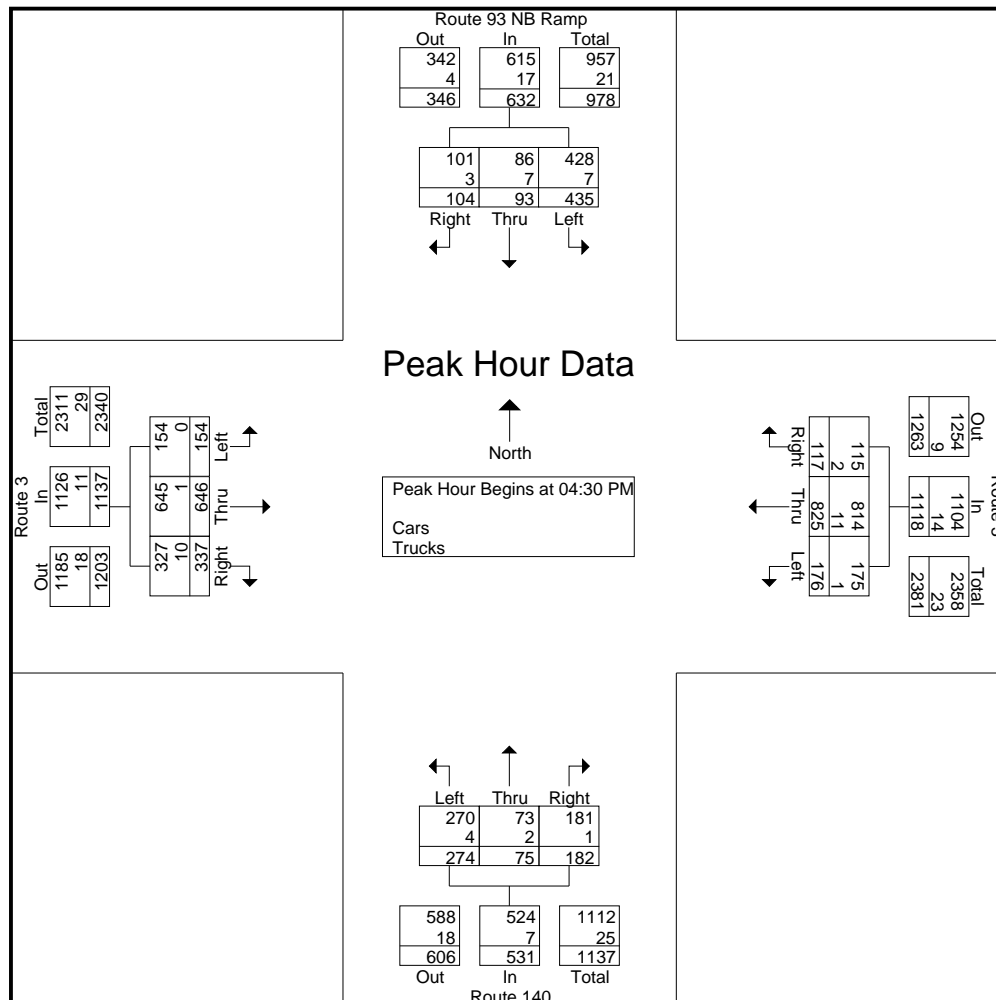
Page No : 2

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

04:30 PM	114	21	33	168	46	224	32	302	78	20	35	133	36	170	74	280	883
04:45 PM	88	20	28	136	46	191	26	263	56	14	45	115	45	169	84	298	812
05:00 PM	118	20	16	154	41	186	18	245	74	28	58	160	46	138	87	271	830
05:15 PM	115	32	27	174	43	224	41	308	66	13	44	123	27	169	92	288	893
Total Volume	435	93	104	632	176	825	117	1118	274	75	182	531	154	646	337	1137	3418
% App. Total	68.8	14.7	16.5		15.7	73.8	10.5		51.6	14.1	34.3		13.5	56.8	29.6		
PHF	.922	.727	.788	.908	.957	.921	.713	.907	.878	.670	.784	.830	.837	.950	.916	.954	.957
Cars	428	86	101	615	175	814	115	1104	270	73	181	524	154	645	327	1126	3369
% Cars	98.4	92.5	97.1	97.3	99.4	98.7	98.3	98.7	98.5	97.3	99.5	98.7	100	99.8	97.0	99.0	98.6
Trucks	7	7	3	17	1	11	2	14	4	2	1	7	0	1	10	11	49
% Trucks	1.6	7.5	2.9	2.7	0.6	1.3	1.7	1.3	1.5	2.7	0.5	1.3	0	0.2	3.0	1.0	1.4



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

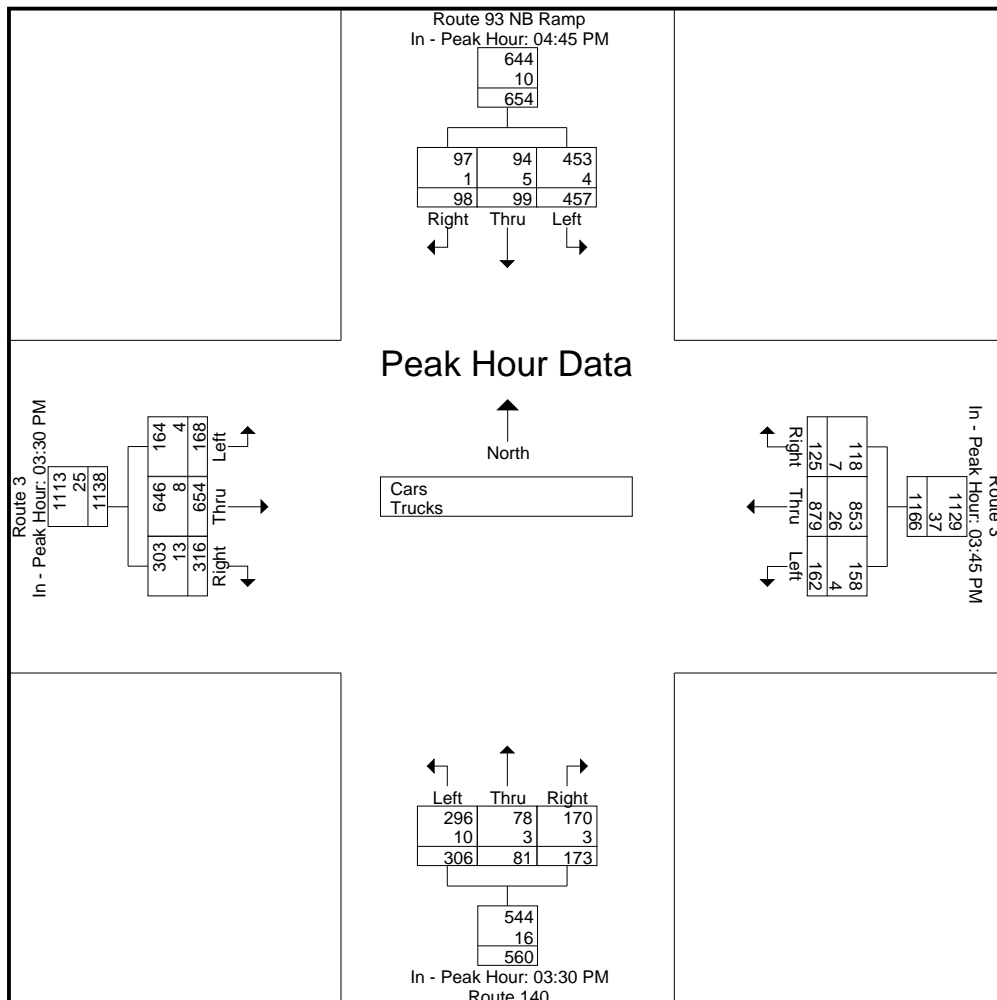
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 3

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM				03:45 PM				03:30 PM				03:30 PM			
+0 mins.	88	20	28	136	38	240	33	311	91	24	45	160	46	163	82	291
+15 mins.	118	20	16	154	38	212	32	282	64	15	42	121	39	181	75	295
+30 mins.	115	32	27	174	40	203	28	271	77	25	36	138	43	140	84	267
+45 mins.	136	27	27	190	46	224	32	302	74	17	50	141	40	170	75	285
Total Volume	457	99	98	654	162	879	125	1166	306	81	173	560	168	654	316	1138
% App. Total	69.9	15.1	15		13.9	75.4	10.7		54.6	14.5	30.9		14.8	57.5	27.8	
PHF	.840	.773	.875	.861	.880	.916	.947	.937	.841	.810	.865	.875	.913	.903	.940	.964
Cars	453	94	97	644	158	853	118	1129	296	78	170	544	164	646	303	1113
% Cars	99.1	94.9	99	98.5	97.5	97	94.4	96.8	96.7	96.3	98.3	97.1	97.6	98.8	95.9	97.8
Trucks	4	5	1	10	4	26	7	37	10	3	3	16	4	8	13	25
% Trucks	0.9	5.1	1	1.5	2.5	3	5.6	3.2	3.3	3.7	1.7	2.9	2.4	1.2	4.1	2.2



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 4

Groups Printed- Cars

Start Time	Route 93 NB Ramp From North			Route 3 From East			Route 140 From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	70	11	20	31	190	16	54	11	28	38	158	75	702
03:15 PM	81	17	17	41	185	23	62	19	35	28	151	84	743
03:30 PM	70	11	16	42	212	31	90	23	44	46	160	78	823
03:45 PM	85	19	24	37	231	31	60	13	42	37	179	75	833
Total	306	58	77	151	818	101	266	66	149	149	648	312	3101
04:00 PM	87	13	15	38	207	31	75	25	35	41	138	80	785
04:15 PM	91	15	24	38	197	26	71	17	49	40	169	70	807
04:30 PM	110	18	31	45	218	30	76	19	35	36	170	72	860
04:45 PM	85	19	27	46	190	26	55	14	45	45	169	80	801
Total	373	65	97	167	812	113	277	75	164	162	646	302	3253
05:00 PM	118	20	16	41	185	18	74	27	58	46	138	85	826
05:15 PM	115	29	27	43	221	41	65	13	43	27	168	90	882
05:30 PM	135	26	27	43	187	28	65	11	29	41	129	81	802
05:45 PM	70	24	20	30	169	36	66	16	39	33	139	84	726
Total	438	99	90	157	762	123	270	67	169	147	574	340	3236
Grand Total	1117	222	264	475	2392	337	813	208	482	458	1868	954	9590
Apprch %	69.7	13.8	16.5	14.8	74.7	10.5	54.1	13.8	32.1	14	57	29.1	
Total %	11.6	2.3	2.8	5	24.9	3.5	8.5	2.2	5	4.8	19.5	9.9	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

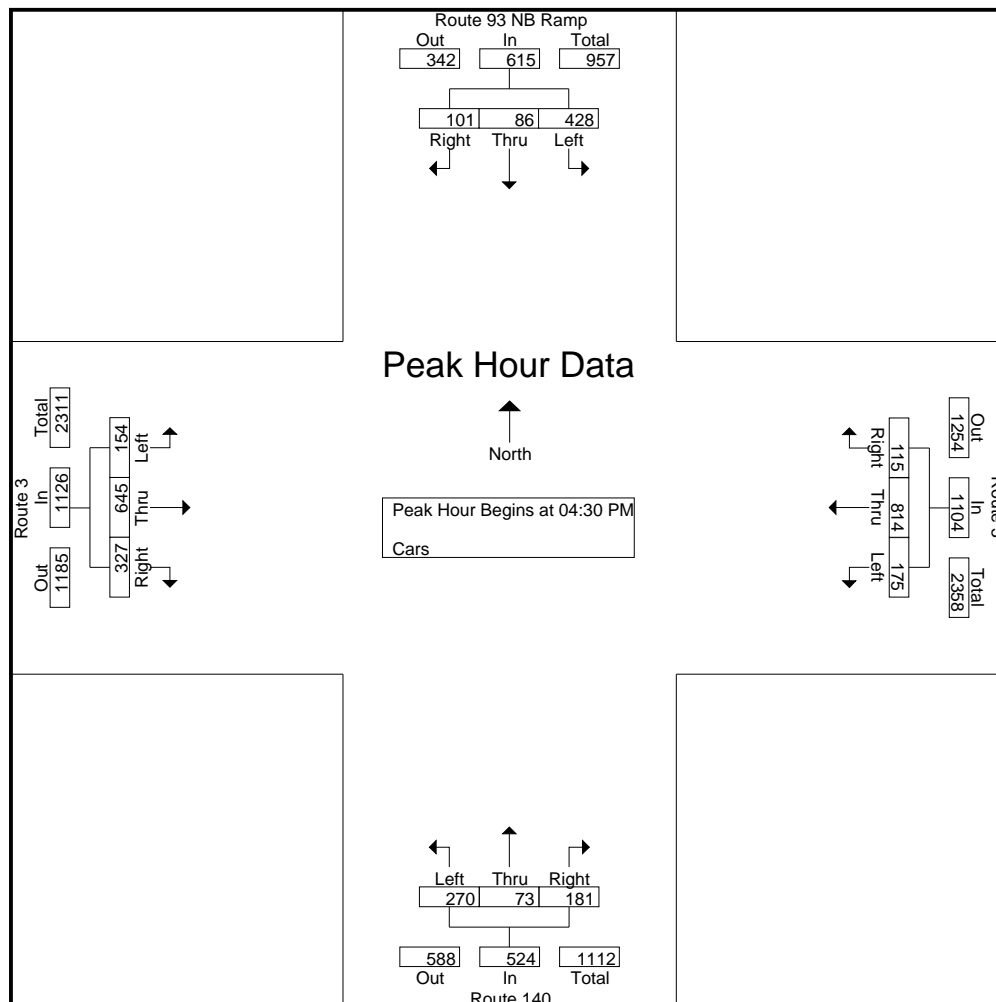
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 5

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	110	18	31	159	45	218	30	293	76	19	35	130	36	170	72	278	860
04:45 PM	85	19	27	131	46	190	26	262	55	14	45	114	45	169	80	294	801
05:00 PM	118	20	16	154	41	185	18	244	74	27	58	159	46	138	85	269	826
05:15 PM	115	29	27	171	43	221	41	305	65	13	43	121	27	168	90	285	882
Total Volume	428	86	101	615	175	814	115	1104	270	73	181	524	154	645	327	1126	3369
% App. Total	69.6	14	16.4		15.9	73.7	10.4		51.5	13.9	34.5		13.7	57.3	29		
PHF	.907	.741	.815	.899	.951	.921	.701	.905	.888	.676	.780	.824	.837	.949	.908	.957	.955



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

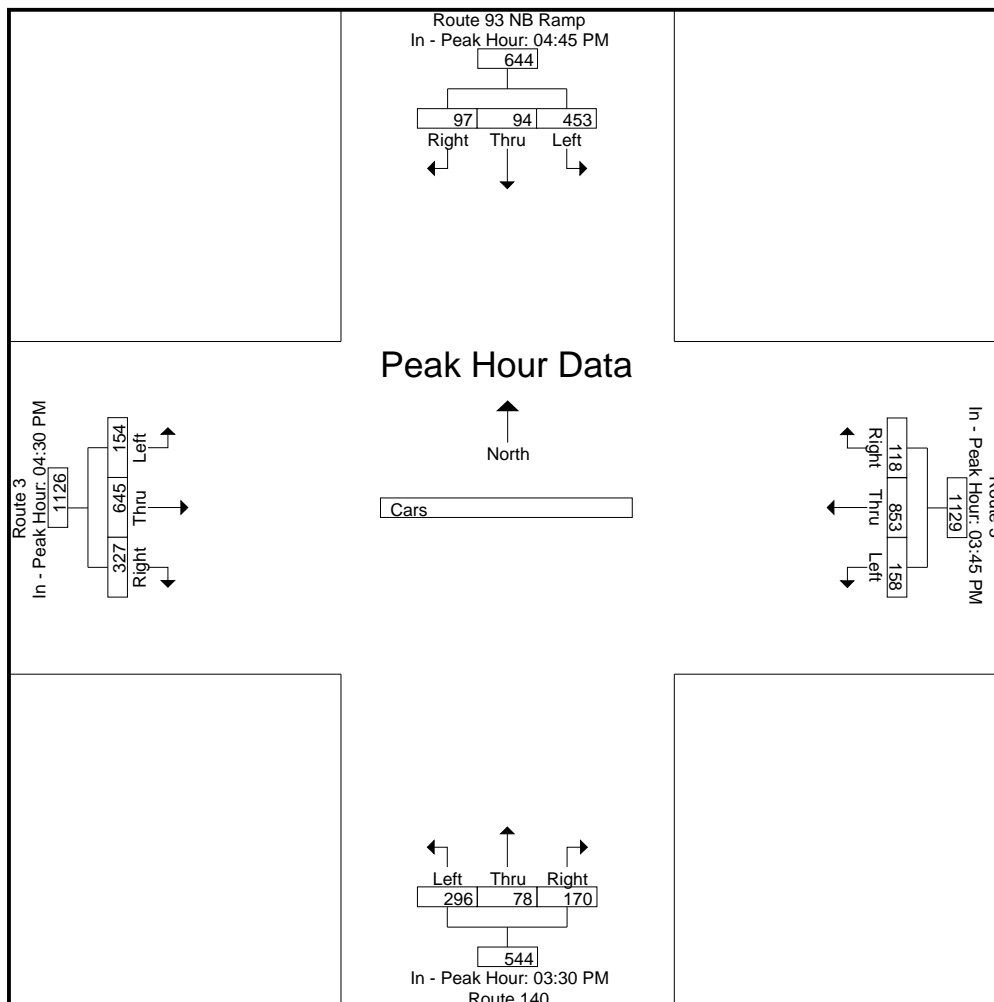
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 6

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM				03:45 PM				03:30 PM				04:30 PM			
+0 mins.	85	19	27	131	37	231	31	299	90	23	44	157	36	170	72	278
+15 mins.	118	20	16	154	38	207	31	276	60	13	42	115	45	169	80	294
+30 mins.	115	29	27	171	38	197	26	261	75	25	35	135	46	138	85	269
+45 mins.	135	26	27	188	45	218	30	293	71	17	49	137	27	168	90	285
Total Volume	453	94	97	644	158	853	118	1129	296	78	170	544	154	645	327	1126
% App. Total	70.3	14.6	15.1		14	75.6	10.5		54.4	14.3	31.2		13.7	57.3	29	
PHF	.839	.810	.898	.856	.878	.923	.952	.944	.822	.780	.867	.866	.837	.949	.908	.957



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 7

Groups Printed- Trucks

Start Time	Route 93 NB Ramp From North			Route 3 From East			Route 140 From South			Route 3 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	1	3	1	1	2	1	4	2	1	1	2	5	24
03:15 PM	1	5	0	0	2	2	6	2	0	0	2	2	22
03:30 PM	6	1	0	0	4	3	1	1	1	0	3	4	24
03:45 PM	2	3	0	1	9	2	4	2	0	2	2	0	27
Total	10	12	1	2	17	8	15	7	2	3	9	11	97
04:00 PM	2	1	0	0	5	1	2	0	1	2	2	4	20
04:15 PM	4	2	0	2	6	2	3	0	1	0	1	5	26
04:30 PM	4	3	2	1	6	2	2	1	0	0	0	2	23
04:45 PM	3	1	1	0	1	0	1	0	0	0	0	4	11
Total	13	7	3	3	18	5	8	1	2	2	3	15	80
05:00 PM	0	0	0	0	1	0	0	1	0	0	0	2	4
05:15 PM	0	3	0	0	3	0	1	0	1	0	1	2	11
05:30 PM	1	1	0	1	6	2	0	0	0	0	0	1	12
05:45 PM	2	1	0	0	4	0	1	0	1	0	0	2	11
Total	3	5	0	1	14	2	2	1	2	0	1	7	38
Grand Total	26	24	4	6	49	15	25	9	6	5	13	33	215
Apprch %	48.1	44.4	7.4	8.6	70	21.4	62.5	22.5	15	9.8	25.5	64.7	
Total %	12.1	11.2	1.9	2.8	22.8	7	11.6	4.2	2.8	2.3	6	15.3	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

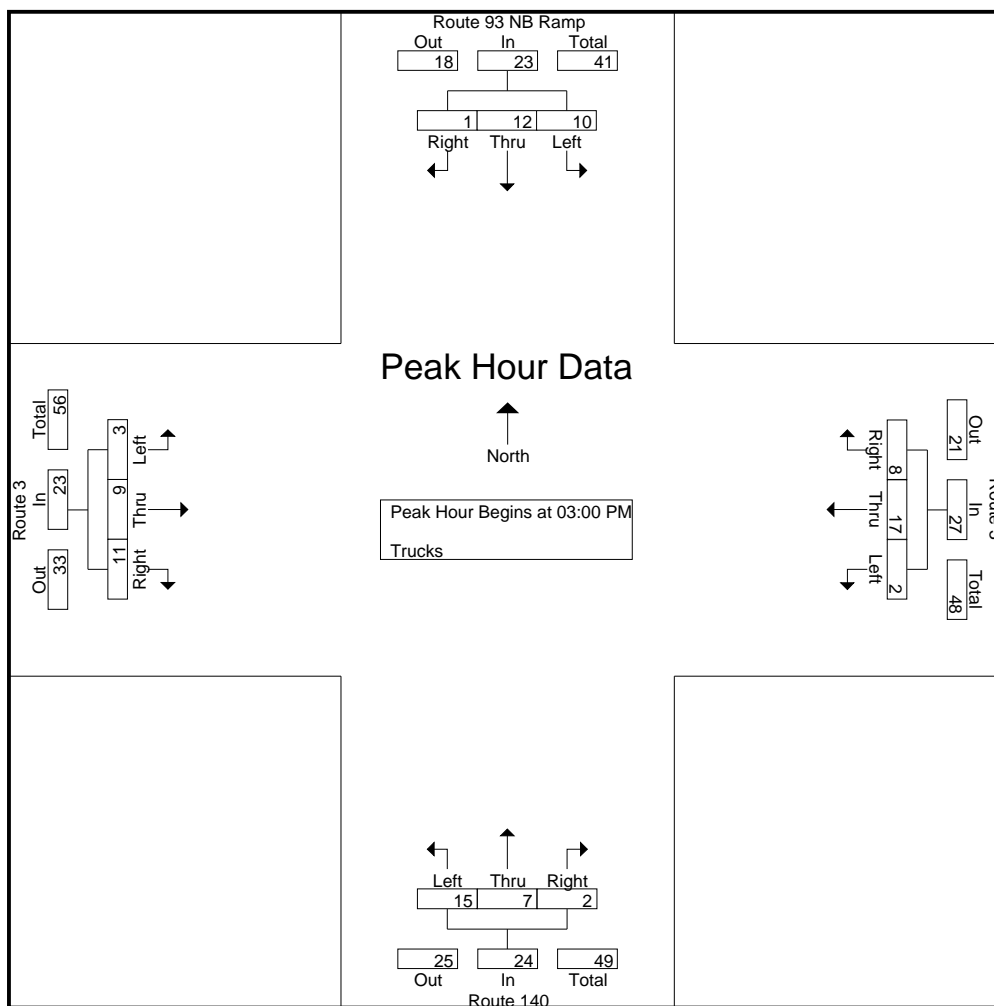
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 8

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	1	3	1	5	1	2	1	4	4	2	1	7	1	2	5	8	24
03:15 PM	1	5	0	6	0	2	2	4	6	2	0	8	0	2	2	4	22
03:30 PM	6	1	0	7	0	4	3	7	1	1	1	3	0	3	4	7	24
03:45 PM	2	3	0	5	1	9	2	12	4	2	0	6	2	2	0	4	27
Total Volume	10	12	1	23	2	17	8	27	15	7	2	24	3	9	11	23	97
% App. Total	43.5	52.2	4.3		7.4	63	29.6		62.5	29.2	8.3		13	39.1	47.8		
PHF	.417	.600	.250	.821	.500	.472	.667	.563	.625	.875	.500	.750	.375	.750	.550	.719	.898



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

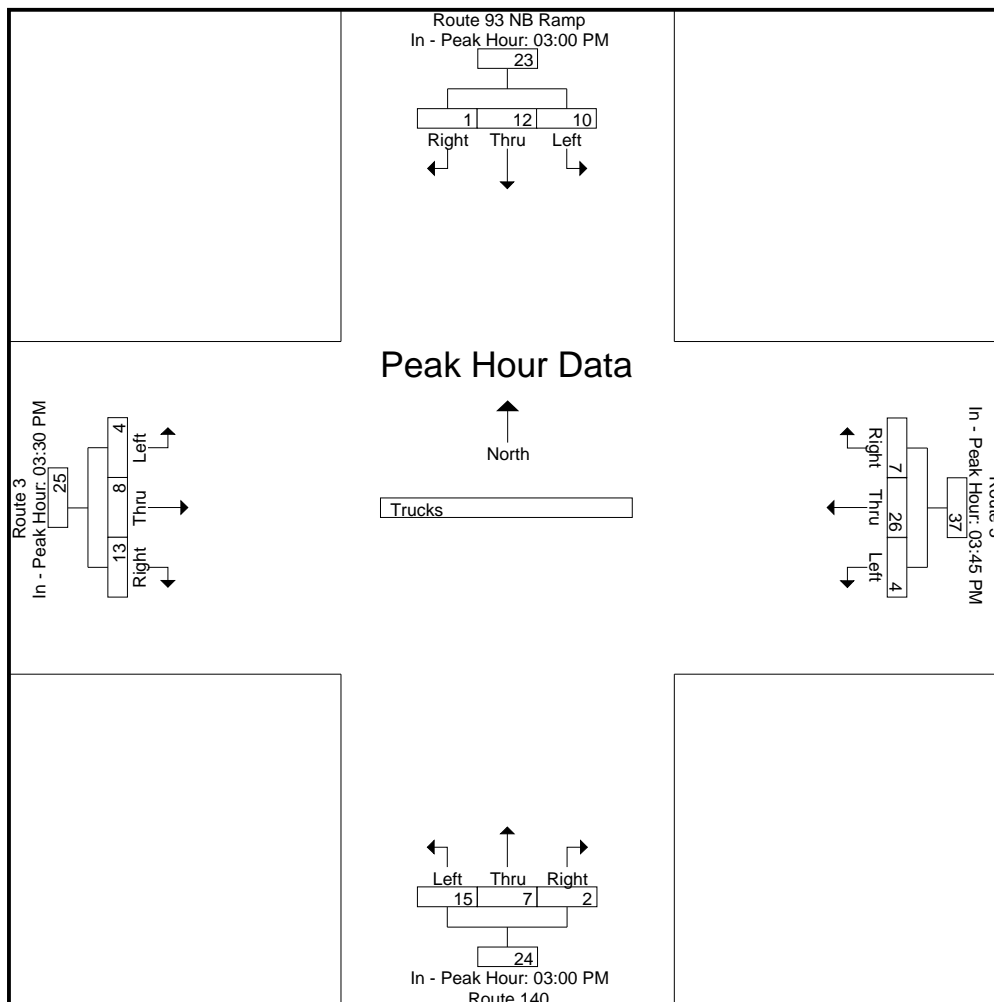
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 9

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:45 PM				03:00 PM				03:30 PM			
+0 mins.	1	3	1	5	1	9	2	12	4	2	1	7	0	3	4	7
+15 mins.	1	5	0	6	0	5	1	6	6	2	0	8	2	2	0	4
+30 mins.	6	1	0	7	2	6	2	10	1	1	1	3	2	2	4	8
+45 mins.	2	3	0	5	1	6	2	9	4	2	0	6	0	1	5	6
Total Volume	10	12	1	23	4	26	7	37	15	7	2	24	4	8	13	25
% App. Total	43.5	52.2	4.3		10.8	70.3	18.9		62.5	29.2	8.3		16	32	52	
PHF	.417	.600	.250	.821	.500	.722	.875	.771	.625	.875	.500	.750	.500	.667	.650	.781



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	0	0	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140

E/W Street: Route 3

City/State : Northfield, NH

Weather : Cloudy

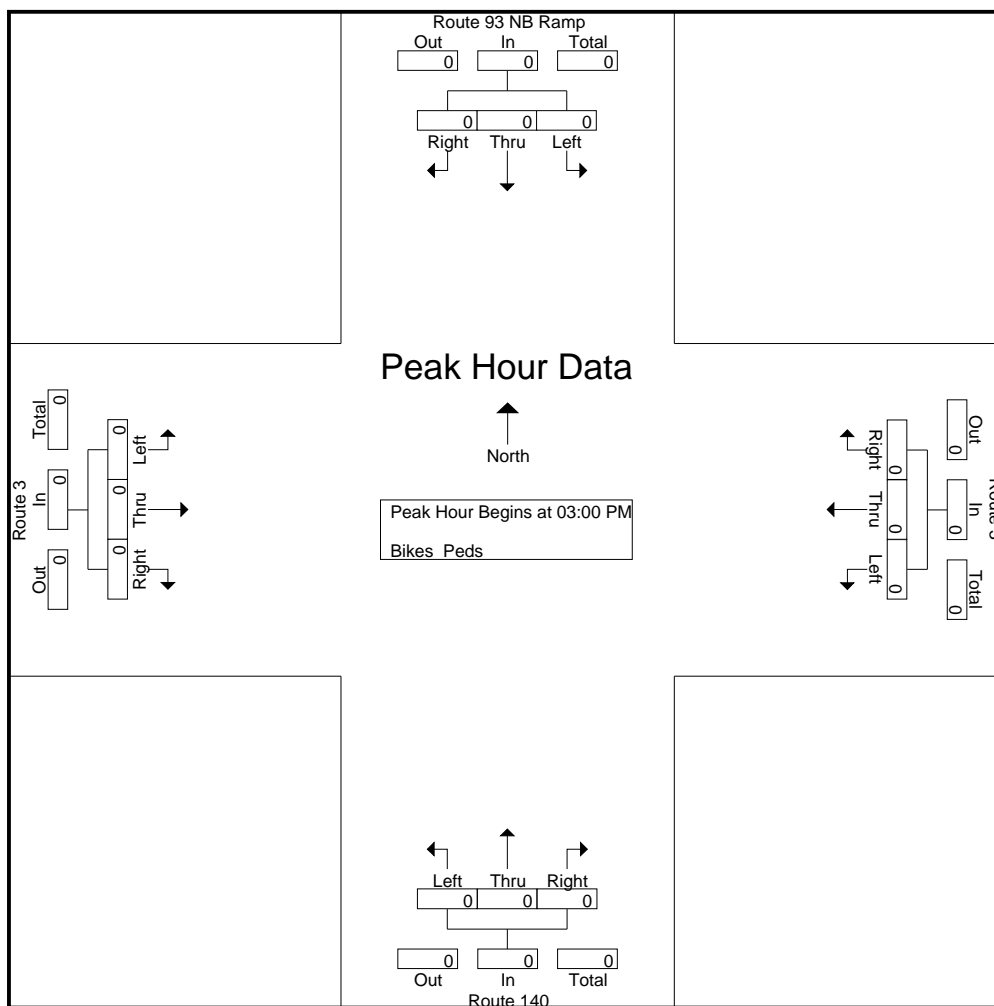
File Name : 524550R2

Site Code : 52455002

Start Date : 5/2/2017

Page No : 11

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB / Route 140
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Cloudy

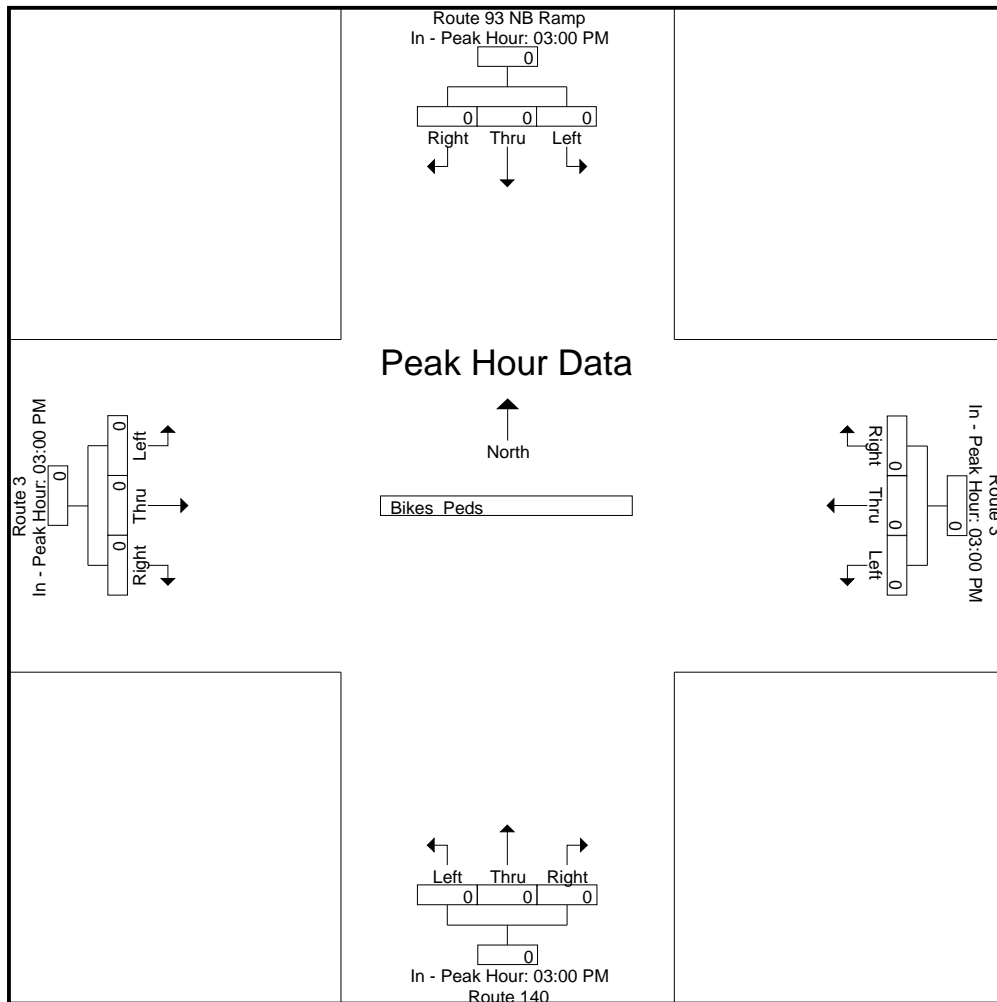
File Name : 524550R2
 Site Code : 52455002
 Start Date : 5/2/2017
 Page No : 12

Start Time	Route 93 NB Ramp From North				Route 3 From East				Route 140 From South				Route 3 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 93 SB Ramp From North		Route 3 From East		Route 3 From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
06:00 AM	18	9	63	66	1	77	234
06:15 AM	30	20	67	89	5	101	312
06:30 AM	57	19	104	116	6	123	425
06:45 AM	56	19	139	88	5	119	426
Total	161	67	373	359	17	420	1397
07:00 AM	39	33	117	163	7	128	487
07:15 AM	47	30	143	167	8	141	536
07:30 AM	54	28	155	156	13	179	585
07:45 AM	46	39	141	111	8	124	469
Total	186	130	556	597	36	572	2077
08:00 AM	39	27	128	97	7	122	420
08:15 AM	41	20	140	119	6	123	449
08:30 AM	42	24	148	83	5	137	439
08:45 AM	34	31	146	63	11	142	427
Total	156	102	562	362	29	524	1735
Grand Total	503	299	1491	1318	82	1516	5209
Apprch %	62.7	37.3	53.1	46.9	5.1	94.9	
Total %	9.7	5.7	28.6	25.3	1.6	29.1	
Cars	479	288	1434	1247	68	1466	4982
% Cars	95.2	96.3	96.2	94.6	82.9	96.7	95.6
Trucks	24	11	57	71	14	50	227
% Trucks	4.8	3.7	3.8	5.4	17.1	3.3	4.4

Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

Weather : Clear

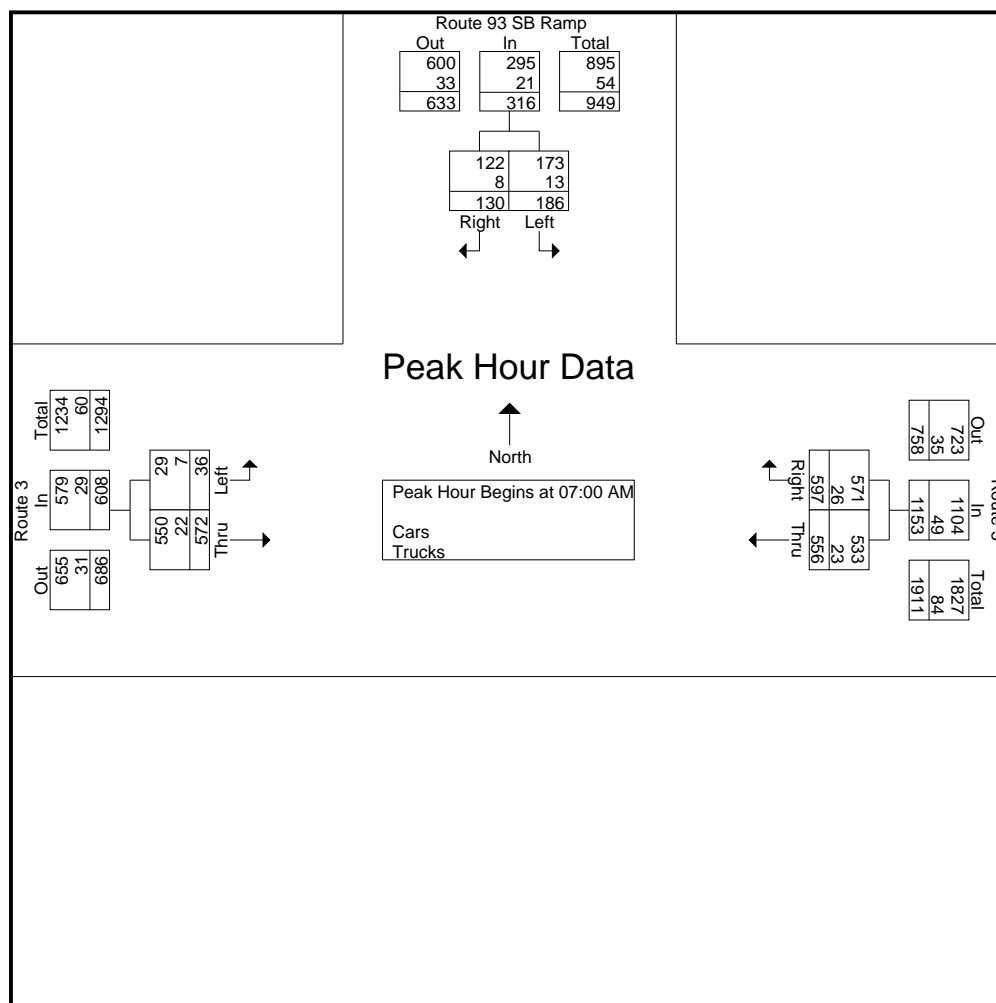
File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 2

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	39	33	72	117	163	280	7	128	135	487
07:15 AM	47	30	77	143	167	310	8	141	149	536
07:30 AM	54	28	82	155	156	311	13	179	192	585
07:45 AM	46	39	85	141	111	252	8	124	132	469
Total Volume	186	130	316	556	597	1153	36	572	608	2077
% App. Total	58.9	41.1		48.2	51.8		5.9	94.1		
PHF	.861	.833	.929	.897	.894	.927	.692	.799	.792	.888
Cars	173	122	295	533	571	1104	29	550	579	1978
% Cars	93.0	93.8	93.4	95.9	95.6	95.8	80.6	96.2	95.2	95.2
Trucks	13	8	21	23	26	49	7	22	29	99
% Trucks	7.0	6.2	6.6	4.1	4.4	4.2	19.4	3.8	4.8	4.8



Accurate Counts

978-664-2565

File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 3

N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

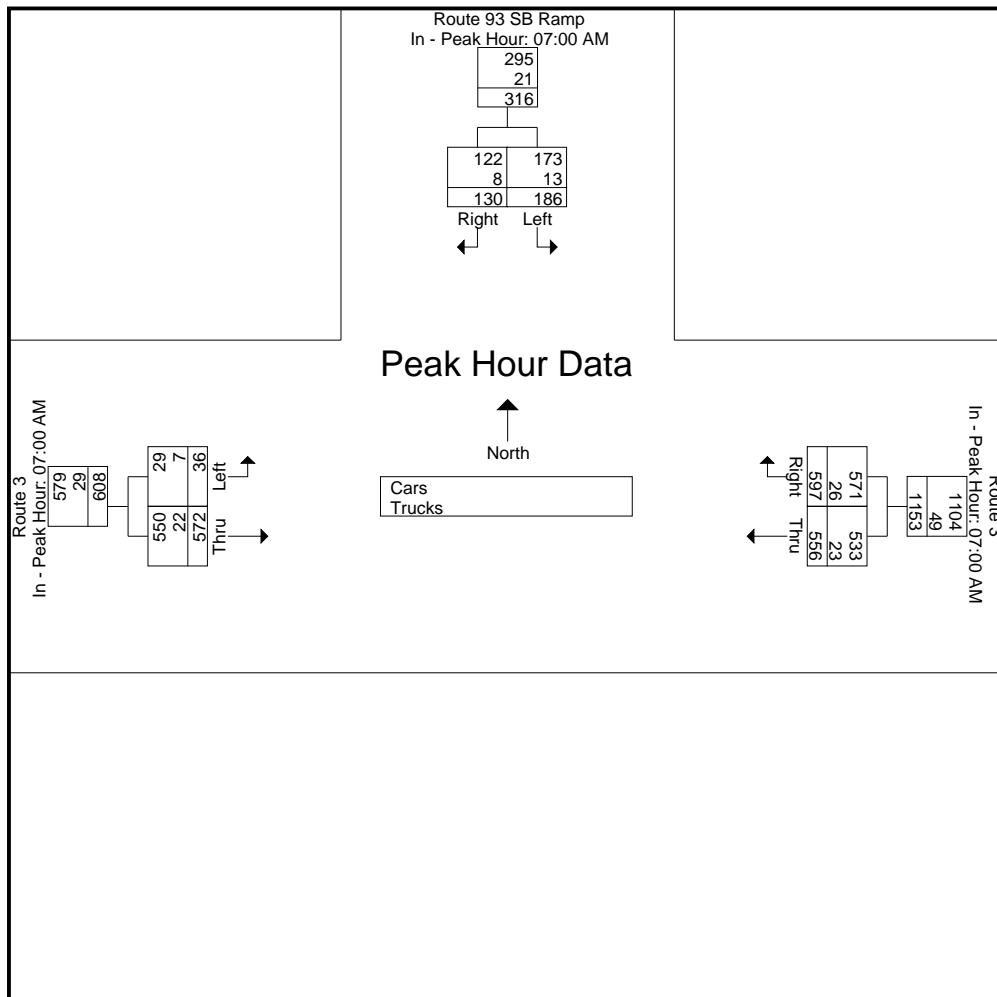
Weather : Clear

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	39	33	72	117	163	280	7	128	135
+15 mins.	47	30	77	143	167	310	8	141	149
+30 mins.	54	28	82	155	156	311	13	179	192
+45 mins.	46	39	85	141	111	252	8	124	132
Total Volume	186	130	316	556	597	1153	36	572	608
% App. Total	58.9	41.1		48.2	51.8		5.9	94.1	
PHF	.861	.833	.929	.897	.894	.927	.692	.799	.792
Cars	173	122	295	533	571	1104	29	550	579
% Cars	93	93.8	93.4	95.9	95.6	95.8	80.6	96.2	95.2
Trucks	13	8	21	23	26	49	7	22	29
% Trucks	7	6.2	6.6	4.1	4.4	4.2	19.4	3.8	4.8



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 4

Groups Printed- Cars

Start Time	Route 93 SB Ramp From North		Route 3 From East		Route 3 From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
06:00 AM	18	9	58	63	1	71	220
06:15 AM	30	20	63	86	3	100	302
06:30 AM	55	19	102	112	5	117	410
06:45 AM	54	19	135	85	4	118	415
Total	157	67	358	346	13	406	1347
07:00 AM	36	32	105	158	6	126	463
07:15 AM	44	30	139	162	6	136	517
07:30 AM	51	23	151	149	10	168	552
07:45 AM	42	37	138	102	7	120	446
Total	173	122	533	571	29	550	1978
08:00 AM	38	26	124	90	6	120	404
08:15 AM	37	19	136	109	5	121	427
08:30 AM	41	24	139	75	5	133	417
08:45 AM	33	30	144	56	10	136	409
Total	149	99	543	330	26	510	1657
Grand Total	479	288	1434	1247	68	1466	4982
Apprch %	62.5	37.5	53.5	46.5	4.4	95.6	
Total %	9.6	5.8	28.8	25	1.4	29.4	

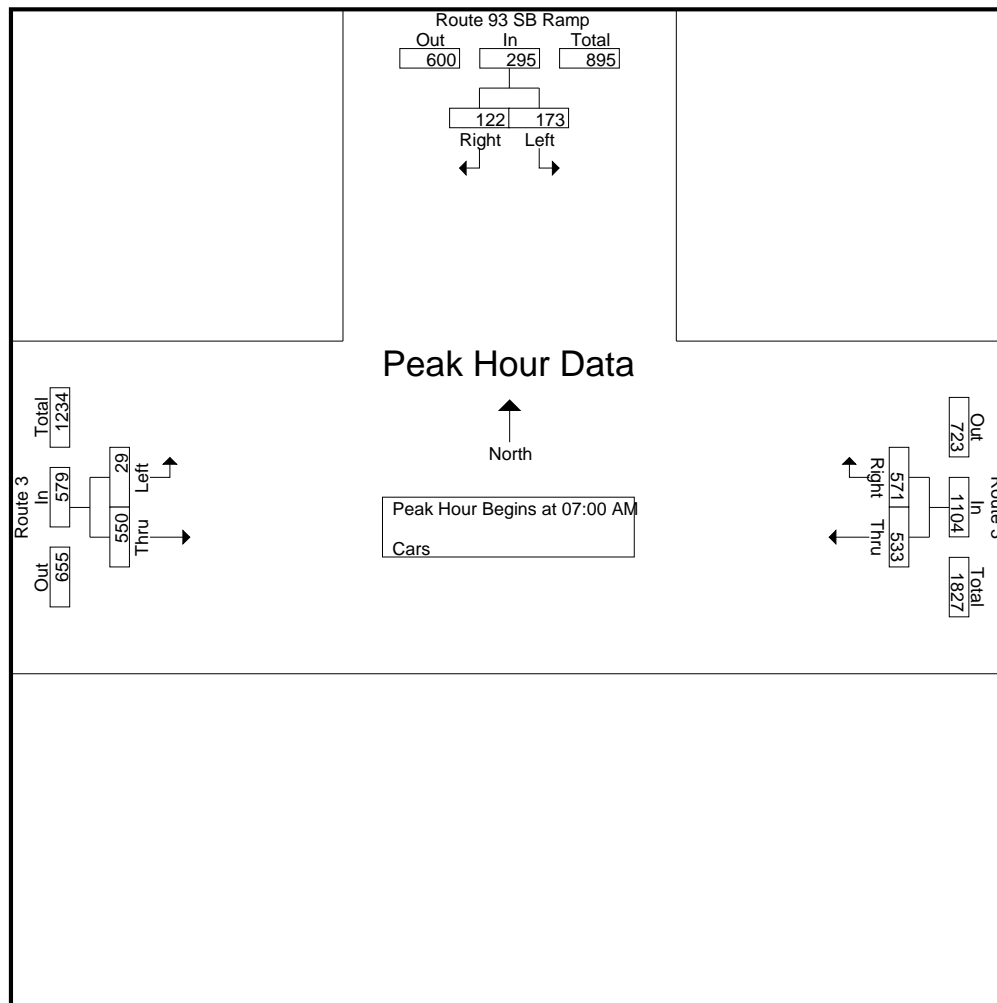
Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 5

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	36	32	68	105	158	263	6	126	132	463
07:15 AM	44	30	74	139	162	301	6	136	142	517
07:30 AM	51	23	74	151	149	300	10	168	178	552
07:45 AM	42	37	79	138	102	240	7	120	127	446
Total Volume	173	122	295	533	571	1104	29	550	579	1978
% App. Total	58.6	41.4		48.3	51.7		5	95		
PHF	.848	.824	.934	.882	.881	.917	.725	.818	.813	.896



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

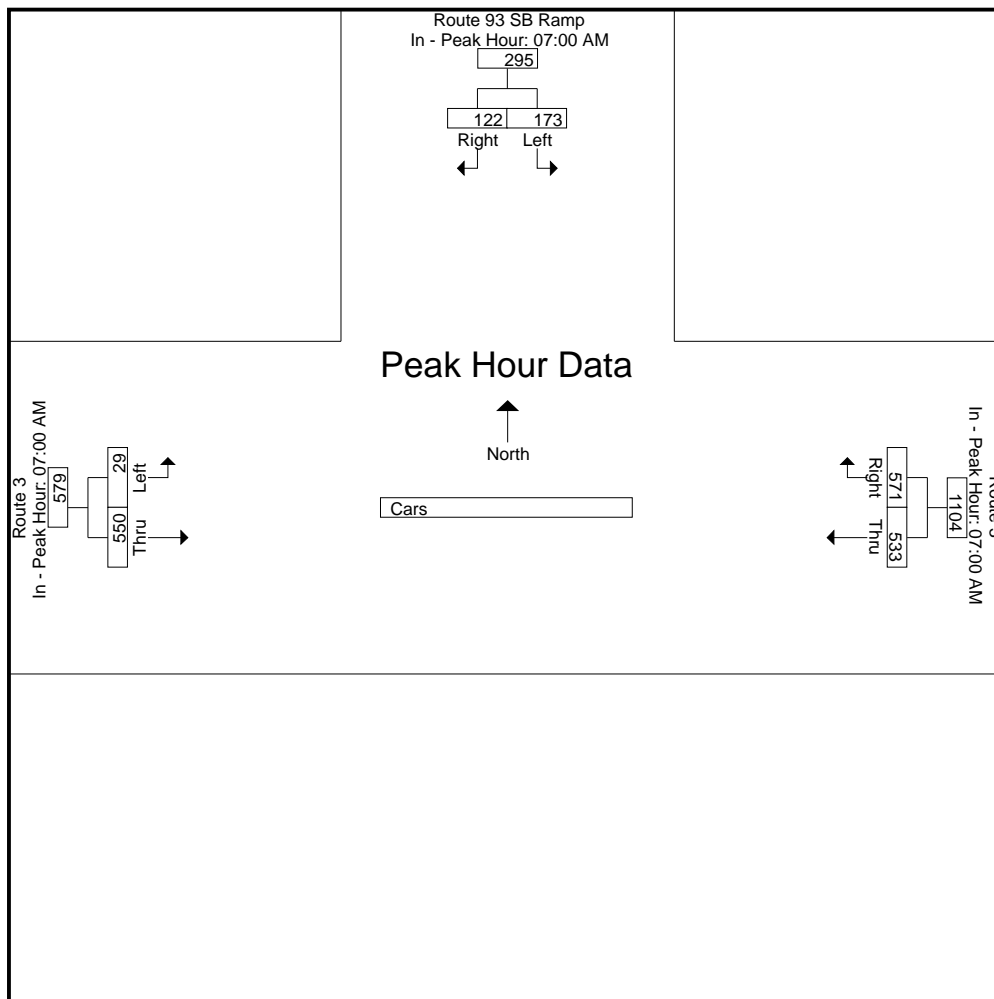
File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 6

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	36	32	68	105	158	263	6	126	132
+15 mins.	44	30	74	139	162	301	6	136	142
+30 mins.	51	23	74	151	149	300	10	168	178
+45 mins.	42	37	79	138	102	240	7	120	127
Total Volume	173	122	295	533	571	1104	29	550	579
% App. Total	58.6	41.4		48.3	51.7		5	95	
PHF	.848	.824	.934	.882	.881	.917	.725	.818	.813



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Route 93 SB Ramp From North		Route 3 From East		Route 3 From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
06:00 AM	0	0	5	3	0	6	14
06:15 AM	0	0	4	3	2	1	10
06:30 AM	2	0	2	4	1	6	15
06:45 AM	2	0	4	3	1	1	11
Total	4	0	15	13	4	14	50
07:00 AM	3	1	12	5	1	2	24
07:15 AM	3	0	4	5	2	5	19
07:30 AM	3	5	4	7	3	11	33
07:45 AM	4	2	3	9	1	4	23
Total	13	8	23	26	7	22	99
08:00 AM	1	1	4	7	1	2	16
08:15 AM	4	1	4	10	1	2	22
08:30 AM	1	0	9	8	0	4	22
08:45 AM	1	1	2	7	1	6	18
Total	7	3	19	32	3	14	78
Grand Total	24	11	57	71	14	50	227
Apprch %	68.6	31.4	44.5	55.5	21.9	78.1	
Total %	10.6	4.8	25.1	31.3	6.2	22	

Accurate Counts

978-664-2565

File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 8

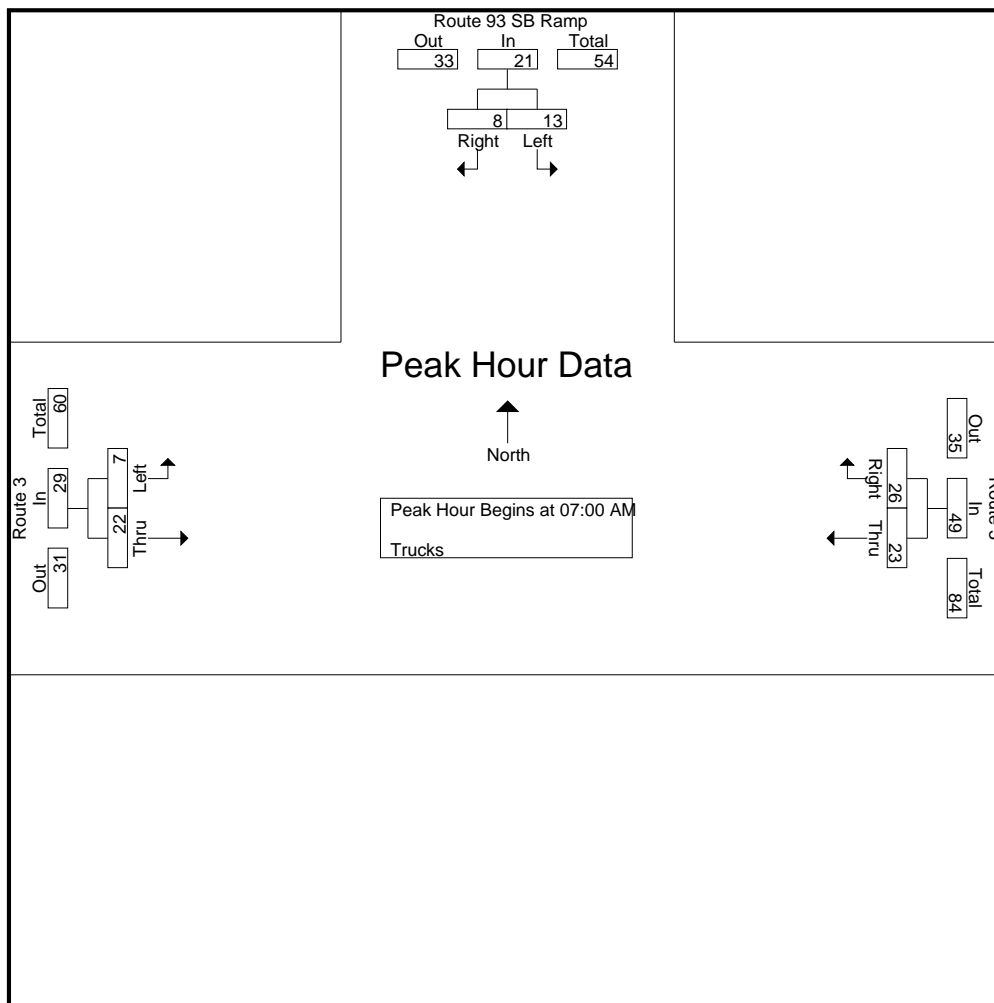
N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

Weather : Clear

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	3	1	4	12	5	17	1	2	3	24
07:15 AM	3	0	3	4	5	9	2	5	7	19
07:30 AM	3	5	8	4	7	11	3	11	14	33
07:45 AM	4	2	6	3	9	12	1	4	5	23
Total Volume	13	8	21	23	26	49	7	22	29	99
% App. Total	61.9	38.1		46.9	53.1		24.1	75.9		
PHF	.813	.400	.656	.479	.722	.721	.583	.500	.518	.750



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

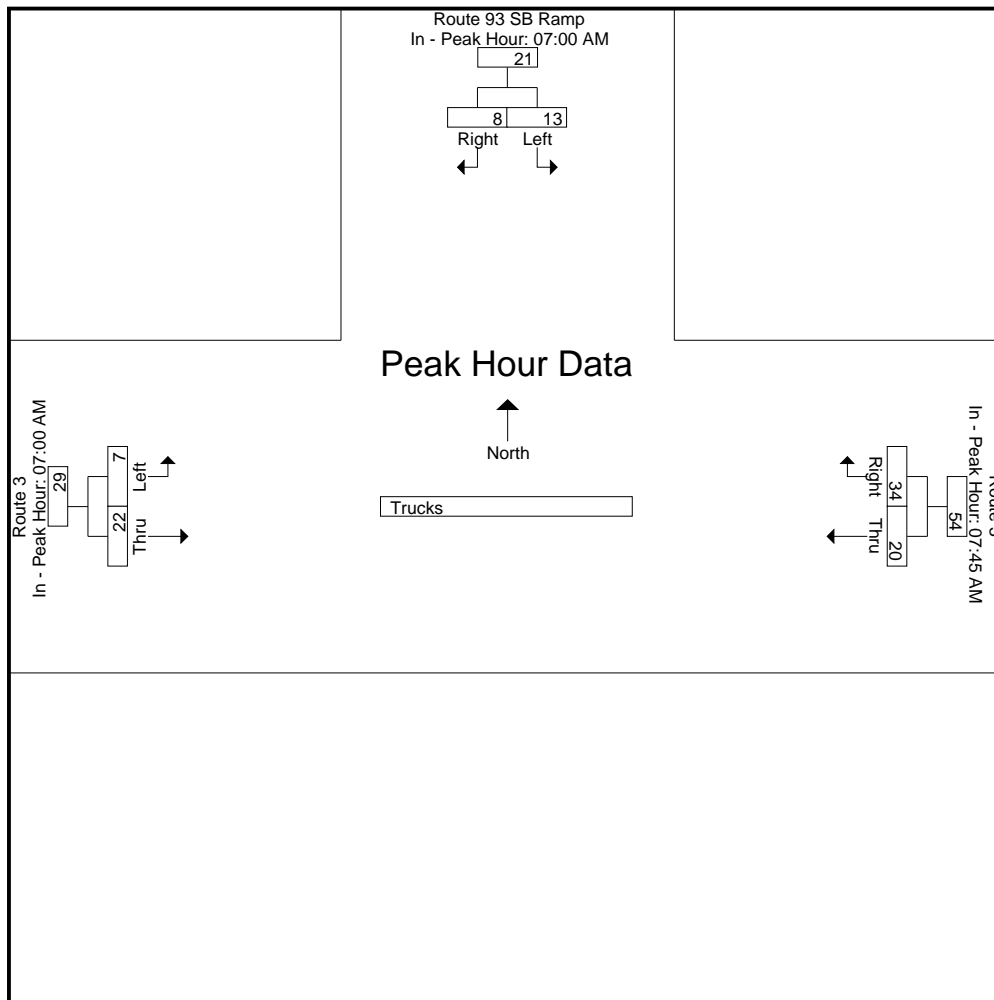
File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 9

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			07:45 AM			07:00 AM		
+0 mins.	3	1	4	3	9	12	1	2	3
+15 mins.	3	0	3	4	7	11	2	5	7
+30 mins.	3	5	8	4	10	14	3	11	14
+45 mins.	4	2	6	9	8	17	1	4	5
Total Volume	13	8	21	20	34	54	7	22	29
% App. Total	61.9	38.1		37	63		24.1	75.9	
PHF	.813	.400	.656	.556	.850	.794	.583	.500	.518



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

Weather : Clear

File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

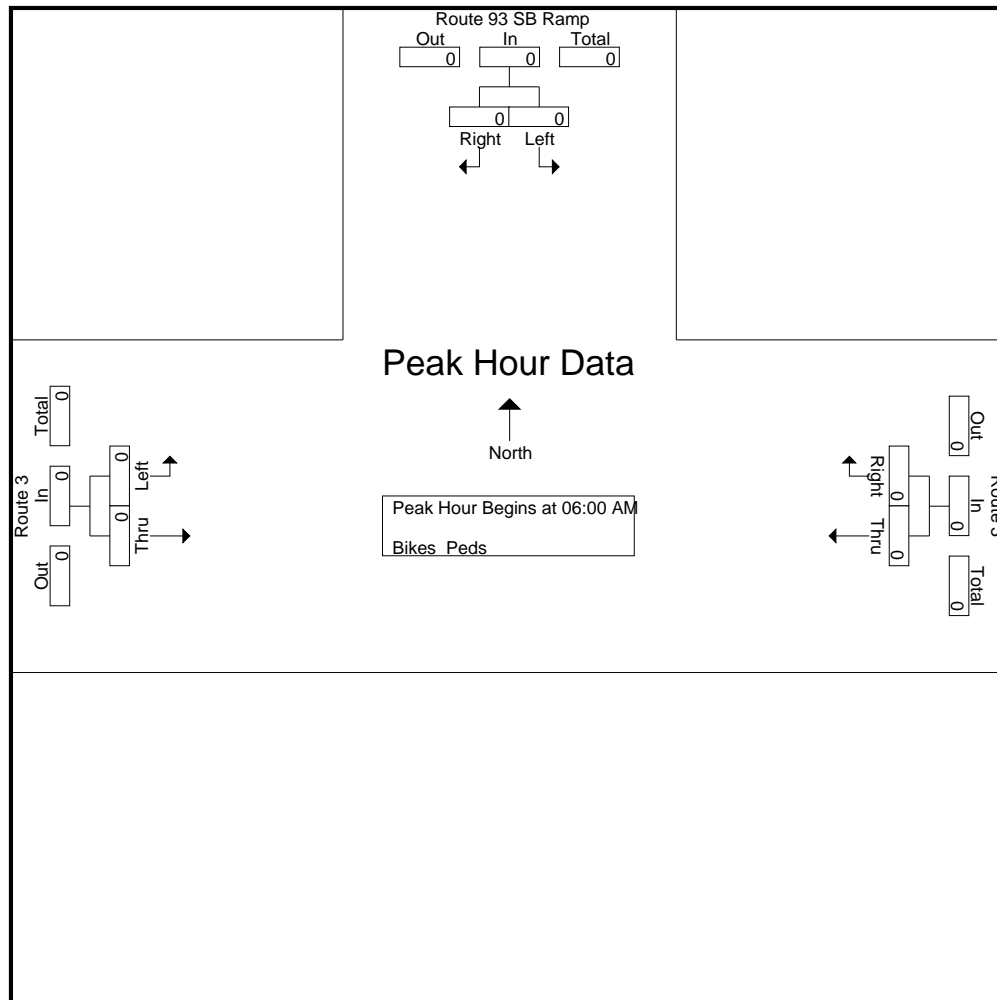
Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 11

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:00 AM										
06:00 AM	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 12

N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

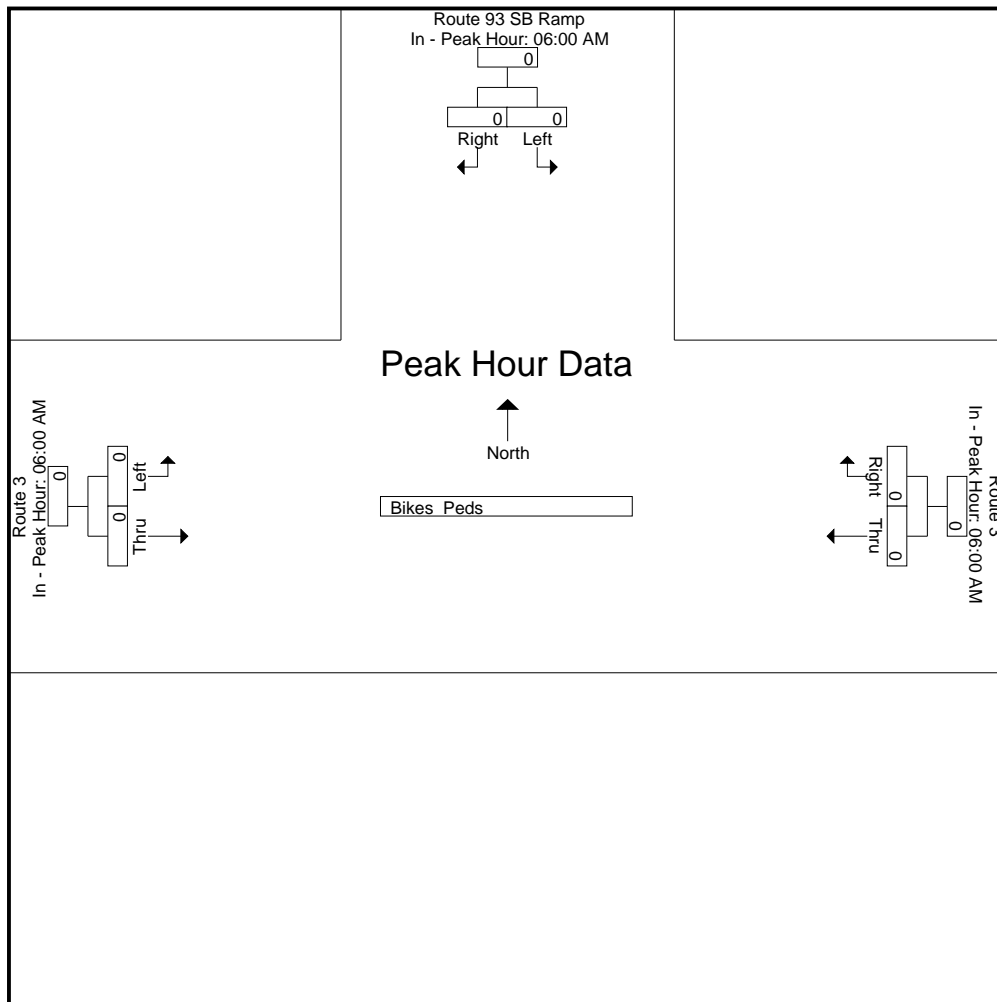
Weather : Clear

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM			06:00 AM			06:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 93 SB Ramp From North		Route 3 From East		Route 3 From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
03:00 PM	38	39	173	64	10	250	574
03:15 PM	51	25	237	85	15	244	657
03:30 PM	47	27	241	108	14	253	690
03:45 PM	49	35	239	79	12	215	629
Total	185	126	890	336	51	962	2550
04:00 PM	43	29	213	73	12	266	636
04:15 PM	47	32	259	88	17	232	675
04:30 PM	40	28	238	87	21	240	654
04:45 PM	47	30	242	89	12	254	674
Total	177	119	952	337	62	992	2639
05:00 PM	36	33	209	90	14	238	620
05:15 PM	41	26	210	81	14	230	602
05:30 PM	41	26	194	68	9	241	579
05:45 PM	26	22	185	85	9	191	518
Total	144	107	798	324	46	900	2319
Grand Total	506	352	2640	997	159	2854	7508
Apprch %	59	41	72.6	27.4	5.3	94.7	
Total %	6.7	4.7	35.2	13.3	2.1	38	
Cars	491	348	2606	955	154	2821	7375
% Cars	97	98.9	98.7	95.8	96.9	98.8	98.2
Trucks	15	4	34	42	5	33	133
% Trucks	3	1.1	1.3	4.2	3.1	1.2	1.8

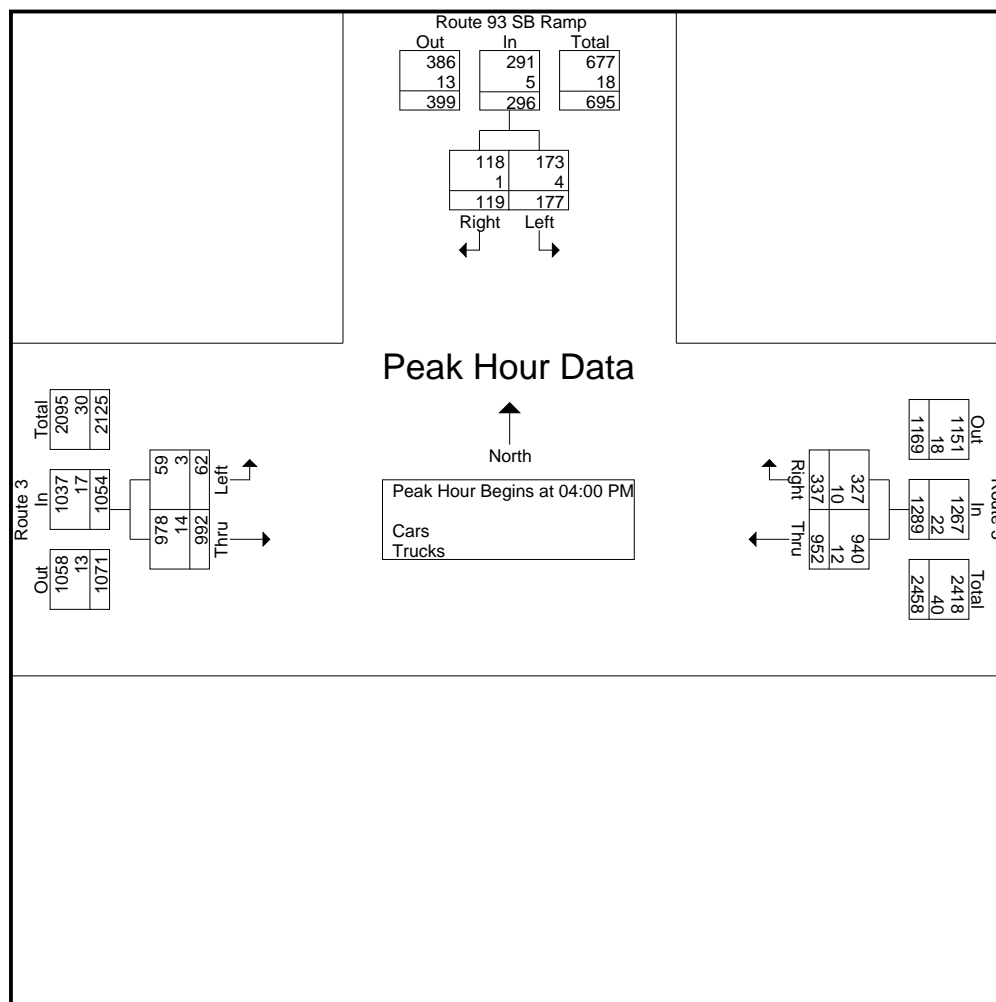
Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 2

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	43	29	72	213	73	286	12	266	278	636
04:15 PM	47	32	79	259	88	347	17	232	249	675
04:30 PM	40	28	68	238	87	325	21	240	261	654
04:45 PM	47	30	77	242	89	331	12	254	266	674
Total Volume	177	119	296	952	337	1289	62	992	1054	2639
% App. Total	59.8	40.2		73.9	26.1		5.9	94.1		
PHF	.941	.930	.937	.919	.947	.929	.738	.932	.948	.977
Cars	173	118	291	940	327	1267	59	978	1037	2595
% Cars	97.7	99.2	98.3	98.7	97.0	98.3	95.2	98.6	98.4	98.3
Trucks	4	1	5	12	10	22	3	14	17	44
% Trucks	2.3	0.8	1.7	1.3	3.0	1.7	4.8	1.4	1.6	1.7



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

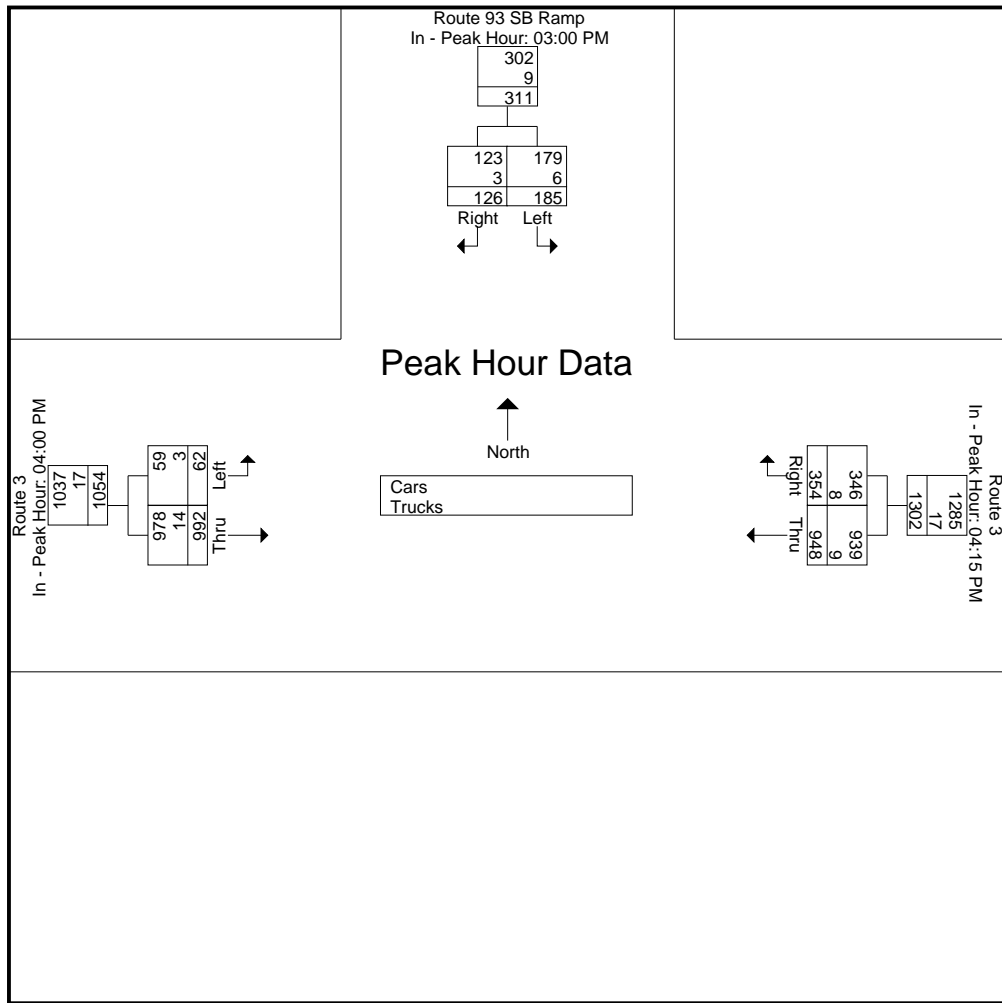
File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 3

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			04:15 PM			04:00 PM		
+0 mins.	38	39	77	259	88	347	12	266	278
+15 mins.	51	25	76	238	87	325	17	232	249
+30 mins.	47	27	74	242	89	331	21	240	261
+45 mins.	49	35	84	209	90	299	12	254	266
Total Volume	185	126	311	948	354	1302	62	992	1054
% App. Total	59.5	40.5		72.8	27.2		5.9	94.1	
PHF	.907	.808	.926	.915	.983	.938	.738	.932	.948
Cars	179	123	302	939	346	1285	59	978	1037
% Cars	96.8	97.6	97.1	99.1	97.7	98.7	95.2	98.6	98.4
Trucks	6	3	9	9	8	17	3	14	17
% Trucks	3.2	2.4	2.9	0.9	2.3	1.3	4.8	1.4	1.6



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 4

Groups Printed- Cars

Start Time	Route 93 SB Ramp From North		Route 3 From East		Route 3 From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
03:00 PM	37	38	168	57	10	245	555
03:15 PM	51	24	232	76	15	240	638
03:30 PM	42	27	237	104	13	251	674
03:45 PM	49	34	235	75	12	211	616
Total	179	123	872	312	50	947	2483
04:00 PM	41	29	209	70	12	260	621
04:15 PM	45	32	255	84	15	231	662
04:30 PM	40	27	234	86	20	235	642
04:45 PM	47	30	242	87	12	252	670
Total	173	118	940	327	59	978	2595
05:00 PM	36	33	208	89	13	236	615
05:15 PM	40	26	208	79	14	229	596
05:30 PM	39	26	194	67	9	240	575
05:45 PM	24	22	184	81	9	191	511
Total	139	107	794	316	45	896	2297
Grand Total	491	348	2606	955	154	2821	7375
Apprch %	58.5	41.5	73.2	26.8	5.2	94.8	
Total %	6.7	4.7	35.3	12.9	2.1	38.3	

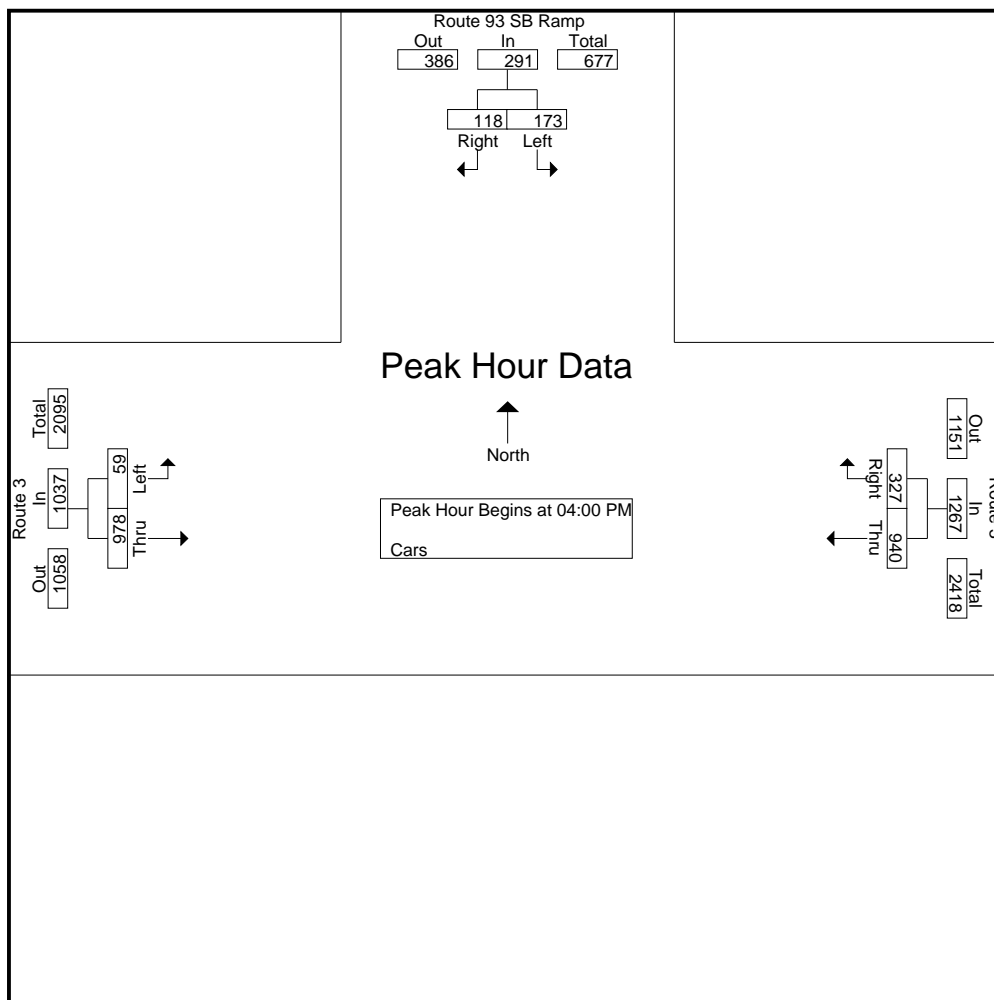
Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 5

