

Appendix D
Intersection Level of Service Analysis

- 1: Existing Conditions: Weekday AM Peak-Hour LOS and Delays
- 2: Existing Conditions: Weekday PM Peak-Hour LOS and Delays
- 3: Existing Conditions: Weekend Saturday PM Peak-Hour LOS and Delays
- 4: 2040 Conditions: Weekday AM Peak-Hour LOS and Delays
- 5: 2040 Conditions: Weekday PM Peak-Hour LOS and Delays
- 6: 2040 Conditions: Weekend Saturday PM Peak-Hour LOS and Delays

Part 1: Existing Conditions: Weekday AM Peak-Hour LOS and Delays

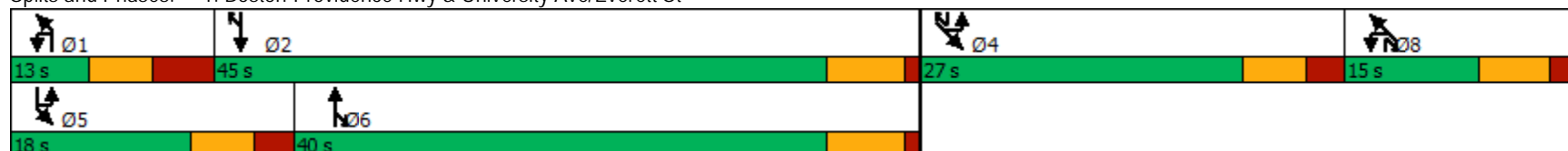
Lane Group	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations															
Traffic Volume (vph)	30	110	1080	280	70	150	900	250	300	270	100	110	150	230	
Future Volume (vph)	30	110	1080	280	70	150	900	250	300	270	100	110	150	230	
Satd. Flow (prot)	0	1678	3355	1501	0	1678	3355	1501	0	3209	0	1527	2928	0	
Flt Permitted		0.950				0.950				0.978		0.950	0.999		
Satd. Flow (perm)	0	1678	3355	1501	0	1678	3355	1501	0	3209	0	1527	2928	0	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	160	1239	321	0	252	1033	287	0	769	0	113	449	0	
Turn Type	Prot	Prot	NA	pt+ov	Prot	Prot	NA	pt+ov	Split	NA		Split	NA		
Protected Phases	1	1	6	6 8	5	5	2	2 4	4	4		8	8		
Permitted Phases															
Total Split (s)	13.0	13.0	40.0		18.0	18.0	45.0		27.0	27.0		15.0	15.0		
Total Lost Time (s)		8.0	6.0			6.5	6.0			6.5		6.5	6.5		
Act Effct Green (s)		5.0	34.0	43.0		11.5	39.0	66.0		20.5		8.5	8.5		
Actuated g/C Ratio		0.05	0.34	0.43		0.12	0.39	0.66		0.20		0.08	0.08		
v/c Ratio		1.93	1.09	0.50		1.31	0.79	0.29		1.17		0.88	2.18dr		
Control Delay		486.4	86.2	15.3		209.7	32.2	8.1		129.1		98.7	409.0		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0		
Total Delay		486.4	86.2	15.3		209.7	32.2	8.1		129.1		98.7	409.0		
LOS		F	F	B		F	C	A		F		F	F		
Approach Delay			110.2				56.3			129.1			346.6		
Approach LOS			F				E			F			F		

Intersection Summary

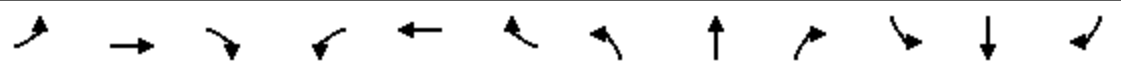
Cycle Length: 100	
Actuated Cycle Length: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.93	
Intersection Signal Delay: 123.7	Intersection LOS: F
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Boston-Providence Hwy & University Ave/Everett St



Intersection				
Intersection Delay, s/veh	95.8			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	585	1136	435	332
Demand Flow Rate, veh/h	609	1182	452	345
Vehicles Circulating, veh/h	334	452	740	1075
Vehicles Exiting, veh/h	1086	740	203	559
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	12.9	185.5	21.4	32.3
Approach LOS	B	F	C	D
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	609	1182	452	345
Cap Entry Lane, veh/h	982	870	649	461
Entry HV Adj Factor	0.961	0.961	0.961	0.961
Flow Entry, veh/h	585	1136	435	332
Cap Entry, veh/h	944	836	624	443
V/C Ratio	0.620	1.358	0.697	0.748
Control Delay, s/veh	12.9	185.5	21.4	32.3
LOS	B	F	C	D
95th %tile Queue, veh	4	47	6	6

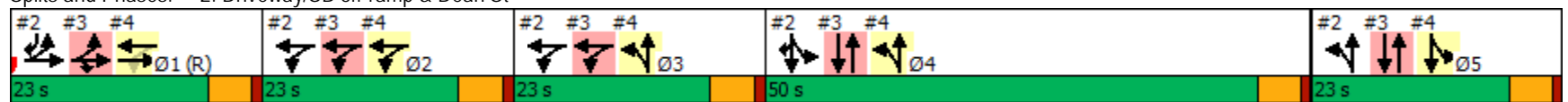



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3
Lane Configurations		⇄			⇄			⇄		⇄	⇄	⇄		
Traffic Volume (vph)	10	450	20	20	250	20	10	0	20	110	10	100		
Future Volume (vph)	10	450	20	20	250	20	10	0	20	110	10	100		
Satd. Flow (prot)	0	3332	0	0	3312	0	0	1580	0	1594	1611	1501		
Flt Permitted		0.999			0.997			0.984		0.950	0.960			
Satd. Flow (perm)	0	3332	0	0	3312	0	0	1580	0	1594	1611	1501		
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	550	0	0	333	0	0	34	0	68	69	115		
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	pt+ov		
Protected Phases	1	1		2 3	2 3		5	5		4	4	4 1	2	3
Permitted Phases														
Total Split (s)	23.0	23.0					23.0	23.0		50.0	50.0		23.0	23.0
Total Lost Time (s)		5.0						5.0		5.0	5.0			
Act Effct Green (s)		18.0			40.2			18.0		45.8	45.8	63.9		
Actuated g/C Ratio		0.13			0.28			0.13		0.32	0.32	0.45		
v/c Ratio		1.30			0.36			0.17		0.13	0.13	0.17		
Control Delay		199.5			4.1			57.8		35.5	35.5	13.5		
Queue Delay		1.0			0.2			0.0		0.0	0.0	0.0		
Total Delay		200.5			4.3			57.8		35.5	35.5	13.5		
LOS		F			A			E		D	D	B		
Approach Delay		200.5			4.3			57.8			25.5			
Approach LOS		F			A			E			C			

Intersection Summary

Cycle Length: 142	
Actuated Cycle Length: 142	
Offset: 0 (0%), Referenced to phase 1:EBTL, Start of Green, Master Intersection	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 102.7	Intersection LOS: F
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Driveway/SB off-ramp & Dean St



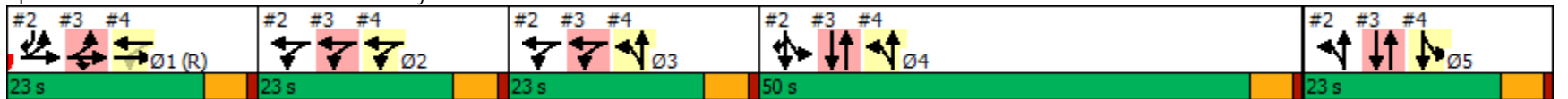


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3	Ø4
Lane Configurations	↖↖	↑	↗	↖	↗↗			↖↖↗			↖↖↗				
Traffic Volume (vph)	300	250	50	220	280	90	0	1150	20	0	720	10			
Future Volume (vph)	300	250	50	220	280	90	0	1150	20	0	720	10			
Satd. Flow (prot)	3255	1766	1501	1678	3235	0	0	4807	0	0	4812	0			
Flt Permitted	0.950			0.950											
Satd. Flow (perm)	3255	1766	1501	1678	3235	0	0	4807	0	0	4812	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	344	287	57	252	424	0	0	1342	0	0	837	0			
Turn Type	Split	NA	Prot	Split	NA			NA			NA				
Protected Phases	1	1	1	2 3	2 3			4 5			4 5		2	3	4
Permitted Phases															
Total Split (s)	23.0	23.0	23.0										23.0	23.0	50.0
Total Lost Time (s)	5.0	5.0	5.0												
Act Effct Green (s)	18.0	18.0	18.0	40.2	40.2			68.8			68.8				
Actuated g/C Ratio	0.13	0.13	0.13	0.28	0.28			0.48			0.48				
v/c Ratio	0.83	1.29	0.30	0.53	0.46			0.58			0.36				
Control Delay	39.4	164.8	36.7	17.7	14.7			27.5			23.5				
Queue Delay	0.3	0.3	0.0	62.5	34.7			0.0			0.0				
Total Delay	39.7	165.2	36.7	80.2	49.5			27.5			23.5				
LOS	D	F	D	F	D			C			C				
Approach Delay		91.8			60.9			27.5			23.5				
Approach LOS		F			E			C			C				

Intersection Summary

Cycle Length: 142
 Actuated Cycle Length: 142
 Offset: 0 (0%), Referenced to phase 1:EBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.30
 Intersection Signal Delay: 45.4 Intersection LOS: D
 Intersection Capacity Utilization 64.8% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Boston-Providence Hwy & Dean St



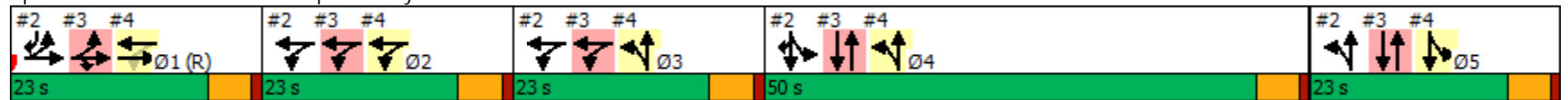
Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	23.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø3	Ø4
Lane Configurations														
Traffic Volume (vph)	0	220	50	40	500	40	100	5	165	0	0	5		
Future Volume (vph)	0	220	50	40	500	40	100	5	165	0	0	5		
Satd. Flow (prot)	0	3261	0	0	3312	0	1594	1444	0	0	1528	0		
Flt Permitted					0.834		0.950	0.997						
Satd. Flow (perm)	0	3261	0	0	2770	0	1594	1444	0	0	1528	0		
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	309	0	0	666	0	103	207	0	0	6	0		
Turn Type		NA		pm+pt	NA		Split	NA			NA			
Protected Phases		1		2	1 2		3 4	3 4		5	5		3	4
Permitted Phases				1 2										
Total Split (s)		23.0		23.0						23.0	23.0		23.0	50.0
Total Lost Time (s)		5.0									5.0			
Act Effct Green (s)		18.0			36.0		68.0	68.0			18.0			
Actuated g/C Ratio		0.13			0.25		0.48	0.48			0.13			
v/c Ratio		0.75			0.86		0.13	0.30			0.03			
Control Delay		24.9			61.5		21.3	24.0			55.0			
Queue Delay		8.7			9.9		0.0	0.0			0.0			
Total Delay		33.6			71.4		21.3	24.0			55.0			
LOS		C			E		C	C			D			
Approach Delay		33.6			71.4			23.1			55.0			
Approach LOS		C			E			C			D			

Intersection Summary

Cycle Length: 142
 Actuated Cycle Length: 142
 Offset: 0 (0%), Referenced to phase 1:EBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.30
 Intersection Signal Delay: 50.7 Intersection LOS: D
 Intersection Capacity Utilization 53.9% ICU Level of Service A
 Analysis Period (min) 15

