

Inbound Providence Line EMU times per Alon Levy, full high platforms at all stations

km	station	time from prev (s)	station time (s)	total time (s)	time with 7% pad	minute	current V800	savings	Acela	NE Regional
	schedule assumes intra-RI service is operated as a shuttle with timed transfers at Providence Union Station									
70.1	Providence			0						
63.6	Pawtucket	177	67	244	261.08	5	infill	infill		
59.7	South Attleboro	103	75	422	451.54	8	9	1		
51.4	Attleboro	187	75	684	731.88	13	19	6		
40.0	Mansfield	257	75	1016	1087.12	19	29	10		
29.2	Sharon	243	75	1334	1427.38	24	38	14		
24.1	Canton Jct	115	75	1524	1630.68	28	45	17		
18.8	Route 128	120	75	1719	1839.33	31	50	19	25	31
15.5	Readville	75	70	1864	1994.48	34	no stop	no stop		
13.5	Hyde Park	56	70	1990	2129.3	36	55	19		
10.6	Cummins Hwy	65	70	2125	2273.75	38	infill	infill		
8.3	Forest Hills	117	75	2317	2479.19	42	no stop	no stop		
4	Ruggles	97	70	2484	2657.88	45	64	19		
2.1	Back Bay	53	60	2597	2778.79	47	68	21	35	42
0	South Station	98		2695	2883.65	49	74	25	40	48
			25s dwell at each stop; remaining station time is acceleration penalty if I understand Alon correctly							

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km	station	time from prev (s)	station time (s)	total time (s)	time with 7% pad	minute	current V800	savings	Acela	NE Regional
	schedule assumes intra-RI service is operated as a shuttle with timed transfers at Providence Union Station									
70.1	Providence			0						
63.6	Pawtucket	177	0	177	189.39	4	infill	infill		
59.7	South Attleboro	103	0	280	299.6	5	9	4		
51.4	Attleboro	187	0	467	499.69	9	19	10		
40.0	Mansfield	257	75	799	854.93	15	29	14		
29.2	Sharon	243	75	1117	1195.19	20	38	18		
24.1	Canton Jct	115	0	1232	1318.24	22	45	23		
18.8	Route 128	120	75	1427	1526.89	26	50	24	25	31
15.5	Readville	75	0	1502	1607.14	27	no stop	no stop		
13.5	Hyde Park	56	0	1558	1667.06	28	55	27		
10.6	Cummins Hwy	65	0	1623	1736.61	29	infill	infill		
8.3	Forest Hills	117	0	1740	1861.8	32	no stop	no stop		
4	Ruggles	97	70	1907	2040.49	35	64	29		
2.1	Back Bay	53	60	2020	2161.4	37	68	31	35	42
0	South Station	98		2118	2266.26	38	74	36	40	48
			25s dwell at each stop; remaining station time is acceleration penalty if I understand Alon correctly							

Inbound Providence Line EMU times per Alon Levy, full high platforms at all stations

km	station	time from prev (s)	station time (s)	total time (s)	time with 7% pad	minute	current V800	savings	Acela	NE Regional
	assumes express train serves only stations with existing high platforms									
70.1	Providence			0						
63.6	Pawtucket	177	0	177	189.39	4	infill	infill		
59.7	South Attleboro	103	0	280	299.6	5	9	4		
51.4	Attleboro	187	0	467	499.69	9	19	10		
40.0	Mansfield	257	0	724	774.68	13	29	16		
29.2	Sharon	243	0	967	1034.69	18	38	20		
24.1	Canton Jct	115	0	1082	1157.74	20	45	25		
18.8	Route 128	120	75	1277	1366.39	23	50	27	25	31
15.5	Readville	75	0	1352	1446.64	25	no stop	no stop		
13.5	Hyde Park	56	0	1408	1506.56	26	55	29		
10.6	Cummins Hwy	65	0	1473	1576.11	27	infill	infill		
8.3	Forest Hills	117	0	1590	1701.3	29	no stop	no stop		
4	Ruggles	97	70	1757	1879.99	32	64	32		
2.1	Back Bay	53	60	1870	2000.9	34	68	34	35	42
0	South Station	98		1968	2105.76	36	74	38	40	48
			25s dwell at each stop; remaining station time is acceleration penalty if I understand Alon correctly							