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	41	29	70	209	70	279	12	260	272	621
04:15 PM	45	32	77	255	84	339	15	231	246	662
04:30 PM	40	27	67	234	86	320	20	235	255	642
04:45 PM	47	30	77	242	87	329	12	252	264	670
Total Volume	173	118	291	940	327	1267	59	978	1037	2595
% App. Total	59.5	40.5		74.2	25.8		5.7	94.3		
PHF	.920	.922	.945	.922	.940	.934	.738	.940	.953	.968



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

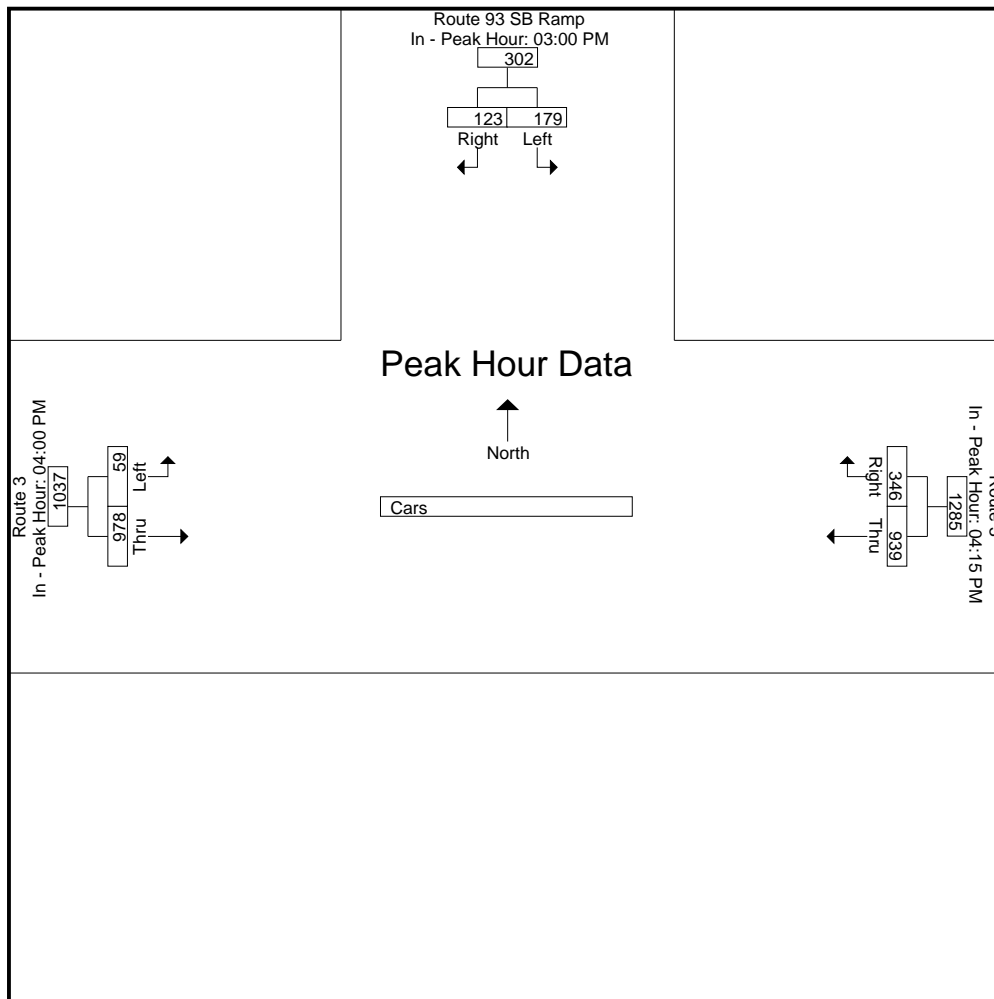
File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 6

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			04:15 PM			04:00 PM		
+0 mins.	37	38	75	255	84	339	12	260	272
+15 mins.	51	24	75	234	86	320	15	231	246
+30 mins.	42	27	69	242	87	329	20	235	255
+45 mins.	49	34	83	208	89	297	12	252	264
Total Volume	179	123	302	939	346	1285	59	978	1037
% App. Total	59.3	40.7		73.1	26.9		5.7	94.3	
PHF	.877	.809	.910	.921	.972	.948	.738	.940	.953



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

Weather : Clear

File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 7

Groups Printed- Trucks

Start Time	Route 93 SB Ramp From North		Route 3 From East		Route 3 From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
03:00 PM	1	1	5	7	0	5	19
03:15 PM	0	1	5	9	0	4	19
03:30 PM	5	0	4	4	1	2	16
03:45 PM	0	1	4	4	0	4	13
Total	6	3	18	24	1	15	67
04:00 PM	2	0	4	3	0	6	15
04:15 PM	2	0	4	4	2	1	13
04:30 PM	0	1	4	1	1	5	12
04:45 PM	0	0	0	2	0	2	4
Total	4	1	12	10	3	14	44
05:00 PM	0	0	1	1	1	2	5
05:15 PM	1	0	2	2	0	1	6
05:30 PM	2	0	0	1	0	1	4
05:45 PM	2	0	1	4	0	0	7
Total	5	0	4	8	1	4	22
Grand Total	15	4	34	42	5	33	133
Apprch %	78.9	21.1	44.7	55.3	13.2	86.8	
Total %	11.3	3	25.6	31.6	3.8	24.8	

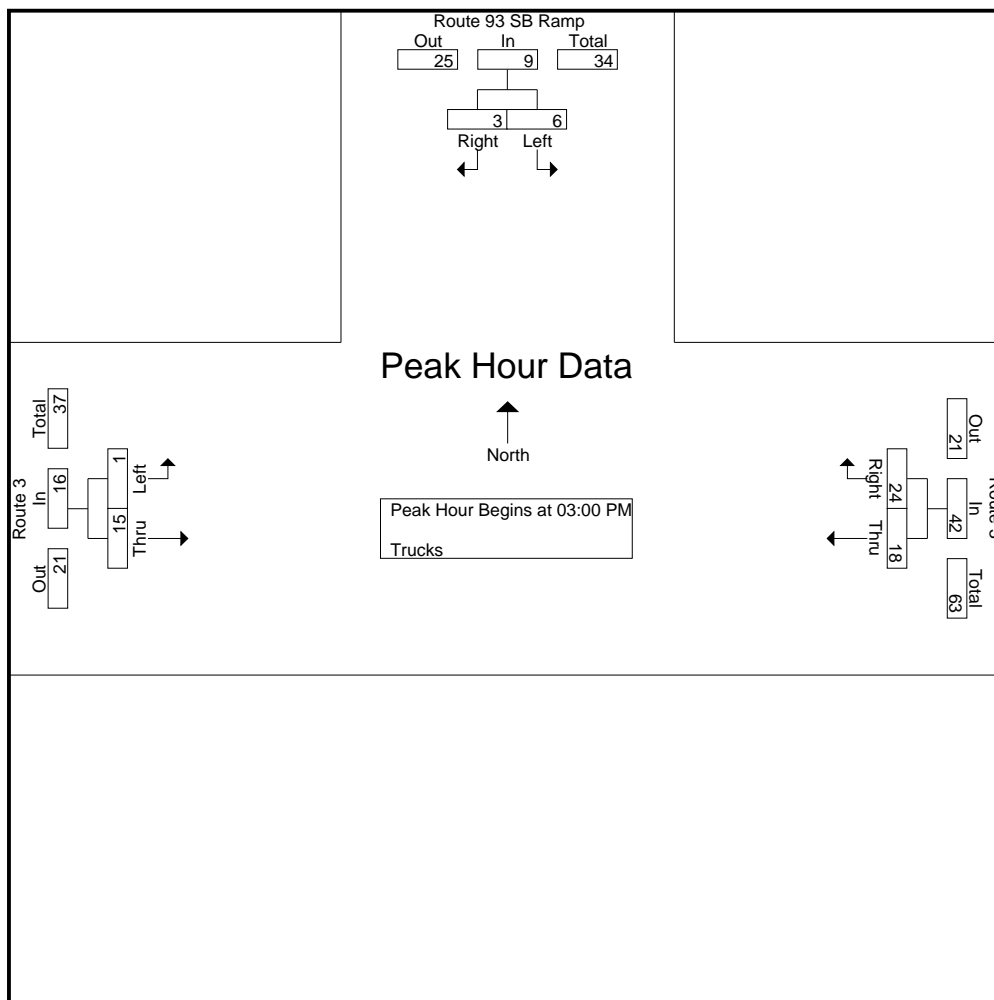
Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 8

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	1	1	2	5	7	12	0	5	5	19
03:15 PM	0	1	1	5	9	14	0	4	4	19
03:30 PM	5	0	5	4	4	8	1	2	3	16
03:45 PM	0	1	1	4	4	8	0	4	4	13
Total Volume	6	3	9	18	24	42	1	15	16	67
% App. Total	66.7	33.3		42.9	57.1		6.2	93.8		
PHF	.300	.750	.450	.900	.667	.750	.250	.750	.800	.882



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

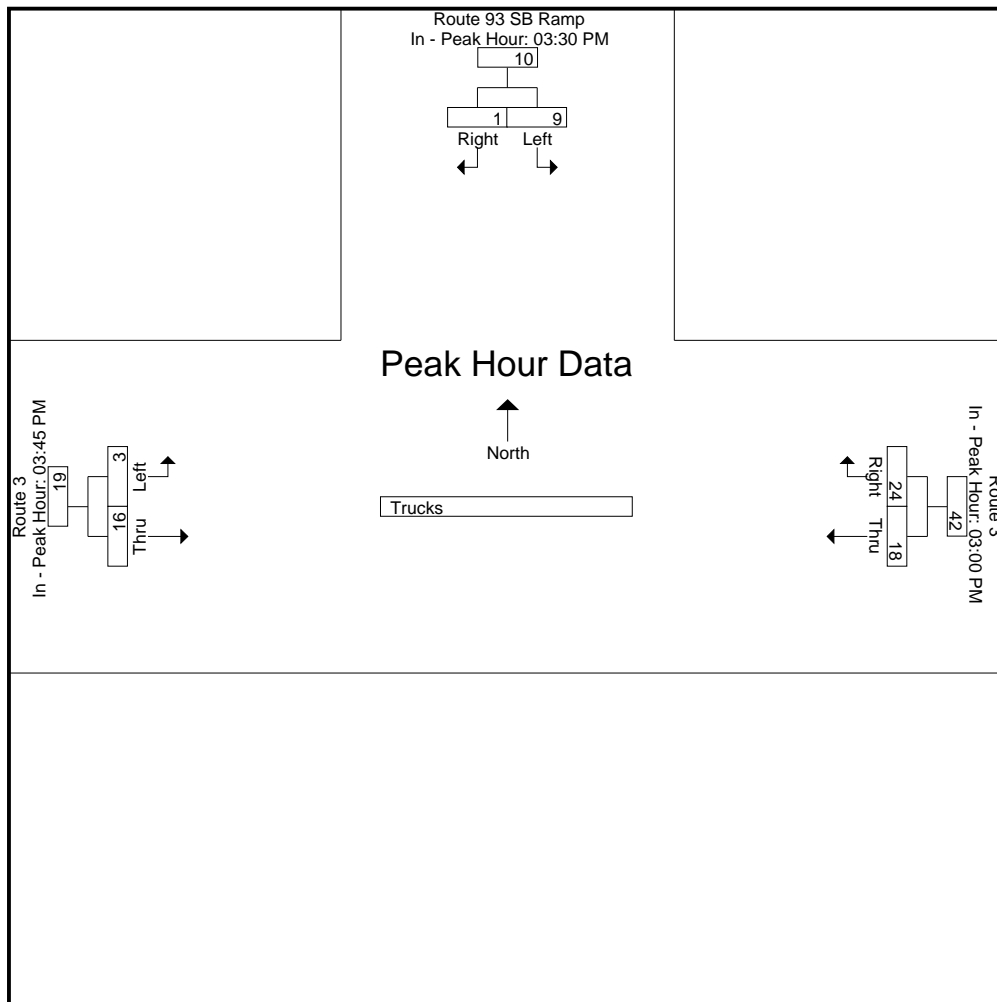
File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 9

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:30 PM			03:00 PM			03:45 PM		
+0 mins.	5	0	5	5	7	12	0	4	4
+15 mins.	0	1	1	5	9	14	0	6	6
+30 mins.	2	0	2	4	4	8	2	1	3
+45 mins.	2	0	2	4	4	8	1	5	6
Total Volume	9	1	10	18	24	42	3	16	19
% App. Total	90	10		42.9	57.1		15.8	84.2	
PHF	.450	.250	.500	.900	.667	.750	.375	.667	.792



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp

E/W Street: Route 3

City/State : Northfield, NH

Weather : Clear

File Name : 52455003

Site Code : 52455003

Start Date : 4/19/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

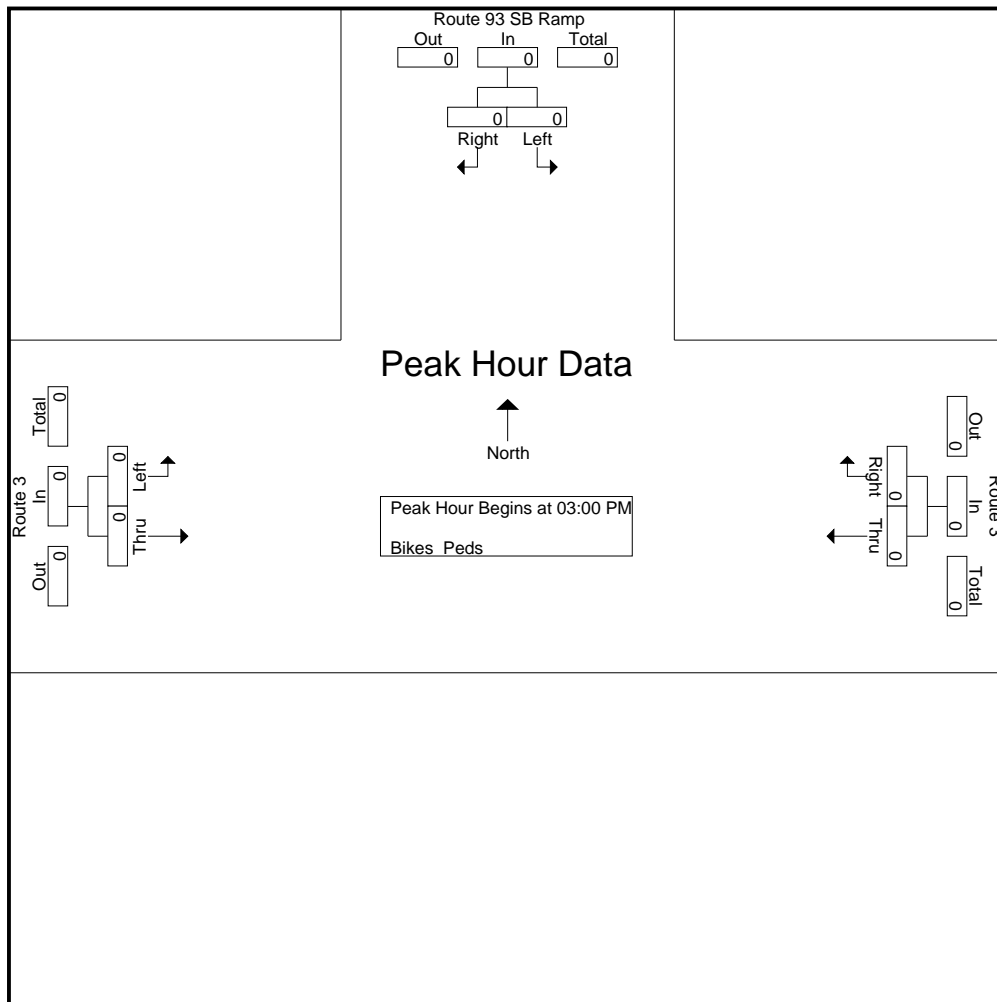
Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 11

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 SB Ramp
 E/W Street: Route 3
 City/State : Northfield, NH
 Weather : Clear

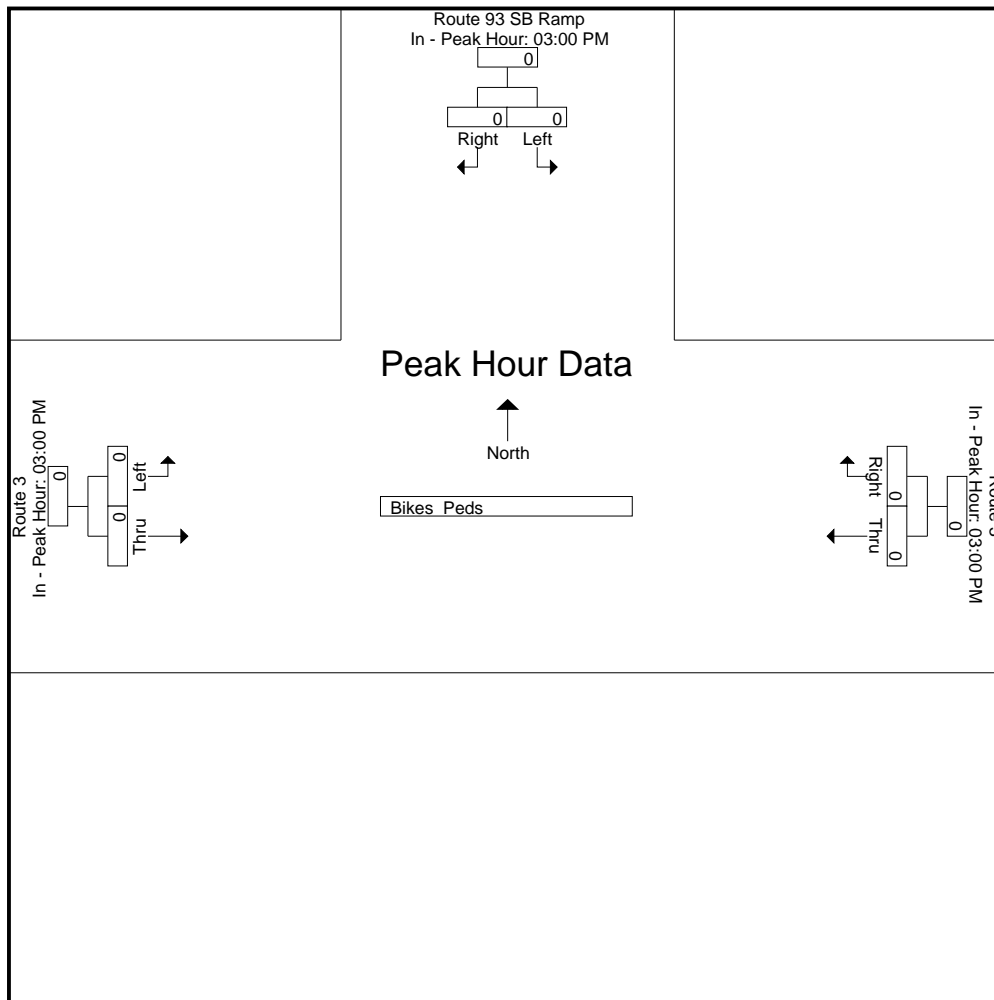
File Name : 52455003
 Site Code : 52455003
 Start Date : 4/19/2017
 Page No : 12

Start Time	Route 93 SB Ramp From North			Route 3 From East			Route 3 From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 132 From East		Rte 93 NB Off From South		Route 132 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:00 AM	0	16	15	0	7	0	38
06:15 AM	0	26	22	0	4	0	52
06:30 AM	0	40	29	0	5	0	74
06:45 AM	0	29	38	0	16	0	83
Total	0	111	104	0	32	0	247
07:00 AM	0	37	34	0	16	0	87
07:15 AM	0	45	28	2	17	0	92
07:30 AM	0	33	40	0	17	0	90
07:45 AM	0	37	51	1	9	0	98
Total	0	152	153	3	59	0	367
08:00 AM	0	27	36	0	15	0	78
08:15 AM	0	24	33	5	10	0	72
08:30 AM	0	37	27	0	13	0	77
08:45 AM	0	16	22	1	13	0	52
Total	0	104	118	6	51	0	279
Grand Total	0	367	375	9	142	0	893
Apprch %	0	100	97.7	2.3	100	0	
Total %	0	41.1	42	1	15.9	0	
Cars	0	365	370	8	138	0	881
% Cars	0	99.5	98.7	88.9	97.2	0	98.7
Trucks	0	2	5	1	4	0	12
% Trucks	0	0.5	1.3	11.1	2.8	0	1.3

Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

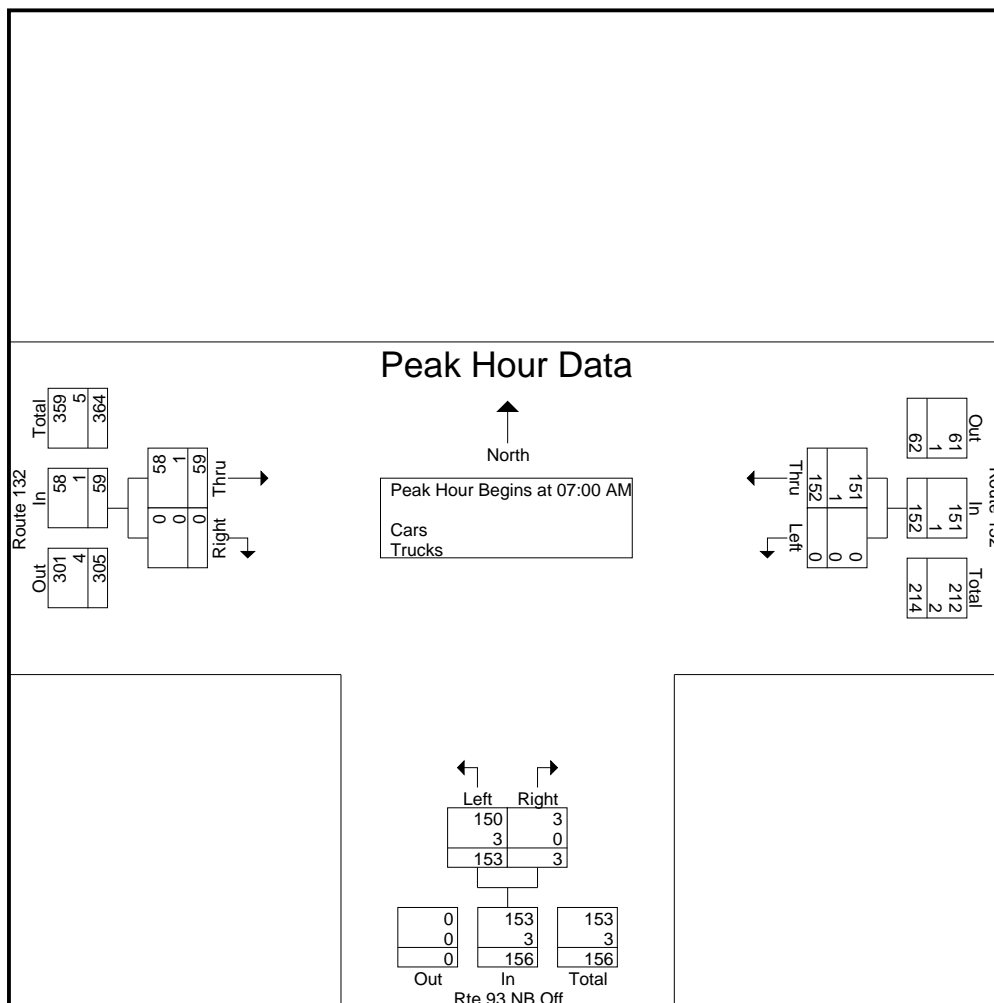
File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

Page No : 2

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	37	37	34	0	34	16	0	16	87
07:15 AM	0	45	45	28	2	30	17	0	17	92
07:30 AM	0	33	33	40	0	40	17	0	17	90
07:45 AM	0	37	37	51	1	52	9	0	9	98
Total Volume	0	152	152	153	3	156	59	0	59	367
% App. Total	0	100		98.1	1.9		100	0		
PHF	.000	.844	.844	.750	.375	.750	.868	.000	.868	.936
Cars	0	151	151	150	3	153	58	0	58	362
% Cars	0	99.3	99.3	98.0	100	98.1	98.3	0	98.3	98.6
Trucks	0	1	1	3	0	3	1	0	1	5
% Trucks	0	0.7	0.7	2.0	0	1.9	1.7	0	1.7	1.4



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

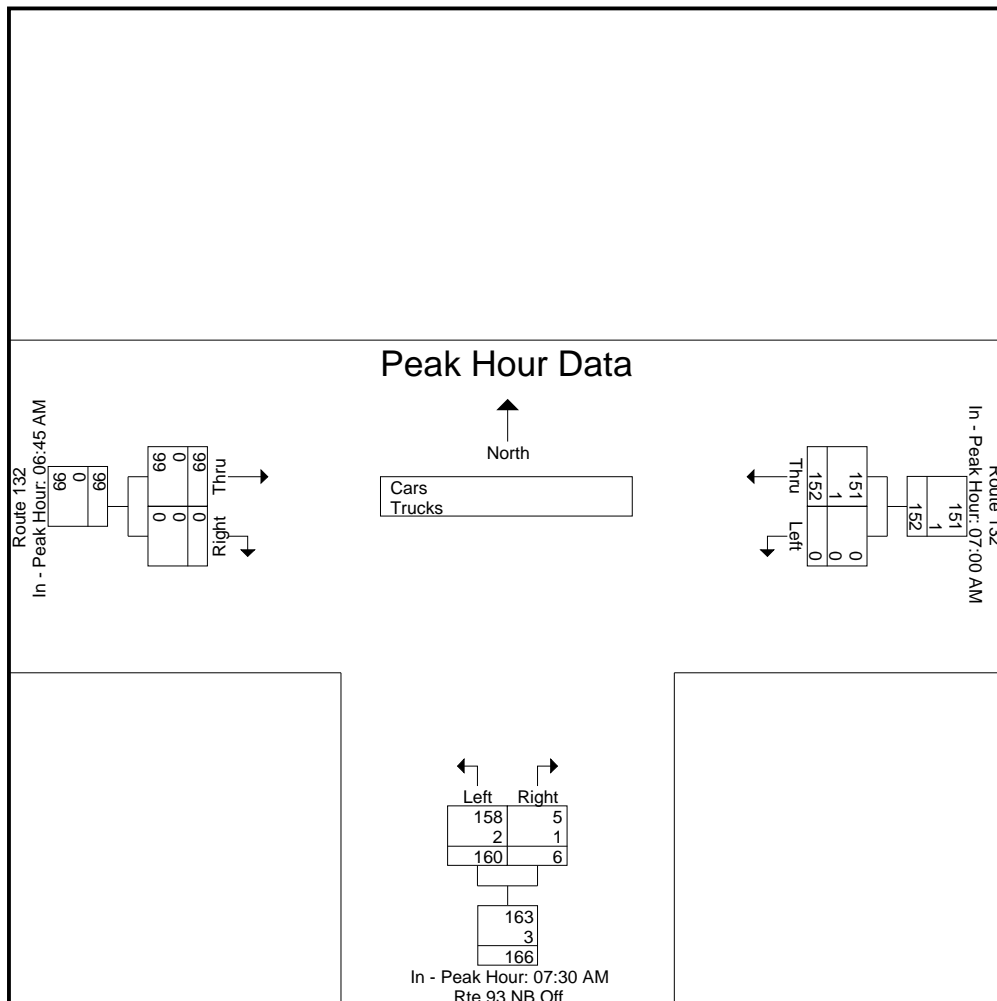
File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 3

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			07:30 AM			06:45 AM		
+0 mins.	0	37	37	40	0	40	16	0	16
+15 mins.	0	45	45	51	1	52	16	0	16
+30 mins.	0	33	33	36	0	36	17	0	17
+45 mins.	0	37	37	33	5	38	17	0	17
Total Volume	0	152	152	160	6	166	66	0	66
% App. Total	0	100		96.4	3.6		100	0	
PHF	.000	.844	.844	.784	.300	.798	.971	.000	.971
Cars	0	151	151	158	5	163	66	0	66
% Cars	0	99.3	99.3	98.8	83.3	98.2	100	0	100
Trucks	0	1	1	2	1	3	0	0	0
% Trucks	0	0.7	0.7	1.2	16.7	1.8	0	0	0



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

Page No : 4

Groups Printed- Cars

Start Time	Route 132 From East		Rte 93 NB Off From South		Route 132 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:00 AM	0	16	15	0	7	0	38
06:15 AM	0	26	22	0	3	0	51
06:30 AM	0	40	29	0	5	0	74
06:45 AM	0	29	38	0	16	0	83
Total	0	111	104	0	31	0	246
07:00 AM	0	36	33	0	16	0	85
07:15 AM	0	45	28	2	17	0	92
07:30 AM	0	33	38	0	17	0	88
07:45 AM	0	37	51	1	8	0	97
Total	0	151	150	3	58	0	362
08:00 AM	0	27	36	0	14	0	77
08:15 AM	0	23	33	4	9	0	69
08:30 AM	0	37	26	0	13	0	76
08:45 AM	0	16	21	1	13	0	51
Total	0	103	116	5	49	0	273
Grand Total	0	365	370	8	138	0	881
Apprch %	0	100	97.9	2.1	100	0	
Total %	0	41.4	42	0.9	15.7	0	

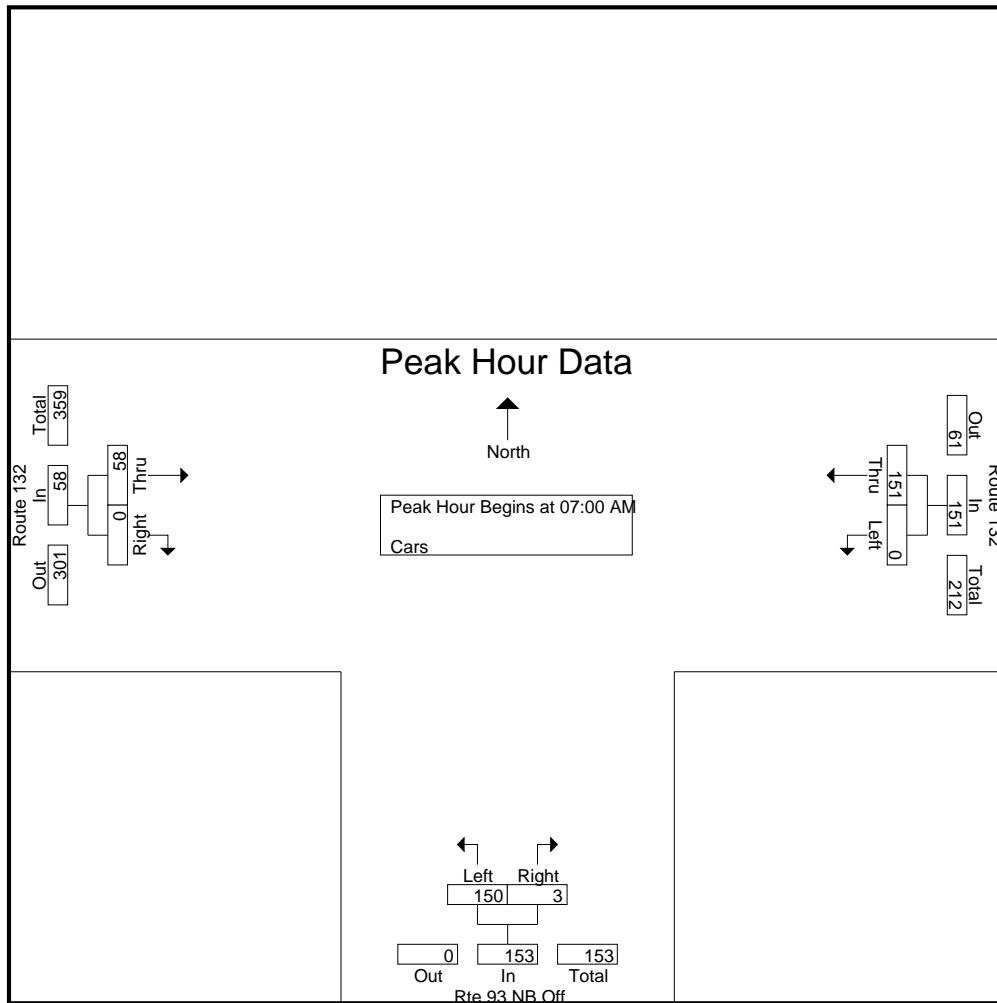
Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 5

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	36	36	33	0	33	16	0	16	85
07:15 AM	0	45	45	28	2	30	17	0	17	92
07:30 AM	0	33	33	38	0	38	17	0	17	88
07:45 AM	0	37	37	51	1	52	8	0	8	97
Total Volume	0	151	151	150	3	153	58	0	58	362
% App. Total	0	100		98	2		100	0		
PHF	.000	.839	.839	.735	.375	.736	.853	.000	.853	.933



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

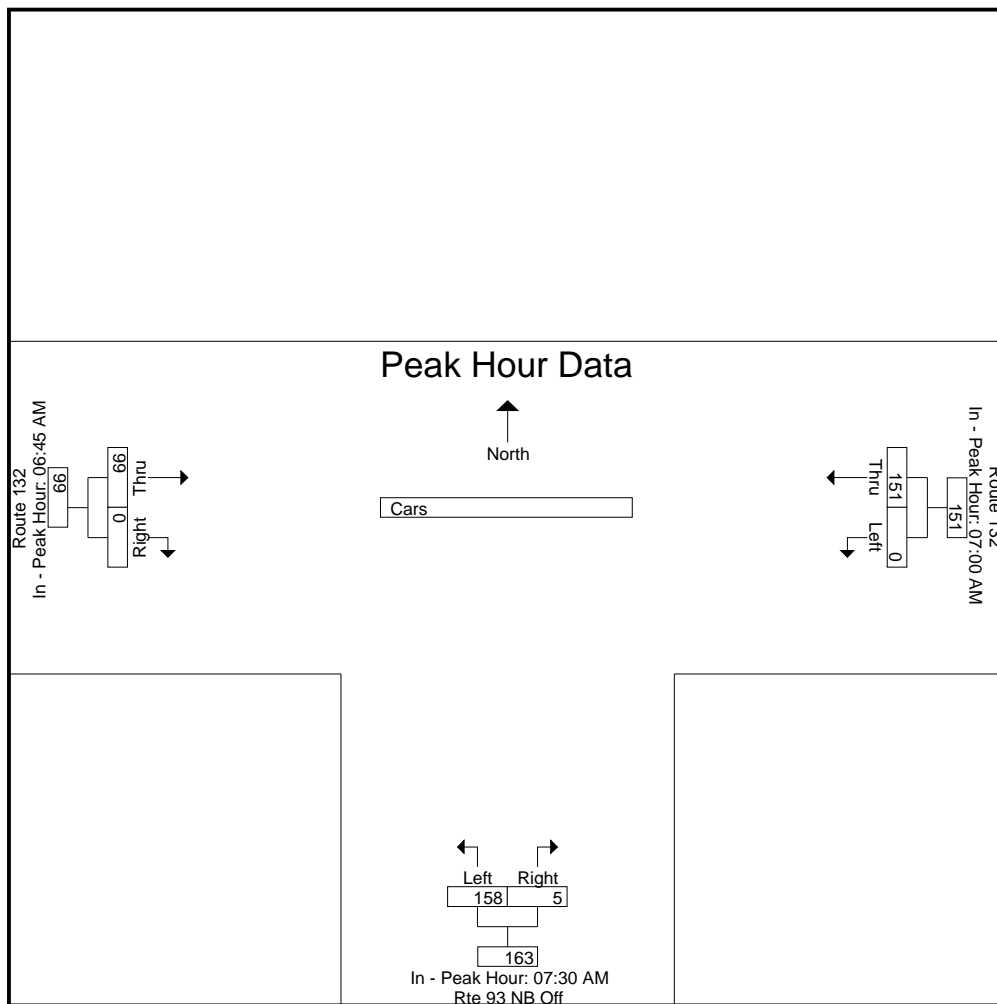
File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 6

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			07:30 AM			06:45 AM		
+0 mins.	0	36	36	38	0	38	16	0	16
+15 mins.	0	45	45	51	1	52	16	0	16
+30 mins.	0	33	33	36	0	36	17	0	17
+45 mins.	0	37	37	33	4	37	17	0	17
Total Volume	0	151	151	158	5	163	66	0	66
% App. Total	0	100		96.9	3.1		100	0	
PHF	.000	.839	.839	.775	.313	.784	.971	.000	.971



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

Page No : 7

Groups Printed- Trucks

Start Time	Route 132 From East		Rte 93 NB Off From South		Route 132 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:00 AM	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	1	0	1
06:30 AM	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	1
07:00 AM	0	1	1	0	0	0	2
07:15 AM	0	0	0	0	0	0	0
07:30 AM	0	0	2	0	0	0	2
07:45 AM	0	0	0	0	1	0	1
Total	0	1	3	0	1	0	5
08:00 AM	0	0	0	0	1	0	1
08:15 AM	0	1	0	1	1	0	3
08:30 AM	0	0	1	0	0	0	1
08:45 AM	0	0	1	0	0	0	1
Total	0	1	2	1	2	0	6
Grand Total	0	2	5	1	4	0	12
Apprch %	0	100	83.3	16.7	100	0	
Total %	0	16.7	41.7	8.3	33.3	0	

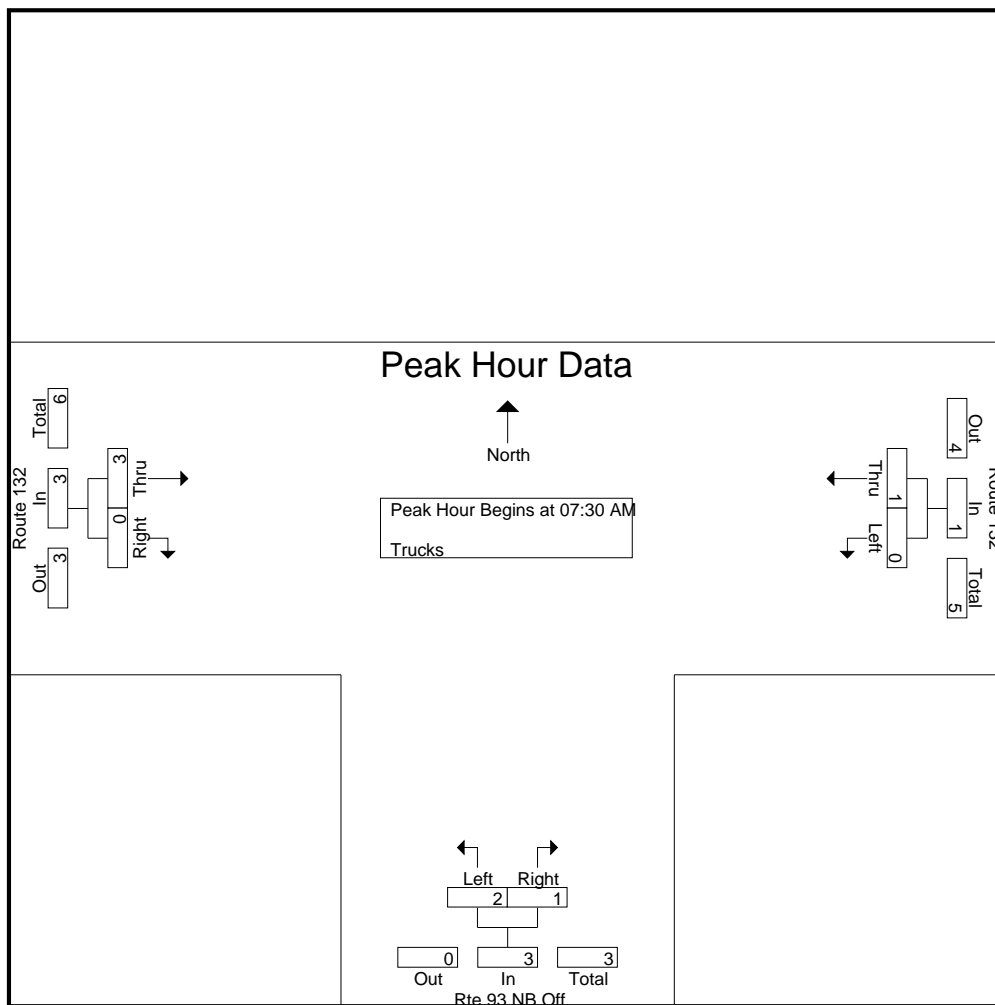
Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 8

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	2	0	2	0	0	0	2
07:45 AM	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	0	0	0	0	0	1	0	1	1
08:15 AM	0	1	1	0	1	1	1	0	1	3
Total Volume	0	1	1	2	1	3	3	0	3	7
% App. Total	0	100		66.7	33.3		100	0		
PHF	.000	.250	.250	.250	.250	.375	.750	.000	.750	.583



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

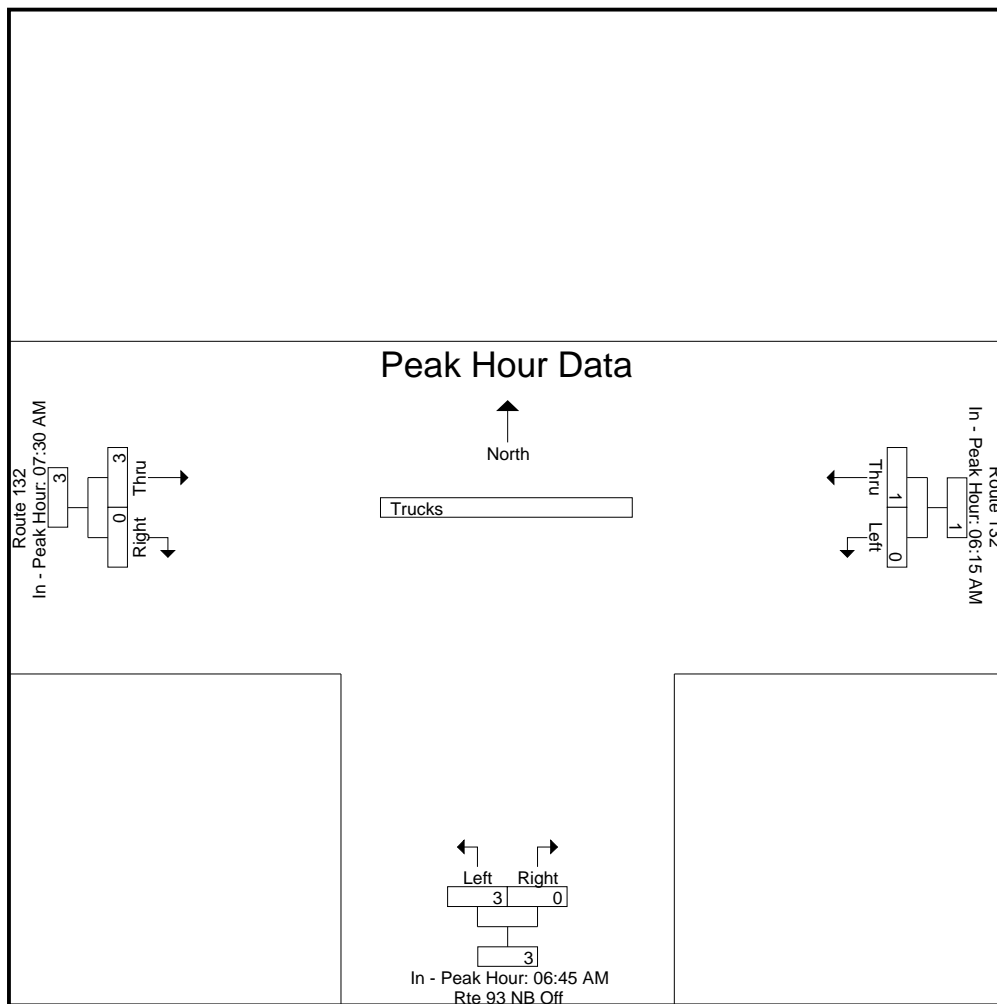
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 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 9

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:15 AM			06:45 AM			07:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	1	0	1	1	0	1
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	1	1	2	0	2	1	0	1
Total Volume	0	1	1	3	0	3	3	0	3
% App. Total	0	100		100	0		100	0	
PHF	.000	.250	.250	.375	.000	.375	.750	.000	.750



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

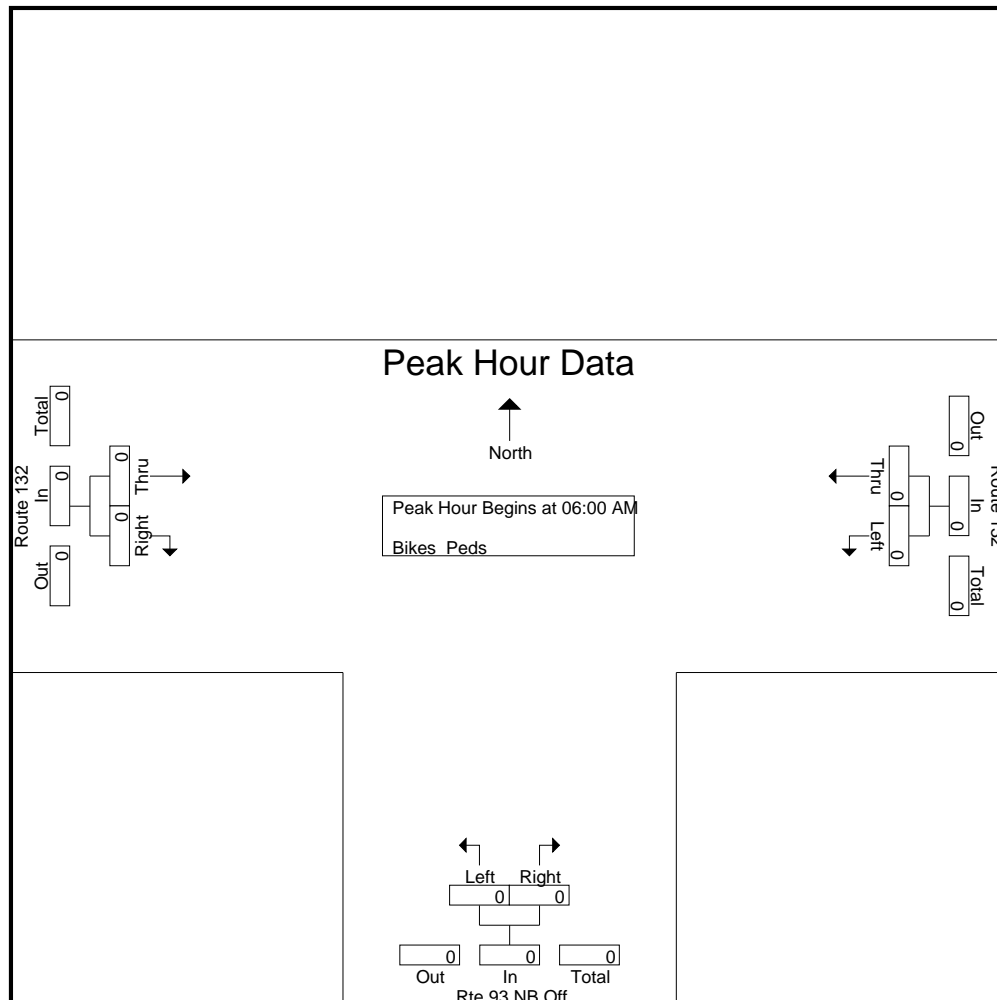
Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 11

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:00 AM										
06:00 AM	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

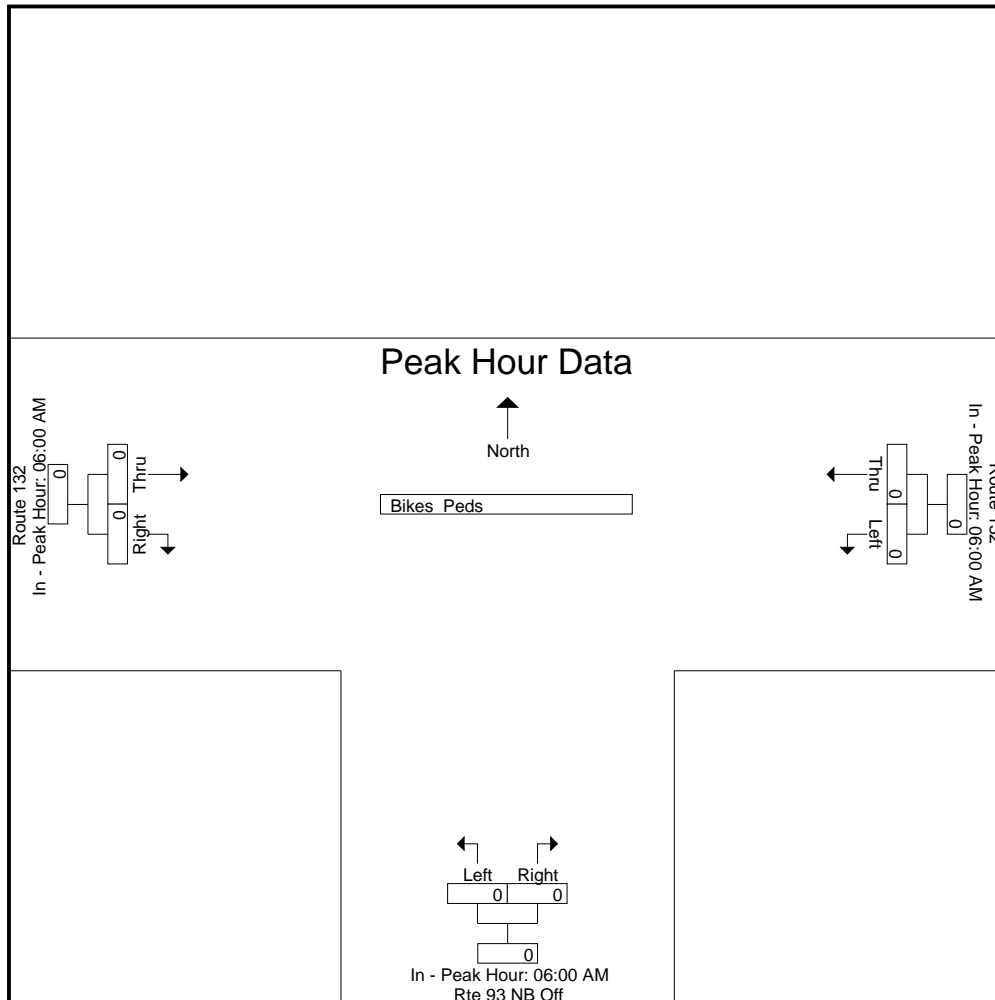
File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 12

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM			06:00 AM			06:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Route 132 From East		Rte 93 NB Off From South		Route 132 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
03:00 PM	0	32	38	0	29	0	99
03:15 PM	0	27	65	5	23	0	120
03:30 PM	0	21	49	2	26	0	98
03:45 PM	0	30	80	5	35	0	150
Total	0	110	232	12	113	0	467
04:00 PM	0	26	66	6	24	0	122
04:15 PM	0	19	76	6	27	0	128
04:30 PM	0	24	99	5	26	0	154
04:45 PM	0	22	83	5	31	0	141
Total	0	91	324	22	108	0	545
05:00 PM	0	34	90	6	28	0	158
05:15 PM	0	21	96	8	33	0	158
05:30 PM	0	23	82	13	34	0	152
05:45 PM	0	29	82	7	33	0	151
Total	0	107	350	34	128	0	619
Grand Total	0	308	906	68	349	0	1631
Apprch %	0	100	93	7	100	0	
Total %	0	18.9	55.5	4.2	21.4	0	
Cars	0	304	903	68	347	0	1622
% Cars	0	98.7	99.7	100	99.4	0	99.4
Trucks	0	4	3	0	2	0	9
% Trucks	0	1.3	0.3	0	0.6	0	0.6

Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

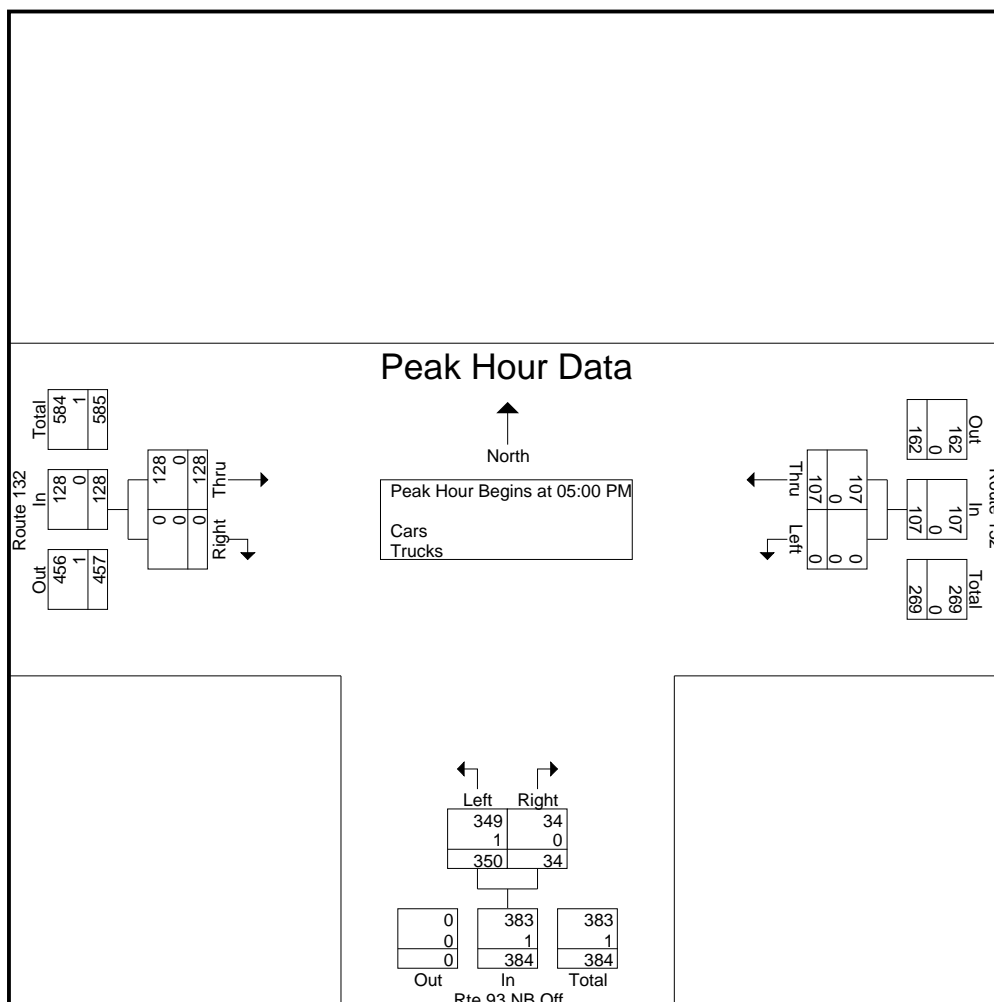
Page No : 2

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	0	34	34	90	6	96	28	0	28	158
05:15 PM	0	21	21	96	8	104	33	0	33	158
05:30 PM	0	23	23	82	13	95	34	0	34	152
05:45 PM	0	29	29	82	7	89	33	0	33	151
Total Volume	0	107	107	350	34	384	128	0	128	619
% App. Total	0	100		91.1	8.9		100	0		
PHF	.000	.787	.787	.911	.654	.923	.941	.000	.941	.979
Cars	0	107	107	349	34	383	128	0	128	618
% Cars	0	100	100	99.7	100	99.7	100	0	100	99.8
Trucks	0	0	0	1	0	1	0	0	0	1
% Trucks	0	0	0	0.3	0	0.3	0	0	0	0.2



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

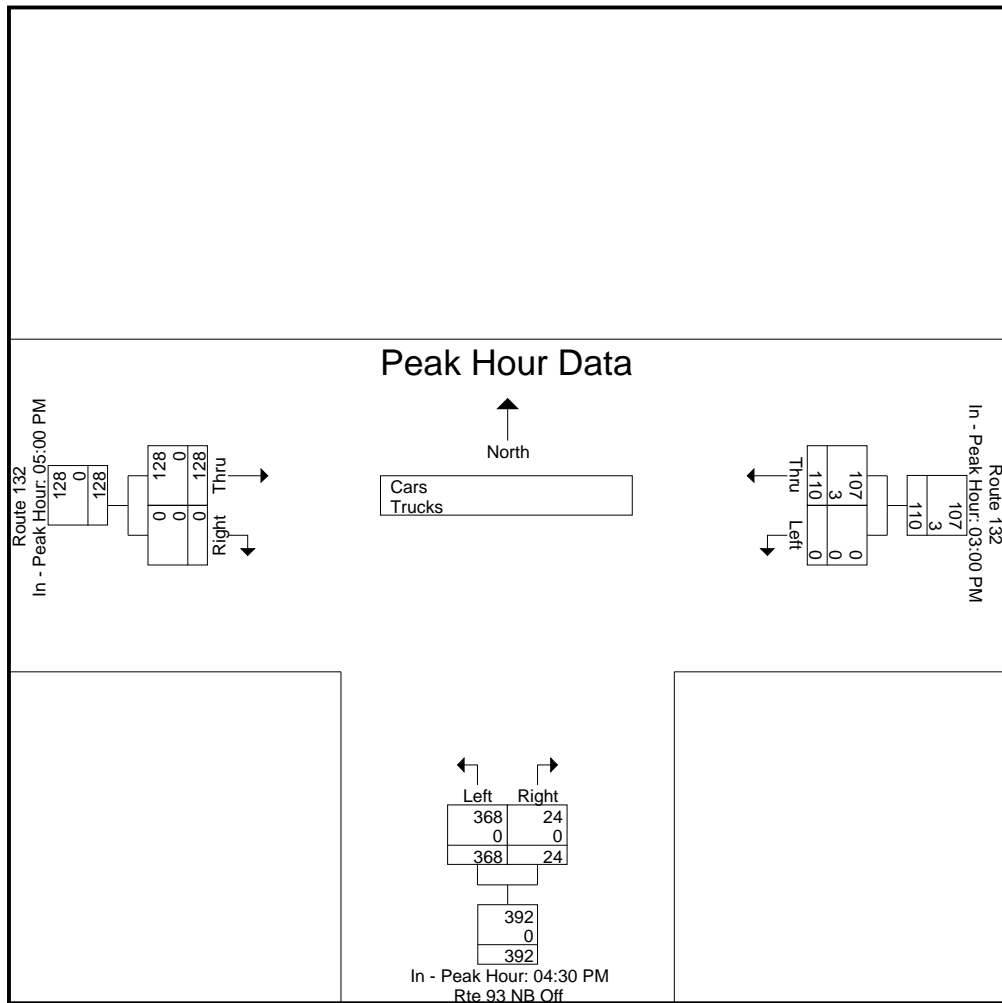
Page No : 3

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			04:30 PM			05:00 PM		
+0 mins.	0	32	32	99	5	104	28	0	28
+15 mins.	0	27	27	83	5	88	33	0	33
+30 mins.	0	21	21	90	6	96	34	0	34
+45 mins.	0	30	30	96	8	104	33	0	33
Total Volume	0	110	110	368	24	392	128	0	128
% App. Total	0	100		93.9	6.1		100	0	
PHF	.000	.859	.859	.929	.750	.942	.941	.000	.941
Cars	0	107	107	368	24	392	128	0	128
% Cars	0	97.3	97.3	100	100	100	100	0	100
Trucks	0	3	3	0	0	0	0	0	0
% Trucks	0	2.7	2.7	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 4

Groups Printed- Cars

Start Time	Route 132 From East		Rte 93 NB Off From South		Route 132 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
03:00 PM	0	31	37	0	29	0	97
03:15 PM	0	27	64	5	23	0	119
03:30 PM	0	21	49	2	25	0	97
03:45 PM	0	28	80	5	34	0	147
Total	0	107	230	12	111	0	460
04:00 PM	0	25	66	6	24	0	121
04:15 PM	0	19	76	6	27	0	128
04:30 PM	0	24	99	5	26	0	154
04:45 PM	0	22	83	5	31	0	141
Total	0	90	324	22	108	0	544
05:00 PM	0	34	90	6	28	0	158
05:15 PM	0	21	96	8	33	0	158
05:30 PM	0	23	81	13	34	0	151
05:45 PM	0	29	82	7	33	0	151
Total	0	107	349	34	128	0	618
Grand Total	0	304	903	68	347	0	1622
Apprch %	0	100	93	7	100	0	
Total %	0	18.7	55.7	4.2	21.4	0	

Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

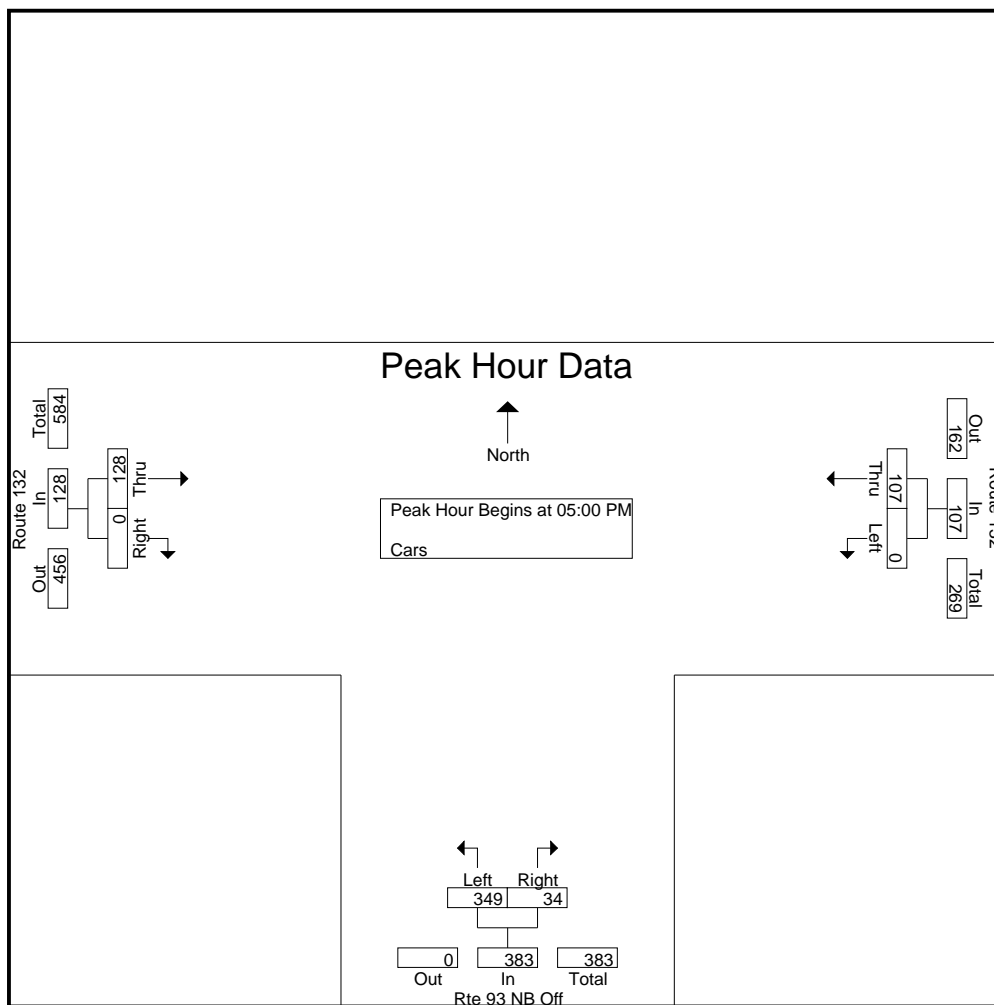
File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

Page No : 5

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	34	34	90	6	96	28	0	28	158
05:15 PM	0	21	21	96	8	104	33	0	33	158
05:30 PM	0	23	23	81	13	94	34	0	34	151
05:45 PM	0	29	29	82	7	89	33	0	33	151
Total Volume	0	107	107	349	34	383	128	0	128	618
% App. Total	0	100		91.1	8.9		100	0		
PHF	.000	.787	.787	.909	.654	.921	.941	.000	.941	.978



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

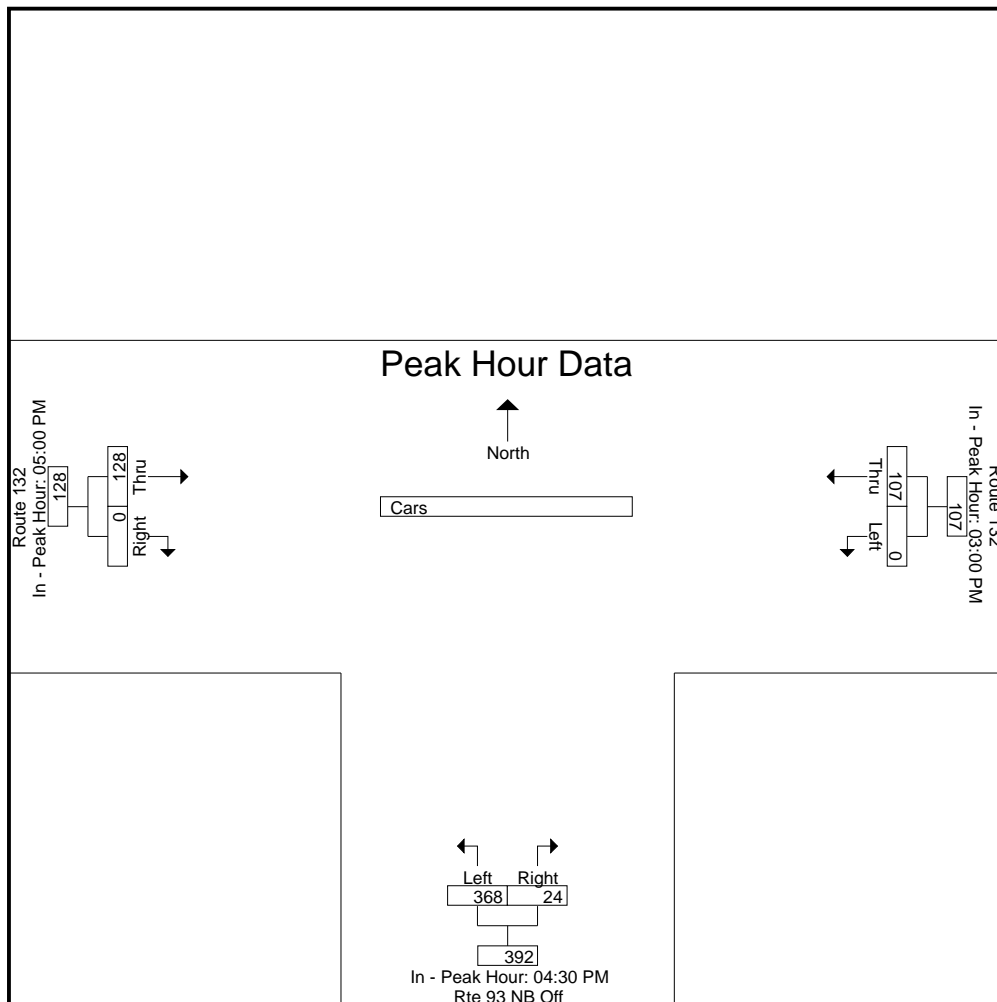
File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 6

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			04:30 PM			05:00 PM		
+0 mins.	0	31	31	99	5	104	28	0	28
+15 mins.	0	27	27	83	5	88	33	0	33
+30 mins.	0	21	21	90	6	96	34	0	34
+45 mins.	0	28	28	96	8	104	33	0	33
Total Volume	0	107	107	368	24	392	128	0	128
% App. Total	0	100		93.9	6.1		100	0	
PHF	.000	.863	.863	.929	.750	.942	.941	.000	.941



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Route 132 From East		Rte 93 NB Off From South		Route 132 From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
03:00 PM	0	1	1	0	0	0	2
03:15 PM	0	0	1	0	0	0	1
03:30 PM	0	0	0	0	1	0	1
03:45 PM	0	2	0	0	1	0	3
Total	0	3	2	0	2	0	7
04:00 PM	0	1	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	1	0	0	0	1
05:45 PM	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1
Grand Total	0	4	3	0	2	0	9
Apprch %	0	100	100	0	100	0	
Total %	0	44.4	33.3	0	22.2	0	

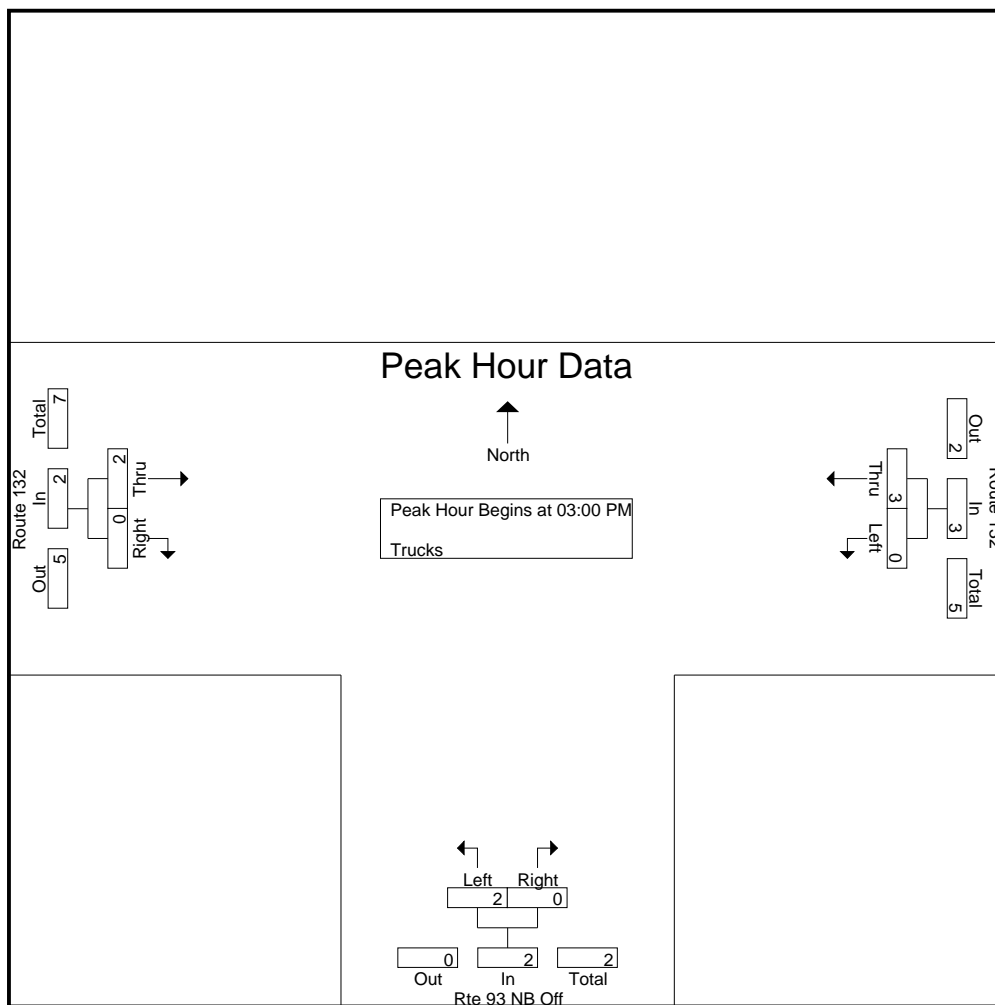
Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 8

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	1	1	1	0	1	0	0	0	2
03:15 PM	0	0	0	1	0	1	0	0	0	1
03:30 PM	0	0	0	0	0	0	1	0	1	1
03:45 PM	0	2	2	0	0	0	1	0	1	3
Total Volume	0	3	3	2	0	2	2	0	2	7
% App. Total	0	100		100	0		100	0		
PHF	.000	.375	.375	.500	.000	.500	.500	.000	.500	.583



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

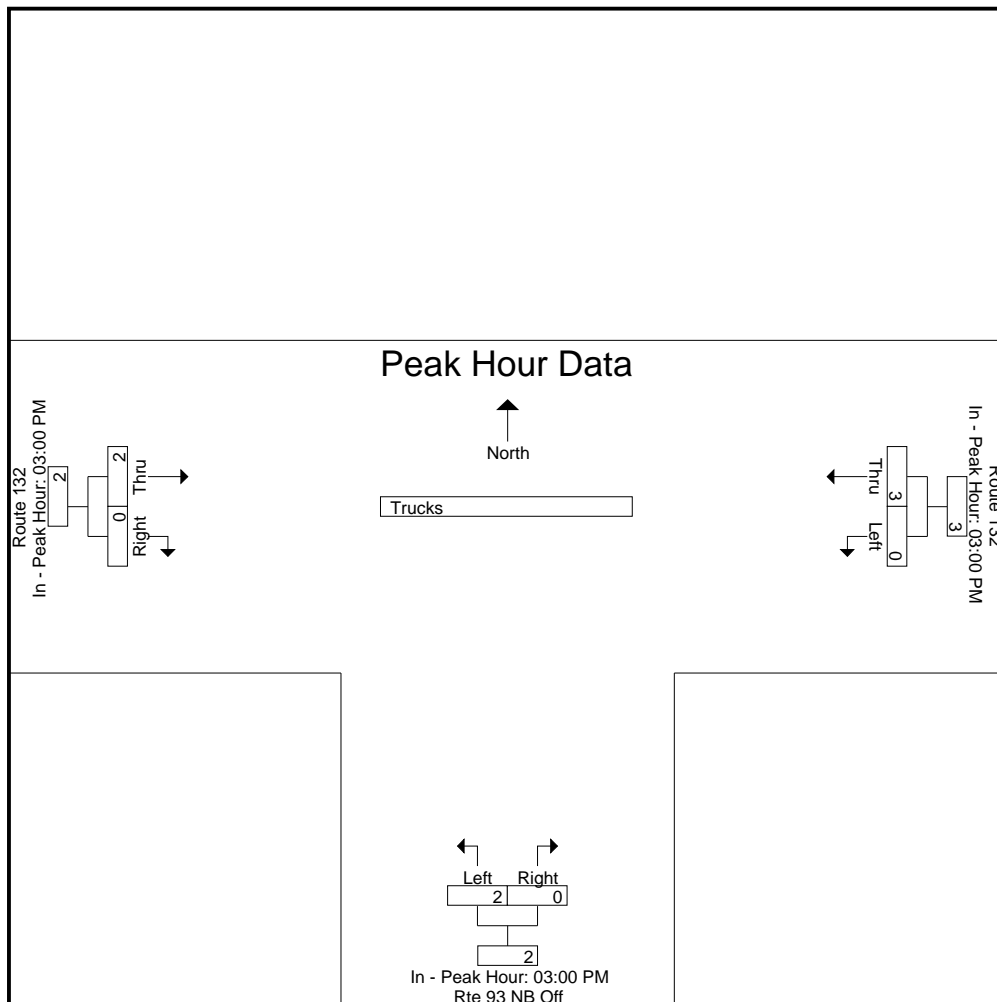
File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 9

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	1	1	1	0	1	0	0	0
+15 mins.	0	0	0	1	0	1	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	2	2	0	0	0	1	0	1
Total Volume	0	3	3	2	0	2	2	0	2
% App. Total	0	100		100	0		100	0	
PHF	.000	.375	.375	.500	.000	.500	.500	.000	.500



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp

E/W Street : Route 132

City/State : Northfield, NH

Weather : Clear

File Name : 52455004

Site Code : 52455004

Start Date : 4/19/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

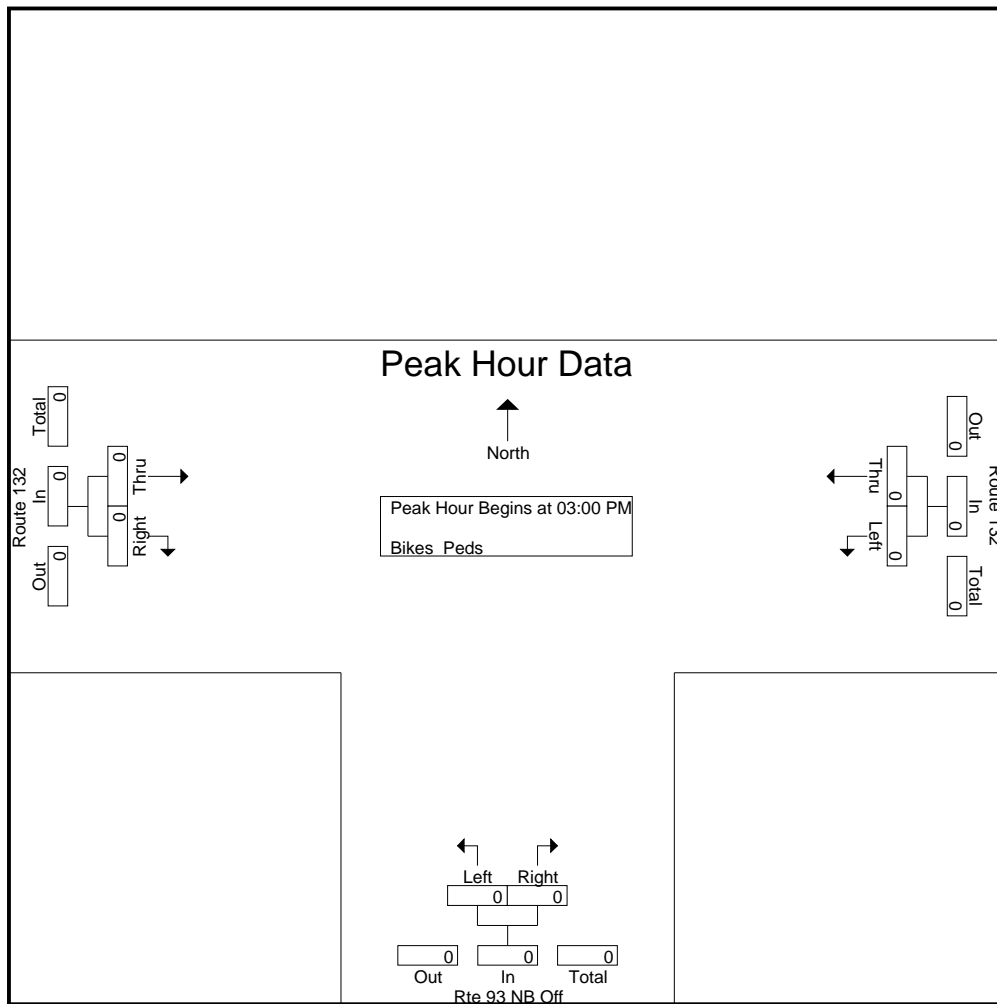
Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 11

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Route 93 NB Off Ramp
 E/W Street : Route 132
 City/State : Northfield, NH
 Weather : Clear

