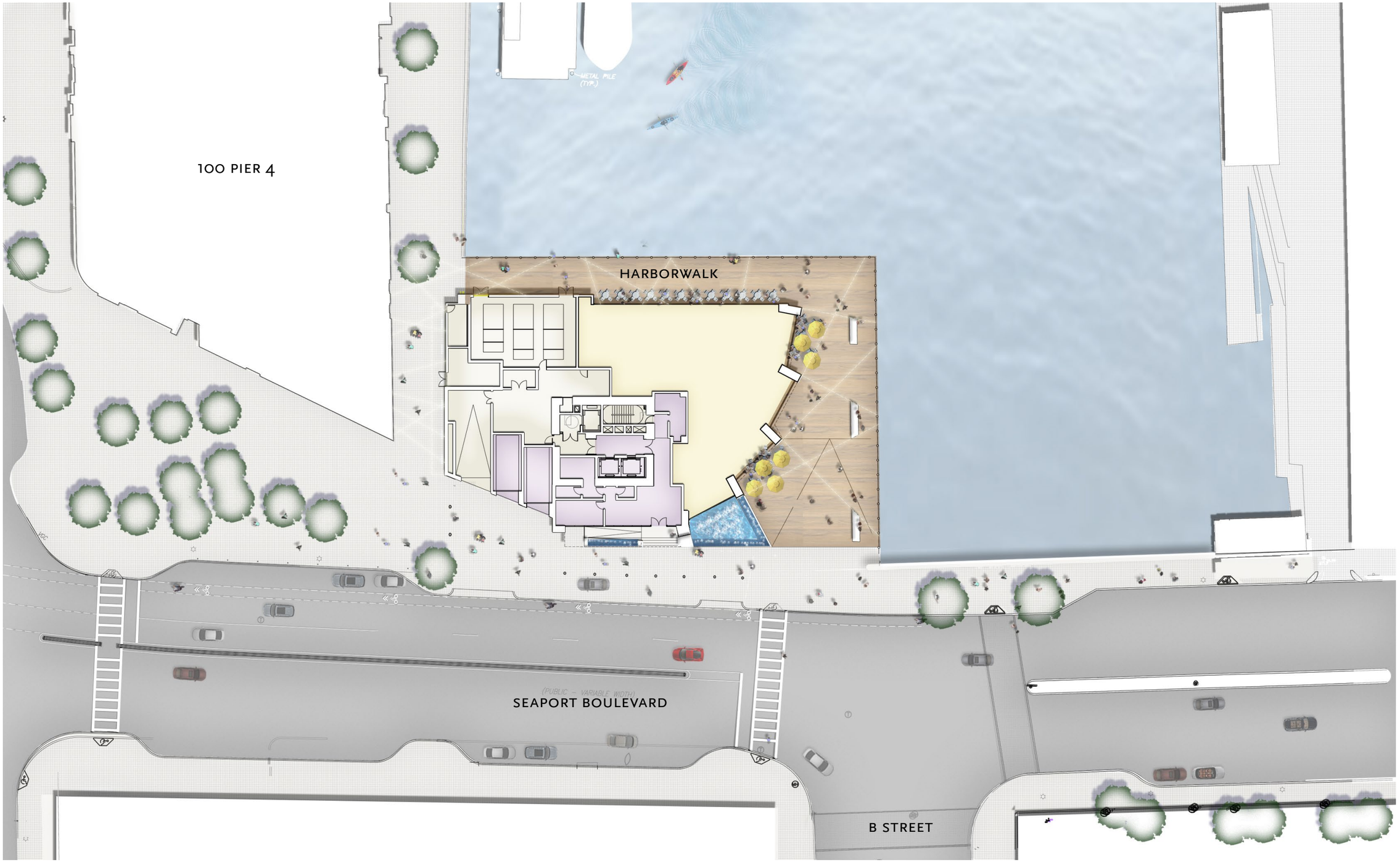
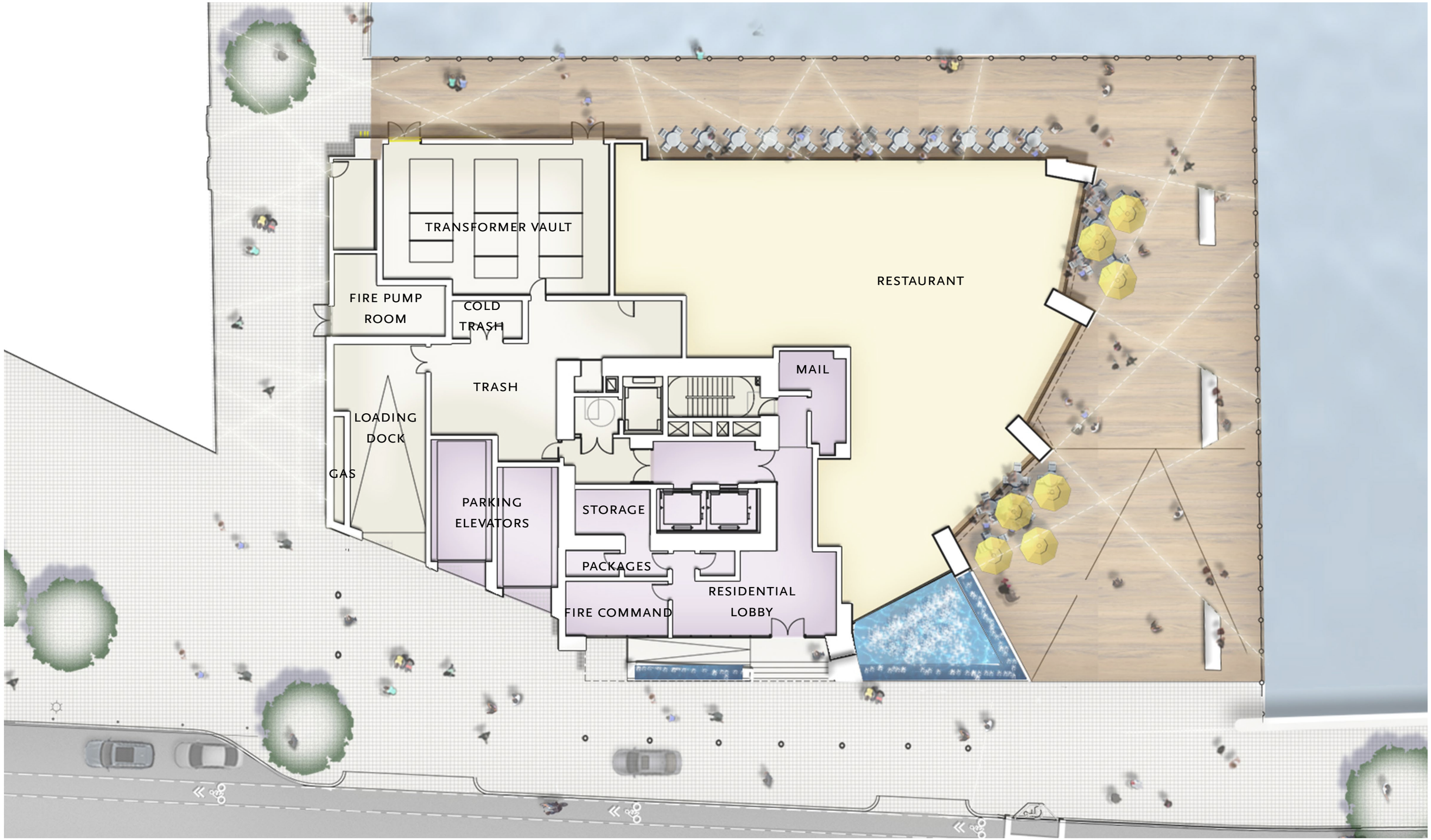