Inbound New Bedford/Stoughton Line EMU times per Alon Levy, full high platforms at all stations

km	station	time from prev (s)	station time (s)	total time (s)	time with 7% pad	minute			
	schedule ignores Fall River branch; service to only one South Coast city would offer superior frequency and New Bedford has the Vineyard ferry								
88.9	New Bedford Pier			0					
87.2	Route 18	74	65	139	148.73	3			
83.7	North New Bedford	79	75	293	313.51	6			
65.4	Myricks	412	75	780	834.6	14			
56.1	Taunton	234	63	1077	1152.39	20			
50.4	Raynham	129	75	1281	1370.67	23			
37.0	Easton	302	75	1658	1774.06	30			
30.4	Stoughton	149	72	1879	2010.53	34			
25.1	Canton Center	126	65	2070	2214.9	37			
24.1	Canton Jct	36	75	2181	2333.67	39			
18.8	Route 128	120	75	2376	2542.32	43			
15.5	Readville	75	70	2521	2697.47	45			
13.5	Hyde Park	56	70	2647	2832.29	48			
10.6	Cummins Hwy	65	70	2782	2976.74	50			
8.3	Forest Hills	117	75	2974	3182.18	54			
4	Ruggles	97	70	3141	3360.87	57			
2.1	Back Bay	53	60	3254	3481.78	59			
0	South Station	98		3352	3586.64	60			
			25s dwell at each stop; remaining station time is acceleration penalty if I understand Alon correctly						

Inbound New Bedford/Stoughton Line EMU times per Alon Levy, full high platforms at all stations

km	station	time from prev (s)	station time (s)	total time (s)	time with 7% pad	minute			
	schedule ignores Fall River branch; service to only one South Coast city would offer superior frequency and New Bedford has the Vineyard ferry								
88.9	New Bedford Pier			0					
87.2	Route 18	74	65	139	148.73	3			
83.7	North New Bedford	79	75	293	313.51	6			
65.4	Myricks	412	75	780	834.6	14			
56.1	Taunton	234	63	1077	1152.39	20			
50.4	Raynham	129	75	1281	1370.67	23			
37.0	Easton	302	75	1658	1774.06	30			
30.4	Stoughton	149	0	1807	1933.49	33			
25.1	Canton Center	126	0	1933	2068.31	35			
24.1	Canton Jct	36	0	1969	2106.83	36			
18.8	Route 128	120	75	2164	2315.48	39			
15.5	Readville	75	0	2239	2395.73	40			
13.5	Hyde Park	56	0	2295	2455.65	41			
10.6	Cummins Hwy	65	0	2360	2525.2	43			
8.3	Forest Hills	117	0	2477	2650.39	45			
4	Ruggles	97	70	2644	2829.08	48			
2.1	Back Bay	53	60	2757	2949.99	50			
0	South Station	98		2855	3054.85	51			
			25s dwell at each stop; remaining station time is acceleration penalty if I understand Alon correctly						

Inbound Stoughton Line EMU times per Alon Levy, full high platforms at all stations

km	station	time from prev (s)	station time (s)	total time (s)	time with 7% pad	minute	current T904	savings
30.4	Stoughton			0	0	0	0	0
25.1	Canton Center	126	65	191	204.37	4	8	4
24.1	Canton Jct	36	75	302	323.14	6	11	5
18.8	Route 128	120	75	497	531.79	9	16	7
15.5	Readville	75	70	642	686.94	12	no stop	no stop
13.5	Hyde Park	56	70	768	821.76	14	21	7
10.6	Cummins Hwy	65	70	903	966.21	17	infill	infill
8.3	Forest Hills	117	75	1095	1171.65	20	no stop	no stop
4	Ruggles	97	70	1262	1350.34	23	30	7
2.1	Back Bay	53	60	1375	1471.25	25	34	9
0	South Station	98		1473	1576.11	27	40	13
			25s dwell at each stop; remaining station time is acceleration penalty if I understand Alon correctly					

Providence Line schedule, with 4 tph local, 4 tph peak limited-stop service, and Stoughton diesels

