

MBTA's Transit Signal Priority Pilot, Mass Ave at Brookline St

Summary for the Transit Advisory Committee

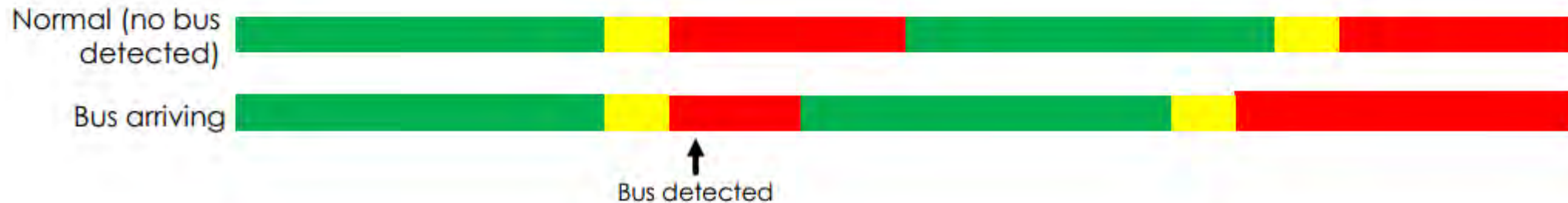
December 6, 2017

How Transit Signal Priority (TSP) works

▶ Green extension