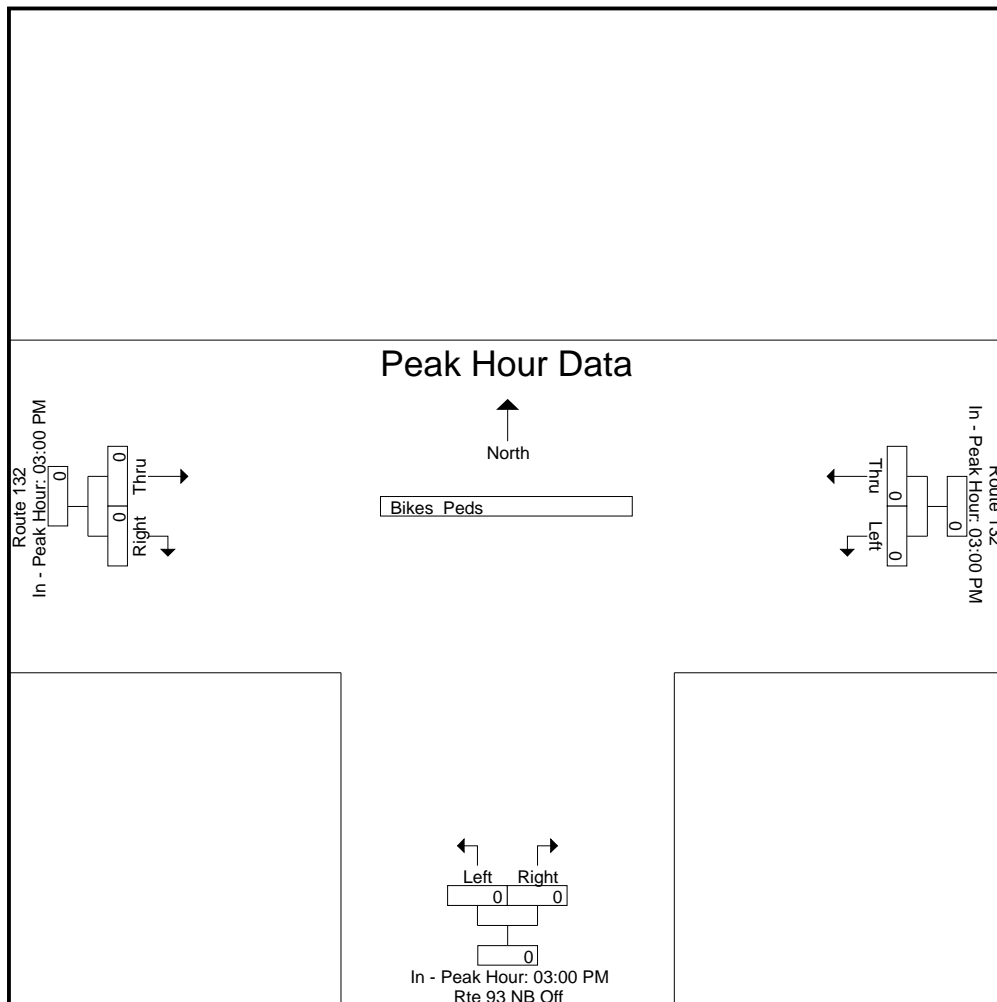
File Name : 52455004
 Site Code : 52455004
 Start Date : 4/19/2017
 Page No : 12

Start Time	Route 132 From East			Rte 93 NB Off From South			Route 132 From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 1

Groups Printed- Cars - Trucks

Start Time	Summer St From North			Route 132 From East			Rte 93 SB On From South			Route 132 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	3	13	0	4	17	10	0	0	0	0	3	49	99
06:15 AM	2	18	2	10	25	13	0	0	0	0	2	44	116
06:30 AM	0	9	2	5	38	21	0	0	0	1	6	66	148
06:45 AM	5	6	1	7	39	26	0	0	0	0	10	59	153
Total	10	46	5	26	119	70	0	0	0	1	21	218	516
07:00 AM	4	37	3	4	40	24	0	0	0	0	9	108	229
07:15 AM	1	17	6	12	42	18	0	0	0	0	16	96	208
07:30 AM	5	23	1	12	39	24	0	0	0	1	12	95	212
07:45 AM	3	21	0	4	53	32	0	0	0	1	5	67	186
Total	13	98	10	32	174	98	0	0	0	2	42	366	835
08:00 AM	3	16	1	5	37	17	0	0	0	3	12	47	141
08:15 AM	8	12	7	4	46	10	0	0	0	0	2	48	137
08:30 AM	5	15	1	8	32	21	0	0	0	2	10	42	136
08:45 AM	6	9	2	2	28	14	0	0	0	2	5	36	104
Total	22	52	11	19	143	62	0	0	0	7	29	173	518
Grand Total	45	196	26	77	436	230	0	0	0	10	92	757	1869
Apprch %	16.9	73.4	9.7	10.4	58.7	31	0	0	0	1.2	10.7	88.1	
Total %	2.4	10.5	1.4	4.1	23.3	12.3	0	0	0	0.5	4.9	40.5	
Cars	44	196	25	77	432	228	0	0	0	10	91	752	1855
% Cars	97.8	100	96.2	100	99.1	99.1	0	0	0	100	98.9	99.3	99.3
Trucks	1	0	1	0	4	2	0	0	0	0	1	5	14
% Trucks	2.2	0	3.8	0	0.9	0.9	0	0	0	0	1.1	0.7	0.7

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

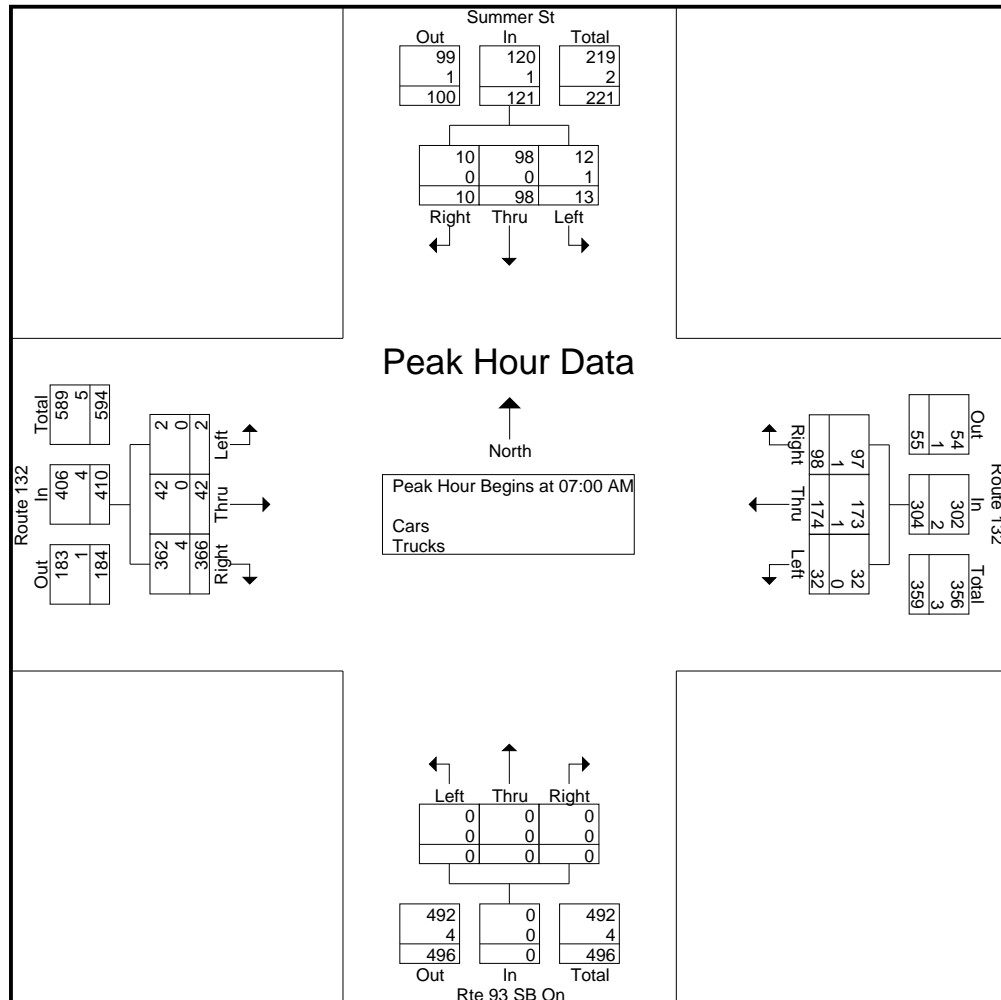
File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 2

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	37	3	44	4	40	24	68	0	0	0	0	0	9	108	117	229
07:15 AM	1	17	6	24	12	42	18	72	0	0	0	0	0	16	96	112	208
07:30 AM	5	23	1	29	12	39	24	75	0	0	0	0	1	12	95	108	212
07:45 AM	3	21	0	24	4	53	32	89	0	0	0	0	1	5	67	73	186
Total Volume	13	98	10	121	32	174	98	304	0	0	0	0	2	42	366	410	835
% App. Total	10.7	81	8.3		10.5	57.2	32.2		0	0	0		0.5	10.2	89.3		
PHF	.650	.662	.417	.688	.667	.821	.766	.854	.000	.000	.000	.000	.500	.656	.847	.876	.912
Cars	12	98	10	120	32	173	97	302	0	0	0	0	2	42	362	406	828
% Cars	92.3	100	100	99.2	100	99.4	99.0	99.3	0	0	0	0	100	100	98.9	99.0	99.2
Trucks	1	0	0	1	0	1	1	2	0	0	0	0	0	0	4	4	7
% Trucks	7.7	0	0	0.8	0	0.6	1.0	0.7	0	0	0	0	0	0	1.1	1.0	0.8



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

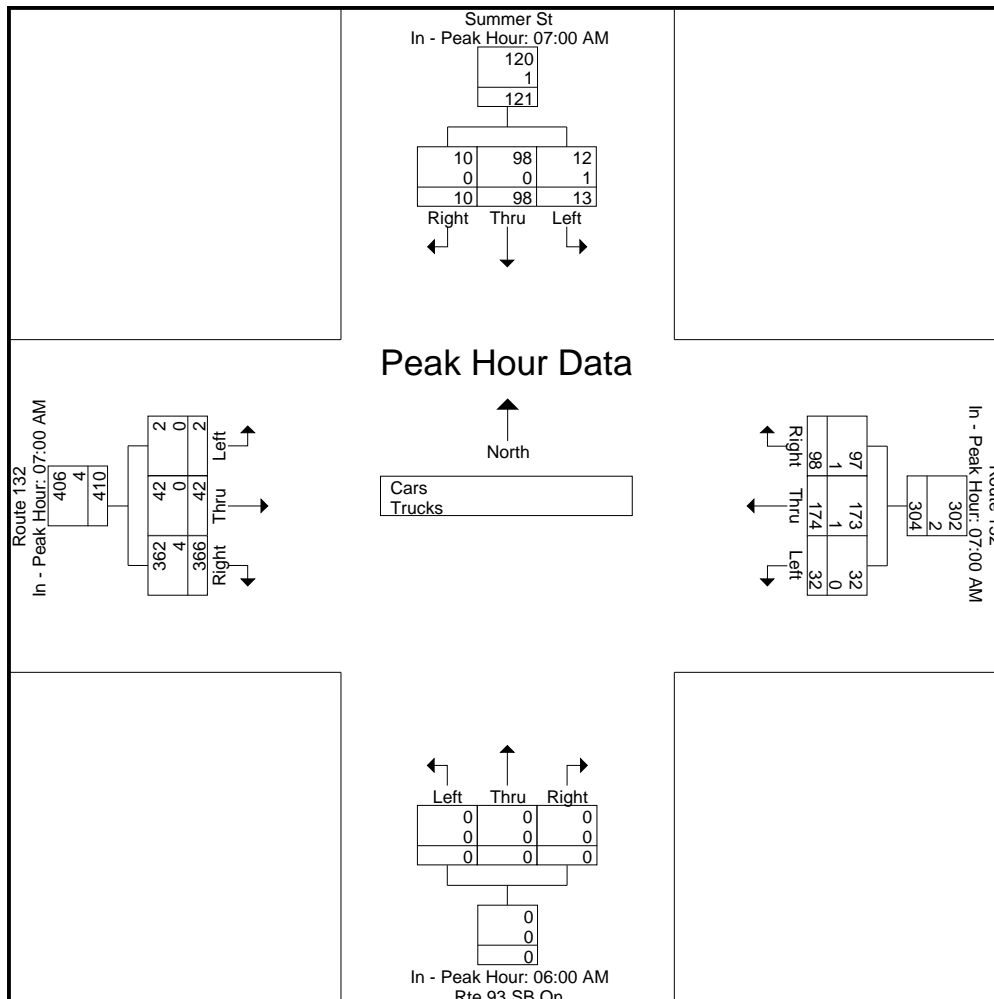
Page No : 3

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				06:00 AM				07:00 AM			
+0 mins.	4	37	3	44	4	40	24	68	0	0	0	0	0	9	108	117
+15 mins.	1	17	6	24	12	42	18	72	0	0	0	0	0	16	96	112
+30 mins.	5	23	1	29	12	39	24	75	0	0	0	0	1	12	95	108
+45 mins.	3	21	0	24	4	53	32	89	0	0	0	0	1	5	67	73
Total Volume	13	98	10	121	32	174	98	304	0	0	0	0	2	42	366	410
% App. Total	10.7	81	8.3		10.5	57.2	32.2		0	0	0		0.5	10.2	89.3	
PHF	.650	.662	.417	.688	.667	.821	.766	.854	.000	.000	.000	.000	.500	.656	.847	.876
Cars	12	98	10	120	32	173	97	302	0	0	0	0	2	42	362	406
% Cars	92.3	100	100	99.2	100	99.4	99	99.3	0	0	0	0	100	100	98.9	99
Trucks	1	0	0	1	0	1	1	2	0	0	0	0	0	0	4	4
% Trucks	7.7	0	0	0.8	0	0.6	1	0.7	0	0	0	0	0	0	1.1	1



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 4

Groups Printed- Cars

Start Time	Summer St From North			Route 132 From East			Rte 93 SB On From South			Route 132 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	3	13	0	4	17	10	0	0	0	0	3	49	99
06:15 AM	2	18	2	10	25	13	0	0	0	0	1	44	115
06:30 AM	0	9	2	5	38	21	0	0	0	1	6	66	148
06:45 AM	5	6	1	7	38	26	0	0	0	0	10	59	152
Total	10	46	5	26	118	70	0	0	0	1	20	218	514
07:00 AM	4	37	3	4	39	24	0	0	0	0	9	106	226
07:15 AM	1	17	6	12	42	18	0	0	0	0	16	96	208
07:30 AM	5	23	1	12	39	24	0	0	0	1	12	94	211
07:45 AM	2	21	0	4	53	31	0	0	0	1	5	66	183
Total	12	98	10	32	173	97	0	0	0	2	42	362	828
08:00 AM	3	16	1	5	37	17	0	0	0	3	12	46	140
08:15 AM	8	12	7	4	45	10	0	0	0	0	2	48	136
08:30 AM	5	15	0	8	31	21	0	0	0	2	10	42	134
08:45 AM	6	9	2	2	28	13	0	0	0	2	5	36	103
Total	22	52	10	19	141	61	0	0	0	7	29	172	513
Grand Total	44	196	25	77	432	228	0	0	0	10	91	752	1855
Apprch %	16.6	74	9.4	10.4	58.6	30.9	0	0	0	1.2	10.7	88.2	
Total %	2.4	10.6	1.3	4.2	23.3	12.3	0	0	0	0.5	4.9	40.5	

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

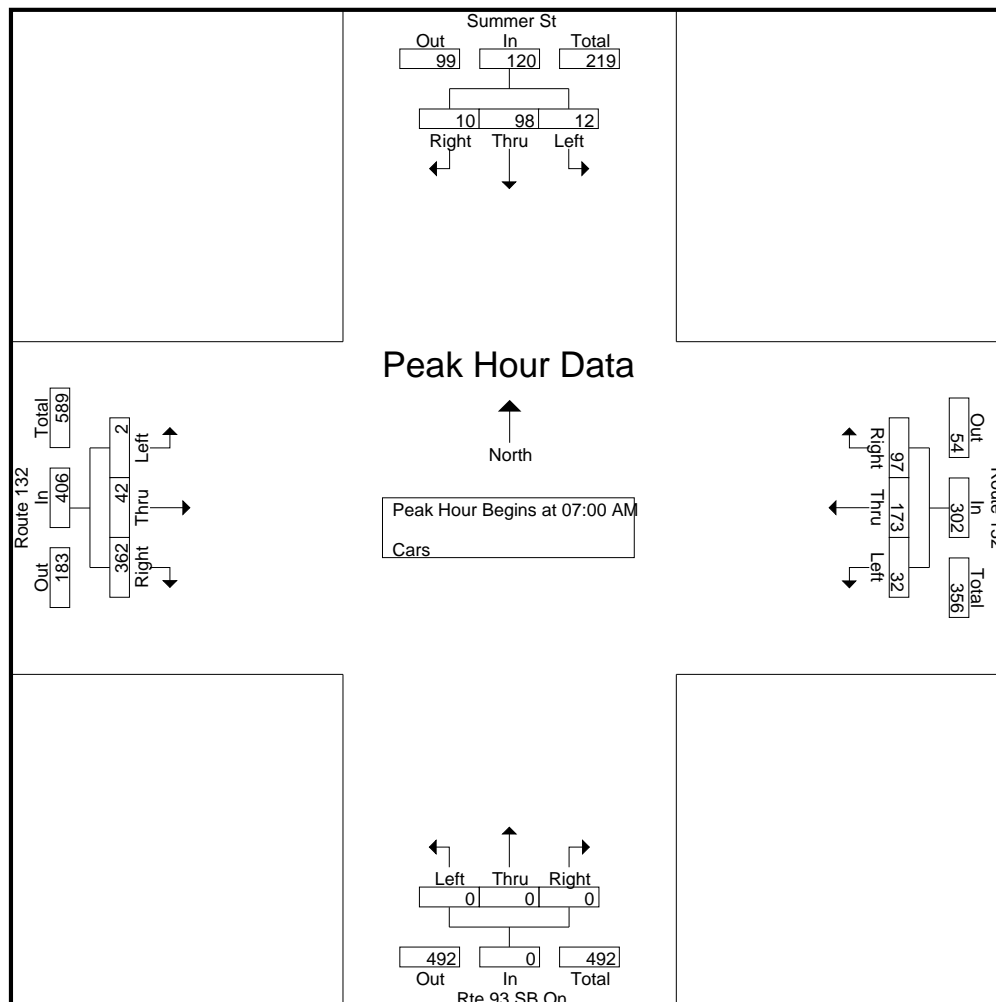
File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 5

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	37	3	44	4	39	24	67	0	0	0	0	0	9	106	115	226
07:15 AM	1	17	6	24	12	42	18	72	0	0	0	0	0	16	96	112	208
07:30 AM	5	23	1	29	12	39	24	75	0	0	0	0	1	12	94	107	211
07:45 AM	2	21	0	23	4	53	31	88	0	0	0	0	1	5	66	72	183
Total Volume	12	98	10	120	32	173	97	302	0	0	0	0	2	42	362	406	828
% App. Total	10	81.7	8.3		10.6	57.3	32.1		0	0	0		0.5	10.3	89.2		
PHF	.600	.662	.417	.682	.667	.816	.782	.858	.000	.000	.000	.000	.500	.656	.854	.883	.916



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp
 E/W Street: Route 132
 City/State : Northfield, Nh
 Weather : Clear

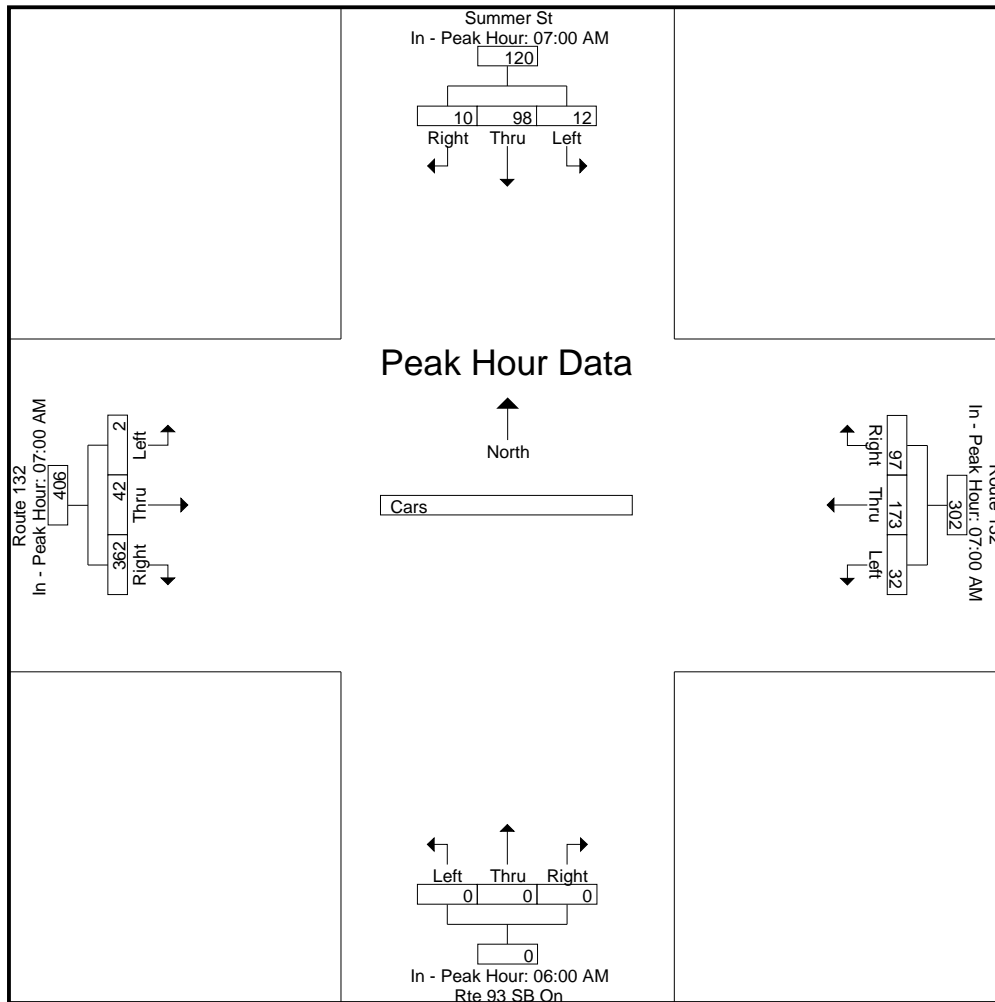
File Name : 52455005
 Site Code : 52455005
 Start Date : 4/19/2017
 Page No : 6

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				06:00 AM				07:00 AM			
+0 mins.	4	37	3	44	4	39	24	67	0	0	0	0	0	9	106	115
+15 mins.	1	17	6	24	12	42	18	72	0	0	0	0	0	16	96	112
+30 mins.	5	23	1	29	12	39	24	75	0	0	0	0	1	12	94	107
+45 mins.	2	21	0	23	4	53	31	88	0	0	0	0	1	5	66	72
Total Volume	12	98	10	120	32	173	97	302	0	0	0	0	2	42	362	406
% App. Total	10	81.7	8.3		10.6	57.3	32.1		0	0	0		0.5	10.3	89.2	
PHF	.600	.662	.417	.682	.667	.816	.782	.858	.000	.000	.000	.000	.500	.656	.854	.883



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 7

Groups Printed- Trucks

Start Time	Summer St From North			Route 132 From East			Rte 93 SB On From South			Route 132 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	0	0	0	0	0	1	0	2
07:00 AM	0	0	0	0	1	0	0	0	0	0	0	2	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45 AM	1	0	0	0	0	1	0	0	0	0	0	1	3
Total	1	0	0	0	1	1	0	0	0	0	0	4	7
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
08:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
08:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	2
08:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	1	0	2	1	0	0	0	0	0	1	5
Grand Total	1	0	1	0	4	2	0	0	0	0	1	5	14
Apprch %	50	0	50	0	66.7	33.3	0	0	0	0	16.7	83.3	
Total %	7.1	0	7.1	0	28.6	14.3	0	0	0	0	7.1	35.7	

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

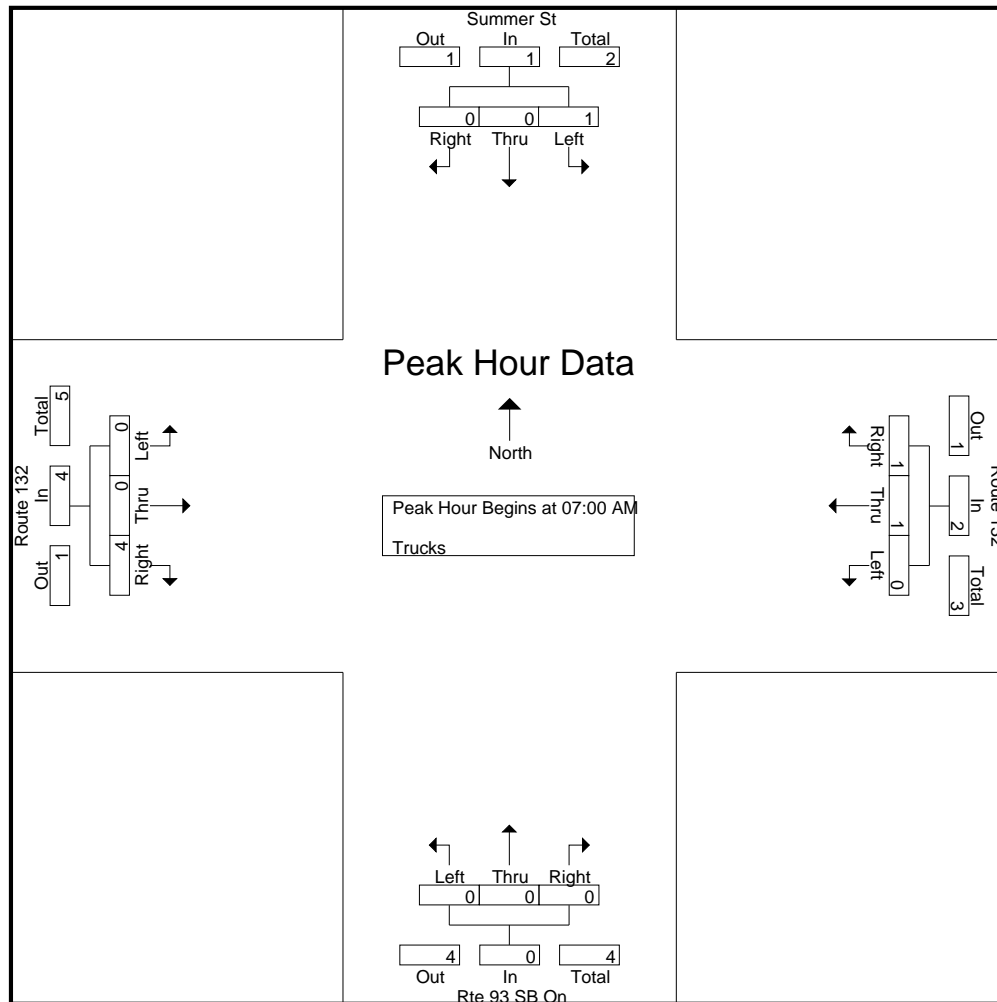
File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 8

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	2	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:45 AM	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	1	3
Total Volume	1	0	0	1	0	1	1	2	0	0	0	0	0	0	4	4	7
% App. Total	100	0	0		0	50	50		0	0	0		0	0	100		
PHF	.250	.000	.000	.250	.000	.250	.250	.500	.000	.000	.000	.000	.000	.000	.500	.500	.583



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

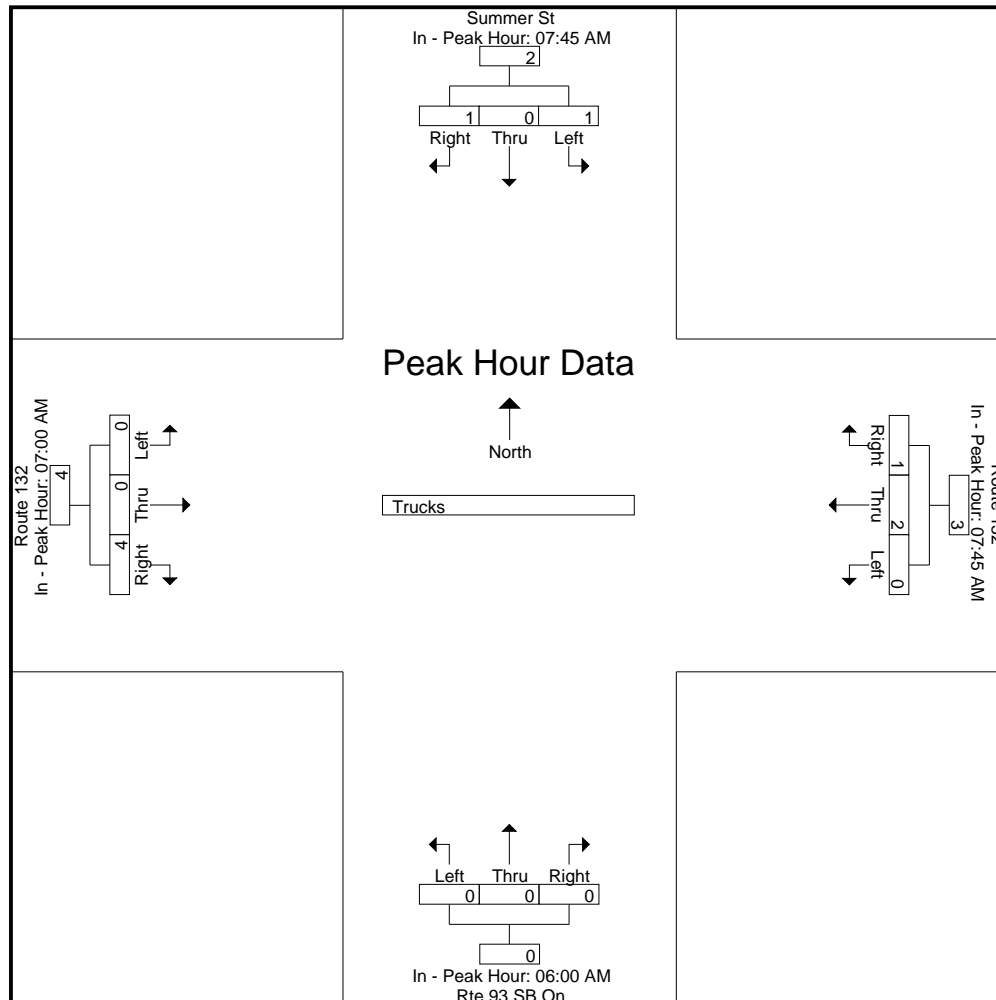
Page No : 9

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				06:00 AM				07:00 AM			
+0 mins.	1	0	0	1	0	0	1	1	0	0	0	0	0	0	2	2
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
+45 mins.	0	0	1	1	0	1	0	1	0	0	0	0	0	0	1	1
Total Volume	1	0	1	2	0	2	1	3	0	0	0	0	0	0	4	4
% App. Total	50	0	50		0	66.7	33.3		0	0	0		0	0	100	
PHF	.250	.000	.250	.500	.000	.500	.250	.750	.000	.000	.000	.000	.000	.000	.500	.500



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aprrch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	0	0	

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

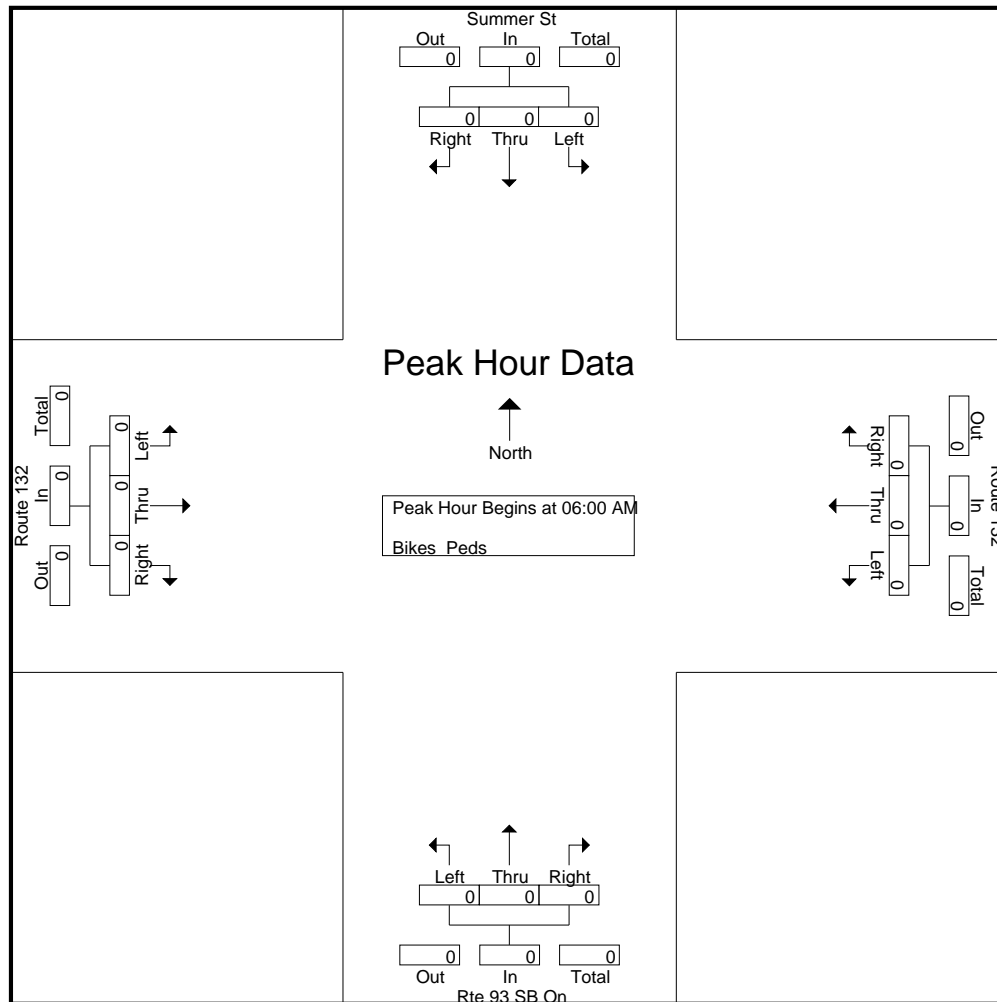
File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 11

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 AM																	
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp
 E/W Street: Route 132
 City/State : Northfield, Nh
 Weather : Clear

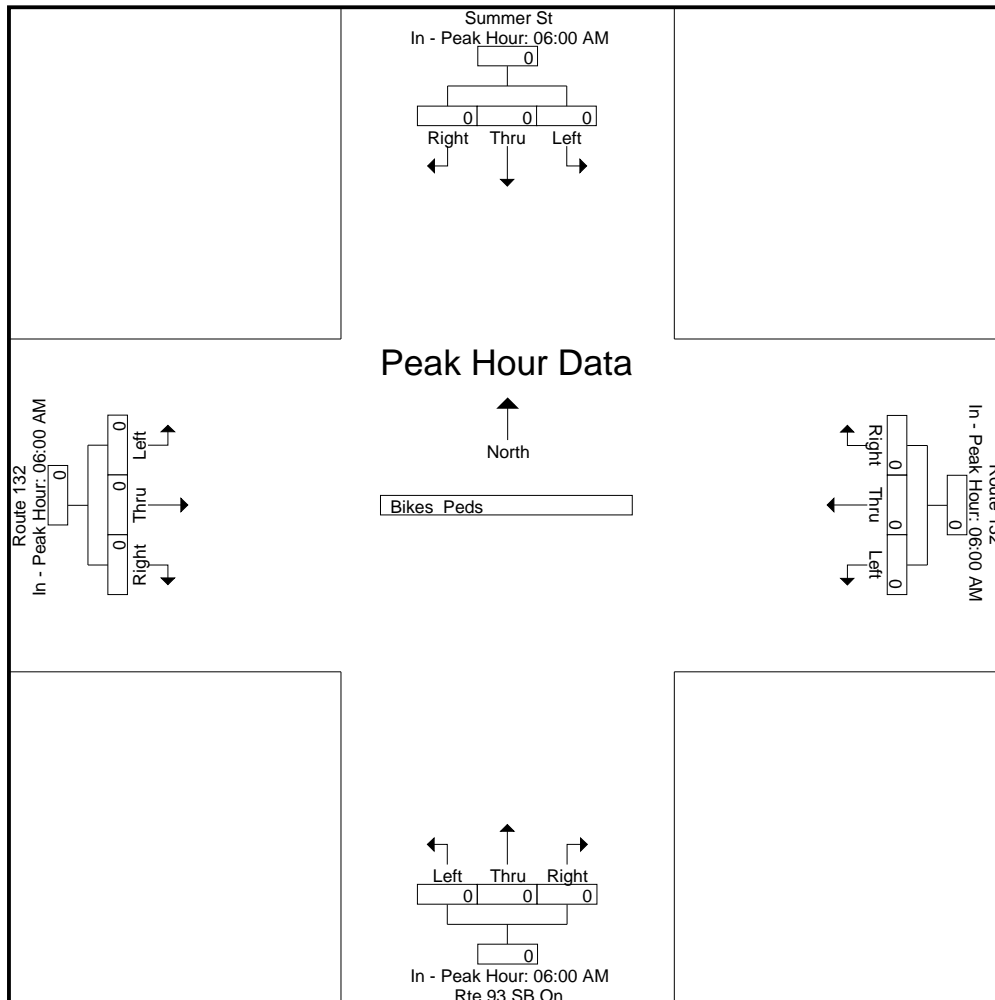
File Name : 52455005
 Site Code : 52455005
 Start Date : 4/19/2017
 Page No : 12

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM				06:00 AM				06:00 AM				06:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 1

Groups Printed- Cars - Trucks

Start Time	Summer St From North			Route 132 From East			Rte 93 SB On From South			Route 132 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	17	11	3	4	54	15	0	0	0	3	12	43	162
03:15 PM	9	12	8	2	71	18	0	0	0	4	12	31	167
03:30 PM	13	15	0	2	54	17	0	0	0	2	14	30	147
03:45 PM	13	7	2	1	77	24	0	0	0	2	24	33	183
Total	52	45	13	9	256	74	0	0	0	11	62	137	659
04:00 PM	15	12	3	3	67	23	0	0	0	1	13	35	172
04:15 PM	13	7	1	1	70	17	0	0	0	1	13	32	155
04:30 PM	19	2	0	0	96	31	0	0	0	1	8	38	195
04:45 PM	17	5	1	1	84	24	0	0	0	1	14	31	178
Total	64	26	5	5	317	95	0	0	0	4	48	136	700
05:00 PM	12	7	3	2	87	30	0	0	0	2	17	33	193
05:15 PM	20	9	3	0	92	28	0	0	0	2	12	25	191
05:30 PM	15	8	4	1	79	31	0	0	0	0	19	19	176
05:45 PM	20	6	3	2	74	30	0	0	0	1	12	29	177
Total	67	30	13	5	332	119	0	0	0	5	60	106	737
Grand Total	183	101	31	19	905	288	0	0	0	20	170	379	2096
Apprch %	58.1	32.1	9.8	1.6	74.7	23.8	0	0	0	3.5	29.9	66.6	
Total %	8.7	4.8	1.5	0.9	43.2	13.7	0	0	0	1	8.1	18.1	
Cars	183	101	29	19	900	287	0	0	0	20	168	375	2082
% Cars	100	100	93.5	100	99.4	99.7	0	0	0	100	98.8	98.9	99.3
Trucks	0	0	2	0	5	1	0	0	0	0	2	4	14
% Trucks	0	0	6.5	0	0.6	0.3	0	0	0	0	1.2	1.1	0.7

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

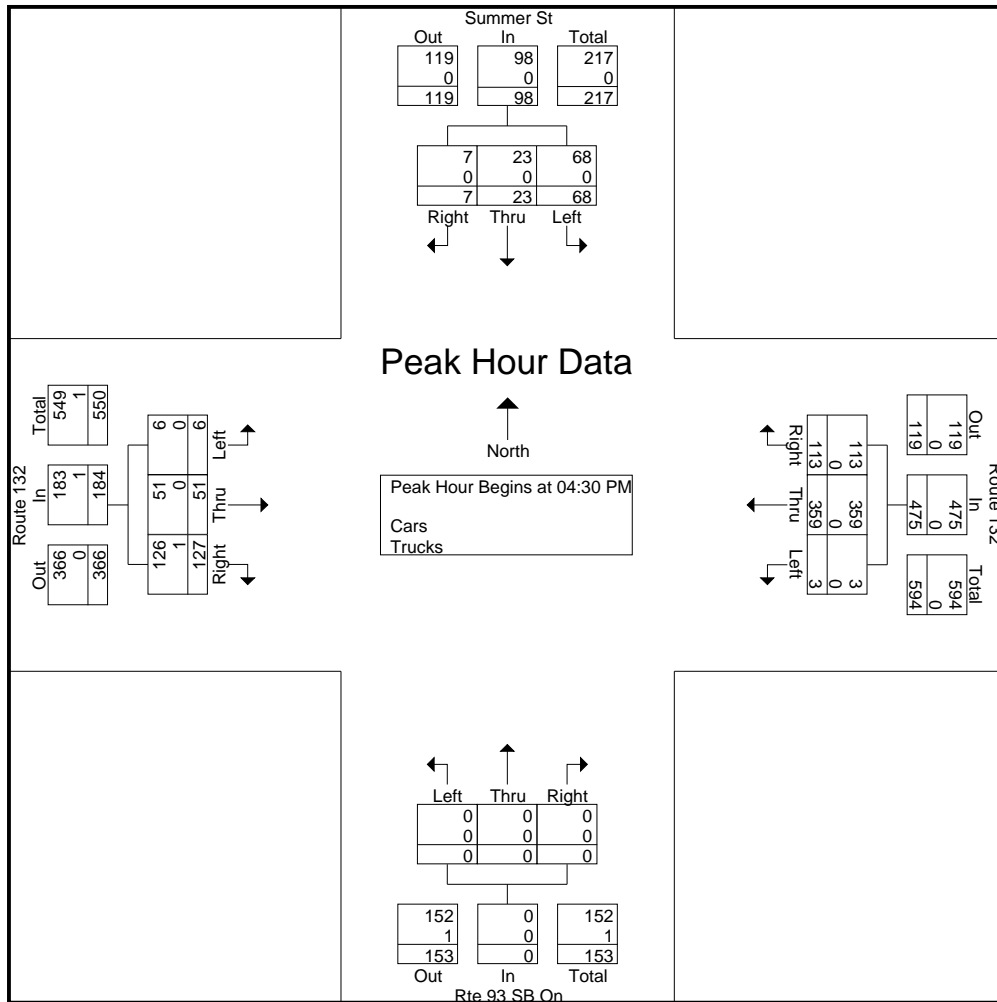
Page No : 2

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

04:30 PM	19	2	0	21	0	96	31	127	0	0	0	0	1	8	38	47	195
04:45 PM	17	5	1	23	1	84	24	109	0	0	0	0	1	14	31	46	178
05:00 PM	12	7	3	22	2	87	30	119	0	0	0	0	2	17	33	52	193
05:15 PM	20	9	3	32	0	92	28	120	0	0	0	0	2	12	25	39	191
Total Volume	68	23	7	98	3	359	113	475	0	0	0	0	6	51	127	184	757
% App. Total	69.4	23.5	7.1		0.6	75.6	23.8		0	0	0		3.3	27.7	69		
PHF	.850	.639	.583	.766	.375	.935	.911	.935	.000	.000	.000	.000	.750	.750	.836	.885	.971
Cars	68	23	7	98	3	359	113	475	0	0	0	0	6	51	126	183	756
% Cars	100	100	100	100	100	100	100	100	0	0	0	0	100	100	99.2	99.5	99.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0.5	0.1



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

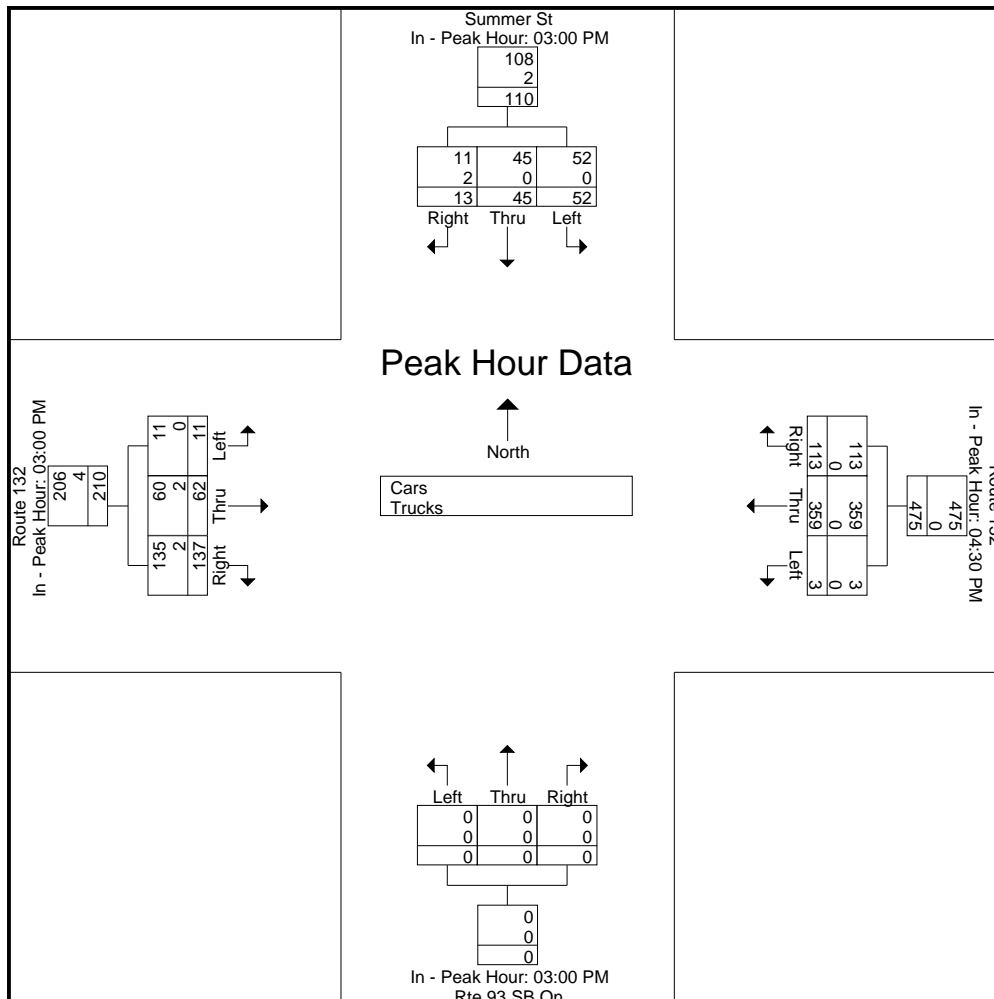
Page No : 3

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				04:30 PM				03:00 PM				03:00 PM			
+0 mins.	17	11	3	31	0	96	31	127	0	0	0	0	3	12	43	58
+15 mins.	9	12	8	29	1	84	24	109	0	0	0	0	4	12	31	47
+30 mins.	13	15	0	28	2	87	30	119	0	0	0	0	2	14	30	46
+45 mins.	13	7	2	22	0	92	28	120	0	0	0	0	2	24	33	59
Total Volume	52	45	13	110	3	359	113	475	0	0	0	0	11	62	137	210
% App. Total	47.3	40.9	11.8		0.6	75.6	23.8		0	0	0		5.2	29.5	65.2	
PHF	.765	.750	.406	.887	.375	.935	.911	.935	.000	.000	.000	.000	.688	.646	.797	.890
Cars	52	45	11	108	3	359	113	475	0	0	0	0	11	60	135	206
% Cars	100	100	84.6	98.2	100	100	100	100	0	0	0	0	100	96.8	98.5	98.1
Trucks	0	0	2	2	0	0	0	0	0	0	0	0	0	2	2	4
% Trucks	0	0	15.4	1.8	0	0	0	0	0	0	0	0	0	3.2	1.5	1.9



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 4

Groups Printed- Cars

Start Time	Summer St From North			Route 132 From East			Rte 93 SB On From South			Route 132 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	17	11	2	4	52	15	0	0	0	3	12	42	158
03:15 PM	9	12	7	2	70	18	0	0	0	4	12	31	165
03:30 PM	13	15	0	2	54	17	0	0	0	2	13	29	145
03:45 PM	13	7	2	1	77	23	0	0	0	2	23	33	181
Total	52	45	11	9	253	73	0	0	0	11	60	135	649
04:00 PM	15	12	3	3	66	23	0	0	0	1	13	35	171
04:15 PM	13	7	1	1	70	17	0	0	0	1	13	32	155
04:30 PM	19	2	0	0	96	31	0	0	0	1	8	38	195
04:45 PM	17	5	1	1	84	24	0	0	0	1	14	30	177
Total	64	26	5	5	316	95	0	0	0	4	48	135	698
05:00 PM	12	7	3	2	87	30	0	0	0	2	17	33	193
05:15 PM	20	9	3	0	92	28	0	0	0	2	12	25	191
05:30 PM	15	8	4	1	78	31	0	0	0	0	19	19	175
05:45 PM	20	6	3	2	74	30	0	0	0	1	12	28	176
Total	67	30	13	5	331	119	0	0	0	5	60	105	735
Grand Total	183	101	29	19	900	287	0	0	0	20	168	375	2082
Apprch %	58.5	32.3	9.3	1.6	74.6	23.8	0	0	0	3.6	29.8	66.6	
Total %	8.8	4.9	1.4	0.9	43.2	13.8	0	0	0	1	8.1	18	

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

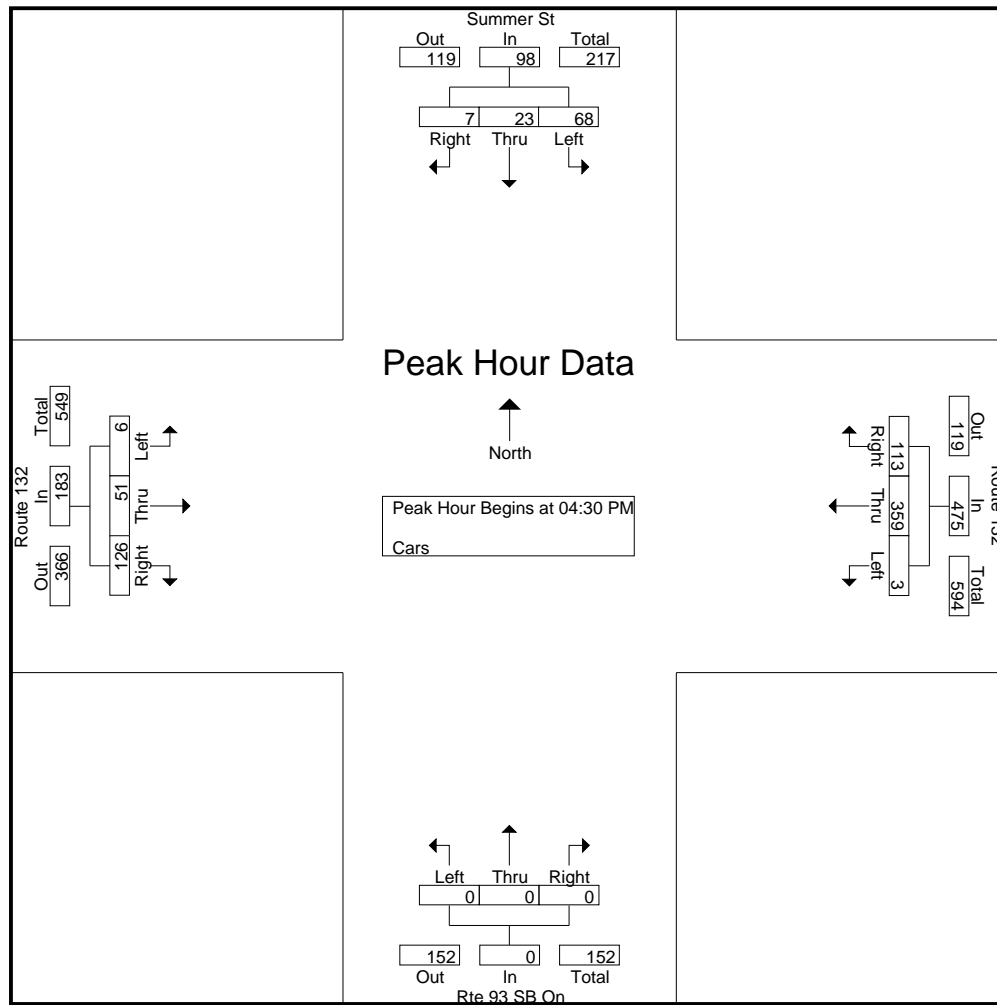
File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 5

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	19	2	0	21	0	96	31	127	0	0	0	0	1	8	38	47	195
04:45 PM	17	5	1	23	1	84	24	109	0	0	0	0	1	14	30	45	177
05:00 PM	12	7	3	22	2	87	30	119	0	0	0	0	2	17	33	52	193
05:15 PM	20	9	3	32	0	92	28	120	0	0	0	0	2	12	25	39	191
Total Volume	68	23	7	98	3	359	113	475	0	0	0	0	6	51	126	183	756
% App. Total	69.4	23.5	7.1		0.6	75.6	23.8		0	0	0		3.3	27.9	68.9		
PHF	.850	.639	.583	.766	.375	.935	.911	.935	.000	.000	.000	.000	.750	.750	.829	.880	.969



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

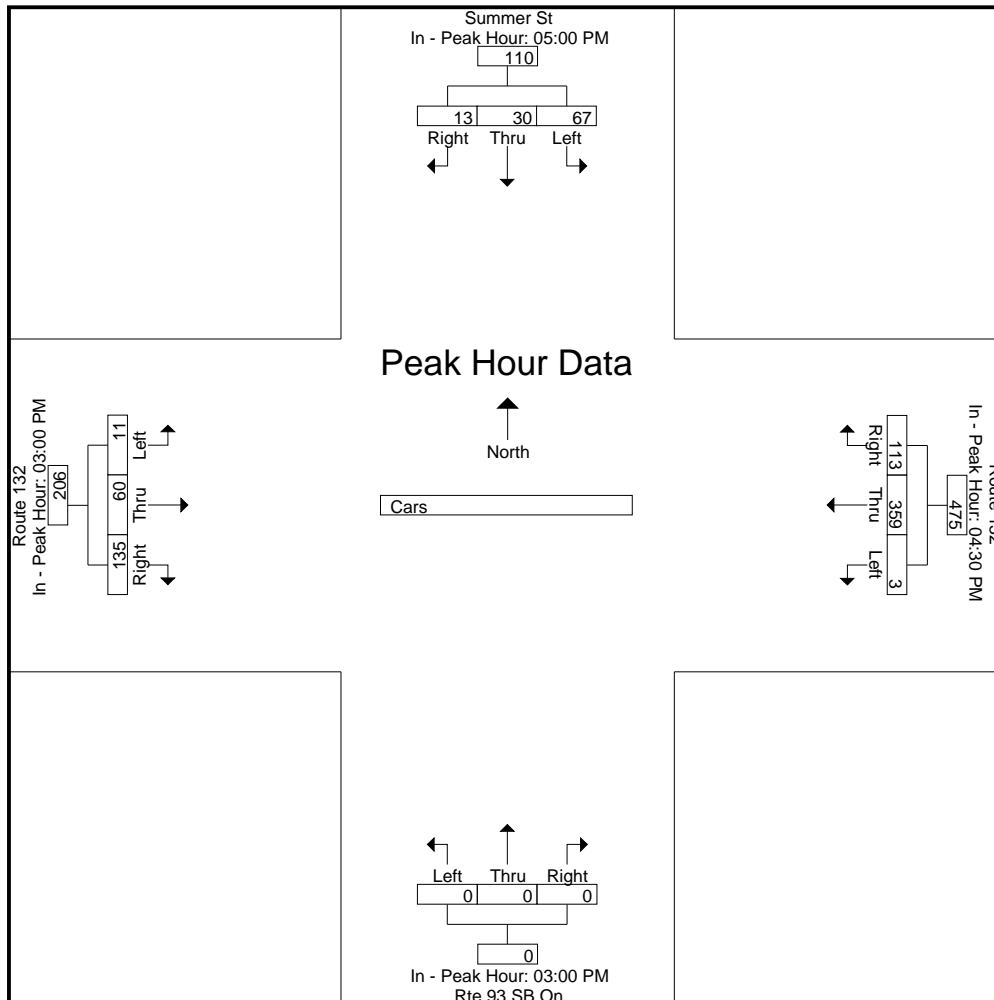
Page No : 6

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				03:00 PM				03:00 PM			
+0 mins.	12	7	3	22	0	96	31	127	0	0	0	0	3	12	42	57
+15 mins.	20	9	3	32	1	84	24	109	0	0	0	0	4	12	31	47
+30 mins.	15	8	4	27	2	87	30	119	0	0	0	0	2	13	29	44
+45 mins.	20	6	3	29	0	92	28	120	0	0	0	0	2	23	33	58
Total Volume	67	30	13	110	3	359	113	475	0	0	0	0	11	60	135	206
% App. Total	60.9	27.3	11.8		0.6	75.6	23.8		0	0	0		5.3	29.1	65.5	
PHF	.838	.833	.813	.859	.375	.935	.911	.935	.000	.000	.000	.000	.688	.652	.804	.888



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 7

Groups Printed- Trucks

Start Time	Summer St From North			Route 132 From East			Rte 93 SB On From South			Route 132 From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	0	0	1	0	2	0	0	0	0	0	0	1	4
03:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	2
03:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	2
03:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	2
Total	0	0	2	0	3	1	0	0	0	0	2	2	10
04:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	1	0	0	0	0	0	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	1	0	0	0	0	0	0	1	2
Grand Total	0	0	2	0	5	1	0	0	0	0	2	4	14
Apprch %	0	0	100	0	83.3	16.7	0	0	0	0	33.3	66.7	
Total %	0	0	14.3	0	35.7	7.1	0	0	0	0	14.3	28.6	

Accurate Counts

978-664-2565

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 8

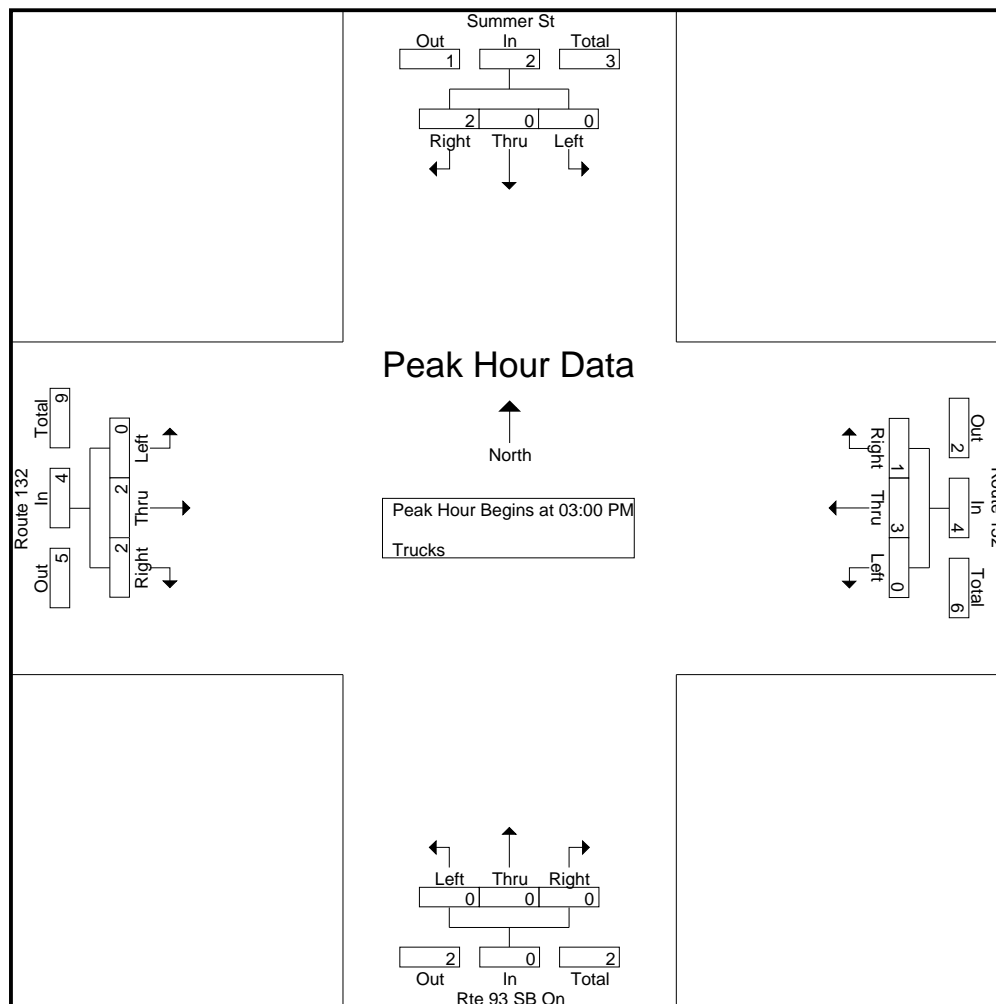
N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	1	1	0	2	0	2	0	0	0	0	0	0	1	1	4
03:15 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
03:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
Total Volume	0	0	2	2	0	3	1	4	0	0	0	0	0	2	2	4	10
% App. Total	0	0	100		0	75	25		0	0	0		0	50	50		
PHF	.000	.000	.500	.500	.000	.375	.250	.500	.000	.000	.000	.000	.000	.500	.500	.500	.625



Accurate Counts

978-664-2565

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 9

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

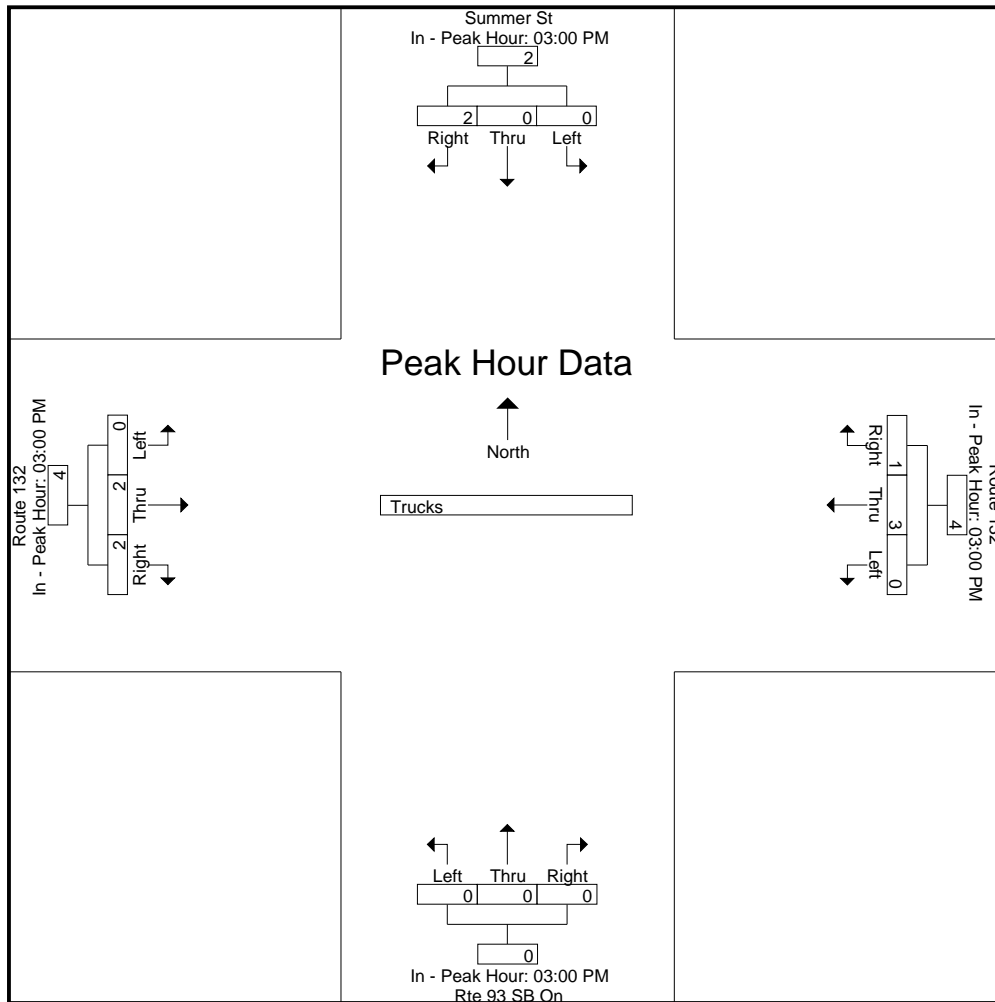
Weather : Clear

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	0	1	1	0	2	0	2	0	0	0	0	0	0	1	1
+15 mins.	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
+45 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1
Total Volume	0	0	2	2	0	3	1	4	0	0	0	0	0	2	2	4
% App. Total	0	0	100		0	75	25		0	0	0		0	50	50	
PHF	.000	.000	.500	.500	.000	.375	.250	.500	.000	.000	.000	.000	.000	.500	.500	.500



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 10

Groups Printed- Bikes Peds

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aprrch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	0	0	

Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

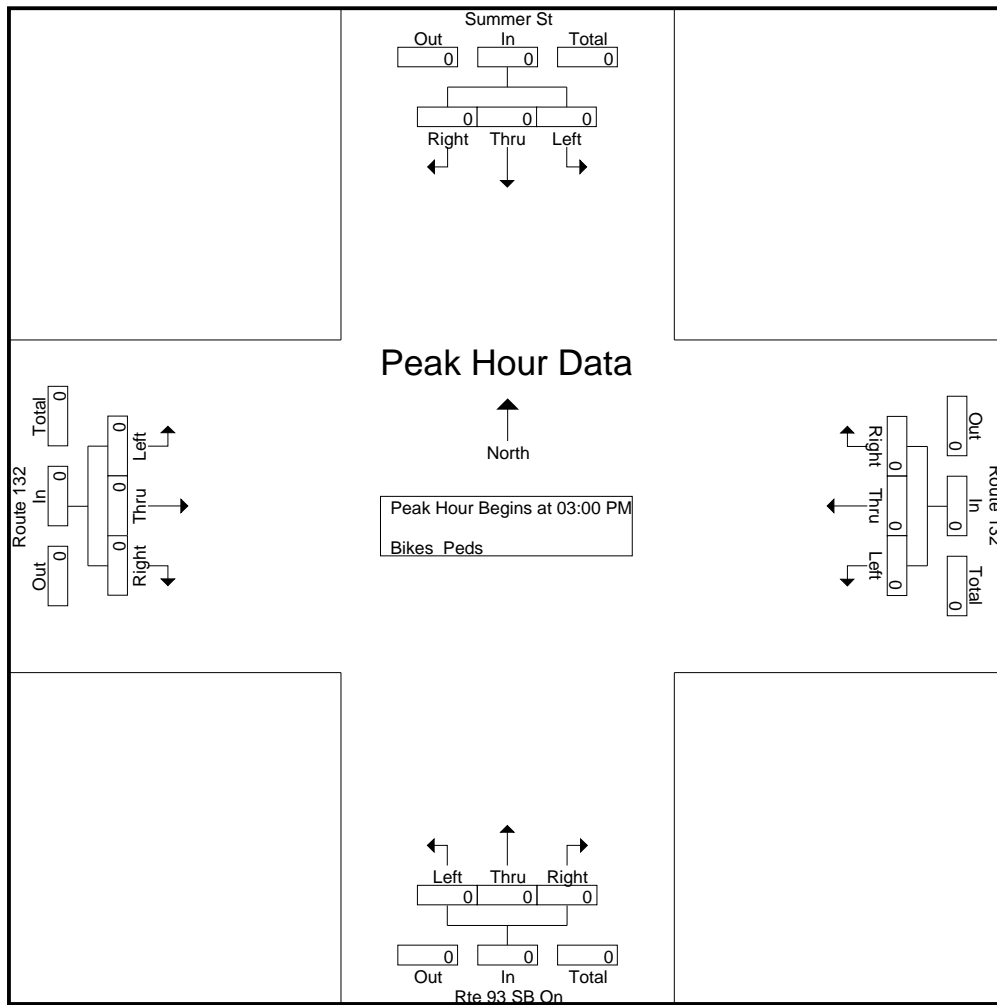
File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

Page No : 11

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:00 PM																		
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Summer St/Route 93 SB Ramp

E/W Street: Route 132

City/State : Northfield, Nh

Weather : Clear

File Name : 52455005

Site Code : 52455005

Start Date : 4/19/2017

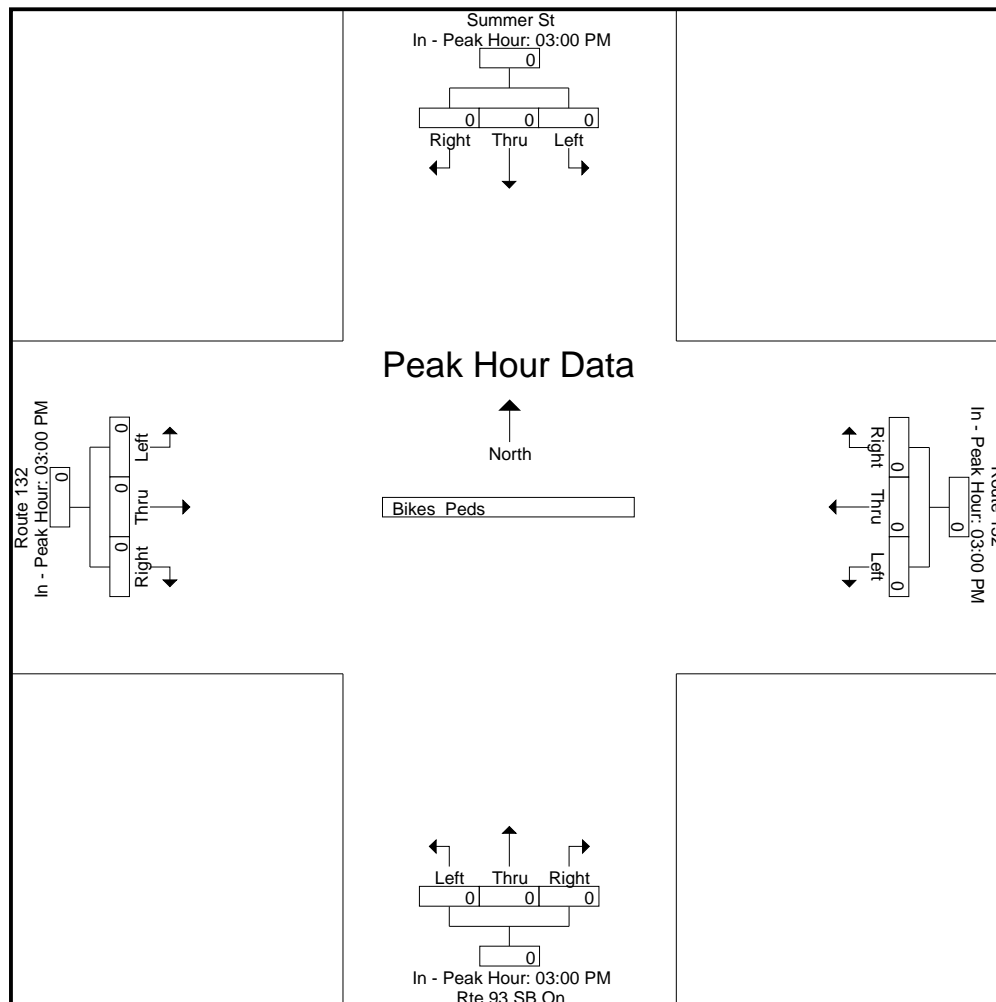
Page No : 12

Start Time	Summer St From North				Route 132 From East				Rte 93 SB On From South				Route 132 From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Granite St From North			Bay St From East			Summer St From South			Elm St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	5	4	8	0	16	0	0	4	2	14	53
06:15 AM	0	4	1	9	7	1	17	0	3	0	5	12	59
06:30 AM	0	0	6	4	5	0	22	2	2	1	7	15	64
06:45 AM	0	2	3	6	9	0	28	0	9	3	18	21	99
Total	0	6	15	23	29	1	83	2	14	8	32	62	275
07:00 AM	0	4	5	21	14	3	29	5	4	2	6	15	108
07:15 AM	0	3	11	10	29	0	33	0	3	7	9	18	123
07:30 AM	0	1	5	9	15	0	37	1	9	3	16	29	125
07:45 AM	0	1	7	5	14	0	23	0	12	3	12	14	91
Total	0	9	28	45	72	3	122	6	28	15	43	76	447
08:00 AM	1	1	7	17	24	1	16	3	6	2	7	18	103
08:15 AM	0	0	5	14	7	0	30	1	8	4	7	17	93
08:30 AM	0	1	6	11	15	1	25	1	6	2	13	26	107
08:45 AM	1	1	4	5	14	0	19	2	5	3	14	18	86
Total	2	3	22	47	60	2	90	7	25	11	41	79	389
Grand Total	2	18	65	115	161	6	295	15	67	34	116	217	1111
Aprrch %	2.4	21.2	76.5	40.8	57.1	2.1	78.2	4	17.8	9.3	31.6	59.1	
Total %	0.2	1.6	5.9	10.4	14.5	0.5	26.6	1.4	6	3.1	10.4	19.5	
Cars	2	17	62	113	159	6	294	14	65	32	111	216	1091
% Cars	100	94.4	95.4	98.3	98.8	100	99.7	93.3	97	94.1	95.7	99.5	98.2
Trucks	0	1	3	2	2	0	1	1	2	2	5	1	20
% Trucks	0	5.6	4.6	1.7	1.2	0	0.3	6.7	3	5.9	4.3	0.5	1.8

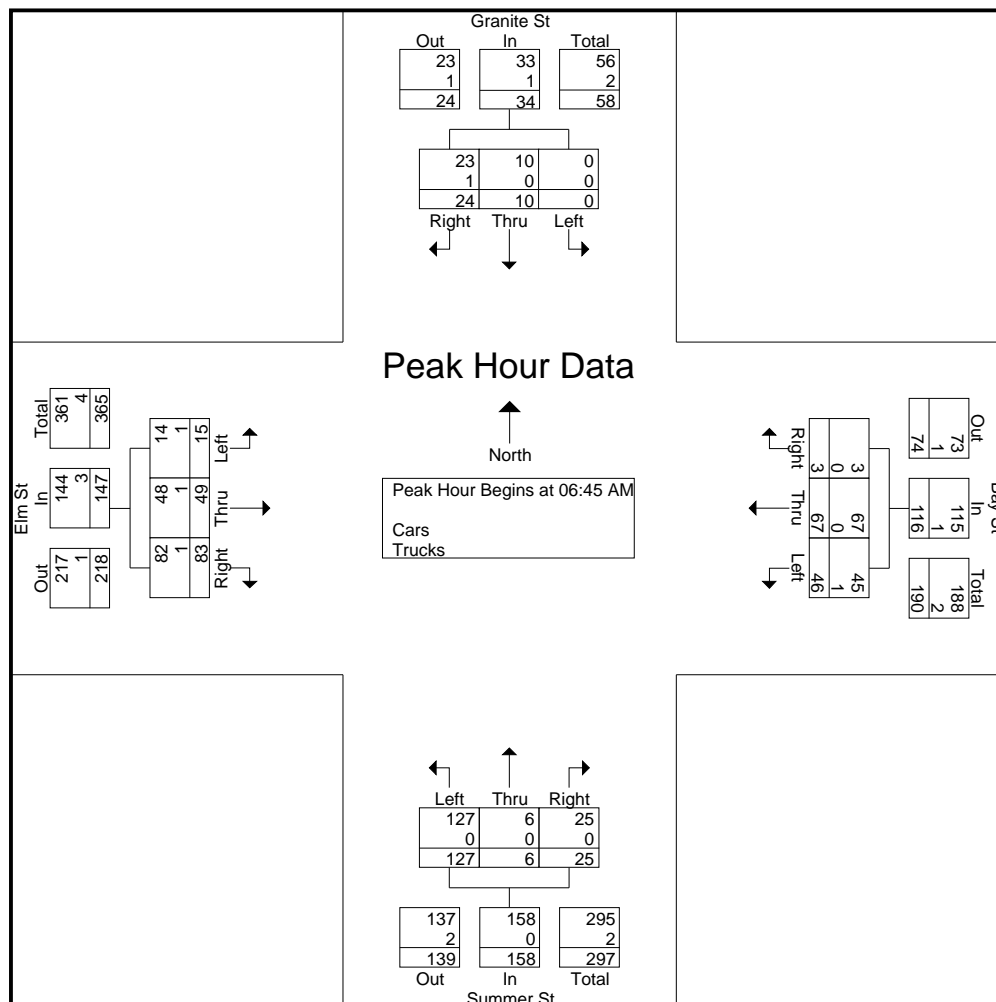
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 2

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	0	2	3	5	6	9	0	15	28	0	9	37	3	18	21	42	99
07:00 AM	0	4	5	9	21	14	3	38	29	5	4	38	2	6	15	23	108
07:15 AM	0	3	11	14	10	29	0	39	33	0	3	36	7	9	18	34	123
07:30 AM	0	1	5	6	9	15	0	24	37	1	9	47	3	16	29	48	125
Total Volume	0	10	24	34	46	67	3	116	127	6	25	158	15	49	83	147	455
% App. Total	0	29.4	70.6		39.7	57.8	2.6		80.4	3.8	15.8		10.2	33.3	56.5		
PHF	.000	.625	.545	.607	.548	.578	.250	.744	.858	.300	.694	.840	.536	.681	.716	.766	.910
Cars	0	10	23	33	45	67	3	115	127	6	25	158	14	48	82	144	450
% Cars	0	100	95.8	97.1	97.8	100	100	99.1	100	100	100	100	93.3	98.0	98.8	98.0	98.9
Trucks	0	0	1	1	1	0	0	1	0	0	0	0	1	1	1	3	5
% Trucks	0	0	4.2	2.9	2.2	0	0	0.9	0	0	0	0	6.7	2.0	1.2	2.0	1.1