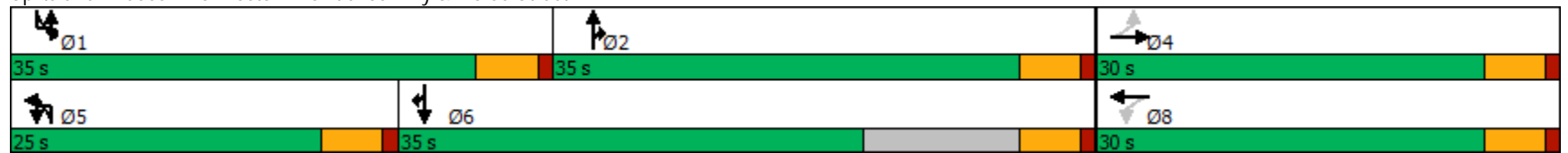
Splits and Phases: 4: NB off-ramp/Driveway & Dean St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	170	40	30	80	50	60	30	110	1090	150	210	120	560	120	
Future Volume (vph)	170	40	30	80	50	60	30	110	1090	150	210	120	560	120	
Satd. Flow (prot)	1678	1653	0	1678	1621	0	0	1678	3355	1501	0	1678	3355	1501	
Flt Permitted	0.668			0.705				0.950				0.950			
Satd. Flow (perm)	1180	1653	0	1245	1621	0	0	1678	3355	1501	0	1678	3355	1501	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	195	80	0	92	126	0	0	160	1251	172	0	379	643	138	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Prot	Prot	Prot	NA	Prot	
Protected Phases		4			8		5	5	2	2	1	1	6	6	
Permitted Phases	4			8											
Total Split (s)	30.0	30.0		30.0	30.0		25.0	25.0	35.0	35.0	35.0	35.0	35.0	35.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)	19.2	19.2		19.2	19.2			13.8	30.5	30.5		24.1	40.8	40.8	
Actuated g/C Ratio	0.22	0.22		0.22	0.22			0.15	0.34	0.34		0.27	0.46	0.46	
v/c Ratio	0.77	0.22		0.34	0.36			0.62	1.09	0.33		0.83	0.42	0.20	
Control Delay	54.0	31.3		34.3	33.5			47.0	85.4	27.1		48.1	18.8	17.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	54.0	31.3		34.3	33.5			47.0	85.4	27.1		48.1	18.8	17.9	
LOS	D	C		C	C			D	F	C		D	B	B	
Approach Delay		47.4			33.8				75.2				28.3		
Approach LOS		D			C				E				C		

Intersection Summary
 Cycle Length: 100
 Actuated Cycle Length: 89.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 53.2 Intersection LOS: D
 Intersection Capacity Utilization 82.2% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: Boston-Providence Hwy & Morse Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	90	50	40	30	120	190	120	200	1290	30	30	70	480	70	
Future Volume (vph)	90	50	40	30	120	190	120	200	1290	30	30	70	480	70	
Satd. Flow (prot)	1678	1766	1501	0	1748	1501	0	1678	3355	1501	0	1678	3355	1501	
Flt Permitted	0.649				0.916			0.950				0.950			
Satd. Flow (perm)	1146	1766	1501	0	1618	1501	0	1678	3355	1501	0	1678	3355	1501	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	103	57	46	0	172	218	0	367	1480	34	0	114	551	80	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Prot	NA	Prot	Prot	Prot	NA	Prot	
Protected Phases		4			8		1	1	6	6	5	5	2	2	
Permitted Phases	4		4	8		8									
Total Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	24.0	24.0	38.0	38.0	15.0	15.0	29.0	29.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	8.0		8.5	6.5	6.5		8.0	6.5	6.5	
Act Effct Green (s)	13.2	13.2	13.2		13.2	13.2		15.6	33.3	33.3		7.0	20.9	20.9	
Actuated g/C Ratio	0.18	0.18	0.18		0.18	0.18		0.21	0.46	0.46		0.10	0.29	0.29	
v/c Ratio	0.50	0.18	0.17		0.59	0.80		1.03	0.96	0.05		0.71	0.57	0.19	
Control Delay	36.6	27.4	27.5		36.7	52.4		86.8	38.7	13.3		58.7	24.8	20.9	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	36.6	27.4	27.5		36.7	52.4		86.8	38.7	13.3		58.7	24.8	20.9	
LOS	D	C	C		D	D		F	D	B		E	C	C	
Approach Delay		32.0			45.4			47.7					29.6		
Approach LOS		C			D			D					C		

Intersection Summary
 Cycle Length: 75
 Actuated Cycle Length: 72.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 42.2
 Intersection Capacity Utilization 89.8%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 6: Boston-Providence Hwy & Sumner Street

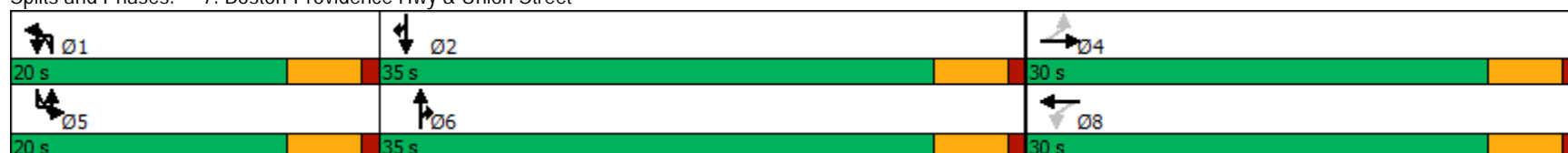


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	100	40	50	40	60	40	40	80	1470	20	20	20	450	90	
Future Volume (vph)	100	40	50	40	60	40	40	80	1470	20	20	20	450	90	
Satd. Flow (prot)	0	1660	0	0	1673	0	0	1678	3355	1501	0	1678	3355	1501	
Flt Permitted		0.755			0.870			0.950				0.950			
Satd. Flow (perm)	0	1287	0	0	1477	0	0	1678	3355	1501	0	1678	3355	1501	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	218	0	0	161	0	0	138	1687	23	0	46	516	103	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Prot	Prot	Prot	NA	Prot	
Protected Phases		4			8		1	1	6	6	5	5	2	2	
Permitted Phases	4			8											
Total Split (s)	30.0	30.0		30.0	30.0		20.0	20.0	35.0	35.0	20.0	20.0	35.0	35.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)		16.2			16.2			10.6	31.2	31.2		7.5	25.6	25.6	
Actuated g/C Ratio		0.25			0.25			0.16	0.48	0.48		0.12	0.39	0.39	
v/c Ratio		0.68			0.44			0.50	1.05	0.03		0.24	0.39	0.17	
Control Delay		34.4			25.4			33.9	58.6	14.5		33.1	18.2	18.5	
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		34.4			25.4			33.9	58.6	14.5		33.1	18.2	18.5	
LOS		C			C			C	E	B		C	B	B	
Approach Delay		34.4			25.4				56.2				19.3		
Approach LOS		C			C				E				B		

Intersection Summary

Cycle Length: 85	
Actuated Cycle Length: 64.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 44.3	Intersection LOS: D
Intersection Capacity Utilization 79.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Boston-Providence Hwy & Union Street



Part 2: Existing Conditions: Weekday PM Peak-Hour LOS and Delays

Lane Group	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR	
Lane Configurations															
Traffic Volume (vph)	40	160	1080	220	50	160	1380	130	190	200	90	290	210	170	
Future Volume (vph)	40	160	1080	220	50	160	1380	130	190	200	90	290	210	170	
Satd. Flow (prot)	0	1711	3421	1531	0	1711	3421	1531	0	3262	0	1557	3069	0	
Flt Permitted		0.950				0.950				0.981		0.950	0.993		
Satd. Flow (perm)	0	1711	3421	1531	0	1711	3421	1531	0	3262	0	1557	3069	0	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	230	1239	252	0	241	1583	149	0	550	0	260	509	0	
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Split	NA		Split	NA		
Protected Phases	1	1	6		5	5	2		4	4		8	8		
Permitted Phases				6				2							
Total Split (s)	20.0	20.0	55.0	55.0	20.0	20.0	55.0	55.0	20.0	20.0		20.0	20.0		
Total Lost Time (s)		8.0	6.0	6.0		8.0	6.0	6.0		6.5		6.5	6.5		
Act Effct Green (s)		12.0	49.0	49.0		12.0	49.0	49.0		13.5		13.5	13.5		
Actuated g/C Ratio		0.10	0.43	0.43		0.10	0.43	0.43		0.12		0.12	0.12		
v/c Ratio		1.29	0.85	0.39		1.35	1.09	0.23		1.44		1.43	1.41		
Control Delay		208.2	36.6	24.9		231.2	83.3	22.2		249.5		259.1	239.8		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0		
Total Delay		208.2	36.6	24.9		231.2	83.3	22.2		249.5		259.1	239.8		
LOS		F	D	C		F	F	C		F		F	F		
Approach Delay			57.8				96.7			249.5			246.3		
Approach LOS			E				F			F			F		

Intersection Summary






















Cycle Length: 115
 Actuated Cycle Length: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.44
 Intersection Signal Delay: 123.1 Intersection LOS: F
 Intersection Capacity Utilization 105.6% ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 1: Boston-Providence Hwy & University Ave/Everett St



Intersection				
Intersection Delay, s/veh	133.4			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	975	780	401	752
Demand Flow Rate, veh/h	994	795	409	767
Vehicles Circulating, veh/h	650	479	1251	808
Vehicles Exiting, veh/h	925	1181	393	466
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	205.8	40.3	97.3	155.3
Approach LOS	F	E	F	F
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	994	795	409	767
Cap Entry Lane, veh/h	711	847	385	605
Entry HV Adj Factor	0.980	0.981	0.980	0.980
Flow Entry, veh/h	975	780	401	752
Cap Entry, veh/h	697	830	378	593
V/C Ratio	1.398	0.939	1.062	1.267
Control Delay, s/veh	205.8	40.3	97.3	155.3
LOS	F	E	F	F
95th %tile Queue, veh	43	14	14	29

Intersection									
Intersection Delay, s/veh	0.0								
Intersection LOS	-								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	0		0		0		0		
Demand Flow Rate, veh/h	0		0		0		0		
Vehicles Circulating, veh/h	0		0		0		0		
Vehicles Exiting, veh/h	0		0		0		0		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	0.0		0.0		0.0		0.0		
Approach LOS	-		-		-		-		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	LT	R	LT	R	LT	R	
Assumed Moves	LT	R	LT	R	LT	R	LT	R	
RT Channelized									
Lane Util	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535	
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544	
Entry Flow, veh/h	0	0	0	0	0	0	0	0	
Cap Entry Lane, veh/h	1420	1420	1420	1420	1420	1420	1420	1420	
Entry HV Adj Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Flow Entry, veh/h	0	0	0	0	0	0	0	0	
Cap Entry, veh/h	1420	1420	1420	1420	1420	1420	1420	1420	
V/C Ratio	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Control Delay, s/veh	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
LOS	A	A	A	A	A	A	A	A	
95th %tile Queue, veh	0	0	0	0	0	0	0	0	

														
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø3	
Lane Configurations														
Traffic Volume (vph)	20	520	30	40	310	50	30	0	40	150	30	170		
Future Volume (vph)	20	520	30	40	310	50	30	0	40	150	30	170		
Satd. Flow (prot)	0	3387	0	0	3339	0	0	1625	0	1625	1654	1531		
Flt Permitted		0.998			0.809			0.824		0.950	0.967			
Satd. Flow (perm)	0	3387	0	0	2715	0	0	1368	0	1625	1654	1531		
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	654	0	0	459	0	0	80	0	101	105	195		
Turn Type	Split	NA		custom	NA		Perm	NA		Split	NA	pt+ov		
Protected Phases	1	1						5		4	4	4	3	
Permitted Phases				2	2 3		5							
Total Split (s)	30.0	30.0		23.0			23.0	23.0		50.0	50.0		22.5	
Total Lost Time (s)		5.0						5.0		5.0	5.0			
Act Effct Green (s)		25.0			40.5			18.0		45.0	45.0		70.0	
Actuated g/C Ratio		0.17			0.27			0.12		0.30	0.30		0.47	
v/c Ratio		1.15			0.62			0.48		0.21	0.21		0.27	
Control Delay		138.8			19.7			71.7		39.9	40.0		14.0	
Queue Delay		0.9			0.3			0.8		0.0	0.0		0.0	
Total Delay		139.6			19.9			72.5		39.9	40.0		14.0	
LOS		F			B			E		D	D		B	
Approach Delay		139.6			19.9			72.5			27.3			
Approach LOS		F			B			E			C			

Intersection Summary

Cycle Length: 148.5

Actuated Cycle Length: 148.5

Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.44

Intersection Signal Delay: 73.5

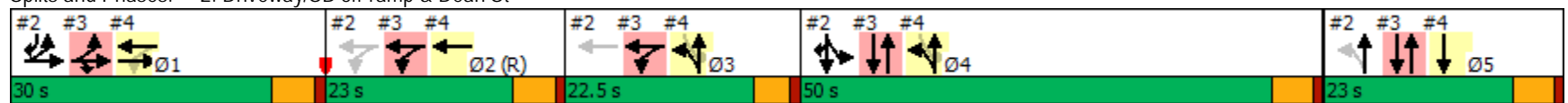
Intersection LOS: E

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Driveway/SB off-ramp & Dean St