▶ Early green/red truncation

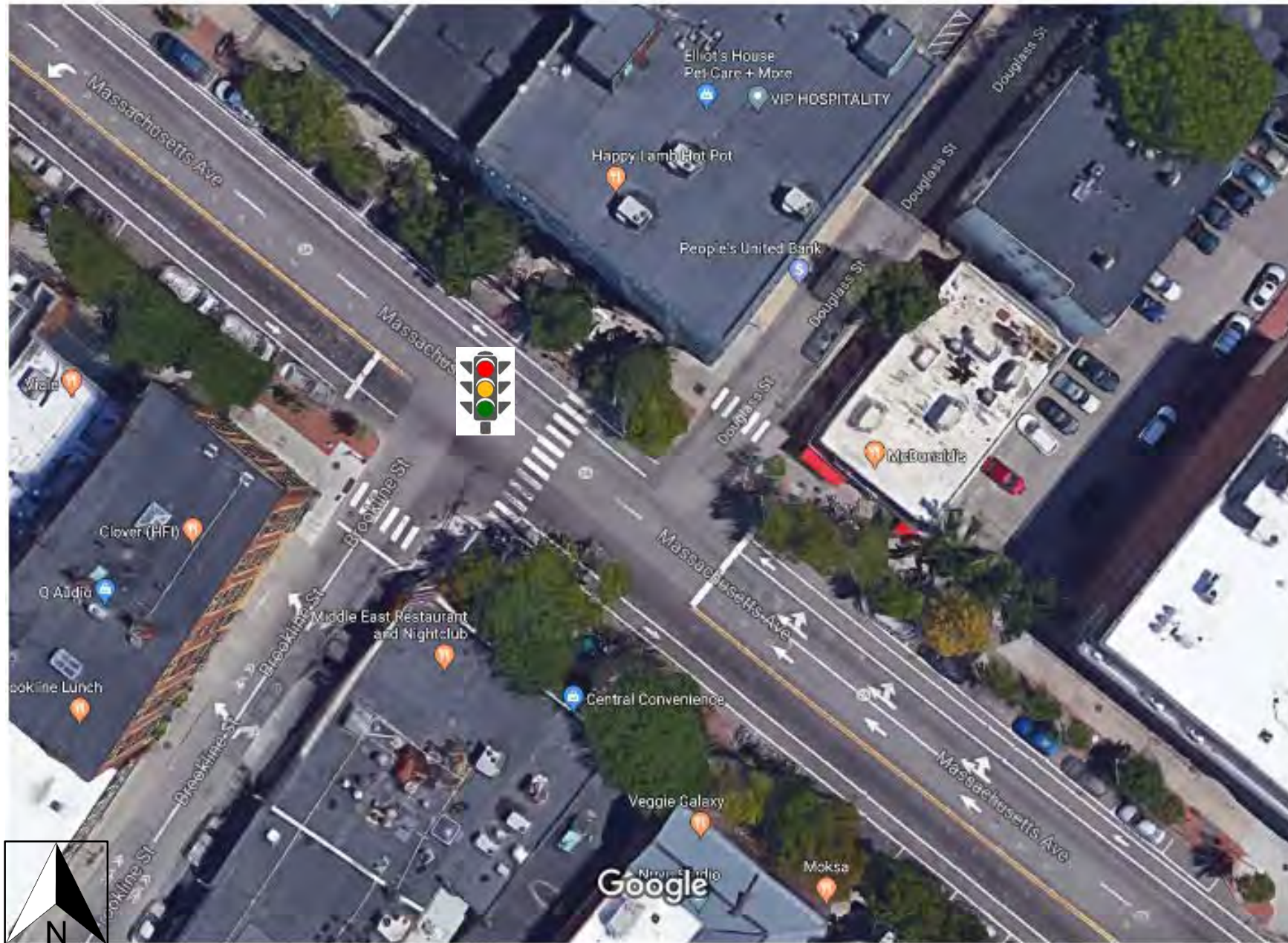


Pilot TSP at Mass Ave at Brookline St

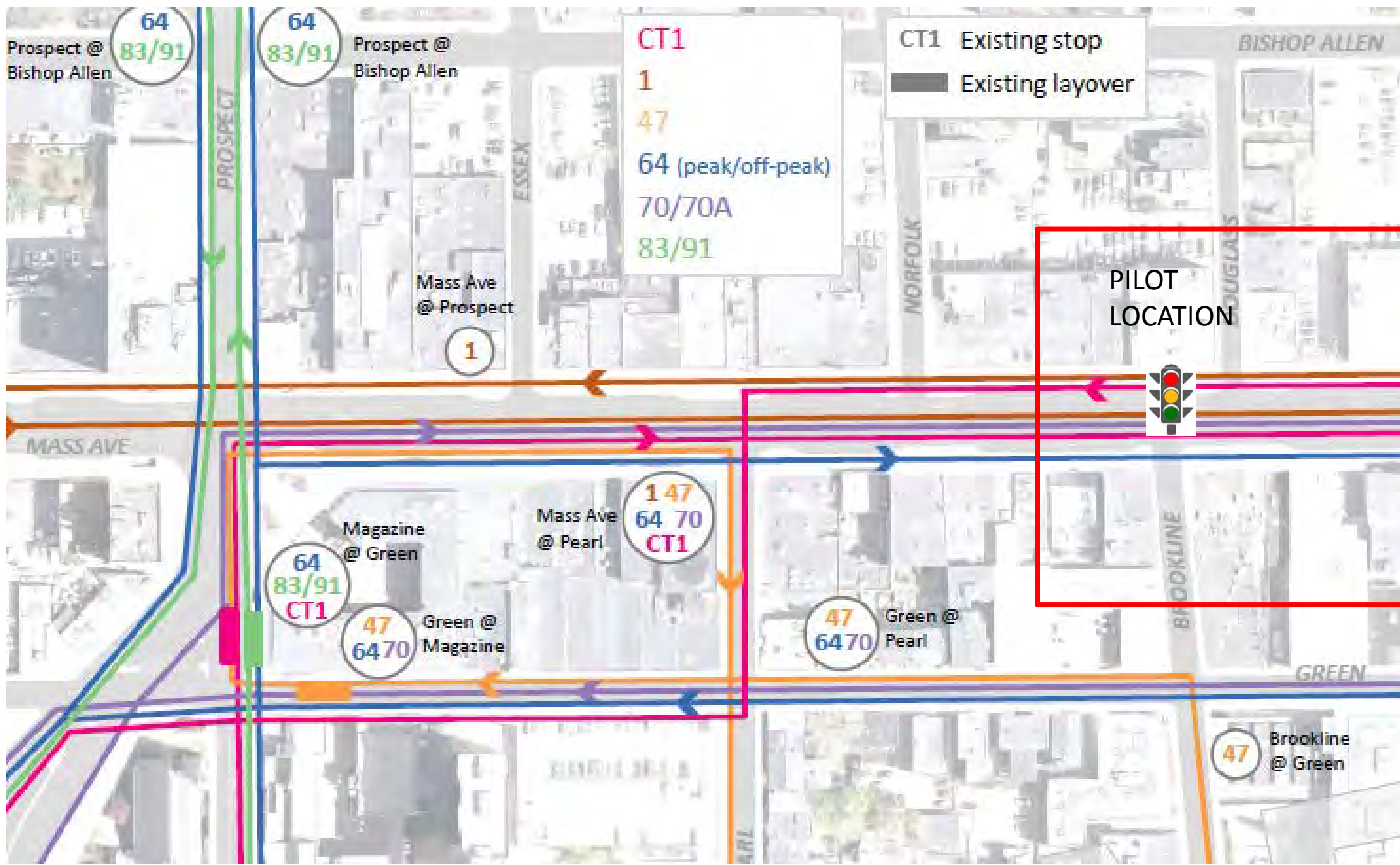


Central Square

Lafayette Square



Affects the 1 and CT1.