150 SEAPORT BOULEVARD
Boston, MA

SITE PLAN

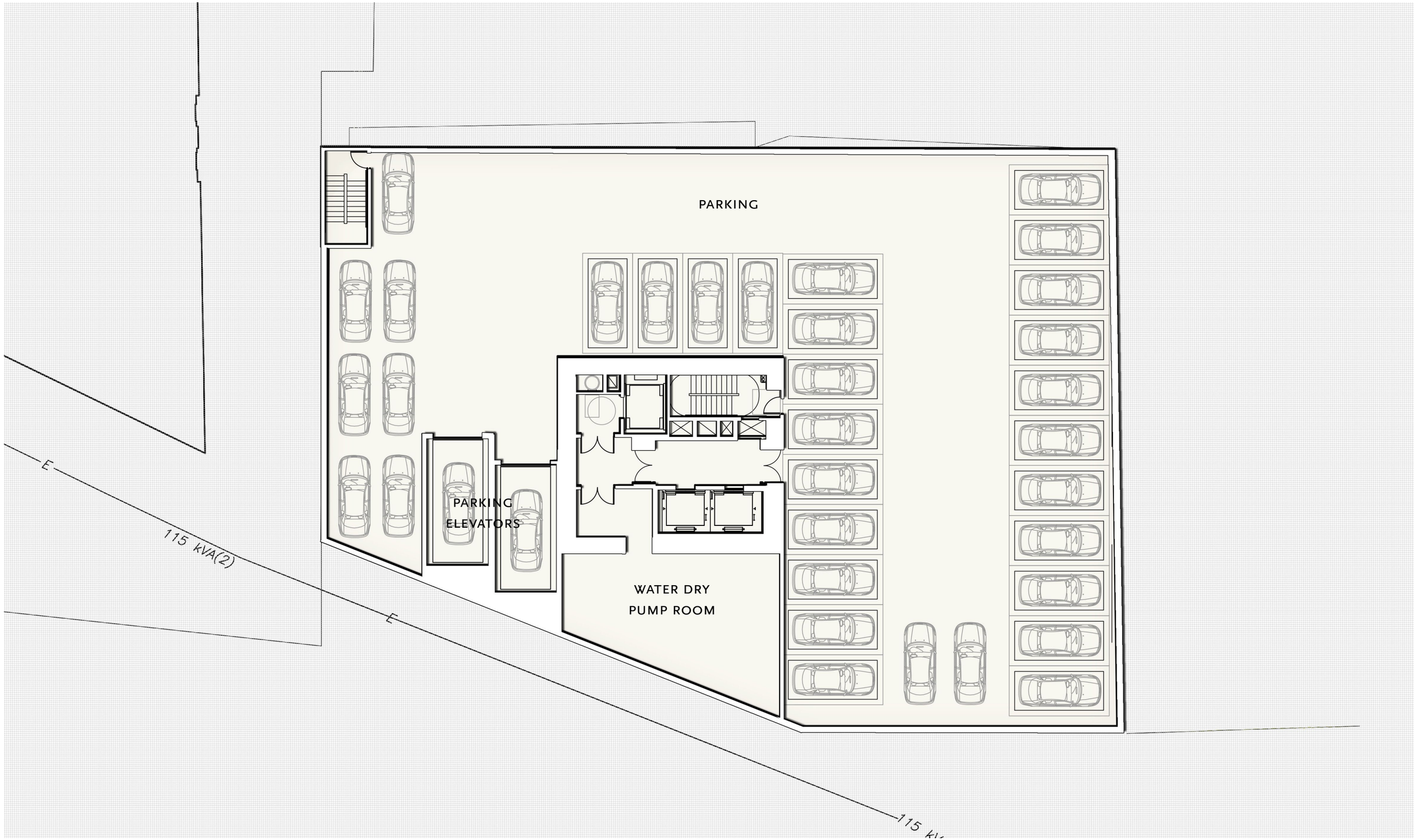
ELKUS | MANFREDI ARCHITECTS



150 SEAPORT BOULEVARD
Boston, MA

GROUND LEVEL PLAN

ELKUS | MANFREDI ARCHITECTS



150 SEAPORT BOULEVARD
Boston, MA

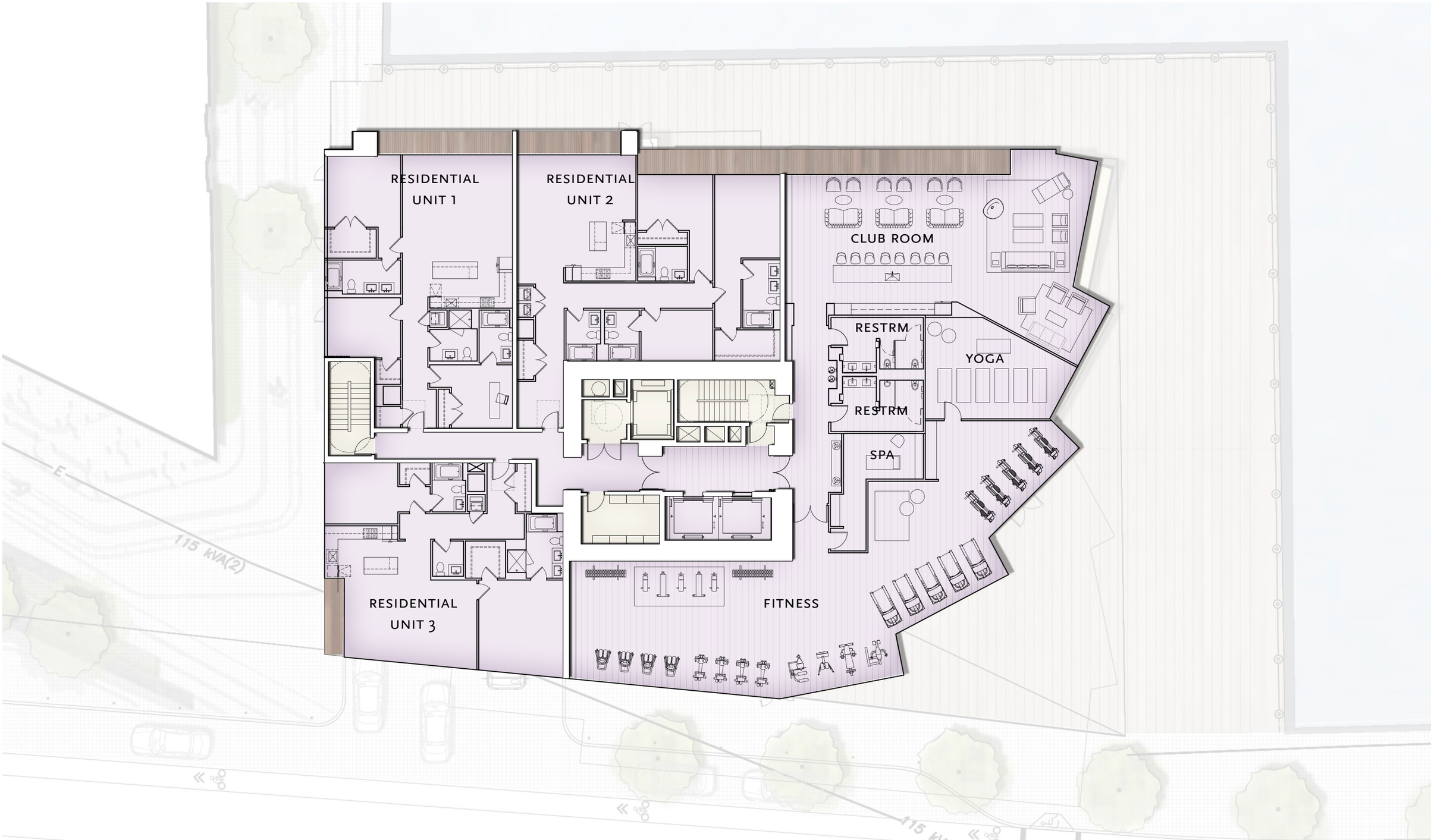
PARKING LEVEL P1

ELKUS | MANFREDI
ARCHITECTS

150 SEAPORT BOULEVARD
Boston, MA

LEVEL 2

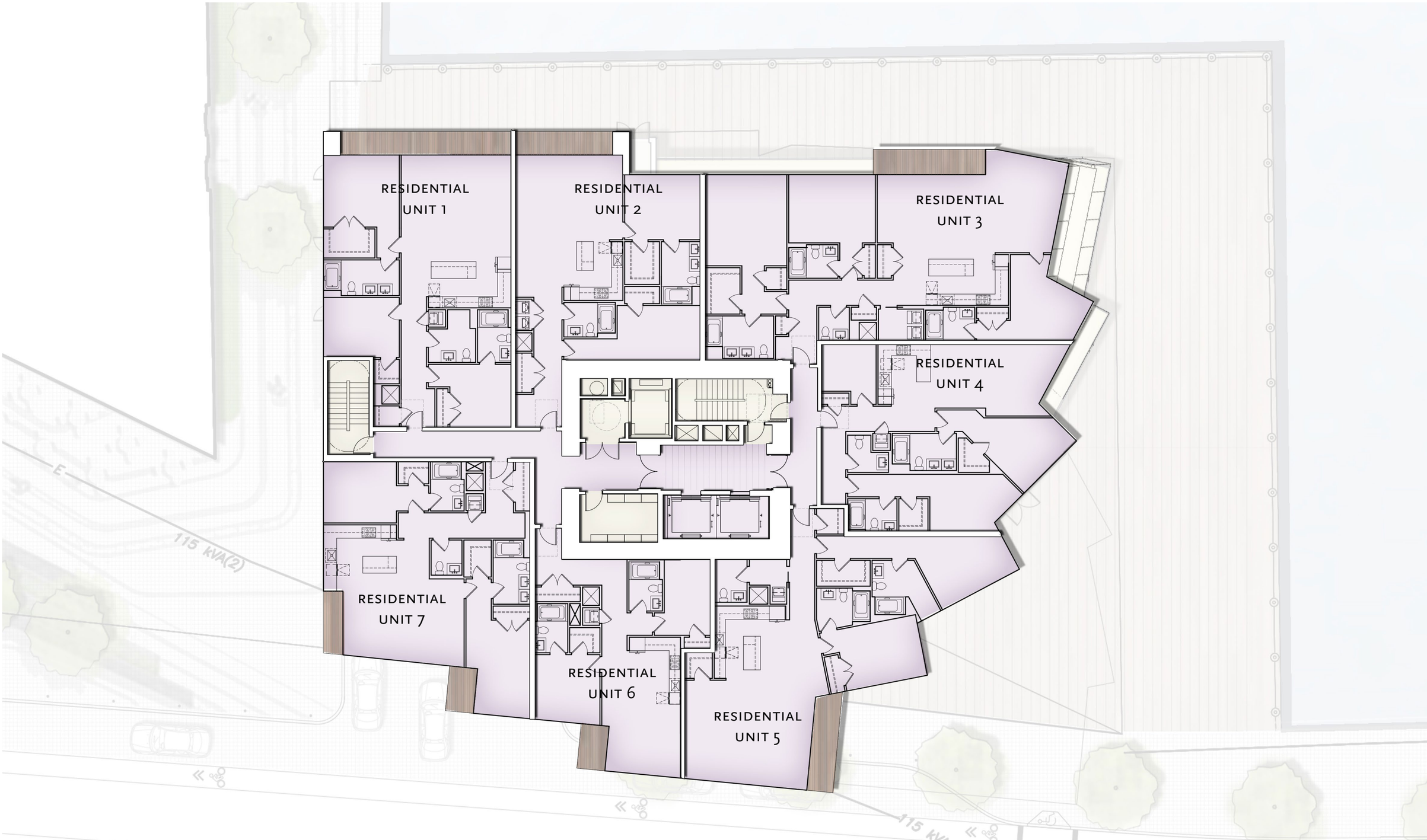
ELKUS | MANFREDI
ARCHITECTS



150 SEAPORT BOULEVARD
Boston, MA

LEVEL 3

ELKUS | MANFREDI
ARCHITECTS



150 SEAPORT BOULEVARD
Boston, MA

LEVEL 5

ELKUS | MANFREDI ARCHITECTS

150 SEAPORT BOULEVARD
Boston, MA

LEVEL 11

ELKUS | MANFREDI ARCHITECTS

150 SEAPORT BOULEVARD
Boston, MA

LEVEL 20

ELKUS | MANFREDI
ARCHITECTS


TOP OF ROOF
EL. 266'-0"
LEVEL 22
EL. 247'-0"
LEVEL 21
EL. 235'-4"
LEVEL 20
EL. 222'-10"
LEVEL 19
EL. 212'-2"
LEVEL 18
EL. 201'-6"
LEVEL 17
EL. 190'-10"
LEVEL 16
EL. 180'-2"
LEVEL 15
EL. 169'-6"
LEVEL 14
EL. 159'-10"
LEVEL 13
EL. 150'-2"
LEVEL 12
EL. 140'-6"
LEVEL 11
EL. 130'-10"
LEVEL 10
EL. 121'-2"
LEVEL 9
EL. 111'-6"
LEVEL 8
EL. 101'-10"
LEVEL 7
EL. 92'-2"
LEVEL 6
EL. 82'-6"
LEVEL 5
EL. 72'-10"
LEVEL 4
EL. 63'-2"
LEVEL 3
EL. 50'-6"
LEVEL 2
EL. 36'-6"
LEVEL 1
19'-0"
11'-8"
12'-6"
10'-8"
10'-8"
10'-8"
10'-8"
10'-8"
9'-8"
9'-8"
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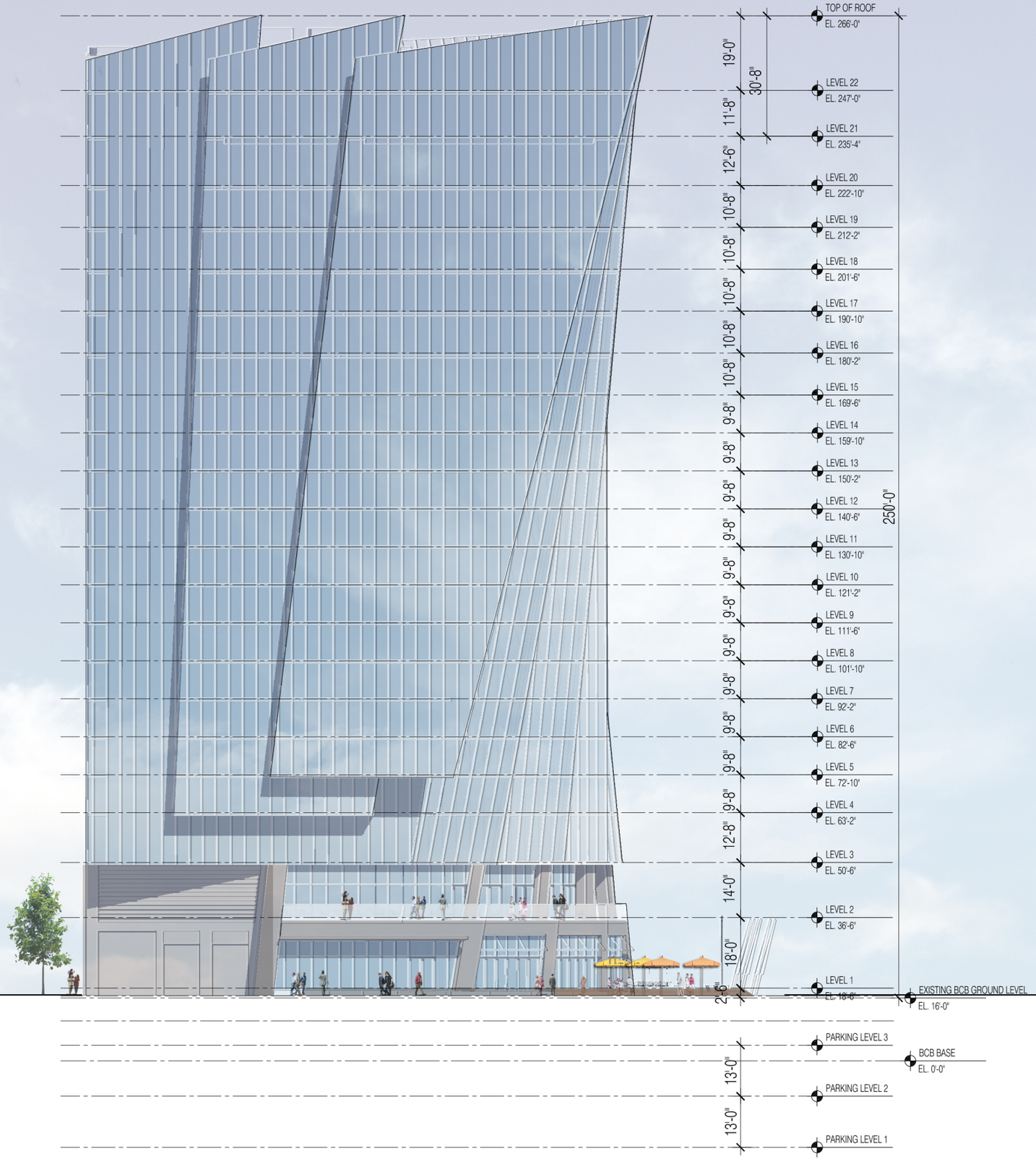
9'-8"
9'-8"
9'-8"
9'-8"
9'-8"
12'-8"
14'-0"
18'-0"
30'-8"
250'-0"