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

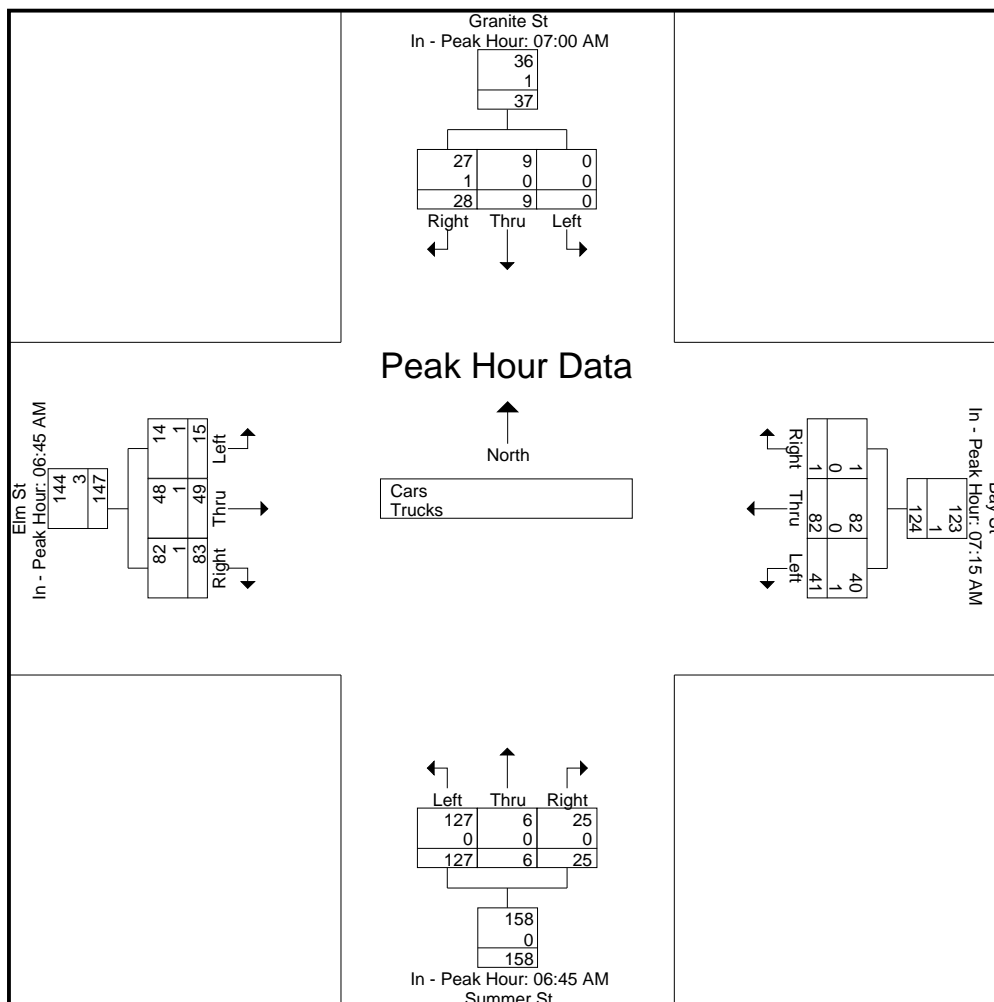
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 3

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				06:45 AM				06:45 AM			
+0 mins.	0	4	5	9	10	29	0	39	28	0	9	37	3	18	21	42
+15 mins.	0	3	11	14	9	15	0	24	29	5	4	38	2	6	15	23
+30 mins.	0	1	5	6	5	14	0	19	33	0	3	36	7	9	18	34
+45 mins.	0	1	7	8	17	24	1	42	37	1	9	47	3	16	29	48
Total Volume	0	9	28	37	41	82	1	124	127	6	25	158	15	49	83	147
% App. Total	0	24.3	75.7		33.1	66.1	0.8		80.4	3.8	15.8		10.2	33.3	56.5	
PHF	.000	.563	.636	.661	.603	.707	.250	.738	.858	.300	.694	.840	.536	.681	.716	.766
Cars	0	9	27	36	40	82	1	123	127	6	25	158	14	48	82	144
% Cars	0	100	96.4	97.3	97.6	100	100	99.2	100	100	100	100	93.3	98	98.8	98
Trucks	0	0	1	1	1	0	0	1	0	0	0	0	1	1	1	3
% Trucks	0	0	3.6	2.7	2.4	0	0	0.8	0	0	0	0	6.7	2	1.2	2



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 4

Groups Printed- Cars

Start Time	Granite St From North			Bay St From East			Summer St From South			Elm St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	5	4	7	0	16	0	0	4	2	14	52
06:15 AM	0	4	1	9	7	1	17	0	3	0	5	12	59
06:30 AM	0	0	6	4	5	0	22	2	2	1	6	15	63
06:45 AM	0	2	3	6	9	0	28	0	9	2	17	21	97
Total	0	6	15	23	28	1	83	2	14	7	30	62	271
07:00 AM	0	4	4	20	14	3	29	5	4	2	6	15	106
07:15 AM	0	3	11	10	29	0	33	0	3	7	9	18	123
07:30 AM	0	1	5	9	15	0	37	1	9	3	16	28	124
07:45 AM	0	1	7	5	14	0	23	0	11	2	11	14	88
Total	0	9	27	44	72	3	122	6	27	14	42	75	441
08:00 AM	1	1	7	16	24	1	16	3	6	2	6	18	101
08:15 AM	0	0	4	14	7	0	30	0	8	4	6	17	90
08:30 AM	0	1	5	11	14	1	25	1	5	2	13	26	104
08:45 AM	1	0	4	5	14	0	18	2	5	3	14	18	84
Total	2	2	20	46	59	2	89	6	24	11	39	79	379
Grand Total	2	17	62	113	159	6	294	14	65	32	111	216	1091
Apprch %	2.5	21	76.5	40.6	57.2	2.2	78.8	3.8	17.4	8.9	30.9	60.2	
Total %	0.2	1.6	5.7	10.4	14.6	0.5	26.9	1.3	6	2.9	10.2	19.8	

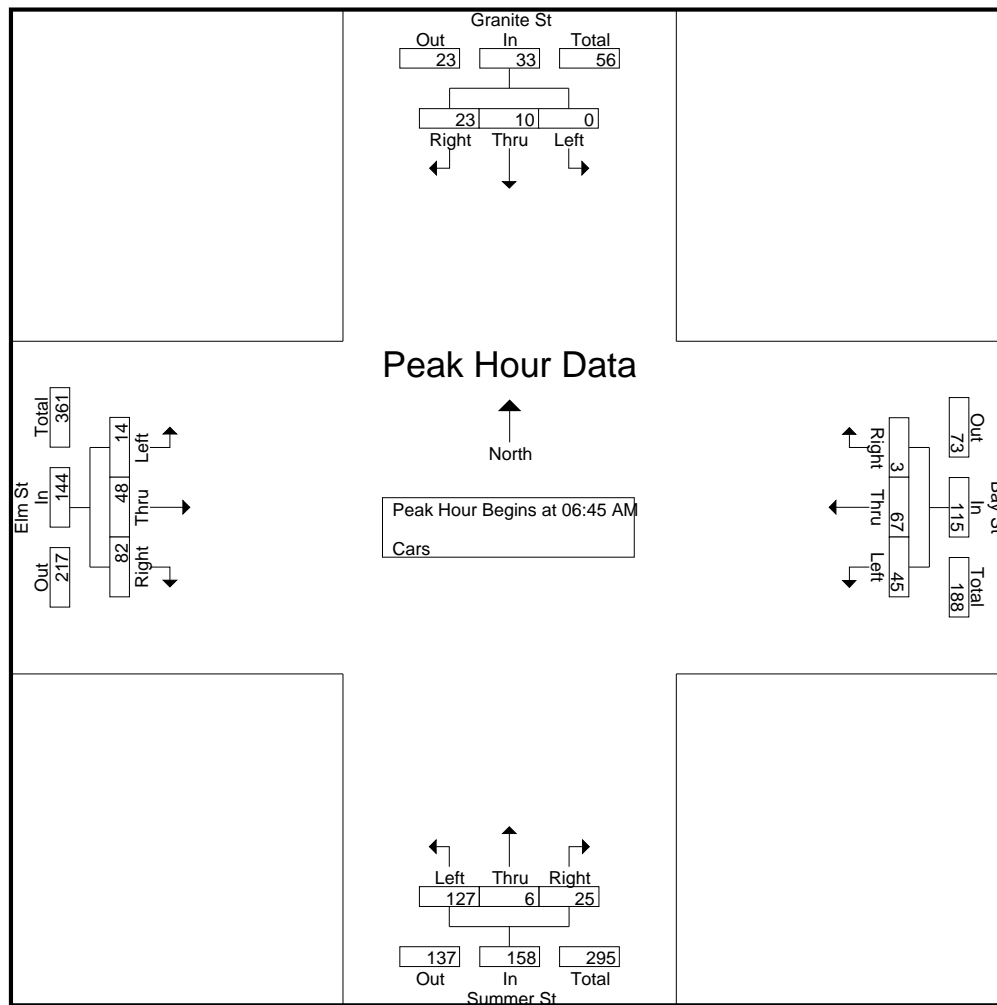
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 5

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	0	2	3	5	6	9	0	15	28	0	9	37	2	17	21	40	97
07:00 AM	0	4	4	8	20	14	3	37	29	5	4	38	2	6	15	23	106
07:15 AM	0	3	11	14	10	29	0	39	33	0	3	36	7	9	18	34	123
07:30 AM	0	1	5	6	9	15	0	24	37	1	9	47	3	16	28	47	124
Total Volume	0	10	23	33	45	67	3	115	127	6	25	158	14	48	82	144	450
% App. Total	0	30.3	69.7		39.1	58.3	2.6		80.4	3.8	15.8		9.7	33.3	56.9		
PHF	.000	.625	.523	.589	.563	.578	.250	.737	.858	.300	.694	.840	.500	.706	.732	.766	.907



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

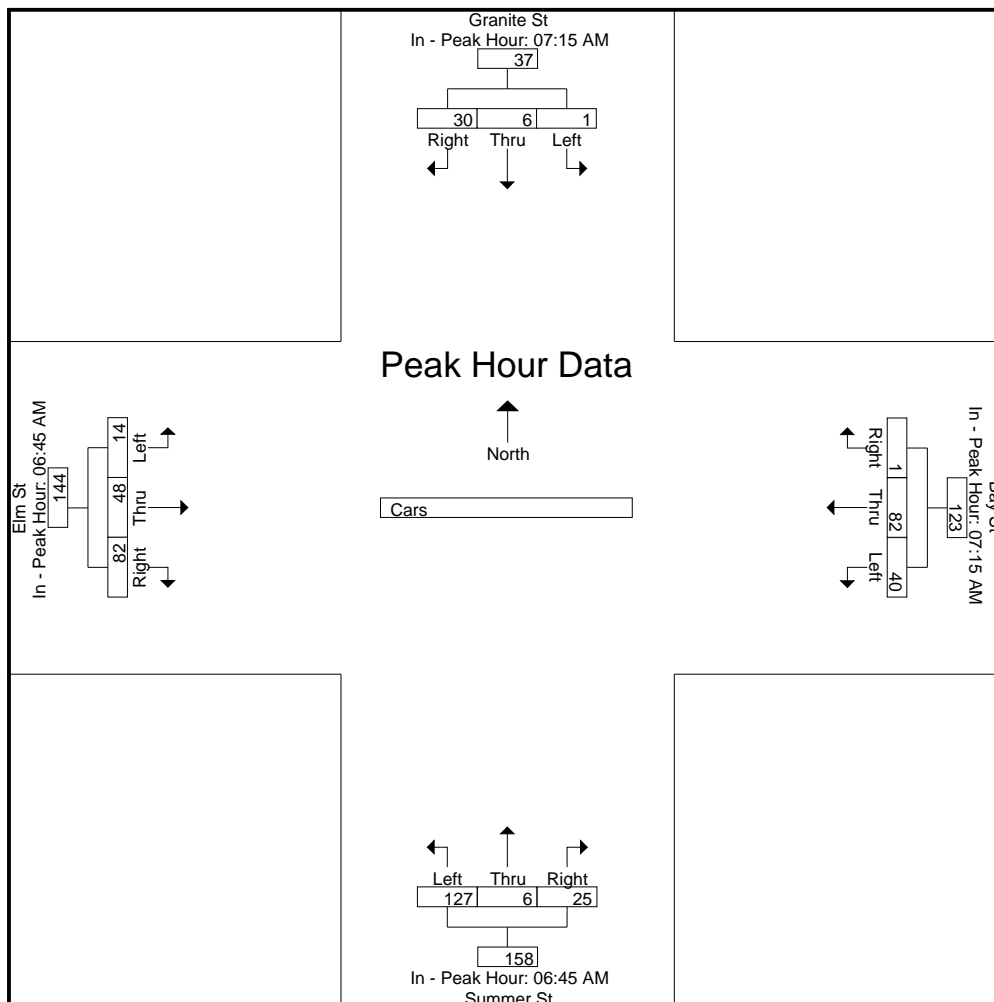
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 6

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				06:45 AM				06:45 AM			
+0 mins.	0	3	11	14	10	29	0	39	28	0	9	37	2	17	21	40
+15 mins.	0	1	5	6	9	15	0	24	29	5	4	38	2	6	15	23
+30 mins.	0	1	7	8	5	14	0	19	33	0	3	36	7	9	18	34
+45 mins.	1	1	7	9	16	24	1	41	37	1	9	47	3	16	28	47
Total Volume	1	6	30	37	40	82	1	123	127	6	25	158	14	48	82	144
% App. Total	2.7	16.2	81.1		32.5	66.7	0.8		80.4	3.8	15.8		9.7	33.3	56.9	
PHF	.250	.500	.682	.661	.625	.707	.250	.750	.858	.300	.694	.840	.500	.706	.732	.766



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Granite St From North			Bay St From East			Summer St From South			Elm St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
06:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
06:45 AM	0	0	0	0	0	0	0	0	0	1	1	0	2
Total	0	0	0	0	1	0	0	0	0	1	2	0	4
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	1	1	1	0	3
Total	0	0	1	1	0	0	0	0	1	1	1	1	6
08:00 AM	0	0	0	1	0	0	0	0	0	0	1	0	2
08:15 AM	0	0	1	0	0	0	0	1	0	0	1	0	3
08:30 AM	0	0	1	0	1	0	0	0	1	0	0	0	3
08:45 AM	0	1	0	0	0	0	1	0	0	0	0	0	2
Total	0	1	2	1	1	0	1	1	1	0	2	0	10
Grand Total	0	1	3	2	2	0	1	1	2	2	5	1	20
Apprch %	0	25	75	50	50	0	25	25	50	25	62.5	12.5	
Total %	0	5	15	10	10	0	5	5	10	10	25	5	

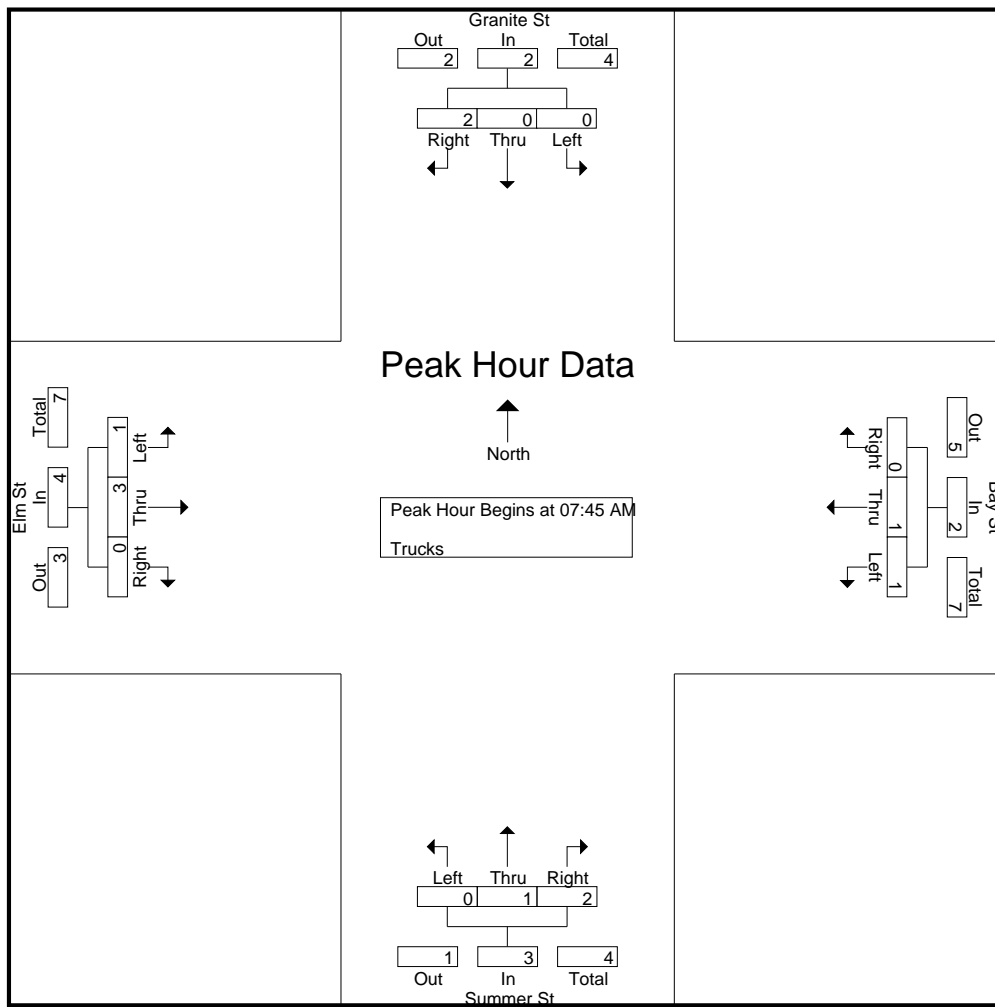
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 8

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	2	3
08:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2
08:15 AM	0	0	1	1	0	0	0	0	0	1	0	1	0	1	0	1	3
08:30 AM	0	0	1	1	0	1	0	1	0	0	1	1	0	0	0	0	3
Total Volume	0	0	2	2	1	1	0	2	0	1	2	3	1	3	0	4	11
% App. Total	0	0	100		50	50	0		0	33.3	66.7		25	75	0		
PHF	.000	.000	.500	.500	.250	.250	.000	.500	.000	.250	.500	.750	.250	.750	.000	.500	.917



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

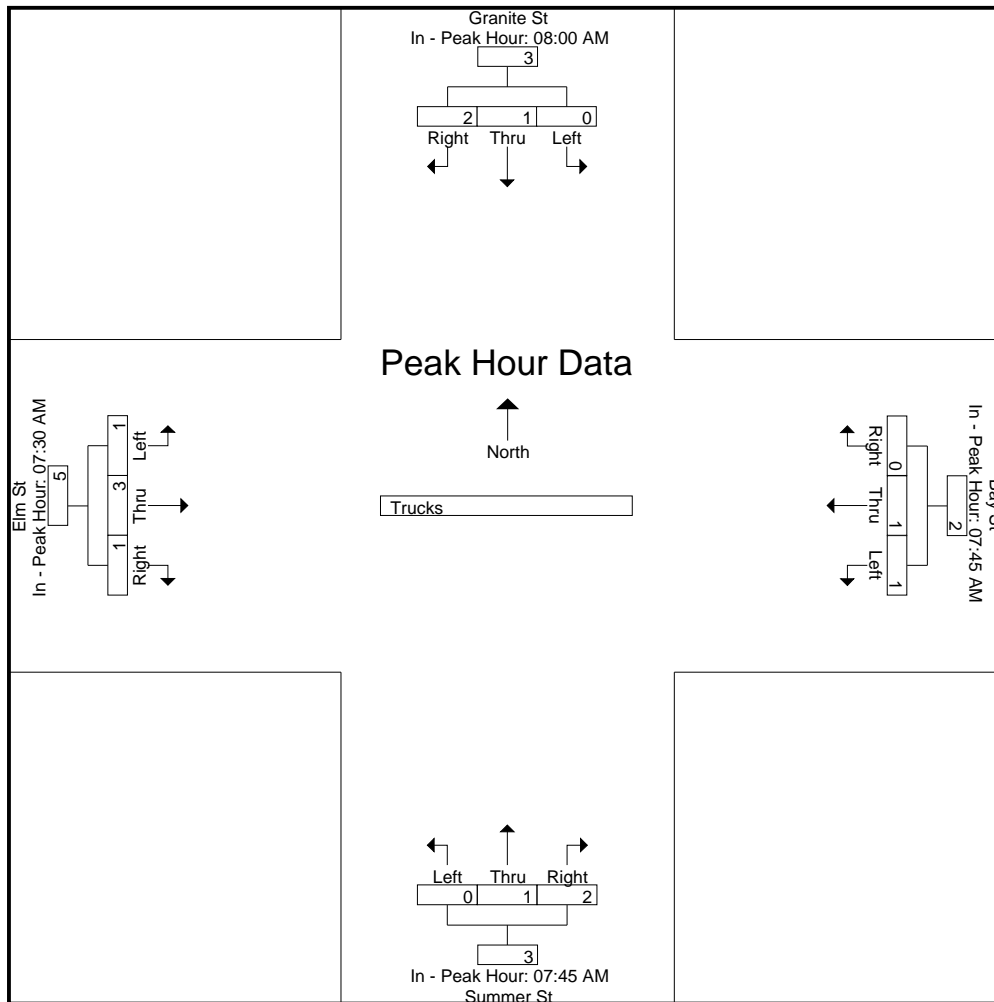
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 9

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM				07:45 AM				07:45 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
+15 mins.	0	0	1	1	1	0	0	1	0	0	0	0	1	1	0	2
+30 mins.	0	0	1	1	0	0	0	0	0	1	0	1	0	1	0	1
+45 mins.	0	1	0	1	0	1	0	1	0	0	1	1	0	1	0	1
Total Volume	0	1	2	3	1	1	0	2	0	1	2	3	1	3	1	5
% App. Total	0	33.3	66.7		50	50	0		0	33.3	66.7		20	60	20	
PHF	.000	.250	.500	.750	.250	.250	.000	.500	.000	.250	.500	.750	.250	.750	.250	.625



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
06:00 AM	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	4	0	4
06:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
06:30 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
06:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
Total	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	0	9	0	9
07:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
07:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
Total	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	0	5	0	5
08:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:15 AM	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2	1	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3	1	4
Grand Total	0	0	0	11	0	1	0	6	0	0	0	0	0	0	0	0	17	1	18
Apprch %	0	0	0		0	100	0		0	0	0		0	0	0				
Total %	0	0	0		0	100	0		0	0	0		0	0	0		94.4	5.6	

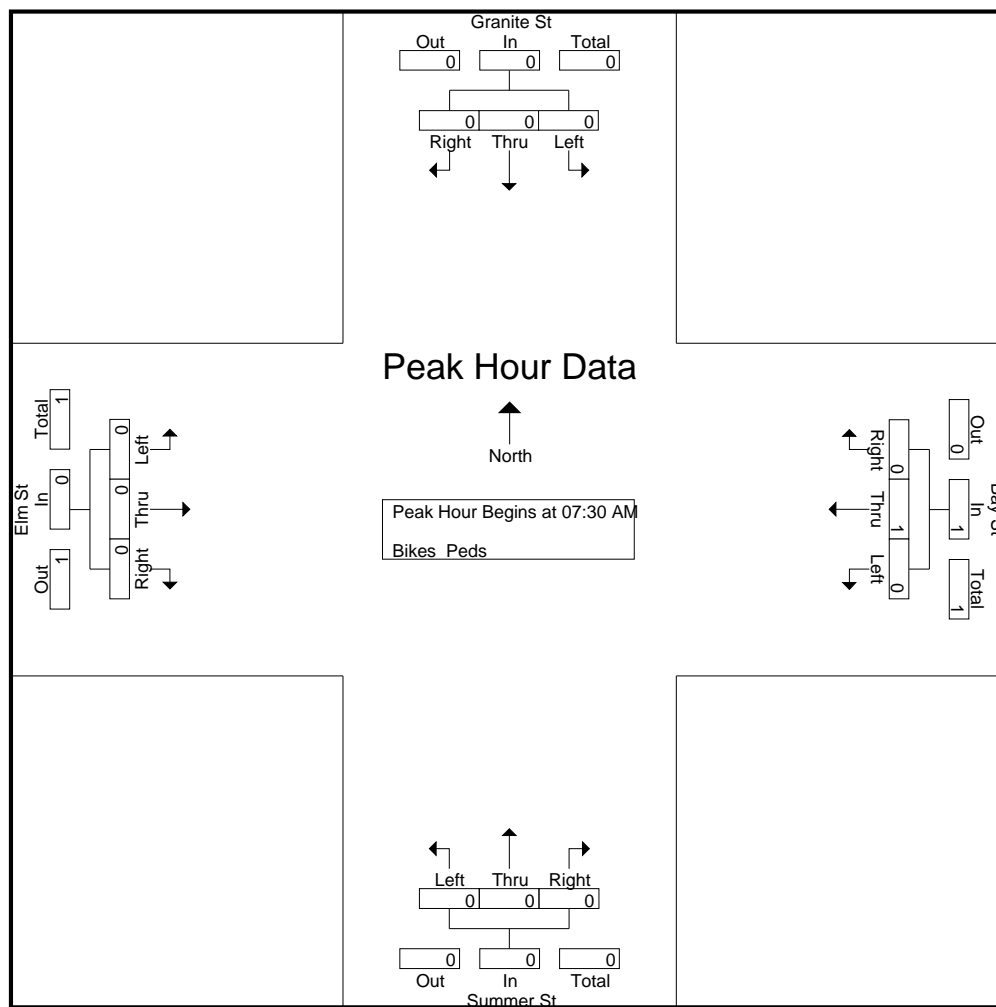
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 11

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

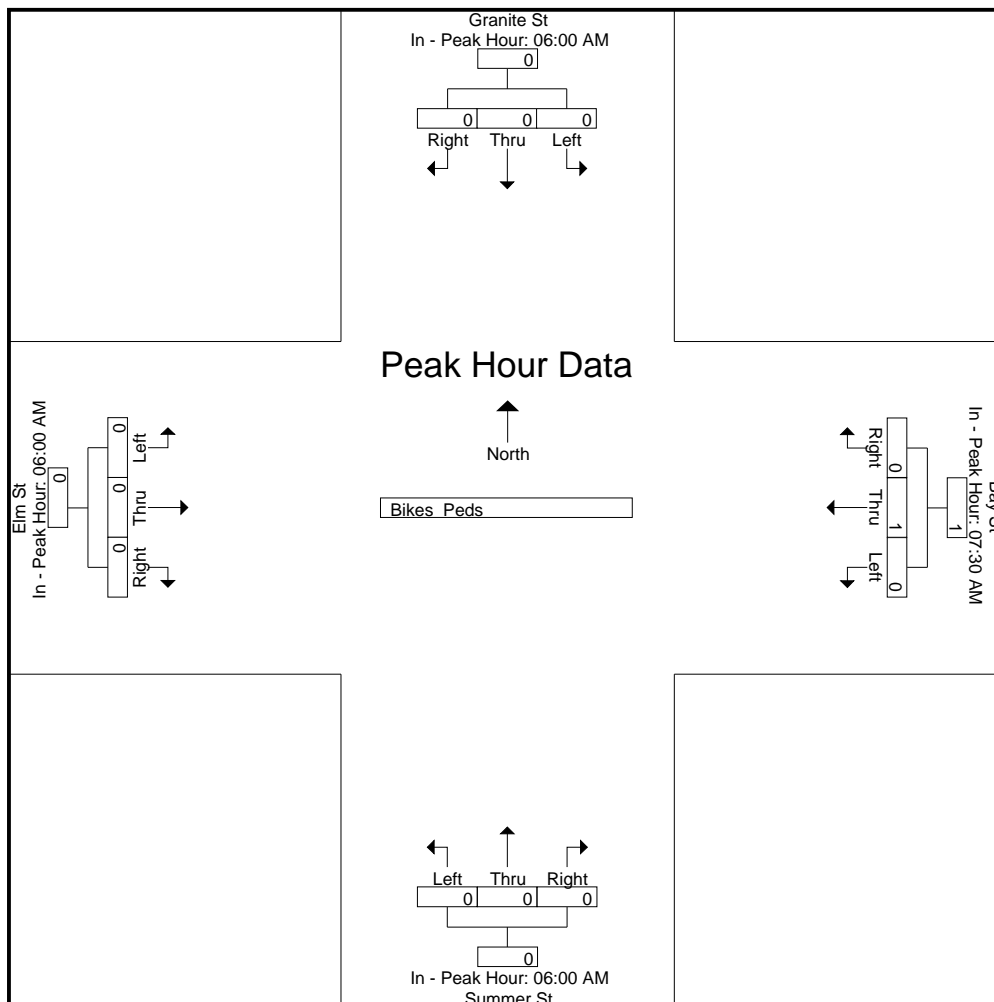
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 12

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM				07:30 AM				06:00 AM				06:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Granite St From North			Bay St From East			Summer St From South			Elm St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	0	1	2	14	10	0	22	5	8	3	18	34	117
03:15 PM	0	0	5	11	10	1	26	5	12	5	15	26	116
03:30 PM	2	1	4	9	11	0	21	3	10	6	15	31	113
03:45 PM	1	1	4	11	18	1	33	3	7	4	15	37	135
Total	3	3	15	45	49	2	102	16	37	18	63	128	481
04:00 PM	0	3	5	7	20	0	23	0	7	5	16	22	108
04:15 PM	0	3	3	3	11	0	21	1	13	6	20	31	112
04:30 PM	0	3	10	8	12	0	24	3	10	5	25	40	140
04:45 PM	0	0	0	9	12	0	23	3	12	6	17	41	123
Total	0	9	18	27	55	0	91	7	42	22	78	134	483
05:00 PM	1	0	4	11	10	1	30	4	20	5	10	39	135
05:15 PM	0	0	4	10	9	0	26	5	13	8	17	40	132
05:30 PM	1	1	4	6	14	0	25	3	17	5	15	31	122
05:45 PM	0	1	4	11	18	0	33	2	11	6	14	38	138
Total	2	2	16	38	51	1	114	14	61	24	56	148	527
Grand Total	5	14	49	110	155	3	307	37	140	64	197	410	1491
Apprch %	7.4	20.6	72.1	41	57.8	1.1	63.4	7.6	28.9	9.5	29.4	61.1	
Total %	0.3	0.9	3.3	7.4	10.4	0.2	20.6	2.5	9.4	4.3	13.2	27.5	
Cars	4	14	49	108	154	3	305	36	139	64	195	410	1481
% Cars	80	100	100	98.2	99.4	100	99.3	97.3	99.3	100	99	100	99.3
Trucks	1	0	0	2	1	0	2	1	1	0	2	0	10
% Trucks	20	0	0	1.8	0.6	0	0.7	2.7	0.7	0	1	0	0.7

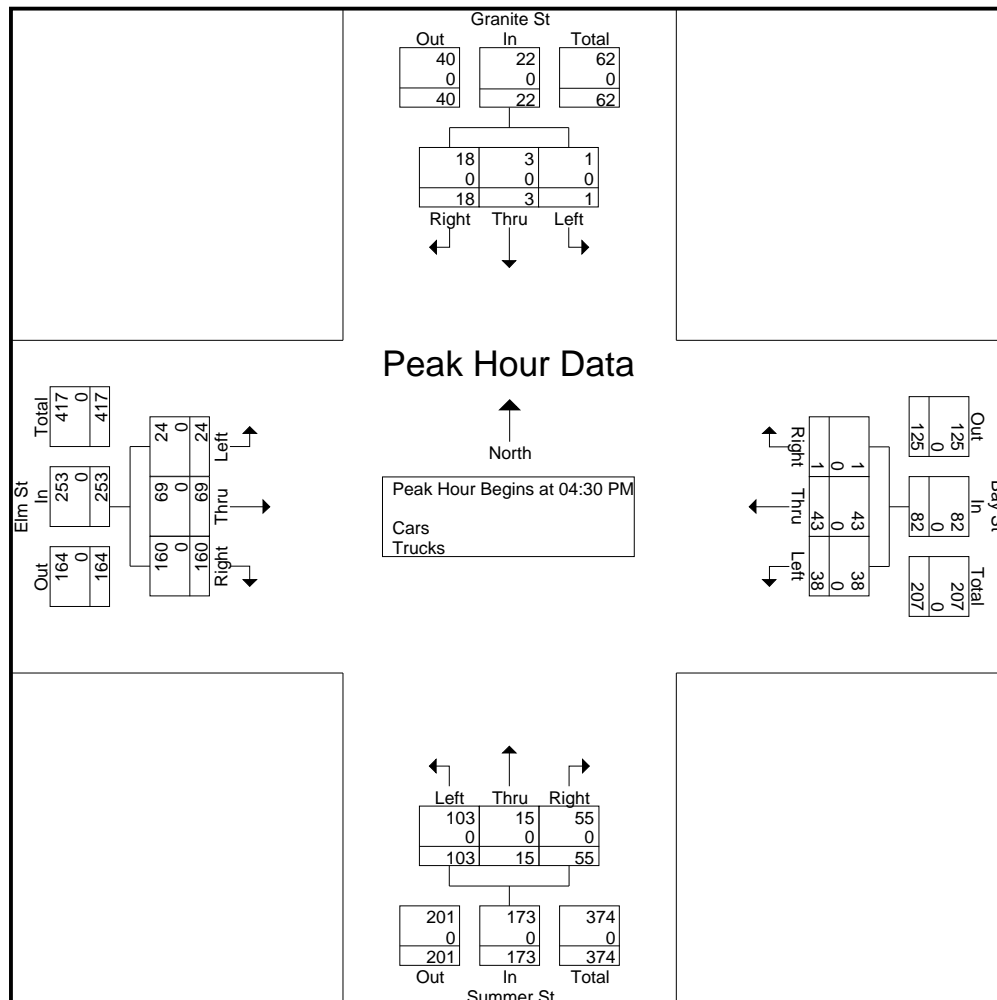
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 2

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	3	10	13	8	12	0	20	24	3	10	37	5	25	40	70	140
04:45 PM	0	0	0	0	9	12	0	21	23	3	12	38	6	17	41	64	123
05:00 PM	1	0	4	5	11	10	1	22	30	4	20	54	5	10	39	54	135
05:15 PM	0	0	4	4	10	9	0	19	26	5	13	44	8	17	40	65	132
Total Volume	1	3	18	22	38	43	1	82	103	15	55	173	24	69	160	253	530
% App. Total	4.5	13.6	81.8		46.3	52.4	1.2		59.5	8.7	31.8		9.5	27.3	63.2		
PHF	.250	.250	.450	.423	.864	.896	.250	.932	.858	.750	.688	.801	.750	.690	.976	.904	.946
Cars	1	3	18	22	38	43	1	82	103	15	55	173	24	69	160	253	530
% Cars	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

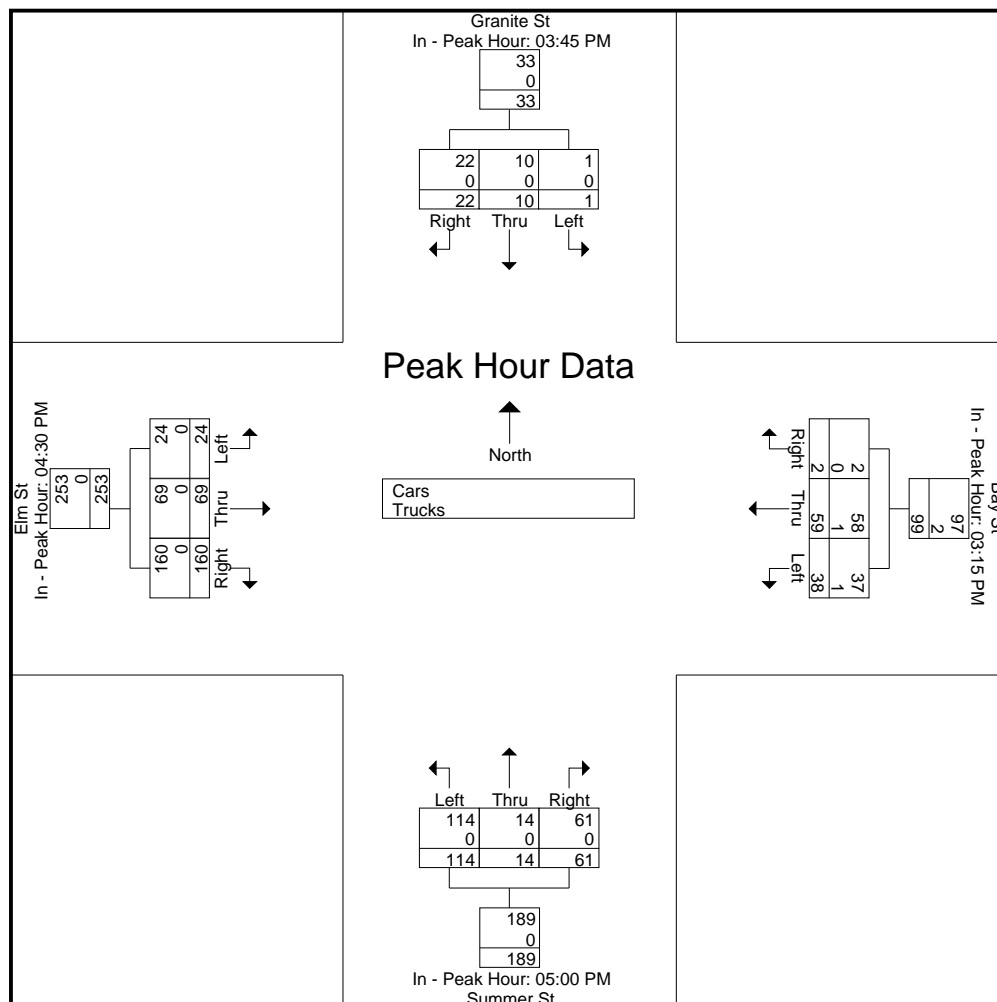
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 3

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:45 PM				03:15 PM				05:00 PM				04:30 PM			
+0 mins.	1	1	4	6	11	10	1	22	30	4	20	54	5	25	40	70
+15 mins.	0	3	5	8	9	11	0	20	26	5	13	44	6	17	41	64
+30 mins.	0	3	3	6	11	18	1	30	25	3	17	45	5	10	39	54
+45 mins.	0	3	10	13	7	20	0	27	33	2	11	46	8	17	40	65
Total Volume	1	10	22	33	38	59	2	99	114	14	61	189	24	69	160	253
% App. Total	3	30.3	66.7		38.4	59.6	2		60.3	7.4	32.3		9.5	27.3	63.2	
PHF	.250	.833	.550	.635	.864	.738	.500	.825	.864	.700	.763	.875	.750	.690	.976	.904
Cars	1	10	22	33	37	58	2	97	114	14	61	189	24	69	160	253
% Cars	100	100	100	100	97.4	98.3	100	98	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	2.6	1.7	0	2	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 4

Groups Printed- Cars

Start Time	Granite St From North			Bay St From East			Summer St From South			Elm St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	0	1	2	13	10	0	22	5	8	3	18	34	116
03:15 PM	0	0	5	10	10	1	25	5	12	5	15	26	114
03:30 PM	1	1	4	9	11	0	21	2	10	6	13	31	109
03:45 PM	1	1	4	11	18	1	32	3	6	4	15	37	133
Total	2	3	15	43	49	2	100	15	36	18	61	128	472
04:00 PM	0	3	5	7	19	0	23	0	7	5	16	22	107
04:15 PM	0	3	3	3	11	0	21	1	13	6	20	31	112
04:30 PM	0	3	10	8	12	0	24	3	10	5	25	40	140
04:45 PM	0	0	0	9	12	0	23	3	12	6	17	41	123
Total	0	9	18	27	54	0	91	7	42	22	78	134	482
05:00 PM	1	0	4	11	10	1	30	4	20	5	10	39	135
05:15 PM	0	0	4	10	9	0	26	5	13	8	17	40	132
05:30 PM	1	1	4	6	14	0	25	3	17	5	15	31	122
05:45 PM	0	1	4	11	18	0	33	2	11	6	14	38	138
Total	2	2	16	38	51	1	114	14	61	24	56	148	527
Grand Total	4	14	49	108	154	3	305	36	139	64	195	410	1481
Apprch %	6	20.9	73.1	40.8	58.1	1.1	63.5	7.5	29	9.6	29.1	61.3	
Total %	0.3	0.9	3.3	7.3	10.4	0.2	20.6	2.4	9.4	4.3	13.2	27.7	

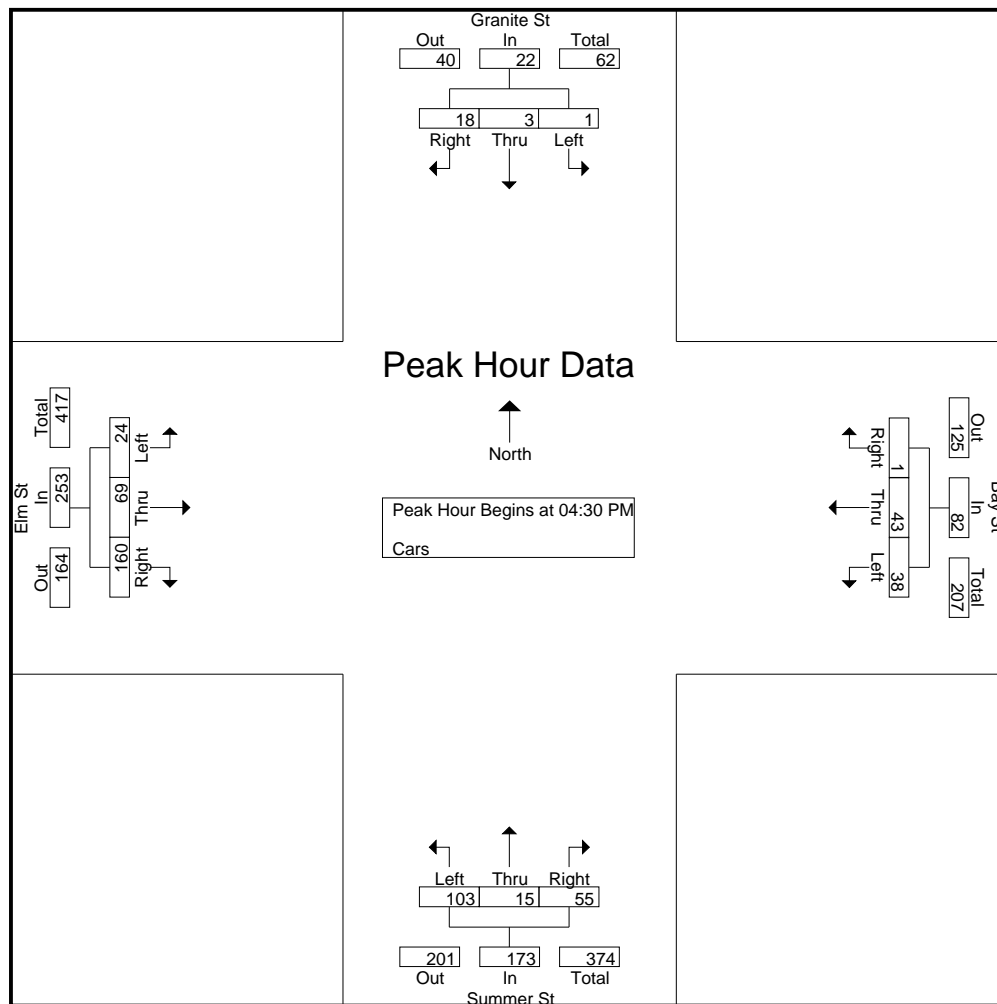
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 5

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	3	10	13	8	12	0	20	24	3	10	37	5	25	40	70	140
04:45 PM	0	0	0	0	9	12	0	21	23	3	12	38	6	17	41	64	123
05:00 PM	1	0	4	5	11	10	1	22	30	4	20	54	5	10	39	54	135
05:15 PM	0	0	4	4	10	9	0	19	26	5	13	44	8	17	40	65	132
Total Volume	1	3	18	22	38	43	1	82	103	15	55	173	24	69	160	253	530
% App. Total	4.5	13.6	81.8		46.3	52.4	1.2		59.5	8.7	31.8		9.5	27.3	63.2		
PHF	.250	.250	.450	.423	.864	.896	.250	.932	.858	.750	.688	.801	.750	.690	.976	.904	.946



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

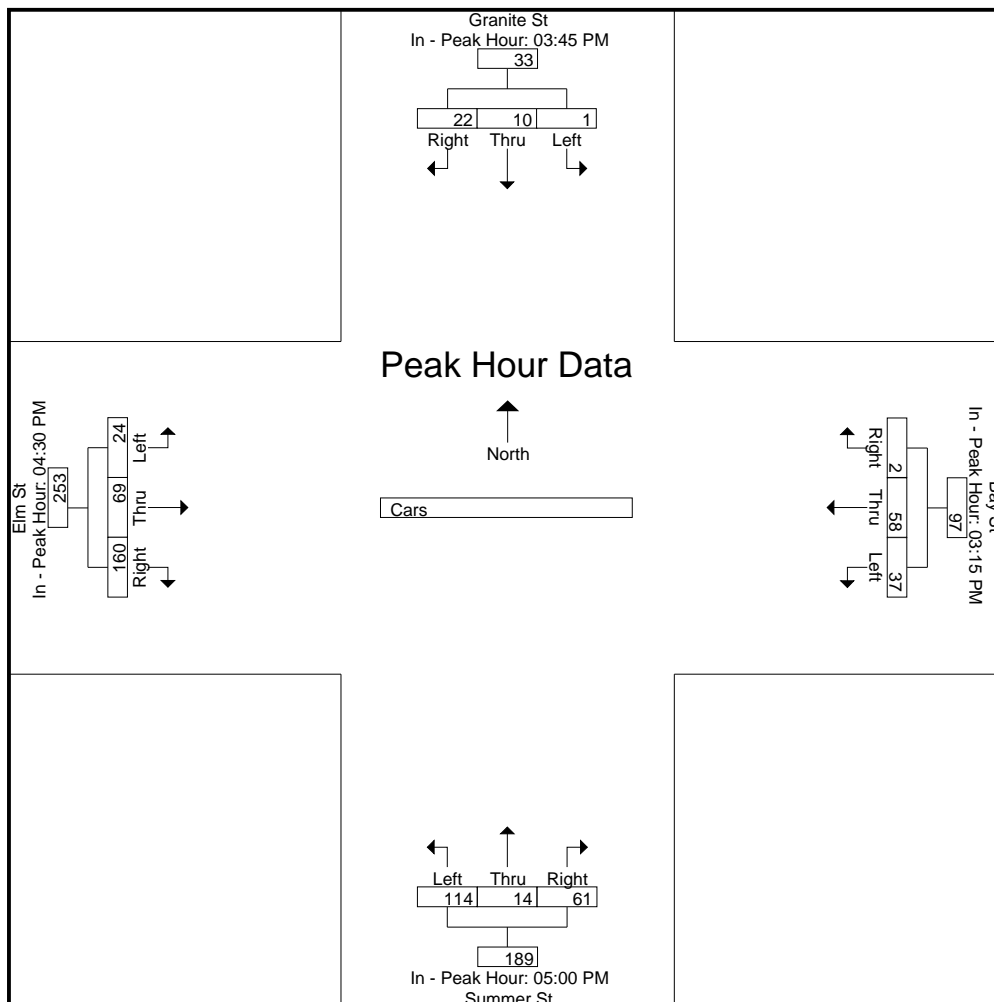
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 6

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:45 PM				03:15 PM				05:00 PM				04:30 PM			
+0 mins.	1	1	4	6	10	10	1	21	30	4	20	54	5	25	40	70
+15 mins.	0	3	5	8	9	11	0	20	26	5	13	44	6	17	41	64
+30 mins.	0	3	3	6	11	18	1	30	25	3	17	45	5	10	39	54
+45 mins.	0	3	10	13	7	19	0	26	33	2	11	46	8	17	40	65
Total Volume	1	10	22	33	37	58	2	97	114	14	61	189	24	69	160	253
% App. Total	3	30.3	66.7		38.1	59.8	2.1		60.3	7.4	32.3		9.5	27.3	63.2	
PHF	.250	.833	.550	.635	.841	.763	.500	.808	.864	.700	.763	.875	.750	.690	.976	.904



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Granite St From North			Bay St From East			Summer St From South			Elm St From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
03:15 PM	0	0	0	1	0	0	1	0	0	0	0	0	2
03:30 PM	1	0	0	0	0	0	0	1	0	0	2	0	4
03:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	2
Total	1	0	0	2	0	0	2	1	1	0	2	0	9
04:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	2	1	0	2	1	1	0	2	0	10
Apprch %	100	0	0	66.7	33.3	0	50	25	25	0	100	0	
Total %	10	0	0	20	10	0	20	10	10	0	20	0	

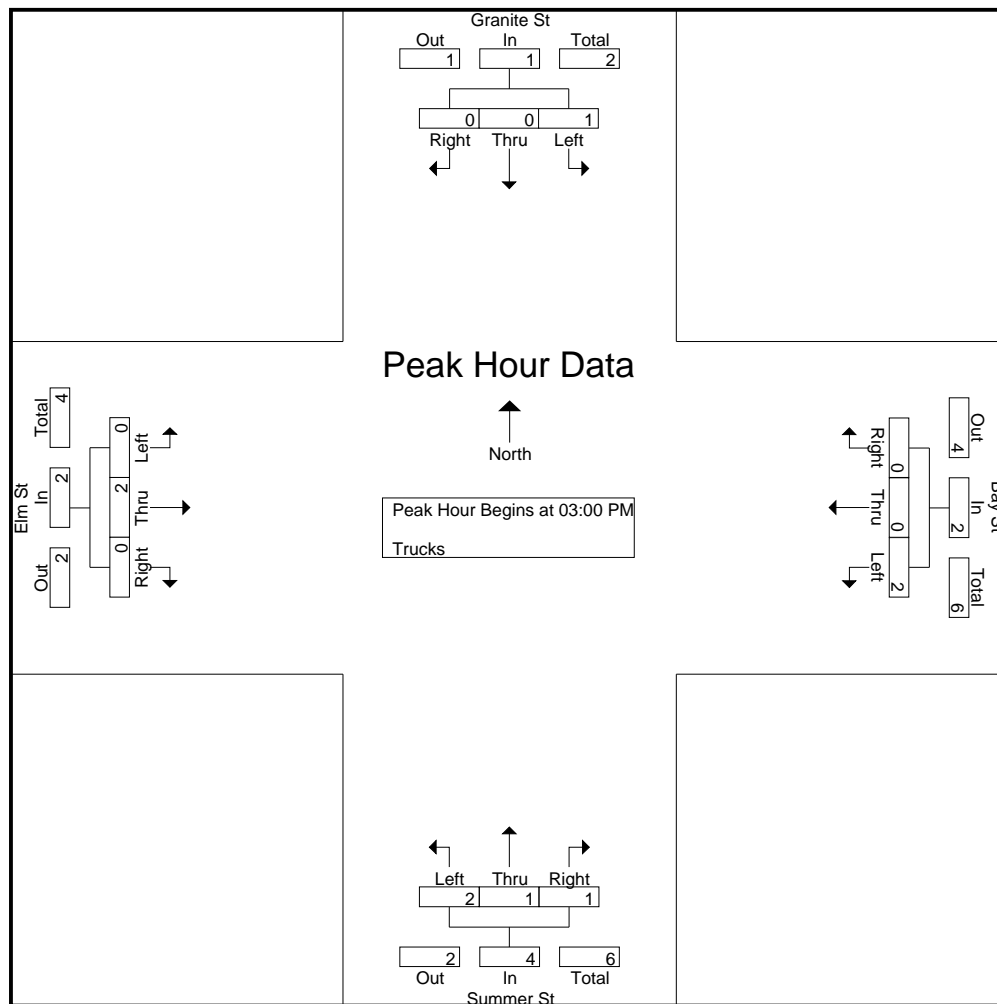
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 8

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
03:15 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
03:30 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	2	0	2	4
03:45 PM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	2
Total Volume	1	0	0	1	2	0	0	2	2	1	1	4	0	2	0	2	9
% App. Total	100	0	0		100	0	0		50	25	25		0	100	0		
PHF	.250	.000	.000	.250	.500	.000	.000	.500	.500	.250	.250	.500	.000	.250	.000	.250	.563



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

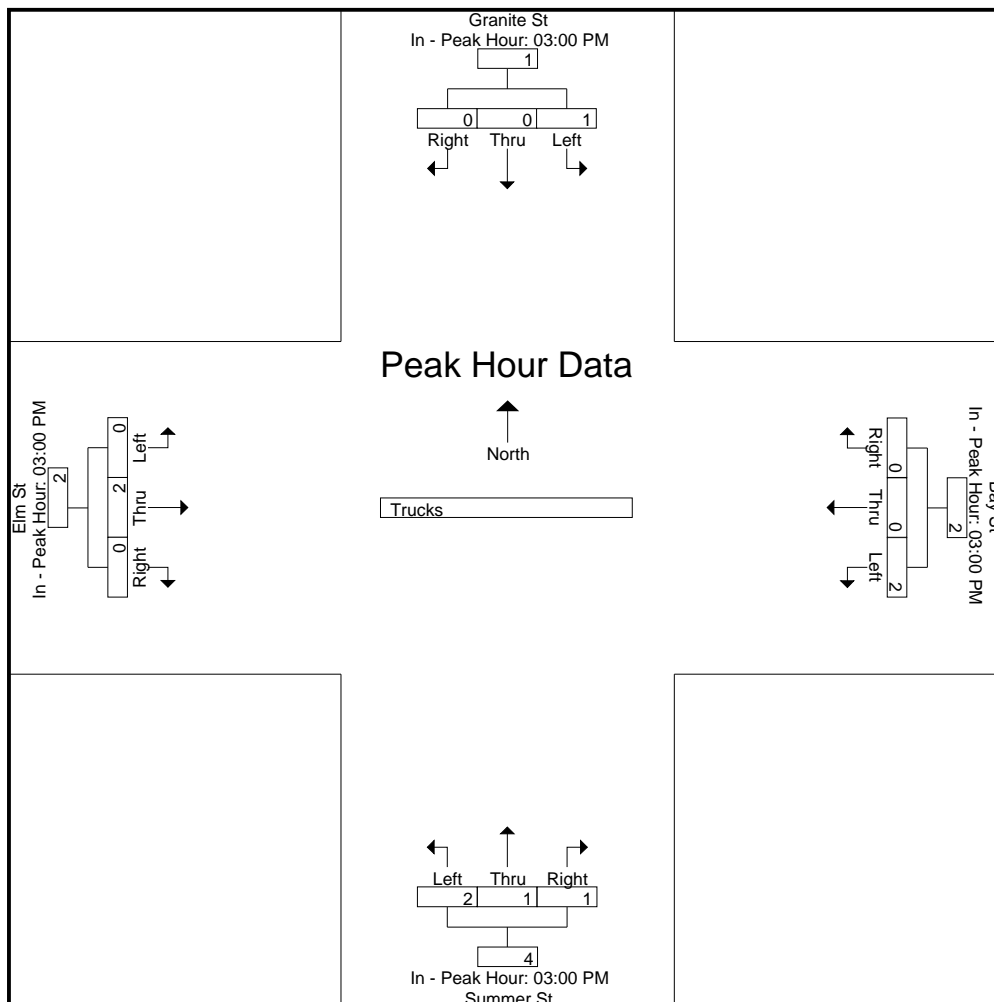
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 9

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0
+30 mins.	1	0	0	1	0	0	0	0	0	1	0	1	0	2	0	2
+45 mins.	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0
Total Volume	1	0	0	1	2	0	0	2	2	1	1	4	0	2	0	2
% App. Total	100	0	0		100	0	0		50	25	25		0	100	0	
PHF	.250	.000	.000	.250	.500	.000	.000	.500	.500	.250	.250	.500	.000	.250	.000	.250



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
03:00 PM	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	4	1	5
03:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
Total	0	0	1	5	0	1	0	2	0	0	0	0	0	0	0	0	7	2	9
04:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	2
04:15 PM	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	3	0	3
04:30 PM	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3	0	3
04:45 PM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	3
Total	0	0	0	3	0	1	0	6	0	0	0	0	0	1	0	0	9	2	11
05:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
05:15 PM	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	4	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	5	0	5
Grand Total	0	0	1	11	0	2	0	10	0	0	0	0	0	1	0	0	21	4	25
Apprch %	0	0	100		0	100	0		0	0	0		0	100	0				
Total %	0	0	25		0	50	0		0	0	0		0	25	0		84	16	

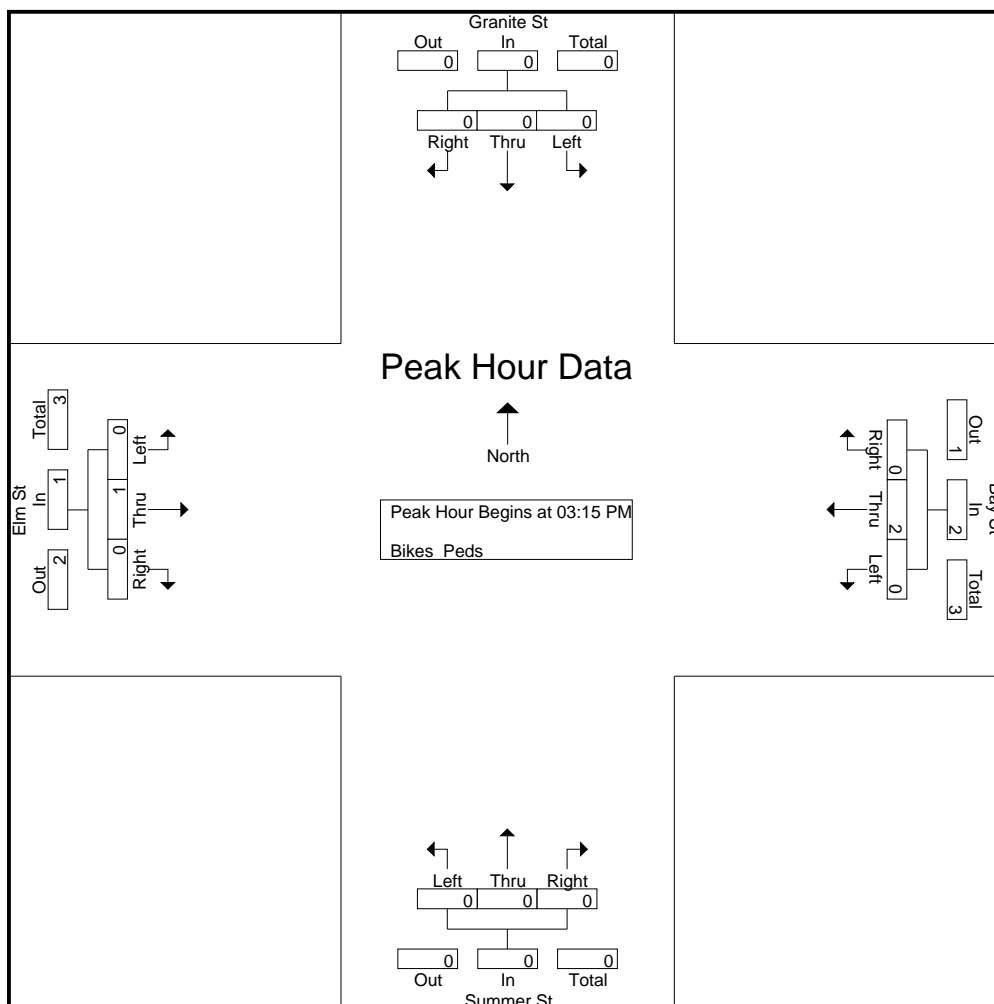
Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 11

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 03:15 PM																		
03:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	0	3
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.000	.375



Accurate Counts

978-664-2565

N/S Street : Granite St / Summer St
 E/W Street: Bay Street / Elm Street
 City/State : Northfield, NH
 Weather : Clear

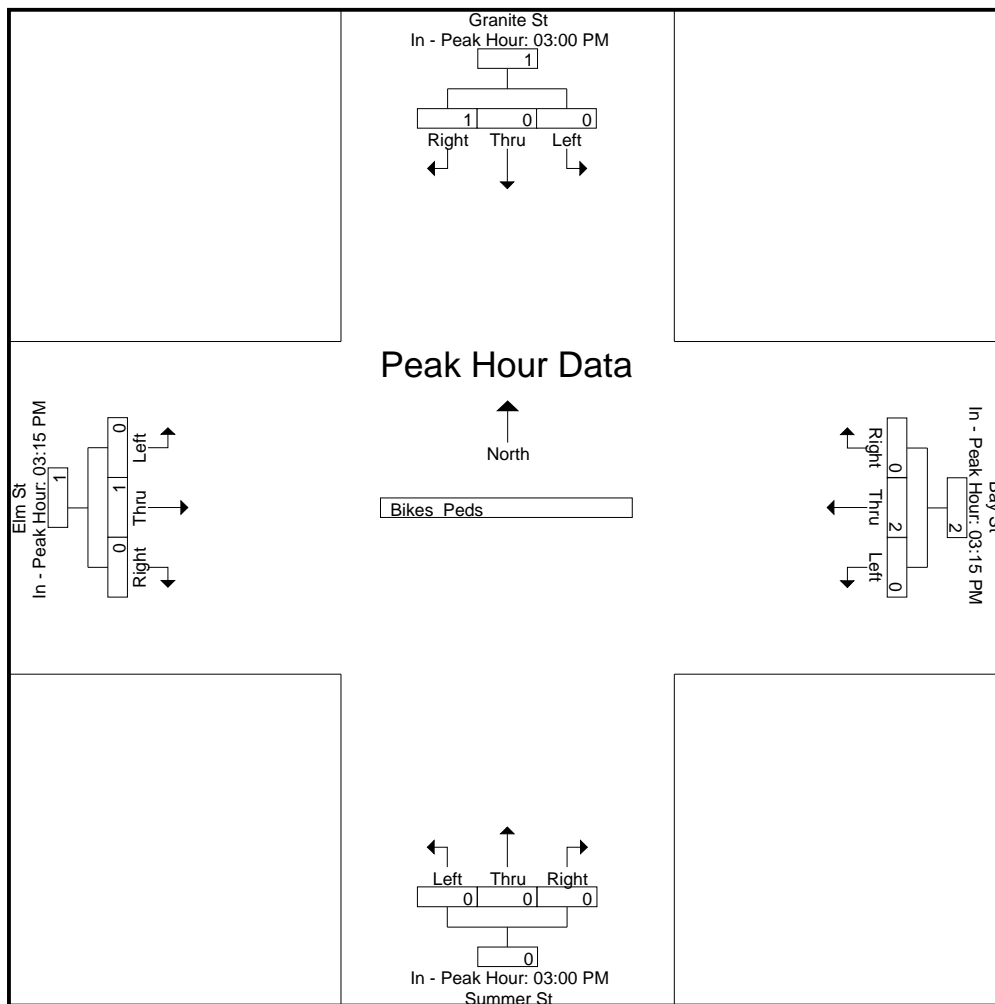
File Name : 52455006
 Site Code : 52455006
 Start Date : 4/19/2017
 Page No : 12

Start Time	Granite St From North				Bay St From East				Summer St From South				Elm St From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM				03:15 PM				03:00 PM				03:15 PM			
+0 mins.	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
Total Volume	0	0	1	1	0	2	0	2	0	0	0	0	0	1	0	1
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.250	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250



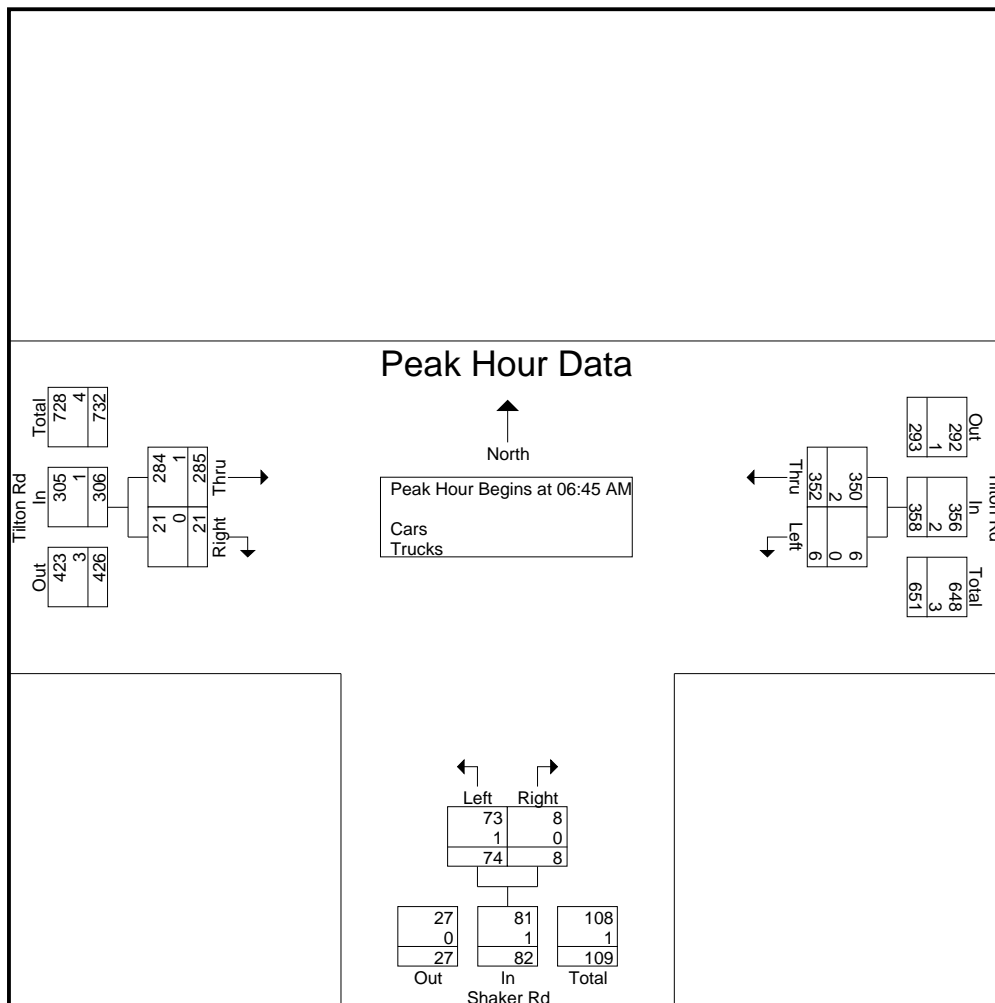
Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 2

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:45 AM										
06:45 AM	3	79	82	14	2	16	85	6	91	189
07:00 AM	0	90	90	24	1	25	90	4	94	209
07:15 AM	1	68	69	17	1	18	47	6	53	140
07:30 AM	2	115	117	19	4	23	63	5	68	208
Total Volume	6	352	358	74	8	82	285	21	306	746
% App. Total	1.7	98.3		90.2	9.8		93.1	6.9		
PHF	.500	.765	.765	.771	.500	.820	.792	.875	.814	.892
Cars	6	350	356	73	8	81	284	21	305	742
% Cars	100	99.4	99.4	98.6	100	98.8	99.6	100	99.7	99.5
Trucks	0	2	2	1	0	1	1	0	1	4
% Trucks	0	0.6	0.6	1.4	0	1.2	0.4	0	0.3	0.5



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

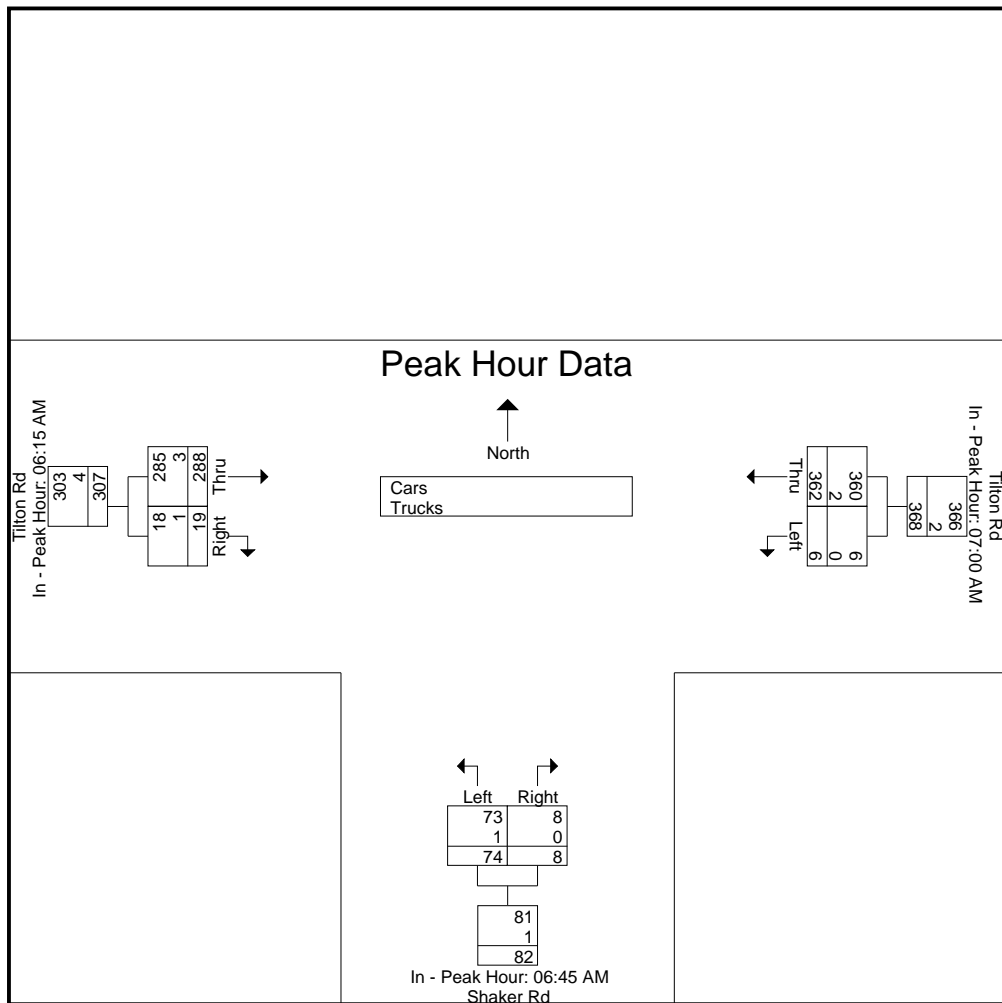
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 3

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			06:45 AM			06:15 AM		
+0 mins.	0	90	90	14	2	16	51	3	54
+15 mins.	1	68	69	24	1	25	62	6	68
+30 mins.	2	115	117	17	1	18	85	6	91
+45 mins.	3	89	92	19	4	23	90	4	94
Total Volume	6	362	368	74	8	82	288	19	307
% App. Total	1.6	98.4		90.2	9.8		93.8	6.2	
PHF	.500	.787	.786	.771	.500	.820	.800	.792	.816
Cars	6	360	366	73	8	81	285	18	303
% Cars	100	99.4	99.5	98.6	100	98.8	99	94.7	98.7
Trucks	0	2	2	1	0	1	3	1	4
% Trucks	0	0.6	0.5	1.4	0	1.2	1	5.3	1.3



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 4

Groups Printed- Cars

Start Time	Tilton Rd From East		Shaker Rd From South		Tilton Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:00 AM	3	63	20	3	23	2	114
06:15 AM	0	57	8	3	51	3	122
06:30 AM	1	81	11	3	59	5	160
06:45 AM	3	79	14	2	85	6	189
Total	7	280	53	11	218	16	585
07:00 AM	0	89	23	1	90	4	207
07:15 AM	1	67	17	1	47	6	139
07:30 AM	2	115	19	4	62	5	207
07:45 AM	3	89	11	0	57	5	165
Total	6	360	70	6	256	20	718
08:00 AM	2	73	19	4	49	8	155
08:15 AM	2	65	9	1	47	3	127
08:30 AM	4	81	9	1	47	4	146
08:45 AM	2	85	10	5	40	6	148
Total	10	304	47	11	183	21	576
Grand Total	23	944	170	28	657	57	1879
Apprch %	2.4	97.6	85.9	14.1	92	8	
Total %	1.2	50.2	9	1.5	35	3	

Accurate Counts

978-664-2565

File Name : 52444001

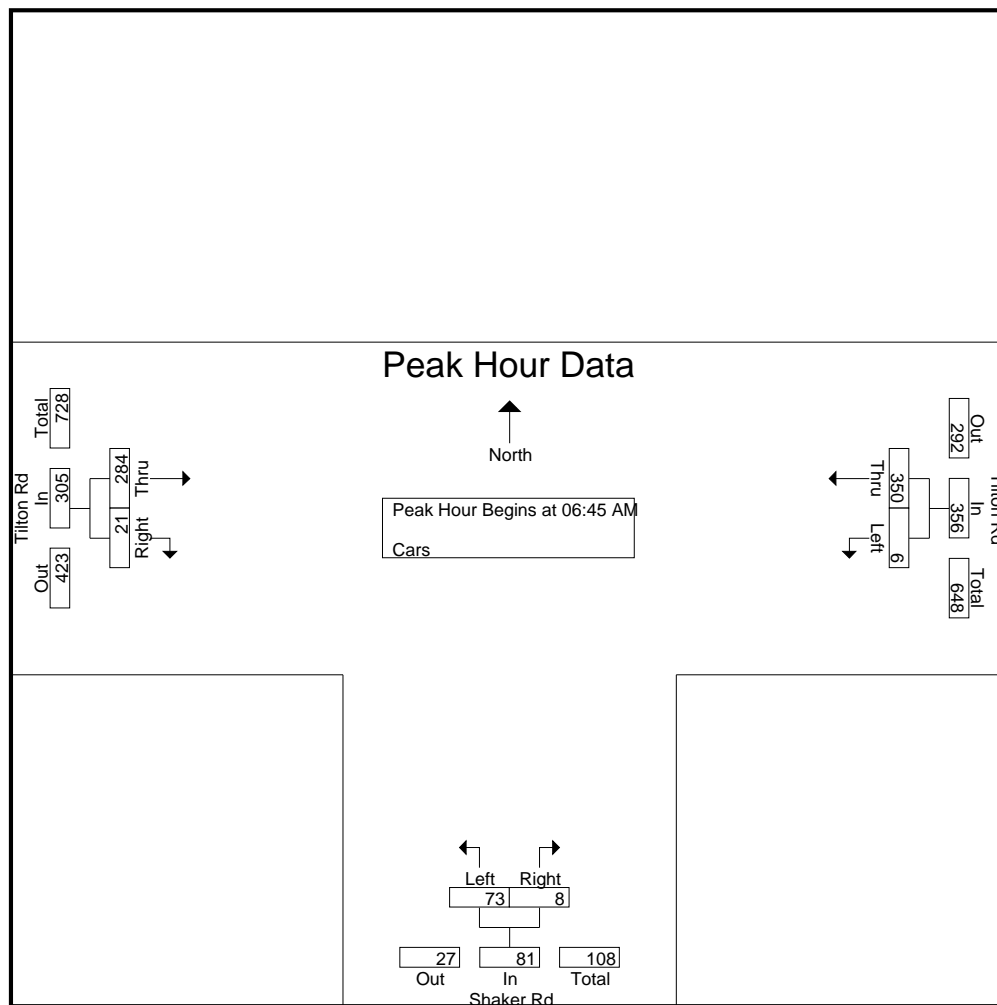
Site Code : 52444001

Start Date : 2/21/2017

Page No : 5

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:45 AM										
06:45 AM	3	79	82	14	2	16	85	6	91	189
07:00 AM	0	89	89	23	1	24	90	4	94	207
07:15 AM	1	67	68	17	1	18	47	6	53	139
07:30 AM	2	115	117	19	4	23	62	5	67	207
Total Volume	6	350	356	73	8	81	284	21	305	742
% App. Total	1.7	98.3		90.1	9.9		93.1	6.9		
PHF	.500	.761	.761	.793	.500	.844	.789	.875	.811	.896



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

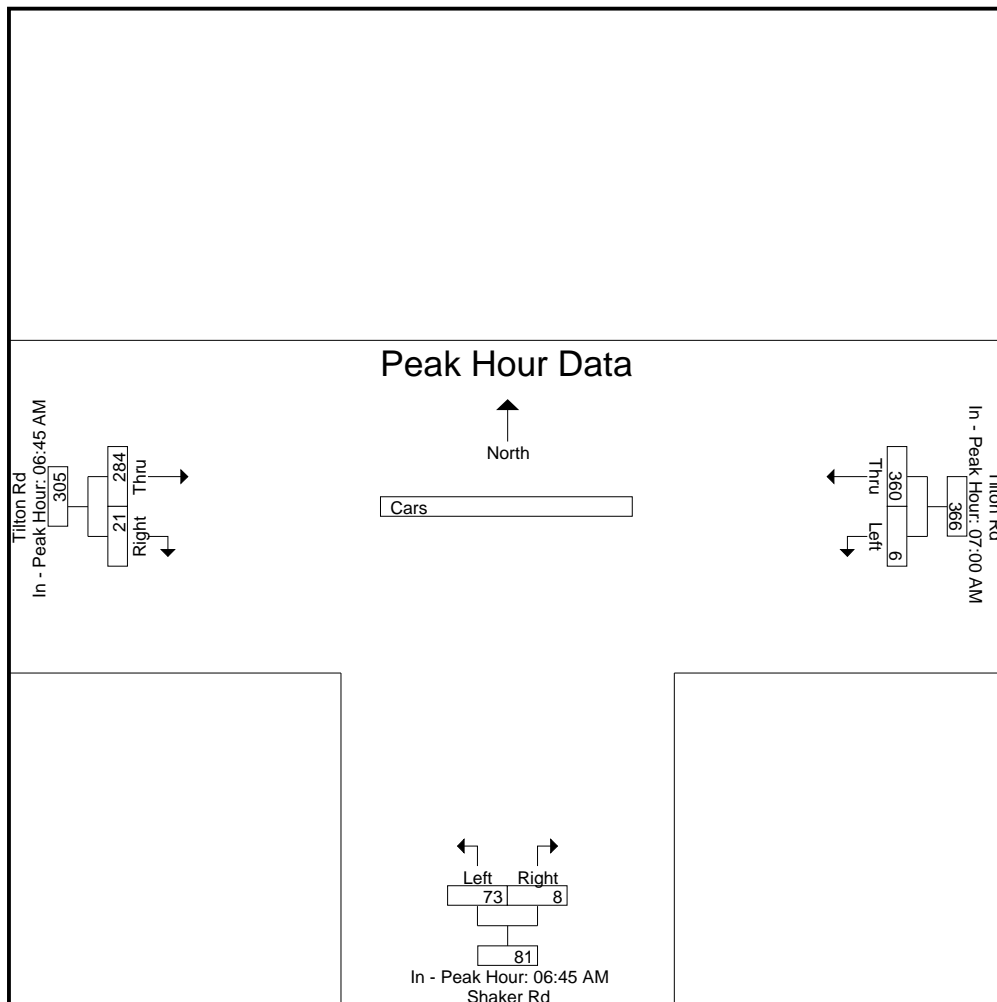
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 6

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM			06:45 AM			06:45 AM		
+0 mins.	0	89	89	14	2	16	85	6	91
+15 mins.	1	67	68	23	1	24	90	4	94
+30 mins.	2	115	117	17	1	18	47	6	53
+45 mins.	3	89	92	19	4	23	62	5	67
Total Volume	6	360	366	73	8	81	284	21	305
% App. Total	1.6	98.4		90.1	9.9		93.1	6.9	
PHF	.500	.783	.782	.793	.500	.844	.789	.875	.811



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Tilton Rd From East		Shaker Rd From South		Tilton Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
06:00 AM	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0
06:30 AM	0	0	1	0	3	1	5
06:45 AM	0	0	0	0	0	0	0
Total	0	0	1	0	3	1	5
07:00 AM	0	1	1	0	0	0	2
07:15 AM	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	1	0	1
07:45 AM	0	0	0	0	0	0	0
Total	0	2	1	0	1	0	4
08:00 AM	0	2	0	0	0	0	2
08:15 AM	0	1	1	0	1	0	3
08:30 AM	0	2	0	0	2	0	4
08:45 AM	0	3	0	0	3	0	6
Total	0	8	1	0	6	0	15
Grand Total	0	10	3	0	10	1	24
Apprch %	0	100	100	0	90.9	9.1	
Total %	0	41.7	12.5	0	41.7	4.2	