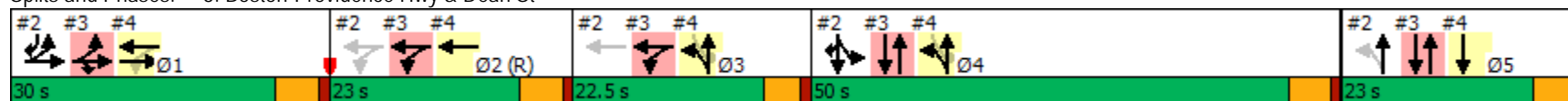
													Ø2	Ø3	Ø4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	250	380	80	300	310	120	0	930	20	0	1220	50			
Future Volume (vph)	250	380	80	300	310	120	0	930	20	0	1220	50			
Satd. Flow (prot)	3319	1801	1531	1711	3278	0	0	4901	0	0	4886	0			
Flt Permitted	0.950			0.950											
Satd. Flow (perm)	3319	1801	1531	1711	3278	0	0	4901	0	0	4886	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	287	436	92	344	494	0	0	1090	0	0	1457	0			
Turn Type	Split	NA	Prot	Split	NA			NA			NA				
Protected Phases	1	1	1	2 3	2 3			4 5			4 5		2	3	4
Permitted Phases															
Total Split (s)	30.0	30.0	30.0										23.0	22.5	50.0
Total Lost Time (s)	5.0	5.0	5.0												
Act Effct Green (s)	25.0	25.0	25.0	40.5	40.5			68.0			68.0				
Actuated g/C Ratio	0.17	0.17	0.17	0.27	0.27			0.46			0.46				
v/c Ratio	0.51	1.44	0.36	0.74	0.55			0.49			0.65				
Control Delay	29.7	232.1	30.2	35.9	26.3			29.0			32.8				
Queue Delay	1.1	0.3	0.0	59.2	55.7			0.0			0.5				
Total Delay	30.9	232.4	30.2	95.1	81.9			29.0			33.3				
LOS	C	F	C	F	F			C			C				
Approach Delay		138.6			87.3			29.0			33.3				
Approach LOS		F			F			C			C				

Intersection Summary

Cycle Length: 148.5
 Actuated Cycle Length: 148.5
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.44
 Intersection Signal Delay: 63.4
 Intersection Capacity Utilization 79.3%
 Analysis Period (min) 15

Intersection LOS: E
 ICU Level of Service D

Splits and Phases: 3: Boston-Providence Hwy & Dean St



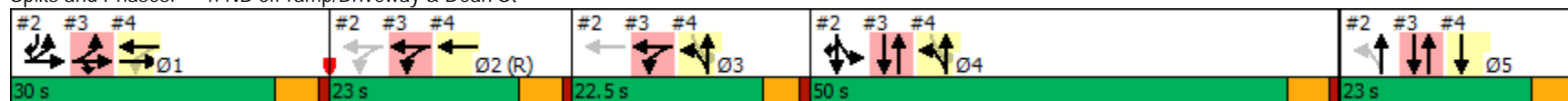
Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	23.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

													Ø2	Ø3	Ø4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	0	350	40	20	550	5	180	5	300	0	0	5			
Future Volume (vph)	0	350	40	20	550	5	180	5	300	0	0	5			
Satd. Flow (prot)	0	3370	0	0	3411	0	1625	1468	0	0	1558	0			
Flt Permitted					0.923		0.950	0.997							
Satd. Flow (perm)	0	3370	0	0	3155	0	1625	1468	0	0	1558	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	448	0	0	660	0	186	371	0	0	6	0			
Turn Type		NA		D.Pm	NA		Split	NA			NA				
Protected Phases		1			1 2		3 4	3 4			5		2	3	4
Permitted Phases				1						3 4					
Total Split (s)		30.0		30.0							23.0		23.0	22.5	50.0
Total Lost Time (s)		5.0									5.0				
Act Effct Green (s)		25.0			48.0		68.0	68.0			18.0				
Actuated g/C Ratio		0.17			0.32		0.46	0.46			0.12				
v/c Ratio		0.79			0.65		0.25	0.55			0.03				
Control Delay		18.9			46.6		25.8	33.1			58.2				
Queue Delay		48.3			7.9		0.0	3.3			0.0				
Total Delay		67.2			54.5		25.8	36.4			58.2				
LOS		E			D		C	D			E				
Approach Delay		67.2			54.5			32.9			58.2				
Approach LOS		E			D			C			E				

Intersection Summary
 Cycle Length: 148.5
 Actuated Cycle Length: 148.5
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.44
 Intersection Signal Delay: 50.7 Intersection LOS: D
 Intersection Capacity Utilization 62.8% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 4: NB off-ramp/Driveway & Dean St

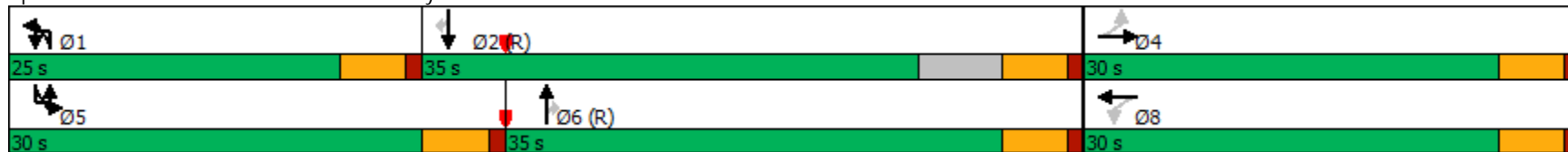


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	200	80	80	300	120	70	20	60	740	80	190	160	1210	110
Future Volume (vph)	200	80	80	300	120	70	20	60	740	80	190	160	1210	110
Satd. Flow (prot)	1711	1666	0	1711	1702	0	0	1711	3421	1531	0	1711	3421	1531
Flt Permitted	0.506			0.565				0.950				0.950		
Satd. Flow (perm)	911	1666	0	1017	1702	0	0	1711	3421	1531	0	1711	3421	1531
Satd. Flow (RTOR)														
Lane Group Flow (vph)	229	184	0	344	218	0	0	92	849	92	0	402	1388	126
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm
Protected Phases		4			8		1	1	6		5	5	2	
Permitted Phases	4			8					6					2
Total Split (s)	30.0	30.0		30.0	30.0		25.0	25.0	35.0	35.0	30.0	30.0	35.0	35.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	25.0	25.0		25.0	25.0		10.8	30.8	30.8	30.8		24.2	46.8	46.8
Actuated g/C Ratio	0.26	0.26		0.26	0.26		0.11	0.32	0.32	0.32		0.25	0.49	0.49
v/c Ratio	0.96	0.42		1.29	0.49		0.48	0.77	0.19	0.19		0.92	0.82	0.17
Control Delay	85.4	32.6		187.0	34.0		47.1	34.6	24.9	24.9		63.2	27.5	16.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	85.4	32.6		187.0	34.0		47.1	34.6	24.9	24.9		63.2	27.5	16.0
LOS	F	C		F	C		D	C	C	C		E	C	B
Approach Delay		61.9			127.6			34.9					34.3	
Approach LOS		E			F			C					C	

Intersection Summary

Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 25 (26%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 50.7	Intersection LOS: D
Intersection Capacity Utilization 88.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Boston-Providence Hwy & Morse Street

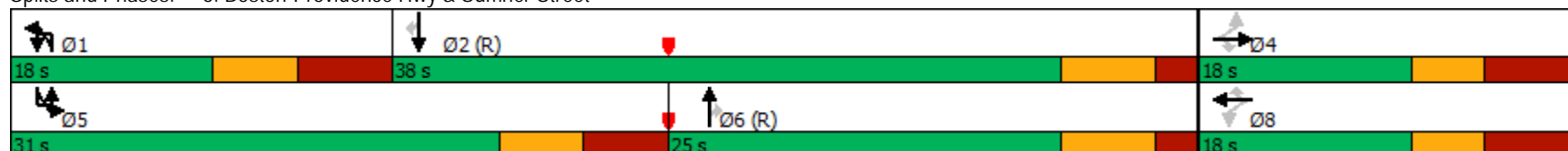


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	140	150	60	20	70	80	120	160	670	50	60	270	1140	150	
Future Volume (vph)	140	150	60	20	70	80	120	160	670	50	60	270	1140	150	
Satd. Flow (prot)	1711	1801	1531	0	1781	1531	0	1711	3421	1531	0	1711	3421	1531	
Flt Permitted	0.690				0.873			0.950				0.950			
Satd. Flow (perm)	1242	1801	1531	0	1572	1531	0	1711	3421	1531	0	1711	3421	1531	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	161	172	69	0	103	92	0	322	769	57	0	379	1308	172	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4		4	8		8			6					2	
Total Split (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	25.0	25.0	31.0	31.0	38.0	38.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	8.0		8.5	6.5	6.5		8.0	6.5	6.5	
Act Effct Green (s)	10.0	10.0	10.0		10.0	10.0		9.5	21.4	21.4		20.1	31.5	31.5	
Actuated g/C Ratio	0.14	0.14	0.14		0.14	0.14		0.13	0.29	0.29		0.27	0.43	0.43	
v/c Ratio	0.96	0.71	0.33		0.49	0.45		1.47	0.78	0.13		0.82	0.90	0.26	
Control Delay	97.4	48.5	34.0		38.2	37.1		263.3	32.4	22.2		39.9	29.9	15.1	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	97.4	48.5	34.0		38.2	37.1		263.3	32.4	22.2		39.9	29.9	15.1	
LOS	F	D	C		D	D		F	C	C		D	C	B	
Approach Delay		65.6			37.7			96.7					30.6		
Approach LOS		E			D			F					C		

Intersection Summary

Cycle Length: 74	
Actuated Cycle Length: 74	
Offset: 47 (64%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.47	
Intersection Signal Delay: 55.9	Intersection LOS: E
Intersection Capacity Utilization 92.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Boston-Providence Hwy & Sumner Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	60	50	60	30	40	20	50	70	750	50	60	40	1420	160	
Future Volume (vph)	60	50	60	30	40	20	50	70	750	50	60	40	1420	160	
Satd. Flow (prot)	0	1685	0	0	1719	0	0	1711	3421	1531	0	1711	3421	1531	
Flt Permitted		0.868			0.863			0.950				0.950			
Satd. Flow (perm)	0	1488	0	0	1507	0	0	1711	3421	1531	0	1711	3421	1531	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	195	0	0	103	0	0	137	861	57	0	115	1629	184	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4			8					6					2	
Total Split (s)	30.0	30.0		30.0	30.0		20.0	20.0	35.0	35.0	20.0	20.0	35.0	35.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)		14.6			14.6			11.1	27.8	27.8		10.6	31.0	31.0	
Actuated g/C Ratio		0.21			0.21			0.16	0.41	0.41		0.15	0.45	0.45	
v/c Ratio		0.62			0.32			0.49	0.62	0.09		0.44	1.05	0.27	
Control Delay		34.7			27.0			35.3	19.4	15.0		34.5	62.4	16.7	
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		34.7			27.0			35.3	19.4	15.0		34.5	62.4	16.7	
LOS		C			C			D	B	B		C	E	B	
Approach Delay		34.7			27.0				21.2				56.4		
Approach LOS		C			C				C				E		

Intersection Summary

Cycle Length: 85	
Actuated Cycle Length: 68.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 42.9	Intersection LOS: D
Intersection Capacity Utilization 76.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Boston-Providence Hwy & Union Street



**Part 3: Existing Conditions: Weekend Saturday PM Peak-Hour LOS
and Delays**

Lane Group	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations														
Traffic Volume (vph)	60	150	1240	250	80	160	1290	130	220	200	130	220	200	130
Future Volume (vph)	60	150	1240	250	80	160	1290	130	220	200	130	220	200	130
Satd. Flow (prot)	0	1728	3455	1546	0	1728	3455	1546	0	3268	0	1572	3119	0
Flt Permitted		0.950				0.950				0.980		0.950	0.995	
Satd. Flow (perm)	0	1728	3455	1546	0	1728	3455	1546	0	3268	0	1572	3119	0
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	236	1393	281	0	270	1450	146	0	618	0	207	411	0
Turn Type	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	1	1	6		5	5	2		4	4		8	8	
Permitted Phases				6				2						
Total Split (s)	25.0	25.0	56.0	56.0	25.0	25.0	56.0	56.0	27.0	27.0		22.0	22.0	
Total Lost Time (s)		8.0	6.0	6.0			8.0	6.0		6.5		6.5	6.5	
Act Effct Green (s)		17.0	50.0	50.0			17.0	50.0		20.5		15.5	15.5	
Actuated g/C Ratio		0.13	0.38	0.38			0.13	0.38		0.16		0.12	0.12	
v/c Ratio		1.05	1.05	0.47			1.20	1.09		1.20		1.11	1.11	
Control Delay		127.2	77.6	33.4			172.1	91.9		153.8		149.1	130.8	
Queue Delay		0.0	0.0	0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		127.2	77.6	33.4			172.1	91.9		153.8		149.1	130.8	
LOS		F	E	C			F	F		F		F	F	
Approach Delay			77.2				98.5			153.8			137.0	
Approach LOS			E				F			F			F	