TOP OF ROOF
EL. 266'-0"
LEVEL 22
EL. 247'-0"
LEVEL 21
EL. 235'-4"
LEVEL 20
EL. 222'-10"
LEVEL 19
EL. 212'-2"
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EL. 101'-10"
LEVEL 7
EL. 92'-2"
LEVEL 6
EL. 82'-6"
LEVEL 5
EL. 72'-10"
LEVEL 4
EL. 63'-2"
LEVEL 3
EL. 50'-6"
LEVEL 2
EL. 36'-6"
LEVEL 1
EL. 18'-6"
EXISTING BCB GROUND LEVEL
EL. 16'-0"
PARKING LEVEL 3
BCB BASE
EL. 0'-0"
PARKING LEVEL 2
PARKING LEVEL 1
19'-0"
11'-8"
12'-6"
10'-8"
10'-8"
10'-8"
10'-8"
10'-8"
9'-8"
9'-8"
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9'-8"
9'-8"
12'-8"
14'-0"
18'-0"
2'-0"
30'-8"
250'-0"
13'-0"
13'-0"


TOP OF ROOF
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EL. 50'-6"
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19'-0"
11'-8"
30'-8"
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14'-0"
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250'-0"


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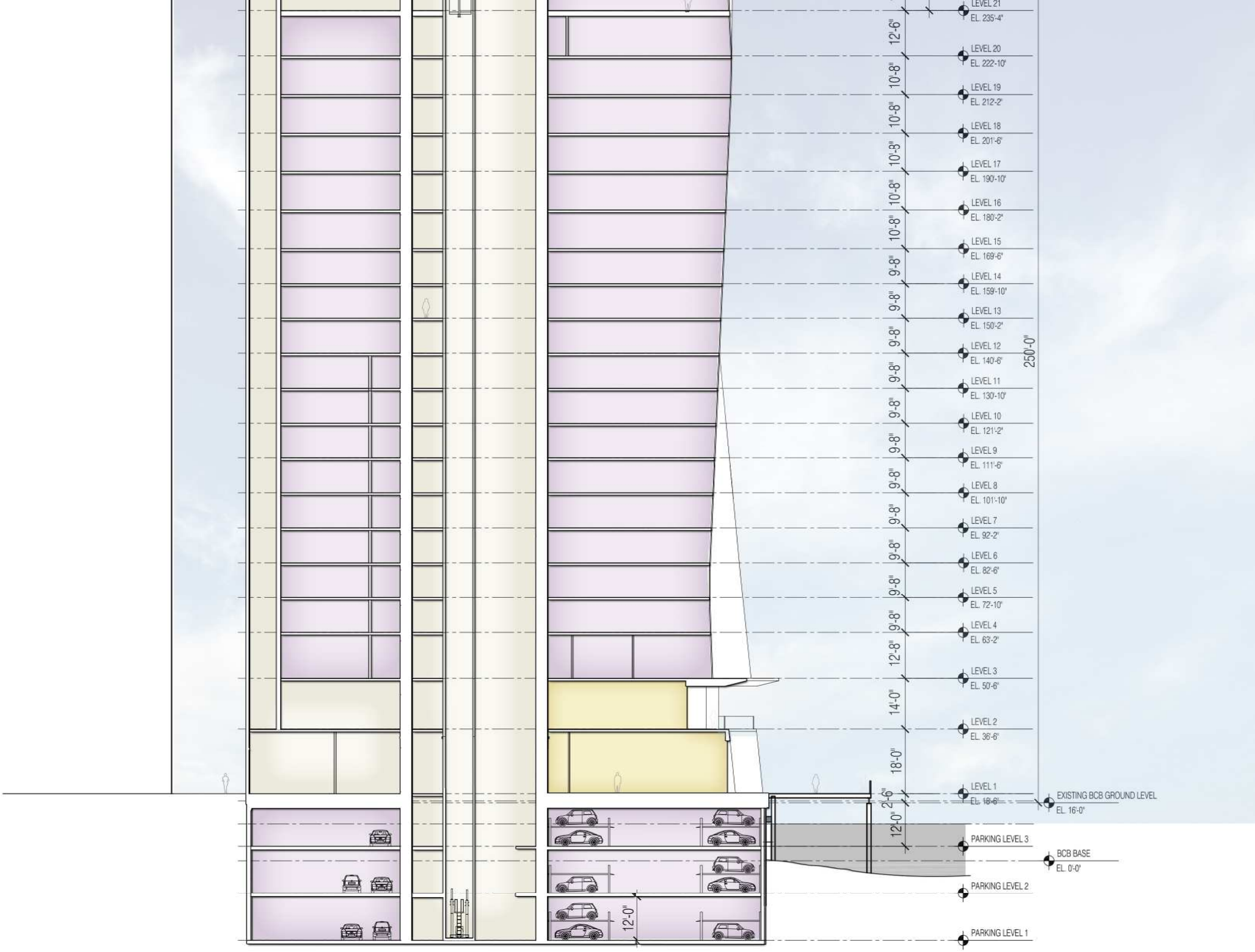
9'-8"
12'-8"
14'-0"
18'-0"
30'-8"
250'-0"
EXISTING BCB GROUN


LEVEL 21
EL. 235'-4"
LEVEL 20
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EL. 212'-2"
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EL. 50'-6"
LEVEL 2
EL. 36'-6"
LEVEL 1
EL. 18'-6"
EXISTING BCB GROUND LEVEL
EL. 16'-0"
PARKING LEVEL 3
BCB BASE
EL. 0'-0"
PARKING LEVEL 2
PARKING LEVEL 1
12'-6"
10'-8"
10'-8"
10'-8"
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9'-8"
12'-8"
14'-0"
18'-0"
2'-6"
12'-0"
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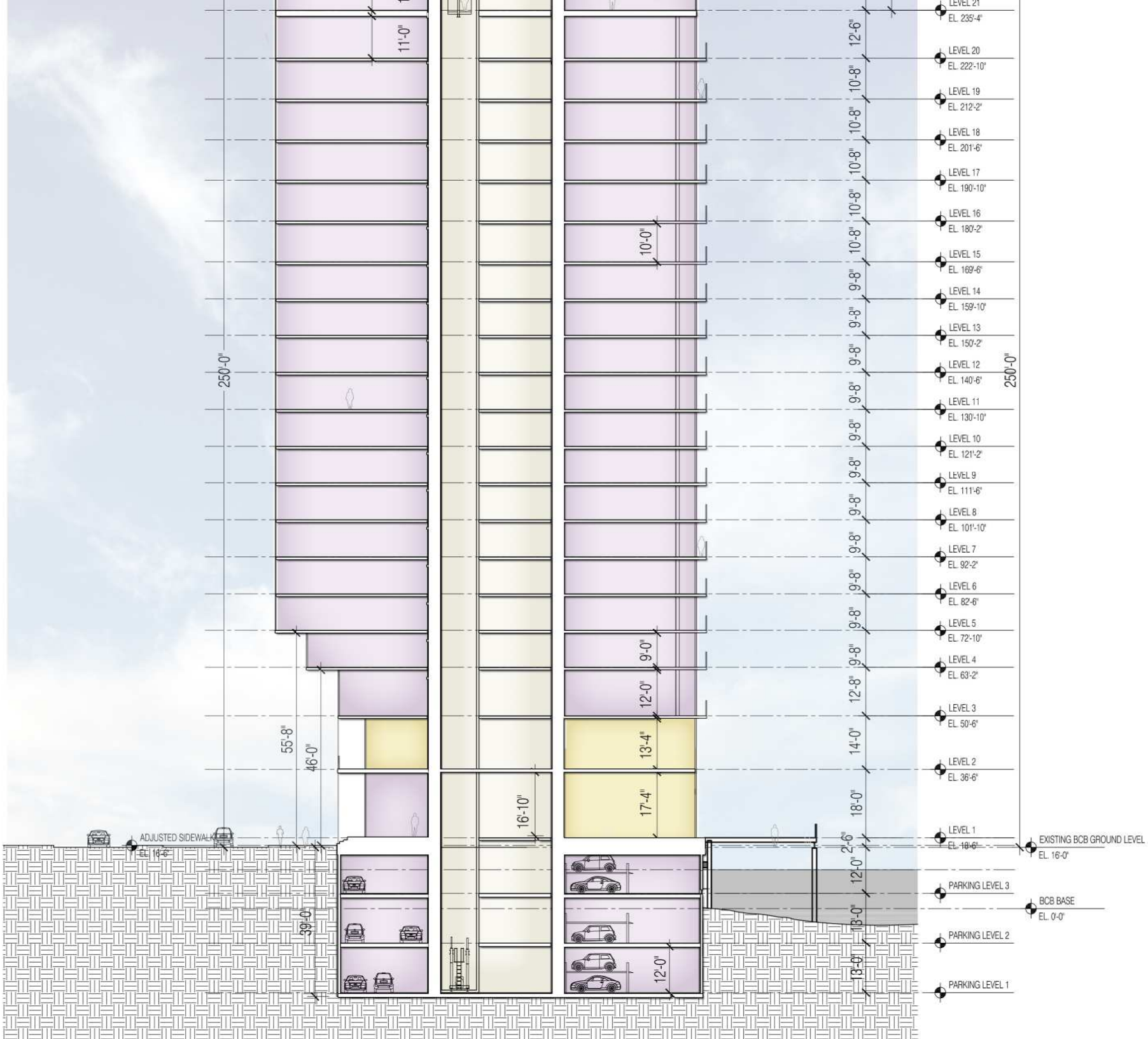
250'-0"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LEVEL 1
EL. 18'-6"
PARKING LEVEL 3
PARKING LEVEL 2
PARKING LEVEL 1
EXISTING BCB GROUND LEVEL
EL. 16'-0"
BCB BASE
EL. 0'-0"
ADJUSTED SIDEWALK
EL. 16'-6"
250'-0"
250'-0"
11'-0"
10'-0"
9'-0"
12'-0"
13'-4"
17'-4"
16'-10"
12'-0"
55'-8"
46'-0"
39'-0"
12'-6"
10'-8"
10'-8"
10'-8"
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9'-8"
9'-8"
12'-8"
14'-0"
18'-0"
2'-6"
12'-0"
13'-0"
13'-0"

Now or Formerly
THC/UDR SEAPORT DEVELOPMENT VENTURE LLC
BOOK 49455, PAGE 327
PLAN 138 OF 2012
PARENT PARCEL ID 0602671060

OPEN WATER

METAL PILE (TYP.)