Accurate Counts

978-664-2565

File Name : 52444001

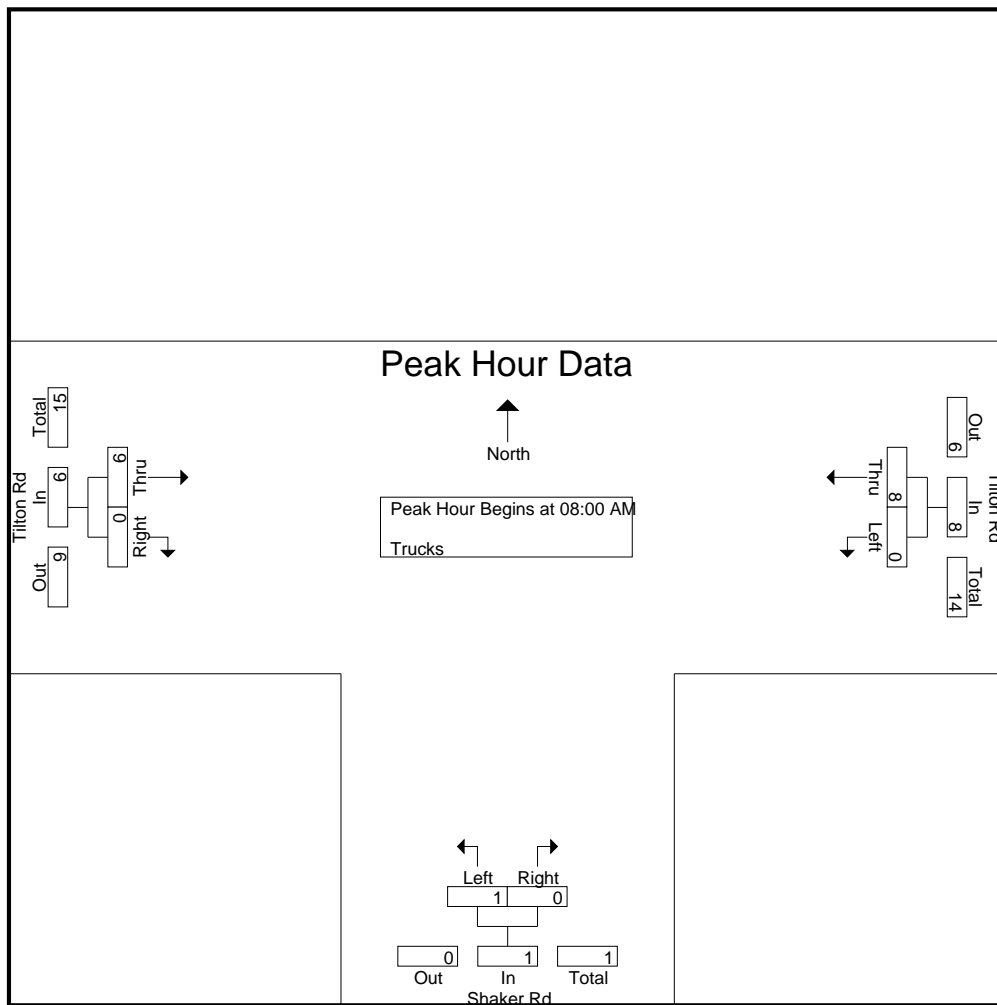
Site Code : 52444001

Start Date : 2/21/2017

Page No : 8

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	1	1	1	0	1	1	0	1	3
08:30 AM	0	2	2	0	0	0	2	0	2	4
08:45 AM	0	3	3	0	0	0	3	0	3	6
Total Volume	0	8	8	1	0	1	6	0	6	15
% App. Total	0	100		100	0		100	0		
PHF	.000	.667	.667	.250	.000	.250	.500	.000	.500	.625



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

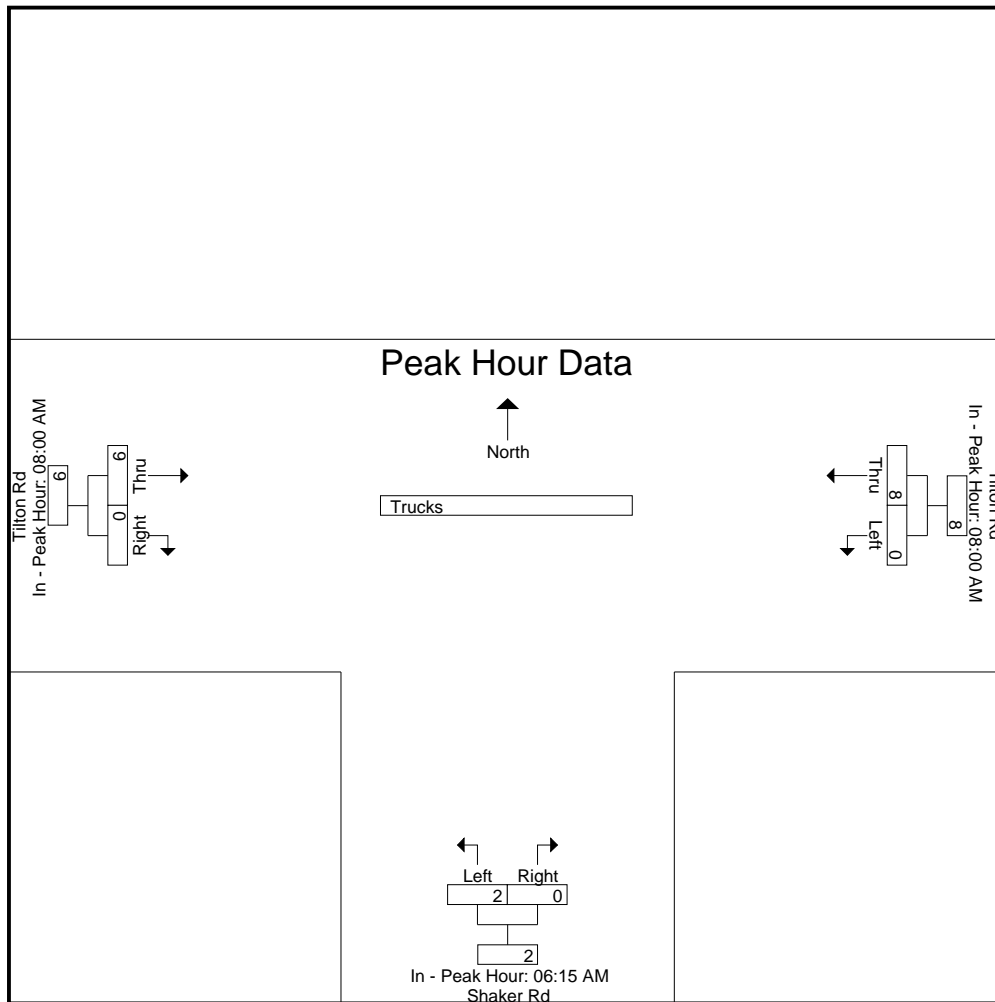
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 9

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	08:00 AM			06:15 AM			08:00 AM		
+0 mins.	0	2	2	0	0	0	0	0	0
+15 mins.	0	1	1	1	0	1	1	0	1
+30 mins.	0	2	2	0	0	0	2	0	2
+45 mins.	0	3	3	1	0	1	3	0	3
Total Volume	0	8	8	2	0	2	6	0	6
% App. Total	0	100		100	0		100	0	
PHF	.000	.667	.667	.500	.000	.500	.500	.000	.500



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 10

Groups Printed- Bikes Peds

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

Accurate Counts

978-664-2565

File Name : 52444001

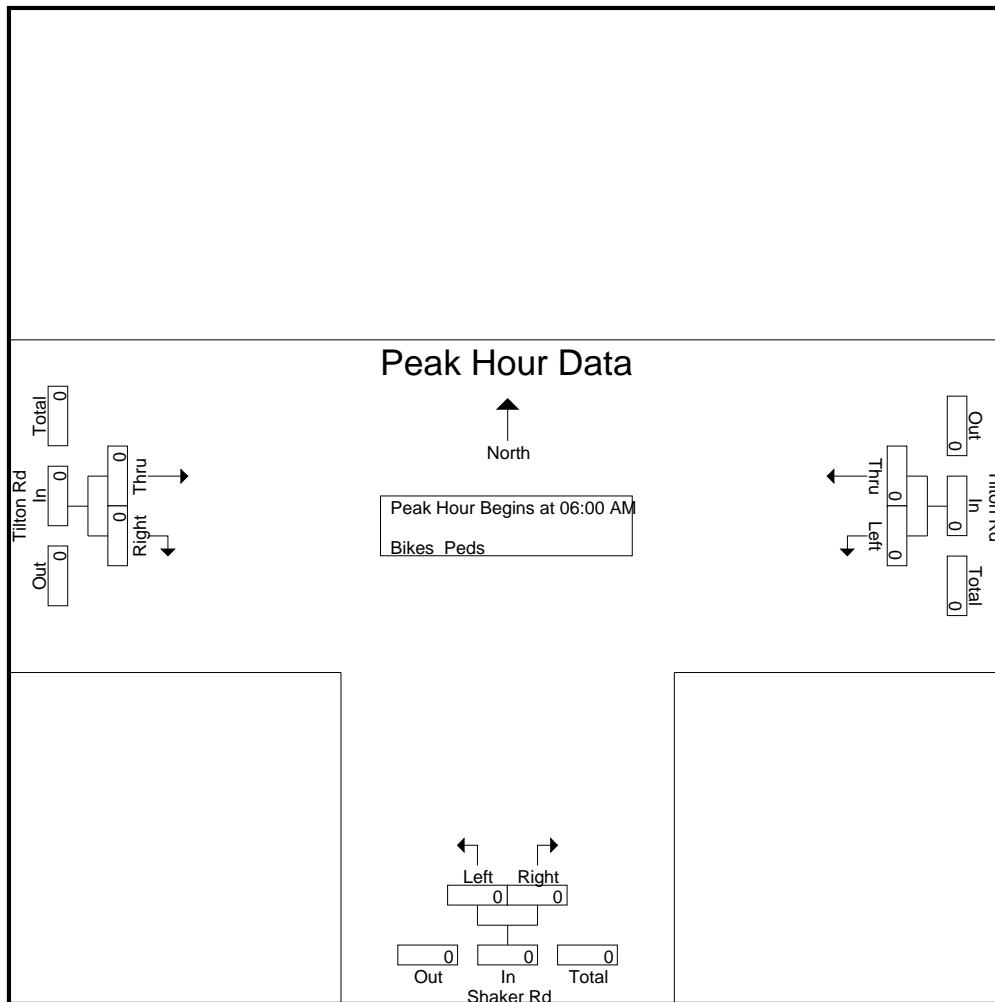
Site Code : 52444001

Start Date : 2/21/2017

Page No : 11

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:00 AM										
06:00 AM	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

File Name : 52444001

Site Code : 52444001

Start Date : 2/21/2017

Page No : 12

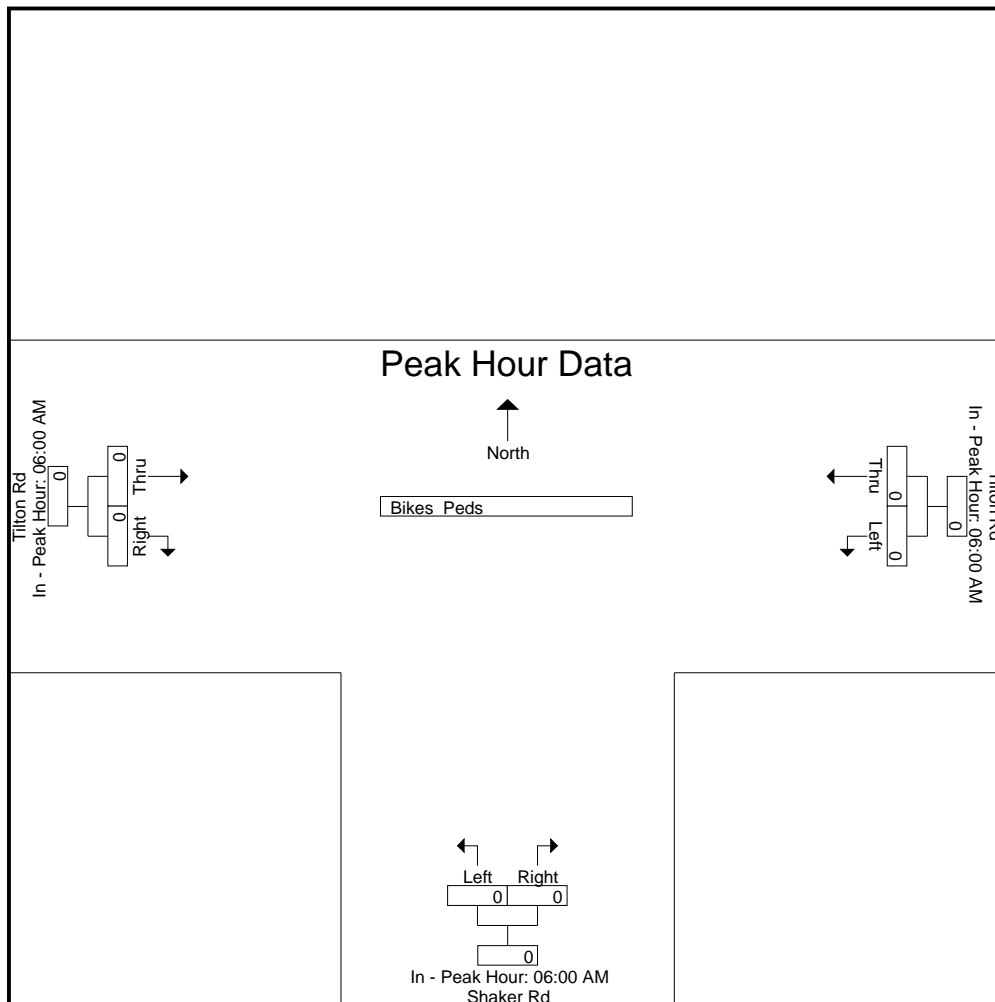
N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM			06:00 AM			06:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Tilton Rd From East		Shaker Rd From South		Tilton Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
03:00 PM	1	75	12	4	94	9	195
03:15 PM	3	66	10	1	97	23	200
03:30 PM	6	111	11	1	108	14	251
03:45 PM	6	85	15	1	91	15	213
Total	16	337	48	7	390	61	859
04:00 PM	4	88	9	4	118	18	241
04:15 PM	6	80	11	2	112	20	231
04:30 PM	4	107	10	4	106	25	256
04:45 PM	4	73	21	4	83	25	210
Total	18	348	51	14	419	88	938
05:00 PM	3	84	13	4	118	20	242
05:15 PM	6	72	10	2	91	21	202
05:30 PM	4	59	10	0	97	24	194
05:45 PM	1	47	14	1	71	19	153
Total	14	262	47	7	377	84	791
Grand Total	48	947	146	28	1186	233	2588
Apprch %	4.8	95.2	83.9	16.1	83.6	16.4	
Total %	1.9	36.6	5.6	1.1	45.8	9	
Cars	48	941	144	28	1163	233	2557
% Cars	100	99.4	98.6	100	98.1	100	98.8
Trucks	0	6	2	0	23	0	31
% Trucks	0	0.6	1.4	0	1.9	0	1.2

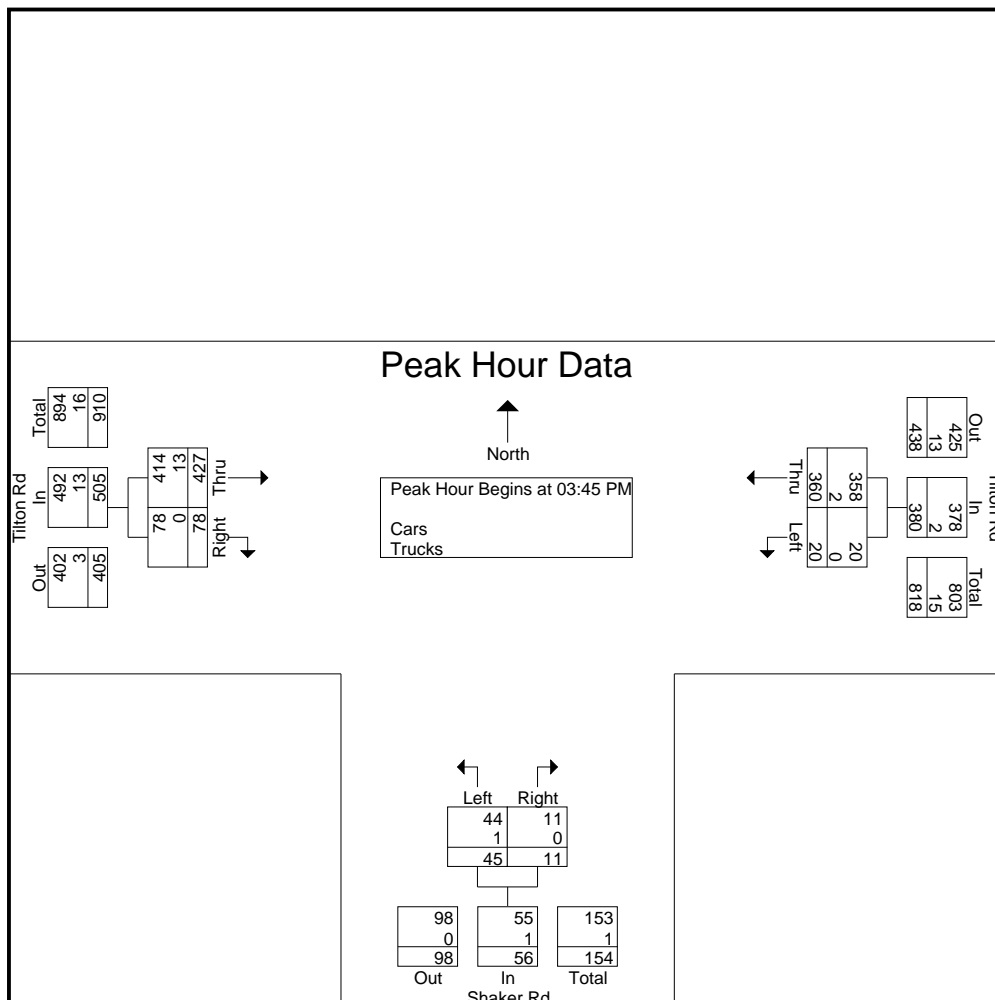
Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 2

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:45 PM										
03:45 PM	6	85	91	15	1	16	91	15	106	213
04:00 PM	4	88	92	9	4	13	118	18	136	241
04:15 PM	6	80	86	11	2	13	112	20	132	231
04:30 PM	4	107	111	10	4	14	106	25	131	256
Total Volume	20	360	380	45	11	56	427	78	505	941
% App. Total	5.3	94.7		80.4	19.6		84.6	15.4		
PHF	.833	.841	.856	.750	.688	.875	.905	.780	.928	.919
Cars	20	358	378	44	11	55	414	78	492	925
% Cars	100	99.4	99.5	97.8	100	98.2	97.0	100	97.4	98.3
Trucks	0	2	2	1	0	1	13	0	13	16
% Trucks	0	0.6	0.5	2.2	0	1.8	3.0	0	2.6	1.7



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

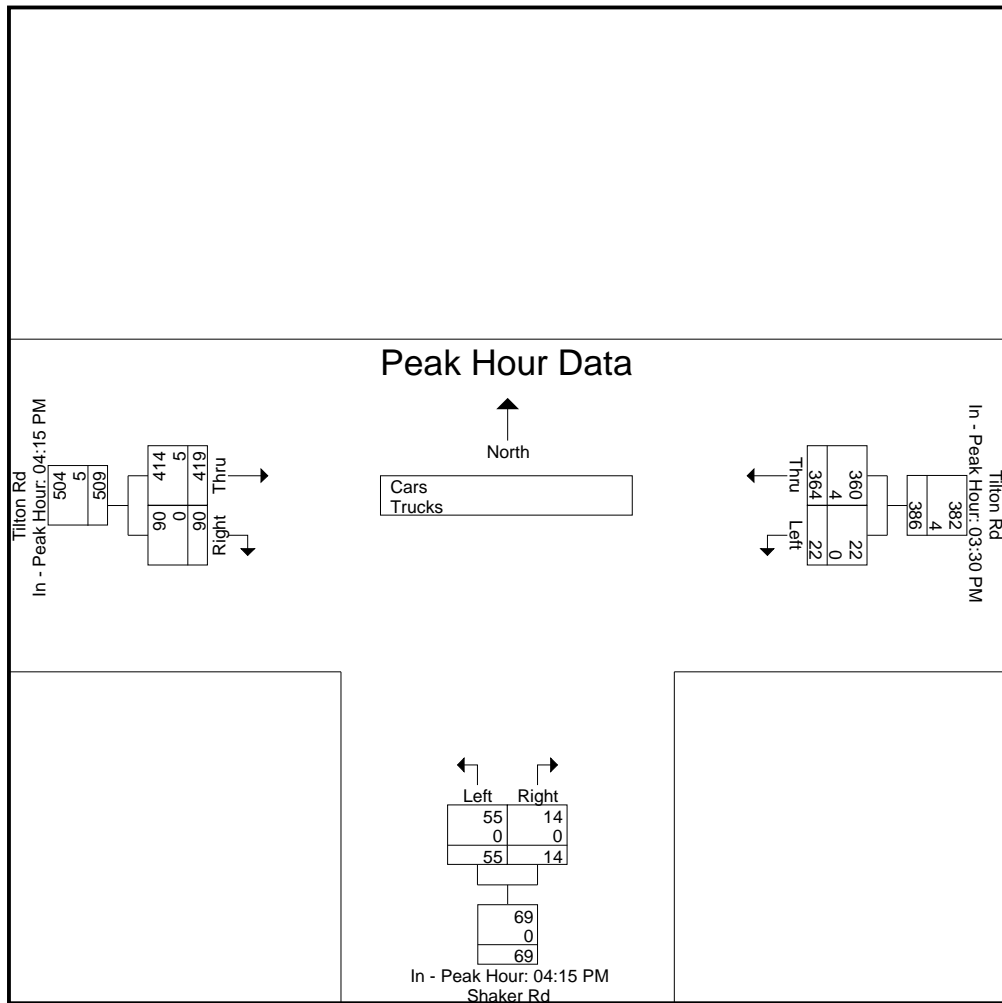
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 3

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:30 PM			04:15 PM			04:15 PM		
+0 mins.	6	111	117	11	2	13	112	20	132
+15 mins.	6	85	91	10	4	14	106	25	131
+30 mins.	4	88	92	21	4	25	83	25	108
+45 mins.	6	80	86	13	4	17	118	20	138
Total Volume	22	364	386	55	14	69	419	90	509
% App. Total	5.7	94.3		79.7	20.3		82.3	17.7	
PHF	.917	.820	.825	.655	.875	.690	.888	.900	.922
Cars	22	360	382	55	14	69	414	90	504
% Cars	100	98.9	99	100	100	100	98.8	100	99
Trucks	0	4	4	0	0	0	5	0	5
% Trucks	0	1.1	1	0	0	0	1.2	0	1



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 4

Groups Printed- Cars

Start Time	Tilton Rd From East		Shaker Rd From South		Tilton Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
03:00 PM	1	75	11	4	93	9	193
03:15 PM	3	66	10	1	94	23	197
03:30 PM	6	109	11	1	105	14	246
03:45 PM	6	84	14	1	89	15	209
Total	16	334	46	7	381	61	845
04:00 PM	4	88	9	4	112	18	235
04:15 PM	6	79	11	2	110	20	228
04:30 PM	4	107	10	4	103	25	253
04:45 PM	4	73	21	4	83	25	210
Total	18	347	51	14	408	88	926
05:00 PM	3	83	13	4	118	20	241
05:15 PM	6	71	10	2	91	21	201
05:30 PM	4	59	10	0	96	24	193
05:45 PM	1	47	14	1	69	19	151
Total	14	260	47	7	374	84	786
Grand Total	48	941	144	28	1163	233	2557
Apprch %	4.9	95.1	83.7	16.3	83.3	16.7	
Total %	1.9	36.8	5.6	1.1	45.5	9.1	

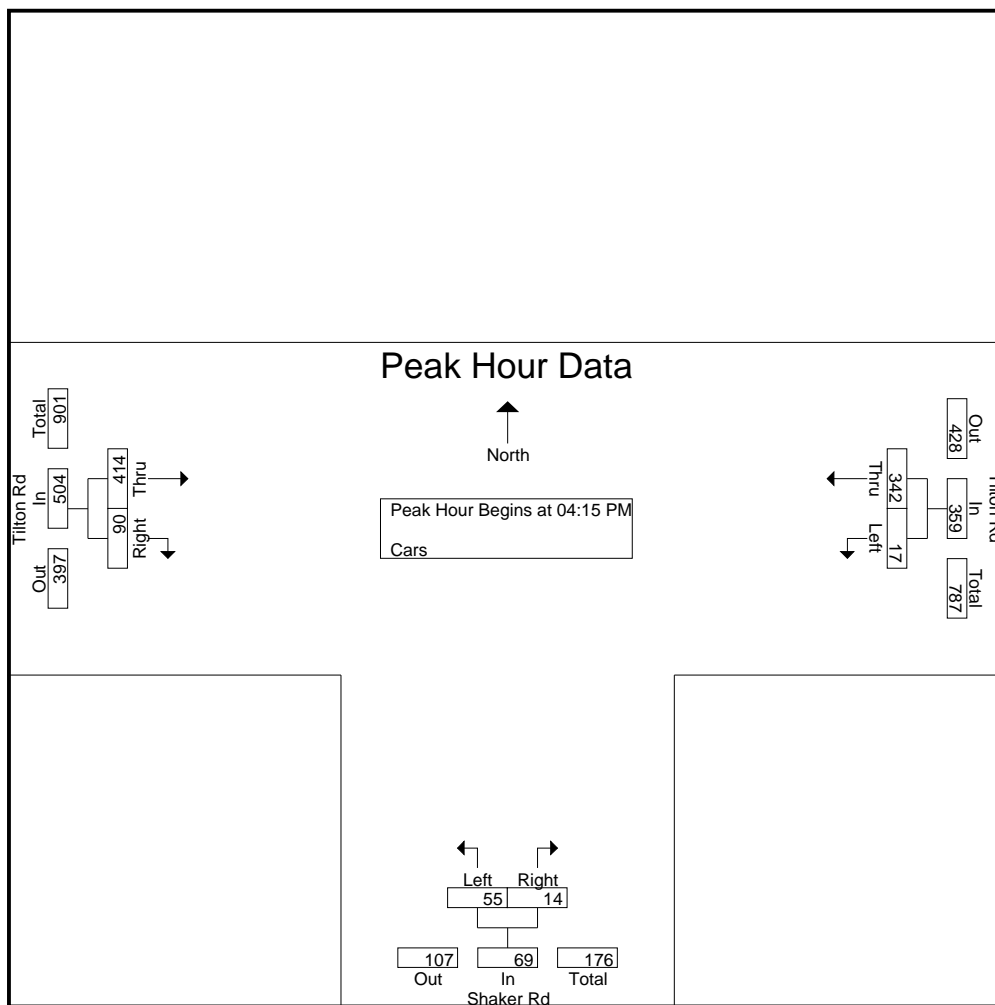
Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 5

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	6	79	85	11	2	13	110	20	130	228
04:30 PM	4	107	111	10	4	14	103	25	128	253
04:45 PM	4	73	77	21	4	25	83	25	108	210
05:00 PM	3	83	86	13	4	17	118	20	138	241
Total Volume	17	342	359	55	14	69	414	90	504	932
% App. Total	4.7	95.3		79.7	20.3		82.1	17.9		
PHF	.708	.799	.809	.655	.875	.690	.877	.900	.913	.921



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

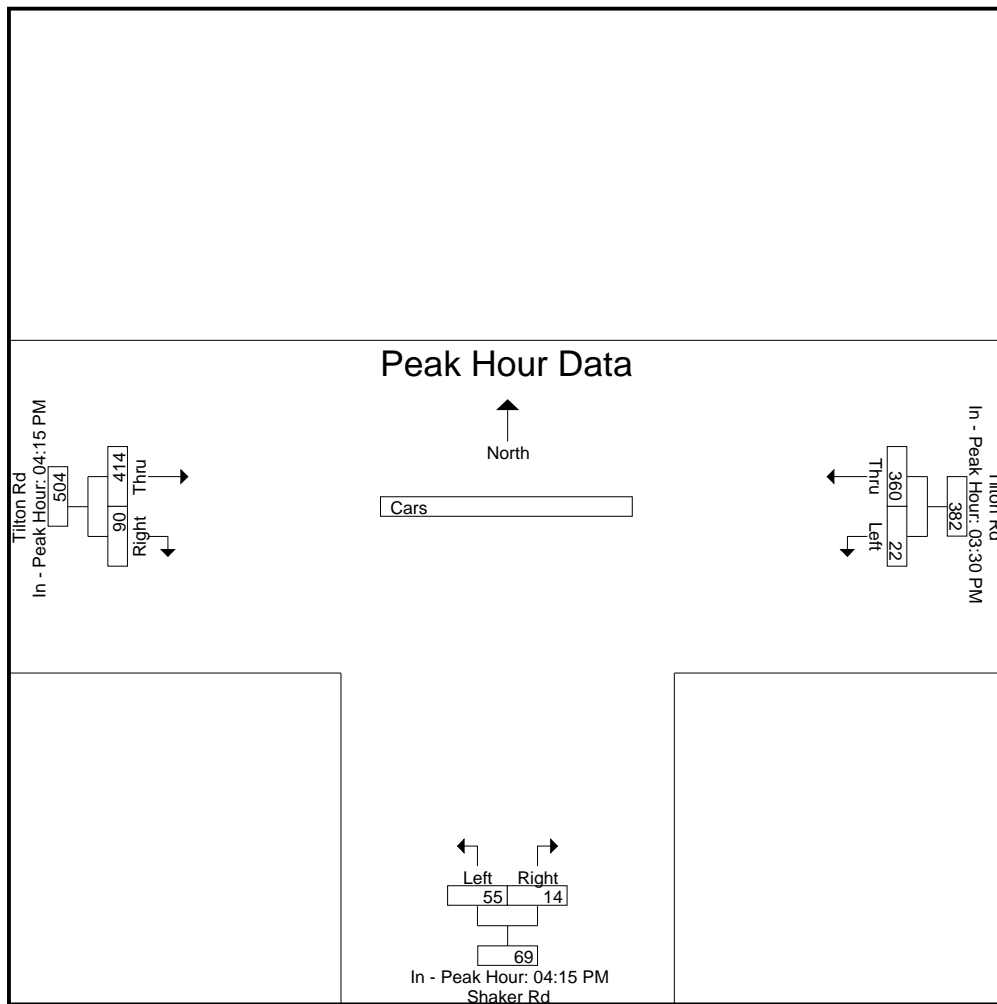
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 6

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:30 PM			04:15 PM			04:15 PM		
+0 mins.	6	109	115	11	2	13	110	20	130
+15 mins.	6	84	90	10	4	14	103	25	128
+30 mins.	4	88	92	21	4	25	83	25	108
+45 mins.	6	79	85	13	4	17	118	20	138
Total Volume	22	360	382	55	14	69	414	90	504
% App. Total	5.8	94.2		79.7	20.3		82.1	17.9	
PHF	.917	.826	.830	.655	.875	.690	.877	.900	.913



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Tilton Rd From East		Shaker Rd From South		Tilton Rd From West		Int. Total
	Left	Thru	Left	Right	Thru	Right	
03:00 PM	0	0	1	0	1	0	2
03:15 PM	0	0	0	0	3	0	3
03:30 PM	0	2	0	0	3	0	5
03:45 PM	0	1	1	0	2	0	4
Total	0	3	2	0	9	0	14
04:00 PM	0	0	0	0	6	0	6
04:15 PM	0	1	0	0	2	0	3
04:30 PM	0	0	0	0	3	0	3
04:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	11	0	12
05:00 PM	0	1	0	0	0	0	1
05:15 PM	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	1	0	1
05:45 PM	0	0	0	0	2	0	2
Total	0	2	0	0	3	0	5
Grand Total	0	6	2	0	23	0	31
Apprch %	0	100	100	0	100	0	
Total %	0	19.4	6.5	0	74.2	0	

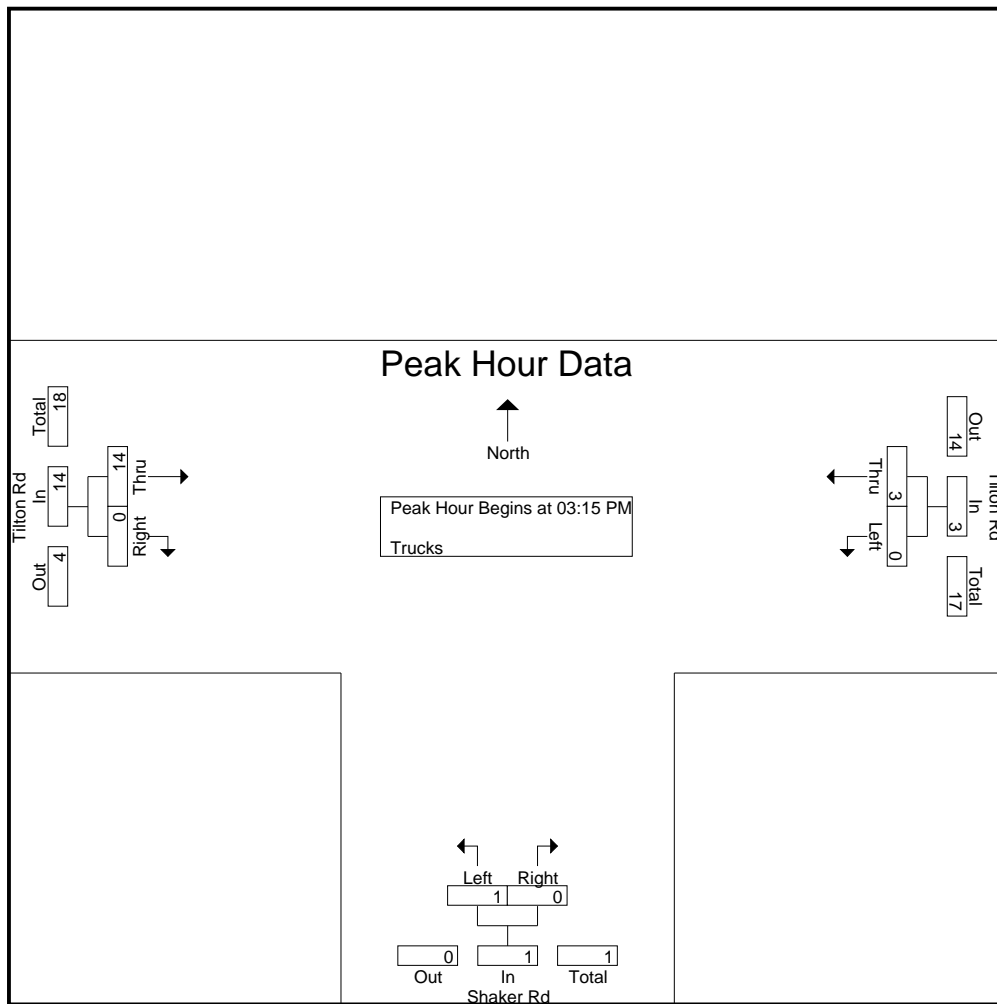
Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 8

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:15 PM										
03:15 PM	0	0	0	0	0	0	3	0	3	3
03:30 PM	0	2	2	0	0	0	3	0	3	5
03:45 PM	0	1	1	1	0	1	2	0	2	4
04:00 PM	0	0	0	0	0	0	6	0	6	6
Total Volume	0	3	3	1	0	1	14	0	14	18
% App. Total	0	100		100	0		100	0		
PHF	.000	.375	.375	.250	.000	.250	.583	.000	.583	.750



Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

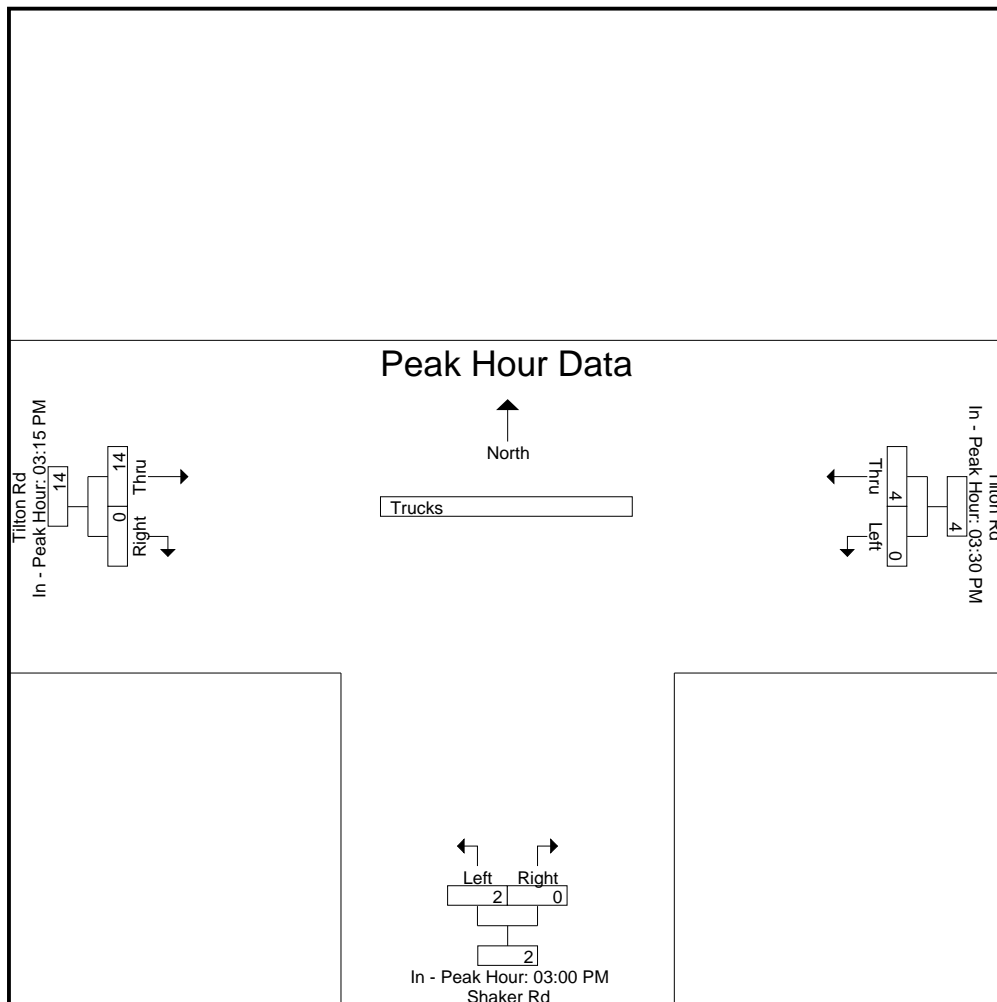
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 9

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:30 PM			03:00 PM			03:15 PM		
+0 mins.	0	2	2	1	0	1	3	0	3
+15 mins.	0	1	1	0	0	0	3	0	3
+30 mins.	0	0	0	0	0	0	2	0	2
+45 mins.	0	1	1	1	0	1	6	0	6
Total Volume	0	4	4	2	0	2	14	0	14
% App. Total	0	100		100	0		100	0	
PHF	.000	.500	.500	.500	.000	.500	.583	.000	.583



Accurate Counts

978-664-2565

File Name : 52444001

Site Code : 52444001

Start Date : 2/21/2017

Page No : 10

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

Groups Printed- Bikes Peds

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

Accurate Counts

978-664-2565

N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

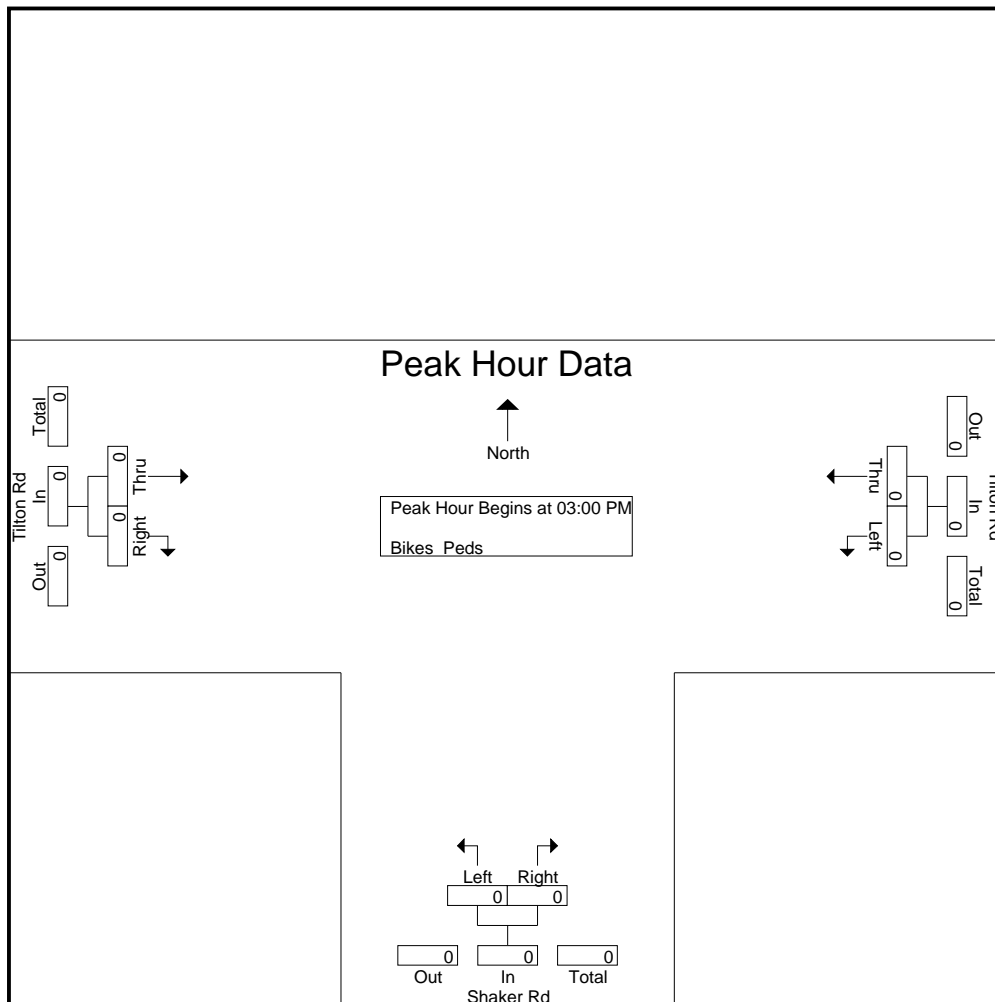
File Name : 52444001
 Site Code : 52444001
 Start Date : 2/21/2017
 Page No : 11

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:00 PM

03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

File Name : 52444001

Site Code : 52444001

Start Date : 2/21/2017

Page No : 12

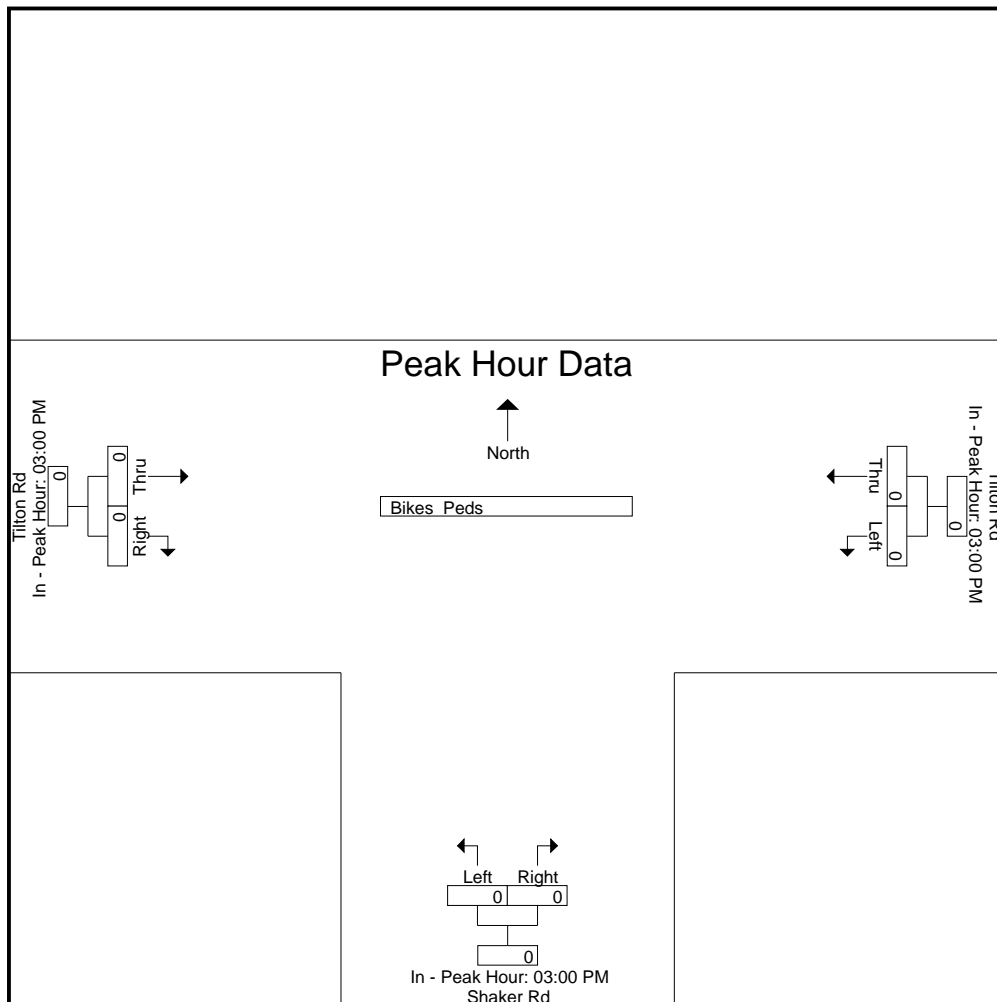
N/S Street : Shaker Road
 E/W Street : Route 140 (Tilton Road)
 City/State : Northfield, NH
 Weather : Clear

Start Time	Tilton Rd From East			Shaker Rd From South			Tilton Rd From West			Int. Total
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Shedd Rd From North		Bay Hill Rd From East		Bay St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
06:00 AM	0	0	7	0	1	1	9
06:15 AM	0	0	10	0	1	3	14
06:30 AM	0	0	9	0	7	6	22
06:45 AM	0	2	13	1	10	11	37
Total	0	2	39	1	19	21	82
07:00 AM	0	9	25	0	10	8	52
07:15 AM	0	1	32	0	4	7	44
07:30 AM	0	3	33	0	3	7	46
07:45 AM	0	2	17	0	17	11	47
Total	0	15	107	0	34	33	189
08:00 AM	0	6	14	0	6	8	34
08:15 AM	2	4	18	0	5	6	35
08:30 AM	0	1	21	0	7	7	36
08:45 AM	0	2	10	1	6	14	33
Total	2	13	63	1	24	35	138
Grand Total	2	30	209	2	77	89	409
Apprch %	6.2	93.8	99.1	0.9	46.4	53.6	
Total %	0.5	7.3	51.1	0.5	18.8	21.8	
Cars	2	30	209	2	77	86	406
% Cars	100	100	100	100	100	96.6	99.3
Trucks	0	0	0	0	0	3	3
% Trucks	0	0	0	0	0	3.4	0.7

Accurate Counts

978-664-2565

File Name : 52444002

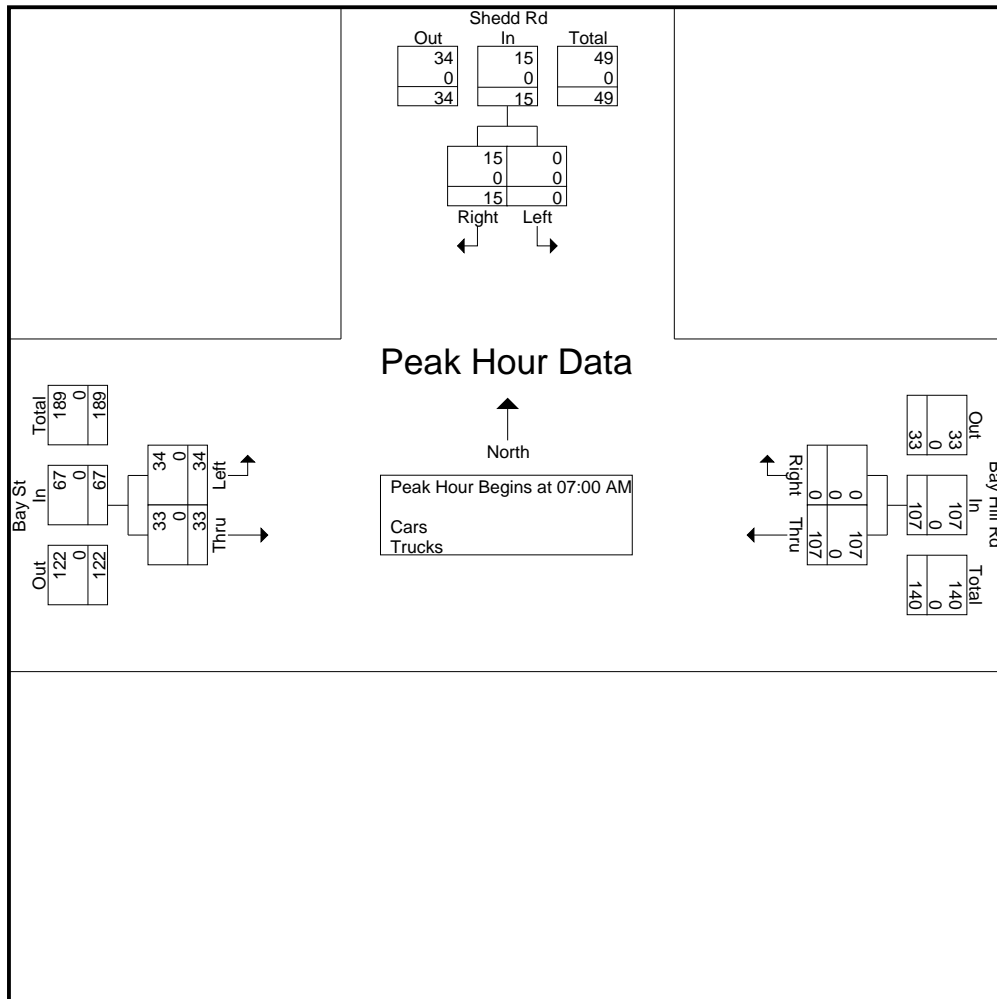
Site Code : 52444002

Start Date : 2/21/2017

Page No : 2

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	9	9	25	0	25	10	8	18	52
07:15 AM	0	1	1	32	0	32	4	7	11	44
07:30 AM	0	3	3	33	0	33	3	7	10	46
07:45 AM	0	2	2	17	0	17	17	11	28	47
Total Volume	0	15	15	107	0	107	34	33	67	189
% App. Total	0	100		100	0		50.7	49.3		
PHF	.000	.417	.417	.811	.000	.811	.500	.750	.598	.909
Cars	0	15	15	107	0	107	34	33	67	189
% Cars	0	100	100	100	0	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

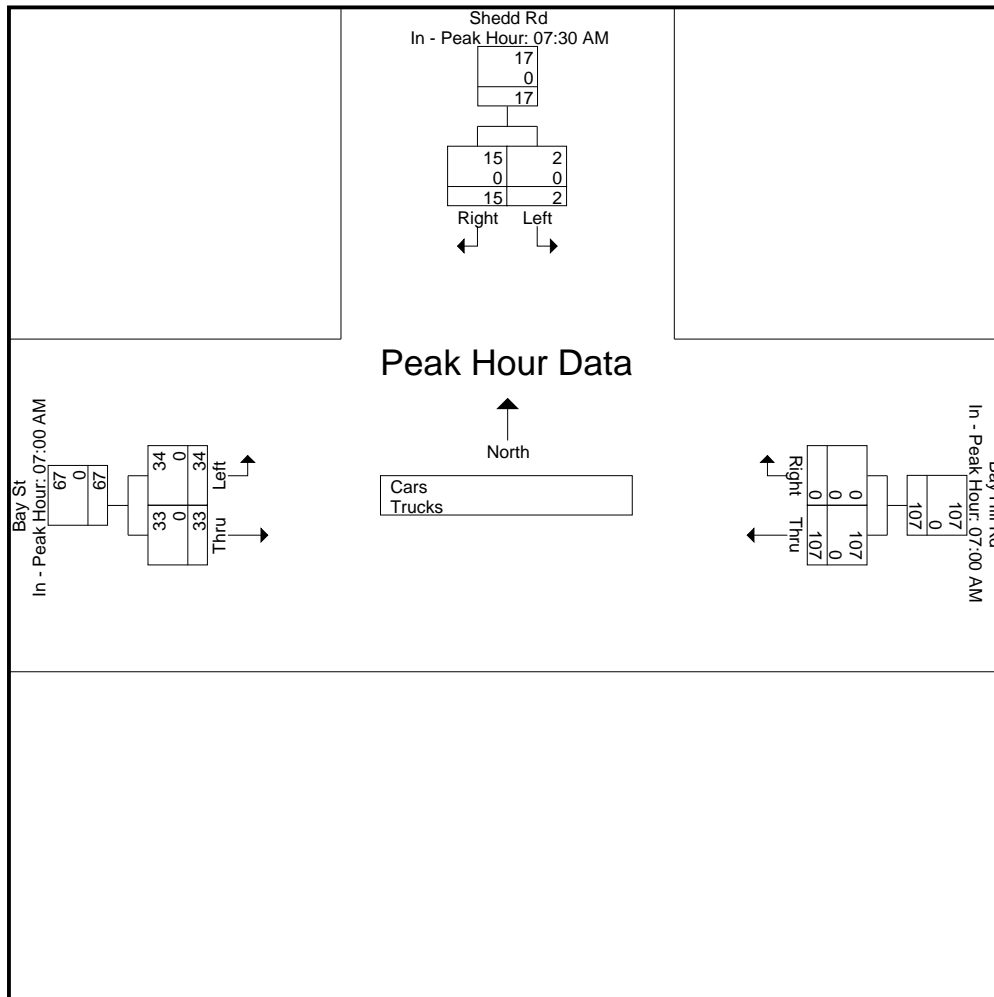
File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 3

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:00 AM		
+0 mins.	0	3	3	25	0	25	10	8	18
+15 mins.	0	2	2	32	0	32	4	7	11
+30 mins.	0	6	6	33	0	33	3	7	10
+45 mins.	2	4	6	17	0	17	17	11	28
Total Volume	2	15	17	107	0	107	34	33	67
% App. Total	11.8	88.2		100	0		50.7	49.3	
PHF	.250	.625	.708	.811	.000	.811	.500	.750	.598
Cars	2	15	17	107	0	107	34	33	67
% Cars	100	100	100	100	0	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 4

Groups Printed- Cars

Start Time	Shedd Rd From North		Bay Hill Rd From East		Bay St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
06:00 AM	0	0	7	0	1	1	9
06:15 AM	0	0	10	0	1	3	14
06:30 AM	0	0	9	0	7	6	22
06:45 AM	0	2	13	1	10	9	35
Total	0	2	39	1	19	19	80
07:00 AM	0	9	25	0	10	8	52
07:15 AM	0	1	32	0	4	7	44
07:30 AM	0	3	33	0	3	7	46
07:45 AM	0	2	17	0	17	11	47
Total	0	15	107	0	34	33	189
08:00 AM	0	6	14	0	6	8	34
08:15 AM	2	4	18	0	5	5	34
08:30 AM	0	1	21	0	7	7	36
08:45 AM	0	2	10	1	6	14	33
Total	2	13	63	1	24	34	137
Grand Total	2	30	209	2	77	86	406
Apprch %	6.2	93.8	99.1	0.9	47.2	52.8	
Total %	0.5	7.4	51.5	0.5	19	21.2	

Accurate Counts

978-664-2565

File Name : 52444002

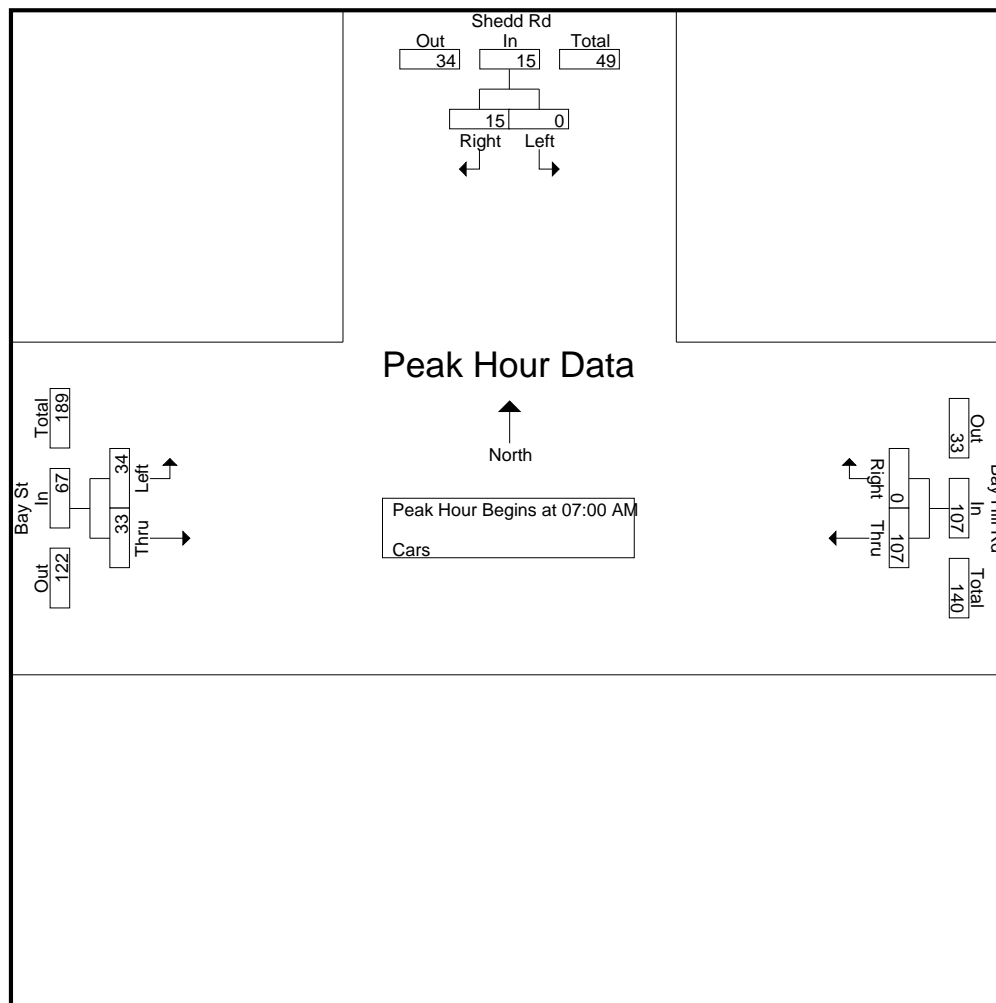
Site Code : 52444002

Start Date : 2/21/2017

Page No : 5

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	9	9	25	0	25	10	8	18	52
07:15 AM	0	1	1	32	0	32	4	7	11	44
07:30 AM	0	3	3	33	0	33	3	7	10	46
07:45 AM	0	2	2	17	0	17	17	11	28	47
Total Volume	0	15	15	107	0	107	34	33	67	189
% App. Total	0	100		100	0		50.7	49.3		
PHF	.000	.417	.417	.811	.000	.811	.500	.750	.598	.909



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 6

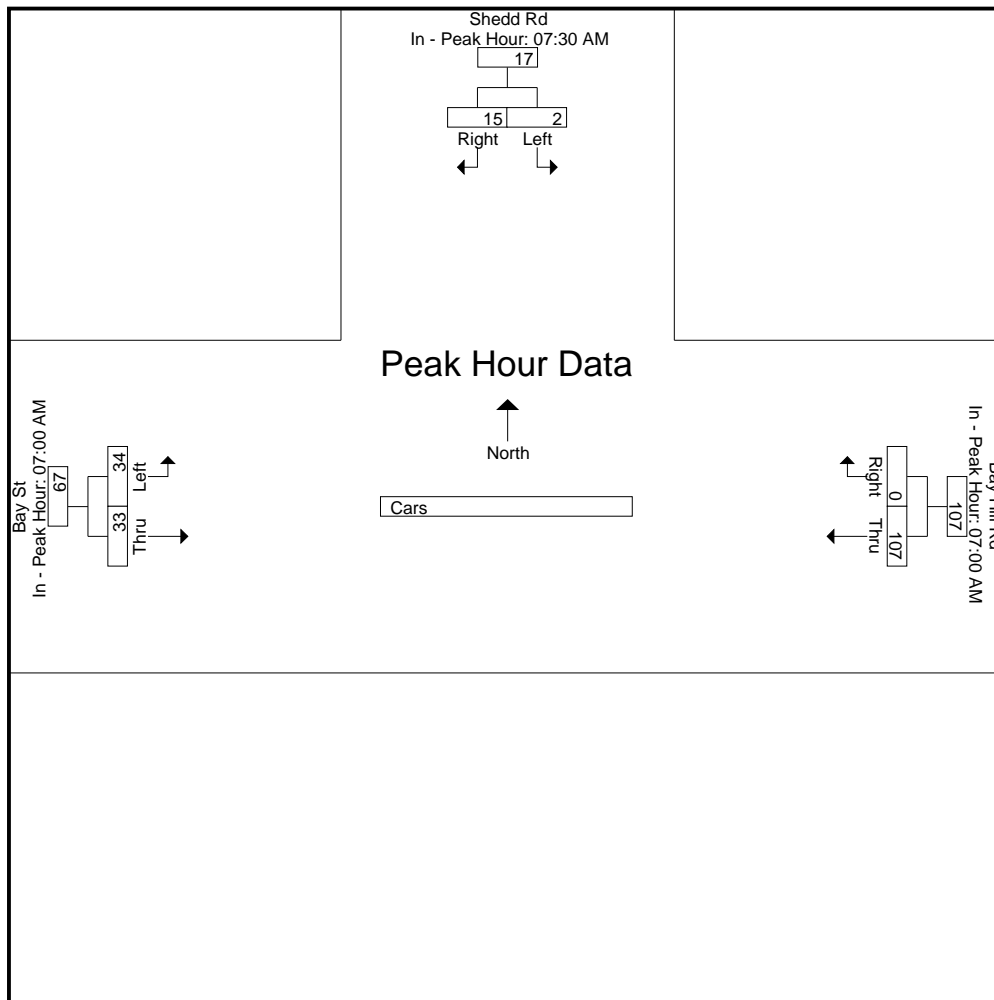
N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:00 AM		
+0 mins.	0	3	3	25	0	25	10	8	18
+15 mins.	0	2	2	32	0	32	4	7	11
+30 mins.	0	6	6	33	0	33	3	7	10
+45 mins.	2	4	6	17	0	17	17	11	28
Total Volume	2	15	17	107	0	107	34	33	67
% App. Total	11.8	88.2		100	0		50.7	49.3	
PHF	.250	.625	.708	.811	.000	.811	.500	.750	.598



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Shedd Rd From North		Bay Hill Rd From East		Bay St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
06:00 AM	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	2	2
Total	0	0	0	0	0	2	2
07:00 AM	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	3	3
Apprch %	0	0	0	0	0	100	
Total %	0	0	0	0	0	100	

Accurate Counts

978-664-2565

File Name : 52444002

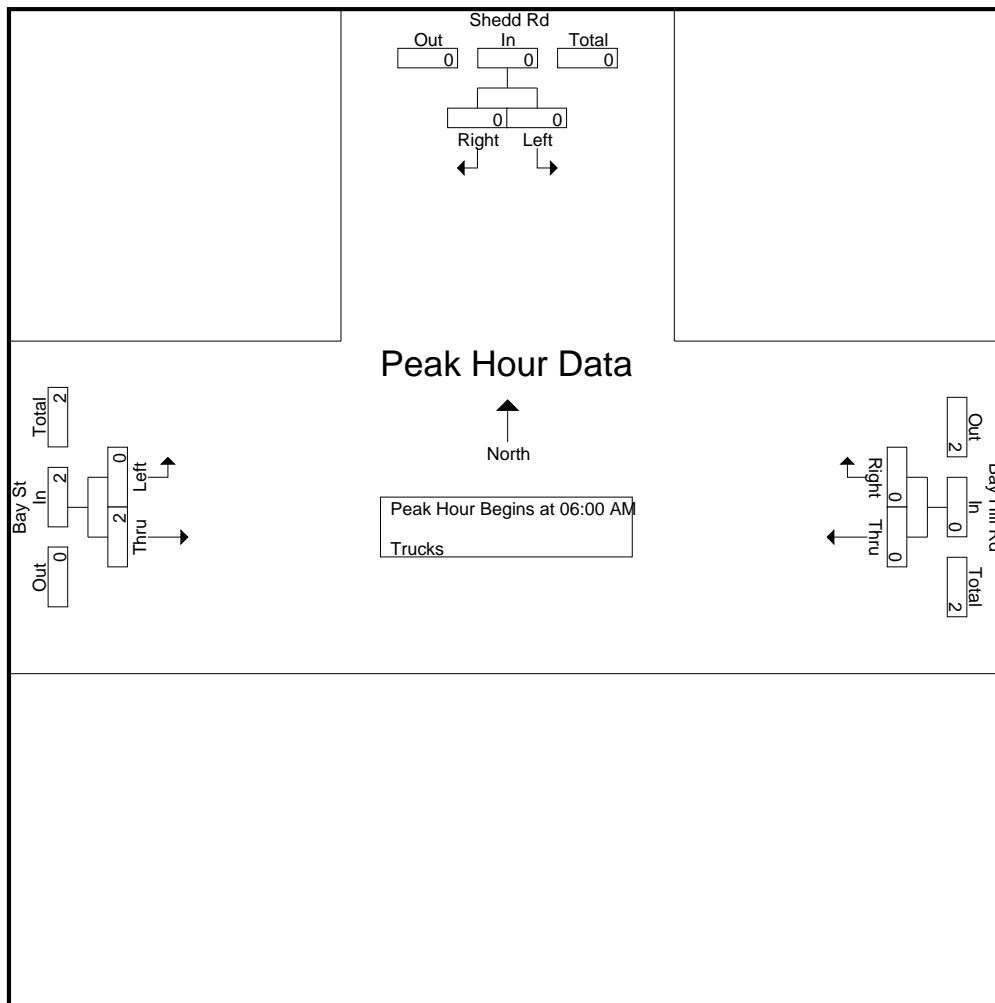
Site Code : 52444002

Start Date : 2/21/2017

Page No : 8

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:00 AM										
06:00 AM	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	2	2	2
Total Volume	0	0	0	0	0	0	0	2	2	2
% App. Total	0	0		0	0		0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 9

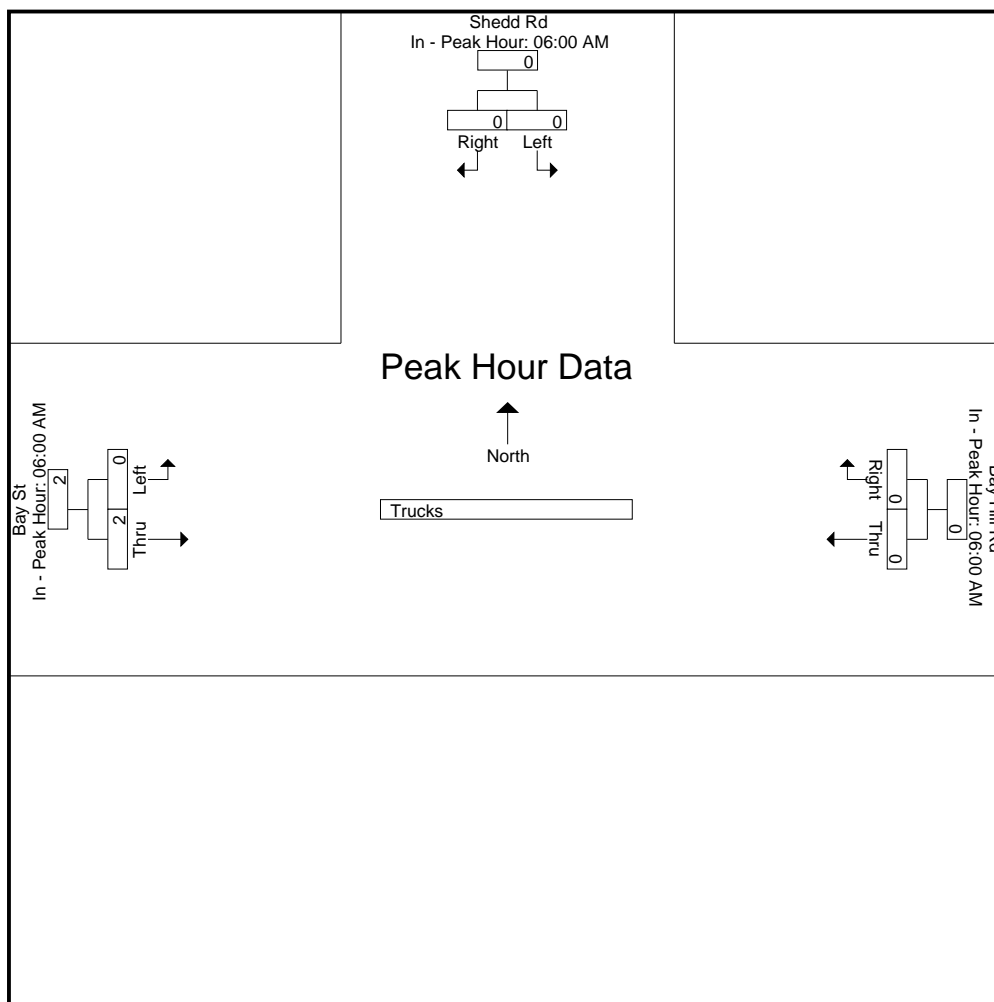
N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM			06:00 AM			06:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	2	2
Total Volume	0	0	0	0	0	0	0	2	2
% App. Total	0	0		0	0		0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.250



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 10

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Groups Printed- Bikes Peds

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds			
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	1	0	0	0	0	0	0	1	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	1	0	1
Grand Total	0	0	1	0	0	0	0	0	0	1	0	1
Apprch %	0	0		0	0		0	0				
Total %										100	0	

Accurate Counts

978-664-2565

File Name : 52444002

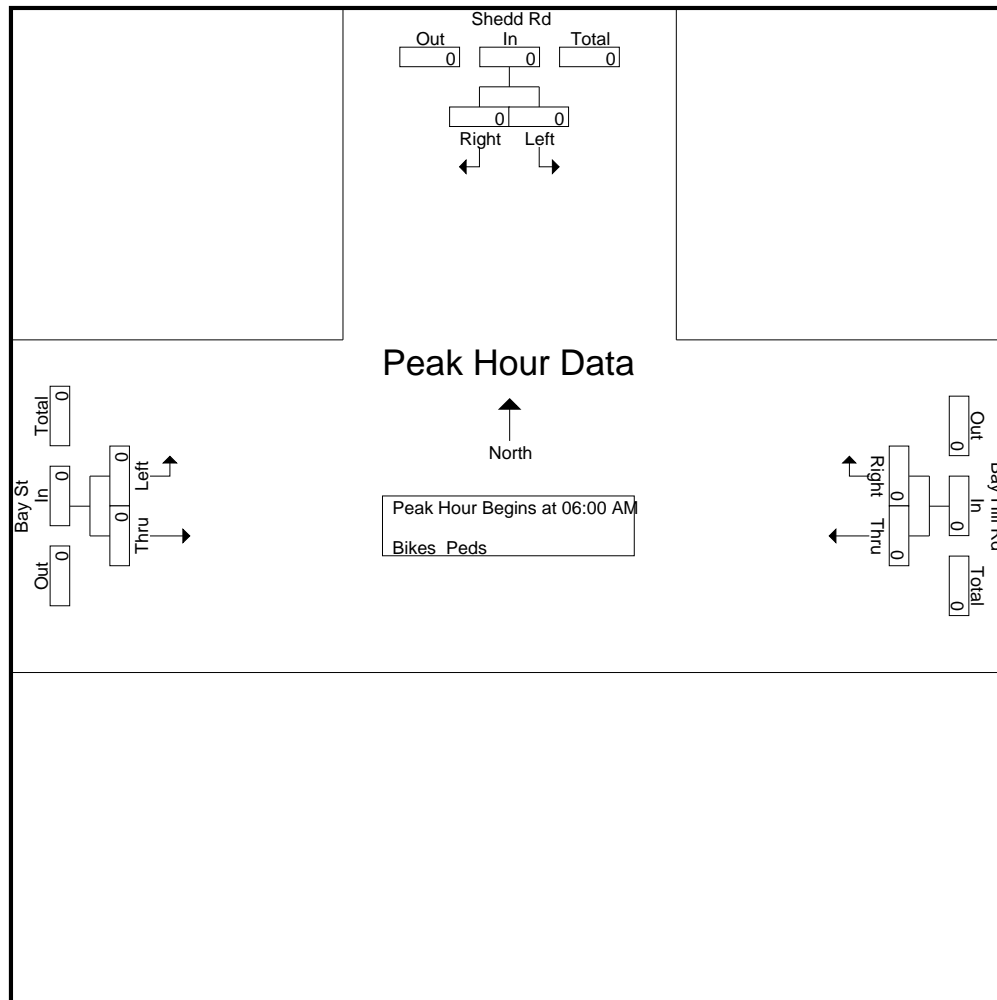
Site Code : 52444002

Start Date : 2/21/2017

Page No : 11

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 06:00 AM										
06:00 AM	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 12

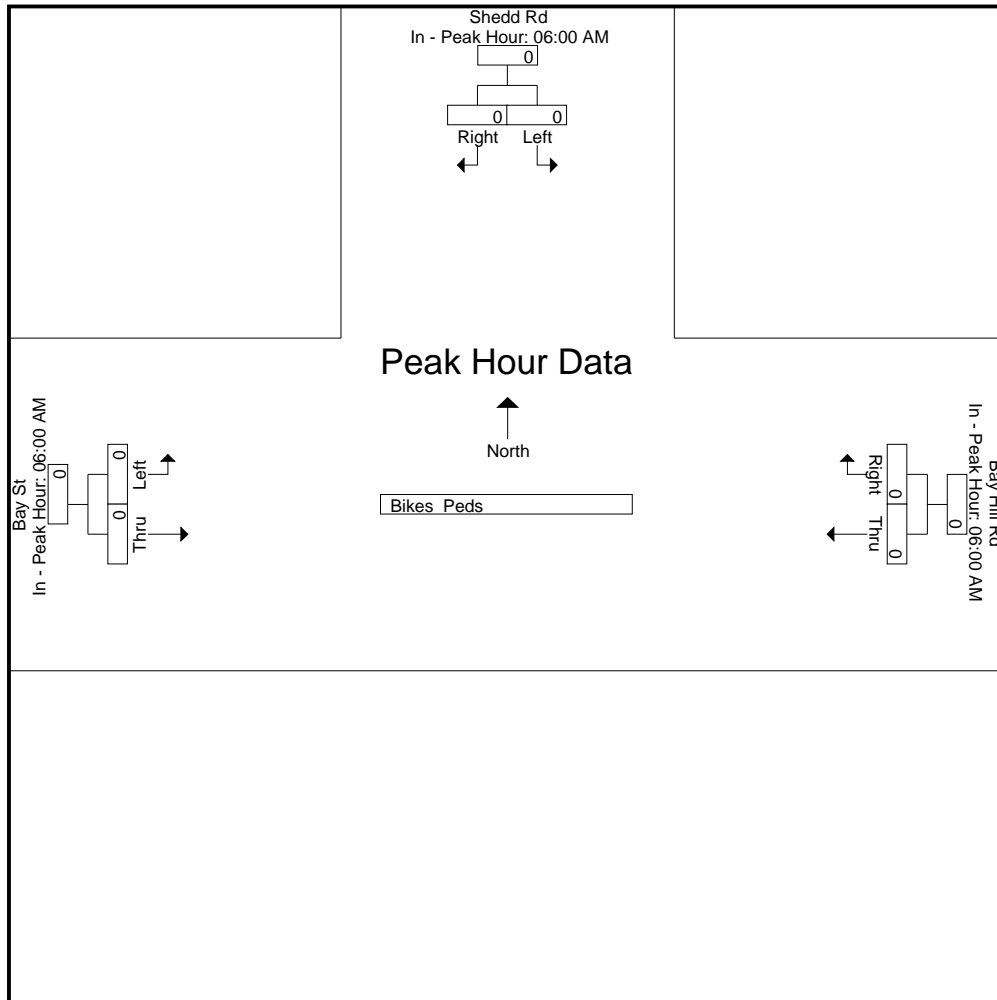
N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM			06:00 AM			06:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Shedd Rd From North		Bay Hill Rd From East		Bay St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
03:00 PM	2	6	20	0	4	13	45
03:15 PM	0	8	14	0	4	20	46
03:30 PM	0	11	14	1	1	30	57
03:45 PM	0	5	10	0	4	18	37
Total	2	30	58	1	13	81	185
04:00 PM	0	4	21	0	1	15	41
04:15 PM	0	5	21	0	0	27	53
04:30 PM	0	9	15	0	0	13	37
04:45 PM	0	2	10	0	0	15	27
Total	0	20	67	0	1	70	158
05:00 PM	0	7	10	1	1	24	43
05:15 PM	0	2	11	0	1	24	38
05:30 PM	0	2	14	0	4	31	51
05:45 PM	0	0	21	0	4	18	43
Total	0	11	56	1	10	97	175
Grand Total	2	61	181	2	24	248	518
Apprch %	3.2	96.8	98.9	1.1	8.8	91.2	
Total %	0.4	11.8	34.9	0.4	4.6	47.9	
Cars	2	61	179	2	24	246	514
% Cars	100	100	98.9	100	100	99.2	99.2
Trucks	0	0	2	0	0	2	4
% Trucks	0	0	1.1	0	0	0.8	0.8

Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

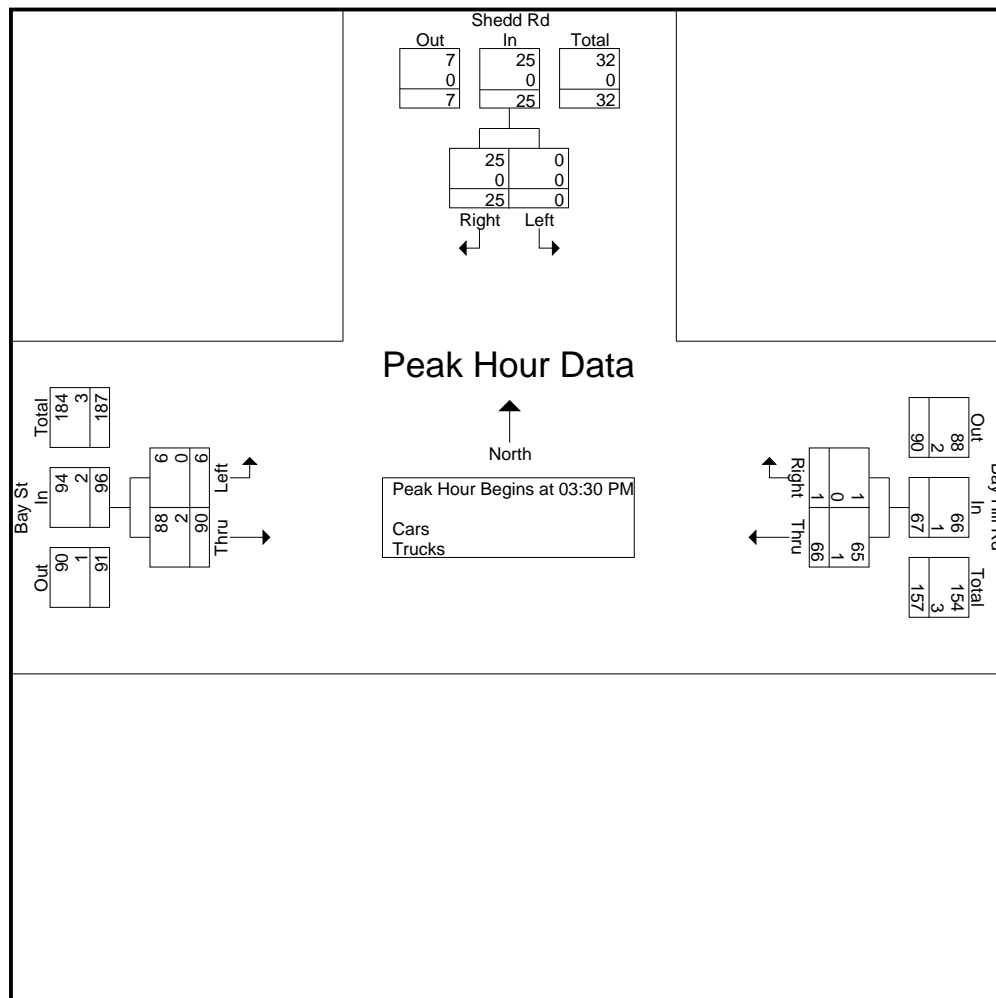
File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 2