Intersection Summary

Cycle Length: 130	
Actuated Cycle Length: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 102.0	Intersection LOS: F
Intersection Capacity Utilization 103.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: Boston-Providence Hwy & University Ave/Everett St



Intersection				
Intersection Delay, s/veh	77.6			
Intersection LOS	F			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	866	854	438	663
Demand Flow Rate, veh/h	875	862	442	670
Vehicles Circulating, veh/h	544	522	1034	794
Vehicles Exiting, veh/h	920	954	385	590
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	86.3	72.4	52.8	89.2
Approach LOS	F	F	F	F
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	875	862	442	670
Cap Entry Lane, veh/h	792	810	481	614
Entry HV Adj Factor	0.990	0.991	0.991	0.989
Flow Entry, veh/h	866	854	438	663
Cap Entry, veh/h	784	803	476	607
V/C Ratio	1.104	1.064	0.920	1.091
Control Delay, s/veh	86.3	72.4	52.8	89.2
LOS	F	F	F	F
95th %tile Queue, veh	24	21	11	20

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	190	50	60	120	50	90	20	80	1090	80	150	110	1120	150	
Future Volume (vph)	190	50	60	120	50	90	20	80	1090	80	150	110	1120	150	
Satd. Flow (prot)	1728	1669	0	1728	1644	0	0	1728	3455	1546	0	1728	3455	1546	
Flt Permitted	0.606			0.676				0.950				0.950			
Satd. Flow (perm)	1102	1669	0	1129	1644	0	0	1728	3455	1546	0	1728	3455	1546	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	214	123	0	135	157	0	0	112	1225	90	0	293	1259	169	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4			8					6					2	
Total Split (s)	30.0	30.0		30.0	30.0		25.0	25.0	35.0	35.0	25.0	25.0	35.0	35.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)	20.8	20.8		20.8	20.8			11.4	35.7	35.7		18.5	45.4	45.4	
Actuated g/C Ratio	0.23	0.23		0.23	0.23			0.13	0.40	0.40		0.21	0.50	0.50	
v/c Ratio	0.84	0.32		0.52	0.41			0.51	0.90	0.15		0.82	0.72	0.22	
Control Delay	60.2	29.7		36.6	31.7			44.5	37.8	20.9		53.9	23.7	16.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	60.2	29.7		36.6	31.7			44.5	37.8	20.9		53.9	23.7	16.7	
LOS	E	C		D	C			D	D	C		D	C	B	
Approach Delay		49.0			34.0				37.3				28.2		
Approach LOS		D			C				D				C		

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 25 (28%), Referenced to phase 2:SBT and 6:NBT, Start of Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Boston-Providence Hwy & Morse Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	70	120	80	60	40	40	80	90	1080	50	60	40	1070	180	
Future Volume (vph)	70	120	80	60	40	40	80	90	1080	50	60	40	1070	180	
Satd. Flow (prot)	0	1723	0	0	1711	0	0	1728	3455	1546	0	1728	3455	1546	
Flt Permitted		0.872			0.671			0.950				0.950			
Satd. Flow (perm)	0	1522	0	0	1173	0	0	1728	3455	1546	0	1728	3455	1546	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	304	0	0	157	0	0	191	1214	56	0	112	1202	202	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Prot	Prot	Prot	NA	Prot	
Protected Phases		4			8		1	1	6	6	5	5	2	2	
Permitted Phases	4			8											
Total Split (s)	30.0	30.0		30.0	30.0		20.0	20.0	35.0	35.0	20.0	20.0	35.0	35.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)		19.5			19.5			12.6	35.2	35.2		10.8	30.3	30.3	
Actuated g/C Ratio		0.25			0.25			0.16	0.45	0.45		0.14	0.39	0.39	
v/c Ratio		0.79			0.53			0.68	0.77	0.08		0.47	0.89	0.33	
Control Delay		43.3			32.4			44.8	25.9	17.0		38.6	34.1	20.6	
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		43.3			32.4			44.8	25.9	17.0		38.6	34.1	20.6	
LOS		D			C			D	C	B		D	C	C	
Approach Delay		43.3			32.4			28.0					32.7		
Approach LOS		D			C			C					C		

Intersection Summary

Cycle Length: 85
 Actuated Cycle Length: 77.5
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 31.6
 Intersection Capacity Utilization 73.4%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service D

Splits and Phases: 7: Boston-Providence Hwy & Union Street



Part 4: 2040 Conditions: Weekday AM Peak-Hour LOS and Delays

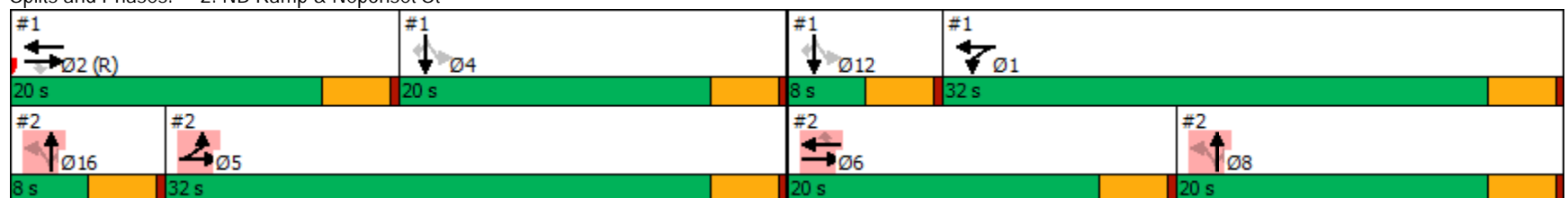
Intersection									
Intersection Delay, s/veh	13.9								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	595		1178		452		345		
Demand Flow Rate, veh/h	619		1226		469		358		
Vehicles Circulating, veh/h	346		458		755		1114		
Vehicles Exiting, veh/h	1126		766		210		570		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	8.3		16.2		13.7		15.8		
Approach LOS	A		C		B		C		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	LT	R	LT	R	LT	R	
Assumed Moves	LT	R	LT	R	LT	R	LT	R	
RT Channelized									
Lane Util	0.800	0.200	0.586	0.414	0.870	0.130	0.760	0.240	
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535	
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544	
Entry Flow, veh/h	495	124	718	508	408	61	272	86	
Cap Entry Lane, veh/h	1036	1036	936	936	714	714	515	515	
Entry HV Adj Factor	0.961	0.960	0.961	0.961	0.962	0.967	0.962	0.965	
Flow Entry, veh/h	476	119	690	488	393	59	262	83	
Cap Entry, veh/h	996	995	900	899	687	691	495	497	
V/C Ratio	0.478	0.120	0.767	0.543	0.571	0.085	0.528	0.167	
Control Delay, s/veh	9.3	4.7	19.7	11.4	14.8	6.1	17.7	9.5	
LOS	A	A	C	B	B	A	C	A	
95th %tile Queue, veh	3	0	8	3	4	0	3	1	


													Ø1	Ø2	Ø4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	120	490	0	0	580	410	320	10	50	0	0	0			
Future Volume (vph)	120	490	0	0	580	410	320	10	50	0	0	0			
Satd. Flow (prot)	1736	3471	0	0	3471	1553	1649	1657	1553	0	0	0			
Flt Permitted	0.950						0.950	0.955							
Satd. Flow (perm)	1736	3471	0	0	3471	1446	1649	1657	1489	0	0	0			
Satd. Flow (RTOR)						478			177						
Lane Group Flow (vph)	140	571	0	0	676	478	194	191	58	0	0	0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm						
Protected Phases	5	5 6			6			8 16					1	2	4
Permitted Phases						6	8 16		8 16						
Total Split (s)	32.0				20.0	20.0							32.0	20.0	20.0
Total Lost Time (s)	4.0				4.0	4.0									
Act Effct Green (s)	23.7	47.2			19.5	19.5	24.8	24.8	24.8						
Actuated g/C Ratio	0.30	0.59			0.24	0.24	0.31	0.31	0.31						
v/c Ratio	0.27	0.28			0.80	0.67	0.38	0.37	0.10						
Control Delay	2.5	1.8			38.8	8.4	24.7	24.6	0.3						
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0						
Total Delay	2.5	1.8			38.8	8.4	24.7	24.6	0.3						
LOS	A	A			D	A	C	C	A						
Approach Delay		1.9			26.2			21.4							
Approach LOS		A			C			C							
Queue Length 50th (ft)	0	0			161	0	80	78	0						
Queue Length 95th (ft)	0	0			#288	88	141	138	0						
Internal Link Dist (ft)		334			440			310			487				
Turn Bay Length (ft)	150					150			150						
Base Capacity (vph)	607	2046			846	713	508	511	581						
Starvation Cap Reductn	0	0			0	0	0	0	0						
Spillback Cap Reductn	0	0			0	0	0	0	0						
Storage Cap Reductn	0	0			0	0	0	0	0						
Reduced v/c Ratio	0.23	0.28			0.80	0.67	0.38	0.37	0.10						

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 17.8
 Intersection Capacity Utilization 59.9%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: NB Ramp & Neponset St

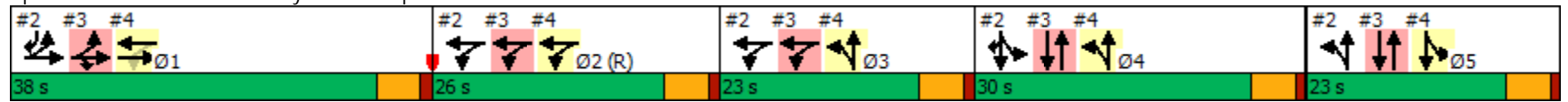




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3
Lane Configurations														
Traffic Volume (vph)	10	450	20	20	250	20	10	0	20	110	10	100		
Future Volume (vph)	10	450	20	20	250	20	10	0	20	110	10	100		
Satd. Flow (prot)	0	3332	0	0	3312	0	0	1581	0	1594	1611	1501		
Flt Permitted		0.999			0.997			0.984		0.950	0.960			
Satd. Flow (perm)	0	3332	0	0	3312	0	0	1581	0	1594	1611	1501		
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	571	0	0	345	0	0	36	0	71	72	119		
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	pt+ov		
Protected Phases	1	1		2 3	2 3		5	5		4	4	4 1	2	3
Permitted Phases														
Total Split (s)	38.0	38.0					23.0	23.0		30.0	30.0		26.0	23.0
Total Lost Time (s)		5.0						5.0		5.0	5.0			
Act Effct Green (s)		32.7			43.9			18.0		25.5	25.5		58.1	
Actuated g/C Ratio		0.23			0.31			0.13		0.18	0.18		0.42	
v/c Ratio		0.73			0.33			0.18		0.25	0.25		0.19	
Control Delay		56.1			4.2			56.9		52.0	52.0		15.2	
Queue Delay		0.1			0.2			0.0		0.0	0.0		0.0	
Total Delay		56.1			4.4			56.9		52.0	52.0		15.2	
LOS		E			A			E		D	D		B	
Approach Delay		56.1			4.4			56.9			35.3			
Approach LOS		E			A			E			D			

Intersection Summary
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:WBT, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 36.9
 Intersection Capacity Utilization 43.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service A