Now or Formerly
PIER 4 ASSOCIATES 2 LLC
BOOK 49455, PAGE 320
PLAN 138 OF 2012
PARENT PARCEL ID 0602671060

LICENCE NO. 3107
BOOK 3157, PAGE 220 (1906)
"WIDEN ON PILES... AND TO DREDGE"

BOSTON REDEVELOPMENT AUTHORITY PLANNED DEVELOPMENT AREA #24

LICENCE NO. 169
BOOK 3943, PAGE 256 (1916)
"TO MAKE REPAIRS TO BULKHEAD ON THE PROPERTY AT THE SOUTH END OF DOCK NO. 4"

FLOOD EBB

LICENCE NO. 1025
BOOK 5124, PAGE 222 (1929)
"SAID BULKHEAD MAY BE CONSTRUCTED WITH THE OUTER SPURS PROJECTING 17 FEET...AS SHOWN ON SAID PLAN"

LICENSE NO. 6970(1997)
"TO CONSTRUCT AND MAINTAIN A PILE-SUPPORTED WALKWAY"

CRANITE SEAWALL

FORMER LINE OF NORTHERN AVENUE

PROPOSED 21 STORY BUILDING (UNDER CONSTRUCTION)

LICENSE NO. 3812
BOOK 7170, PAGE 573 (1956)
"TO ERECT AND FILL BULKHEAD"

LINE OF BULKHEAD (1936)

1 STORY CONC.

2 STORY WOOD
AREA FILLED BY AGREEMENT BETWEEN THE COMM. OF MASS AND THE N.Y.& N.E. R.R.
BOOK 1885, PAGE 1 (1889)

TOTAL AREA = 10,515 SQ. FT.

#148 NORTHERN AVE.
PARCEL ID 0602671185
AREA=4,618± SQ. FT.

LINE OF BUILDING ABOVE

2 STORY WOOD
#148 NORTHERN AVE.
PARCEL ID 0602671115
AREA=3,648± SQ. FT.
LICENSE NO. 6970
"TO CHANGE USE OF AN EXISTING TWO STORY BUILDING"

SHEET PILING (BELOW)

SLAB UNDER BLDG.

#150 NORTHERN AVE.
PARCEL ID 0602671120
AREA=2,749± SQ. FT.

1 STORY WOOD

Now or Formerly
CRONIN DEVELOPMENT CORPORATION
BOOK 40521, PAGE 162

LICENCE NO. 1025
BOOK 5124, PAGE 222 (1929)
"SAID BULKHEAD MAY BE CONSTRUCTED WITH THE OUTER SPURS PROJECTING 17 FEET...AS SHOWN ON SAID PLAN"

Now or Formerly
MASSACHUSETTS PORT AUTHORITY
PARCEL ID 0602672000
NO LEGAL REFERENCE

OPEN WATER

DOWN

PARCEL ID 0602641050

115 kVA(2)

AREA UNDER CONSTRUCTION

TICKET BOOTH

WOOD PIER

RECORD OUTFALL LOCATION

BOT. GRAN. SEAWALL

SL 12" DICL 1999
SH 12" DICL 1999

ENCLOSED METAL PIPE TOP=6.6

ENCLOSED METAL PIPE TOP=7.8

(PUBLIC - VARIABLE WIDTH)

PCI 1909 (1972)

TOP OF ENCLOSED PIPE

TBM-F

EAST SERVICE ROAD
(PUBLIC ~ VARIABLE WIDTH)

STREET
(PUBLIC)

Appendix A – Traffic Counts

N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154839 A
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Cars

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
12:00 PM	79	7	2	7	9	0	6	66	2	178
12:15 PM	68	12	0	7	11	0	13	38	0	149
12:30 PM	70	7	1	10	5	0	7	62	0	162
12:45 PM	68	3	1	4	5	0	10	56	0	147
Total	285	29	4	28	30	0	36	222	2	636
01:00 PM	74	6	1	4	7	0	4	42	1	139
01:15 PM	70	8	3	5	13	0	5	58	0	162
01:30 PM	69	5	3	4	13	0	4	56	1	155
01:45 PM	68	5	0	5	16	0	8	47	2	151
Total	281	24	7	18	49	0	21	203	4	607
Grand Total	566	53	11	46	79	0	57	425	6	1243
Apprch %	89.8	8.4	1.7	36.8	63.2	0	11.7	87.1	1.2	
Total %	45.5	4.3	0.9	3.7	6.4	0	4.6	34.2	0.5	

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	79	7	2	88	7	9	0	16	6	66	2	74	178
12:15 PM	68	12	0	80	7	11	0	18	13	38	0	51	149
12:30 PM	70	7	1	78	10	5	0	15	7	62	0	69	162
12:45 PM	68	3	1	72	4	5	0	9	10	56	0	66	147
Total Volume	285	29	4	318	28	30	0	58	36	222	2	260	636
% App. Total	89.6	9.1	1.3		48.3	51.7	0		13.8	85.4	0.8		
PHF	.902	.604	.500	.903	.700	.682	.000	.806	.692	.841	.250	.878	.893

N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Email: datarequests@pdillc.com

File Name : 154839 A
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
12:00 PM	5	0	0	0	0	0	0	4	0	9
12:15 PM	2	2	0	0	2	0	0	0	0	6
12:30 PM	6	0	0	0	0	0	1	0	0	7
12:45 PM	5	0	0	0	2	0	2	1	0	10
Total	18	2	0	0	4	0	3	5	0	32
01:00 PM	3	0	0	0	0	0	0	2	0	5
01:15 PM	2	0	0	0	1	0	0	1	0	4
01:30 PM	3	0	0	1	1	0	0	2	0	7
01:45 PM	4	1	0	0	0	0	2	2	0	9
Total	12	1	0	1	2	0	2	7	0	25
Grand Total	30	3	0	1	6	0	5	12	0	57
Apprch %	90.9	9.1	0	14.3	85.7	0	29.4	70.6	0	
Total %	52.6	5.3	0	1.8	10.5	0	8.8	21.1	0	

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	5	0	0	5	0	0	0	0	0	4	0	4	9
12:15 PM	2	2	0	4	0	2	0	2	0	0	0	0	6
12:30 PM	6	0	0	6	0	0	0	0	1	0	0	1	7
12:45 PM	5	0	0	5	0	2	0	2	2	1	0	3	10
Total Volume	18	2	0	20	0	4	0	4	3	5	0	8	32
% App. Total	90	10	0		0	100	0		37.5	62.5	0		
PHF	.750	.250	.000	.833	.000	.500	.000	.500	.375	.313	.000	.500	.800

N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154839 A
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Peds and Bikes

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
12:00 PM	0	0	5	6	0	0	6	1	0	1	2	2	23
12:15 PM	2	0	1	11	0	0	5	4	0	2	3	2	30
12:30 PM	1	0	0	5	0	0	1	3	0	0	0	0	10
12:45 PM	1	0	4	7	0	0	9	1	0	0	1	1	24
Total	4	0	10	29	0	0	21	9	0	3	6	5	87
01:00 PM	2	0	2	3	0	0	3	2	0	1	2	0	15
01:15 PM	3	0	6	14	0	0	3	3	0	0	2	0	31
01:30 PM	0	0	14	14	0	0	11	5	0	1	1	0	46
01:45 PM	0	0	1	7	0	0	1	9	0	1	1	0	20
Total	5	0	23	38	0	0	18	19	0	3	6	0	112
Grand Total	9	0	33	67	0	0	39	28	0	6	12	5	199
Apprch %	8.3	0	30.3	61.5	0	0	58.2	41.8	0	26.1	52.2	21.7	
Total %	4.5	0	16.6	33.7	0	0	19.6	14.1	0	3	6	2.5	

	Seaport Boulevard From East					Boston Wharf Road From South					Seaport Boulevard From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 12:45 PM																
12:45 PM	1	0	4	7	12	0	0	9	1	10	0	0	1	1	2	24
01:00 PM	2	0	2	3	7	0	0	3	2	5	0	1	2	0	3	15
01:15 PM	3	0	6	14	23	0	0	3	3	6	0	0	2	0	2	31
01:30 PM	0	0	14	14	28	0	0	11	5	16	0	1	1	0	2	46
Total Volume	6	0	26	38	70	0	0	26	11	37	0	2	6	1	9	116
% App. Total	8.6	0	37.1	54.3		0	0	70.3	29.7		0	22.2	66.7	11.1		
PHF	.500	.000	.464	.679	.625	.000	.000	.591	.550	.578	.000	.500	.750	.250	.750	.630