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:30 PM

03:30 PM	0	11	11	14	1	15	1	30	31	57
03:45 PM	0	5	5	10	0	10	4	18	22	37
04:00 PM	0	4	4	21	0	21	1	15	16	41
04:15 PM	0	5	5	21	0	21	0	27	27	53
Total Volume	0	25	25	66	1	67	6	90	96	188
% App. Total	0	100		98.5	1.5		6.2	93.8		
PHF	.000	.568	.568	.786	.250	.798	.375	.750	.774	.825
Cars	0	25	25	65	1	66	6	88	94	185
% Cars	0	100	100	98.5	100	98.5	100	97.8	97.9	98.4
Trucks	0	0	0	1	0	1	0	2	2	3
% Trucks	0	0	0	1.5	0	1.5	0	2.2	2.1	1.6



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 3

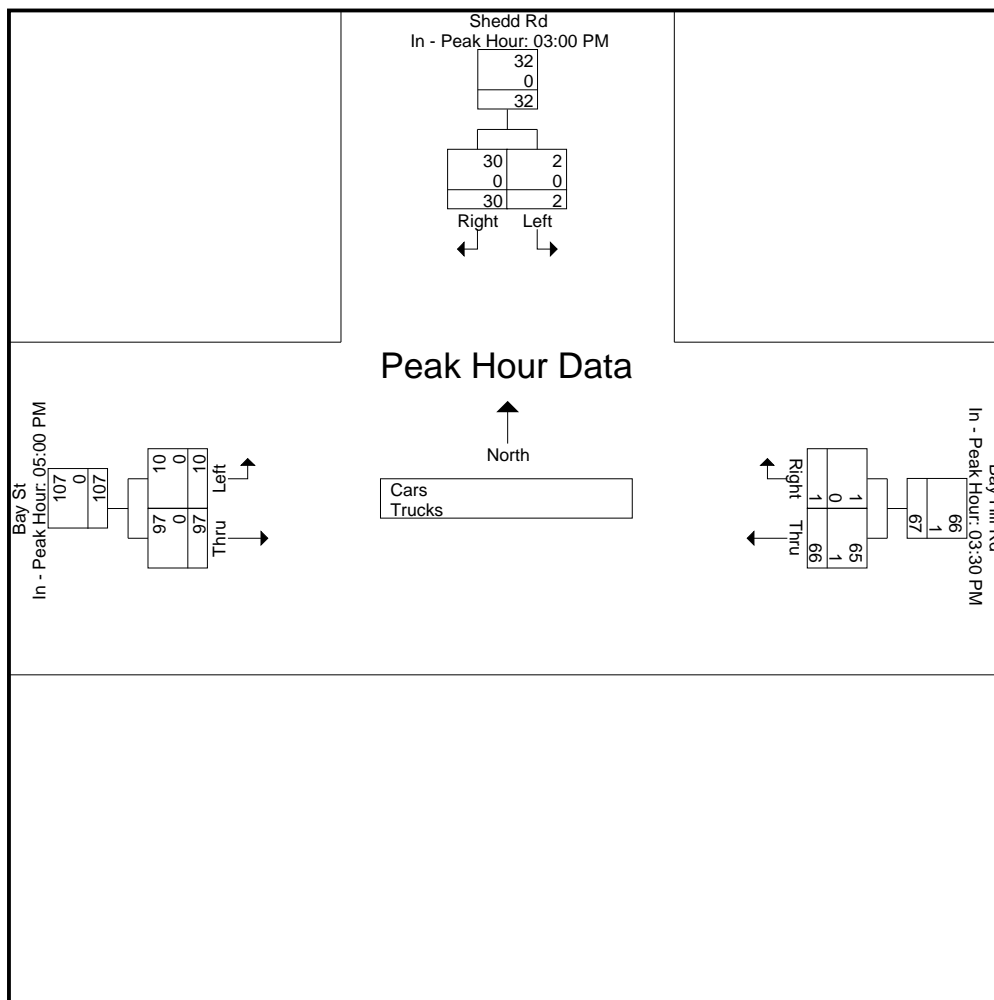
N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:30 PM			05:00 PM		
+0 mins.	2	6	8	14	1	15	1	24	25
+15 mins.	0	8	8	10	0	10	1	24	25
+30 mins.	0	11	11	21	0	21	4	31	35
+45 mins.	0	5	5	21	0	21	4	18	22
Total Volume	2	30	32	66	1	67	10	97	107
% App. Total	6.2	93.8		98.5	1.5		9.3	90.7	
PHF	.250	.682	.727	.786	.250	.798	.625	.782	.764
Cars	2	30	32	65	1	66	10	97	107
% Cars	100	100	100	98.5	100	98.5	100	100	100
Trucks	0	0	0	1	0	1	0	0	0
% Trucks	0	0	0	1.5	0	1.5	0	0	0



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 4

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Groups Printed- Cars

Start Time	Shedd Rd From North		Bay Hill Rd From East		Bay St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
03:00 PM	2	6	20	0	4	13	45
03:15 PM	0	8	13	0	4	20	45
03:30 PM	0	11	14	1	1	29	56
03:45 PM	0	5	10	0	4	17	36
Total	2	30	57	1	13	79	182
04:00 PM	0	4	21	0	1	15	41
04:15 PM	0	5	20	0	0	27	52
04:30 PM	0	9	15	0	0	13	37
04:45 PM	0	2	10	0	0	15	27
Total	0	20	66	0	1	70	157
05:00 PM	0	7	10	1	1	24	43
05:15 PM	0	2	11	0	1	24	38
05:30 PM	0	2	14	0	4	31	51
05:45 PM	0	0	21	0	4	18	43
Total	0	11	56	1	10	97	175
Grand Total	2	61	179	2	24	246	514
Apprch %	3.2	96.8	98.9	1.1	8.9	91.1	
Total %	0.4	11.9	34.8	0.4	4.7	47.9	

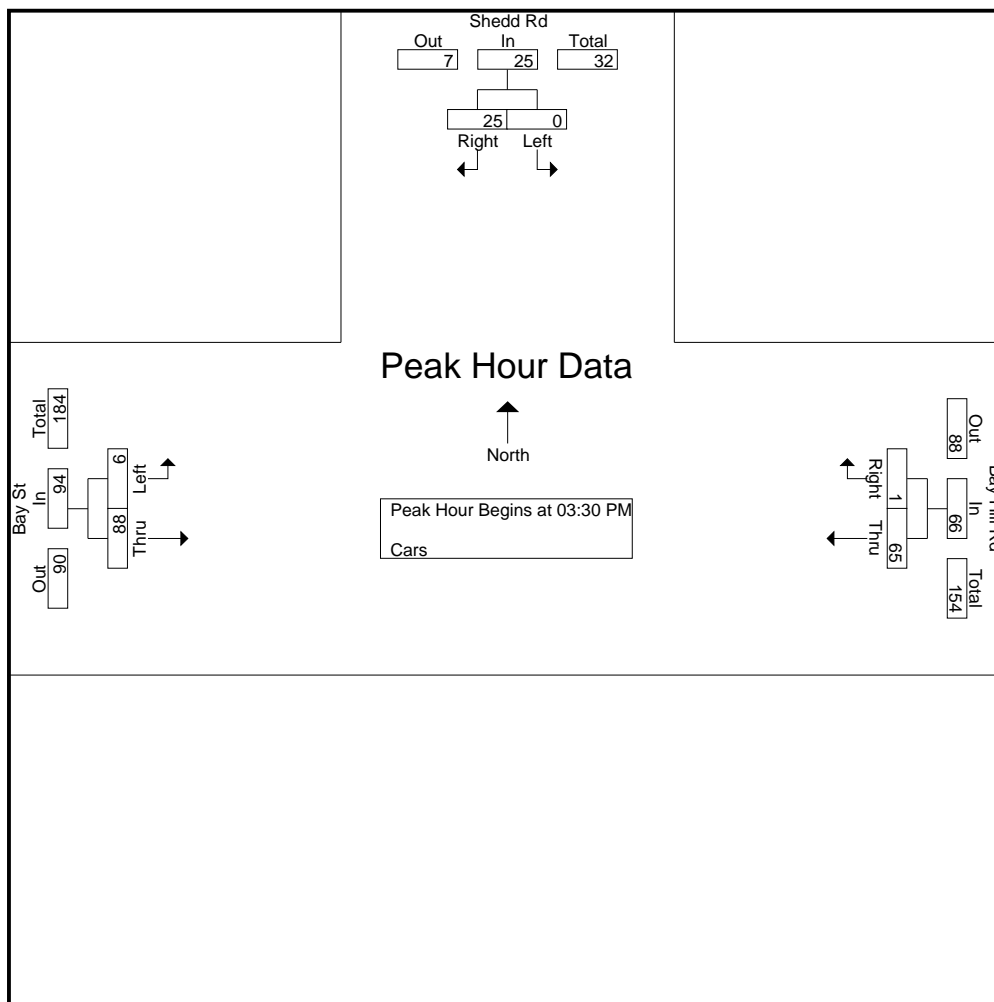
Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 5

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:30 PM										
03:30 PM	0	11	11	14	1	15	1	29	30	56
03:45 PM	0	5	5	10	0	10	4	17	21	36
04:00 PM	0	4	4	21	0	21	1	15	16	41
04:15 PM	0	5	5	20	0	20	0	27	27	52
Total Volume	0	25	25	65	1	66	6	88	94	185
% App. Total	0	100		98.5	1.5		6.4	93.6		
PHF	.000	.568	.568	.774	.250	.786	.375	.759	.783	.826



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

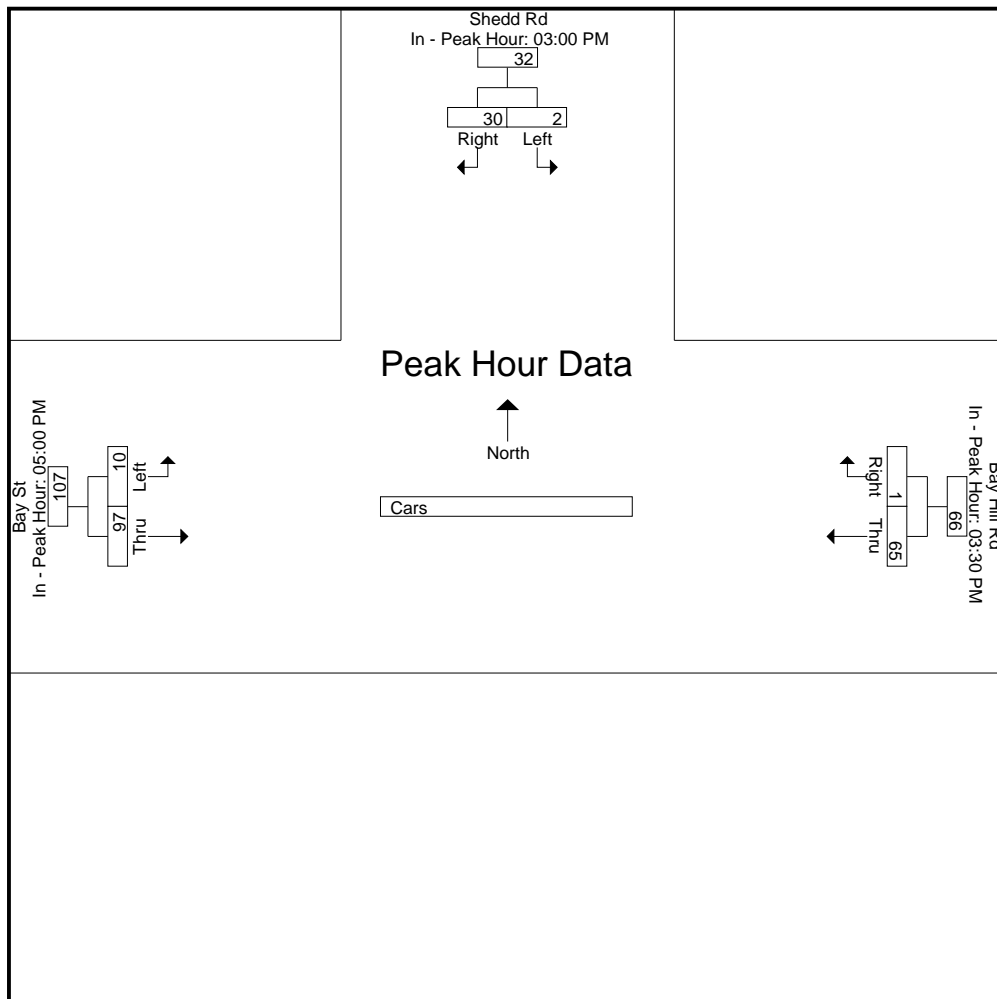
File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 6

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:30 PM			05:00 PM		
+0 mins.	2	6	8	14	1	15	1	24	25
+15 mins.	0	8	8	10	0	10	1	24	25
+30 mins.	0	11	11	21	0	21	4	31	35
+45 mins.	0	5	5	20	0	20	4	18	22
Total Volume	2	30	32	65	1	66	10	97	107
% App. Total	6.2	93.8		98.5	1.5		9.3	90.7	
PHF	.250	.682	.727	.774	.250	.786	.625	.782	.764



Accurate Counts

978-664-2565

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

File Name : 52444002
 Site Code : 52444002
 Start Date : 2/21/2017
 Page No : 7

Groups Printed- Trucks

Start Time	Shedd Rd From North		Bay Hill Rd From East		Bay St From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
03:00 PM	0	0	0	0	0	0	0
03:15 PM	0	0	1	0	0	0	1
03:30 PM	0	0	0	0	0	1	1
03:45 PM	0	0	0	0	0	1	1
Total	0	0	1	0	0	2	3
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	0	1
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	2	0	0	2	4
Apprch %	0	0	100	0	0	100	
Total %	0	0	50	0	0	50	

Accurate Counts

978-664-2565

File Name : 52444002

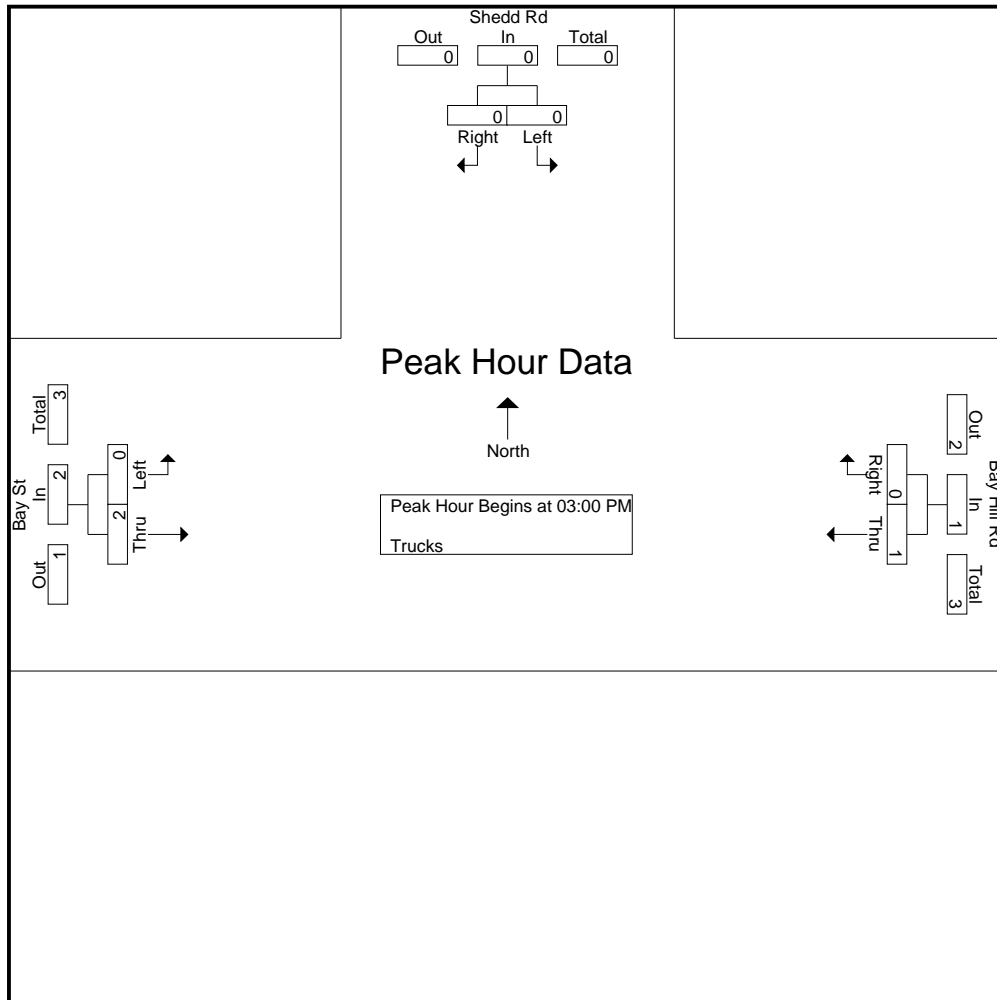
Site Code : 52444002

Start Date : 2/21/2017

Page No : 8

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	1	0	1	0	0	0	1
03:30 PM	0	0	0	0	0	0	0	1	1	1
03:45 PM	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	1	0	1	0	2	2	3
% App. Total	0	0		100	0		0	100		
PHF	.000	.000	.000	.250	.000	.250	.000	.500	.500	.750



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 9

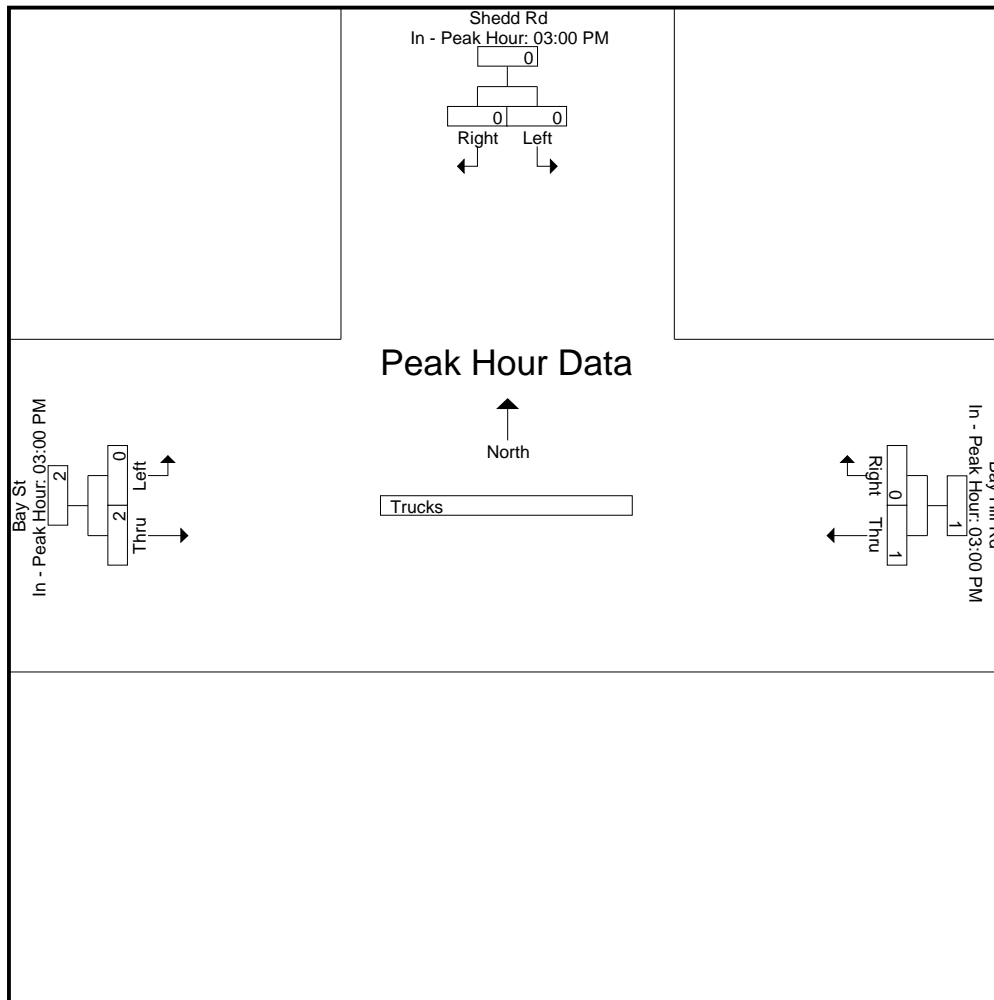
N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	1	0	1	0	0	0
+30 mins.	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	1	1
Total Volume	0	0	0	1	0	1	0	2	2
% App. Total	0	0		100	0		0	100	
PHF	.000	.000	.000	.250	.000	.250	.000	.500	.500



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 10

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Groups Printed- Bikes Peds

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds			
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0		0	0		0	0				
Total %										0	0	

Accurate Counts

978-664-2565

File Name : 52444002

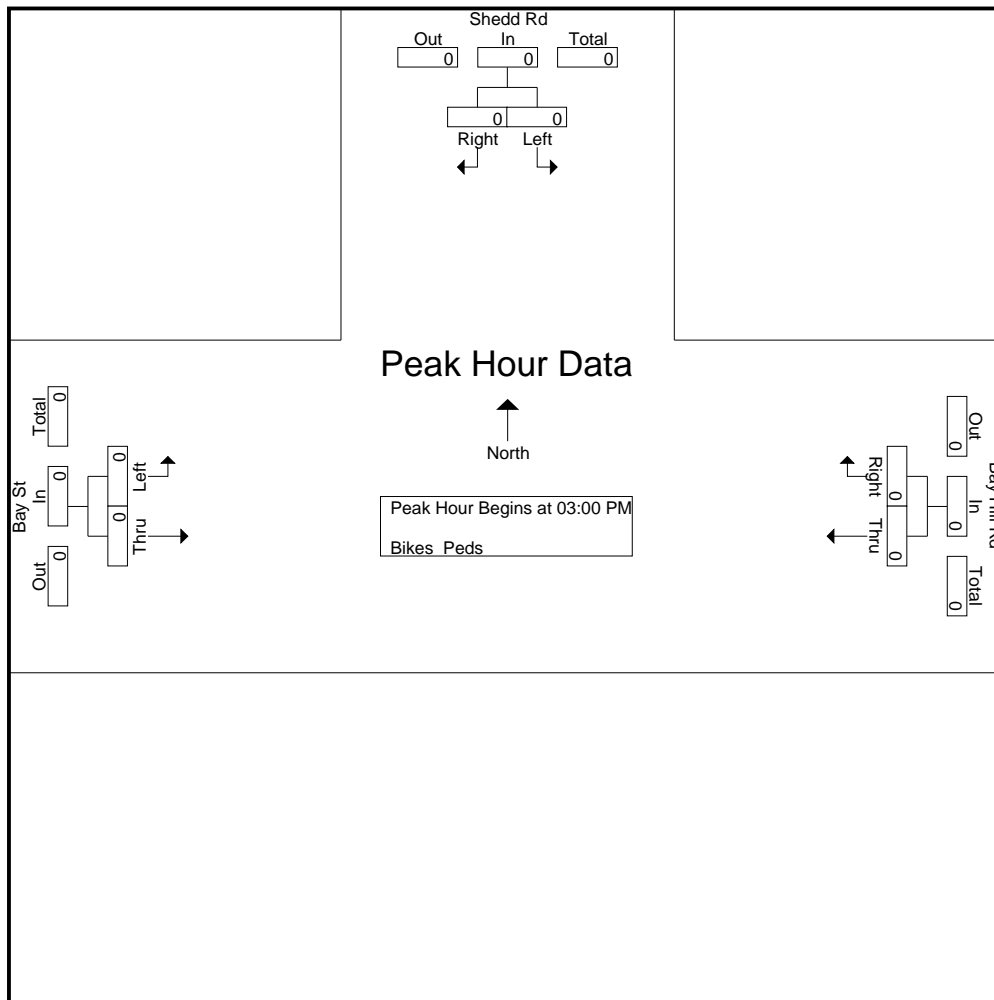
Site Code : 52444002

Start Date : 2/21/2017

Page No : 11

N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Accurate Counts

978-664-2565

File Name : 52444002

Site Code : 52444002

Start Date : 2/21/2017

Page No : 12

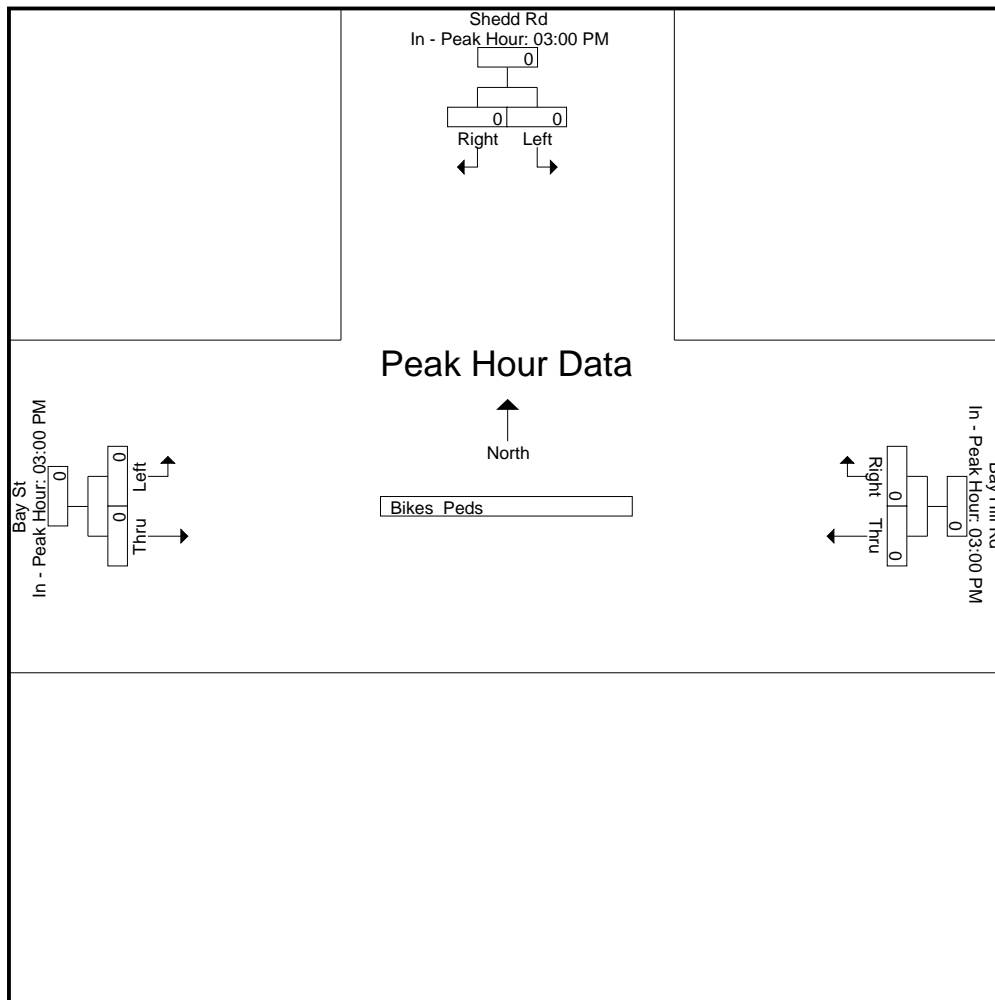
N/S Street : Shedd Road
 E/W Street : Bay Street / Bay Hill Road
 City/State : Northfield, NH
 Weather : Clear

Start Time	Shedd Rd From North			Bay Hill Rd From East			Bay St From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000





Spaulding Youth Center, Northfield, NH

Seasonal Variation

Belmont Averages - Peak Factors

<u>Month</u>	<u>AM</u>	<u>Mid</u>	<u>PM</u>	<u>Sat Mid</u>
Feb 2013	1.19	1.38	1.24	1.52
Feb 2014	1.22	1.30	1.25	1.15
Feb 2015	1.24	1.39	1.24	1.21

February Average	1.21	1.36	1.24	1.29
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Belmont Averages - Peak Factors

<u>Month</u>	<u>AM</u>	<u>Mid</u>	<u>PM</u>	<u>Sat Mid</u>
April 2013	1.11	1.29	1.18	1.22
April 2014	1.09	1.24	1.16	1.21
April 2015	1.07	1.26	1.15	1.23

April Average	1.09	1.26	1.16	1.22
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Belmont Averages - Peak Factors

<u>Month</u>	<u>AM</u>	<u>Mid</u>	<u>PM</u>	<u>Sat Mid</u>
May 2013	1.04	1.17	1.09	1.11
May 2014	1.05	1.13	1.08	1.11
May 2015	1.07	1.26	1.15	1.23

May Average	1.05	1.19	1.11	1.15
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Spaulding Youth Center, Northfield, NH

Traffic Growth

GROWTH FACTORS								
NHDOT COUNT STATIONS - 039022								
BELMONT - US 3/NH 11 (DANIEL WEBSTER HWY) WEST OF UNION RD (SB-NB)								
YEAR	2008	2009	2010	2011	2012	2013	2014	2015
VOLUME	16445	16539	17285	16586	16811	17160	17633	17737
Average Annual Growth Rate (2008-2015) =						1.1%		

GROWTH FACTORS								
NHDOT COUNT STATION 039053								
BELMONT - NH 140 (GILMANTON RD) AT GILMANTON TOWN LINE								
YEAR	2008	2009	2010	2011	2012	2013	2014	2015
VOLUME	2900			3000			3000	
Average Annual Growth Rate (2008-2015) =						0.6%		

GROWTH FACTORS								
NHDOT COUNT STATION 163051								
FRANKLIN - US 3/NH 11 (CENTRAL ST) AT TILTON TOWN LINE (SB-NB)								
YEAR	2008	2009	2010	2011	2012	2013	2014	2015
VOLUME	15000			16000			16000	
Average Annual Growth Rate (2008-2015) =						1.1%		

Average of Both Stations = 0.9%

***Therefore Use:
1% Annual Background Growth***

GROWTH FACTORS								
NHDOT COUNT STATION 343002								
NORTHFIELD - 1-93 BETWEEN EXITS 18-19 (SB-NB)								
YEAR	2008	2009	2010	2011	2012	2013	2014	2015
VOLUME	30700			33000			32000	
Average Annual Growth Rate (2008-2015) =						0.7%		

GROWTH FACTORS								
NHDOT COUNT STATION 451001								
TILTON - 1-93 AT CROSSOVER AT MM 56.0 BETWEEN EXITS 19-20 (SB-NB)								
YEAR	2008	2009	2010	2011	2012	2013	2014	2015
VOLUME	26448	27280	26441	27159	27152	27326	27867	28857
Average Annual Growth Rate (2008-2015) =						1.3%		

Average of Both Stations = 1.0%

***Therefore Use:
1.0% Annual Background Growth***



Spaulding Youth Center, Northfield, NH

Existing Signal Timings from NHDOT

NH DOT - SEQUENCE AND TIMING CHART

6/6/2017 6:45:13 AM

CITY/TOWN: TILTON

SIGNAL ID#: S-451-04

LOCATION: US 3/NH 11/NH 132

INTERSECT: I- 93 SB RAMPS (EXIT 20)

CABINET TYPE: M TYPE 1 TCT

METER NUMBER 53-787-878 PSNH
and MFR:

CONTROLLER INFO ECONOLITE ASC/3-2100

INSTALL DATE: 6 /22/1964

FIRE PREEMPT GTT OPTICOM MODEL 760

*****CONTROLLER TIMINGS*****

	PH 1	PH 2	PH 3
INITIAL	4	10	5
PASSAGE	4	4	4
YELLOW	4	4	4
ALL RED	2	2	2
MAXIMUM 1	20	30	20
MAXIMUM 2	20	40	25
MAXIMUM 3			
MAXIMUM EXT			
RECALL	OFF	ON	OFF
WALK			
DON'T WALK			
FL YEL ARROW			
MOVEMENT			

NOTES:

PE1 = 1
PE2 = 2
PE3 = 3

OLA = 1+2

NH DOT - SEQUENCE AND TIMING CHART

6/6/2017 6:45:47 AM

CITY/TOWN: TILTON

SIGNAL ID#: S-451-06

LOCATION: US 3/NH 11

INTERSECT: NH 140 NB RAMP EXIT 20

CABINET TYPE: P TYPE 1 TCT

METER NUMBER 27414489

CONTROLLER INFO TCT/PEEK LMD9200

and MFR:

INSTALL DATE: 7/16/1993

FIRE PREEMPT OPTICOM M-262

*****CONTROLLER TIMINGS*****

	PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
INITIAL	5	10	5	5	5	10	5	5
PASSAGE	4	4	5	5	4	4	5	5
YELLOW	4	4	4	4	4	4	4	4
ALL RED	2	2	2	2	2	2	2	2
MAXIMUM 1	25	40	25	20	20	40	25	20
MAXIMUM 2	25	45	30	25	25	45	30	25
MAXIMUM 3								
MAXIMUM EXT								
RECALL	NL	ON	NL	NL	NL	ON	NL	NL
WALK	14							
DON'T WALK	14							
FL YEL ARROW								
MOVEMENT								

NOTES:

EXPED ON

PE1 = 1+6
PE2 = 2+5
PE3 = 3+8
PE4 = 4+7

NH DOT - SEQUENCE AND TIMING CHART

6/6/2017 6:46:17 AM

CITY/TOWN: TILTON

SIGNAL ID#: S-451-08

LOCATION: US 3/NH 11

INTERSECT: NH 132 (SHAWS)

CABINET TYPE: P TYPE-1

METER NUMBER 74-334-073 Eversource
and MFR:

CONTROLLER INFO TCT/PEEK LMD9200

INSTALL DATE: 10/16/1994

FIRE PREEMPT OPTICOM 754

*****CONTROLLER TIMINGS*****

	PH 1	PH 2	PH 4	PH 5	PH 6	PH 8
INITIAL	5	10	5	5	10	5
PASSAGE	4	8	5	4	8	5
YELLOW	4	4	4	4	4	4
ALL RED	2	2	2	2	2	2
MAXIMUM 1	15	45	18	15	45	18
MAXIMUM 2	25	45	30	25	45	30
MAXIMUM 3						
MAXIMUM EXT						
RECALL	NL	ON	NL	NL	ON	NL
WALK						
DON'T WALK						
FL YEL ARROW						
MOVEMENT	3/11E	3/11W	SHAWS	3/11W	3/11E	132S

NOTES:

- PE1 = 1+6
- PE2 = 2+5
- PE3 = 4
- PE4 = 8



Spaulding Youth Center, Northfield, NH

Traffic Analyses

HCM Unsignalized Intersection Capacity Analysis
 1: Elm St & Granite St

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↗			↖	↘	↗
Volume (veh/h)	230	15	15	160	10	25
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.61	0.61
Hourly flow rate (vph)	274	18	19	208	16	41
Pedestrians					4	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			296		533	287
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			296		533	287
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	95
cM capacity (veh/h)			1262		495	747
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	292	227	57			
Volume Left	0	19	16			
Volume Right	18	0	41			
cSH	1700	1262	652			
Volume to Capacity	0.17	0.02	0.09			
Queue Length 95th (ft)	0	1	7			
Control Delay (s)	0.0	0.8	11.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			30.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	57	835	688	742	231	161
v/c Ratio	0.15	0.36	0.51	0.66	0.55	0.32
Control Delay	26.4	6.2	21.1	4.8	33.8	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	6.2	21.1	4.8	33.8	6.6
Queue Length 50th (ft)	23	80	137	0	106	0
Queue Length 95th (ft)	48	106	212	72	180	47
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	447	2366	1388	1144	534	593
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.35	0.50	0.65	0.43	0.27

Intersection Summary

HCM Signalized Intersection Capacity Analysis

2: US 3 / NH 11 & I-93 SB Ramps

Synchro 8 Report
7/21/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	45	660	640	690	215	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1604	3438	3419	1734	1912	1711
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1604	3438	3419	1734	1912	1711
Peak-hour factor, PHF	0.79	0.79	0.93	0.93	0.93	0.93
Adj. Flow (vph)	57	835	688	742	231	161
RTOR Reduction (vph)	0	0	0	450	0	126
Lane Group Flow (vph)	57	835	688	292	231	35
Heavy Vehicles (%)	5%	5%	4%	4%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	16.8	52.1	29.3	29.3	15.4	15.4
Effective Green, g (s)	18.8	54.1	31.3	31.3	17.4	17.4
Actuated g/C Ratio	0.24	0.68	0.39	0.39	0.22	0.22
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	379	2339	1346	682	418	374
v/s Ratio Prot	0.04	c0.24	c0.20		c0.12	0.02
v/s Ratio Perm				0.17		
v/c Ratio	0.15	0.36	0.51	0.43	0.55	0.09
Uniform Delay, d1	24.0	5.4	18.3	17.6	27.6	24.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.4	0.6	1.9	0.2
Delay (s)	24.3	5.5	18.7	18.2	29.5	24.9
Level of Service	C	A	B	B	C	C
Approach Delay (s)		6.7	18.4		27.6	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	661	298	122	1052	64	437	115	184	427	104	55
v/c Ratio	0.40	0.56	0.43	0.54	0.85	0.06	0.68	0.46	0.50	0.65	0.44	0.10
Control Delay	60.5	38.8	6.4	62.5	46.1	2.0	53.1	59.2	12.8	52.6	59.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.5	38.8	6.4	62.5	46.1	2.0	53.1	59.2	12.8	52.6	59.2	4.1
Queue Length 50th (ft)	58	212	0	85	376	0	151	79	0	146	72	0
Queue Length 95th (ft)	137	387	53	196	#769	11	#321	187	69	275	160	11
Internal Link Dist (ft)		1435			731			986			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	394	1373	754	296	1236	1071	704	322	423	733	313	696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.48	0.40	0.41	0.85	0.06	0.62	0.36	0.43	0.58	0.33	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

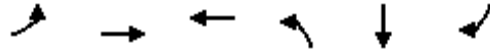
HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	70	555	250	105	905	55	380	100	160	350	85	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Peak-hour factor, PHF	0.84	0.84	0.84	0.86	0.86	0.86	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	83	661	298	122	1052	64	437	115	184	427	104	55
RTOR Reduction (vph)	0	0	199	0	0	29	0	0	158	0	0	39
Lane Group Flow (vph)	83	661	99	122	1052	35	437	115	26	427	104	16
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	6%	6%	6%	8%	8%	8%
Turn Type	Prot	NA	Prot	Prot	NA	custom	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2 3			4			1 8
Actuated Green, G (s)	12.7	39.5	39.5	15.3	42.1	65.1	23.5	15.5	15.5	23.0	15.0	33.7
Effective Green, g (s)	14.7	41.5	41.5	17.3	44.1	69.1	25.5	17.5	17.5	25.0	17.0	35.7
Actuated g/C Ratio	0.12	0.33	0.33	0.14	0.35	0.55	0.20	0.14	0.14	0.20	0.14	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	205	1157	483	222	1216	938	634	244	207	647	231	469
v/s Ratio Prot	0.05	0.19	0.07	c0.08	c0.30		c0.14	c0.07		0.13	0.06	
v/s Ratio Perm						0.02			0.02			0.01
v/c Ratio	0.40	0.57	0.20	0.55	0.87	0.04	0.69	0.47	0.12	0.66	0.45	0.03
Uniform Delay, d1	51.1	34.5	30.0	50.3	37.7	12.8	46.1	49.5	47.1	46.1	49.7	32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.8	0.3	3.5	6.9	0.0	4.0	3.0	0.6	3.3	2.9	0.0
Delay (s)	52.9	35.3	30.3	53.7	44.6	12.8	50.1	52.5	47.7	49.4	52.6	32.3
Level of Service	D	D	C	D	D	B	D	D	D	D	D	C
Approach Delay (s)		35.3			43.8			49.9			48.4	
Approach LOS		D			D			D			D	

Intersection Summary

HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	125.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	NBL	SBT	SBR
Lane Group Flow (vph)	179	1018	1068	29	38	179
v/c Ratio	0.59	0.38	0.60	0.14	0.20	0.48
Control Delay	41.7	4.0	15.7	34.7	35.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	4.0	15.7	34.7	35.8	10.2
Queue Length 50th (ft)	90	72	196	14	19	0
Queue Length 95th (ft)	147	105	276	14	42	40
Internal Link Dist (ft)		731	821		635	
Turn Bay Length (ft)	500			125		275
Base Capacity (vph)	335	2654	1934	335	324	505
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.38	0.55	0.09	0.12	0.35

Intersection Summary

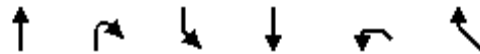
HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗		↖	↗
Volume (vph)	145	815	10	0	910	30	10	0	0	30	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0			4.0		4.0				4.0	4.0
Lane Util. Factor	1.00	0.95			0.95		1.00				1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Fr _t	1.00	1.00			1.00		1.00				1.00	0.85
Fl _t Protected	0.95	1.00			1.00		0.95				0.95	1.00
Satd. Flow (prot)	1636	3498			3405		1805				1718	1531
Fl _t Permitted	0.95	1.00			1.00		0.73				0.75	1.00
Satd. Flow (perm)	1636	3498			3405		1391				1343	1531
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.35	0.35	0.35	0.81	0.81	0.81
Adj. Flow (vph)	179	1006	12	0	1034	34	29	0	0	37	1	179
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	153
Lane Group Flow (vph)	179	1018	0	0	1066	0	29	0	0	0	38	26
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm		Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4		4	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.5	61.6			42.1		10.1				10.1	10.1
Effective Green, g (s)	15.5	63.6			44.1		12.1				12.1	12.1
Actuated g/C Ratio	0.19	0.76			0.53		0.14				0.14	0.14
Clearance Time (s)	6.0	6.0			6.0		6.0				6.0	6.0
Vehicle Extension (s)	4.0	8.0			8.0		5.0				5.0	5.0
Lane Grp Cap (vph)	302	2657			1794		201				194	221
v/s Ratio Prot	c0.11	0.29			c0.31							
v/s Ratio Perm							0.02				c0.03	0.02
v/c Ratio	0.59	0.38			0.59		0.14				0.20	0.12
Uniform Delay, d ₁	31.2	3.4			13.6		31.3				31.5	31.2
Progression Factor	1.00	1.00			1.00		1.00				1.00	1.00
Incremental Delay, d ₂	3.6	0.4			1.3		0.7				1.0	0.5
Delay (s)	34.8	3.8			15.0		32.0				32.6	31.6
Level of Service	C	A			B		C				C	C
Approach Delay (s)		8.4			15.0			32.0			31.8	
Approach LOS		A			B			C			C	

Intersection Summary		
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	B
Actuated Cycle Length (s)	83.7	Sum of lost time (s)
Intersection Capacity Utilization	52.5%	12.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		A

HCM Unsignalized Intersection Capacity Analysis
5: Summer St/Elm St & Bay St

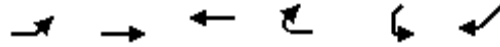


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↘	↙
Volume (veh/h)	160	30	60	110	55	85
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.74	0.74
Hourly flow rate (vph)	190	36	78	143	74	115
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			227		508	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			227		508	209
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		85	86
cM capacity (veh/h)			1340		495	833

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	226	221	189
Volume Left	0	78	74
Volume Right	36	0	115
cSH	1700	1340	657
Volume to Capacity	0.13	0.06	0.29
Queue Length 95th (ft)	0	5	30
Control Delay (s)	0.0	3.1	12.7
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	12.7
Approach LOS			B

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization		37.7%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/Bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Volume (veh/h)	40	45	140	0	0	20
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.81	0.81	0.60	0.60	0.42	0.42
Hourly flow rate (vph)	49	56	233	0	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	233				388	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	233				388	233
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	1346				598	811

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	105	233	48
Volume Left	49	0	0
Volume Right	0	0	48
cSH	1346	1700	811
Volume to Capacity	0.04	0.14	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	3.8	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	3.8	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization		25.3%	ICU Level of Service A
Analysis Period (min)		15	















HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Exit 19 SB On-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	40	325	70	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88
Hourly flow rate (vph)	0	0	47	382	80	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	556	80	80			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	556	80	80			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	477	981	1525			
Direction, Lane #	NB 1	SB 1				
Volume Total	429	80				
Volume Left	47	0				
Volume Right	0	0				
cSH	1525	1700				
Volume to Capacity	0.03	0.05				
Queue Length 95th (ft)	2	0				
Control Delay (s)	1.1	0.0				
Lane LOS	A					
Approach Delay (s)	1.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			29.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 20: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 7/21/2017

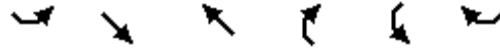
												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	70	550	0	210	115
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	0	0	0	0	80	625	0	247	135
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	707	774	392	707	1019	315	382			705		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	707	774	392	707	1019	315	382			705		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	350	329	657	351	238	726	1182			898		
Direction, Lane #	SE 1	NW 1										
Volume Total	705	382										
Volume Left	0	0										
Volume Right	625	135										
cSH	1182	898										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			41.0%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
22: Summer St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶			↷		↶
Volume (veh/h)	5	0	0	115	0	145
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	0	0	135	0	210
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	135	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	861	1088	1630			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	135	210			
Volume Left	6	0	0			
Volume Right	0	0	210			
cSH	861	1700	1700			
Volume to Capacity	0.01	0.08	0.12			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization		16.1%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: NH 132 (Park St) & Summer St



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	490	210	0	130	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	557	247	0	188	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	247				815	247
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	247				815	247
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				46	97
cM capacity (veh/h)	1325				347	794

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	562	247	210
Volume Left	6	0	188
Volume Right	0	0	22
cSH	1325	1700	368
Volume to Capacity	0.00	0.15	0.57
Queue Length 95th (ft)	0	0	85
Control Delay (s)	0.1	0.0	27.0
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	27.0
Approach LOS			D

Intersection Summary			
Average Delay		5.6	
Intersection Capacity Utilization		44.6%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 24: Exit 19 NB Off-Ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Volume (veh/h)	70	0	0	180	185	5
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.87	0.87	0.84	0.84	0.75	0.75
Hourly flow rate (vph)	80	0	0	214	247	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			80		295	80
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			80		295	80
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		65	99
cM capacity (veh/h)			1524		696	980

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	80	214	253
Volume Left	0	0	247
Volume Right	0	0	7
cSH	1700	1700	702
Volume to Capacity	0.05	0.13	0.36
Queue Length 95th (ft)	0	0	41
Control Delay (s)	0.0	0.0	13.0
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.0
Approach LOS			B

Intersection Summary			
Average Delay		6.0	
Intersection Capacity Utilization	26.7%		ICU Level of Service A
Analysis Period (min)		15	

Intersection Sign configuration not allowed in HCM analysis.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↖	↗
Volume (veh/h)	410	30	10	530	110	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.81	0.81	0.77	0.77	0.82	0.82
Hourly flow rate (vph)	506	37	13	688	134	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			543		1239	525
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		1239	525
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		30	98
cM capacity (veh/h)			1031		192	555

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	543	701	146
Volume Left	0	13	134
Volume Right	37	0	12
cSH	1700	1031	208
Volume to Capacity	0.32	0.01	0.71
Queue Length 95th (ft)	0	1	113
Control Delay (s)	0.0	0.3	55.5
Lane LOS		A	F
Approach Delay (s)	0.0	0.3	55.5
Approach LOS			F

Intersection Summary			
Average Delay		6.0	
Intersection Capacity Utilization	48.7%		ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	5	415	535	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.77	0.77	0.92	0.92
Hourly flow rate (vph)	6	512	695	6	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	701				1223	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	701				1223	698
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	905				197	440

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	519	701	11
Volume Left	6	0	5
Volume Right	0	6	5
cSH	905	1700	272
Volume to Capacity	0.01	0.41	0.04
Queue Length 95th (ft)	1	0	3
Control Delay (s)	0.2	0.0	18.8
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	18.8
Approach LOS			C

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		38.5%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↘
Volume (veh/h)	185	16	30	290	6	20
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.42	0.42
Hourly flow rate (vph)	231	20	33	322	14	48
Pedestrians					5	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			256		635	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			256		635	246
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	94
cM capacity (veh/h)			1315		432	794
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	251	356	62			
Volume Left	0	33	14			
Volume Right	20	0	48			
cSH	1700	1315	665			
Volume to Capacity	0.15	0.03	0.09			
Queue Length 95th (ft)	0	2	8			
Control Delay (s)	0.0	1.0	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.0	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			41.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	82	1275	1255	429	239	167
v/c Ratio	0.19	0.52	0.94	0.47	0.56	0.33
Control Delay	26.7	7.6	40.5	5.5	34.7	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	7.6	40.5	5.5	34.7	6.4
Queue Length 50th (ft)	34	146	330	18	113	0
Queue Length 95th (ft)	73	225	#510	84	184	47
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	435	2423	1337	910	529	596
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.53	0.94	0.47	0.45	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	75	1160	1155	395	215	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	3539	3486	1768	2006	1794
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	3539	3486	1768	2006	1794
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.90	0.90
Adj. Flow (vph)	82	1275	1255	429	239	167
RTOR Reduction (vph)	0	0	0	232	0	131
Lane Group Flow (vph)	82	1275	1255	197	239	36
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	19.7	55.8	30.1	30.1	15.8	15.8
Effective Green, g (s)	21.7	57.8	32.1	32.1	17.8	17.8
Actuated g/C Ratio	0.26	0.69	0.38	0.38	0.21	0.21
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	428	2446	1338	678	427	381
v/s Ratio Prot	0.05	c0.36	c0.36		c0.12	0.02
v/s Ratio Perm				0.11		
v/c Ratio	0.19	0.52	0.94	0.29	0.56	0.09
Uniform Delay, d1	24.1	6.2	24.8	17.9	29.4	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	12.6	0.3	2.0	0.1
Delay (s)	24.4	6.5	37.4	18.2	31.4	26.6
Level of Service	C	A	D	B	C	C
Approach Delay (s)		7.6	32.5		29.4	
Approach LOS		A	C		C	

Intersection Summary			
HCM 2000 Control Delay		22.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.73	
Actuated Cycle Length (s)		83.6	Sum of lost time (s) 12.0
Intersection Capacity Utilization		58.0%	ICU Level of Service B
Analysis Period (min)		15	
c Critical Lane Group			

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	198	844	391	213	1144	160	379	100	211	566	108	139
v/c Ratio	0.66	0.72	0.52	0.77	1.00	0.25	0.65	0.44	0.56	0.80	0.39	0.20
Control Delay	65.2	44.9	6.4	73.0	71.6	13.7	57.7	62.5	13.5	59.9	59.2	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	44.9	6.4	73.0	71.6	13.7	57.7	62.5	13.5	59.9	59.2	6.3
Queue Length 50th (ft)	148	303	0	163	470	24	143	74	0	220	78	0
Queue Length 95th (ft)	309	558	91	#431	#1011	106	272	171	84	#418	168	40
Internal Link Dist (ft)		1435			731			986			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	377	1313	796	275	1139	638	673	307	436	707	302	744
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.64	0.49	0.77	1.00	0.25	0.56	0.33	0.48	0.80	0.36	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	190	810	375	200	1075	150	360	95	200	470	90	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.95	0.95	0.95	0.83	0.83	0.83
Adj. Flow (vph)	198	844	391	213	1144	160	379	100	211	566	108	139
RTOR Reduction (vph)	0	0	266	0	0	78	0	0	185	0	0	91
Lane Group Flow (vph)	198	844	125	213	1144	82	379	100	26	566	108	48
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2			4			18
Actuated Green, G (s)	19.7	40.6	40.6	20.4	41.3	41.3	21.8	14.7	14.7	25.5	18.4	44.1
Effective Green, g (s)	21.7	42.6	42.6	22.4	43.3	43.3	23.8	16.7	16.7	27.5	20.4	46.1
Actuated g/C Ratio	0.16	0.32	0.32	0.17	0.32	0.32	0.18	0.13	0.13	0.21	0.15	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	292	1147	479	270	1121	551	572	225	191	694	270	590
v/s Ratio Prot	0.11	0.23	0.08	c0.13	c0.33		0.12	0.06		c0.17	c0.06	
v/s Ratio Perm						0.05			0.02			0.03
v/c Ratio	0.68	0.74	0.26	0.79	1.02	0.15	0.66	0.44	0.14	0.82	0.40	0.08
Uniform Delay, d1	52.5	40.3	33.7	53.2	45.0	31.9	51.0	54.0	51.9	50.5	50.9	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	2.7	0.4	14.9	32.2	0.2	3.8	2.9	0.7	8.3	2.0	0.1
Delay (s)	59.2	43.0	34.1	68.1	77.2	32.1	54.8	56.9	52.6	58.7	53.0	29.4
Level of Service	E	D	C	E	E	C	D	E	D	E	D	C
Approach Delay (s)		42.8			71.1			54.4			53.0	
Approach LOS		D			E			D			D	

Intersection Summary

HCM 2000 Control Delay	56.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	133.3	Sum of lost time (s)	19.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	160	1324	27	1328	74	14	14	86	260
v/c Ratio	0.57	0.55	0.14	0.74	0.33	0.04	0.04	0.37	0.54
Control Delay	43.2	10.6	39.0	20.3	37.4	31.4	0.2	38.2	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	10.6	39.0	20.3	37.4	31.4	0.2	38.2	9.0
Queue Length 50th (ft)	83	128	14	295	38	7	0	44	0
Queue Length 95th (ft)	155	368	40	433	64	19	0	72	29
Internal Link Dist (ft)		731		821		314		635	
Turn Bay Length (ft)	500		250		125		125		275
Base Capacity (vph)	318	2406	338	1799	299	427	442	311	556
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.55	0.08	0.74	0.25	0.03	0.03	0.28	0.47

Intersection Summary

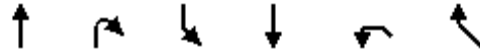
HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1180	65	25	1175	60	55	10	10	55	10	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1668	3542		1770	3396		1805	1900	1615		1779	1577
Fl _t Permitted	0.95	1.00		0.95	1.00		0.70	1.00	1.00		0.75	1.00
Satd. Flow (perm)	1668	3542		1770	3396		1332	1900	1615		1388	1577
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.74	0.74	0.74	0.75	0.75	0.75
Adj. Flow (vph)	160	1255	69	27	1263	65	74	14	14	73	13	260
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	12	0	0	218
Lane Group Flow (vph)	160	1321	0	27	1324	0	74	14	2	0	86	42
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.2	58.6		3.5	48.9		12.9	12.9	12.9		12.9	12.9
Effective Green, g (s)	15.2	60.6		5.5	50.9		14.9	14.9	14.9		14.9	14.9
Actuated g/C Ratio	0.16	0.65		0.06	0.55		0.16	0.16	0.16		0.16	0.16
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	8.0		4.0	8.0		5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	272	2308		104	1858		213	304	258		222	252
v/s Ratio Prot	c0.10	0.37		0.02	c0.39			0.01				
v/s Ratio Perm							0.06		0.00		c0.06	0.03
v/c Ratio	0.59	0.57		0.26	0.71		0.35	0.05	0.01		0.39	0.17
Uniform Delay, d ₁	36.0	9.0		41.8	15.6		34.7	33.0	32.8		35.0	33.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	3.8	1.0		1.8	2.4		2.1	0.1	0.0		2.3	0.6
Delay (s)	39.8	10.0		43.6	18.0		36.8	33.2	32.9		37.3	34.3
Level of Service	D	A		D	B		D	C	C		D	C
Approach Delay (s)		13.2			18.5			35.7			35.1	
Approach LOS		B			B			D			D	

Intersection Summary		
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.63	B
Actuated Cycle Length (s)	93.0	Sum of lost time (s)
Intersection Capacity Utilization	62.9%	12.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		B

HCM Unsignalized Intersection Capacity Analysis
 5: Summer St/Elm St & Bay St



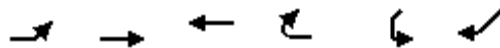
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↙	↘
Volume (veh/h)	145	70	91	205	50	56
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	181	88	101	228	54	60
Pedestrians					6	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		661	231
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		661	231
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		86	93
cM capacity (veh/h)			1293		395	809

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	269	329	114
Volume Left	0	101	54
Volume Right	88	0	60
cSH	1700	1293	541
Volume to Capacity	0.16	0.08	0.21
Queue Length 95th (ft)	0	6	20
Control Delay (s)	0.0	3.0	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	3.0	13.4
Approach LOS			B

Intersection Summary			
Average Delay		3.5	
Intersection Capacity Utilization	44.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/Bay Hill Rd & Shedd Rd

Synchro 8 Report
 7/21/2017



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	10	120	90	1	0	30
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.77	0.77	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	13	156	112	1	0	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	114				295	113
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	114				295	113
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1475				695	945

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	169	114	53
Volume Left	13	0	0
Volume Right	0	1	53
cSH	1475	1700	945
Volume to Capacity	0.01	0.07	0.06
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization	23.5%		ICU Level of Service A
Analysis Period (min)	15		















HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Exit 19 SB On-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	5	600	150	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.89	0.89
Hourly flow rate (vph)	0	0	5	638	169	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	817	169	169			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	817	169	169			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	345	875	1421			
Direction, Lane #	NB 1	SB 1				
Volume Total	644	169				
Volume Left	5	0				
Volume Right	0	0				
cSH	1421	1700				
Volume to Capacity	0.00	0.10				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A					
Approach Delay (s)	0.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			38.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 20: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 7/21/2017

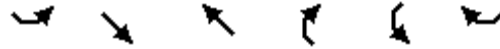
												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	150	190	0	455	145
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	0	0	169	213	0	484	154
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	836	914	275	836	943	561	638			382		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	836	914	275	836	943	561	638			382		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	286	273	763	287	263	528	950			1188		
Direction, Lane #	SE 1	NW 1										
Volume Total	382	638										
Volume Left	0	0										
Volume Right	213	154										
cSH	950	1188										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			36.1%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 22: Summer St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	0	0	145	0	125
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	0	0	154	0	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	154	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	154	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	840	1088	1636			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	154	162			
Volume Left	11	0	0			
Volume Right	0	0	162			
cSH	840	1700	1700			
Volume to Capacity	0.01	0.09	0.10			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			17.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: NH 132 (Park St) & Summer St



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	225	455	0	115	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	253	484	0	149	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	484				759	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	484				759	484
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				60	98
cM capacity (veh/h)	1084				373	587

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	264	484	162
Volume Left	11	0	149
Volume Right	0	0	13
cSH	1084	1700	384
Volume to Capacity	0.01	0.28	0.42
Queue Length 95th (ft)	1	0	51
Control Delay (s)	0.5	0.0	21.0
Lane LOS	A		C
Approach Delay (s)	0.5	0.0	21.0
Approach LOS			C

Intersection Summary			
Average Delay		3.9	
Intersection Capacity Utilization		37.6%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 24: Exit 19 NB Off-Ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	150	0	0	130	475	30
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.89	0.89	0.74	0.74	0.94	0.94
Hourly flow rate (vph)	169	0	0	176	505	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			169		344	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			169		344	169
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		23	96
cM capacity (veh/h)			1421		657	881

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	169	176	537
Volume Left	0	0	505
Volume Right	0	0	32
cSH	1700	1700	667
Volume to Capacity	0.10	0.10	0.81
Queue Length 95th (ft)	0	0	206
Control Delay (s)	0.0	0.0	28.9
Lane LOS			D
Approach Delay (s)	0.0	0.0	28.9
Approach LOS			D

Intersection Summary			
Average Delay		17.6	
Intersection Capacity Utilization		42.7%	ICU Level of Service A
Analysis Period (min)		15	

Intersection Sign configuration not allowed in HCM analysis.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↖	↗
Volume (veh/h)	680	125	30	575	70	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.88	0.88
Hourly flow rate (vph)	731	134	35	669	80	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			866		1537	798
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			866		1537	798
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		35	94
cM capacity (veh/h)			782		122	386

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	866	703	102
Volume Left	0	35	80
Volume Right	134	0	23
cSH	1700	782	152
Volume to Capacity	0.51	0.04	0.67
Queue Length 95th (ft)	0	3	95
Control Delay (s)	0.0	1.2	66.9
Lane LOS		A	F
Approach Delay (s)	0.0	1.2	66.9
Approach LOS			F

Intersection Summary			
Average Delay		4.6	
Intersection Capacity Utilization	65.3%		ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	5	695	600	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	5	747	698	6	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	703				1459	701
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	703				1459	701
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	890				142	439

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	753	703	11
Volume Left	5	0	5
Volume Right	0	6	5
cSH	890	1700	214
Volume to Capacity	0.01	0.41	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.2	0.0	22.7
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	22.7
Approach LOS			C

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		50.6%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↙
Volume (veh/h)	255	10	15	175	10	25
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.61	0.61
Hourly flow rate (vph)	304	12	19	227	16	41
Pedestrians					4	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			319		580	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			319		580	314
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	94
cM capacity (veh/h)			1236		465	722
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	315	247	57			
Volume Left	0	19	16			
Volume Right	12	0	41			
cSH	1700	1236	623			
Volume to Capacity	0.19	0.02	0.09			
Queue Length 95th (ft)	0	1	8			
Control Delay (s)	0.0	0.8	11.4			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			31.6%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	63	924	763	817	258	177
v/c Ratio	0.16	0.40	0.57	0.70	0.60	0.34
Control Delay	26.7	6.7	23.0	5.3	35.7	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	6.7	23.0	5.3	35.7	6.4
Queue Length 50th (ft)	26	98	170	0	124	0
Queue Length 95th (ft)	52	121	240	76	200	48
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	428	2325	1327	1173	510	586
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.40	0.57	0.70	0.51	0.30

Intersection Summary

HCM Signalized Intersection Capacity Analysis
2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	50	730	710	760	240	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1604	3438	3419	1734	1912	1711
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1604	3438	3419	1734	1912	1711
Peak-hour factor, PHF	0.79	0.79	0.93	0.93	0.93	0.93
Adj. Flow (vph)	63	924	763	817	258	177
RTOR Reduction (vph)	0	0	0	499	0	137
Lane Group Flow (vph)	63	924	763	318	258	40
Heavy Vehicles (%)	5%	5%	4%	4%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	18.1	54.3	30.2	30.2	16.5	16.5
Effective Green, g (s)	20.1	56.3	32.2	32.2	18.5	18.5
Actuated g/C Ratio	0.24	0.68	0.39	0.39	0.22	0.22
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	389	2337	1329	674	427	382
v/s Ratio Prot	0.04	c0.27	c0.22		c0.13	0.02
v/s Ratio Perm				0.18		
v/c Ratio	0.16	0.40	0.57	0.47	0.60	0.10
Uniform Delay, d1	24.7	5.8	19.9	18.9	28.9	25.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2	0.7	0.7	2.8	0.2
Delay (s)	25.0	6.0	20.6	19.6	31.7	25.7
Level of Service	C	A	C	B	C	C
Approach Delay (s)		7.2	20.1		29.2	
Approach LOS		A	C		C	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	82.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	732	327	134	1163	70	483	126	201	470	116	61
v/c Ratio	0.44	0.64	0.47	0.58	0.97	0.07	0.72	0.48	0.51	0.70	0.49	0.11
Control Delay	61.9	41.9	6.5	65.1	60.3	2.4	55.1	60.5	12.5	54.9	61.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	41.9	6.5	65.1	60.3	2.4	55.1	60.5	12.5	54.9	61.3	5.5
Queue Length 50th (ft)	68	251	0	95	454	0	175	89	0	169	82	0
Queue Length 95th (ft)	151	434	54	214	#916	13	#377	203	70	#307	177	17
Internal Link Dist (ft)		1435			731			986			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	379	1320	754	285	1204	1040	677	309	428	704	301	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.55	0.43	0.47	0.97	0.07	0.71	0.41	0.47	0.67	0.39	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

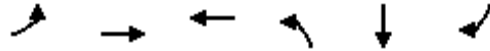
HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	615	275	115	1000	60	420	110	175	385	95	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Peak-hour factor, PHF	0.84	0.84	0.84	0.86	0.86	0.86	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	95	732	327	134	1163	70	483	126	201	470	116	61
RTOR Reduction (vph)	0	0	221	0	0	32	0	0	172	0	0	43
Lane Group Flow (vph)	95	732	106	134	1163	38	483	126	29	470	116	18
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	6%	6%	6%	8%	8%	8%
Turn Type	Prot	NA	Prot	Prot	NA	custom	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2 3			4			1 8
Actuated Green, G (s)	13.6	39.8	39.8	16.2	42.4	66.8	25.4	16.9	16.9	24.4	15.9	35.5
Effective Green, g (s)	15.6	41.8	41.8	18.2	44.4	70.8	27.4	18.9	18.9	26.4	17.9	37.5
Actuated g/C Ratio	0.12	0.32	0.32	0.14	0.34	0.55	0.21	0.15	0.15	0.20	0.14	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	210	1129	471	226	1186	931	660	255	217	662	235	477
v/s Ratio Prot	0.05	0.21	0.07	c0.08	c0.34		c0.16	c0.07		0.14	0.07	
v/s Ratio Perm						0.02			0.02			0.01
v/c Ratio	0.45	0.65	0.22	0.59	0.98	0.04	0.73	0.49	0.14	0.71	0.49	0.04
Uniform Delay, d1	52.8	37.4	31.9	52.0	42.0	13.5	47.5	50.8	48.0	47.8	51.5	32.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	1.4	0.3	4.8	21.5	0.0	5.1	3.1	0.6	4.4	3.4	0.0
Delay (s)	54.9	38.9	32.2	56.8	63.5	13.5	52.5	53.9	48.6	52.2	54.8	32.9
Level of Service	D	D	C	E	E	B	D	D	D	D	D	C
Approach Delay (s)		38.3			60.3			51.8			50.9	
Approach LOS		D			E			D			D	

Intersection Summary

HCM 2000 Control Delay	50.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	129.2	Sum of lost time (s)	19.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	NBL	SBT	SBR
Lane Group Flow (vph)	198	1123	1182	29	44	198
v/c Ratio	0.65	0.42	0.65	0.15	0.23	0.51
Control Delay	44.8	4.3	17.1	34.7	36.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	4.3	17.1	34.7	36.6	10.2
Queue Length 50th (ft)	102	85	231	14	22	0
Queue Length 95th (ft)	161	123	323	14	48	41
Internal Link Dist (ft)		731	821		635	
Turn Bay Length (ft)	500			125		275
Base Capacity (vph)	324	2668	1865	322	309	508
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.42	0.63	0.09	0.14	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

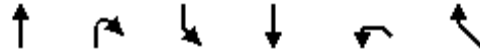


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↑	↗		↖	↖
Volume (vph)	160	900	10	0	1005	35	10	0	0	35	1	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0			4.0		4.0				4.0	4.0
Lane Util. Factor	1.00	0.95			0.95		1.00				1.00	1.00
Frbp, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Frt	1.00	1.00			0.99		1.00				1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95				0.95	1.00
Satd. Flow (prot)	1636	3498			3404		1805				1717	1531
Flt Permitted	0.95	1.00			1.00		0.73				0.74	1.00
Satd. Flow (perm)	1636	3498			3404		1384				1330	1531
Peak-hour factor, PHF	0.81	0.81	0.81	0.88	0.88	0.88	0.35	0.35	0.35	0.81	0.81	0.81
Adj. Flow (vph)	198	1111	12	0	1142	40	29	0	0	43	1	198
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	170
Lane Group Flow (vph)	198	1123	0	0	1180	0	29	0	0	0	44	28
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm		Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4		4	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	14.0	63.8			43.8		10.4				10.4	10.4
Effective Green, g (s)	16.0	65.8			45.8		12.4				12.4	12.4
Actuated g/C Ratio	0.19	0.76			0.53		0.14				0.14	0.14
Clearance Time (s)	6.0	6.0			6.0		6.0				6.0	6.0
Vehicle Extension (s)	4.0	8.0			8.0		5.0				5.0	5.0
Lane Grp Cap (vph)	303	2670			1808		199				191	220
v/s Ratio Prot	c0.12	0.32			c0.35							
v/s Ratio Perm							0.02				c0.03	0.02
v/c Ratio	0.65	0.42			0.65		0.15				0.23	0.13
Uniform Delay, d1	32.5	3.6			14.5		32.3				32.7	32.2
Progression Factor	1.00	1.00			1.00		1.00				1.00	1.00
Incremental Delay, d2	5.5	0.5			1.8		0.7				1.3	0.6
Delay (s)	38.0	4.0			16.3		33.0				34.0	32.8
Level of Service	D	A			B		C				C	C
Approach Delay (s)		9.1			16.3			33.0			33.0	
Approach LOS		A			B			C			C	

Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	86.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 5: Summer St/Elm St & Bay St

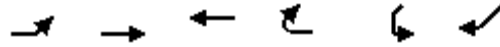


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↙	↘
Volume (veh/h)	175	35	65	120	60	90
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.74	0.74
Hourly flow rate (vph)	208	42	84	156	81	122
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			251		555	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			251		555	230
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		82	85
cM capacity (veh/h)			1313		462	811

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	250	240	203
Volume Left	0	84	81
Volume Right	42	0	122
cSH	1700	1313	623
Volume to Capacity	0.15	0.06	0.33
Queue Length 95th (ft)	0	5	35
Control Delay (s)	0.0	3.1	13.5
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	13.5
Approach LOS			B

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization	40.2%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/Bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	40	50	155	0	0	20
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.81	0.81	0.60	0.60	0.42	0.42
Hourly flow rate (vph)	49	62	258	0	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	258				419	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	258				419	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	1318				574	786

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	111	258	48
Volume Left	49	0	0
Volume Right	0	0	48
cSH	1318	1700	786
Volume to Capacity	0.04	0.15	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	3.7	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		26.3%	ICU Level of Service A
Analysis Period (min)		15	















HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Exit 19 SB On-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	45	360	75	0
Sign Control	Stop			Free	Free	
Grade	-5%			-8%	2%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88
Hourly flow rate (vph)	0	0	53	424	85	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	615	85	85			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	615	85	85			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	440	974	1518			
Direction, Lane #	NB 1	SB 1				
Volume Total	476	85				
Volume Left	53	0				
Volume Right	0	0				
cSH	1518	1700				
Volume to Capacity	0.03	0.05				
Queue Length 95th (ft)	3	0				
Control Delay (s)	1.1	0.0				
Lane LOS	A					
Approach Delay (s)	1.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			31.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 20: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 7/21/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	75	605	0	235	125
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	0	0	0	0	85	688	0	276	147
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	779	853	429	779	1123	350	424			773		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	779	853	429	779	1123	350	424			773		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	314	297	626	314	206	694	1141			847		
Direction, Lane #	SE 1	NW 1										
Volume Total	773	424										
Volume Left	0	0										
Volume Right	688	147										
cSH	1141	847										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			44.6%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
22: Summer St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖			↑		↘
Volume (veh/h)	5	0	0	125	0	155
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	0	0	147	0	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	147	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	848	1088	1630			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	147	225			
Volume Left	6	0	0			
Volume Right	0	0	225			
cSH	848	1700	1700			
Volume to Capacity	0.01	0.09	0.13			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization		16.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: NH 132 (Park St) & Summer St



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	540	235	0	140	15
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	614	276	0	203	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	276				901	276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	276				901	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				34	97
cM capacity (veh/h)	1292				309	765

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	619	276	225
Volume Left	6	0	203
Volume Right	0	0	22
cSH	1292	1700	328
Volume to Capacity	0.00	0.16	0.68
Queue Length 95th (ft)	0	0	119
Control Delay (s)	0.1	0.0	36.7
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	36.7
Approach LOS			E

Intersection Summary			
Average Delay		7.4	
Intersection Capacity Utilization		47.7%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 24: Exit 19 NB Off-Ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↘
Volume (veh/h)	75	0	0	200	205	5
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.87	0.87	0.84	0.84	0.75	0.75
Hourly flow rate (vph)	86	0	0	238	273	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			86		324	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			86		324	86
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		59	99
cM capacity (veh/h)			1516		670	973

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	86	238	280
Volume Left	0	0	273
Volume Right	0	0	7
cSH	1700	1700	675
Volume to Capacity	0.05	0.14	0.41
Queue Length 95th (ft)	0	0	51
Control Delay (s)	0.0	0.0	14.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.1
Approach LOS			B

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization	28.9%		ICU Level of Service A
Analysis Period (min)		15	

Intersection Sign configuration not allowed in HCM analysis.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	→
Volume (veh/h)	450	35	10	585	120	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.81	0.81	0.77	0.77	0.82	0.82
Hourly flow rate (vph)	556	43	13	760	146	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			599		1363	577
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			599		1363	577
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		9	98
cM capacity (veh/h)			983		162	518

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	599	773	159
Volume Left	0	13	146
Volume Right	43	0	12
cSH	1700	983	172
Volume to Capacity	0.35	0.01	0.92
Queue Length 95th (ft)	0	1	172
Control Delay (s)	0.0	0.4	102.5
Lane LOS		A	F
Approach Delay (s)	0.0	0.4	102.5
Approach LOS			F

Intersection Summary			
Average Delay		10.8	
Intersection Capacity Utilization		52.1%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↶		↶	
Volume (veh/h)	5	455	590	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.81	0.81	0.77	0.77	0.92	0.92
Hourly flow rate (vph)	6	562	766	6	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	773				1344	769
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773				1344	769
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	852				166	401

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	568	773	11
Volume Left	6	0	5
Volume Right	0	6	5
cSH	852	1700	235
Volume to Capacity	0.01	0.45	0.05
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.2	0.0	21.1
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	21.1
Approach LOS			C

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		41.4%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↘
Volume (veh/h)	205	16	30	320	6	20
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.42	0.42
Hourly flow rate (vph)	256	20	33	356	14	48
Pedestrians					5	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			281		693	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			281		693	271
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	94
cM capacity (veh/h)			1287		399	769
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	276	389	62			
Volume Left	0	33	14			
Volume Right	20	0	48			
cSH	1700	1287	633			
Volume to Capacity	0.16	0.03	0.10			
Queue Length 95th (ft)	0	2	8			
Control Delay (s)	0.0	0.9	11.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.9	11.3			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			43.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	93	1407	1391	473	267	183
v/c Ratio	0.22	0.58	1.06	0.52	0.61	0.34
Control Delay	27.2	8.6	68.7	7.2	35.9	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.2	8.6	68.7	7.2	35.9	6.2
Queue Length 50th (ft)	39	182	~438	34	128	0
Queue Length 95th (ft)	82	263	#596	116	205	49
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	429	2426	1318	901	521	601
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.58	1.06	0.52	0.51	0.30

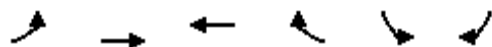
Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: US 3 / NH 11 & I-93 SB Ramps

Synchro 8 Report
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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↘	↘	↘
Volume (vph)	85	1280	1280	435	240	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	3539	3486	1768	2006	1794
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	3539	3486	1768	2006	1794
Peak-hour factor, PHF	0.91	0.91	0.92	0.92	0.90	0.90
Adj. Flow (vph)	93	1407	1391	473	267	183
RTOR Reduction (vph)	0	0	0	233	0	143
Lane Group Flow (vph)	93	1407	1391	240	267	40
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	20.0	56.0	30.0	30.0	16.6	16.6
Effective Green, g (s)	22.0	58.0	32.0	32.0	18.6	18.6
Actuated g/C Ratio	0.26	0.69	0.38	0.38	0.22	0.22
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	429	2426	1318	668	441	394
v/s Ratio Prot	0.06	c0.40	c0.40		c0.13	0.02
v/s Ratio Perm				0.14		
v/c Ratio	0.22	0.58	1.06	0.36	0.61	0.10
Uniform Delay, d1	24.5	6.9	26.3	18.9	29.7	26.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.4	40.8	0.5	2.7	0.2
Delay (s)	24.9	7.3	67.1	19.4	32.4	26.5
Level of Service	C	A	E	B	C	C
Approach Delay (s)		8.4	55.0		30.0	
Approach LOS		A	E		C	

Intersection Summary

HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	932	432	234	1266	176	421	111	232	627	120	151
v/c Ratio	0.70	0.77	0.55	0.87	1.12	0.28	0.70	0.48	0.58	0.91	0.47	0.22
Control Delay	66.5	46.4	6.4	86.2	107.8	15.9	59.4	64.1	13.3	71.3	62.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	46.4	6.4	86.2	107.8	15.9	59.4	64.1	13.3	71.3	62.8	6.0
Queue Length 50th (ft)	173	353	0	194	~618	34	168	87	0	267	95	0
Queue Length 95th (ft)	#358	#668	96	#486	#1160	125	#313	188	87	#488	183	41
Internal Link Dist (ft)		1435			731			986			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	367	1277	811	268	1129	634	654	299	447	687	294	735
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.73	0.53	0.87	1.12	0.28	0.64	0.37	0.52	0.91	0.41	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	895	415	220	1190	165	400	105	220	520	100	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.95	0.95	0.95	0.83	0.83	0.83
Adj. Flow (vph)	219	932	432	234	1266	176	421	111	232	627	120	151
RTOR Reduction (vph)	0	0	289	0	0	79	0	0	202	0	0	99
Lane Group Flow (vph)	219	932	143	234	1266	97	421	111	30	627	120	52
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	Prot	NA	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2			4			18
Actuated Green, G (s)	21.5	43.2	43.2	20.3	42.0	42.0	23.3	15.5	15.5	25.4	17.6	45.1
Effective Green, g (s)	23.5	45.2	45.2	22.3	44.0	44.0	25.3	17.5	17.5	27.4	19.6	47.1
Actuated g/C Ratio	0.17	0.33	0.33	0.16	0.32	0.32	0.19	0.13	0.13	0.20	0.14	0.34
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	308	1188	496	262	1111	547	593	230	195	675	253	588
v/s Ratio Prot	0.12	0.26	0.10	c0.15	c0.37		0.13	0.06		c0.19	c0.07	
v/s Ratio Perm						0.06			0.02			0.03
v/c Ratio	0.71	0.78	0.29	0.89	1.14	0.18	0.71	0.48	0.15	0.93	0.47	0.09
Uniform Delay, d1	53.3	41.3	33.8	56.0	46.3	33.3	52.2	55.3	53.0	53.6	53.8	30.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	3.7	0.4	29.9	74.0	0.2	4.9	3.3	0.8	19.8	2.9	0.1
Delay (s)	61.4	45.0	34.2	85.9	120.3	33.5	57.1	58.7	53.7	73.4	56.7	30.3
Level of Service	E	D	C	F	F	C	E	E	D	E	E	C
Approach Delay (s)		44.3			106.4			56.3			64.0	
Approach LOS		D			F			E			E	