64
83/91

64
83/91

CT1
1
47
64 (peak/off-peak)
70/70A
83/91

CT1 Existing stop
Existing layover

PILOT
LOCATION

Prospect @
Bishop Allen

Prospect @
Bishop Allen

Mass Ave
@ Prospect

1

MASS AVE

64
83/91
CT1

Magazine
@ Green

47
64 70

Green @
Magazine

Mass Ave
@ Pearl

1 47
64 70
CT1

47
64 70

Green @
Pearl

47

Brookline
@ Green

BISHOP ALLEN

GREEN



Signal Parameters at Mass Ave at Brookline St

- 100 second signal cycle length
- Phases 2 and 6 are the Mass Ave phases, Phase 4 is Brookline
- Must maintain:
 - minimum vehicle time (including LPI, yellow and all red)
 - pedestrian clearance times (15 second flashing DON'T WALK)
- TSP can be requested at any time during the cycle but if it's called on the Brookline Ave phase twice in a row it will not service the second call.
- Whether a request is granted depends on when it was requested in the cycle

Evaluation of pilot

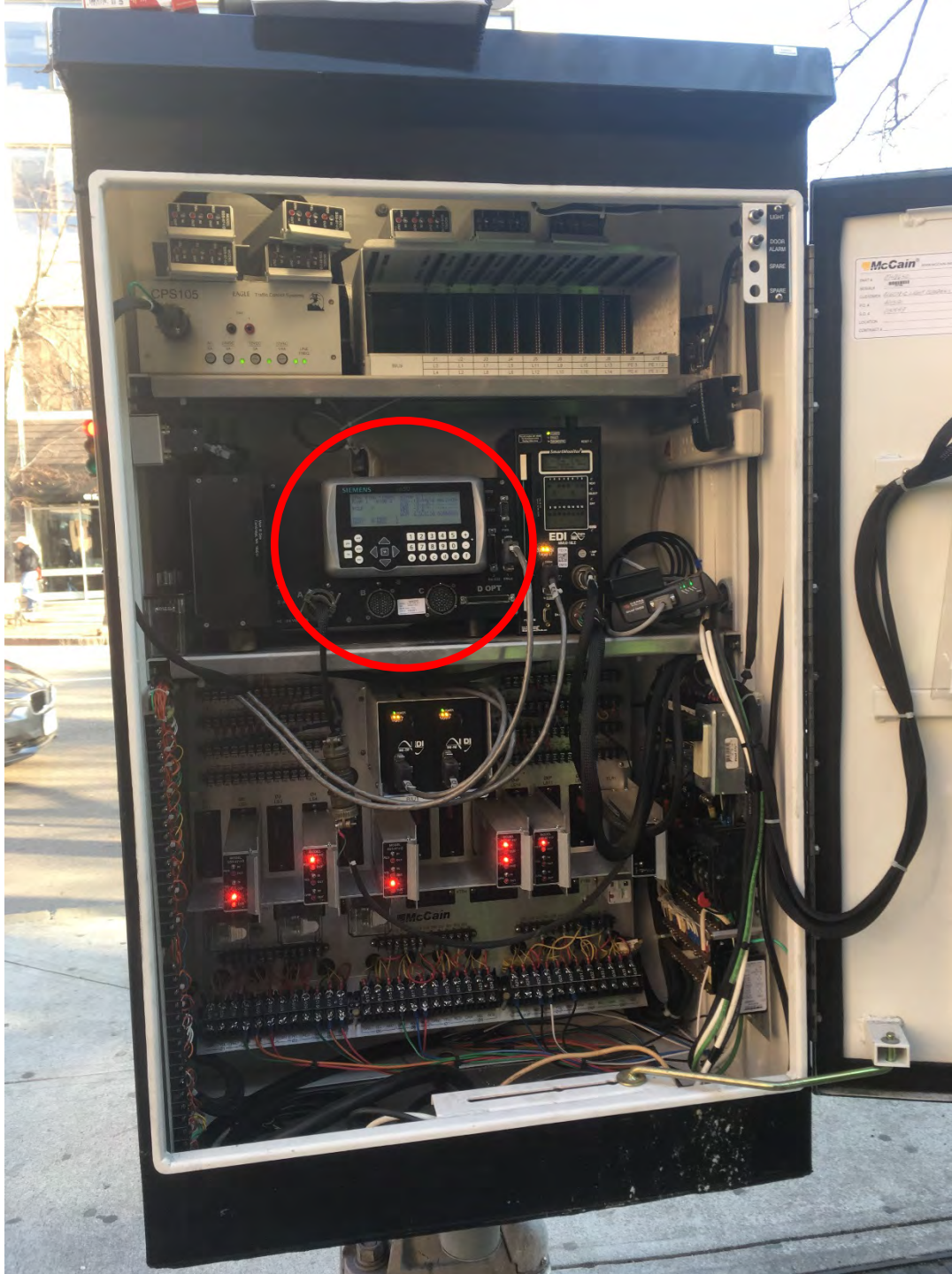
- Observations on 8/29/2017
- ~10AM-12PM, 10 TSP requests (mid-day)
- ~4:50PM-6:10PM, 16 TSP requests (evening peak)