Splits and Phases: 2: Driveway/SB off-ramp & Dean St

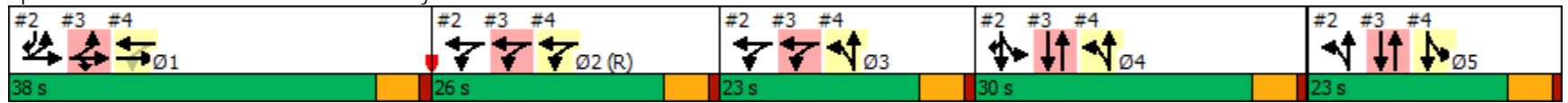


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3	Ø4
Lane Configurations															
Traffic Volume (vph)	300	250	50	220	280	90	0	1150	20	0	720	10			
Future Volume (vph)	300	250	50	220	280	90	0	1150	20	0	720	10			
Satd. Flow (prot)	3255	1766	1501	1678	3235	0	0	4807	0	0	4812	0			
Flt Permitted	0.950			0.950											
Satd. Flow (perm)	3255	1766	1501	1678	3235	0	0	4807	0	0	4812	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	357	297	59	262	440	0	0	1392	0	0	868	0			
Turn Type	Split	NA	Prot	Split	NA	NA			NA						
Protected Phases	1	1	1	2 3	2 3	4 5			4 5			2	3	4	
Permitted Phases															
Total Split (s)	38.0	38.0	38.0										26.0	23.0	30.0
Total Lost Time (s)	5.0	5.0	5.0												
Act Effct Green (s)	32.7	32.7	32.7	43.9	43.9	48.5			48.5						
Actuated g/C Ratio	0.23	0.23	0.23	0.31	0.31	0.35			0.35						
v/c Ratio	0.47	0.72	0.17	0.50	0.43	0.84			0.52						
Control Delay	15.6	23.4	14.5	27.8	24.8	47.7			38.0						
Queue Delay	0.8	2.7	0.0	29.5	11.3	0.0			0.0						
Total Delay	16.4	26.1	14.5	57.3	36.0	47.7			38.0						
LOS	B	C	B	E	D	D			D						
Approach Delay	20.3				44.0		47.7			38.0					
Approach LOS	C				D		D			D					

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 39.4 Intersection LOS: D
 Intersection Capacity Utilization 66.8% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Boston-Providence Hwy & Dean St



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	23.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

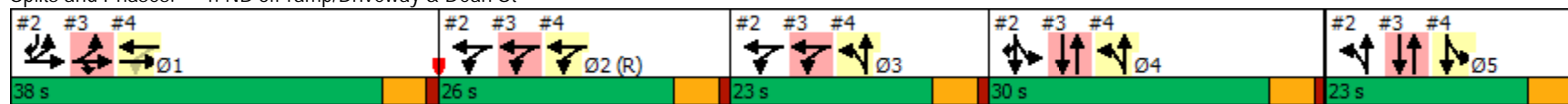


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø3	Ø4
Lane Configurations		↑↑			↑↑		↑	↑			↑↑			
Traffic Volume (vph)	0	220	50	40	500	40	100	5	165	0	0	5		
Future Volume (vph)	0	220	50	40	500	40	100	5	165	0	0	5		
Satd. Flow (prot)	0	3261	0	0	3312	0	1594	1444	0	0	1528	0		
Flt Permitted					0.906		0.950	0.997						
Satd. Flow (perm)	0	3261	0	0	3010	0	1594	1444	0	0	1528	0		
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	321	0	0	691	0	107	214	0	0	6	0		
Turn Type		NA		pm+pt	NA		Split	NA			NA			
Protected Phases		1		2	1 2		3 4	3 4		5	5		3	4
Permitted Phases				1 2										
Total Split (s)		38.0		26.0						23.0	23.0		23.0	30.0
Total Lost Time (s)		5.0									5.0			
Act Effct Green (s)		32.7			54.0		48.0	48.0			18.0			
Actuated g/C Ratio		0.23			0.39		0.34	0.34			0.13			
v/c Ratio		0.42			0.57		0.20	0.43			0.03			
Control Delay		6.9			32.8		33.6	38.9			54.0			
Queue Delay		1.0			1.3		0.0	0.0			0.0			
Total Delay		7.9			34.1		33.6	38.9			54.0			
LOS		A			C		C	D			D			
Approach Delay		7.9			34.1			37.1			54.0			
Approach LOS		A			C			D			D			

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.6 Intersection LOS: C
 Intersection Capacity Utilization 55.2% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 4: NB off-ramp/Driveway & Dean St



	↖	→	↘	↙	←	↖	↙	↘	↑	↖	↙	↓	↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖	↖		↖	↖			↖	↑↑	↖		↖	↑↑	↖
Traffic Volume (vph)	170	40	30	80	50	60	30	110	1090	150	210	120	560	120
Future Volume (vph)	170	40	30	80	50	60	30	110	1090	150	210	120	560	120
Satd. Flow (prot)	1678	1653	0	1678	1621	0	0	1678	3355	1501	0	1678	3355	1501
Flt Permitted	0.616			0.702				0.950				0.950		
Satd. Flow (perm)	1088	1653	0	1240	1621	0	0	1678	3355	1501	0	1678	3355	1501
Satd. Flow (RTOR)														
Lane Group Flow (vph)	202	84	0	95	130	0	0	167	1297	178	0	393	666	143
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Prot	Prot	Prot	NA	Prot
Protected Phases		4			8		5	5	2	2	1	1	6	6
Permitted Phases	4			8										
Total Split (s)	22.0	22.0		22.0	22.0		23.0	23.0	47.0	47.0	31.0	31.0	55.0	55.0
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	17.0	17.0		17.0	17.0			14.6	42.8	42.8		25.2	53.4	53.4
Actuated g/C Ratio	0.17	0.17		0.17	0.17			0.15	0.43	0.43		0.25	0.53	0.53
v/c Ratio	1.10	0.30		0.45	0.47			0.68	0.90	0.28		0.93	0.37	0.18
Control Delay	135.7	39.6		45.1	43.9			54.6	37.3	20.4		66.8	14.8	13.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	135.7	39.6		45.1	43.9			54.6	37.3	20.4		66.8	14.8	13.5
LOS	F	D		D	D			D	D	C		E	B	B
Approach Delay		107.5			44.4				37.2				31.6	
Approach LOS		F			D				D				C	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 25 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 41.7 Intersection LOS: D
 Intersection Capacity Utilization 90.3% ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: Boston-Providence Hwy & Morse Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	90	50	40	30	120	190	120	200	1290	30	30	70	480	70	
Future Volume (vph)	90	50	40	30	120	190	120	200	1290	30	30	70	480	70	
Satd. Flow (prot)	1678	1766	1501	0	1748	1501	0	1678	3355	1501	0	1678	3355	1501	
Flt Permitted	0.623				0.915			0.950				0.950			
Satd. Flow (perm)	1100	1766	1501	0	1616	1501	0	1678	3355	1501	0	1678	3355	1501	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	107	59	48	0	179	226	0	381	1534	36	0	119	571	83	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4		4	8		8			6					2	
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	34.1	34.1	49.0	49.0	20.0	20.0	34.9	34.9	
Total Lost Time (s)	8.0	8.0	8.0		8.0	8.0		8.5	6.5	6.5		8.0	6.5	6.5	
Act Effct Green (s)	13.0	13.0	13.0		13.0	13.0		23.0	45.0	45.0		10.4	28.6	28.6	
Actuated g/C Ratio	0.15	0.15	0.15		0.15	0.15		0.26	0.51	0.51		0.12	0.33	0.33	
v/c Ratio	0.66	0.23	0.22		0.75	1.02		0.86	0.89	0.05		0.60	0.52	0.17	
Control Delay	57.2	36.5	36.8		57.3	105.7		51.4	29.3	13.1		50.3	26.6	23.3	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	57.2	36.5	36.8		57.3	105.7		51.4	29.3	13.1		50.3	26.6	23.3	
LOS	E	D	D		E	F		D	C	B		D	C	C	
Approach Delay		46.9			84.3				33.3				29.9		
Approach LOS		D			F				C				C		

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 87.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 39.6	Intersection LOS: D
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Boston-Providence Hwy & Sumner Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	100	40	50	40	60	40	40	80	1470	20	20	20	450	90	
Future Volume (vph)	100	40	50	40	60	40	40	80	1470	20	20	20	450	90	
Satd. Flow (prot)	0	1660	0	0	1673	0	0	1678	3355	1501	0	1678	3355	1501	
Flt Permitted		0.710			0.849			0.950				0.950			
Satd. Flow (perm)	0	1210	0	0	1441	0	0	1678	3355	1501	0	1678	3355	1501	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	226	0	0	167	0	0	143	1749	24	0	48	535	107	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4			8					6					2	
Total Split (s)	23.0	23.0		23.0	23.0		20.0	20.0	57.0	57.0	10.0	10.0	47.0	47.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)		18.4			18.4			11.9	47.4	47.4		5.1	35.8	35.8	
Actuated g/C Ratio		0.23			0.23			0.15	0.58	0.58		0.06	0.44	0.44	
v/c Ratio		0.83			0.51			0.59	0.90	0.03		0.46	0.36	0.16	
Control Delay		59.9			37.2			44.3	23.0	8.2		55.6	15.8	14.4	
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		59.9			37.2			44.3	23.0	8.2		55.6	15.8	14.4	
LOS		E			D			D	C	A		E	B	B	
Approach Delay		59.9			37.2				24.4				18.4		
Approach LOS		E			D				C				B		

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 81.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 26.4	Intersection LOS: C
Intersection Capacity Utilization 81.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Boston-Providence Hwy & Union Street



Part 5: 2040 Conditions: Weekday PM Peak-Hour LOS and Delays

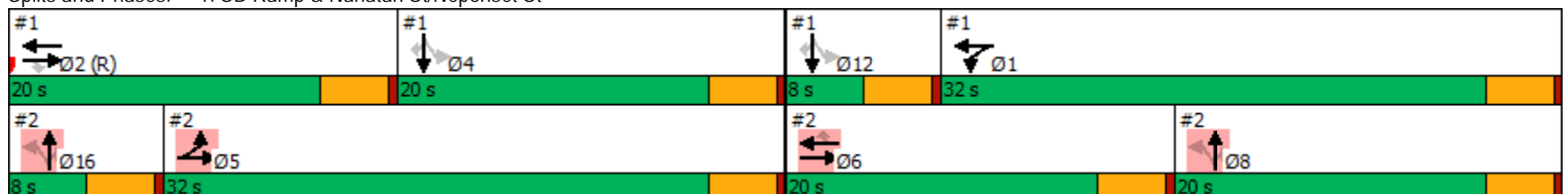
Intersection									
Intersection Delay, s/veh	26.9								
Intersection LOS	D								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	940		809		404		798		
Demand Flow Rate, veh/h	959		826		412		813		
Vehicles Circulating, veh/h	692		485		1311		826		
Vehicles Exiting, veh/h	947		1238		340		485		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	28.6		10.7		25.3		42.0		
Approach LOS	D		B		D		E		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	LT	R	LT	R	LT	R	
Assumed Moves	LT	R	LT	R	LT	R	LT	R	
RT Channelized									
Lane Util	0.709	0.291	0.648	0.352	0.735	0.265	0.791	0.209	
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535	
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544	
Entry Flow, veh/h	680	279	535	291	303	109	643	170	
Cap Entry Lane, veh/h	756	756	913	913	431	431	670	670	
Entry HV Adj Factor	0.980	0.982	0.980	0.979	0.979	0.982	0.981	0.982	
Flow Entry, veh/h	666	274	524	285	297	107	631	167	
Cap Entry, veh/h	741	743	895	894	422	423	657	658	
V/C Ratio	0.899	0.369	0.586	0.319	0.704	0.253	0.960	0.254	
Control Delay, s/veh	36.4	9.5	12.5	7.5	29.9	12.6	50.8	8.6	
LOS	E	A	B	A	D	B	F	A	
95th %tile Queue, veh	12	2	4	1	5	1	14	1	

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙			
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø4	Ø5	Ø6
Lane Configurations		↑↑	↗	↖	↑↑					↖	↗	↗			
Traffic Volume (vph)	0	560	230	120	560	0	0	0	0	510	10	140			
Future Volume (vph)	0	560	230	120	560	0	0	0	0	510	10	140			
Satd. Flow (prot)	0	3539	1583	1770	3539	0	0	0	0	1681	1688	1583			
Flt Permitted				0.950						0.950	0.954				
Satd. Flow (perm)	0	3539	1474	1770	3539	0	0	0	0	1681	1688	1518			
Satd. Flow (RTOR)			268									177			
Lane Group Flow (vph)	0	652	268	140	652	0	0	0	0	303	303	163			
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm			
Protected Phases		2		1	2 1						4 12		4	5	6
Permitted Phases			2							4 12		4 12			
Total Split (s)		20.0	20.0	32.0									20.0	32.0	20.0
Total Lost Time (s)		4.0	4.0	4.0											
Act Effct Green (s)		21.4	21.4	23.1	48.5					23.5	23.5	23.5			
Actuated g/C Ratio		0.27	0.27	0.29	0.61					0.29	0.29	0.29			
v/c Ratio		0.69	0.45	0.27	0.30					0.61	0.61	0.29			
Control Delay		33.3	6.7	1.1	0.6					30.5	30.4	4.5			
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0			
Total Delay		33.3	6.7	1.1	0.6					30.5	30.4	4.5			
LOS		C	A	A	A					C	C	A			
Approach Delay		25.6			0.7						25.0				
Approach LOS		C			A						C				
Queue Length 50th (ft)		154	0	0	0					134	134	0			
Queue Length 95th (ft)		#271	60	m0	0					222	222	36			
Internal Link Dist (ft)		510			334			298			479				
Turn Bay Length (ft)			150	150								150			
Base Capacity (vph)		948	591	619	2147					480	482	560			
Starvation Cap Reductn		0	0	0	0					0	0	0			
Spillback Cap Reductn		0	0	0	0					0	0	0			
Storage Cap Reductn		0	0	0	0					0	0	0			
Reduced v/c Ratio		0.69	0.45	0.23	0.30					0.63	0.63	0.29			

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 17.4 Intersection LOS: B
 Intersection Capacity Utilization 56.7% ICU Level of Service B
 Analysis Period (min) 15
 # 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.