Intersection Summary

HCM 2000 Control Delay	70.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	136.6	Sum of lost time (s)	19.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	176	1457	27	1473	74	14	14	93	287
v/c Ratio	0.61	0.61	0.14	0.83	0.34	0.04	0.04	0.40	0.57
Control Delay	45.1	11.7	39.2	24.0	37.5	31.3	0.2	38.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	11.7	39.2	24.0	37.5	31.3	0.2	38.7	9.0
Queue Length 50th (ft)	93	155	14	361	38	7	0	48	0
Queue Length 95th (ft)	170	430	40	#522	64	19	0	78	29
Internal Link Dist (ft)		731		821		314		635	
Turn Bay Length (ft)	500		250		125		125		275
Base Capacity (vph)	316	2402	335	1784	290	423	439	308	574
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.61	0.08	0.83	0.26	0.03	0.03	0.30	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

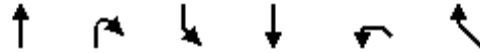


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	1305	65	25	1305	65	55	10	10	60	10	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1668	3545		1770	3397		1805	1900	1615		1778	1577
Fl _t Permitted	0.95	1.00		0.95	1.00		0.68	1.00	1.00		0.75	1.00
Satd. Flow (perm)	1668	3545		1770	3397		1300	1900	1615		1384	1577
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.74	0.74	0.74	0.75	0.75	0.75
Adj. Flow (vph)	176	1388	69	27	1403	70	74	14	14	80	13	287
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	12	0	0	240
Lane Group Flow (vph)	176	1455	0	27	1470	0	74	14	2	0	93	47
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.5	58.9		3.5	48.9		13.2	13.2	13.2		13.2	13.2
Effective Green, g (s)	15.5	60.9		5.5	50.9		15.2	15.2	15.2		15.2	15.2
Actuated g/C Ratio	0.17	0.65		0.06	0.54		0.16	0.16	0.16		0.16	0.16
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	8.0		4.0	8.0		5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	276	2306		104	1847		211	308	262		224	256
v/s Ratio Prot	c0.11	0.41		0.02	c0.43			0.01				
v/s Ratio Perm							0.06		0.00		c0.07	0.03
v/c Ratio	0.64	0.63		0.26	0.80		0.35	0.05	0.01		0.42	0.18
Uniform Delay, d ₁	36.4	9.7		42.1	17.2		34.8	33.1	32.9		35.2	33.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	5.4	1.3		1.8	3.3		2.1	0.1	0.0		2.6	0.7
Delay (s)	41.8	11.0		43.9	20.5		36.9	33.2	32.9		37.8	34.6
Level of Service	D	B		D	C		D	C	C		D	C
Approach Delay (s)		14.3			20.9			35.9			35.3	
Approach LOS		B			C			D			D	

Intersection Summary

HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 5: Summer St/Elm St & Bay St



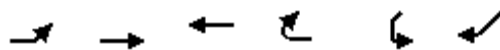
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↙	↘
Volume (veh/h)	160	75	101	225	55	61
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	200	94	112	250	59	66
Pedestrians					6	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			300		727	253
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			300		727	253
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		83	92
cM capacity (veh/h)			1267		357	787

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	294	362	125
Volume Left	0	112	59
Volume Right	94	0	66
cSH	1700	1267	501
Volume to Capacity	0.17	0.09	0.25
Queue Length 95th (ft)	0	7	24
Control Delay (s)	0.0	3.1	14.6
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	14.6
Approach LOS			B

Intersection Summary			
Average Delay		3.8	
Intersection Capacity Utilization	47.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/Bay Hill Rd & Shedd Rd

Synchro 8 Report
 7/21/2017



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Volume (veh/h)	10	135	100	1	0	30
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.77	0.77	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	13	175	125	1	0	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	126				327	126
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126				327	126
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1460				667	931

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	188	126	53
Volume Left	13	0	0
Volume Right	0	1	53
cSH	1460	1700	931
Volume to Capacity	0.01	0.07	0.06
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		















HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Exit 19 SB On-Ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	5	665	165	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.89	0.89
Hourly flow rate (vph)	0	0	5	707	185	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	903	185	185			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	903	185	185			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	306	857	1401			
Direction, Lane #	NB 1	SB 1				
Volume Total	713	185				
Volume Left	5	0				
Volume Right	0	0				
cSH	1401	1700				
Volume to Capacity	0.00	0.11				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A					
Approach Delay (s)	0.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			42.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 20: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

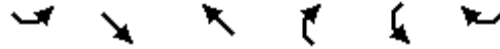
Synchro 8 Report
 7/21/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	165	210	0	505	160
Sign Control		Stop			Stop			Free			Free	
Grade		0%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	0	0	185	236	0	537	170
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	926	1011	303	926	1044	622	707			421		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	926	1011	303	926	1044	622	707			421		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	249	240	736	250	230	487	896			1149		
Direction, Lane #	SE 1	NW 1										
Volume Total	421	707										
Volume Left	0	0										
Volume Right	236	170										
cSH	896	1149										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			39.6%			ICU Level of Service				A		
Analysis Period (min)			15									



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	0	0	160	0	140
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	0	0	170	0	182
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	822	1088	1636			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	170	182			
Volume Left	11	0	0			
Volume Right	0	0	182			
cSH	822	1700	1700			
Volume to Capacity	0.01	0.10	0.11			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.4	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.4	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			18.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: NH 132 (Park St) & Summer St

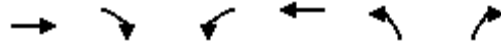


Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	245	505	0	130	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	275	537	0	169	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	537				835	537
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	537				835	537
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				50	98
cM capacity (veh/h)	1036				337	548

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	287	537	182
Volume Left	11	0	169
Volume Right	0	0	13
cSH	1036	1700	346
Volume to Capacity	0.01	0.32	0.53
Queue Length 95th (ft)	1	0	73
Control Delay (s)	0.4	0.0	26.3
Lane LOS	A		D
Approach Delay (s)	0.4	0.0	26.3
Approach LOS			D

Intersection Summary			
Average Delay		4.9	
Intersection Capacity Utilization		41.1%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 24: Exit 19 NB Off-Ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Volume (veh/h)	165	0	0	145	525	35
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.89	0.89	0.74	0.74	0.94	0.94
Hourly flow rate (vph)	185	0	0	196	559	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			185		381	185
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			185		381	185
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		11	96
cM capacity (veh/h)			1401		625	862

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	185	196	596
Volume Left	0	0	559
Volume Right	0	0	37
cSH	1700	1700	636
Volume to Capacity	0.11	0.12	0.94
Queue Length 95th (ft)	0	0	316
Control Delay (s)	0.0	0.0	47.3
Lane LOS			E
Approach Delay (s)	0.0	0.0	47.3
Approach LOS			E

Intersection Summary			
Average Delay		28.8	
Intersection Capacity Utilization		46.6%	ICU Level of Service A
Analysis Period (min)		15	

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 901: Shaker Rd & Tilton Rd (NH 140)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	↻
Volume (veh/h)	750	140	35	635	75	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.88	0.88
Hourly flow rate (vph)	806	151	41	738	85	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						2
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			957		1701	882
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			957		1701	882
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		11	93
cM capacity (veh/h)			723		95	345

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	957	779	108
Volume Left	0	41	85
Volume Right	151	0	23
cSH	1700	723	117
Volume to Capacity	0.56	0.06	0.93
Queue Length 95th (ft)	0	4	146
Control Delay (s)	0.0	1.5	133.8
Lane LOS		A	F
Approach Delay (s)	0.0	1.5	133.8
Approach LOS			F

Intersection Summary			
Average Delay		8.5	
Intersection Capacity Utilization		72.8%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 902: Tilton Rd (NH 140) & Pike Industries



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	5	765	665	5	5	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	5	823	773	6	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	779				1609	776
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	779				1609	776
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	99
cM capacity (veh/h)	833				114	397

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	828	779	11
Volume Left	5	0	5
Volume Right	0	6	5
cSH	833	1700	178
Volume to Capacity	0.01	0.46	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.2	0.0	26.6
Lane LOS	A		D
Approach Delay (s)	0.2	0.0	26.6
Approach LOS			D

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization	54.2%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: Elm St & Granite St

Synchro 8 Report
8/21/2017

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↘
Volume (veh/h)	230	10	15	160	10	25
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.61	0.61
Hourly flow rate (vph)	274	12	19	208	16	41
Pedestrians					4	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			290		531	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			290		531	284
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	95
cM capacity (veh/h)			1268		497	750
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	286	227	57			
Volume Left	0	19	16			
Volume Right	12	0	41			
cSH	1700	1268	655			
Volume to Capacity	0.17	0.02	0.09			
Queue Length 95th (ft)	0	1	7			
Control Delay (s)	0.0	0.8	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			30.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	49	913	777	826	397	163
v/c Ratio	0.13	0.40	0.61	0.71	0.84	0.30
Control Delay	26.7	7.5	24.8	5.5	48.2	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	7.5	24.8	5.5	48.2	6.8
Queue Length 50th (ft)	21	109	183	0	209	3
Queue Length 95th (ft)	50	143	245	76	#358	49
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	412	2241	1276	1165	491	555
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.41	0.61	0.71	0.81	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	45	840	715	760	365	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1604	3438	3419	1734	1912	1711
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1604	3438	3419	1734	1912	1711
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	913	777	826	397	163
RTOR Reduction (vph)	0	0	0	517	0	118
Lane Group Flow (vph)	49	913	777	309	397	45
Heavy Vehicles (%)	5%	5%	4%	4%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	18.5	54.6	30.1	30.1	19.3	19.3
Effective Green, g (s)	20.5	56.6	32.1	32.1	21.3	21.3
Actuated g/C Ratio	0.24	0.66	0.37	0.37	0.25	0.25
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	382	2265	1277	647	474	424
v/s Ratio Prot	0.03	c0.27	c0.23		c0.21	0.03
v/s Ratio Perm				0.18		
v/c Ratio	0.13	0.40	0.61	0.48	0.84	0.11
Uniform Delay, d1	25.7	6.8	21.8	20.5	30.7	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	1.0	0.8	12.7	0.2
Delay (s)	25.9	7.0	22.8	21.3	43.4	25.1
Level of Service	C	A	C	C	D	C
Approach Delay (s)		7.9	22.0		38.0	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	85.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	603	630	234	984	60	571	174	223	380	277	49
v/c Ratio	0.40	0.62	0.73	0.84	0.84	0.06	0.87	0.50	0.47	0.64	0.95	0.09
Control Delay	63.2	45.3	8.8	79.3	48.4	1.7	64.8	56.2	10.5	56.7	94.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.2	45.3	8.8	79.3	48.4	1.7	64.8	56.2	10.5	56.7	94.6	2.8
Queue Length 50th (ft)	56	215	0	176	366	0	220	121	0	139	213	0
Queue Length 95th (ft)	138	381	125	#486	#737	10	#510	#309	86	273	#583	12
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	368	1282	933	277	1172	1013	657	351	476	684	292	726
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.47	0.68	0.84	0.84	0.06	0.87	0.50	0.47	0.56	0.95	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11

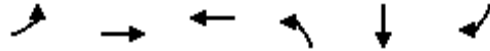
Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	70	555	580	215	905	55	525	160	205	350	255	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Fl _t Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	603	630	234	984	60	571	174	223	380	277	49
RTOR Reduction (vph)	0	0	458	0	0	29	0	0	179	0	0	34
Lane Group Flow (vph)	76	603	172	234	984	31	571	174	44	380	277	15
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	6%	6%	6%	8%	8%	8%
Turn Type	Prot	NA	Prot	Prot	NA	custom	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2 3			4			1 8
Actuated Green, G (s)	12.3	34.1	34.1	20.4	42.2	63.9	25.5	24.2	24.2	21.7	20.4	38.7
Effective Green, g (s)	14.3	36.1	36.1	22.4	44.2	67.9	27.5	26.2	26.2	23.7	22.4	40.7
Actuated g/C Ratio	0.11	0.27	0.27	0.17	0.33	0.51	0.21	0.20	0.20	0.18	0.17	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	188	950	396	272	1151	870	646	345	293	579	287	505
v/s Ratio Prot	0.04	0.17	0.12	c0.15	c0.29		c0.18	c0.10		0.12	c0.16	
v/s Ratio Perm						0.02			0.03			0.01
v/c Ratio	0.40	0.63	0.43	0.86	0.85	0.04	0.88	0.50	0.15	0.66	0.97	0.03
Uniform Delay, d1	55.1	42.4	39.8	53.5	41.2	16.0	51.0	47.4	43.9	50.6	54.7	32.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	1.6	1.0	23.8	6.6	0.0	14.5	2.4	0.5	3.6	43.9	0.0
Delay (s)	57.1	44.0	40.8	77.3	47.8	16.1	65.5	49.8	44.4	54.2	98.6	32.1
Level of Service	E	D	D	E	D	B	E	D	D	D	F	C
Approach Delay (s)		43.2			51.7			57.8			70.1	
Approach LOS		D			D			E			E	

Intersection Summary

HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	132.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	NBL	SBT	SBR
Lane Group Flow (vph)	168	935	1120	29	38	204
v/c Ratio	0.57	0.35	0.62	0.14	0.20	0.52
Control Delay	41.2	3.9	16.1	34.7	35.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	3.9	16.1	34.7	35.8	10.2
Queue Length 50th (ft)	84	63	211	14	19	0
Queue Length 95th (ft)	158	114	312	14	42	41
Internal Link Dist (ft)		731	821		635	
Turn Bay Length (ft)	500			125		275
Base Capacity (vph)	331	2659	1910	331	320	520
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.35	0.59	0.09	0.12	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

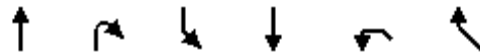


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	850	10	0	1000	30	10	0	0	30	1	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0			4.0		4.0				4.0	4.0
Lane Util. Factor	1.00	0.95			0.95		1.00				1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Fr _t	1.00	1.00			1.00		1.00				1.00	0.85
Fl _t Protected	0.95	1.00			1.00		0.95				0.95	1.00
Satd. Flow (prot)	1636	3498			3406		1805				1718	1531
Fl _t Permitted	0.95	1.00			1.00		0.73				0.75	1.00
Satd. Flow (perm)	1636	3498			3406		1391				1344	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.35	0.35	0.35	0.81	0.81	0.81
Adj. Flow (vph)	168	924	11	0	1087	33	29	0	0	37	1	204
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	175
Lane Group Flow (vph)	168	935	0	0	1118	0	29	0	0	0	38	29
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm		Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.3	62.4			43.1		10.2				10.2	10.2
Effective Green, g (s)	15.3	64.4			45.1		12.2				12.2	12.2
Actuated g/C Ratio	0.18	0.76			0.53		0.14				0.14	0.14
Clearance Time (s)	6.0	6.0			6.0		6.0				6.0	6.0
Vehicle Extension (s)	4.0	8.0			8.0		5.0				5.0	5.0
Lane Grp Cap (vph)	295	2662			1815		200				193	220
v/s Ratio Prot	c0.10	0.27			c0.33							
v/s Ratio Perm							0.02				c0.03	0.02
v/c Ratio	0.57	0.35			0.62		0.14				0.20	0.13
Uniform Delay, d1	31.6	3.3			13.7		31.6				31.9	31.6
Progression Factor	1.00	1.00			1.00		1.00				1.00	1.00
Incremental Delay, d2	3.1	0.3			1.5		0.7				1.0	0.6
Delay (s)	34.7	3.6			15.2		32.3				32.9	32.2
Level of Service	C	A			B		C				C	C
Approach Delay (s)		8.4			15.2			32.3			32.3	
Approach LOS		A			B			C			C	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
6: Summer St/Elm St & Bay St

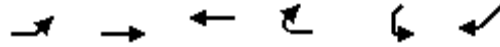


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	160	30	60	110	55	80
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.74	0.74
Hourly flow rate (vph)	190	36	78	143	74	108
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			227		508	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			227		508	209
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		85	87
cM capacity (veh/h)			1340		495	833

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	226	221	182
Volume Left	0	78	74
Volume Right	36	0	108
cSH	1700	1340	652
Volume to Capacity	0.13	0.06	0.28
Queue Length 95th (ft)	0	5	29
Control Delay (s)	0.0	3.1	12.7
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	12.7
Approach LOS			B

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization		37.4%	ICU Level of Service
Analysis Period (min)		15	A

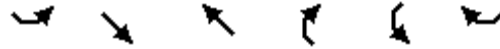
HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	40	45	140	0	0	20
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.81	0.81	0.60	0.60	0.42	0.42
Hourly flow rate (vph)	49	56	233	0	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	233				388	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	233				388	233
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	1346				598	811

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	105	233	48
Volume Left	49	0	0
Volume Right	0	0	48
cSH	1346	1700	811
Volume to Capacity	0.04	0.14	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	3.8	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	3.8	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization		25.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	505	240	0	130	15
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	574	282	0	188	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	282				868	282
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282				868	282
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				42	97
cM capacity (veh/h)	1286				324	759

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	580	282	210
Volume Left	6	0	188
Volume Right	0	0	22
cSH	1286	1700	344
Volume to Capacity	0.00	0.17	0.61
Queue Length 95th (ft)	0	0	96
Control Delay (s)	0.1	0.0	30.5
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	30.5
Approach LOS			D















Intersection Summary			
Average Delay		6.1	
Intersection Capacity Utilization	45.3%		ICU Level of Service A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	0	0	115	0	145
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	0	0	135	0	210
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	135	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	861	1088	1630			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	135	210			
Volume Left	6	0	0			
Volume Right	0	0	210			
cSH	861	1700	1700			
Volume to Capacity	0.01	0.08	0.12			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization		16.1%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 8/21/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	75	560	0	240	115
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	0	0	0	0	85	636	0	282	135
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	753	821	403	753	1072	350	418			722		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	753	821	403	753	1072	350	418			722		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	327	310	647	327	221	694	1147			885		
Direction, Lane #	SE 1	NW 1										
Volume Total	722	418										
Volume Left	0	0										
Volume Right	636	135										
cSH	1147	885										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			41.8%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 24: NH 132 (Park St) & Exit 19 SB On-ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	40	355	75	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88
Hourly flow rate (vph)	0	0	47	418	85	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	597	85	85			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597	85	85			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	451	974	1518			
Direction, Lane #	NB 1	SB 1				
Volume Total	465	85				
Volume Left	47	0				
Volume Right	0	0				
cSH	1518	1700				
Volume to Capacity	0.03	0.05				
Queue Length 95th (ft)	2	0				
Control Delay (s)	1.0	0.0				
Lane LOS	A					
Approach Delay (s)	1.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			30.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 NB Off-ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	↘
Volume (veh/h)	75	0	0	190	205	5
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.87	0.87	0.84	0.84	0.75	0.75
Hourly flow rate (vph)	86	0	0	226	273	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			86		312	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			86		312	86
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		60	99
cM capacity (veh/h)			1516		680	973

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	86	226	280
Volume Left	0	0	273
Volume Right	0	0	7
cSH	1700	1700	685
Volume to Capacity	0.05	0.13	0.41
Queue Length 95th (ft)	0	0	50
Control Delay (s)	0.0	0.0	13.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.8
Approach LOS			B

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization	28.3%		ICU Level of Service A
Analysis Period (min)		15	

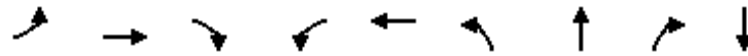
HCM Unsignalized Intersection Capacity Analysis
 31: Tilton Rd (NH 140)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1050	890	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1141	967	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	967				1538	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	967				1538	484
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	708				106	529

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	571	571	645	322	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.34	0.34	0.38	0.19	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			32.4%	ICU Level of Service	A
Analysis Period (min)			15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	440	696	462	576	195	196	201	10
v/c Ratio	0.03	0.74	0.68	0.81	0.46	0.61	0.61	0.21	0.03
Control Delay	41.6	35.3	11.3	41.0	9.9	43.2	43.3	2.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	35.3	11.3	41.0	9.9	43.2	43.3	2.0	0.1
Queue Length 50th (ft)	3	208	122	231	110	105	105	0	0
Queue Length 95th (ft)	15	#375	318	#467	343	#221	#222	26	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	149	696	1033	619	1301	344	344	1003	352
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.63	0.67	0.75	0.44	0.57	0.57	0.20	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	405	640	425	525	5	360	0	185	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1860		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1860		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	440	696	462	571	5	391	0	201	5	0	5
RTOR Reduction (vph)	0	0	141	0	0	0	0	0	109	0	10	0
Lane Group Flow (vph)	5	440	555	462	576	0	195	196	92	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	0.8	30.2	50.3	25.3	54.7		14.1	14.1	39.4		0.8	
Effective Green, g (s)	2.8	32.2	52.3	27.3	56.7		16.1	16.1	43.4		2.8	
Actuated g/C Ratio	0.03	0.34	0.55	0.29	0.60		0.17	0.17	0.46		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	52	635	877	511	1117		286	286	727		50	
v/s Ratio Prot	0.00	c0.24	c0.35	c0.26	0.31		0.12	0.12	0.06		c0.00	
v/s Ratio Perm												
v/c Ratio	0.10	0.69	0.63	0.90	0.52		0.68	0.69	0.13		0.01	
Uniform Delay, d1	44.6	26.8	14.5	32.3	10.9		36.7	36.8	14.6		44.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.8	3.3	1.5	19.3	0.4		6.6	6.7	0.1		0.0	
Delay (s)	45.4	30.1	15.9	51.6	11.3		43.3	43.4	14.7		44.5	
Level of Service	D	C	B	D	B		D	D	B		D	
Approach Delay (s)		21.5			29.2			33.6			44.5	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	425	40	40	1025	100	120
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	462	43	43	1114	109	130
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			505		1685	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			505		1685	484
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		0	78
cM capacity (veh/h)			1059		99	583

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	505	43	1114	239
Volume Left	0	43	0	109
Volume Right	43	0	0	130
cSH	1700	1059	1700	218
Volume to Capacity	0.30	0.04	0.66	1.10
Queue Length 95th (ft)	0	3	0	272
Control Delay (s)	0.0	8.5	0.0	97.2
Lane LOS		A		F
Approach Delay (s)	0.0	0.3		97.2
Approach LOS				F

Intersection Summary			
Average Delay		12.4	
Intersection Capacity Utilization		66.2%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
1: Elm St & Granite St

Synchro 8 Report
8/21/2017

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↘
Volume (veh/h)	185	16	30	290	6	20
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.42	0.42
Hourly flow rate (vph)	231	20	33	322	14	48
Pedestrians					5	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			256		635	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			256		635	246
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	94
cM capacity (veh/h)			1315		432	794
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	251	356	62			
Volume Left	0	33	14			
Volume Right	20	0	48			
cSH	1700	1315	665			
Volume to Capacity	0.15	0.03	0.09			
Queue Length 95th (ft)	0	2	8			
Control Delay (s)	0.0	1.0	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.0	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			41.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	82	1326	1435	598	288	163
v/c Ratio	0.19	0.55	1.09	0.63	0.64	0.31
Control Delay	27.1	8.3	82.3	8.7	36.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	8.3	82.3	8.7	36.9	6.3
Queue Length 50th (ft)	35	172	~474	51	140	0
Queue Length 95th (ft)	73	238	#624	159	221	46
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	427	2379	1312	951	519	585
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.56	1.09	0.63	0.55	0.28

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	75	1220	1320	550	265	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	3539	3486	1768	2006	1794
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	3539	3486	1768	2006	1794
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1326	1435	598	288	163
RTOR Reduction (vph)	0	0	0	286	0	126
Lane Group Flow (vph)	82	1326	1435	312	288	37
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	19.9	55.9	30.0	30.0	17.1	17.1
Effective Green, g (s)	21.9	57.9	32.0	32.0	19.1	19.1
Actuated g/C Ratio	0.26	0.68	0.38	0.38	0.22	0.22
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	425	2410	1312	665	450	403
v/s Ratio Prot	0.05	c0.37	c0.41		c0.14	0.02
v/s Ratio Perm				0.18		
v/c Ratio	0.19	0.55	1.09	0.47	0.64	0.09
Uniform Delay, d1	24.6	6.9	26.5	20.1	29.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	54.6	0.7	3.5	0.1
Delay (s)	24.9	7.2	81.1	20.8	33.3	26.2
Level of Service	C	A	F	C	C	C
Approach Delay (s)		8.3	63.3		30.7	
Approach LOS		A	E		C	

Intersection Summary			
HCM 2000 Control Delay		39.6	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio		0.82	
Actuated Cycle Length (s)		85.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization		65.3%	ICU Level of Service C
Analysis Period (min)		15	
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	207	880	527	255	1168	163	739	250	332	511	158	125
v/c Ratio	0.70	0.76	0.63	0.98	1.07	0.17	1.17	0.87	0.63	0.77	0.56	0.18
Control Delay	69.6	48.2	6.9	110.1	90.9	3.7	140.1	84.9	11.8	62.2	64.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.6	48.2	6.9	110.1	90.9	3.7	140.1	84.9	11.8	62.2	64.9	6.4
Queue Length 50th (ft)	170	345	0	223	531	8	~387	214	0	217	128	0
Queue Length 95th (ft)	321	#590	108	#539	#1041	37	#709	#500	105	#411	258	51
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	354	1234	861	259	1096	982	632	289	524	664	283	738
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.71	0.61	0.98	1.07	0.17	1.17	0.87	0.63	0.77	0.56	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖	↖↖	↗	↖	↖↖	↗	↖
Volume (vph)	190	810	485	235	1075	150	680	230	305	470	145	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	880	527	255	1168	163	739	250	332	511	158	125
RTOR Reduction (vph)	0	0	360	0	0	70	0	0	280	0	0	81
Lane Group Flow (vph)	207	880	167	255	1168	93	739	250	52	511	158	44
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	Prot	NA	Prot	Prot	NA	custom	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2 3			4			1 8
Actuated Green, G (s)	20.8	42.6	42.6	20.2	42.0	67.3	25.3	20.2	20.2	25.3	20.2	47.0
Effective Green, g (s)	22.8	44.6	44.6	22.2	44.0	71.3	27.3	22.2	22.2	27.3	22.2	49.0
Actuated g/C Ratio	0.16	0.32	0.32	0.16	0.31	0.51	0.19	0.16	0.16	0.19	0.16	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	291	1138	475	254	1079	860	621	283	241	653	278	594
v/s Ratio Prot	0.12	0.24	0.11	c0.16	c0.34		c0.23	c0.14		0.15	0.09	
v/s Ratio Perm						0.05			0.03			0.03
v/c Ratio	0.71	0.77	0.35	1.00	1.08	0.11	1.19	0.88	0.22	0.78	0.57	0.07
Uniform Delay, d1	55.8	43.5	36.9	59.2	48.3	18.1	56.7	58.0	51.7	53.9	54.8	30.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.5	3.5	0.6	57.5	52.6	0.1	100.9	27.6	1.0	7.0	4.3	0.1
Delay (s)	64.3	47.0	37.6	116.7	100.9	18.2	157.6	85.6	52.6	60.9	59.2	30.7
Level of Service	E	D	D	F	F	B	F	F	D	E	E	C
Approach Delay (s)		46.1			95.0			117.6			55.8	
Approach LOS		D			F			F			E	

Intersection Summary

HCM 2000 Control Delay	79.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	140.7	Sum of lost time (s)	19.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Shaw's/NH 132 & US 3 / NH 11



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	185	1446	27	1375	74	14	14	86	267
v/c Ratio	0.64	0.60	0.14	0.77	0.33	0.04	0.04	0.38	0.56
Control Delay	46.1	11.4	39.1	21.6	37.4	31.4	0.2	38.6	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	11.4	39.1	21.6	37.4	31.4	0.2	38.6	9.2
Queue Length 50th (ft)	98	150	14	318	38	7	0	45	0
Queue Length 95th (ft)	178	424	40	459	64	19	0	72	29
Internal Link Dist (ft)		731		821		314		635	
Turn Bay Length (ft)	500		250		125		125		275
Base Capacity (vph)	316	2409	336	1785	297	424	439	300	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.60	0.08	0.77	0.25	0.03	0.03	0.29	0.49

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

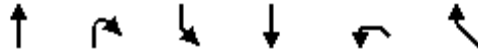


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗		↖	↗
Volume (vph)	170	1265	65	25	1205	60	55	10	10	55	10	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1668	3544		1770	3397		1805	1900	1615		1728	1531
Fl _t Permitted	0.95	1.00		0.95	1.00		0.70	1.00	1.00		0.75	1.00
Satd. Flow (perm)	1668	3544		1770	3397		1332	1900	1615		1348	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.75	0.75	0.75
Adj. Flow (vph)	185	1375	71	27	1310	65	74	14	14	73	13	267
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	12	0	0	224
Lane Group Flow (vph)	185	1443	0	27	1372	0	74	14	2	0	86	43
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.7	59.0		3.5	48.8		13.0	13.0	13.0		13.0	13.0
Effective Green, g (s)	15.7	61.0		5.5	50.8		15.0	15.0	15.0		15.0	15.0
Actuated g/C Ratio	0.17	0.65		0.06	0.54		0.16	0.16	0.16		0.16	0.16
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	8.0		4.0	8.0		5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	280	2312		104	1845		213	304	259		216	245
v/s Ratio Prot	c0.11	0.41		0.02	c0.40			0.01				
v/s Ratio Perm							0.06		0.00		c0.06	0.03
v/c Ratio	0.66	0.62		0.26	0.74		0.35	0.05	0.01		0.40	0.17
Uniform Delay, d ₁	36.4	9.5		42.1	16.4		34.9	33.2	33.0		35.2	33.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	6.3	1.2		1.8	2.7		2.1	0.1	0.0		2.5	0.7
Delay (s)	42.7	10.7		43.9	19.1		37.0	33.3	33.0		37.7	34.6
Level of Service	D	B		D	B		D	C	C		D	C
Approach Delay (s)		14.4			19.6			35.9			35.4	
Approach LOS		B			B			D			D	

Intersection Summary

HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 6: Summer St/Elm St & Bay St



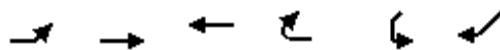
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↙	↘
Volume (veh/h)	145	70	91	205	50	56
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	181	88	101	228	54	60
Pedestrians					6	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		661	231
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		661	231
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		86	93
cM capacity (veh/h)			1293		395	809

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	269	329	114
Volume Left	0	101	54
Volume Right	88	0	60
cSH	1700	1293	541
Volume to Capacity	0.16	0.08	0.21
Queue Length 95th (ft)	0	6	20
Control Delay (s)	0.0	3.0	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	3.0	13.4
Approach LOS			B

Intersection Summary			
Average Delay		3.5	
Intersection Capacity Utilization	44.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd

Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↶	↷		↶	↷
Volume (veh/h)	10	120	90	1	0	30
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.77	0.77	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	13	156	112	1	0	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	114				295	113
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	114				295	113
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1475				695	945

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	169	114	53
Volume Left	13	0	0
Volume Right	0	1	53
cSH	1475	1700	945
Volume to Capacity	0.01	0.07	0.06
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		23.5%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Summer St

Synchro 8 Report
 8/21/2017



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	255	460	0	115	10
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	287	489	0	149	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	489				798	489
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489				798	489
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				58	98
cM capacity (veh/h)	1079				355	583

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	298	489	162
Volume Left	11	0	149
Volume Right	0	0	13
cSH	1079	1700	366
Volume to Capacity	0.01	0.29	0.44
Queue Length 95th (ft)	1	0	55
Control Delay (s)	0.4	0.0	22.4
Lane LOS	A		C
Approach Delay (s)	0.4	0.0	22.4
Approach LOS			C

Intersection Summary			
Average Delay		4.0	
Intersection Capacity Utilization		37.9%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
20: Summer St















Synchro 8 Report
8/21/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	0	0	145	0	125
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	0	0	154	0	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	154	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	154	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	840	1088	1636			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	154	162			
Volume Left	11	0	0			
Volume Right	0	0	162			
cSH	840	1700	1700			
Volume to Capacity	0.01	0.09	0.10			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			17.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 8/21/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	160	210	0	460	145
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	0	0	180	236	0	489	154
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	864	941	298	864	982	566	644			416		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	864	941	298	864	982	566	644			416		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	275	264	742	275	250	524	946			1154		
Direction, Lane #	SE 1	NW 1										
Volume Total	416	644										
Volume Left	0	0										
Volume Right	236	154										
cSH	946	1154										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			36.4%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 24: NH 132 (Park St) & Exit 19 SB On-ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	5	605	160	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.89	0.89
Hourly flow rate (vph)	0	0	5	644	180	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	834	180	180			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	834	180	180			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	337	863	1408			
Direction, Lane #	NB 1	SB 1				
Volume Total	649	180				
Volume Left	5	0				
Volume Right	0	0				
cSH	1408	1700				
Volume to Capacity	0.00	0.11				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A					
Approach Delay (s)	0.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			39.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 NB Off-ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	160	0	0	130	480	30
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.89	0.89	0.74	0.74	0.94	0.94
Hourly flow rate (vph)	180	0	0	176	511	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			180		355	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			180		355	180
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		21	96
cM capacity (veh/h)			1408		647	868

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	180	176	543
Volume Left	0	0	511
Volume Right	0	0	32
cSH	1700	1700	657
Volume to Capacity	0.11	0.10	0.83
Queue Length 95th (ft)	0	0	220
Control Delay (s)	0.0	0.0	31.1
Lane LOS			D
Approach Delay (s)	0.0	0.0	31.1
Approach LOS			D

Intersection Summary			
Average Delay		18.8	
Intersection Capacity Utilization		43.5%	ICU Level of Service
Analysis Period (min)		15	A

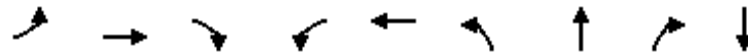
HCM Unsignalized Intersection Capacity Analysis
 31: Tilton Rd (NH 140)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Volume (veh/h)	0	1010	1210	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1098	1315	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	1315				1864	658
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1315				1864	658
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	522				64	407

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	549	549	877	438	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.32	0.32	0.52	0.26	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			36.8%	ICU Level of Service	A
Analysis Period (min)			15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	739	353	185	630	342	343	435	10
v/c Ratio	0.04	0.87	0.28	0.73	0.55	0.79	0.79	0.54	0.03
Control Delay	46.8	37.6	1.1	60.3	14.8	49.5	49.6	12.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	37.6	1.1	60.3	14.8	49.5	49.6	12.8	0.2
Queue Length 50th (ft)	3	391	0	113	185	210	211	100	0
Queue Length 95th (ft)	16	#734	25	#250	465	#411	#412	184	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	128	907	1288	256	1160	453	453	804	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.81	0.27	0.72	0.54	0.75	0.76	0.54	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	680	325	170	575	5	630	0	400	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	739	353	185	625	5	685	0	435	5	0	5
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	126	0	10	0
Lane Group Flow (vph)	5	739	258	185	630	0	342	343	309	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	0.9	47.3	76.5	11.8	58.2		23.2	23.2	35.0		0.9	
Effective Green, g (s)	2.9	49.3	78.5	13.8	60.2		25.2	25.2	39.0		2.9	
Actuated g/C Ratio	0.03	0.46	0.73	0.13	0.56		0.24	0.24	0.36		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	47	856	1159	227	1045		395	395	575		45	
v/s Ratio Prot	0.00	c0.40	0.16	c0.10	0.34		0.20	c0.20	0.20		c0.00	
v/s Ratio Perm												
v/c Ratio	0.11	0.86	0.22	0.81	0.60		0.87	0.87	0.54		0.01	
Uniform Delay, d1	50.9	25.9	4.6	45.5	15.6		39.4	39.4	27.0		50.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.0	9.0	0.1	19.7	1.0		17.7	17.9	1.0		0.1	
Delay (s)	51.9	34.9	4.7	65.1	16.6		57.0	57.3	27.9		50.8	
Level of Service	D	C	A	E	B		E	E	C		D	
Approach Delay (s)		25.3			27.6			45.8			50.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	107.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	940	95	155	340	35	90
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1022	103	168	370	38	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			1125		1780	1073
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1125		1780	1073
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			73		42	63
cM capacity (veh/h)			621		66	267

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1125	168	370	136
Volume Left	0	168	0	38
Volume Right	103	0	0	98
cSH	1700	621	1700	235
Volume to Capacity	0.66	0.27	0.22	0.58
Queue Length 95th (ft)	0	27	0	81
Control Delay (s)	0.0	12.9	0.0	51.6
Lane LOS		B		F
Approach Delay (s)	0.0	4.1		51.6
Approach LOS				F

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization		77.2%	ICU Level of Service D
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↙
Volume (veh/h)	255	10	15	175	10	25
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.61	0.61
Hourly flow rate (vph)	304	12	19	227	16	41
Pedestrians					4	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			319		580	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			319		580	314
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	94
cM capacity (veh/h)			1236		465	722
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	315	247	57			
Volume Left	0	19	16			
Volume Right	12	0	41			
cSH	1700	1236	623			
Volume to Capacity	0.19	0.02	0.09			
Queue Length 95th (ft)	0	1	8			
Control Delay (s)	0.0	0.8	11.4			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			31.6%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	54	989	853	902	424	179
v/c Ratio	0.14	0.44	0.68	0.75	0.89	0.33
Control Delay	26.8	7.9	26.7	6.1	53.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	7.9	26.7	6.1	53.9	7.8
Queue Length 50th (ft)	23	122	207	0	227	8
Queue Length 95th (ft)	53	159	274	83	#395	57
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	405	2226	1257	1207	483	552
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.44	0.68	0.75	0.88	0.32

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: US 3 / NH 11 & I-93 SB Ramps

Synchro 8 Report
8/21/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↕↕	↕↕	↗	↖	↗
Volume (vph)	50	910	785	830	390	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1604	3438	3419	1734	1912	1711
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1604	3438	3419	1734	1912	1711
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	989	853	902	424	179
RTOR Reduction (vph)	0	0	0	570	0	121
Lane Group Flow (vph)	54	989	853	332	424	58
Heavy Vehicles (%)	5%	5%	4%	4%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	19.2	55.2	30.0	30.0	19.8	19.8
Effective Green, g (s)	21.2	57.2	32.0	32.0	21.8	21.8
Actuated g/C Ratio	0.24	0.66	0.37	0.37	0.25	0.25
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	390	2260	1257	637	479	428
v/s Ratio Prot	0.03	c0.29	c0.25		c0.22	0.03
v/s Ratio Perm				0.19		
v/c Ratio	0.14	0.44	0.68	0.52	0.89	0.14
Uniform Delay, d1	25.8	7.2	23.2	21.5	31.4	25.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	1.6	1.0	17.9	0.2
Delay (s)	26.0	7.4	24.8	22.5	49.3	25.5
Level of Service	C	A	C	C	D	C
Approach Delay (s)		8.3	23.6		42.2	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	87	668	658	245	1087	65	614	185	239	418	288	54
v/c Ratio	0.43	0.66	0.74	0.90	0.92	0.07	0.95	0.57	0.51	0.67	1.00	0.09
Control Delay	64.3	46.0	8.8	88.6	54.8	2.1	77.0	60.4	11.0	57.4	108.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	46.0	8.8	88.6	54.8	2.1	77.0	60.4	11.0	57.4	108.3	3.7
Queue Length 50th (ft)	66	244	0	195	427	0	252	140	0	158	234	0
Queue Length 95th (ft)	153	427	130	#514	#881	13	#564	#336	89	#302	#609	18
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	362	1260	946	272	1185	1012	646	324	469	672	287	715
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.53	0.70	0.90	0.92	0.06	0.95	0.57	0.51	0.62	1.00	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11

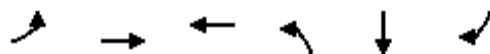
Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘↘	↗	↘	↘↘	↗	↘
Volume (vph)	80	615	605	225	1000	60	565	170	220	385	265	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	668	658	245	1087	65	614	185	239	418	288	54
RTOR Reduction (vph)	0	0	471	0	0	31	0	0	195	0	0	37
Lane Group Flow (vph)	87	668	187	245	1087	34	614	185	44	418	288	17
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	6%	6%	6%	8%	8%	8%
Turn Type	Prot	NA	Prot	Prot	NA	custom	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2 3			4			1 8
Actuated Green, G (s)	13.2	36.2	36.2	20.4	43.4	66.7	25.4	22.5	22.5	23.3	20.4	39.6
Effective Green, g (s)	15.2	38.2	38.2	22.4	45.4	70.7	27.4	24.5	24.5	25.3	22.4	41.6
Actuated g/C Ratio	0.11	0.28	0.28	0.17	0.34	0.53	0.20	0.18	0.18	0.19	0.17	0.31
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	197	991	413	268	1165	893	634	318	270	609	283	508
v/s Ratio Prot	0.05	0.19	0.13	c0.15	c0.31		c0.20	0.11		0.13	c0.17	
v/s Ratio Perm						0.02			0.03			0.01
v/c Ratio	0.44	0.67	0.45	0.91	0.93	0.04	0.97	0.58	0.16	0.69	1.02	0.03
Uniform Delay, d1	55.7	42.6	39.6	55.1	43.1	15.4	53.1	50.3	46.3	50.9	56.0	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	2.0	1.1	33.5	13.4	0.0	28.1	4.2	0.6	4.1	58.1	0.0
Delay (s)	57.8	44.6	40.6	88.6	56.5	15.5	81.2	54.5	46.9	55.0	114.1	32.4
Level of Service	E	D	D	F	E	B	F	D	D	E	F	C
Approach Delay (s)		43.6			60.2			68.6			75.8	
Approach LOS		D			E			E			E	

Intersection Summary

HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	134.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	NBL	SBT	SBR
Lane Group Flow (vph)	185	1027	1228	29	44	222
v/c Ratio	0.63	0.39	0.67	0.14	0.23	0.54
Control Delay	44.0	4.2	17.7	34.3	36.1	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	4.2	17.7	34.3	36.1	10.1
Queue Length 50th (ft)	94	74	245	14	22	0
Queue Length 95th (ft)	176	139	370	14	47	41
Internal Link Dist (ft)		731	821		635	
Turn Bay Length (ft)	500			125		275
Base Capacity (vph)	321	2661	1852	319	308	524
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.39	0.66	0.09	0.14	0.42

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

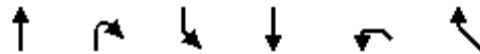


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	935	10	0	1095	35	10	0	0	35	1	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0			4.0		4.0				4.0	4.0
Lane Util. Factor	1.00	0.95			0.95		1.00				1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Fr _t	1.00	1.00			1.00		1.00				1.00	0.85
Fl _t Protected	0.95	1.00			1.00		0.95				0.95	1.00
Satd. Flow (prot)	1636	3498			3405		1805				1717	1531
Fl _t Permitted	0.95	1.00			1.00		0.73				0.74	1.00
Satd. Flow (perm)	1636	3498			3405		1384				1334	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.35	0.35	0.35	0.81	0.81	0.81
Adj. Flow (vph)	185	1016	11	0	1190	38	29	0	0	43	1	222
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	190
Lane Group Flow (vph)	185	1027	0	0	1226	0	29	0	0	0	44	32
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm		Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.7	64.1			44.4		10.7				10.7	10.7
Effective Green, g (s)	15.7	66.1			46.4		12.7				12.7	12.7
Actuated g/C Ratio	0.18	0.76			0.53		0.15				0.15	0.15
Clearance Time (s)	6.0	6.0			6.0		6.0				6.0	6.0
Vehicle Extension (s)	4.0	8.0			8.0		5.0				5.0	5.0
Lane Grp Cap (vph)	295	2663			1820		202				195	224
v/s Ratio Prot	c0.11	0.29			c0.36							
v/s Ratio Perm							0.02				c0.03	0.02
v/c Ratio	0.63	0.39			0.67		0.14				0.23	0.15
Uniform Delay, d ₁	32.8	3.5			14.7		32.3				32.7	32.3
Progression Factor	1.00	1.00			1.00		1.00				1.00	1.00
Incremental Delay, d ₂	4.7	0.4			2.0		0.7				1.2	0.6
Delay (s)	37.5	3.9			16.7		33.0				33.9	32.9
Level of Service	D	A			B		C				C	C
Approach Delay (s)		9.0			16.7			33.0			33.1	
Approach LOS		A			B			C			C	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	86.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
6: Summer St/Elm St & Bay St

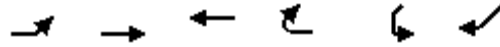


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↘	↙
Volume (veh/h)	175	35	65	120	60	90
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.74	0.74
Hourly flow rate (vph)	208	42	84	156	81	122
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			251		555	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			251		555	230
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		82	85
cM capacity (veh/h)			1313		462	811

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	250	240	203
Volume Left	0	84	81
Volume Right	42	0	122
cSH	1700	1313	623
Volume to Capacity	0.15	0.06	0.33
Queue Length 95th (ft)	0	5	35
Control Delay (s)	0.0	3.1	13.5
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	13.5
Approach LOS			B

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization	40.2%		ICU Level of Service A
Analysis Period (min)		15	

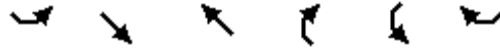
HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	40	50	155	0	0	20
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.81	0.81	0.60	0.60	0.42	0.42
Hourly flow rate (vph)	49	62	258	0	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	258				419	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	258				419	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	1318				574	786

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	111	258	48
Volume Left	49	0	0
Volume Right	0	0	48
cSH	1318	1700	786
Volume to Capacity	0.04	0.15	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	3.7	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		26.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	555	265	0	140	15
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	631	312	0	203	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	312				954	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312				954	312
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				30	97
cM capacity (veh/h)	1254				288	731

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	636	312	225
Volume Left	6	0	203
Volume Right	0	0	22
cSH	1254	1700	306
Volume to Capacity	0.00	0.18	0.73
Queue Length 95th (ft)	0	0	135
Control Delay (s)	0.1	0.0	43.4
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	43.4
Approach LOS			E















Intersection Summary			
Average Delay		8.4	
Intersection Capacity Utilization	48.5%		ICU Level of Service A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖			↑		↘
Volume (veh/h)	5	0	0	125	0	155
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	0	0	147	0	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	147	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	848	1088	1630			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	147	225			
Volume Left	6	0	0			
Volume Right	0	0	225			
cSH	848	1700	1700			
Volume to Capacity	0.01	0.09	0.13			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization		16.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 8/21/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	80	615	0	265	125
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	0	0	0	0	91	699	0	312	147
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	826	899	440	826	1175	385	459			790		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	826	899	440	826	1175	385	459			790		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	292	279	617	292	192	663	1107			835		
Direction, Lane #	SE 1	NW 1										
Volume Total	790	459										
Volume Left	0	0										
Volume Right	699	147										
cSH	1107	835										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			45.5%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 24: NH 132 (Park St) & Exit 19 SB On-ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	45	390	80	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88
Hourly flow rate (vph)	0	0	53	459	91	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	656	91	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	91	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	96			
cM capacity (veh/h)	415	967	1510			
Direction, Lane #	NB 1	SB 1				
Volume Total	512	91				
Volume Left	53	0				
Volume Right	0	0				
cSH	1510	1700				
Volume to Capacity	0.04	0.05				
Queue Length 95th (ft)	3	0				
Control Delay (s)	1.1	0.0				
Lane LOS	A					
Approach Delay (s)	1.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			33.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 NB Off-ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Volume (veh/h)	80	0	0	210	225	5
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.87	0.87	0.84	0.84	0.75	0.75
Hourly flow rate (vph)	92	0	0	250	300	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			92		342	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		342	92
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		54	99
cM capacity (veh/h)			1509		654	965

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	92	250	307
Volume Left	0	0	300
Volume Right	0	0	7
cSH	1700	1700	659
Volume to Capacity	0.05	0.15	0.47
Queue Length 95th (ft)	0	0	62
Control Delay (s)	0.0	0.0	15.1
Lane LOS			C
Approach Delay (s)	0.0	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay		7.2	
Intersection Capacity Utilization		30.5%	ICU Level of Service
Analysis Period (min)		15	A

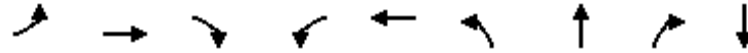
HCM Unsignalized Intersection Capacity Analysis
 31: Tilton Rd (NH 140)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Volume (veh/h)	0	1100	960	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1196	1043	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	1043				1641	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1043				1641	522
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	662				91	500

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	598	598	696	348	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.35	0.35	0.41	0.20	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			33.7%	ICU Level of Service	A
Analysis Period (min)			15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	489	701	462	641	201	201	201	10
v/c Ratio	0.03	0.79	0.68	0.82	0.51	0.64	0.64	0.21	0.03
Control Delay	41.6	38.4	11.3	42.3	10.6	45.1	45.1	2.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	38.4	11.3	42.3	10.6	45.1	45.1	2.0	0.1
Queue Length 50th (ft)	3	240	125	234	129	110	110	0	0
Queue Length 95th (ft)	15	#463	325	#467	401	#230	#230	26	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	145	678	1042	602	1289	335	335	983	349
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.72	0.67	0.77	0.50	0.60	0.60	0.20	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	450	645	425	585	5	370	0	185	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	489	701	462	636	5	402	0	201	5	0	5
RTOR Reduction (vph)	0	0	140	0	0	0	0	0	110	0	10	0
Lane Group Flow (vph)	5	489	561	462	641	0	201	201	91	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	0.9	31.7	51.8	25.6	56.4		14.1	14.1	39.7		0.9	
Effective Green, g (s)	2.9	33.7	53.8	27.6	58.4		16.1	16.1	43.7		2.9	
Actuated g/C Ratio	0.03	0.35	0.56	0.29	0.61		0.17	0.17	0.45		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	53	651	884	507	1128		281	281	718		51	
v/s Ratio Prot	0.00	c0.26	c0.35	c0.26	0.34		0.12	0.12	0.06		c0.00	
v/s Ratio Perm												
v/c Ratio	0.09	0.75	0.63	0.91	0.57		0.72	0.72	0.13		0.01	
Uniform Delay, d1	45.4	27.6	14.5	33.2	11.4		37.9	37.9	15.2		45.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.8	4.9	1.5	20.6	0.7		8.4	8.4	0.1		0.0	
Delay (s)	46.2	32.5	16.0	53.8	12.0		46.3	46.3	15.3		45.3	
Level of Service	D	C	B	D	B		D	D	B		D	
Approach Delay (s)		22.9			29.5			36.0			45.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	↻
Volume (veh/h)	425	40	45	1025	100	130
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	462	43	49	1114	109	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			505		1696	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			505		1696	484
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		0	76
cM capacity (veh/h)			1059		97	583

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	505	49	1114	250
Volume Left	0	49	0	109
Volume Right	43	0	0	141
cSH	1700	1059	1700	223
Volume to Capacity	0.30	0.05	0.66	1.12
Queue Length 95th (ft)	0	4	0	287
Control Delay (s)	0.0	8.6	0.0	97.9
Lane LOS		A		F
Approach Delay (s)	0.0	0.4		97.9
Approach LOS				F

Intersection Summary			
Average Delay		13.0	
Intersection Capacity Utilization		66.2%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↘
Volume (veh/h)	205	16	30	320	6	20
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.42	0.42
Hourly flow rate (vph)	256	20	33	356	14	48
Pedestrians					5	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			281		693	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			281		693	271
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	94
cM capacity (veh/h)			1287		399	769
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	276	389	62			
Volume Left	0	33	14			
Volume Right	20	0	48			
cSH	1700	1287	633			
Volume to Capacity	0.16	0.03	0.10			
Queue Length 95th (ft)	0	2	8			
Control Delay (s)	0.0	0.9	11.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.9	11.3			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			43.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	92	1457	1571	641	315	179
v/c Ratio	0.22	0.61	1.21	0.68	0.68	0.33
Control Delay	27.6	9.3	128.3	11.0	38.4	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	9.3	128.3	11.0	38.4	6.1
Queue Length 50th (ft)	40	214	~571	75	156	0
Queue Length 95th (ft)	81	278	#710	203	243	48
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	424	2393	1300	940	514	593
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.61	1.21	0.68	0.61	0.30

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	85	1340	1445	590	290	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	3539	3486	1768	2006	1794
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	3539	3486	1768	2006	1794
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	1457	1571	641	315	179
RTOR Reduction (vph)	0	0	0	281	0	138
Lane Group Flow (vph)	92	1457	1571	360	315	41
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	1 2	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	20.0	56.0	30.0	30.0	17.8	17.8
Effective Green, g (s)	22.0	58.0	32.0	32.0	19.8	19.8
Actuated g/C Ratio	0.26	0.68	0.37	0.37	0.23	0.23
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	423	2392	1300	659	462	414
v/s Ratio Prot	0.06	c0.41	c0.45		c0.16	0.02
v/s Ratio Perm				0.20		
v/c Ratio	0.22	0.61	1.21	0.55	0.68	0.10
Uniform Delay, d1	25.1	7.7	26.9	21.2	30.1	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.5	101.2	1.2	4.5	0.1
Delay (s)	25.5	8.2	128.1	22.3	34.6	26.1
Level of Service	C	A	F	C	C	C
Approach Delay (s)		9.2	97.5		31.5	
Approach LOS		A	F		C	

Intersection Summary				
HCM 2000 Control Delay		57.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio		0.90		
Actuated Cycle Length (s)		85.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization		70.7%	ICU Level of Service	C
Analysis Period (min)		15		
c Critical Lane Group				



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	973	571	277	1293	179	783	261	353	565	168	136
v/c Ratio	0.74	0.81	0.65	1.09	1.17	0.18	1.27	0.92	0.66	0.87	0.61	0.19
Control Delay	71.0	49.6	7.0	137.9	128.4	4.5	177.5	95.3	12.1	70.1	67.3	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	49.6	7.0	137.9	128.4	4.5	177.5	95.3	12.1	70.1	67.3	6.1
Queue Length 50th (ft)	186	395	0	~261	~696	14	~428	225	0	245	137	0
Queue Length 95th (ft)	#381	#717	114	#597	#1192	45	#762	#527	109	#479	#288	53
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	346	1207	883	253	1105	978	618	283	538	650	277	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.81	0.65	1.09	1.17	0.18	1.27	0.92	0.66	0.87	0.61	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

3: NH 140/I-93 NB Ramps & US 3 / NH 11

Synchro 8 Report
8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	895	525	255	1190	165	720	240	325	520	155	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	973	571	277	1293	179	783	261	353	565	168	136
RTOR Reduction (vph)	0	0	383	0	0	70	0	0	298	0	0	88
Lane Group Flow (vph)	228	973	188	277	1293	109	783	261	55	565	168	48
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	Prot	NA	Prot	Prot	NA	custom	Prot	NA	Perm	Prot	NA	custom
Protected Phases	1	6	6	5	2		7	4		3	8	
Permitted Phases						2 3			4			1 8
Actuated Green, G (s)	22.3	45.3	45.3	20.2	43.2	68.4	25.2	20.2	20.2	25.2	20.2	48.5
Effective Green, g (s)	24.3	47.3	47.3	22.2	45.2	72.4	27.2	22.2	22.2	27.2	22.2	50.5
Actuated g/C Ratio	0.17	0.33	0.33	0.15	0.32	0.50	0.19	0.15	0.15	0.19	0.15	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	304	1184	494	249	1088	857	607	278	236	638	273	601
v/s Ratio Prot	0.13	0.27	0.13	c0.17	c0.37		c0.24	c0.15		0.17	0.10	
v/s Ratio Perm						0.06			0.04			0.03
v/c Ratio	0.75	0.82	0.38	1.11	1.19	0.13	1.29	0.94	0.23	0.89	0.62	0.08
Uniform Delay, d1	56.7	44.2	36.8	60.6	49.1	18.8	58.1	59.9	53.1	56.6	56.6	31.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	4.9	0.7	90.6	94.2	0.1	142.6	38.5	1.1	14.8	5.8	0.1
Delay (s)	67.2	49.1	37.5	151.2	143.3	18.9	200.7	98.5	54.2	71.4	62.4	31.0
Level of Service	E	D	D	F	F	B	F	F	D	E	E	C
Approach Delay (s)		47.7			131.8			144.5			63.4	
Approach LOS		D			F			F			E	

Intersection Summary

HCM 2000 Control Delay	98.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	143.4	Sum of lost time (s)	19.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	201	1582	27	1522	74	14	14	93	293
v/c Ratio	0.68	0.66	0.14	0.86	0.34	0.04	0.04	0.41	0.59
Control Delay	48.5	12.7	39.3	26.1	37.5	31.3	0.2	39.3	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.5	12.7	39.3	26.1	37.5	31.3	0.2	39.3	9.8
Queue Length 50th (ft)	109	180	14	385	38	7	0	49	3
Queue Length 95th (ft)	#208	497	40	#598	64	19	0	78	31
Internal Link Dist (ft)		731		821		314		635	
Turn Bay Length (ft)	500		250		125		125		275
Base Capacity (vph)	313	2403	333	1770	287	420	436	297	562
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.66	0.08	0.86	0.26	0.03	0.03	0.31	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

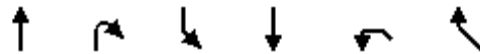
HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1390	65	25	1335	65	55	10	10	60	10	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1668	3547		1770	3397		1805	1900	1615		1727	1531
Fl _t Permitted	0.95	1.00		0.95	1.00		0.68	1.00	1.00		0.75	1.00
Satd. Flow (perm)	1668	3547		1770	3397		1298	1900	1615		1344	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.75	0.75	0.75
Adj. Flow (vph)	201	1511	71	27	1451	71	74	14	14	80	13	293
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	12	0	0	240
Lane Group Flow (vph)	201	1580	0	27	1519	0	74	14	2	0	93	53
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	14.1	59.4		3.6	48.9		13.4	13.4	13.4		13.4	13.4
Effective Green, g (s)	16.1	61.4		5.6	50.9		15.4	15.4	15.4		15.4	15.4
Actuated g/C Ratio	0.17	0.65		0.06	0.54		0.16	0.16	0.16		0.16	0.16
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	8.0		4.0	8.0		5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	284	2307		105	1831		211	309	263		219	249
v/s Ratio Prot	c0.12	0.45		0.02	c0.45			0.01				
v/s Ratio Perm							0.06		0.00		c0.07	0.03
v/c Ratio	0.71	0.68		0.26	0.83		0.35	0.05	0.01		0.42	0.21
Uniform Delay, d1	36.9	10.4		42.4	18.1		35.1	33.3	33.1		35.5	34.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.4	1.7		1.8	4.2		2.1	0.1	0.0		2.8	0.9
Delay (s)	45.3	12.1		44.2	22.3		37.2	33.4	33.1		38.3	35.1
Level of Service	D	B		D	C		D	C	C		D	D
Approach Delay (s)		15.8			22.7			36.1			35.9	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c	Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
6: Summer St/Elm St & Bay St

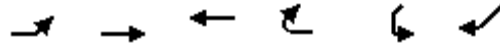


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↙	↘
Volume (veh/h)	160	75	101	225	55	61
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	200	94	112	250	59	66
Pedestrians					6	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			300		727	253
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			300		727	253
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		83	92
cM capacity (veh/h)			1267		357	787

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	294	362	125
Volume Left	0	112	59
Volume Right	94	0	66
cSH	1700	1267	501
Volume to Capacity	0.17	0.09	0.25
Queue Length 95th (ft)	0	7	24
Control Delay (s)	0.0	3.1	14.6
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	14.6
Approach LOS			B

Intersection Summary			
Average Delay		3.8	
Intersection Capacity Utilization	47.4%		ICU Level of Service A
Analysis Period (min)		15	

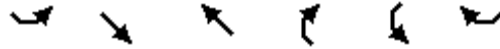
HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	135	100	0	0	30
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.77	0.77	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	13	175	125	0	0	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	125				326	125
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125				326	125
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1462				667	931

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	188	125	53
Volume Left	13	0	0
Volume Right	0	0	53
cSH	1462	1700	931
Volume to Capacity	0.01	0.07	0.06
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	275	510	0	130	10
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	309	543	0	169	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	543				874	543
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543				874	543
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				47	98
cM capacity (veh/h)	1031				320	544















Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	320	543	182
Volume Left	11	0	169
Volume Right	0	0	13
cSH	1031	1700	330
Volume to Capacity	0.01	0.32	0.55
Queue Length 95th (ft)	1	0	79
Control Delay (s)	0.4	0.0	28.5
Lane LOS	A		D
Approach Delay (s)	0.4	0.0	28.5
Approach LOS			D

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization	41.3%		ICU Level of Service
Analysis Period (min)	15		A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	0	0	160	0	140
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	0	0	170	0	182
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	822	1088	1636			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	170	182			
Volume Left	11	0	0			
Volume Right	0	0	182			
cSH	822	1700	1700			
Volume to Capacity	0.01	0.10	0.11			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.4	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.4	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			18.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	175	230	0	510	160
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	0	0	197	258	0	543	170
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	954	1039	326	954	1083	628	713			455		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	954	1039	326	954	1083	628	713			455		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	239	231	716	239	218	484	892			1116		
Direction, Lane #	SE 1	NW 1										
Volume Total	455	713										
Volume Left	0	0										
Volume Right	258	170										
cSH	892	1116										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			39.9%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 24: NH 132 (Park St) & Exit 19 SB On-ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	5	670	175	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.89	0.89
Hourly flow rate (vph)	0	0	5	713	197	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	920	197	197			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	920	197	197			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	300	845	1388			
Direction, Lane #	NB 1	SB 1				
Volume Total	718	197				
Volume Left	5	0				
Volume Right	0	0				
cSH	1388	1700				
Volume to Capacity	0.00	0.12				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A					
Approach Delay (s)	0.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 NB Off-ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	175	0	0	145	530	35
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.89	0.89	0.74	0.74	0.94	0.94
Hourly flow rate (vph)	197	0	0	196	564	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			197		393	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			197		393	197
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		8	96
cM capacity (veh/h)			1388		616	850

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	197	196	601
Volume Left	0	0	564
Volume Right	0	0	37
cSH	1700	1700	627
Volume to Capacity	0.12	0.12	0.96
Queue Length 95th (ft)	0	0	337
Control Delay (s)	0.0	0.0	52.2
Lane LOS			F
Approach Delay (s)	0.0	0.0	52.2
Approach LOS			F

Intersection Summary			
Average Delay		31.6	
Intersection Capacity Utilization		47.4%	ICU Level of Service
Analysis Period (min)		15	A

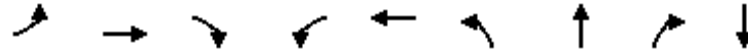
HCM Unsignalized Intersection Capacity Analysis
 31: Tilton Rd (NH 140)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1090	1275	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1185	1386	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	1386				1978	693
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1386				1978	693
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	490				54	386

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	592	592	924	462	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.35	0.35	0.54	0.27	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			38.6%	ICU Level of Service	A
Analysis Period (min)			15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	810	370	190	695	345	345	435	10
v/c Ratio	0.04	0.93	0.29	0.77	0.60	0.81	0.81	0.56	0.03
Control Delay	46.8	44.1	1.1	64.4	15.8	52.5	52.5	14.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	44.1	1.1	64.4	15.8	52.5	52.5	14.4	0.2
Queue Length 50th (ft)	3	458	0	117	216	212	212	111	0
Queue Length 95th (ft)	16	#843	26	#258	542	#417	#417	196	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	123	873	1302	247	1168	436	436	772	312
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.93	0.28	0.77	0.60	0.79	0.79	0.56	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

Synchro 8 Report
 8/21/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	745	340	175	635	5	635	0	400	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	810	370	190	690	5	690	0	435	5	0	5
RTOR Reduction (vph)	0	0	97	0	0	0	0	0	115	0	10	0
Lane Group Flow (vph)	5	810	273	190	695	0	345	345	320	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	0.9	50.0	79.3	12.0	61.1		23.3	23.3	35.3		0.9	
Effective Green, g (s)	2.9	52.0	81.3	14.0	63.1		25.3	25.3	39.3		2.9	
Actuated g/C Ratio	0.03	0.47	0.74	0.13	0.57		0.23	0.23	0.36		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	46	879	1167	224	1065		385	385	564		44	
v/s Ratio Prot	0.00	c0.43	0.17	c0.11	0.37		c0.21	0.21	0.20		c0.00	
v/s Ratio Perm												
v/c Ratio	0.11	0.92	0.23	0.85	0.65		0.90	0.90	0.57		0.01	
Uniform Delay, d1	52.4	27.2	4.6	47.1	16.1		41.2	41.2	28.6		52.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.0	14.8	0.1	24.6	1.4		22.4	22.4	1.3		0.1	
Delay (s)	53.4	42.0	4.7	71.6	17.5		63.6	63.6	29.9		52.3	
Level of Service	D	D	A	E	B		E	E	C		D	
Approach Delay (s)		30.4			29.1			50.6			52.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	110.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	940	95	175	340	35	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1022	103	190	370	38	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			1125		1823	1073
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1125		1823	1073
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			69		35	61
cM capacity (veh/h)			621		59	267

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1125	190	370	141
Volume Left	0	190	0	38
Volume Right	103	0	0	103
cSH	1700	621	1700	219
Volume to Capacity	0.66	0.31	0.22	0.65
Queue Length 95th (ft)	0	32	0	98
Control Delay (s)	0.0	13.3	0.0	57.7
Lane LOS		B		F
Approach Delay (s)	0.0	4.5		57.7
Approach LOS				F

Intersection Summary			
Average Delay		5.9	
Intersection Capacity Utilization		78.3%	ICU Level of Service D
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

1: Elm St & Granite St

8/31/2017

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↗			↖	↙	↘
Volume (veh/h)	230	10	15	160	10	25
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.61	0.61
Hourly flow rate (vph)	274	12	19	208	16	41
Pedestrians					4	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			290		531	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			290		531	284
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	95
cM capacity (veh/h)			1268		497	750
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	286	227	57			
Volume Left	0	19	16			
Volume Right	12	0	41			
cSH	1700	1268	655			
Volume to Capacity	0.17	0.02	0.09			
Queue Length 95th (ft)	0	1	7			
Control Delay (s)	0.0	0.8	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			30.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

2: US 3 / NH 11 & I-93 SB Ramps

8/31/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	49	913	777	826	397	163
v/c Ratio	0.18	0.46	0.53	0.68	0.72	0.27
Control Delay	22.4	8.4	14.1	13.2	27.9	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	8.4	14.1	13.2	27.9	4.5
Queue Length 50th (ft)	15	91	143	316	126	0
Queue Length 95th (ft)	39	129	m192	m420	#218	35
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	320	1989	1462	1214	573	627
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.46	0.53	0.68	0.69	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

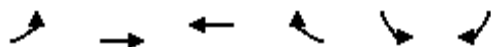
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: US 3 / NH 11 & I-93 SB Ramps

8/31/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	45	840	715	760	365	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1604	3438	3419	1734	1912	1711
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1604	3438	3419	1734	1912	1711
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	913	777	826	397	163
RTOR Reduction (vph)	0	0	0	507	0	116
Lane Group Flow (vph)	49	913	777	319	397	47
Heavy Vehicles (%)	5%	5%	4%	4%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.5	32.7	21.2	21.2	15.3	15.3
Effective Green, g (s)	7.5	34.7	23.2	23.2	17.3	17.3
Actuated g/C Ratio	0.12	0.58	0.39	0.39	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	200	1988	1322	670	551	493
v/s Ratio Prot	0.03	c0.27	c0.23		c0.21	0.03
v/s Ratio Perm				0.18		
v/c Ratio	0.24	0.46	0.59	0.48	0.72	0.10
Uniform Delay, d1	23.7	7.3	14.6	13.8	19.2	15.6
Progression Factor	1.00	1.00	0.89	9.14	1.00	1.00
Incremental Delay, d2	0.9	0.8	1.3	1.5	4.9	0.1
Delay (s)	24.6	8.0	14.3	127.9	24.1	15.7
Level of Service	C	A	B	F	C	B
Approach Delay (s)		8.9	72.8		21.7	
Approach LOS		A	E		C	

Intersection Summary

HCM 2000 Control Delay	44.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: NH 140/I-93 NB Ramps & US 3 / NH 11

8/31/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	603	630	234	984	60	571	174	223	380	277	49
v/c Ratio	0.47	0.59	0.77	0.82	0.72	0.06	0.85	0.45	0.33	0.67	0.90	0.08
Control Delay	74.6	34.9	11.5	58.7	24.8	1.7	58.7	45.7	6.7	52.2	79.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	34.9	11.5	58.7	24.8	1.7	58.7	45.7	6.7	52.2	79.8	0.3
Queue Length 50th (ft)	62	197	92	173	350	9	222	120	23	141	212	0
Queue Length 95th (ft)	110	238	123	#327	437	m5	#318	194	58	192	#368	0
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	174	1076	839	288	1381	1082	671	386	676	621	311	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.56	0.75	0.81	0.71	0.06	0.85	0.45	0.33	0.61	0.89	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: NH 140/I-93 NB Ramps & US 3 / NH 11

8/31/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	555	580	215	905	55	525	160	205	350	255	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	603	630	234	984	60	571	174	223	380	277	49
RTOR Reduction (vph)	0	0	81	0	0	24	0	0	80	0	0	34
Lane Group Flow (vph)	76	603	549	234	984	36	571	174	143	380	277	15
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	6%	6%	6%	8%	8%	8%
Turn Type	Prot	NA	pt+ov	Prot	NA	custom	Prot	NA	pt+ov	Prot	NA	custom
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases						2 3						1 8
Actuated Green, G (s)	7.8	31.7	55.6	20.6	44.5	69.6	23.9	24.6	45.2	19.1	19.8	33.6
Effective Green, g (s)	9.8	33.7	59.6	22.6	46.5	71.6	25.9	26.6	49.2	21.1	21.8	35.6
Actuated g/C Ratio	0.08	0.28	0.50	0.19	0.39	0.60	0.22	0.22	0.41	0.18	0.18	0.30
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	4.0		4.0	4.0		4.0	3.0		4.0	3.0	
Lane Grp Cap (vph)	142	980	723	303	1337	1013	672	387	608	570	309	488
v/s Ratio Prot	0.04	0.17	c0.38	0.15	c0.29		c0.18	0.10	0.10	0.12	c0.16	
v/s Ratio Perm						0.02						0.01
v/c Ratio	0.54	0.62	0.76	0.77	0.74	0.04	0.85	0.45	0.23	0.67	0.90	0.03
Uniform Delay, d1	52.9	37.5	24.4	46.3	31.5	10.0	45.2	40.4	23.1	46.2	48.0	29.9
Progression Factor	1.27	0.89	0.59	0.79	0.69	1.57	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	2.5	4.2	10.8	3.2	0.0	10.2	0.8	0.2	3.2	26.5	0.0
Delay (s)	70.7	36.0	18.7	47.4	25.0	15.7	55.4	41.2	23.3	49.4	74.5	30.0
Level of Service	E	D	B	D	C	B	E	D	C	D	E	C
Approach Delay (s)		29.7			28.7			45.5			57.9	
Approach LOS		C			C			D			E	

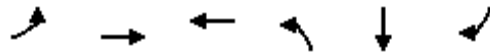
Intersection Summary

HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

4: Shaw's/NH 132 & US 3 / NH 11

8/31/2017



Lane Group	EBL	EBT	WBT	NBL	SBT	SBR
Lane Group Flow (vph)	168	935	1120	29	38	204
v/c Ratio	0.61	0.32	0.53	0.19	0.26	0.59
Control Delay	51.2	1.2	15.1	50.1	52.4	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	1.2	15.1	50.1	52.4	13.6
Queue Length 50th (ft)	98	20	236	21	28	0
Queue Length 95th (ft)	171	34	380	18	54	46
Internal Link Dist (ft)		731	821		635	
Turn Bay Length (ft)	500			125		275
Base Capacity (vph)	345	2883	2118	243	231	436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.32	0.53	0.12	0.16	0.47

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Shaw's/NH 132 & US 3 / NH 11

8/31/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	850	10	0	1000	30	10	0	0	30	1	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0			4.0		4.0				4.0	4.0
Lane Util. Factor	1.00	0.95			0.95		1.00				1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Fr _t	1.00	1.00			1.00		1.00				1.00	0.85
Fl _t Protected	0.95	1.00			1.00		0.95				0.95	1.00
Satd. Flow (prot)	1636	3498			3406		1805				1718	1531
Fl _t Permitted	0.95	1.00			1.00		0.73				0.74	1.00
Satd. Flow (perm)	1636	3498			3406		1391				1324	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.35	0.35	0.35	0.81	0.81	0.81
Adj. Flow (vph)	168	924	11	0	1087	33	29	0	0	37	1	204
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	182
Lane Group Flow (vph)	168	935	0	0	1118	0	29	0	0	0	38	22
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm		Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4		4	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	18.4	96.9			72.5		11.1				11.1	11.1
Effective Green, g (s)	20.4	98.9			74.5		13.1				13.1	13.1
Actuated g/C Ratio	0.17	0.82			0.62		0.11				0.11	0.11
Clearance Time (s)	6.0	6.0			6.0		6.0				6.0	6.0
Vehicle Extension (s)	4.0	8.0			8.0		5.0				5.0	5.0
Lane Grp Cap (vph)	278	2882			2114		151				144	167
v/s Ratio Prot	c0.10	0.27			c0.33							
v/s Ratio Perm							0.02				c0.03	0.01
v/c Ratio	0.60	0.32			0.53		0.19				0.26	0.13
Uniform Delay, d ₁	46.1	2.5			12.8		48.6				49.0	48.3
Progression Factor	0.95	0.35			1.00		1.00				1.00	1.00
Incremental Delay, d ₂	3.6	0.3			1.0		1.3				2.0	0.8
Delay (s)	47.4	1.1			13.8		49.9				51.1	49.1
Level of Service	D	A			B		D				D	D
Approach Delay (s)		8.2			13.8			49.9			49.4	
Approach LOS		A			B			D			D	

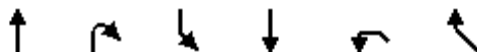
Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

6: Summer St/Elm St & Bay St

8/31/2017



Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↔			↔	↔	
Volume (veh/h)	160	30	60	110	55	80
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.74	0.74
Hourly flow rate (vph)	190	36	78	143	74	108
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			227		508	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			227		508	209
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		85	87
cM capacity (veh/h)			1340		495	833

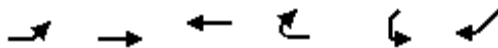
Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	226	221	182
Volume Left	0	78	74
Volume Right	36	0	108
cSH	1700	1340	652
Volume to Capacity	0.13	0.06	0.28
Queue Length 95th (ft)	0	5	29
Control Delay (s)	0.0	3.1	12.7
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	12.7
Approach LOS			B

Intersection Summary			
Average Delay		4.8	
Intersection Capacity Utilization	37.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

16: Bay St/bay Hill Rd & Shedd Rd

8/31/2017



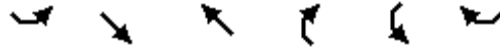
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	40	45	140	0	0	20
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.81	0.81	0.60	0.60	0.42	0.42
Hourly flow rate (vph)	49	56	233	0	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	233				388	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	233				388	233
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	1346				598	811

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	105	233	48
Volume Left	49	0	0
Volume Right	0	0	48
cSH	1346	1700	811
Volume to Capacity	0.04	0.14	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	3.8	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	3.8	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization		25.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Summer St

8/31/2017



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	505	240	0	130	15
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	574	282	0	188	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	282				868	282
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282				868	282
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				42	97
cM capacity (veh/h)	1286				324	759

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	580	282	210
Volume Left	6	0	188
Volume Right	0	0	22
cSH	1286	1700	344
Volume to Capacity	0.00	0.17	0.61
Queue Length 95th (ft)	0	0	96
Control Delay (s)	0.1	0.0	30.5
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	30.5
Approach LOS			D

Intersection Summary			
Average Delay		6.1	
Intersection Capacity Utilization	45.3%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

20: Summer St















8/31/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	0	0	115	0	145
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	0	0	135	0	210
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	135	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	861	1088	1630			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	135	210			
Volume Left	6	0	0			
Volume Right	0	0	210			
cSH	861	1700	1700			
Volume to Capacity	0.01	0.08	0.12			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			16.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

8/31/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	75	560	0	240	115
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	0	0	0	0	85	636	0	282	135
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	753	821	403	753	1072	350	418			722		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	753	821	403	753	1072	350	418			722		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	327	310	647	327	221	694	1147			885		
Direction, Lane #	SE 1	NW 1										
Volume Total	722	418										
Volume Left	0	0										
Volume Right	636	135										
cSH	1147	885										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			41.8%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

24: NH 132 (Park St) & Exit 19 SB On-ramp

8/31/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	40	355	75	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88
Hourly flow rate (vph)	0	0	47	418	85	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	597	85	85			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	597	85	85			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	451	974	1518			
Direction, Lane #	NB 1	SB 1				
Volume Total	465	85				
Volume Left	47	0				
Volume Right	0	0				
cSH	1518	1700				
Volume to Capacity	0.03	0.05				
Queue Length 95th (ft)	2	0				
Control Delay (s)	1.0	0.0				
Lane LOS	A					
Approach Delay (s)	1.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			30.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 SB Off-ramp & NH 132 (Park St)

8/31/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	75	0	0	190	205	5
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.87	0.87	0.84	0.84	0.75	0.75
Hourly flow rate (vph)	86	0	0	226	273	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			86		312	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			86		312	86
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		60	99
cM capacity (veh/h)			1516		680	973

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	86	226	280
Volume Left	0	0	273
Volume Right	0	0	7
cSH	1700	1700	685
Volume to Capacity	0.05	0.13	0.41
Queue Length 95th (ft)	0	0	50
Control Delay (s)	0.0	0.0	13.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.8
Approach LOS			B

Intersection Summary			
Average Delay		6.5	
Intersection Capacity Utilization	28.3%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

31: Tilton Rd (NH 140)

8/31/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1050	890	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1141	967	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	967				1538	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	967				1538	484
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	708				106	529

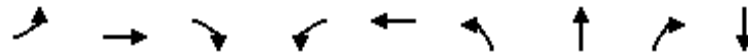
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	571	571	645	322	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.34	0.34	0.38	0.19	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			32.4%	ICU Level of Service	A
Analysis Period (min)			15		

Queues

901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

8/31/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	440	696	462	576	195	196	201	10
v/c Ratio	0.03	0.74	0.68	0.81	0.46	0.61	0.61	0.21	0.03
Control Delay	40.2	35.3	11.3	41.0	10.3	43.2	43.3	2.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	35.3	11.3	41.0	10.3	43.2	43.3	2.0	0.1
Queue Length 50th (ft)	3	208	122	231	110	105	105	0	0
Queue Length 95th (ft)	14	#375	318	#467	357	#221	#222	26	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	256	696	1033	619	1265	344	344	1003	352
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.63	0.67	0.75	0.46	0.57	0.57	0.20	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