N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
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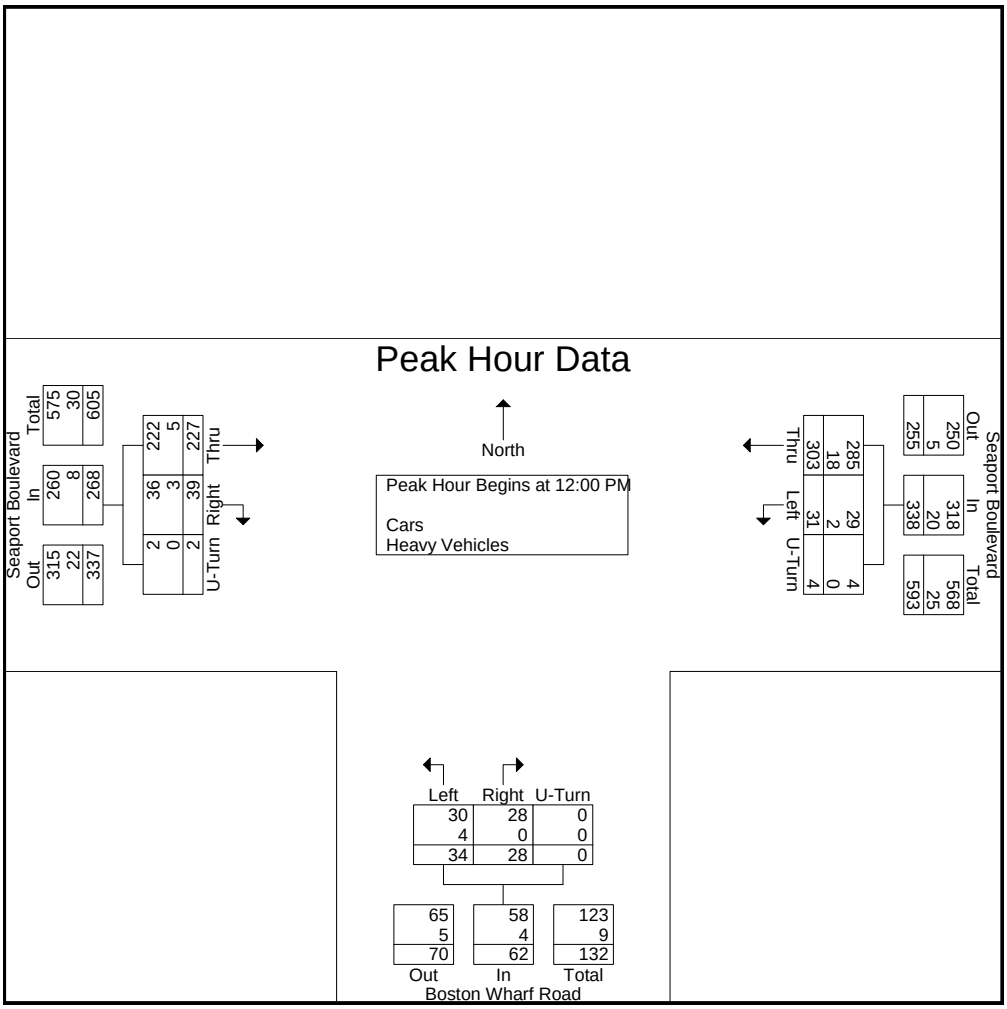
	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	84	7	2	93	7	9	0	16	6	70	2	78	187
12:15 PM	70	14	0	84	7	13	0	20	13	38	0	51	155
12:30 PM	76	7	1	84	10	5	0	15	8	62	0	70	169
12:45 PM	73	3	1	77	4	7	0	11	12	57	0	69	157
Total Volume	303	31	4	338	28	34	0	62	39	227	2	268	668
% App. Total	89.6	9.2	1.2		45.2	54.8	0		14.6	84.7	0.7		
PHF	.902	.554	.500	.909	.700	.654	.000	.775	.750	.811	.250	.859	.893
Cars	285	29	4	318	28	30	0	58	36	222	2	260	636
% Cars	94.1	93.5	100	94.1	100	88.2	0	93.5	92.3	97.8	100	97.0	95.2
Heavy Vehicles	18	2	0	20	0	4	0	4	3	5	0	8	32
% Heavy Vehicles	5.9	6.5	0	5.9	0	11.8	0	6.5	7.7	2.2	0	3.0	4.8



N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Groups Printed- Cars - Heavy Vehicles

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	78	4	3	7	7	0	20	113	0	232
07:15 AM	89	9	2	5	16	0	28	114	0	263
07:30 AM	115	13	1	3	15	0	46	106	0	299
07:45 AM	125	6	1	6	16	0	32	124	0	310
Total	407	32	7	21	54	0	126	457	0	1104
08:00 AM	132	10	3	8	22	0	29	139	1	344
08:15 AM	136	14	7	5	27	0	32	91	0	312
08:30 AM	142	10	5	6	23	0	43	127	0	356
08:45 AM	165	11	2	10	23	0	42	116	0	369
Total	575	45	17	29	95	0	146	473	1	1381
Grand Total	982	77	24	50	149	0	272	930	1	2485
Apprch %	90.7	7.1	2.2	25.1	74.9	0	22.6	77.3	0.1	
Total %	39.5	3.1	1	2	6	0	10.9	37.4	0	
Cars	849	62	24	46	130	0	264	863	1	2239
% Cars	86.5	80.5	100	92	87.2	0	97.1	92.8	100	90.1
Heavy Vehicles	133	15	0	4	19	0	8	67	0	246
% Heavy Vehicles	13.5	19.5	0	8	12.8	0	2.9	7.2	0	9.9

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	132	10	3	145	8	22	0	30	29	139	1	169	344
08:15 AM	136	14	7	157	5	27	0	32	32	91	0	123	312
08:30 AM	142	10	5	157	6	23	0	29	43	127	0	170	356
08:45 AM	165	11	2	178	10	23	0	33	42	116	0	158	369
Total Volume	575	45	17	637	29	95	0	124	146	473	1	620	1381
% App. Total	90.3	7.1	2.7		23.4	76.6	0		23.5	76.3	0.2		
PHF	.871	.804	.607	.895	.725	.880	.000	.939	.849	.851	.250	.912	.936
Cars	508	35	17	560	26	85	0	111	141	447	1	589	1260
% Cars	88.3	77.8	100	87.9	89.7	89.5	0	89.5	96.6	94.5	100	95.0	91.2
Heavy Vehicles	67	10	0	77	3	10	0	13	5	26	0	31	121
% Heavy Vehicles	11.7	22.2	0	12.1	10.3	10.5	0	10.5	3.4	5.5	0	5.0	8.8

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Groups Printed- Cars

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	63	4	3	7	5	0	20	104	0	206
07:15 AM	73	7	2	4	15	0	26	101	0	228
07:30 AM	100	12	1	3	11	0	46	97	0	270
07:45 AM	105	4	1	6	14	0	31	114	0	275
Total	341	27	7	20	45	0	123	416	0	979
08:00 AM	119	9	3	8	20	0	28	131	1	319
08:15 AM	121	9	7	3	24	0	31	86	0	281
08:30 AM	124	9	5	5	21	0	42	120	0	326
08:45 AM	144	8	2	10	20	0	40	110	0	334
Total	508	35	17	26	85	0	141	447	1	1260
Grand Total	849	62	24	46	130	0	264	863	1	2239
Apprch %	90.8	6.6	2.6	26.1	73.9	0	23.4	76.5	0.1	
Total %	37.9	2.8	1.1	2.1	5.8	0	11.8	38.5	0	

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	119	9	3	131	8	20	0	28	28	131	1	160	319
08:15 AM	121	9	7	137	3	24	0	27	31	86	0	117	281
08:30 AM	124	9	5	138	5	21	0	26	42	120	0	162	326
08:45 AM	144	8	2	154	10	20	0	30	40	110	0	150	334
Total Volume	508	35	17	560	26	85	0	111	141	447	1	589	1260
% App. Total	90.7	6.2	3		23.4	76.6	0		23.9	75.9	0.2		
PHF	.882	.972	.607	.909	.650	.885	.000	.925	.839	.853	.250	.909	.943

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Groups Printed- Heavy Vehicles

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	15	0	0	0	2	0	0	9	0	26
07:15 AM	16	2	0	1	1	0	2	13	0	35
07:30 AM	15	1	0	0	4	0	0	9	0	29
07:45 AM	20	2	0	0	2	0	1	10	0	35
Total	66	5	0	1	9	0	3	41	0	125
08:00 AM	13	1	0	0	2	0	1	8	0	25
08:15 AM	15	5	0	2	3	0	1	5	0	31
08:30 AM	18	1	0	1	2	0	1	7	0	30
08:45 AM	21	3	0	0	3	0	2	6	0	35
Total	67	10	0	3	10	0	5	26	0	121
Grand Total	133	15	0	4	19	0	8	67	0	246
Apprch %	89.9	10.1	0	17.4	82.6	0	10.7	89.3	0	
Total %	54.1	6.1	0	1.6	7.7	0	3.3	27.2	0	

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	15	0	0	15	0	2	0	2	0	9	0	9	26
07:15 AM	16	2	0	18	1	1	0	2	2	13	0	15	35
07:30 AM	15	1	0	16	0	4	0	4	0	9	0	9	29
07:45 AM	20	2	0	22	0	2	0	2	1	10	0	11	35
Total Volume	66	5	0	71	1	9	0	10	3	41	0	44	125
% App. Total	93	7	0		10	90	0		6.8	93.2	0		
PHF	.825	.625	.000	.807	.250	.563	.000	.625	.375	.788	.000	.733	.893

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Groups Printed- Peds and Bikes

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	3	2	0	0	3	17	0	1	1	2	29
07:15 AM	0	0	1	9	0	0	4	11	0	2	0	2	29
07:30 AM	0	0	12	7	0	0	8	36	0	0	3	2	68
07:45 AM	1	0	9	7	0	0	5	31	0	4	3	1	61
Total	1	0	25	25	0	0	20	95	0	7	7	7	187
08:00 AM	1	0	20	11	0	0	13	55	1	4	2	3	110
08:15 AM	0	0	24	19	0	0	11	66	0	7	5	5	137
08:30 AM	3	0	32	15	0	0	17	84	0	7	2	9	169
08:45 AM	0	0	18	7	0	0	13	44	0	4	6	13	105
Total	4	0	94	52	0	0	54	249	1	22	15	30	521
Grand Total	5	0	119	77	0	0	74	344	1	29	22	37	708
Apprch %	2.5	0	59.2	38.3	0	0	17.7	82.3	1.1	32.6	24.7	41.6	
Total %	0.7	0	16.8	10.9	0	0	10.5	48.6	0.1	4.1	3.1	5.2	

	Seaport Boulevard From East					Boston Wharf Road From South					Seaport Boulevard From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	1	0	20	11	32	0	0	13	55	68	1	4	2	3	10	110
08:15 AM	0	0	24	19	43	0	0	11	66	77	0	7	5	5	17	137
08:30 AM	3	0	32	15	50	0	0	17	84	101	0	7	2	9	18	169
08:45 AM	0	0	18	7	25	0	0	13	44	57	0	4	6	13	23	105
Total Volume	4	0	94	52	150	0	0	54	249	303	1	22	15	30	68	521
% App. Total	2.7	0	62.7	34.7		0	0	17.8	82.2		1.5	32.4	22.1	44.1		
PHF	.333	.000	.734	.684	.750	.000	.000	.794	.741	.750	.250	.786	.625	.577	.739	.771