Splits and Phases: 1: SB Ramp & Nahatan St/Neponset St

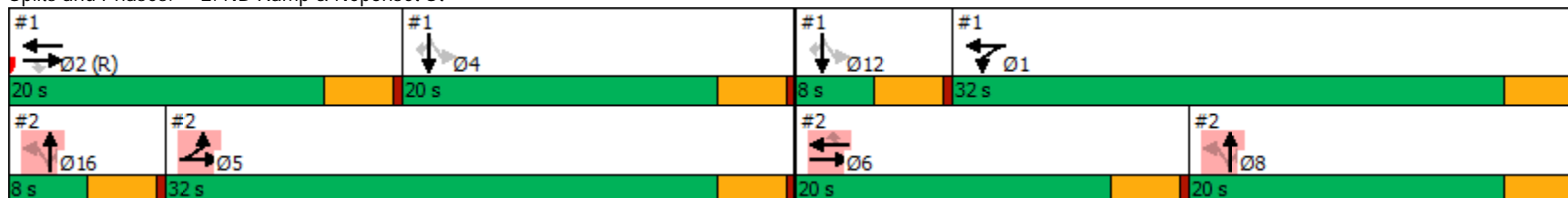


	↖	→	↘	↙	←	↖	↙	↑	↖	↘	↓	↙	Ø1	Ø2	Ø4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations	↖	↕			↕	↖	↖	↖	↖						
Traffic Volume (vph)	280	790	0	0	440	240	240	10	90	0	0	0			
Future Volume (vph)	280	790	0	0	440	240	240	10	90	0	0	0			
Satd. Flow (prot)	1770	3539	0	0	3539	1583	1681	1692	1583	0	0	0			
Flt Permitted	0.950						0.950	0.956							
Satd. Flow (perm)	1770	3539	0	0	3539	1474	1681	1692	1518	0	0	0			
Satd. Flow (RTOR)						280			177						
Lane Group Flow (vph)	326	920	0	0	513	280	146	146	105	0	0	0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm						
Protected Phases	5	5 6			6			8 16					1	2	4
Permitted Phases						6	8 16		8 16						
Total Split (s)	32.0				20.0	20.0							32.0	20.0	20.0
Total Lost Time (s)	4.0				4.0	4.0									
Act Effct Green (s)	26.9	46.8			16.0	16.0	25.2	25.2	25.2						
Actuated g/C Ratio	0.34	0.58			0.20	0.20	0.32	0.32	0.32						
v/c Ratio	0.55	0.44			0.73	0.54	0.28	0.27	0.18						
Control Delay	7.7	1.7			36.7	8.1	23.0	23.0	1.2						
Queue Delay	0.0	0.1			0.0	0.0	0.0	0.0	0.0						
Total Delay	7.7	1.8			36.7	8.1	23.0	23.0	1.2						
LOS	A	A			D	A	C	C	A						
Approach Delay		3.3			26.6			17.3							
Approach LOS		A			C			B							
Queue Length 50th (ft)	163	2			127	0	58	57	0						
Queue Length 95th (ft)	261	0			181	62	108	107	7						
Internal Link Dist (ft)		334			440			310			487				
Turn Bay Length (ft)	150					150			150						
Base Capacity (vph)	619	2057			717	521	528	532	598						
Starvation Cap Reductn	0	299			0	0	0	0	0						
Spillback Cap Reductn	0	0			0	0	0	0	0						
Storage Cap Reductn	0	0			0	0	0	0	0						
Reduced v/c Ratio	0.53	0.52			0.72	0.54	0.28	0.27	0.18						

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 13.2 Intersection LOS: B
 Intersection Capacity Utilization 56.7% ICU Level of Service B
 Analysis Period (min) 15

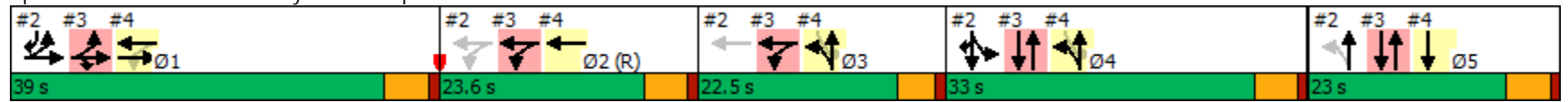
Splits and Phases: 2: NB Ramp & Neponset St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø3
Lane Configurations		↔↔			↔↔			↕		↕	↕	↕	
Traffic Volume (vph)	20	520	30	40	310	50	30	0	40	150	30	170	
Future Volume (vph)	20	520	30	40	310	50	30	0	40	150	30	170	
Satd. Flow (prot)	0	3387	0	0	3339	0	0	1627	0	1625	1656	1531	
Flt Permitted		0.998			0.804			0.822		0.950	0.968		
Satd. Flow (perm)	0	3387	0	0	2698	0	0	1366	0	1625	1656	1531	
Satd. Flow (RTOR)													
Lane Group Flow (vph)	0	679	0	0	476	0	0	84	0	107	107	202	
Turn Type	Split	NA		custom	NA		Perm	NA		Split	NA	pt+ov	
Protected Phases	1	1						5		4	4	4	3
Permitted Phases				2	2	3		5					
Total Split (s)	39.0	39.0		23.6			23.0	23.0		33.0	33.0		22.5
Total Lost Time (s)		5.0						5.0		5.0	5.0		
Act Effct Green (s)		34.0			41.1			18.0		28.0	28.0		62.0
Actuated g/C Ratio		0.24			0.29			0.13		0.20	0.20		0.44
v/c Ratio		0.83			0.61			0.48		0.33	0.33		0.30
Control Delay		60.9			18.8			67.4		51.9	51.7		15.2
Queue Delay		1.6			0.2			0.2		0.0	0.0		0.0
Total Delay		62.4			19.0			67.6		51.9	51.7		15.2
LOS		E			B			E		D	D		B
Approach Delay		62.4			19.0			67.6			34.1		
Approach LOS		E			B			E			C		

Intersection Summary
 Cycle Length: 141.1
 Actuated Cycle Length: 141.1
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 43.1 Intersection LOS: D
 Intersection Capacity Utilization 54.6% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 2: Driveway/SB off-ramp & Dean St

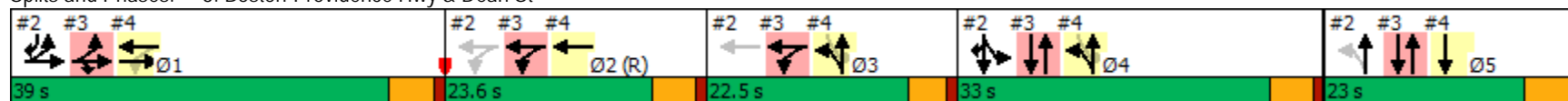


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3	Ø4
Lane Configurations															
Traffic Volume (vph)	250	380	80	300	310	120	0	930	20	0	1220	50			
Future Volume (vph)	250	380	80	300	310	120	0	930	20	0	1220	50			
Satd. Flow (prot)	3319	1801	1531	1711	3278	0	0	4901	0	0	4886	0			
Flt Permitted	0.950			0.950											
Satd. Flow (perm)	3319	1801	1531	1711	3278	0	0	4901	0	0	4886	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	297	452	95	357	512	0	0	1130	0	0	1510	0			
Turn Type	Split	NA	Prot	Split	NA			NA			NA				
Protected Phases	1	1	1	2 3	2 3			4 5			4 5		2	3	4
Permitted Phases															
Total Split (s)	39.0	39.0	39.0										23.6	22.5	33.0
Total Lost Time (s)	5.0	5.0	5.0												
Act Effct Green (s)	34.0	34.0	34.0	41.1	41.1			51.0			51.0				
Actuated g/C Ratio	0.24	0.24	0.24	0.29	0.29			0.36			0.36				
v/c Ratio	0.37	1.04	0.26	0.72	0.54			0.64			0.86				
Control Delay	16.7	70.1	17.2	38.5	29.9			39.4			47.5				
Queue Delay	0.8	13.3	0.0	58.3	54.9			0.0			0.0				
Total Delay	17.5	83.4	17.2	96.8	84.7			39.4			47.5				
LOS	B	F	B	F	F			D			D				
Approach Delay		52.8			89.7			39.4			47.5				
Approach LOS		D			F			D			D				

Intersection Summary

Cycle Length: 141.1
 Actuated Cycle Length: 141.1
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 54.8 Intersection LOS: D
 Intersection Capacity Utilization 81.8% ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: Boston-Providence Hwy & Dean St



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	23.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

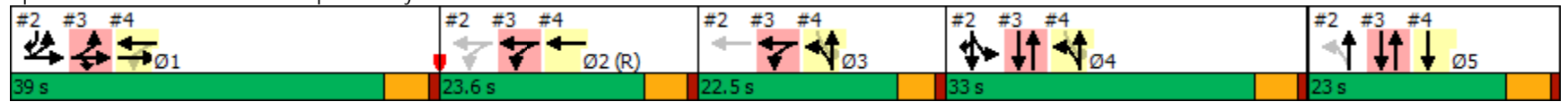
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3	Ø4
Lane Configurations		↑↑			↑↑		↑	↑			↑				
Traffic Volume (vph)	0	350	40	20	550	5	180	5	300	0	0	5			
Future Volume (vph)	0	350	40	20	550	5	180	5	300	0	0	5			
Satd. Flow (prot)	0	3367	0	0	3411	0	1625	1468	0	0	1558	0			
Flt Permitted					0.923		0.950	0.997							
Satd. Flow (perm)	0	3367	0	0	3155	0	1625	1468	0	0	1558	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	464	0	0	684	0	193	384	0	0	6	0			
Turn Type		NA		D.Pm	NA		Split	NA			NA				
Protected Phases		1			1 2		3 4	3 4			5		2	3	4
Permitted Phases				1						3 4					
Total Split (s)		39.0		39.0							23.0		23.6	22.5	33.0
Total Lost Time (s)		5.0									5.0				
Act Effct Green (s)		34.0			57.6		51.0	51.0			18.0				
Actuated g/C Ratio		0.24			0.41		0.36	0.36			0.13				
v/c Ratio		0.57			0.53		0.33	0.72			0.03				
Control Delay		9.2			33.4		34.6	48.3			54.5				
Queue Delay		4.4			2.4		0.0	4.4			0.0				
Total Delay		13.5			35.9		34.6	52.6			54.5				
LOS		B			D		C	D			D				
Approach Delay		13.5			35.9			46.6			54.5				
Approach LOS		B			D			D			D				

Intersection Summary

Cycle Length: 141.1
 Actuated Cycle Length: 141.1
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 33.5 Intersection LOS: C
 Intersection Capacity Utilization 64.6% ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 4: NB off-ramp/Driveway & Dean St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	200	80	80	300	120	70	20	60	740	80	190	160	1210	110	
Future Volume (vph)	200	80	80	300	120	70	20	60	740	80	190	160	1210	110	
Satd. Flow (prot)	1711	1666	0	1711	1702	0	0	1711	3421	1531	0	1711	3421	1531	
Flt Permitted	0.501			0.561				0.950				0.950			
Satd. Flow (perm)	902	1666	0	1010	1702	0	0	1711	3421	1531	0	1711	3421	1531	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	238	190	0	357	226	0	0	95	880	95	0	416	1439	131	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4			8					6					2	
Total Split (s)	31.0	31.0		31.0	31.0		13.0	13.0	33.0	33.0	31.0	31.0	51.0	51.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)	26.0	26.0		26.0	26.0			8.0	28.0	28.0		24.9	47.6	47.6	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.09	0.30	0.30		0.27	0.51	0.51	
v/c Ratio	0.96	0.41		1.28	0.48			0.65	0.86	0.21		0.92	0.83	0.17	
Control Delay	83.1	31.4		181.4	32.8			64.1	41.7	26.7		60.9	26.0	14.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	83.1	31.4		181.4	32.8			64.1	41.7	26.7		60.9	26.0	14.3	
LOS	F	C		F	C			E	D	C		E	C	B	
Approach Delay		60.2			123.8				42.3				32.5		
Approach LOS		E			F				D				C		