	V300	V315	V330	V345	V360	V375	V390	V405	T418	V420	V435	T443	V450	V452L	V467L	V480	V482L	V495	V497L	T508
Providence	4:11	4:26	4:41	4:56	5:11	5:26	5:41	5:56		6:11	6:26		6:41	6:54	7:09	7:11	7:24	7:26	7:39	
Pawtucket	4:16	4:31	4:46	5:01	5:16	5:31	5:46	6:01		6:16	6:31		6:46			7:16		7:31		
South Attleboro	4:19	4:34	4:49	5:04	5:19	5:34	5:49	6:04		6:19	6:34		6:49			7:19		7:34		
Attleboro	4:24	4:39	4:54	5:09	5:24	5:39	5:54	6:09		6:24	6:39		6:54			7:24		7:39		
Mansfield	4:30	4:45	5:00	5:15	5:30	5:45	6:00	6:15		6:30	6:45		7:00	7:09	7:24	7:30	7:39	7:45	7:54	
Sharon	4:35	4:50	5:05	5:20	5:35	5:50	6:05	6:20		6:35	6:50		7:05	7:14	7:29	7:35	7:44	7:50	7:59	
Stoughton									6:20			6:45								7:46
Canton Center									6:28			6:53								7:54
Canton Jct	4:39	4:54	5:09	5:24	5:39	5:54	6:09	6:24	6:31	6:39	6:54	6:56	7:09			7:39		7:54		7:57
Route 128	4:42	4:57	5:12	5:27	5:42	5:57	6:12	6:27	6:36	6:42	6:57	7:02	7:12	7:20	7:35	7:42	7:50	7:57	8:05	8:03
Readville	4:45	5:00	5:15	5:30	5:45	6:00	6:15	6:30		6:45	7:00		7:15			7:45		8:00		
Hyde Park	4:47	5:02	5:17	5:32	5:47	6:02	6:17	6:32	6:43	6:47	7:02	7:08	7:17			7:47		8:02		
Cummins Hwy	4:49	5:04	5:19	5:34	5:49	6:04	6:19	6:34		6:49	7:04		7:19			7:49		8:04		
Forest Hills	4:53	5:08	5:23	5:38	5:53	6:08	6:23	6:38		6:53	7:08		7:23			7:53		8:08		
Ruggles	4:56	5:11	5:26	5:41	5:56	6:11	6:26	6:41		6:56	7:11		7:26	7:29	7:44	7:56	7:59	8:11	8:14	8:17
Back Bay	4:58	5:13	5:28	5:43	5:58	6:13	6:28	6:43	6:52	6:58	7:13	7:17	7:28	7:31	7:46	7:58	8:01	8:13	8:16	8:22
South Station	5:00	5:15	5:30	5:45	6:00	6:15	6:30	6:45	6:58	7:00	7:15	7:23	7:30	7:32	7:47	8:00	8:02	8:15	8:17	8:28

	V510	V512L	V525	V527L	V540	T548	V555	V570	T593	V600	V630	V660	V690	V720
Providence	7:41	7:54	7:56	8:09	8:11	NA	8:26	8:41	NA	9:11	9:41	10:11	10:41	11:11
Pawtucket	7:46	NA	8:01	NA	8:16	NA	8:31	8:46	NA	9:16	9:46	10:16	10:46	11:16
South Attleboro	7:49	NA	8:04	NA	8:19	NA	8:34	8:49	NA	9:19	9:49	10:19	10:49	11:19
Attleboro	7:54	NA	8:09	NA	8:24	NA	8:39	8:54	NA	9:24	9:54	10:24	10:54	11:24
Mansfield	8:00	8:09	8:15	8:24	8:30	NA	8:45	9:00	NA	9:30	10:00	10:30	11:00	11:30
Sharon	8:05	8:14	8:20	8:29	8:35	NA	8:50	9:05	NA	9:35	10:05	10:35	11:05	11:35
Stoughton						8:30			9:19					
Canton Center						8:38			9:27					
Canton Jct	8:09		8:24		8:39	8:41	8:54	9:09	9:30	9:39	10:09	10:39	11:09	11:39
Route 128	8:12	8:20	8:27	8:35	8:42	8:46	8:57	9:12	9:35	9:42	10:12	10:42	11:12	11:42
Readville	8:15		8:30		8:45		9:00	9:15		9:45	10:15	10:45	11:15	11:45
Hyde Park	8:17		8:32		8:47	8:52	9:02	9:17		9:47	10:17	10:47	11:17	11:47
Cummins Hwy	8:19		8:34		8:49		9:04	9:19		9:49	10:19	10:49	11:19	11:49
Forest Hills	8:23		8:38		8:53		9:08	9:23		9:53	10:23	10:53	11:23	11:53
Ruggles	8:26	8:29	8:41	8:44	8:56		9:11	9:26		9:56	10:26	10:56	11:26	11:56
Back Bay	8:28	8:31	8:43	8:46	8:58	9:02	9:13	9:28	9:47	9:58	10:28	10:58	11:28	11:58
South Station	8:30	8:32	8:45	8:47	9:00	9:08	9:15	9:30	9:53	10:00	10:30	11:00	11:30	12:00

90th %ile passenger loading, 4 tph local service with 4 tph limited-stop peak service