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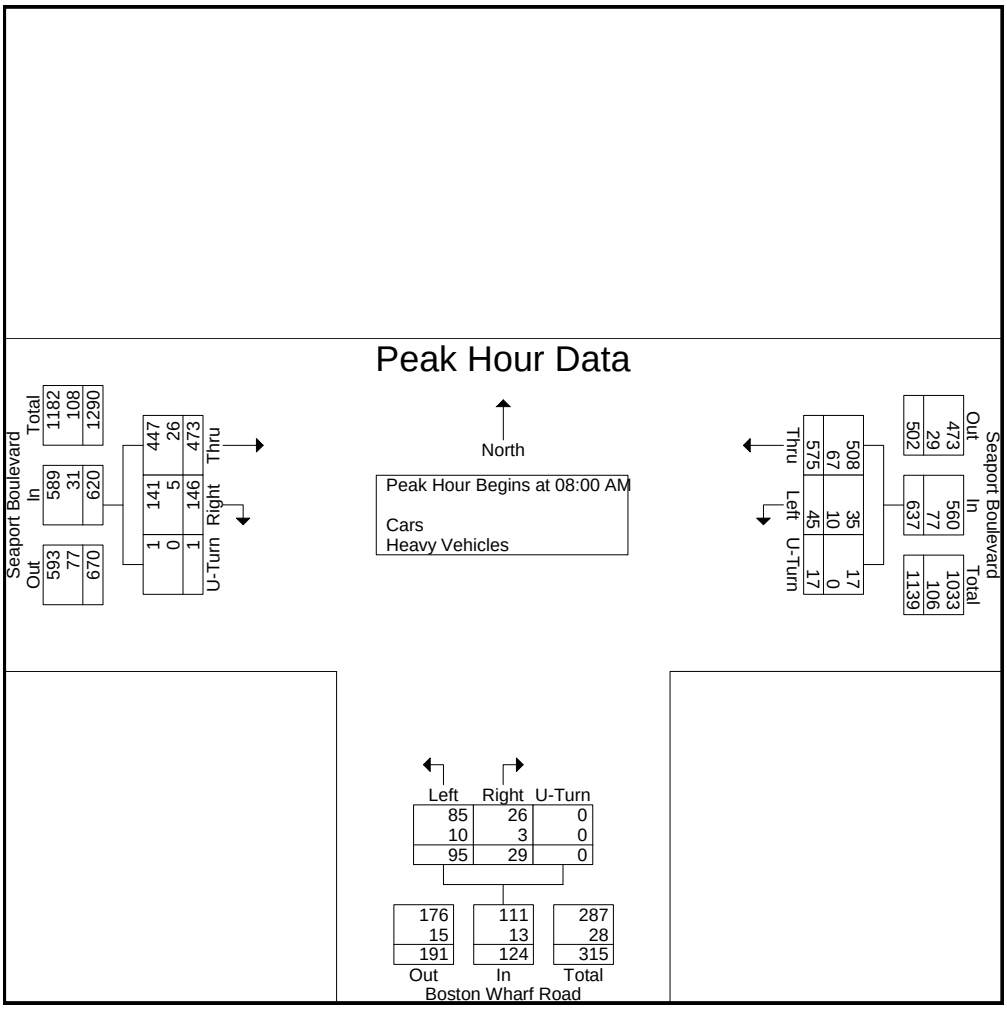
	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	132	10	3	145	8	22	0	30	29	139	1	169	344
08:15 AM	136	14	7	157	5	27	0	32	32	91	0	123	312
08:30 AM	142	10	5	157	6	23	0	29	43	127	0	170	356
08:45 AM	165	11	2	178	10	23	0	33	42	116	0	158	369
Total Volume	575	45	17	637	29	95	0	124	146	473	1	620	1381
% App. Total	90.3	7.1	2.7		23.4	76.6	0		23.5	76.3	0.2		
PHF	.871	.804	.607	.895	.725	.880	.000	.939	.849	.851	.250	.912	.936
Cars	508	35	17	560	26	85	0	111	141	447	1	589	1260
% Cars	88.3	77.8	100	87.9	89.7	89.5	0	89.5	96.6	94.5	100	95.0	91.2
Heavy Vehicles	67	10	0	77	3	10	0	13	5	26	0	31	121
% Heavy Vehicles	11.7	22.2	0	12.1	10.3	10.5	0	10.5	3.4	5.5	0	5.0	8.8



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Groups Printed- Cars - Heavy Vehicles

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	125	8	1	5	17	0	22	81	1	260
04:15 PM	140	14	2	4	22	0	15	94	0	291
04:30 PM	129	15	3	6	9	0	18	77	0	257
04:45 PM	118	10	2	5	26	0	29	100	0	290
Total	512	47	8	20	74	0	84	352	1	1098
05:00 PM	125	18	7	8	19	0	23	98	2	300
05:15 PM	132	22	3	6	26	0	33	98	0	320
05:30 PM	114	22	2	10	22	0	35	96	1	302
05:45 PM	109	21	6	14	17	0	36	91	0	294
Total	480	83	18	38	84	0	127	383	3	1216
Grand Total	992	130	26	58	158	0	211	735	4	2314
Apprch %	86.4	11.3	2.3	26.9	73.1	0	22.2	77.4	0.4	
Total %	42.9	5.6	1.1	2.5	6.8	0	9.1	31.8	0.2	
Cars	940	120	25	57	149	0	201	670	4	2166
% Cars	94.8	92.3	96.2	98.3	94.3	0	95.3	91.2	100	93.6
Heavy Vehicles	52	10	1	1	9	0	10	65	0	148
% Heavy Vehicles	5.2	7.7	3.8	1.7	5.7	0	4.7	8.8	0	6.4

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	125	18	7	150	8	19	0	27	23	98	2	123	300
05:15 PM	132	22	3	157	6	26	0	32	33	98	0	131	320
05:30 PM	114	22	2	138	10	22	0	32	35	96	1	132	302
05:45 PM	109	21	6	136	14	17	0	31	36	91	0	127	294
Total Volume	480	83	18	581	38	84	0	122	127	383	3	513	1216
% App. Total	82.6	14.3	3.1		31.1	68.9	0		24.8	74.7	0.6		
PHF	.909	.943	.643	.925	.679	.808	.000	.953	.882	.977	.375	.972	.950
Cars	456	75	17	548	37	80	0	117	124	356	3	483	1148
% Cars	95.0	90.4	94.4	94.3	97.4	95.2	0	95.9	97.6	93.0	100	94.2	94.4
Heavy Vehicles	24	8	1	33	1	4	0	5	3	27	0	30	68
% Heavy Vehicles	5.0	9.6	5.6	5.7	2.6	4.8	0	4.1	2.4	7.0	0	5.8	5.6

N/S: Boston Wharf Road
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Groups Printed- Cars

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	119	7	1	5	16	0	20	73	1	242
04:15 PM	135	14	2	4	21	0	12	83	0	271
04:30 PM	119	14	3	6	8	0	17	67	0	234
04:45 PM	111	10	2	5	24	0	28	91	0	271
Total	484	45	8	20	69	0	77	314	1	1018
05:00 PM	117	17	6	8	19	0	23	93	2	285
05:15 PM	125	21	3	6	25	0	33	90	0	303
05:30 PM	108	18	2	10	20	0	34	90	1	283
05:45 PM	106	19	6	13	16	0	34	83	0	277
Total	456	75	17	37	80	0	124	356	3	1148
Grand Total	940	120	25	57	149	0	201	670	4	2166
Apprch %	86.6	11.1	2.3	27.7	72.3	0	23	76.6	0.5	
Total %	43.4	5.5	1.2	2.6	6.9	0	9.3	30.9	0.2	

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	117	17	6	140	8	19	0	27	23	93	2	118	285
05:15 PM	125	21	3	149	6	25	0	31	33	90	0	123	303
05:30 PM	108	18	2	128	10	20	0	30	34	90	1	125	283
05:45 PM	106	19	6	131	13	16	0	29	34	83	0	117	277
Total Volume	456	75	17	548	37	80	0	117	124	356	3	483	1148
% App. Total	83.2	13.7	3.1		31.6	68.4	0		25.7	73.7	0.6		
PHF	.912	.893	.708	.919	.712	.800	.000	.944	.912	.957	.375	.966	.947

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Groups Printed- Heavy Vehicles

	Seaport Boulevard From East			Boston Wharf Road From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	6	1	0	0	1	0	2	8	0	18
04:15 PM	5	0	0	0	1	0	3	11	0	20
04:30 PM	10	1	0	0	1	0	1	10	0	23
04:45 PM	7	0	0	0	2	0	1	9	0	19
Total	28	2	0	0	5	0	7	38	0	80
05:00 PM	8	1	1	0	0	0	0	5	0	15
05:15 PM	7	1	0	0	1	0	0	8	0	17
05:30 PM	6	4	0	0	2	0	1	6	0	19
05:45 PM	3	2	0	1	1	0	2	8	0	17
Total	24	8	1	1	4	0	3	27	0	68
Grand Total	52	10	1	1	9	0	10	65	0	148
Apprch %	82.5	15.9	1.6	10	90	0	13.3	86.7	0	
Total %	35.1	6.8	0.7	0.7	6.1	0	6.8	43.9	0	

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	6	1	0	7	0	1	0	1	2	8	0	10	18
04:15 PM	5	0	0	5	0	1	0	1	3	11	0	14	20
04:30 PM	10	1	0	11	0	1	0	1	1	10	0	11	23
04:45 PM	7	0	0	7	0	2	0	2	1	9	0	10	19
Total Volume	28	2	0	30	0	5	0	5	7	38	0	45	80
% App. Total	93.3	6.7	0		0	100	0		15.6	84.4	0		
PHF	.700	.500	.000	.682	.000	.625	.000	.625	.583	.864	.000	.804	.870

N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 AAA
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Peds and Bikes

	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
04:00 PM	2	0	10	12	0	0	11	9	0	1	1	1	47
04:15 PM	2	0	1	2	0	0	21	13	0	2	6	4	51
04:30 PM	2	1	3	8	0	0	25	12	0	3	9	3	66
04:45 PM	1	0	6	12	0	0	21	12	0	0	1	13	66
Total	7	1	20	34	0	0	78	46	0	6	17	21	230
05:00 PM	11	0	2	12	0	0	35	19	0	1	3	6	89
05:15 PM	4	0	6	18	0	0	46	27	0	0	5	2	108
05:30 PM	7	0	15	28	0	0	48	23	0	1	6	11	139
05:45 PM	7	0	2	15	0	0	36	25	0	0	10	4	99
Total	29	0	25	73	0	0	165	94	0	2	24	23	435
Grand Total	36	1	45	107	0	0	243	140	0	8	41	44	665
Apprch %	19	0.5	23.8	56.6	0	0	63.4	36.6	0	8.6	44.1	47.3	
Total %	5.4	0.2	6.8	16.1	0	0	36.5	21.1	0	1.2	6.2	6.6	

	Seaport Boulevard From East					Boston Wharf Road From South					Seaport Boulevard From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	11	0	2	12	25	0	0	35	19	54	0	1	3	6	10	89
05:15 PM	4	0	6	18	28	0	0	46	27	73	0	0	5	2	7	108
05:30 PM	7	0	15	28	50	0	0	48	23	71	0	1	6	11	18	139
05:45 PM	7	0	2	15	24	0	0	36	25	61	0	0	10	4	14	99
Total Volume	29	0	25	73	127	0	0	165	94	259	0	2	24	23	49	435
% App. Total	22.8	0	19.7	57.5		0	0	63.7	36.3		0	4.1	49	46.9		
PHF	.659	.000	.417	.652	.635	.000	.000	.859	.870	.887	.000	.500	.600	.523	.681	.782