Table 1. Transit Signal Priority Request at Massachusetts Avenue at Brookline Street

		TSP Request No Direction Time	Phase Active When Request Occurred	Phase Length Prior to Receiving TSP Request	Remaining Phase Length after TSP Request	Total Phase Length
<i>8/29/17 10:57 AM</i>	1	Westbound 10:59:39 AM	2 & 6	0:00:18	0:00:42	0:01:00
	2	Eastbound 11:03:31 AM	2 & 6	0:00:41	0:00:19	0:01:00
	3	Eastbound 11:04:51 AM	2 & 6	0:00:15	0:00:45	0:01:00
	4	Westbound 11:10:06 AM	2 & 6	0:00:16	0:00:44	0:01:00
	5	Westbound 11:15:55 AM	2 & 6	0:00:50	0:00:14	0:01:04
	6	Eastbound 11:31:31 AM	2 & 6	0:00:39	0:00:21	0:01:00
	7	Westbound 11:48:30 AM	2 & 6	0:00:07	0:01:06	0:01:13
	8	Eastbound 11:49:16 AM	2 & 6	0:00:53	0:00:20	0:01:13
	9	Westbound 11:52:43 AM	2 & 6	0:00:38	0:00:27	0:01:05
	10	Eastbound 12:05:44 PM	4	0:00:21	0:00:15	0:00:36
<i>8/29/17 4:50 PM</i>	1	Eastbound 4:50:46 PM	2 & 6	0:00:23	0:00:37	0:01:00
	2	Eastbound 4:51:53 PM	4	0:00:30	0:00:09	0:00:39
	3	Westbound 5:00:16 PM	4	0:00:14	0:00:15	0:00:29
	4	Eastbound 5:03:45 PM	4	0:00:29	0:00:10	0:00:39
	5	Westbound 5:05:09 PM	4	0:00:14	0:00:31	0:00:45
	6	Eastbound 5:12:52 PM	2 & 6	0:00:12	0:00:48	0:01:00
	7	Westbound 5:26:02 PM	4	0:00:07	0:00:18	0:00:25
	8	Eastbound 5:27:28 PM	4	0:00:08	0:00:37	0:00:45
	9	Westbound 5:28:56 PM	2 & 6	0:00:51	0:00:32	0:01:23
	10	Eastbound 5:36:13 PM	2 & 6	0:00:45	0:00:24	0:01:09
	11	Westbound 5:39:20 PM	2 & 6	0:00:14	0:01:07	0:01:21
	12	Eastbound 5:39:59 PM	2 & 6	0:00:53	0:00:28	0:01:21
	13	Eastbound 5:46:44 PM	2 & 6	0:00:17	0:00:43	0:01:00
	14	Westbound 5:57:20 PM	2 & 6	0:00:23	0:00:37	0:01:00
	15	Eastbound 6:04:40 PM	2 & 6	0:00:43	0:00:36	0:01:19
	16	Eastbound 6:06:48 PM	2 & 6	0:00:47	0:00:29	0:01:16

Finding

- TSP was functioning as intended
- About half of the requests while Mass Ave was green were accommodated in the normal green time.
- About 30% of the requests while Brookline was green were accommodated in the normal green time



Traffic Signal Controller Cabinet

Controller Display Screen



Questions?