8/31/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	405	640	425	525	5	360	0	185	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1860		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1860		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	440	696	462	571	5	391	0	201	5	0	5
RTOR Reduction (vph)	0	0	141	0	0	0	0	0	109	0	10	0
Lane Group Flow (vph)	5	440	555	462	576	0	195	196	92	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	1.1	30.2	50.3	25.3	54.4		14.1	14.1	39.4		0.8	
Effective Green, g (s)	3.1	32.2	52.3	27.3	56.4		16.1	16.1	43.4		2.8	
Actuated g/C Ratio	0.03	0.34	0.55	0.29	0.60		0.17	0.17	0.46		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	58	635	877	511	1111		286	286	727		50	
v/s Ratio Prot	0.00	c0.24	c0.35	c0.26	0.31		0.12	0.12	0.06		c0.00	
v/s Ratio Perm												
v/c Ratio	0.09	0.69	0.63	0.90	0.52		0.68	0.69	0.13		0.01	
Uniform Delay, d1	44.3	26.8	14.5	32.3	11.1		36.7	36.8	14.6		44.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	3.3	1.5	19.3	0.4		6.6	6.7	0.1		0.0	
Delay (s)	44.9	30.1	15.9	51.6	11.5		43.3	43.4	14.7		44.5	
Level of Service	D	C	B	D	B		D	D	B		D	
Approach Delay (s)		21.5			29.3			33.6			44.5	
Approach LOS		C			C			C			D	

Intersection Summary

HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	94.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 902: Shaker Rd & Development Driveway/Shaker Road

8/31/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	425	40	40	1025	100	120
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	462	43	43	1114	109	130
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			505		1685	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			505		1685	484
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		0	78
cM capacity (veh/h)			1059		99	583

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	505	43	1114	239
Volume Left	0	43	0	109
Volume Right	43	0	0	130
cSH	1700	1059	1700	218
Volume to Capacity	0.30	0.04	0.66	1.10
Queue Length 95th (ft)	0	3	0	272
Control Delay (s)	0.0	8.5	0.0	97.2
Lane LOS		A		F
Approach Delay (s)	0.0	0.3		97.2
Approach LOS				F

Intersection Summary			
Average Delay		12.4	
Intersection Capacity Utilization		66.2%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↙
Volume (veh/h)	185	16	30	290	6	20
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.42	0.42
Hourly flow rate (vph)	231	20	33	322	14	48
Pedestrians					5	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			256		635	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			256		635	246
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	94
cM capacity (veh/h)			1315		432	794
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	251	356	62			
Volume Left	0	33	14			
Volume Right	20	0	48			
cSH	1700	1315	665			
Volume to Capacity	0.15	0.03	0.09			
Queue Length 95th (ft)	0	2	8			
Control Delay (s)	0.0	1.0	11.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.0	11.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			41.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	82	1326	1435	598	288	163
v/c Ratio	0.30	0.55	0.84	0.51	0.72	0.33
Control Delay	26.4	6.5	23.1	3.0	36.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	6.5	23.1	3.0	36.7	6.5
Queue Length 50th (ft)	28	116	272	0	108	0
Queue Length 95th (ft)	64	159	#427	51	#208	43
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	304	2398	1701	1169	401	489
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.55	0.84	0.51	0.72	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↗	↘	↙	↘
Volume (vph)	75	1220	1320	550	265	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	3539	3486	1768	2006	1794
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	3539	3486	1768	2006	1794
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1326	1435	598	288	163
RTOR Reduction (vph)	0	0	0	316	0	131
Lane Group Flow (vph)	82	1326	1435	282	288	32
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	7.5	42.1	28.6	28.6	10.9	10.9
Effective Green, g (s)	9.5	44.1	30.6	30.6	12.9	12.9
Actuated g/C Ratio	0.15	0.68	0.47	0.47	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	241	2401	1641	832	398	356
v/s Ratio Prot	0.05	c0.37	c0.41		c0.14	0.02
v/s Ratio Perm				0.16		
v/c Ratio	0.34	0.55	0.87	0.34	0.72	0.09
Uniform Delay, d1	24.9	5.4	15.5	10.8	24.4	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.9	6.8	1.1	6.8	0.2
Delay (s)	26.1	6.3	22.3	11.9	31.2	21.4
Level of Service	C	A	C	B	C	C
Approach Delay (s)		7.4	19.2		27.7	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	207	880	527	255	1168	163	739	250	332	511	158	125
v/c Ratio	0.87	0.81	0.57	0.75	0.89	0.15	0.91	0.80	0.49	0.85	0.90	0.21
Control Delay	83.4	45.4	8.1	59.9	44.8	2.3	59.9	66.7	11.1	62.3	99.2	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.4	45.4	8.1	59.9	44.8	2.3	59.9	66.7	11.1	62.3	99.2	1.5
Queue Length 50th (ft)	159	328	84	187	438	3	288	187	61	200	123	0
Queue Length 95th (ft)	#295	407	142	#308	#540	31	#403	#315	111	#290	#251	7
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	239	1107	928	338	1323	1062	813	314	672	601	176	595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.79	0.57	0.75	0.88	0.15	0.91	0.80	0.49	0.85	0.90	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	190	810	485	235	1075	150	680	230	305	470	145	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	880	527	255	1168	163	739	250	332	511	158	125
RTOR Reduction (vph)	0	0	86	0	0	63	0	0	84	0	0	92
Lane Group Flow (vph)	207	880	441	255	1168	100	739	250	248	511	158	33
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	Prot	NA	pt+ov	Prot	NA	custom	Prot	NA	pt+ov	Prot	NA	custom
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases						2 3						1 8
Actuated Green, G (s)	14.0	34.3	62.8	23.2	43.5	68.9	28.5	19.1	42.3	19.4	10.0	30.0
Effective Green, g (s)	16.0	36.3	66.8	25.2	45.5	70.9	30.5	21.1	46.3	21.4	12.0	32.0
Actuated g/C Ratio	0.13	0.30	0.56	0.21	0.38	0.59	0.25	0.18	0.39	0.18	0.10	0.27
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	239	1086	835	338	1308	1003	814	316	589	600	176	455
v/s Ratio Prot	0.12	c0.24	0.29	0.16	c0.34		c0.23	c0.14	0.16	0.15	0.09	
v/s Ratio Perm						0.06						0.02
v/c Ratio	0.87	0.81	0.53	0.75	0.89	0.10	0.91	0.79	0.42	0.85	0.90	0.07
Uniform Delay, d1	51.0	38.7	16.7	44.5	35.0	10.7	43.4	47.3	27.0	47.8	53.4	32.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	27.0	6.6	1.2	9.8	9.6	0.1	14.5	14.4	1.0	12.2	41.8	0.1
Delay (s)	78.0	45.2	17.9	54.3	44.5	10.8	57.9	61.7	28.1	60.0	95.2	33.0
Level of Service	E	D	B	D	D	B	E	E	C	E	F	C
Approach Delay (s)		40.5			42.6			51.1			62.7	
Approach LOS		D			D			D			E	

Intersection Summary

HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	185	1446	27	1375	74	14	14	86	267
v/c Ratio	0.68	0.56	0.19	0.66	0.46	0.05	0.04	0.48	0.64
Control Delay	63.4	10.5	58.6	20.0	59.7	46.8	0.2	59.6	16.1
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	10.8	58.6	20.0	59.7	46.8	0.2	59.6	16.1
Queue Length 50th (ft)	147	300	22	385	58	10	0	68	20
Queue Length 95th (ft)	227	434	53	534	85	24	0	97	48
Internal Link Dist (ft)		731		821		314		635	
Turn Bay Length (ft)	500		250		125		125		275
Base Capacity (vph)	310	2601	163	2069	213	336	389	238	469
Starvation Cap Reductn	0	450	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.67	0.17	0.66	0.35	0.04	0.04	0.36	0.57

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

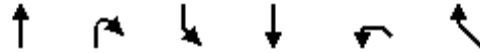


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗		↗	↗
Volume (vph)	170	1265	65	25	1205	60	55	10	10	55	10	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Fr _t	1.00	0.99		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1668	3544		1770	3397		1805	1900	1615		1728	1531
Fl _t Permitted	0.95	1.00		0.95	1.00		0.64	1.00	1.00		0.75	1.00
Satd. Flow (perm)	1668	3544		1770	3397		1207	1900	1615		1348	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.75	0.75	0.75
Adj. Flow (vph)	185	1375	71	27	1310	65	74	14	14	73	13	267
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	12	0	0	209
Lane Group Flow (vph)	185	1444	0	27	1373	0	74	14	2	0	86	58
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	19.4	90.9		5.6	77.1		15.5	15.5	15.5		15.5	15.5
Effective Green, g (s)	21.4	92.9		7.6	79.1		17.5	17.5	17.5		17.5	17.5
Actuated g/C Ratio	0.16	0.71		0.06	0.61		0.13	0.13	0.13		0.13	0.13
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	8.0		4.0	8.0		5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	274	2532		103	2066		162	255	217		181	206
v/s Ratio Prot	c0.11	0.41		0.02	c0.40			0.01				
v/s Ratio Perm							0.06		0.00		c0.06	0.04
v/c Ratio	0.68	0.57		0.26	0.66		0.46	0.05	0.01		0.48	0.28
Uniform Delay, d ₁	51.0	8.9		58.5	16.7		51.9	49.0	48.7		52.0	50.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d ₂	7.0	0.9		1.9	1.7		4.2	0.2	0.0		4.1	1.6
Delay (s)	58.0	9.9		60.4	18.4		56.1	49.2	48.8		56.1	52.2
Level of Service	E	A		E	B		E	D	D		E	D
Approach Delay (s)		15.3			19.2			54.1			53.1	
Approach LOS		B			B			D			D	

Intersection Summary

HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
6: Summer St/Elm St & Bay St

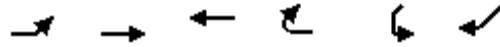


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↘	↙
Volume (veh/h)	145	70	91	205	50	56
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	181	88	101	228	54	60
Pedestrians					6	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			275		661	231
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			275		661	231
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		86	93
cM capacity (veh/h)			1293		395	809

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	269	329	114
Volume Left	0	101	54
Volume Right	88	0	60
cSH	1700	1293	541
Volume to Capacity	0.16	0.08	0.21
Queue Length 95th (ft)	0	6	20
Control Delay (s)	0.0	3.0	13.4
Lane LOS		A	B
Approach Delay (s)	0.0	3.0	13.4
Approach LOS			B

Intersection Summary			
Average Delay		3.5	
Intersection Capacity Utilization	44.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Volume (veh/h)	10	120	90	0	0	30
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.77	0.77	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	13	156	112	0	0	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	112				294	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				294	112
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1477				696	946

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	169	112	53
Volume Left	13	0	0
Volume Right	0	0	53
cSH	1477	1700	946
Volume to Capacity	0.01	0.07	0.06
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.0
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.0
Approach LOS			A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization	23.5%		ICU Level of Service A
Analysis Period (min)	15		



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	255	460	0	115	10
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	287	489	0	149	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	489				798	489
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489				798	489
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				58	98
cM capacity (veh/h)	1079				355	583

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	298	489	162
Volume Left	11	0	149
Volume Right	0	0	13
cSH	1079	1700	366
Volume to Capacity	0.01	0.29	0.44
Queue Length 95th (ft)	1	0	55
Control Delay (s)	0.4	0.0	22.4
Lane LOS	A		C
Approach Delay (s)	0.4	0.0	22.4
Approach LOS			C















Intersection Summary			
Average Delay		4.0	
Intersection Capacity Utilization		37.9%	ICU Level of Service
Analysis Period (min)		15	A



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	0	0	145	0	125
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	0	0	154	0	162
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	154	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	154	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	840	1088	1636			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	154	162			
Volume Left	11	0	0			
Volume Right	0	0	162			
cSH	840	1700	1700			
Volume to Capacity	0.01	0.09	0.10			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			17.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 8/31/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	160	210	0	460	145
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	0	0	180	236	0	489	154
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	864	941	298	864	982	566	644			416		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	864	941	298	864	982	566	644			416		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	275	264	742	275	250	524	946			1154		
Direction, Lane #	SE 1	NW 1										
Volume Total	416	644										
Volume Left	0	0										
Volume Right	236	154										
cSH	946	1154										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			36.4%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 24: NH 132 (Park St) & Exit 19 SB On-ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	5	605	160	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.89	0.89
Hourly flow rate (vph)	0	0	5	644	180	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	834	180	180			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	834	180	180			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	337	863	1408			
Direction, Lane #	NB 1	SB 1				
Volume Total	649	180				
Volume Left	5	0				
Volume Right	0	0				
cSH	1408	1700				
Volume to Capacity	0.00	0.11				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A					
Approach Delay (s)	0.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			39.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 SB Off-ramp & NH 132 (Park St)



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	160	0	0	130	480	30
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.89	0.89	0.74	0.74	0.94	0.94
Hourly flow rate (vph)	180	0	0	176	511	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			180		355	180
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			180		355	180
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		21	96
cM capacity (veh/h)			1408		647	868

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	180	176	543
Volume Left	0	0	511
Volume Right	0	0	32
cSH	1700	1700	657
Volume to Capacity	0.11	0.10	0.83
Queue Length 95th (ft)	0	0	220
Control Delay (s)	0.0	0.0	31.1
Lane LOS			D
Approach Delay (s)	0.0	0.0	31.1
Approach LOS			D

Intersection Summary			
Average Delay		18.8	
Intersection Capacity Utilization	43.5%		ICU Level of Service A
Analysis Period (min)		15	

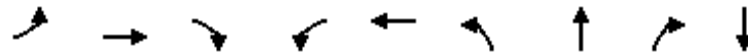
HCM Unsignalized Intersection Capacity Analysis
 31: Tilton Rd (NH 140)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Volume (veh/h)	0	1010	1210	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1098	1315	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	1315				1864	658
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1315				1864	658
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	522				64	407

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	549	549	877	438	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.32	0.32	0.52	0.26	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			36.8%	ICU Level of Service	A
Analysis Period (min)			15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	739	353	185	630	342	343	435	10
v/c Ratio	0.04	0.87	0.28	0.73	0.55	0.79	0.79	0.54	0.03
Control Delay	46.8	37.6	1.1	60.3	14.8	49.5	49.6	12.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	37.6	1.1	60.3	14.8	49.5	49.6	12.8	0.2
Queue Length 50th (ft)	3	391	0	113	185	210	211	100	0
Queue Length 95th (ft)	16	#734	25	#250	465	#411	#412	184	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	128	907	1288	256	1160	453	453	804	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.81	0.27	0.72	0.54	0.75	0.76	0.54	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

Synchro 8 Report
 8/31/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	680	325	170	575	5	630	0	400	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	739	353	185	625	5	685	0	435	5	0	5
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	126	0	10	0
Lane Group Flow (vph)	5	739	258	185	630	0	342	343	309	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	0.9	47.3	76.5	11.8	58.2		23.2	23.2	35.0		0.9	
Effective Green, g (s)	2.9	49.3	78.5	13.8	60.2		25.2	25.2	39.0		2.9	
Actuated g/C Ratio	0.03	0.46	0.73	0.13	0.56		0.24	0.24	0.36		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	47	856	1159	227	1045		395	395	575		45	
v/s Ratio Prot	0.00	c0.40	0.16	c0.10	0.34		0.20	c0.20	0.20		c0.00	
v/s Ratio Perm												
v/c Ratio	0.11	0.86	0.22	0.81	0.60		0.87	0.87	0.54		0.01	
Uniform Delay, d1	50.9	25.9	4.6	45.5	15.6		39.4	39.4	27.0		50.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.0	9.0	0.1	19.7	1.0		17.7	17.9	1.0		0.1	
Delay (s)	51.9	34.9	4.7	65.1	16.6		57.0	57.3	27.9		50.8	
Level of Service	D	C	A	E	B		E	E	C		D	
Approach Delay (s)		25.3			27.6			45.8			50.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	107.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	940	95	155	340	35	90
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1022	103	168	370	38	98
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			1125		1780	1073
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1125		1780	1073
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			73		42	63
cM capacity (veh/h)			621		66	267

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1125	168	370	136
Volume Left	0	168	0	38
Volume Right	103	0	0	98
cSH	1700	621	1700	235
Volume to Capacity	0.66	0.27	0.22	0.58
Queue Length 95th (ft)	0	27	0	81
Control Delay (s)	0.0	12.9	0.0	51.6
Lane LOS		B		F
Approach Delay (s)	0.0	4.1		51.6
Approach LOS				F

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization		77.2%	ICU Level of Service D
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

1: Elm St & Granite St

7/25/2017

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↗			↖	↘	↗
Volume (veh/h)	255	10	15	175	10	25
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.61	0.61
Hourly flow rate (vph)	304	12	19	227	16	41
Pedestrians					4	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			319		580	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			319		580	314
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		96	94
cM capacity (veh/h)			1236		465	722
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	315	247	57			
Volume Left	0	19	16			
Volume Right	12	0	41			
cSH	1700	1236	623			
Volume to Capacity	0.19	0.02	0.09			
Queue Length 95th (ft)	0	1	8			
Control Delay (s)	0.0	0.8	11.4			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.8	11.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			31.6%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

2: US 3 / NH 11 & I-93 SB Ramps

7/25/2017



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	54	989	853	902	424	179
v/c Ratio	0.20	0.50	0.59	0.72	0.76	0.29
Control Delay	22.6	8.8	14.0	13.1	30.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	8.8	14.0	13.1	30.1	4.5
Queue Length 50th (ft)	17	101	155	364	136	0
Queue Length 95th (ft)	42	143	m217	m446	#257	37
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	320	1978	1446	1253	573	638
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.50	0.59	0.72	0.74	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: US 3 / NH 11 & I-93 SB Ramps

7/25/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	50	910	785	830	390	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1604	3438	3419	1734	1912	1711
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1604	3438	3419	1734	1912	1711
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	989	853	902	424	179
RTOR Reduction (vph)	0	0	0	556	0	127
Lane Group Flow (vph)	54	989	853	346	424	52
Heavy Vehicles (%)	5%	5%	4%	4%	7%	7%
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	5.5	32.5	21.0	21.0	15.5	15.5
Effective Green, g (s)	7.5	34.5	23.0	23.0	17.5	17.5
Actuated g/C Ratio	0.12	0.58	0.38	0.38	0.29	0.29
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	200	1976	1310	664	557	499
v/s Ratio Prot	0.03	c0.29	c0.25		c0.22	0.03
v/s Ratio Perm				0.20		
v/c Ratio	0.27	0.50	0.65	0.52	0.76	0.10
Uniform Delay, d1	23.8	7.6	15.2	14.3	19.3	15.5
Progression Factor	1.00	1.00	0.83	9.27	1.00	1.00
Incremental Delay, d2	1.0	0.9	1.4	1.4	6.5	0.1
Delay (s)	24.8	8.5	14.0	133.5	25.8	15.7
Level of Service	C	A	B	F	C	B
Approach Delay (s)		9.4	75.5		22.8	
Approach LOS		A	E		C	

Intersection Summary

HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: NH 140/I-93 NB Ramps & US 3 / NH 11

7/25/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	87	668	658	245	1087	65	614	185	239	418	288	54
v/c Ratio	0.53	0.66	0.82	0.86	0.85	0.06	0.91	0.48	0.36	0.71	0.92	0.09
Control Delay	76.9	36.4	13.9	61.7	29.7	1.4	65.2	46.9	7.5	53.4	82.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.9	36.4	13.9	61.7	29.7	1.4	65.2	46.9	7.5	53.4	82.9	0.3
Queue Length 50th (ft)	71	214	97	190	403	8	243	129	30	156	222	0
Queue Length 95th (ft)	122	262	125	#346	474	m4	#356	206	64	211	#389	0
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	174	1076	834	286	1297	1042	674	384	672	621	313	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.62	0.79	0.86	0.84	0.06	0.91	0.48	0.36	0.67	0.92	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: NH 140/I-93 NB Ramps & US 3 / NH 11

7/25/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	615	605	225	1000	60	565	170	220	385	265	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1745	3490	1457	1611	3452	1699	3114	1748	1485	3242	1701	1645
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	668	658	245	1087	65	614	185	239	418	288	54
RTOR Reduction (vph)	0	0	73	0	0	27	0	0	82	0	0	37
Lane Group Flow (vph)	87	668	585	245	1087	38	614	185	157	418	288	17
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	6%	6%	6%	8%	8%	8%
Turn Type	Prot	NA	pt+ov	Prot	NA	custom	Prot	NA	pt+ov	Prot	NA	custom
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases						2 3						1 8
Actuated Green, G (s)	9.3	32.6	56.6	19.3	42.6	68.3	24.0	24.4	43.7	19.7	20.1	35.4
Effective Green, g (s)	11.3	34.6	60.6	21.3	44.6	70.3	26.0	26.4	47.7	21.7	22.1	37.4
Actuated g/C Ratio	0.09	0.29	0.51	0.18	0.37	0.59	0.22	0.22	0.40	0.18	0.18	0.31
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	4.0		4.0	4.0		4.0	3.0		4.0	3.0	
Lane Grp Cap (vph)	164	1006	735	285	1282	995	674	384	590	586	313	512
v/s Ratio Prot	0.05	0.19	c0.40	0.15	c0.31		c0.20	0.11	0.11	0.13	c0.17	
v/s Ratio Perm						0.02						0.01
v/c Ratio	0.53	0.66	0.80	0.86	0.85	0.04	0.91	0.48	0.27	0.71	0.92	0.03
Uniform Delay, d1	51.8	37.6	24.6	47.9	34.6	10.5	45.9	40.8	24.4	46.2	48.1	28.7
Progression Factor	1.27	0.90	0.61	0.76	0.68	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	2.9	5.3	19.4	6.0	0.0	16.8	1.0	0.2	4.4	31.0	0.0
Delay (s)	69.0	36.5	20.3	55.9	29.4	9.6	62.7	41.8	24.6	50.6	79.1	28.7
Level of Service	E	D	C	E	C	A	E	D	C	D	E	C
Approach Delay (s)		31.0			33.1			50.2			59.9	
Approach LOS		C			C			D			E	

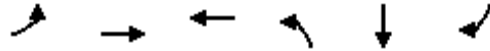
Intersection Summary

HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

4: Shaw's/NH 132 & US 3 / NH 11

7/25/2017



Lane Group	EBL	EBT	WBT	NBL	SBT	SBR
Lane Group Flow (vph)	185	1027	1228	29	44	222
v/c Ratio	0.64	0.36	0.59	0.19	0.30	0.60
Control Delay	48.1	1.2	17.1	49.5	52.8	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	1.2	17.1	49.5	52.8	13.4
Queue Length 50th (ft)	107	23	285	21	32	0
Queue Length 95th (ft)	m190	37	445	18	59	46
Internal Link Dist (ft)		731	821		635	
Turn Bay Length (ft)	500			125		275
Base Capacity (vph)	346	2870	2075	242	230	451
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.36	0.59	0.12	0.19	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Shaw's/NH 132 & US 3 / NH 11

7/25/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘		↗	↗	↗		↗	↗
Volume (vph)	170	935	10	0	1095	35	10	0	0	35	1	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0			4.0		4.0				4.0	4.0
Lane Util. Factor	1.00	0.95			0.95		1.00				1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00				1.00	1.00
Fr _t	1.00	1.00			1.00		1.00				1.00	0.85
Fl _t Protected	0.95	1.00			1.00		0.95				0.95	1.00
Satd. Flow (prot)	1636	3498			3405		1805				1717	1531
Fl _t Permitted	0.95	1.00			1.00		0.73				0.73	1.00
Satd. Flow (perm)	1636	3498			3405		1384				1317	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.35	0.35	0.35	0.81	0.81	0.81
Adj. Flow (vph)	185	1016	11	0	1190	38	29	0	0	43	1	222
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	197
Lane Group Flow (vph)	185	1027	0	0	1226	0	29	0	0	0	44	25
Confl. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm		Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4		4	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	19.4	96.5			71.1		11.5				11.5	11.5
Effective Green, g (s)	21.4	98.5			73.1		13.5				13.5	13.5
Actuated g/C Ratio	0.18	0.82			0.61		0.11				0.11	0.11
Clearance Time (s)	6.0	6.0			6.0		6.0				6.0	6.0
Vehicle Extension (s)	4.0	8.0			8.0		5.0				5.0	5.0
Lane Grp Cap (vph)	291	2871			2074		155				148	172
v/s Ratio Prot	c0.11	0.29			c0.36							
v/s Ratio Perm							0.02				c0.03	0.02
v/c Ratio	0.64	0.36			0.59		0.19				0.30	0.15
Uniform Delay, d ₁	45.7	2.7			14.3		48.3				48.9	48.0
Progression Factor	0.88	0.31			1.00		1.00				1.00	1.00
Incremental Delay, d ₂	4.1	0.3			1.2		1.2				2.3	0.8
Delay (s)	44.5	1.1			15.6		49.5				51.2	48.9
Level of Service	D	A			B		D				D	D
Approach Delay (s)		7.8			15.6			49.5			49.3	
Approach LOS		A			B			D			D	

Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

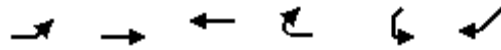
HCM Unsignalized Intersection Capacity Analysis
6: Summer St/Elm St & Bay St

7/25/2017

	↑	↖	↙	↓	↘	↗
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↗			↖	↘	↗
Volume (veh/h)	175	35	65	120	60	90
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.84	0.84	0.77	0.77	0.74	0.74
Hourly flow rate (vph)	208	42	84	156	81	122
Pedestrians					1	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			251		555	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			251		555	230
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		82	85
cM capacity (veh/h)			1313		462	811
Direction, Lane #	NB 1	SB 1	NW 1			
Volume Total	250	240	203			
Volume Left	0	84	81			
Volume Right	42	0	122			
cSH	1700	1313	623			
Volume to Capacity	0.15	0.06	0.33			
Queue Length 95th (ft)	0	5	35			
Control Delay (s)	0.0	3.1	13.5			
Lane LOS		A	B			
Approach Delay (s)	0.0	3.1	13.5			
Approach LOS			B			
Intersection Summary						
Average Delay			5.1			
Intersection Capacity Utilization			40.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd

7/25/2017



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	40	50	155	0	0	20
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.81	0.81	0.60	0.60	0.42	0.42
Hourly flow rate (vph)	49	62	258	0	0	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	258				419	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	258				419	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	1318				574	786

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	111	258	48
Volume Left	49	0	0
Volume Right	0	0	48
cSH	1318	1700	786
Volume to Capacity	0.04	0.15	0.06
Queue Length 95th (ft)	3	0	5
Control Delay (s)	3.7	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.9
Approach LOS			A

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		26.3%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 19: NH 132 (Park St) & Summer St

7/25/2017



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	5	555	265	0	140	15
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	631	312	0	203	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	312				954	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312				954	312
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				30	97
cM capacity (veh/h)	1254				288	731

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	636	312	225
Volume Left	6	0	203
Volume Right	0	0	22
cSH	1254	1700	306
Volume to Capacity	0.00	0.18	0.73
Queue Length 95th (ft)	0	0	135
Control Delay (s)	0.1	0.0	43.4
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	43.4
Approach LOS			E

Intersection Summary			
Average Delay		8.4	
Intersection Capacity Utilization	48.5%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

20: Summer St















7/25/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶			↷		↶
Volume (veh/h)	5	0	0	125	0	155
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.69	0.69
Hourly flow rate (vph)	6	0	0	147	0	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	147	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	848	1088	1630			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	147	225			
Volume Left	6	0	0			
Volume Right	0	0	225			
cSH	848	1700	1700			
Volume to Capacity	0.01	0.09	0.13			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.3	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.3	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			16.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

7/25/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	80	615	0	265	125
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	0	0	0	0	91	699	0	312	147
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	826	899	440	826	1175	385	459			790		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	826	899	440	826	1175	385	459			790		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	292	279	617	292	192	663	1107			835		
Direction, Lane #	SE 1	NW 1										
Volume Total	790	459										
Volume Left	0	0										
Volume Right	699	147										
cSH	1107	835										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			45.5%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

24: NH 132 (Park St) & Exit 19 SB On-ramp

7/25/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	45	390	80	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88
Hourly flow rate (vph)	0	0	53	459	91	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	656	91	91			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	91	91			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	96			
cM capacity (veh/h)	415	967	1510			
Direction, Lane #	NB 1	SB 1				
Volume Total	512	91				
Volume Left	53	0				
Volume Right	0	0				
cSH	1510	1700				
Volume to Capacity	0.04	0.05				
Queue Length 95th (ft)	3	0				
Control Delay (s)	1.1	0.0				
Lane LOS	A					
Approach Delay (s)	1.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			33.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 SB Off-ramp & NH 132 (Park St)

7/25/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	80	0	0	210	225	5
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.87	0.87	0.84	0.84	0.75	0.75
Hourly flow rate (vph)	92	0	0	250	300	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			92		342	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		342	92
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		54	99
cM capacity (veh/h)			1509		654	965

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	92	250	307
Volume Left	0	0	300
Volume Right	0	0	7
cSH	1700	1700	659
Volume to Capacity	0.05	0.15	0.47
Queue Length 95th (ft)	0	0	62
Control Delay (s)	0.0	0.0	15.1
Lane LOS			C
Approach Delay (s)	0.0	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay		7.2	
Intersection Capacity Utilization		30.5%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

31: Tilton Rd (NH 140)

7/25/2017

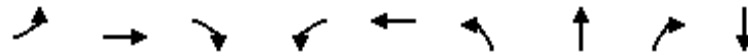


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	1100	960	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1196	1043	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	1043				1641	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1043				1641	522
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	662				91	500
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	598	598	696	348	0	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.35	0.35	0.41	0.20	0.00	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS					A	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			33.7%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

7/25/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	489	701	462	641	201	201	201	10
v/c Ratio	0.03	0.79	0.68	0.82	0.51	0.64	0.64	0.21	0.03
Control Delay	40.4	38.4	11.3	42.3	11.0	45.1	45.1	2.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	38.4	11.3	42.3	11.0	45.1	45.1	2.0	0.1
Queue Length 50th (ft)	3	240	125	234	129	110	110	0	0
Queue Length 95th (ft)	14	#463	325	#467	418	#230	#230	26	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	249	678	1042	602	1255	335	335	983	349
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.72	0.67	0.77	0.51	0.60	0.60	0.20	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

7/25/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	450	645	425	585	5	370	0	185	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	489	701	462	636	5	402	0	201	5	0	5
RTOR Reduction (vph)	0	0	140	0	0	0	0	0	110	0	10	0
Lane Group Flow (vph)	5	489	561	462	641	0	201	201	91	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	1.2	31.7	51.8	25.6	56.1		14.1	14.1	39.7		0.9	
Effective Green, g (s)	3.2	33.7	53.8	27.6	58.1		16.1	16.1	43.7		2.9	
Actuated g/C Ratio	0.03	0.35	0.56	0.29	0.60		0.17	0.17	0.45		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	58	651	884	507	1122		281	281	718		51	
v/s Ratio Prot	0.00	c0.26	c0.35	c0.26	0.34		0.12	0.12	0.06		c0.00	
v/s Ratio Perm												
v/c Ratio	0.09	0.75	0.63	0.91	0.57		0.72	0.72	0.13		0.01	
Uniform Delay, d1	45.1	27.6	14.5	33.2	11.6		37.9	37.9	15.2		45.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	4.9	1.5	20.6	0.7		8.4	8.4	0.1		0.0	
Delay (s)	45.8	32.5	16.0	53.8	12.3		46.3	46.3	15.3		45.3	
Level of Service	D	C	B	D	B		D	D	B		D	
Approach Delay (s)		22.9			29.6			36.0			45.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	96.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 902: Shaker Rd & Development Driveway/Shaker Road

7/25/2017



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	425	40	45	1025	100	130
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	462	43	49	1114	109	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			505		1696	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			505		1696	484
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		0	76
cM capacity (veh/h)			1059		97	583

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	505	49	1114	250
Volume Left	0	49	0	109
Volume Right	43	0	0	141
cSH	1700	1059	1700	223
Volume to Capacity	0.30	0.05	0.66	1.12
Queue Length 95th (ft)	0	4	0	287
Control Delay (s)	0.0	8.6	0.0	97.9
Lane LOS		A		F
Approach Delay (s)	0.0	0.4		97.9
Approach LOS				F

Intersection Summary			
Average Delay		13.0	
Intersection Capacity Utilization		66.2%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 1: Elm St & Granite St

	↑	↖	↗	↓	↙	↘
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↖			↗	↘	↙
Volume (veh/h)	205	16	30	320	6	20
Sign Control	Free			Free	Stop	
Grade	-4%			4%	6%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.42	0.42
Hourly flow rate (vph)	256	20	33	356	14	48
Pedestrians					5	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			281		693	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			281		693	271
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	94
cM capacity (veh/h)			1287		399	769
Direction, Lane #	NB 1	SB 1	SW 1			
Volume Total	276	389	62			
Volume Left	0	33	14			
Volume Right	20	0	48			
cSH	1700	1287	633			
Volume to Capacity	0.16	0.03	0.10			
Queue Length 95th (ft)	0	2	8			
Control Delay (s)	0.0	0.9	11.3			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.9	11.3			
Approach LOS			B			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			43.9%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
2: US 3 / NH 11 & I-93 SB Ramps



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	92	1457	1571	641	315	179
v/c Ratio	0.33	0.61	0.93	0.54	0.79	0.36
Control Delay	26.9	7.1	30.5	3.1	41.1	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.9	7.1	30.5	3.1	41.1	6.4
Queue Length 50th (ft)	32	136	~364	0	119	0
Queue Length 95th (ft)	69	186	#490	53	#236	45
Internal Link Dist (ft)		414	1435		506	
Turn Bay Length (ft)	350			200		150
Base Capacity (vph)	304	2395	1690	1187	401	502
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.61	0.93	0.54	0.79	0.36

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 2: US 3 / NH 11 & I-93 SB Ramps



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	85	1340	1445	590	290	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	16	16	16
Grade (%)		0%	3%		0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1652	3539	3486	1768	2006	1794
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1652	3539	3486	1768	2006	1794
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	1457	1571	641	315	179
RTOR Reduction (vph)	0	0	0	342	0	143
Lane Group Flow (vph)	92	1457	1571	299	315	36
Turn Type	Prot	NA	NA	Perm	Prot	Prot
Protected Phases	1	6	2		3	3
Permitted Phases				2		
Actuated Green, G (s)	7.7	42.0	28.3	28.3	11.0	11.0
Effective Green, g (s)	9.7	44.0	30.3	30.3	13.0	13.0
Actuated g/C Ratio	0.15	0.68	0.47	0.47	0.20	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	246	2395	1625	824	401	358
v/s Ratio Prot	0.06	c0.41	c0.45		c0.16	0.02
v/s Ratio Perm				0.17		
v/c Ratio	0.37	0.61	0.97	0.36	0.79	0.10
Uniform Delay, d1	24.9	5.8	16.9	11.1	24.7	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	1.2	15.7	1.2	10.3	0.2
Delay (s)	26.2	6.9	32.6	12.4	35.0	21.4
Level of Service	C	A	C	B	C	C
Approach Delay (s)		8.1	26.7		30.0	
Approach LOS		A	C		C	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: NH 140/I-93 NB Ramps & US 3 / NH 11



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	973	571	277	1293	179	783	261	353	565	168	136
v/c Ratio	0.95	0.88	0.63	0.83	0.98	0.17	0.98	0.83	0.53	0.96	0.95	0.23
Control Delay	99.6	49.8	9.9	66.6	56.7	3.5	71.8	70.4	12.0	77.6	111.0	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.6	49.8	9.9	66.6	56.7	3.5	71.8	70.4	12.0	77.6	111.0	2.2
Queue Length 50th (ft)	178	375	111	207	514	13	311	197	69	226	132	0
Queue Length 95th (ft)	#336	#487	178	#349	#673	43	#441	#336	123	#337	#272	15
Internal Link Dist (ft)		1435			731			2418			506	
Turn Bay Length (ft)	600		500	500		350	300		275	500		300
Base Capacity (vph)	239	1107	911	335	1323	1060	801	314	669	589	176	595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.88	0.63	0.83	0.98	0.17	0.98	0.83	0.53	0.96	0.95	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 3: NH 140/I-93 NB Ramps & US 3 / NH 11



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘↗	↑	↗	↘↗	↑	↗
Volume (vph)	210	895	525	255	1190	165	720	240	325	520	155	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	10	10	12	15	11	12	12	12	11	15
Grade (%)		-3%			3%			5%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1796	3592	1500	1611	3452	1699	3204	1799	1529	3367	1766	1708
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	973	571	277	1293	179	783	261	353	565	168	136
RTOR Reduction (vph)	0	0	74	0	0	56	0	0	84	0	0	100
Lane Group Flow (vph)	228	973	497	277	1293	123	783	261	269	565	168	36
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	Prot	NA	pt+ov	Prot	NA	custom	Prot	NA	pt+ov	Prot	NA	custom
Protected Phases	1	6	6 7	5	2		7	4	4 5	3	8	
Permitted Phases						2 3						1 8
Actuated Green, G (s)	14.0	35.0	63.0	23.0	44.0	69.0	28.0	19.0	42.0	19.0	10.0	30.0
Effective Green, g (s)	16.0	37.0	67.0	25.0	46.0	71.0	30.0	21.0	46.0	21.0	12.0	32.0
Actuated g/C Ratio	0.13	0.31	0.56	0.21	0.38	0.59	0.25	0.18	0.38	0.18	0.10	0.27
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	239	1107	837	335	1323	1005	801	314	586	589	176	455
v/s Ratio Prot	0.13	c0.27	0.33	0.17	c0.37		c0.24	c0.15	0.18	0.17	0.10	
v/s Ratio Perm						0.07						0.02
v/c Ratio	0.95	0.88	0.59	0.83	0.98	0.12	0.98	0.83	0.46	0.96	0.95	0.08
Uniform Delay, d1	51.6	39.4	17.5	45.4	36.5	10.8	44.7	47.8	27.7	49.1	53.7	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	45.4	10.0	1.7	15.9	19.9	0.1	26.3	18.5	1.2	27.4	55.2	0.1
Delay (s)	97.1	49.4	19.2	61.4	56.4	10.9	71.0	66.3	28.9	76.5	108.9	33.1
Level of Service	F	D	B	E	E	B	E	E	C	E	F	C
Approach Delay (s)		45.8			52.5			59.5			76.0	
Approach LOS		D			D			E			E	

Intersection Summary

HCM 2000 Control Delay	55.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Shaw's/NH 132 & US 3 / NH 11



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	201	1582	27	1522	74	14	14	93	293
v/c Ratio	0.71	0.61	0.19	0.75	0.46	0.05	0.04	0.50	0.71
Control Delay	65.1	11.7	58.6	23.1	59.5	46.5	0.2	60.2	22.8
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	12.0	58.6	23.1	59.5	46.5	0.2	60.2	22.8
Queue Length 50th (ft)	159	358	22	478	58	10	0	74	48
Queue Length 95th (ft)	246	505	53	637	85	24	0	103	78
Internal Link Dist (ft)		731		821		314		635	
Turn Bay Length (ft)	500		250		125		125		275
Base Capacity (vph)	311	2587	163	2038	207	336	389	237	460
Starvation Cap Reductn	0	412	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.73	0.17	0.75	0.36	0.04	0.04	0.39	0.64

Intersection Summary

HCM Signalized Intersection Capacity Analysis
4: Shaw's/NH 132 & US 3 / NH 11

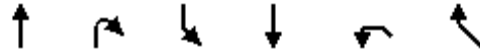


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	1390	65	25	1335	65	55	10	10	60	10	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	11	12	12	12	12	12	11	11
Grade (%)		0%			0%			0%				-4%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1668	3547		1770	3397		1805	1900	1615		1727	1531
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00	1.00		0.75	1.00
Satd. Flow (perm)	1668	3547		1770	3397		1170	1900	1615		1344	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.75	0.75	0.75
Adj. Flow (vph)	201	1511	71	27	1451	71	74	14	14	80	13	293
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	12	0	0	198
Lane Group Flow (vph)	201	1580	0	27	1520	0	74	14	2	0	93	95
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	20.0	90.3		5.6	75.9		16.1	16.1	16.1		16.1	16.1
Effective Green, g (s)	22.0	92.3		7.6	77.9		18.1	18.1	18.1		18.1	18.1
Actuated g/C Ratio	0.17	0.71		0.06	0.60		0.14	0.14	0.14		0.14	0.14
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	4.0	8.0		4.0	8.0		5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	282	2518		103	2035		162	264	224		187	213
v/s Ratio Prot	c0.12	0.45		0.02	c0.45			0.01				
v/s Ratio Perm							0.06		0.00		c0.07	0.06
v/c Ratio	0.71	0.63		0.26	0.75		0.46	0.05	0.01		0.50	0.45
Uniform Delay, d1	51.0	9.9		58.5	18.9		51.4	48.5	48.2		51.7	51.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.8	1.2		1.9	2.6		4.2	0.2	0.0		4.3	3.1
Delay (s)	59.8	11.1		60.4	21.4		55.7	48.7	48.3		56.0	54.4
Level of Service	E	B		E	C		E	D	D		E	D
Approach Delay (s)		16.6			22.1			53.7			54.8	
Approach LOS		B			C			D			D	

Intersection Summary

HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
6: Summer St/Elm St & Bay St

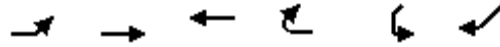


Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↓	↘	↙
Volume (veh/h)	160	75	101	225	55	61
Sign Control	Free			Free	Stop	
Grade	-11%			4%	0%	
Peak Hour Factor	0.80	0.80	0.90	0.90	0.93	0.93
Hourly flow rate (vph)	200	94	112	250	59	66
Pedestrians					6	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			300		727	253
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			300		727	253
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		83	92
cM capacity (veh/h)			1267		357	787

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	294	362	125
Volume Left	0	112	59
Volume Right	94	0	66
cSH	1700	1267	501
Volume to Capacity	0.17	0.09	0.25
Queue Length 95th (ft)	0	7	24
Control Delay (s)	0.0	3.1	14.6
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	14.6
Approach LOS			B

Intersection Summary			
Average Delay		3.8	
Intersection Capacity Utilization	47.4%		ICU Level of Service A
Analysis Period (min)		15	

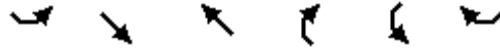
HCM Unsignalized Intersection Capacity Analysis
 16: Bay St/bay Hill Rd & Shedd Rd



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	135	100	0	0	30
Sign Control		Free	Free		Stop	
Grade		1%	-1%		-10%	
Peak Hour Factor	0.77	0.77	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	13	175	125	0	0	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	125				326	125
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	125				326	125
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1462				667	931

Direction, Lane #	EB 1	WB 1	SW 1
Volume Total	188	125	53
Volume Left	13	0	0
Volume Right	0	0	53
cSH	1462	1700	931
Volume to Capacity	0.01	0.07	0.06
Queue Length 95th (ft)	1	0	4
Control Delay (s)	0.6	0.0	9.1
Lane LOS	A		A
Approach Delay (s)	0.6	0.0	9.1
Approach LOS			A

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Volume (veh/h)	10	275	510	0	130	10
Sign Control		Free	Free		Stop	
Grade		2%	-2%		-6%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	309	543	0	169	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	543				874	543
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543				874	543
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				47	98
cM capacity (veh/h)	1031				320	544

Direction, Lane #	SE 1	NW 1	SW 1
Volume Total	320	543	182
Volume Left	11	0	169
Volume Right	0	0	13
cSH	1031	1700	330
Volume to Capacity	0.01	0.32	0.55
Queue Length 95th (ft)	1	0	79
Control Delay (s)	0.4	0.0	28.5
Lane LOS	A		D
Approach Delay (s)	0.4	0.0	28.5
Approach LOS			D

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization		41.3%	ICU Level of Service
Analysis Period (min)		15	A















HCM Unsignalized Intersection Capacity Analysis
20: Summer St



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	0	0	160	0	140
Sign Control	Yield			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.94	0.94	0.77	0.77
Hourly flow rate (vph)	11	0	0	170	0	182
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	0	0			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	822	1088	1636			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	11	170	182			
Volume Left	11	0	0			
Volume Right	0	0	182			
cSH	822	1700	1700			
Volume to Capacity	0.01	0.10	0.11			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	9.4	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.4	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			18.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Exit 19 SB On-ramp/Summer St & NH 132 (Park St)

Synchro 8 Report
 7/25/2017

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	0	0	0	0	0	0	0	175	230	0	510	160
Sign Control		Stop			Stop			Free			Free	
Grade		-5%			-6%			2%			-8%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	0	0	0	0	197	258	0	543	170
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	954	1039	326	954	1083	628	713			455		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	954	1039	326	954	1083	628	713			455		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	239	231	716	239	218	484	892			1116		
Direction, Lane #	SE 1	NW 1										
Volume Total	455	713										
Volume Left	0	0										
Volume Right	258	170										
cSH	892	1116										
Volume to Capacity	0.00	0.00										
Queue Length 95th (ft)	0	0										
Control Delay (s)	0.0	0.0										
Lane LOS												
Approach Delay (s)	0.0	0.0										
Approach LOS												
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			39.9%			ICU Level of Service				A		
Analysis Period (min)			15									

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 24: NH 132 (Park St) & Exit 19 SB On-ramp



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Volume (veh/h)	0	0	5	670	175	0
Sign Control	Stop			Free	Free	
Grade	0%			-8%	6%	
Peak Hour Factor	0.92	0.92	0.94	0.94	0.89	0.89
Hourly flow rate (vph)	0	0	5	713	197	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	920	197	197			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	920	197	197			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	300	845	1388			
Direction, Lane #	NB 1	SB 1				
Volume Total	718	197				
Volume Left	5	0				
Volume Right	0	0				
cSH	1388	1700				
Volume to Capacity	0.00	0.12				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.1	0.0				
Lane LOS	A					
Approach Delay (s)	0.1	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 27: Exit 19 SB Off-ramp & NH 132 (Park St)

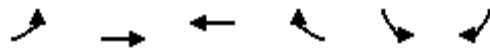


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↘	
Volume (veh/h)	175	0	0	145	530	35
Sign Control	Free			Free	Stop	
Grade	6%			-7%	-2%	
Peak Hour Factor	0.89	0.89	0.74	0.74	0.94	0.94
Hourly flow rate (vph)	197	0	0	196	564	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			197		393	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			197		393	197
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		8	96
cM capacity (veh/h)			1388		616	850

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	197	196	601
Volume Left	0	0	564
Volume Right	0	0	37
cSH	1700	1700	627
Volume to Capacity	0.12	0.12	0.96
Queue Length 95th (ft)	0	0	337
Control Delay (s)	0.0	0.0	52.2
Lane LOS			F
Approach Delay (s)	0.0	0.0	52.2
Approach LOS			F

Intersection Summary			
Average Delay		31.6	
Intersection Capacity Utilization		47.4%	ICU Level of Service A
Analysis Period (min)		15	

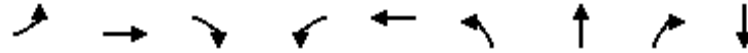
HCM Unsignalized Intersection Capacity Analysis
31: Tilton Rd (NH 140)



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Volume (veh/h)	0	1090	1275	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1185	1386	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			487			
pX, platoon unblocked						
vC, conflicting volume	1386				1978	693
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1386				1978	693
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	490				54	386

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	592	592	924	462	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.35	0.35	0.54	0.27	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			38.6%	ICU Level of Service	A
Analysis Period (min)			15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	5	810	370	190	695	345	345	435	10
v/c Ratio	0.04	0.93	0.29	0.77	0.60	0.81	0.81	0.56	0.03
Control Delay	46.8	44.1	1.1	64.4	15.8	52.5	52.5	14.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	44.1	1.1	64.4	15.8	52.5	52.5	14.4	0.2
Queue Length 50th (ft)	3	458	0	117	216	212	212	111	0
Queue Length 95th (ft)	16	#843	26	#258	542	#417	#417	196	0
Internal Link Dist (ft)		407			552		614		527
Turn Bay Length (ft)	100			375		350		250	
Base Capacity (vph)	123	873	1302	247	1168	436	436	772	312
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.93	0.28	0.77	0.60	0.79	0.79	0.56	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 901: Shaker Road/Pike Industries & Tilton Rd (NH 140)

Synchro 8 Report
 7/25/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↗	↗		↕	
Volume (vph)	5	745	340	175	635	5	635	0	400	5	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.95	0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00		0.98	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1681	1681	1583		1695	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	810	370	190	690	5	690	0	435	5	0	5
RTOR Reduction (vph)	0	0	97	0	0	0	0	0	115	0	10	0
Lane Group Flow (vph)	5	810	273	190	695	0	345	345	320	0	0	0
Turn Type	Prot	NA	pt+ov	Prot	NA		Split	NA	pt+ov	Split	NA	
Protected Phases	5	2	2 4	1	6		4	4	4 1	8	8	
Permitted Phases												
Actuated Green, G (s)	0.9	50.0	79.3	12.0	61.1		23.3	23.3	35.3		0.9	
Effective Green, g (s)	2.9	52.0	81.3	14.0	63.1		25.3	25.3	39.3		2.9	
Actuated g/C Ratio	0.03	0.47	0.74	0.13	0.57		0.23	0.23	0.36		0.03	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	46	879	1167	224	1065		385	385	564		44	
v/s Ratio Prot	0.00	c0.43	0.17	c0.11	0.37		c0.21	0.21	0.20		c0.00	
v/s Ratio Perm												
v/c Ratio	0.11	0.92	0.23	0.85	0.65		0.90	0.90	0.57		0.01	
Uniform Delay, d1	52.4	27.2	4.6	47.1	16.1		41.2	41.2	28.6		52.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.0	14.8	0.1	24.6	1.4		22.4	22.4	1.3		0.1	
Delay (s)	53.4	42.0	4.7	71.6	17.5		63.6	63.6	29.9		52.3	
Level of Service	D	D	A	E	B		E	E	C		D	
Approach Delay (s)		30.4			29.1			50.6			52.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	37.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	110.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 902: Shaker Rd & Development Driveway/Shaker Road



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Volume (veh/h)	940	95	175	340	35	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1022	103	190	370	38	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						11
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				694		
pX, platoon unblocked						
vC, conflicting volume			1125		1823	1073
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1125		1823	1073
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			69		35	61
cM capacity (veh/h)			621		59	267

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	1125	190	370	141
Volume Left	0	190	0	38
Volume Right	103	0	0	103
cSH	1700	621	1700	219
Volume to Capacity	0.66	0.31	0.22	0.65
Queue Length 95th (ft)	0	32	0	98
Control Delay (s)	0.0	13.3	0.0	57.7
Lane LOS		B		F
Approach Delay (s)	0.0	4.5		57.7
Approach LOS				F

Intersection Summary			
Average Delay		5.9	
Intersection Capacity Utilization		78.3%	ICU Level of Service D
Analysis Period (min)		15	



Spaulding Youth Center, Northfield, NH

Response to NHDOT Comments:
Preliminary Site Access Assessment (July
18, 2017) and Trip Generation and
Distribution Memorandum (March 20,
2017)

STATE OF NEW HAMPSHIRE
INTRA-DEPARTMENT COMMUNICATION

DATE: April 24, 2017

FROM:  Robert E. Bollinger, P.E., PTOE

AT (OFFICE):
Department of Transportation
Bureau of Traffic

SUBJECT: Northfield – Spaulding Youth Center

TO: William G. Rollins, P.E.
District 3

ATTN: David M. Silvia
District 3

This section has completed its review of the above referenced Trip Generation and Distribution Memo and finds the methodology to be acceptable and the calculations to be accurate. However, the applicant should consider the following comments as this project moves forward and a formal study is prepared:

- The trip generation rates (and distributional splits) developed from the RGD Business Park in Biddeford, ME were based on the average hour of the 1.5 hour morning peak period and 1.75 hour evening peak period as opposed to the peak hour of the generator or the adjacent street peak hour. Although the differences in trip rates are small (between average and peak hour), the applicant should consider using the peak hours of the generator (7:45 AM = 2.35 trips/KSF and 4:15 PM = 1.99 trips/KSF) to provide a slightly more conservative analysis given that these rates are based on one data set.
- The distribution is based on weighted populations that have been factored for distance (15, 30, and 45 miles) and competing opportunities.
 - Although using distances is certainly reasonable, factoring the population based on travel time may be more appropriate given the site's proximity to Exit 20 on I-93. Communities with good access to I-93 will have shorter travel times than other communities with similar distances from the site.
 - The competing opportunities should be clarified (Hospitals and/or medical/clinic office parks) and modified if appropriate once the development program is refined and/or finalized. For example, the communities of Laconia, Plymouth, Franklin, and Conway all have hospitals that may play a role as competing opportunities. However, the spreadsheet identifies these communities as "Comp. Not Likely" and applies a 0.95 adjustment factor.
 - 30-percent of the site generated traffic to and from the south via I-93 is assumed to utilize Exit 19. The basis for the split between Exits 19 and 20, which would likely be based on travel time and site layout, should be documented. The Traffic Bureau would only expect Exit 19 to be used as an alternative route to Exit 20 if secondary access is provided on Shedd Road.

As the development program and site layout are finalized, the Department reserves the right to review the formal traffic impact and access study.

cc: M. Dugas, Bureau of Highway Design
M. O'Donnell, Bureau of Traffic
N. Sanders, Bureau of Traffic
File

STATE OF NEW HAMPSHIRE
INTRA-DEPARTMENT COMMUNICATION

DATE: August 8, 2017

FROM: Robert E. Bollinger, P.E., PTOE

AT (OFFICE):
Department of Transportation
Bureau of Traffic

SUBJECT: Northfield – Spaulding Youth Center
Preliminary Site Access Assessment

TO: William G. Rollins, P.E.
District 3

ATTN: David M. Silvia
District 3

This section has completed its review of the above referenced Preliminary Site Access Assessment memorandum, prepared by VHB and dated July 18, 2017, and finds both the methodology and calculations to be reasonable and acceptable for this level of analysis. However, the applicant should consider the following comment in addition to the original comments noted in the April 24, 2017 review (attached) as this project continues to move forward and a formal traffic impact study is prepared:

- The trip generation rates (and distributional splits) are based on data published by ITE in Trip Generation (LUC 720) and rates developed from the RGD Business Park in Biddeford, ME. The RGD Business Park rates are based on the peak hour of the generator and a total size of 193,000 SF. However, the RGD Business Park is referenced in the appendix and in the original March 20, 2017 Trip Generation and Distribution memorandum as 182,837 SF. The updated RGD Business Park size of 193,000 SF used as the basis for this most recent trip generation estimate should be verified.

The Department reserves the right to review the forthcoming formal traffic impact and access study, or any other iterative submissions in this process.

cc: M. Dugas, Bureau of Highway Design
M. O'Donnell, Bureau of Traffic
N. Sanders, Bureau of Traffic
File

Attachment



To: File

Date: August 9, 2017

Memorandum

Project #: 52455

From: Meredith Graham, PE

Re: Response to Comments – Preliminary Site Access Assessment and Trip Generation and Distribution Memo

VHB response to comments dated August 8, 2017 from Robert Bollinger on the Preliminary Site Access Assessment memorandum dated July 18, 2017.

- *The RGD Business Park in Biddeford was identified as being 182,837 sf in the original March 20, 2017 Trip Generation and Distribution memorandum.*
 - The Sam L Cohen Center was mistakenly left out of the size of the business park. Including this building increased the size of the RGD Business Park to 193,000 sf which was used in the Preliminary Site Access Assessment memorandum dated July 18, 2017 and will be included in the Traffic Impact Study.

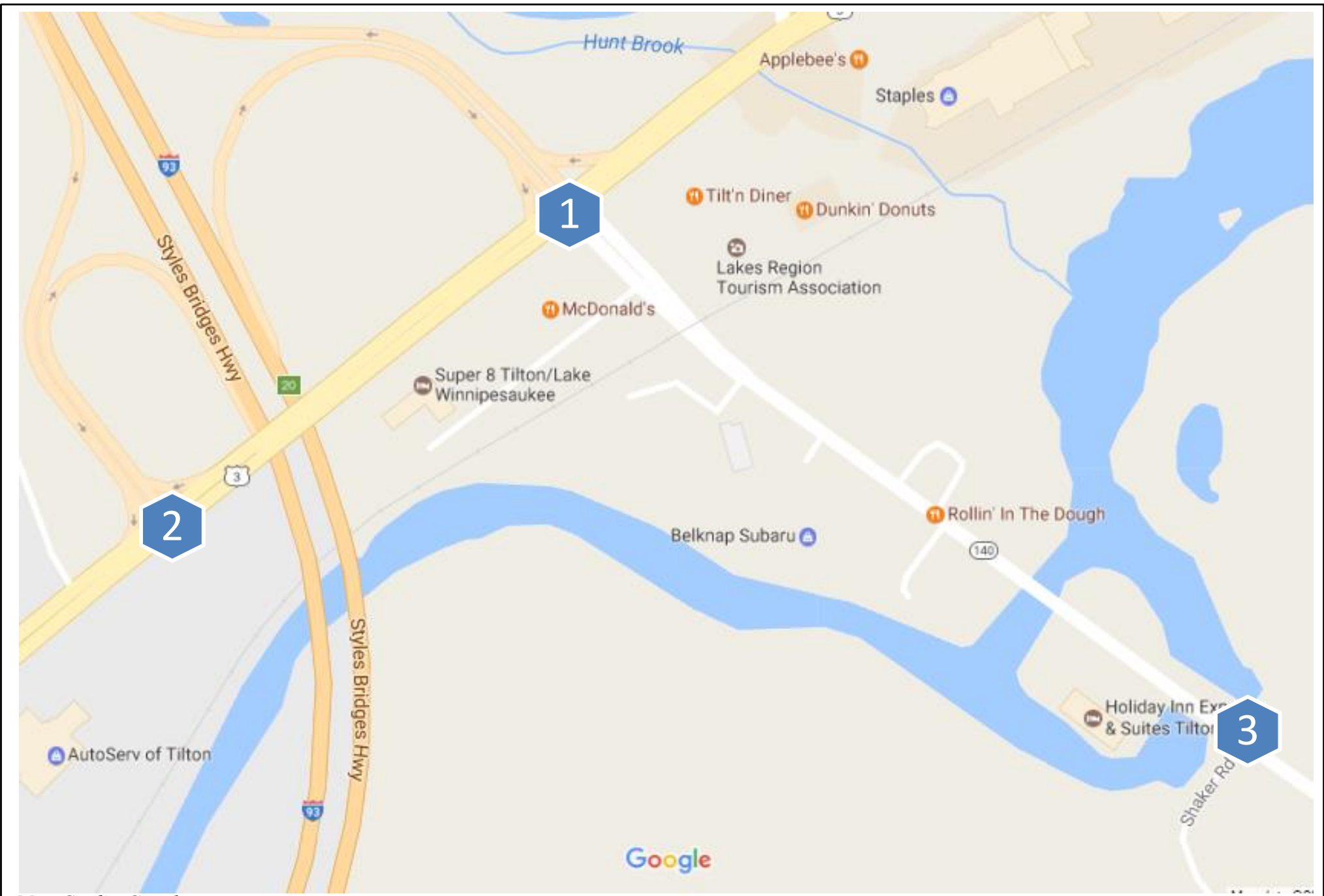
VHB response to comments dated April 24, 2017 from Robert Bollinger on the Trip Generation and Distribution memorandum dated March 20, 2017.

- *The trip generation rates in the Trip Generation and Distribution memorandum were based on the average hour of the RGD Business Park. Robert Bollinger noted that using the peak hour of the generator would provide a slightly more conservative analysis given that the rate is based on one data set.*
 - In all future instances, the peak hour of the RGD Business Park will be used for the trip generation rate to provide the slightly more conservative analysis.
- *Factoring the population based on travel time may be more appropriate given the site's proximity to I-93 for developing the trip distribution.*
 - Distance was chosen as a factor in the gravity model distribution as a more consistent measurement than travel time. Travel time varies by time of day and would add an extra level of complexity to the gravity model that would not increase the reliability of the model.
- *Competing opportunities should be clarified.*
 - The only competing opportunities considered in the gravity model were existing regional, large medical facilities (such as Concord Hospital, Dartmouth Hitchcock, Catholic Medical Center, Portsmouth Hospital, etc.). It is anticipated that the services offered at this site will draw from a regional population due to their more specialized nature.
- *Site generated traffic to and from the south via I-93 should be split between exit 19 and 20 based on travel time and site layout.*
 - At this time, no secondary access is being provided on Shedd Road greatly limited the amount of site generated traffic that will utilize Exit 19.



Spaulding Youth Center, Northfield, NH

Laconia Motorcycle Week Traffic Counts (Friday, June 16, 2017)



Map Credit: Google.com

BOSTON TRAFFIC DATA	BTD ID: 87_007_VHB	Tilton & Northfield, NH	# of TMC's: 03	Client: Vanasse Hangen Brustlin, Inc.
		Collect on June 16, 2017	# of ATR's: 00	Contact: Robin Bousa

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 1
 Location: Tilton, NH
 Street 1: US Route 3
 Street 2: I-93 NB ramps at Exit 20/Tilton Rd
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

TOTAL (CARS & TRUCKS)

Start Time	Tilton Road Northbound				I-93 NB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
3:00 PM	0	56	15	25	0	83	17	34	0	53	155	76	0	38	203	47
3:15 PM	0	58	16	27	0	81	24	36	0	52	159	75	0	41	205	48
3:30 PM	0	59	17	26	0	83	21	33	0	53	151	72	0	43	223	50
3:45 PM	0	65	15	25	0	84	14	29	0	51	148	71	0	42	224	49
4:00 PM	0	63	19	24	0	90	18	28	0	50	134	69	0	41	243	51
4:15 PM	0	66	15	27	0	93	18	25	0	48	149	70	0	44	245	50
4:30 PM	0	66	16	26	0	91	19	24	0	49	151	71	0	42	246	48
4:45 PM	0	68	14	28	0	86	15	23	0	46	161	72	0	41	236	51
5:00 PM	0	67	17	29	0	84	20	24	0	45	157	70	0	38	234	46
5:15 PM	0	69	19	26	0	79	18	21	0	44	167	65	0	37	218	45
5:30 PM	0	65	20	24	0	78	17	22	0	45	158	63	0	36	224	43
5:45 PM	0	62	19	23	0	75	15	23	0	43	166	62	0	35	217	41

PM PEAK HOUR 4:15 PM to 5:15 PM	Tilton Road Northbound				I-93 NB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	267	62	110	0	354	72	96	0	188	618	283	0	165	961	195
PHF	0.97				0.96				0.98				0.97			
HV %	0.0%	0.7%	4.8%	1.8%	0.0%	1.1%	8.3%	2.1%	0.0%	2.7%	1.3%	0.4%	0.0%	1.2%	0.8%	1.0%

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 1
 Location: Tilton, NH
 Street 1: US Route 3
 Street 2: I-93 NB ramps at Exit 20/Tilton Rd
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

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TRUCKS

Start Time	Tilton Road Northbound				I-93 NB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
3:00 PM	0	3	0	1	0	1	3	0	0	1	3	0	0	0	0	0
3:15 PM	0	2	1	0	0	0	2	0	0	0	3	1	0	1	1	1
3:30 PM	0	1	0	1	0	1	2	1	0	1	4	0	0	0	3	0
3:45 PM	0	0	1	1	0	1	2	0	0	2	2	1	0	0	4	0
4:00 PM	0	1	0	0	0	0	0	1	0	2	4	1	0	0	4	1
4:15 PM	0	0	1	0	0	2	1	1	0	1	3	0	0	1	2	0
4:30 PM	0	1	0	1	0	0	1	0	0	2	2	1	0	0	2	1
4:45 PM	0	1	1	1	0	1	2	0	0	0	1	0	0	1	2	1
5:00 PM	0	0	1	0	0	1	2	1	0	2	2	0	0	0	2	0
5:15 PM	0	1	0	0	0	0	1	0	0	2	1	1	0	0	2	0
5:30 PM	0	1	0	1	0	1	1	1	0	0	2	0	0	0	1	1
5:45 PM	0	0	1	0	0	0	2	0	0	0	1	0	0	0	1	0

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Tilton Road Northbound				I-93 NB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	3	2	2	0	3	4	2	0	5	10	2	0	2	10	3
	0.58				0.56				0.61				0.75			

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTM #: Location 1
 Location: Tilton, NH
 Street 1: US Route 3
 Street 2: I-93 NB ramps at Exit 20/Tilton Rd
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

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PEDESTRIANS & BICYCLES

Start Time	Tilton Road Northbound				I-93 NB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR ¹ 4:15 PM to 5:15 PM	Tilton Road Northbound				I-93 NB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 2
 Location: Tilton, NH
 Street 1: US Route 3
 Street 2: I-93 SB ramps at Exit 20
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F



TOTAL (CARS & TRUCKS)

Start Time	Northbound				I-93 SB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
3:00 PM	0	0	0	0	0	53	0	25	0	20	231	0	0	0	222	71
3:15 PM	0	0	0	0	0	54	0	28	0	21	232	0	0	0	226	73
3:30 PM	0	0	0	0	0	52	0	27	0	22	224	0	0	0	234	81
3:45 PM	0	0	0	0	0	53	0	29	0	23	217	0	0	0	233	85
4:00 PM	0	0	0	0	0	51	0	30	0	24	202	0	0	0	240	94
4:15 PM	0	0	0	0	0	54	0	31	0	25	213	0	0	0	237	99
4:30 PM	0	0	0	0	0	55	0	32	0	23	216	0	0	0	239	97
4:45 PM	0	0	0	0	0	57	0	34	0	22	222	0	0	0	232	95
5:00 PM	0	0	0	0	0	53	0	33	1	21	219	0	0	0	229	96
5:15 PM	0	0	0	0	0	55	0	35	0	24	221	0	0	0	217	91
5:30 PM	0	0	0	0	0	51	0	31	0	22	215	0	0	0	219	92
5:45 PM	0	0	0	0	0	52	0	32	0	23	219	0	0	0	213	89

PM PEAK HOUR 4:15 PM to 5:15 PM	Northbound				I-93 SB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	219	0	130	1	91	870	0	0	0	937	387
PHF	0.00				0.96				0.99				0.99			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	4.6%	0.0%	8.8%	0.9%	0.0%	0.0%	0.0%	0.5%	1.8%

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 2
 Location: Tilton, NH
 Street 1: US Route 3
 Street 2: I-93 SB ramps at Exit 20
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

BOSTON TRAFFIC DATA

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TRUCKS

Start Time	Northbound				I-93 SB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
3:00 PM	0	0	0	0	0	2	0	1	0	1	2	0	0	0	0	3
3:15 PM	0	0	0	0	0	3	0	2	0	2	1	0	0	0	1	2
3:30 PM	0	0	0	0	0	3	0	2	0	1	2	0	0	0	3	2
3:45 PM	0	0	0	0	0	2	0	3	0	1	3	0	0	0	2	2
4:00 PM	0	0	0	0	0	3	0	2	0	3	4	0	0	0	3	3
4:15 PM	0	0	0	0	0	2	0	2	0	3	2	0	0	0	1	2
4:30 PM	0	0	0	0	0	2	0	1	0	2	3	0	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	2	0	1	1	0	0	0	2	1
5:00 PM	0	0	0	0	0	2	0	1	0	2	2	0	0	0	1	2
5:15 PM	0	0	0	0	0	2	0	1	0	0	2	0	0	0	2	1
5:30 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	3	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Northbound				I-93 SB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	7	0	7	0	9	10	0	0	0	7	8
	0.00				0.70				0.68				0.63			

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 2
 Location: Tilton, NH
 Street 1: US Route 3
 Street 2: I-93 SB ramps at Exit 20
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

BOSTON TRAFFIC DATA

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PEDESTRIANS & BICYCLES

Start Time	Northbound				I-93 SB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR ¹ 4:15 PM to 5:15 PM	Northbound				I-93 SB ramps at Exit 20 Southbound				US Route 3 Eastbound				US Route 3 Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 3
 Location: Northfield, NH
 Street 1: Tilton Road
 Street 2: Shaker Road
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F



TOTAL (CARS & TRUCKS)

Start Time	Tilton Road Northbound				Tilton Road Southbound				Shaker Road Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
3:00 PM	0	4	88	0	0	0	113	18	0	8	0	2	0	0	0	0
3:15 PM	0	3	92	0	0	0	119	21	0	9	0	3	0	0	0	0
3:30 PM	0	4	93	0	0	0	117	19	0	9	0	4	0	0	0	0
3:45 PM	0	5	97	0	0	0	111	16	0	8	0	5	0	0	0	0
4:00 PM	0	4	97	0	0	0	116	12	0	9	0	6	0	0	0	0
4:15 PM	0	5	98	0	0	0	118	14	0	10	0	5	0	0	0	0
4:30 PM	0	5	96	0	0	0	119	13	0	12	0	5	0	0	0	0
4:45 PM	0	4	97	0	0	0	116	12	0	13	0	4	0	0	0	0
5:00 PM	0	4	99	0	0	0	114	14	0	14	0	2	0	0	0	0
5:15 PM	0	3	102	0	0	0	107	13	0	12	0	4	0	0	0	0
5:30 PM	0	3	96	0	0	0	104	12	0	13	0	3	0	0	0	0
5:45 PM	0	4	94	0	0	0	101	11	0	10	0	3	0	0	0	0

PM PEAK HOUR 4:15 PM to 5:15 PM	Tilton Road Northbound				Tilton Road Southbound				Shaker Road Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	18	390	0	0	0	467	53	0	49	0	16	0	0	0	0
PHF	0.99				0.98				0.96				0.00			
HV %	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTD #: Location 3
 Location: Northfield, NH
 Street 1: Tilton Road
 Street 2: Shaker Road
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

TRUCKS

Start Time	Tilton Road Northbound				Tilton Road Southbound				Shaker Road Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
3:00 PM	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0
3:15 PM	0	1	3	0	0	0	4	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0

PM PEAK HOUR 4:15 PM to 5:15 PM <i>PHF</i>	Tilton Road Northbound				Tilton Road Southbound				Shaker Road Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	7	0	0	0	9	0	0	0	0	0	0	0	0	0
	0.58				0.75				0.00				0.00			

Client: Robin Bousa
 Project #: 87_007_VHB_Tilton, NH
 BTM #: Location 3
 Location: Northfield, NH
 Street 1: Tilton Road
 Street 2: Shaker Road
 Count Date: 6/16/2017
 Day of Week: Friday
 Weather: Rainy, 70°F

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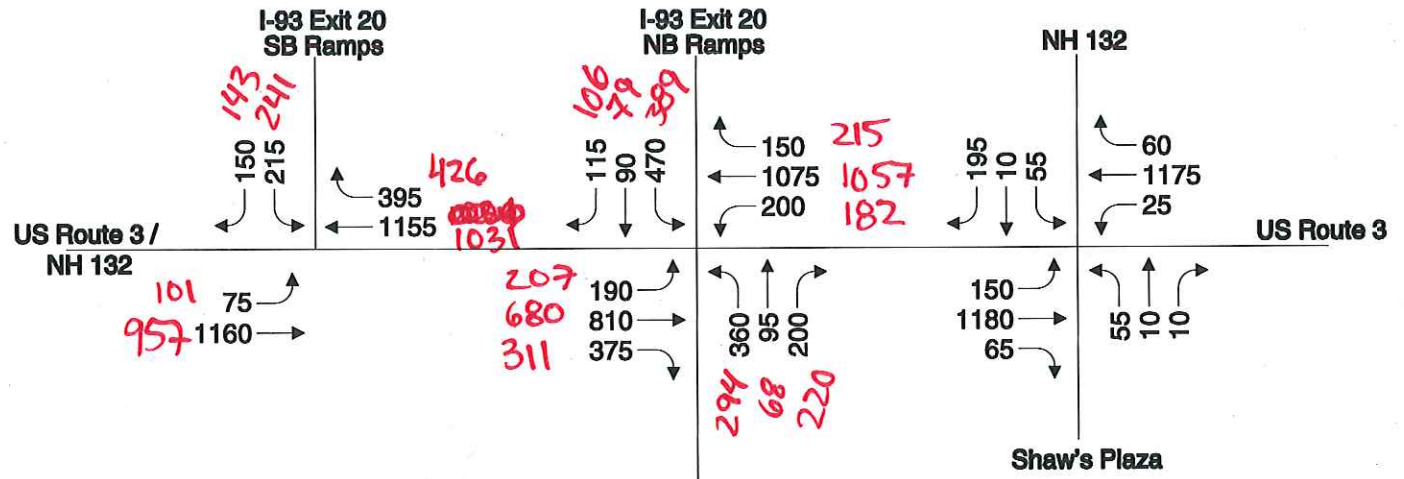
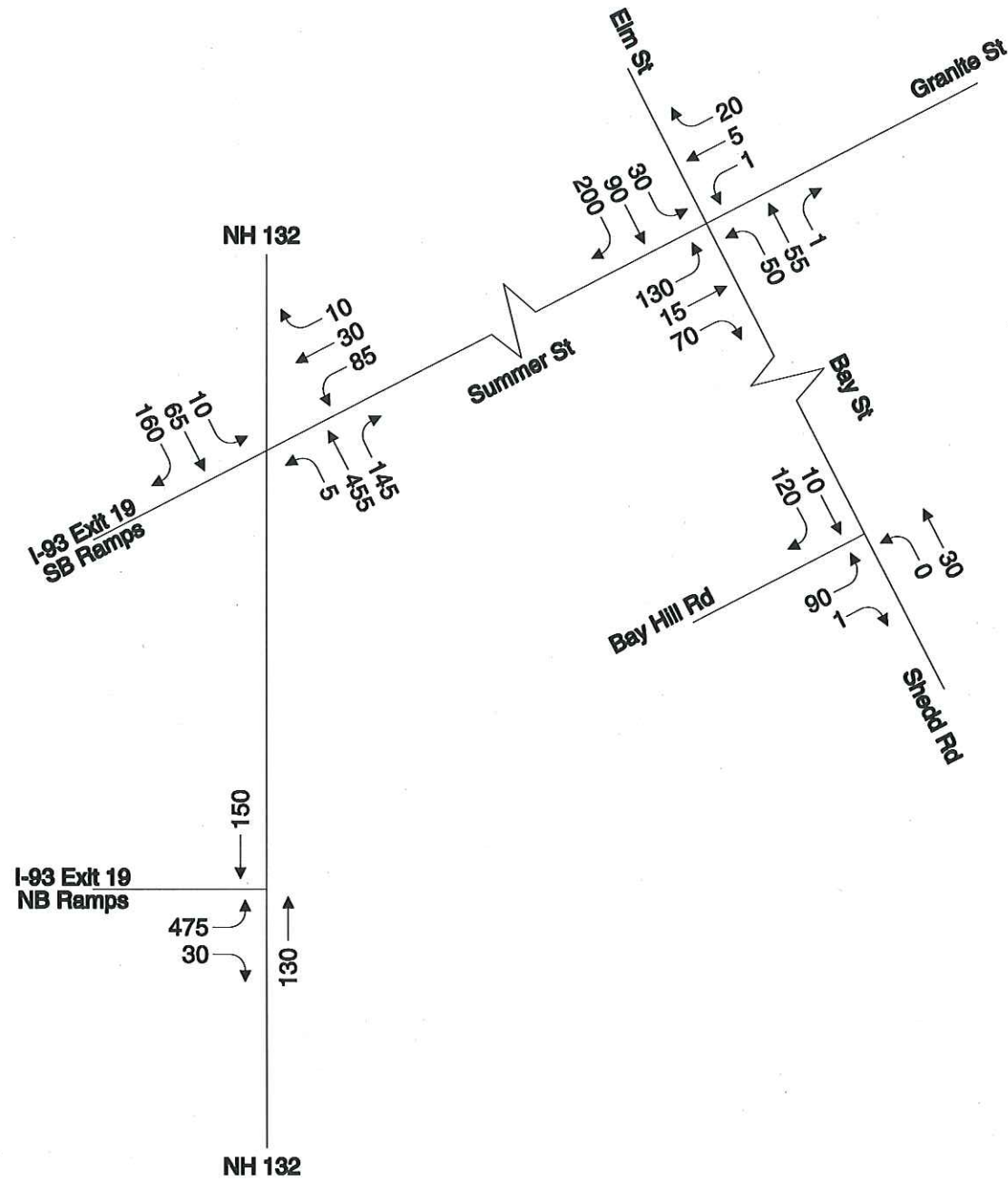
PEDESTRIANS & BICYCLES

Start Time	Tilton Road Northbound				Tilton Road Southbound				Shaker Road Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

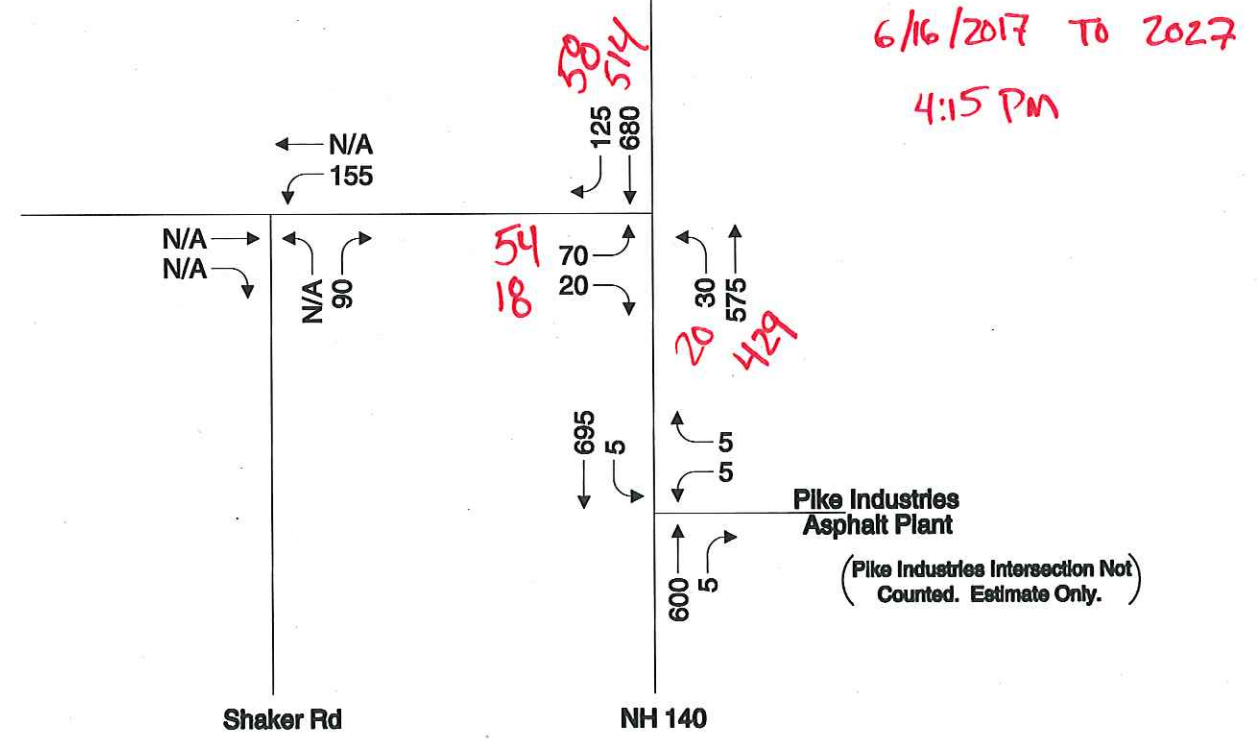
PM PEAK HOUR ¹ 4:15 PM to 5:15 PM	Tilton Road Northbound				Tilton Road Southbound				Shaker Road Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

6/16/17 TO 2027 4:15 PM
6/16/17 TO 2027 4:15 PM



Site



6/16/2017 TO 2027 4:15 PM

Not to Scale



Figure 11
2027 No Build Weekday Evening
Peak Hour Traffic Volumes

6/16/2017 (FRIDAY)
MOTORCYCLE WEEK COUNTS
GROWN TO 2027 USING 1% GROWTH