	V300	V315	V330	V345	V360	V375	V390	V405	T418	V420	V435	T443	V450	V452L	V467L	V480	V482L	V495	V497L	T508
Dep. Prov.	4:11	4:26	4:41	4:56	5:11	5:26	5:41	5:56		6:11	6:26		6:41	6:54	7:09	7:11	7:24	7:26	7:39	
Providence	0	0	0	0	8	24	37	48		58	58		11	95	85	15	143	59	351	
South Attleboro	0	0	0	0	26	84	96	103		120	119		156			111		252		
Attleboro	0	0	0	0	41	135	151	161		185	187		366			385		427		
Mansfield	0	0	0	0	62	209	222	226		280	287		381	243	219	408	450	457	531	
Sharon	0	0	0	0	71	245	257	257		360	376		392	351	313	423	582	481	665	
Stoughton									158			149								337
Canton Center									230			275								489
Canton Jct	0	0	0	0	82	284	302	302	236	404	404	300	503			565		617		503
Route 128	0	0	0	0	88	312	333	350	254	459	436	348	515	399	349	572	673	635	774	552
Hyde Park	0	0	0	0	90	320	350	370	256	474	447	361	569			603		663		
Ruggles	0	0	0	0	90	320	350	370		474	447		569	399	349	603	673	663	774	552
Back Bay	0	0	0	0	90	320	350	370	256	474	447	361	569	399	349	603	673	663	774	552
South Station	0	0	0	0	90	320	350	370	256	474	447	361	569	399	349	603	673	663	774	552
Arrival	5:00	5:15	5:30	5:45	6:00	6:15	6:30	6:45	6:58	7:00	7:15	7:23	7:30	7:32	7:47	8:00	8:02	8:15	8:17	8:28
Units required	0	0	0	0	1	2	2	2	diesel	2	2	diesel	2	2	2	3	3	3	3	diesel
Consist	1	2	3	4	5	6	7	8		1	2		3	9	4	5	10	6	11	

V510	V512L	V525	V527L	V540	T548	V555	V570	T593	V600	V630	V660	V690	V720
7:41	7:54	7:56	8:09	8:11		8:26	8:41		9:11	9:41	10:11	10:41	11:11
57	164	21	97	95		94	106		83	81	60	58	200
153		59		122		121	139		110	105	66	66	272
270		141		180		177	187		139	131	69	69	301
301	269	155	166	237		234	241		171	163	90	91	351
319	375	171	226	261		258	307		246	227	98	99	370
					113			66					
					175			104					
392		246		297	202	313	395	108	262	244	107	102	400
440	501	258	386	375	225	362	531	118	299	286	150	105	462
466		292		388	235	383	545		303	293	154	107	464
466	501	292	386	388		383	545		303	293	154	107	464
466	501	292	386	388	235	383	545	118	303	293	154	107	464
466	501	292	386	388	235	383	545	118	303	293	154	107	464
8:30	8:32	8:45	8:47	9:00	9:08	9:15	9:30	9:53	10:00	10:30	11:00	11:30	12:00
2	2	2	2	2	diesel	2	2	diesel	2	2	1	1	2
7	12	8	13	1		2	3		5	7	1	3	5

2018 CTPS P/S inbound net boardings, by arrival time at South Station

km	departing station	V800	V802	T900	V804	T902	V806	V842	V808	T904	V810	V812
70.1	Providence	35	70		106		229		496		150	246
59.7	South Attleboro	98	88		123		184		251		57	75
51.4	Attleboro	84	94		136		216	227	228		120	162
40.0	Mansfield	124	106		201		290	271	274		129	160
29.2	Sharon	61	49		177		211	300			146	65
30.4	Stoughton			157		134				313		
25.1	Canton Center			74		124				147		
24.1	Canton Jct	65	64	71		160		257		175		
18.8	Route 128	49	38	63	40	85	82	194		151	121	170
13.5	Hyde Park	14	28	29		76		53		0	66	
4	Ruggles	-121	-186				-270			-127		
2.1	Back Bay	-155	-20	-153	-350	-306	-325	-401	-395	-424	-252	-200

km	departing station	T906	V814	T908	V816	T910	V818	V820	T912
70.1	Providence		196		142		85	72	
59.7	South Attleboro		66		18		47	21	
51.4	Attleboro		76		12		7	20	
40.0	Mansfield		85		53		27	10	
29.2	Sharon		187		21		11	4	
30.4	Stoughton	113		44		7			16
25.1	Canton Center	65		34		3			4
24.1	Canton Jct	122	60	46		7	14	10	6
18.8	Route 128	102	107	81	50	8	42	11	8
13.5	Hyde Park	46	19			2	2	0	
4	Ruggles		-130		-35		-60		
2.1	Back Bay	-173	-199	-68	-142	-9	-80	-47	-10