Intersection Summary

Cycle Length: 95	
Actuated Cycle Length: 93.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.28	
Intersection Signal Delay: 51.1	Intersection LOS: D
Intersection Capacity Utilization 90.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Boston-Providence Hwy & Morse Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	140	150	60	20	70	80	120	160	670	50	60	270	1140	150	
Future Volume (vph)	140	150	60	20	70	80	120	160	670	50	60	270	1140	150	
Satd. Flow (prot)	1711	1801	1531	0	1781	1531	0	1711	3421	1531	0	1711	3421	1531	
Flt Permitted	0.688				0.830			0.950				0.950			
Satd. Flow (perm)	1239	1801	1531	0	1495	1531	0	1711	3421	1531	0	1711	3421	1531	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	167	178	71	0	107	95	0	333	797	59	0	392	1356	178	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4		4	8		8			6					2	
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	27.0	27.0	37.0	37.0	33.0	33.0	43.0	43.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	8.0		8.5	6.5	6.5		8.0	6.5	6.5	
Act Effct Green (s)	12.0	12.0	12.0		12.0	12.0		18.5	32.2	32.2		23.3	36.5	36.5	
Actuated g/C Ratio	0.13	0.13	0.13		0.13	0.13		0.21	0.36	0.36		0.26	0.41	0.41	
v/c Ratio	1.01	0.74	0.35		0.54	0.47		0.95	0.65	0.11		0.88	0.98	0.29	
Control Delay	115.1	57.5	40.8		47.3	44.3		74.0	27.8	21.1		54.7	46.9	19.6	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	115.1	57.5	40.8		47.3	44.3		74.0	27.8	21.1		54.7	46.9	19.6	
LOS	F	E	D		D	D		E	C	C		D	D	B	
Approach Delay		77.8			45.9			40.4					46.0		
Approach LOS		E			D			D					D		

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 47.7	Intersection LOS: D
Intersection Capacity Utilization 94.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Boston-Providence Hwy & Sumner Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	60	50	60	30	40	20	50	70	750	50	60	40	1420	160	
Future Volume (vph)	60	50	60	30	40	20	50	70	750	50	60	40	1420	160	
Satd. Flow (prot)	0	1685	0	0	1719	0	0	1711	3421	1531	0	1711	3421	1531	
Flt Permitted		0.839			0.771			0.950				0.950			
Satd. Flow (perm)	0	1438	0	0	1347	0	0	1711	3421	1531	0	1711	3421	1531	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	201	0	0	108	0	0	142	892	59	0	119	1689	190	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4			8						6				2	
Total Split (s)	19.0	19.0		19.0	19.0		16.0	16.0	53.0	53.0	18.0	18.0	55.0	55.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)		13.9			13.9			10.4	47.3	47.3		11.0	47.9	47.9	
Actuated g/C Ratio		0.16			0.16			0.12	0.54	0.54		0.13	0.55	0.55	
v/c Ratio		0.88			0.50			0.70	0.48	0.07		0.55	0.90	0.23	
Control Delay		74.6			44.0			57.1	13.6	10.2		46.6	25.6	11.0	
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		74.6			44.0			57.1	13.6	10.2		46.6	25.6	11.0	
LOS		E			D			E	B	B		D	C	B	
Approach Delay		74.6			44.0			19.1					25.5		
Approach LOS		E			D			B					C		

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 87.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 79.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Boston-Providence Hwy & Union Street



6: 2040 Conditions: Weekend Saturday PM Peak-Hour LOS and Delays

Intersection									
Intersection Delay, s/veh	12.6								
Intersection LOS	B								
Approach	EB		WB		NB		SB		
Entry Lanes	2		2		2		2		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	897		886		338		688		
Demand Flow Rate, veh/h	906		894		341		695		
Vehicles Circulating, veh/h	565		423		1071		705		
Vehicles Exiting, veh/h	835		989		400		612		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	13.2		9.3		12.7		15.8		
Approach LOS	B		A		B		C		
Lane	Left	Right	Left	Right	Left	Right	Left	Right	
Designated Moves	LT	R	LT	R	LT	R	LT	R	
Assumed Moves	LT	R	LT	R	LT	R	LT	R	
RT Channelized									
Lane Util	0.624	0.376	0.539	0.461	0.689	0.311	0.745	0.255	
Follow-Up Headway, s	2.535	2.535	2.535	2.535	2.535	2.535	2.535	2.535	
Critical Headway, s	4.544	4.544	4.544	4.544	4.544	4.544	4.544	4.544	
Entry Flow, veh/h	565	341	482	412	235	106	518	177	
Cap Entry Lane, veh/h	849	849	966	966	536	536	748	748	
Entry HV Adj Factor	0.990	0.991	0.991	0.990	0.991	0.991	0.990	0.989	
Flow Entry, veh/h	559	338	478	408	233	105	513	175	
Cap Entry, veh/h	841	842	958	957	531	531	740	739	
V/C Ratio	0.665	0.402	0.499	0.426	0.439	0.198	0.693	0.237	
Control Delay, s/veh	15.7	9.1	9.9	8.7	14.2	9.4	18.5	7.6	
LOS	C	A	A	A	B	A	C	A	
95th %tile Queue, veh	5	2	3	2	2	1	6	1	

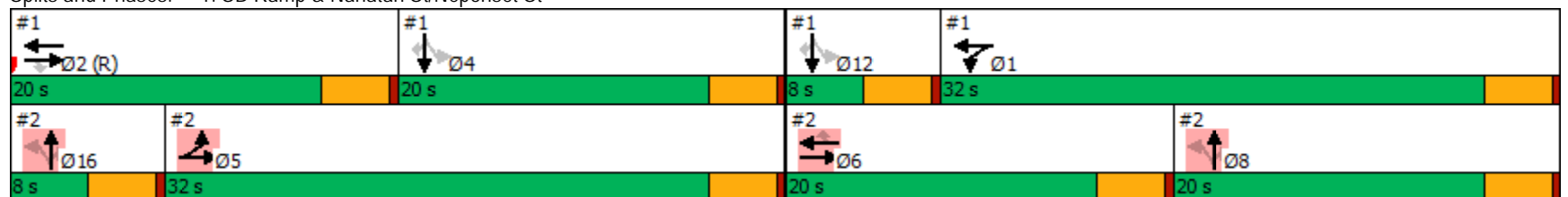
													Ø4	Ø5	Ø6
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	0	480	290	140	560	0	0	0	0	440	10	150			
Future Volume (vph)	0	480	290	140	560	0	0	0	0	440	10	150			
Satd. Flow (prot)	0	3574	1599	1787	3574	0	0	0	0	1698	1705	1599			
Flt Permitted				0.950						0.950	0.954				
Satd. Flow (perm)	0	3574	1489	1787	3574	0	0	0	0	1698	1705	1533			
Satd. Flow (RTOR)			338									177			
Lane Group Flow (vph)	0	559	338	163	652	0	0	0	0	262	263	175			
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm			
Protected Phases		2		1	2 1						4 12		4	5	6
Permitted Phases			2							4 12		4 12			
Total Split (s)		20.0	20.0	32.0									20.0	32.0	20.0
Total Lost Time (s)		4.0	4.0	4.0											
Act Effct Green (s)		21.5	21.5	23.5	48.9					23.1	23.1	23.1			
Actuated g/C Ratio		0.27	0.27	0.29	0.61					0.29	0.29	0.29			
v/c Ratio		0.58	0.52	0.31	0.30					0.54	0.54	0.31			
Control Delay		30.3	6.8	1.5	0.6					28.4	28.3	5.2			
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	0.0			
Total Delay		30.3	6.8	1.5	0.6					28.4	28.3	5.2			
LOS		C	A	A	A					C	C	A			
Approach Delay		21.5			0.8						22.6				
Approach LOS		C			A						C				
Queue Length 50th (ft)		130	0	0	0					113	113	0			
Queue Length 95th (ft)		#211	68	m0	0					189	189	42			
Internal Link Dist (ft)		510			334			298			479				
Turn Bay Length (ft)			150	150								150			
Base Capacity (vph)		959	647	625	2186					483	485	563			
Starvation Cap Reductn		0	0	0	0					0	0	0			
Spillback Cap Reductn		0	0	0	0					0	0	0			
Storage Cap Reductn		0	0	0	0					0	0	0			
Reduced v/c Ratio		0.58	0.52	0.26	0.30					0.54	0.54	0.31			

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 14.8
 Intersection Capacity Utilization 66.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

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.

Splits and Phases: 1: SB Ramp & Nahatan St/Neponset St



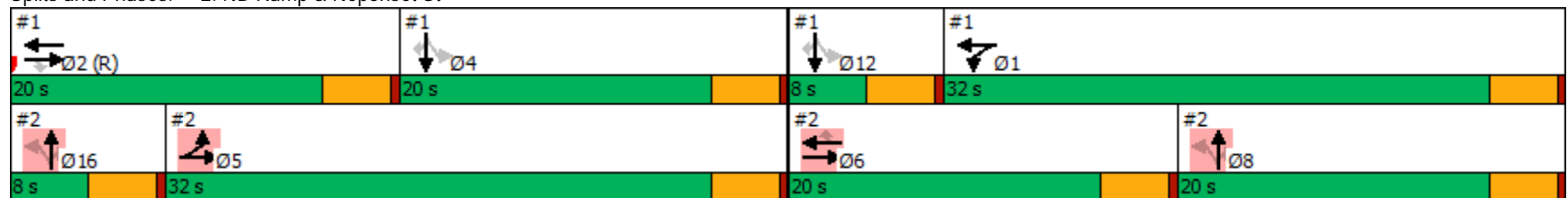
													Ø1	Ø2	Ø4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Volume (vph)	300	620	0	0	410	350	290	10	90	0	0	0			
Future Volume (vph)	300	620	0	0	410	350	290	10	90	0	0	0			
Satd. Flow (prot)	1787	3574	0	0	3574	1599	1698	1708	1599	0	0	0			
Flt Permitted	0.950						0.950	0.956							
Satd. Flow (perm)	1787	3574	0	0	3574	1489	1698	1708	1533	0	0	0			
Satd. Flow (RTOR)						408			177						
Lane Group Flow (vph)	349	722	0	0	478	408	176	174	105	0	0	0			
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm						
Protected Phases	5	5 6			6			8 16					1	2	4
Permitted Phases						6	8 16		8 16						
Total Split (s)	32.0				20.0	20.0							32.0	20.0	20.0
Total Lost Time (s)	4.0				4.0	4.0									
Act Effct Green (s)	26.3	46.3			16.0	16.0	25.7	25.7	25.7						
Actuated g/C Ratio	0.33	0.58			0.20	0.20	0.32	0.32	0.32						
v/c Ratio	0.59	0.35			0.67	0.65	0.32	0.32	0.17						
Control Delay	9.5	1.2			34.8	8.8	23.6	23.5	1.2						
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0						
Total Delay	9.5	1.2			34.8	8.8	23.6	23.5	1.2						
LOS	A	A			C	A	C	C	A						
Approach Delay		3.9			22.8			18.4							
Approach LOS		A			C			B							
Queue Length 50th (ft)	176	0			116	0	71	70	0						
Queue Length 95th (ft)	275	0			167	77	128	126	7						
Internal Link Dist (ft)		334			440			310			487				
Turn Bay Length (ft)	150					150			150						
Base Capacity (vph)	625	2081			738	631	545	549	612						
Starvation Cap Reductn	0	0			0	0	0	0	0						
Spillback Cap Reductn	0	0			0	0	0	0	0						
Storage Cap Reductn	0	0			0	0	0	0	0						
Reduced v/c Ratio	0.56	0.35			0.65	0.65	0.32	0.32	0.17						

Intersection Summary

Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 13.6
 Intersection Capacity Utilization 66.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 2: NB Ramp & Neponset St