N/S: Boston Wharf Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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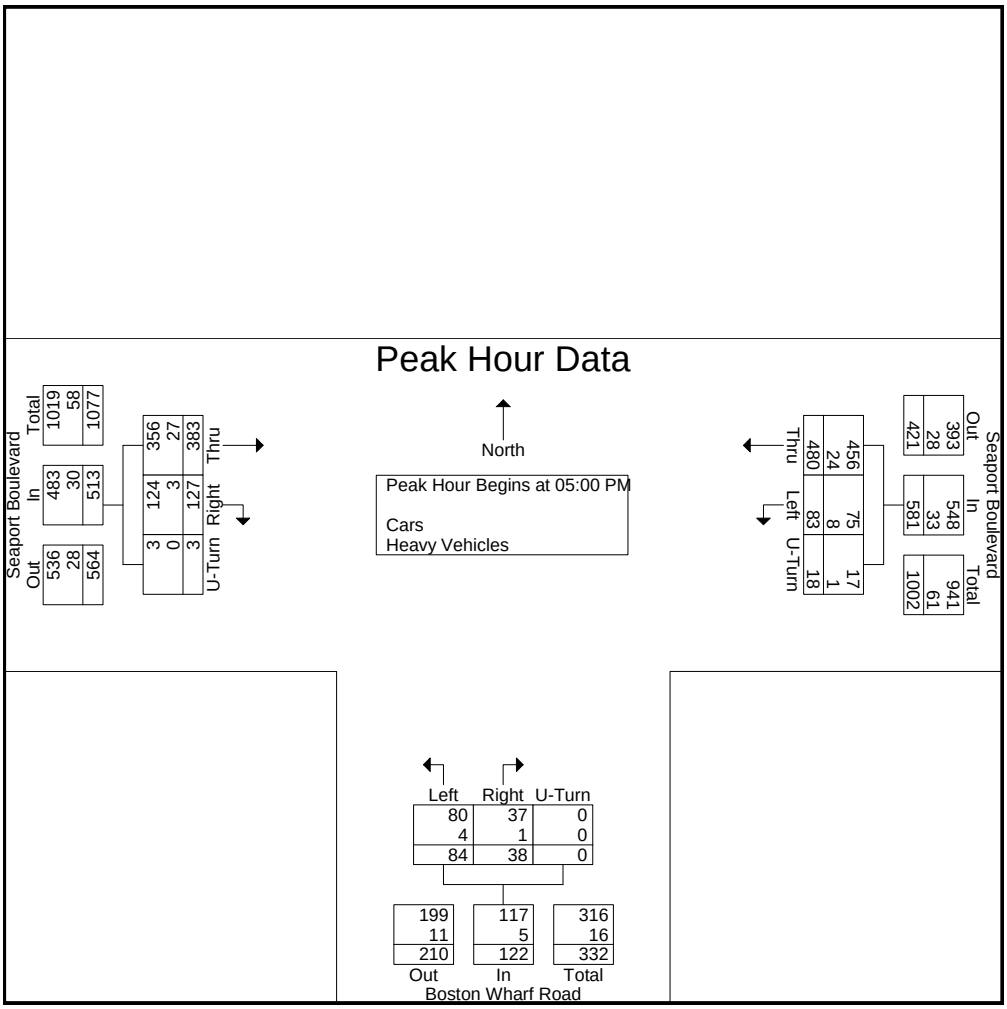
	Seaport Boulevard From East				Boston Wharf Road From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	125	18	7	150	8	19	0	27	23	98	2	123	300
05:15 PM	132	22	3	157	6	26	0	32	33	98	0	131	320
05:30 PM	114	22	2	138	10	22	0	32	35	96	1	132	302
05:45 PM	109	21	6	136	14	17	0	31	36	91	0	127	294
Total Volume	480	83	18	581	38	84	0	122	127	383	3	513	1216
% App. Total	82.6	14.3	3.1		31.1	68.9	0		24.8	74.7	0.6		
PHF	.909	.943	.643	.925	.679	.808	.000	.953	.882	.977	.375	.972	.950
Cars	456	75	17	548	37	80	0	117	124	356	3	483	1148
% Cars	95.0	90.4	94.4	94.3	97.4	95.2	0	95.9	97.6	93.0	100	94.2	94.4
Heavy Vehicles	24	8	1	33	1	4	0	5	3	27	0	30	68
% Heavy Vehicles	5.0	9.6	5.6	5.7	2.6	4.8	0	4.1	2.4	7.0	0	5.8	5.6



N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 B
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	16	0	17	0	10	52	0	1	6	9	28	0	0	68	4	0	211
12:15 PM	15	0	9	0	8	51	0	2	19	6	16	0	0	36	6	2	170
12:30 PM	6	0	8	0	10	54	0	1	9	2	21	0	0	69	4	2	186
12:45 PM	4	0	7	0	11	49	0	0	12	12	19	0	0	53	6	2	175
Total	41	0	41	0	39	206	0	4	46	29	84	0	0	226	20	6	742
01:00 PM	8	0	21	0	10	49	0	0	16	8	23	0	0	45	7	3	190
01:15 PM	18	0	14	0	10	50	0	2	11	7	18	0	0	64	4	0	198
01:30 PM	8	0	19	0	10	49	0	2	18	3	21	0	0	60	10	1	201
01:45 PM	7	0	8	0	10	59	0	1	12	5	11	0	0	47	3	1	164
Total	41	0	62	0	40	207	0	5	57	23	73	0	0	216	24	5	753
Grand Total	82	0	103	0	79	413	0	9	103	52	157	0	0	442	44	11	1495
Apprch %	44.3	0	55.7	0	15.8	82.4	0	1.8	33	16.7	50.3	0	0	88.9	8.9	2.2	
Total %	5.5	0	6.9	0	5.3	27.6	0	0.6	6.9	3.5	10.5	0	0	29.6	2.9	0.7	
Cars	75	0	100	0	77	395	0	9	102	52	150	0	0	431	41	11	1443
% Cars	91.5	0	97.1	0	97.5	95.6	0	100	99	100	95.5	0	0	97.5	93.2	100	96.5
Heavy Vehicles	7	0	3	0	2	18	0	0	1	0	7	0	0	11	3	0	52
% Heavy Vehicles	8.5	0	2.9	0	2.5	4.4	0	0	1	0	4.5	0	0	2.5	6.8	0	3.5

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	4	0	7	0	11	11	49	0	0	60	12	12	19	0	43	0	53	6	2	61	175
01:00 PM	8	0	21	0	29	10	49	0	0	59	16	8	23	0	47	0	45	7	3	55	190
01:15 PM	18	0	14	0	32	10	50	0	2	62	11	7	18	0	36	0	64	4	0	68	198
01:30 PM	8	0	19	0	27	10	49	0	2	61	18	3	21	0	42	0	60	10	1	71	201
Total Volume	38	0	61	0	99	41	197	0	4	242	57	30	81	0	168	0	222	27	6	255	764
% App. Total	38.4	0	61.6	0		16.9	81.4	0	1.7		33.9	17.9	48.2	0		0	87.1	10.6	2.4		
PHF	.528	.000	.726	.000	.773	.932	.985	.000	.500	.976	.792	.625	.880	.000	.894	.000	.867	.675	.500	.898	.950
Cars	36	0	59	0	95	40	188	0	4	232	57	30	79	0	166	0	217	25	6	248	741
% Cars	94.7	0	96.7	0	96.0	97.6	95.4	0	100	95.9	100	100	97.5	0	98.8	0	97.7	92.6	100	97.3	97.0
Heavy Vehicles	2	0	2	0	4	1	9	0	0	10	0	0	2	0	2	0	5	2	0	7	23
% Heavy Vehicles	5.3	0	3.3	0	4.0	2.4	4.6	0	0	4.1	0	0	2.5	0	1.2	0	2.3	7.4	0	2.7	3.0

N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 B
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Cars

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	13	0	16	0	10	50	0	1	6	9	27	0	0	64	3	0	199
12:15 PM	14	0	9	0	8	48	0	2	18	6	16	0	0	36	6	2	165
12:30 PM	6	0	8	0	9	52	0	1	9	2	19	0	0	69	4	2	181
12:45 PM	3	0	7	0	11	46	0	0	12	12	19	0	0	52	6	2	170
Total	36	0	40	0	38	196	0	4	45	29	81	0	0	221	19	6	715
01:00 PM	7	0	21	0	10	46	0	0	16	8	23	0	0	44	6	3	184
01:15 PM	18	0	14	0	10	49	0	2	11	7	17	0	0	63	4	0	195
01:30 PM	8	0	17	0	9	47	0	2	18	3	20	0	0	58	9	1	192
01:45 PM	6	0	8	0	10	57	0	1	12	5	9	0	0	45	3	1	157
Total	39	0	60	0	39	199	0	5	57	23	69	0	0	210	22	5	728
Grand Total	75	0	100	0	77	395	0	9	102	52	150	0	0	431	41	11	1443
Apprch %	42.9	0	57.1	0	16	82.1	0	1.9	33.6	17.1	49.3	0	0	89.2	8.5	2.3	
Total %	5.2	0	6.9	0	5.3	27.4	0	0.6	7.1	3.6	10.4	0	0	29.9	2.8	0.8	

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	3	0	7	0	10	11	46	0	0	57	12	12	19	0	43	0	52	6	2	60	170
01:00 PM	7	0	21	0	28	10	46	0	0	56	16	8	23	0	47	0	44	6	3	53	184
01:15 PM	18	0	14	0	32	10	49	0	2	61	11	7	17	0	35	0	63	4	0	67	195
01:30 PM	8	0	17	0	25	9	47	0	2	58	18	3	20	0	41	0	58	9	1	68	192
Total Volume	36	0	59	0	95	40	188	0	4	232	57	30	79	0	166	0	217	25	6	248	741
% App. Total	37.9	0	62.1	0		17.2	81	0	1.7		34.3	18.1	47.6	0		0	87.5	10.1	2.4		
PHF	.500	.000	.702	.000	.742	.909	.959	.000	.500	.951	.792	.625	.859	.000	.883	.000	.861	.694	.500	.912	.950

N/S: Northern Avenue/ East Service Road
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Groups Printed- Heavy Vehicles

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	3	0	1	0	0	2	0	0	0	0	1	0	0	4	1	0	12
12:15 PM	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	5
12:30 PM	0	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	5
12:45 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	5
Total	5	0	1	0	1	10	0	0	1	0	3	0	0	5	1	0	27
01:00 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	1	1	0	6
01:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	3
01:30 PM	0	0	2	0	1	2	0	0	0	0	1	0	0	2	1	0	9
01:45 PM	1	0	0	0	0	2	0	0	0	0	2	0	0	2	0	0	7
Total	2	0	2	0	1	8	0	0	0	0	4	0	0	6	2	0	25
Grand Total	7	0	3	0	2	18	0	0	1	0	7	0	0	11	3	0	52
Apprch %	70	0	30	0	10	90	0	0	12.5	0	87.5	0	0	78.6	21.4	0	
Total %	13.5	0	5.8	0	3.8	34.6	0	0	1.9	0	13.5	0	0	21.2	5.8	0	

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	3	0	1	0	4	0	2	0	0	2	0	0	1	0	1	0	4	1	0	5	12
12:15 PM	1	0	0	0	1	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	5
12:30 PM	0	0	0	0	0	1	2	0	0	3	0	0	2	0	2	0	0	0	0	0	5
12:45 PM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
Total Volume	5	0	1	0	6	1	10	0	0	11	1	0	3	0	4	0	5	1	0	6	27
% App. Total	83.3	0	16.7	0		9.1	90.9	0	0		25	0	75	0		0	83.3	16.7	0		
PHF	.417	.000	.250	.000	.375	.250	.833	.000	.000	.917	.250	.000	.375	.000	.500	.000	.313	.250	.000	.300	.563

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Groups Printed- Peds and Bikes

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
12:00 PM	0	0	0	11	21	2	0	0	2	6	0	0	0	8	10	0	1	0	1	1	63
12:15 PM	0	0	0	12	21	0	1	0	0	1	0	0	0	10	5	0	2	0	4	0	56
12:30 PM	1	0	1	25	24	0	0	0	8	11	0	0	0	13	2	0	1	0	0	0	86
12:45 PM	0	0	0	17	22	1	0	0	4	11	0	0	0	9	1	0	0	0	1	1	67
Total	1	0	1	65	88	3	1	0	14	29	0	0	0	40	18	0	4	0	6	2	272
01:00 PM	0	0	0	34	10	3	2	0	1	2	0	0	0	4	2	0	0	0	1	0	59
01:15 PM	0	0	0	21	31	0	3	0	10	7	0	0	0	3	3	0	0	0	2	0	80
01:30 PM	0	0	0	28	38	3	0	0	4	2	0	0	0	6	4	0	1	0	4	2	92
01:45 PM	0	0	0	34	20	0	0	0	1	1	0	0	0	9	11	0	0	0	3	3	82
Total	0	0	0	117	99	6	5	0	16	12	0	0	0	22	20	0	1	0	10	5	313
Grand Total	1	0	1	182	187	9	6	0	30	41	0	0	0	62	38	0	5	0	16	7	585
Apprch %	0.3	0	0.3	49.1	50.4	10.5	7	0	34.9	47.7	0	0	0	62	38	0	17.9	0	57.1	25	
Total %	0.2	0	0.2	31.1	32	1.5	1	0	5.1	7	0	0	0	10.6	6.5	0	0.9	0	2.7	1.2	