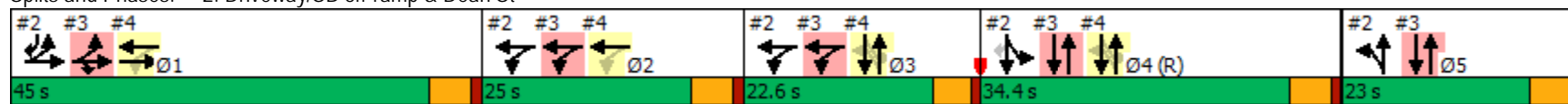


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3
Lane Configurations														
Traffic Volume (vph)	20	470	40	70	240	40	30	0	40	250	40	170		
Future Volume (vph)	20	470	40	70	240	40	30	0	40	250	40	170		
Satd. Flow (prot)	0	3410	0	0	3362	0	0	1643	0	1641	1667	1546		
Flt Permitted		0.998			0.990			0.979		0.950	0.965			
Satd. Flow (perm)	0	3410	0	0	3362	0	0	1643	0	1641	1667	1546		
Satd. Flow (RTOR)														
Lane Group Flow (vph)	0	618	0	0	409	0	0	82	0	169	169	198		
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	pm+ov		
Protected Phases	1	1		2 3	2 3		5	5		4	4	1	2	3
Permitted Phases														4
Total Split (s)	45.0	45.0					23.0	23.0		34.4	34.4	45.0	25.0	22.6
Total Lost Time (s)		5.0						5.0		5.0	5.0	5.0		
Act Effct Green (s)		40.0			42.6			18.0		29.4	29.4	69.4		
Actuated g/C Ratio		0.27			0.28			0.12		0.20	0.20	0.46		
v/c Ratio		0.68			0.43			0.42		0.53	0.52	0.28		
Control Delay		53.7			18.1			68.2		60.8	60.5	14.7		
Queue Delay		0.4			0.4			0.4		0.0	0.0	0.0		
Total Delay		54.1			18.5			68.6		60.8	60.5	14.7		
LOS		D			B			E		E	E	B		
Approach Delay		54.1			18.5			68.6			43.7			
Approach LOS		D			B			E			D			

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBTL and 8:, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 42.6 Intersection LOS: D
 Intersection Capacity Utilization 56.2% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 2: Driveway/SB off-ramp & Dean St

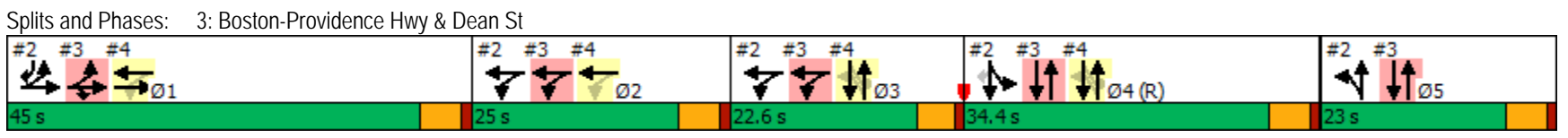




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2	Ø3	Ø4
Lane Configurations															
Traffic Volume (vph)	300	350	100	310	290	140	0	1180	30	0	1120	60			
Future Volume (vph)	300	350	100	310	290	140	0	1180	30	0	1120	60			
Satd. Flow (prot)	3351	1818	1546	1728	3286	0	0	4945	0	0	4925	0			
Flt Permitted	0.950			0.950											
Satd. Flow (perm)	3351	1818	1546	1728	3286	0	0	4945	0	0	4925	0			
Satd. Flow (RTOR)															
Lane Group Flow (vph)	349	408	116	361	501	0	0	1410	0	0	1375	0			
Turn Type	Split	NA	Prot	Split	NA			NA			NA				
Protected Phases	1	1	1	2 3	2 3			4 5			4 5		2	3	4
Permitted Phases															
Total Split (s)	45.0	45.0	45.0										25.0	22.6	34.4
Total Lost Time (s)	5.0	5.0	5.0												
Act Effct Green (s)	40.0	40.0	40.0	42.6	42.6			52.4			52.4				
Actuated g/C Ratio	0.27	0.27	0.27	0.28	0.28			0.35			0.35				
v/c Ratio	0.39	0.84	0.28	0.74	0.54			0.82			0.80				
Control Delay	19.7	37.6	19.5	46.4	36.2			49.1			48.4				
Queue Delay	1.1	13.0	1.3	57.8	55.0			0.0			0.0				
Total Delay	20.8	50.6	20.8	104.2	91.2			49.1			48.4				
LOS	C	D	C	F	F			D			D				
Approach Delay		34.7			96.7			49.1			48.4				
Approach LOS		C			F			D			D				

Intersection Summary

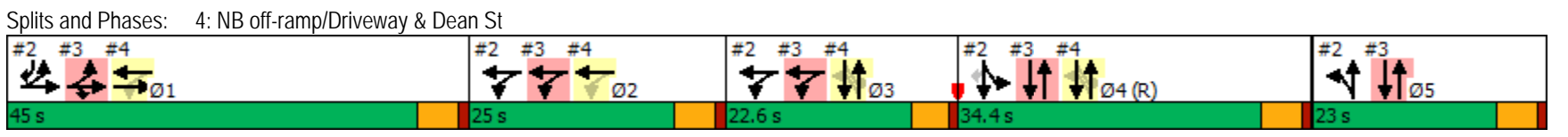
Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBTL and 8;, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 55.2
 Intersection Capacity Utilization 79.2%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	23.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

													Ø2	Ø3	Ø4	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations		↑↑			↑↑		↑	↑			↑					
Traffic Volume (vph)	0	320	60	20	545	20	190	0	210	0	0	5				
Future Volume (vph)	0	320	60	20	545	20	190	0	210	0	0	5				
Satd. Flow (prot)	0	3372	0	0	3431	0	1641	1483	0	0	1573	0				
Flt Permitted					0.925		0.754	0.980								
Satd. Flow (perm)	0	3372	0	0	3180	0	1303	1459	0	0	1573	0				
Satd. Flow (RTOR)																
Lane Group Flow (vph)	0	443	0	0	681	0	199	267	0	0	6	0				
Turn Type		NA		Perm	NA		Perm	NA			NA					
Protected Phases		1			1 2			3 4			3 4		2	3	4	
Permitted Phases				1 2			3 4			3 4						
Total Split (s)		45.0											25.0	22.6	34.4	
Total Lost Time (s)		5.0														
Act Effct Green (s)		40.0			65.0		52.5	52.5			52.5					
Actuated g/C Ratio		0.27			0.43		0.35	0.35			0.35					
v/c Ratio		0.49			0.49		0.44	0.52			0.01					
Control Delay		7.1			32.2		41.1	43.3			32.0					
Queue Delay		2.0			2.2		0.0	1.3			0.0					
Total Delay		9.1			34.4		41.1	44.6			32.0					
LOS		A			C		D	D			C					
Approach Delay		9.1			34.4			43.1			32.0					
Approach LOS		A			C			D			C					

Intersection Summary
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBTL and 8:, Start of Green, Master Intersection
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 29.9 Intersection LOS: C
 Intersection Capacity Utilization 62.1% ICU Level of Service B
 Analysis Period (min) 15



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	5
Permitted Phases	
Total Split (s)	23.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	190	50	60	120	50	90	20	80	1090	80	150	110	1120	150	
Future Volume (vph)	190	50	60	120	50	90	20	80	1090	80	150	110	1120	150	
Satd. Flow (prot)	1728	1669	0	1728	1642	0	0	1728	3455	1546	0	1728	3455	1546	
Flt Permitted	0.583			0.662				0.950				0.950			
Satd. Flow (perm)	1060	1669	0	1070	1642	0	0	1728	3455	1546	0	1728	3455	1546	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	221	128	0	140	163	0	0	116	1270	93	0	303	1305	175	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Perm	Prot	Prot	NA	Perm	
Protected Phases		4			8		1	1	6		5	5	2		
Permitted Phases	4			8					6					2	
Total Split (s)	23.0	23.0		23.0	23.0		17.0	17.0	42.0	42.0	25.0	25.0	50.0	50.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)	18.1	18.1		18.1	18.1			10.5	35.4	35.4		18.2	46.1	46.1	
Actuated g/C Ratio	0.21	0.21		0.21	0.21			0.12	0.41	0.41		0.21	0.53	0.53	
v/c Ratio	1.00	0.37		0.63	0.48			0.56	0.90	0.15		0.83	0.71	0.21	
Control Delay	99.7	34.4		47.1	36.9			47.5	34.5	17.3		54.1	19.1	12.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	99.7	34.4		47.1	36.9			47.5	34.5	17.3		54.1	19.1	12.9	
LOS	F	C		D	D			D	C	B		D	B	B	
Approach Delay		75.8			41.6				34.5				24.5		
Approach LOS		E			D				C				C		

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 86.8	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 34.2	Intersection LOS: C
Intersection Capacity Utilization 88.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Boston-Providence Hwy & Morse Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	220	120	100	30	80	100	120	230	940	40	60	140	880	240	
Future Volume (vph)	220	120	100	30	80	100	120	230	940	40	60	140	880	240	
Satd. Flow (prot)	1728	1818	1546	0	1795	1546	0	1728	3455	1546	0	1728	3455	1546	
Flt Permitted	0.675				0.860			0.950				0.950			
Satd. Flow (perm)	1227	1818	1546	0	1564	1546	0	1728	3455	1546	0	1728	3455	1546	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	256	140	116	0	128	116	0	408	1095	47	0	233	1025	280	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Prot	NA	Prot	Prot	Prot	NA	Prot	
Protected Phases		4			8		1	1	6	6	5	5	2	2	
Permitted Phases	4		4	8		8									
Total Split (s)	18.0	18.0	18.0	18.0	18.0	18.0	25.0	25.0	33.0	33.0	18.0	18.0	26.0	26.0	
Total Lost Time (s)	8.0	8.0	8.0		8.0	8.0		8.5	6.5	6.5		8.0	6.5	6.5	
Act Effct Green (s)	10.0	10.0	10.0		10.0	10.0		16.5	26.5	26.5		10.0	19.5	19.5	
Actuated g/C Ratio	0.14	0.14	0.14		0.14	0.14		0.24	0.38	0.38		0.14	0.28	0.28	
v/c Ratio	1.45	0.53	0.52		0.57	0.52		0.99	0.83	0.08		0.93	1.05	0.64	
Control Delay	257.6	35.6	36.4		38.5	36.4		71.2	25.9	14.1		75.0	69.7	29.6	
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	257.6	35.6	36.4		38.5	36.4		71.2	25.9	14.1		75.0	69.7	29.6	
LOS	F	D	D		D	D		E	C	B		E	E	C	
Approach Delay		146.8			37.5			37.5					63.2		
Approach LOS		F			D			D					E		

Intersection Summary

Cycle Length: 69	
Actuated Cycle Length: 69	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.45	
Intersection Signal Delay: 62.3	Intersection LOS: E
Intersection Capacity Utilization 95.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Boston-Providence Hwy & Sumner Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations															
Traffic Volume (vph)	70	120	80	60	40	40	80	90	1080	50	60	40	1070	180	
Future Volume (vph)	70	120	80	60	40	40	80	90	1080	50	60	40	1070	180	
Satd. Flow (prot)	0	1723	0	0	1711	0	0	1728	3455	1546	0	1728	3455	1546	
Flt Permitted		0.860			0.644			0.950				0.950			
Satd. Flow (perm)	0	1501	0	0	1125	0	0	1728	3455	1546	0	1728	3455	1546	
Satd. Flow (RTOR)															
Lane Group Flow (vph)	0	315	0	0	164	0	0	198	1258	58	0	117	1246	210	
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA	Prot	Prot	Prot	NA	Prot	
Protected Phases		4			8		1	1	6	6	5	5	2	2	
Permitted Phases	4			8											
Total Split (s)	27.0	27.0		27.0	27.0		19.0	19.0	49.0	49.0	14.0	14.0	44.0	44.0	
Total Lost Time (s)		5.0			5.0			5.0	5.0	5.0		5.0	5.0	5.0	
Act Effct Green (s)		20.6			20.6			12.9	39.8	39.8		8.9	35.8	35.8	
Actuated g/C Ratio		0.24			0.24			0.15	0.47	0.47		0.11	0.42	0.42	
v/c Ratio		0.86			0.60			0.75	0.77	0.08		0.65	0.85	0.32	
Control Delay		56.2			40.0			54.9	22.5	12.7		56.7	29.1	18.3	
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		56.2			40.0			54.9	22.5	12.7		56.7	29.1	18.3	
LOS		E			D			D	C	B		E	C	B	
Approach Delay		56.2			40.0			26.3				29.7			
Approach LOS		E			D			C				C			

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 84.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 75.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Boston-Providence Hwy & Union Street