	Northern Avenue From North						Seaport Boulevard From East						East Service Road From South						Seaport Boulevard From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 01:00 PM																									
01:00 PM	0	0	0	34	10	44	3	2	0	1	2	8	0	0	0	4	2	6	0	0	0	1	0	1	59
01:15 PM	0	0	0	21	31	52	0	3	0	10	7	20	0	0	0	3	3	6	0	0	0	2	0	2	80
01:30 PM	0	0	0	28	38	66	3	0	0	4	2	9	0	0	0	6	4	10	0	1	0	4	2	7	92
01:45 PM	0	0	0	34	20	54	0	0	0	1	1	2	0	0	0	9	11	20	0	0	0	3	3	6	82
Total Volume	0	0	0	117	99	216	6	5	0	16	12	39	0	0	0	22	20	42	0	1	0	10	5	16	313
% App. Total	0	0	0	54.2	45.8		15.4	12.8	0	41	30.8		0	0	0	52.4	47.6		0	6.2	0	62.5	31.2		
PHF	.000	.000	.000	.860	.651	.818	.500	.417	.000	.400	.429	.488	.000	.000	.000	.611	.455	.525	.000	.250	.000	.625	.417	.571	.851

N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
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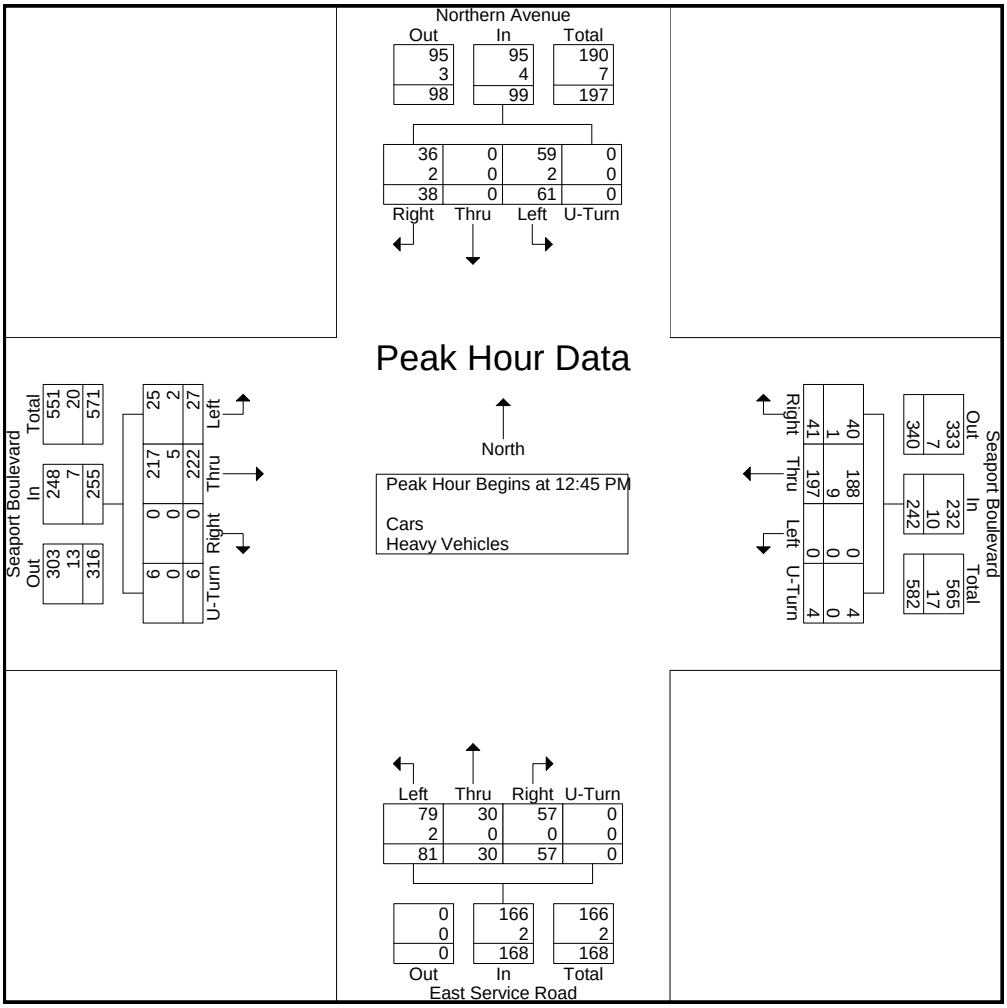
	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	4	0	7	0	11	11	49	0	0	60	12	12	19	0	43	0	53	6	2	61	175
01:00 PM	8	0	21	0	29	10	49	0	0	59	16	8	23	0	47	0	45	7	3	55	190
01:15 PM	18	0	14	0	32	10	50	0	2	62	11	7	18	0	36	0	64	4	0	68	198
01:30 PM	8	0	19	0	27	10	49	0	2	61	18	3	21	0	42	0	60	10	1	71	201
Total Volume	38	0	61	0	99	41	197	0	4	242	57	30	81	0	168	0	222	27	6	255	764
% App. Total	38.4	0	61.6	0		16.9	81.4	0	1.7		33.9	17.9	48.2	0		0	87.1	10.6	2.4		
PHF	.528	.000	.726	.000	.773	.932	.985	.000	.500	.976	.792	.625	.880	.000	.894	.000	.867	.675	.500	.898	.950
Cars	36	0	59	0	95	40	188	0	4	232	57	30	79	0	166	0	217	25	6	248	741
% Cars	94.7	0	96.7	0	96.0	97.6	95.4	0	100	95.9	100	100	97.5	0	98.8	0	97.7	92.6	100	97.3	97.0
Heavy Vehicles	2	0	2	0	4	1	9	0	0	10	0	0	2	0	2	0	5	2	0	7	23
% Heavy Vehicles	5.3	0	3.3	0	4.0	2.4	4.6	0	0	4.1	0	0	2.5	0	1.2	0	2.3	7.4	0	2.7	3.0



N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 154839 BB
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	5	0	10	0	14	68	0	1	14	26	7	0	0	125	5	4	279
07:15 AM	11	0	20	1	22	71	0	1	21	35	16	0	0	111	8	3	320
07:30 AM	17	0	16	0	25	85	0	0	26	63	25	0	0	107	5	1	370
07:45 AM	14	0	23	0	24	93	0	0	21	33	26	0	0	116	7	2	359
Total	47	0	69	1	85	317	0	2	82	157	74	0	0	459	25	10	1328
08:00 AM	13	0	26	0	22	96	0	1	24	41	35	0	0	140	5	3	406
08:15 AM	7	0	22	0	26	107	0	0	24	48	36	0	0	104	6	2	382
08:30 AM	12	0	19	0	17	106	0	2	25	54	40	0	0	128	7	1	411
08:45 AM	9	0	20	0	24	128	0	1	24	47	36	0	0	108	5	6	408
Total	41	0	87	0	89	437	0	4	97	190	147	0	0	480	23	12	1607
Grand Total	88	0	156	1	174	754	0	6	179	347	221	0	0	939	48	22	2935
Apprch %	35.9	0	63.7	0.4	18.6	80.7	0	0.6	24	46.5	29.6	0	0	93.1	4.8	2.2	
Total %	3	0	5.3	0	5.9	25.7	0	0.2	6.1	11.8	7.5	0	0	32	1.6	0.7	
Cars	70	0	127	1	156	640	0	6	174	335	206	0	0	874	40	22	2651
% Cars	79.5	0	81.4	100	89.7	84.9	0	100	97.2	96.5	93.2	0	0	93.1	83.3	100	90.3
Heavy Vehicles	18	0	29	0	18	114	0	0	5	12	15	0	0	65	8	0	284
% Heavy Vehicles	20.5	0	18.6	0	10.3	15.1	0	0	2.8	3.5	6.8	0	0	6.9	16.7	0	9.7

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	13	0	26	0	39	22	96	0	1	119	24	41	35	0	100	0	140	5	3	148	406
08:15 AM	7	0	22	0	29	26	107	0	0	133	24	48	36	0	108	0	104	6	2	112	382
08:30 AM	12	0	19	0	31	17	106	0	2	125	25	54	40	0	119	0	128	7	1	136	411
08:45 AM	9	0	20	0	29	24	128	0	1	153	24	47	36	0	107	0	108	5	6	119	408
Total Volume	41	0	87	0	128	89	437	0	4	530	97	190	147	0	434	0	480	23	12	515	1607
% App. Total	32	0	68	0		16.8	82.5	0	0.8		22.4	43.8	33.9	0		0	93.2	4.5	2.3		
PHF	.788	.000	.837	.000	.821	.856	.854	.000	.500	.866	.970	.880	.919	.000	.912	.000	.857	.821	.500	.870	.977
Cars	32	0	75	0	107	81	376	0	4	461	94	183	142	0	419	0	453	19	12	484	1471
% Cars	78.0	0	86.2	0	83.6	91.0	86.0	0	100	87.0	96.9	96.3	96.6	0	96.5	0	94.4	82.6	100	94.0	91.5
Heavy Vehicles	9	0	12	0	21	8	61	0	0	69	3	7	5	0	15	0	27	4	0	31	136
% Heavy Vehicles	22.0	0	13.8	0	16.4	9.0	14.0	0	0	13.0	3.1	3.7	3.4	0	3.5	0	5.6	17.4	0	6.0	8.5

N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
City, State: Boston, MA
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File Name : 154839 BB
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Cars

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	4	0	8	0	11	53	0	1	13	25	7	0	0	120	3	4	249
07:15 AM	8	0	16	1	20	60	0	1	21	35	11	0	0	98	6	3	280
07:30 AM	15	0	10	0	22	76	0	0	25	61	21	0	0	98	5	1	334
07:45 AM	11	0	18	0	22	75	0	0	21	31	25	0	0	105	7	2	317
Total	38	0	52	1	75	264	0	2	80	152	64	0	0	421	21	10	1180
08:00 AM	11	0	23	0	21	88	0	1	24	40	33	0	0	134	5	3	383
08:15 AM	5	0	18	0	23	91	0	0	23	44	35	0	0	95	3	2	339
08:30 AM	9	0	16	0	16	91	0	2	25	53	38	0	0	121	6	1	378
08:45 AM	7	0	18	0	21	106	0	1	22	46	36	0	0	103	5	6	371
Total	32	0	75	0	81	376	0	4	94	183	142	0	0	453	19	12	1471
Grand Total	70	0	127	1	156	640	0	6	174	335	206	0	0	874	40	22	2651
Apprch %	35.4	0	64.1	0.5	19.5	79.8	0	0.7	24.3	46.9	28.8	0	0	93.4	4.3	2.4	
Total %	2.6	0	4.8	0	5.9	24.1	0	0.2	6.6	12.6	7.8	0	0	33	1.5	0.8	

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	11	0	23	0	34	21	88	0	1	110	24	40	33	0	97	0	134	5	3	142	383
08:15 AM	5	0	18	0	23	23	91	0	0	114	23	44	35	0	102	0	95	3	2	100	339
08:30 AM	9	0	16	0	25	16	91	0	2	109	25	53	38	0	116	0	121	6	1	128	378
08:45 AM	7	0	18	0	25	21	106	0	1	128	22	46	36	0	104	0	103	5	6	114	371
Total Volume	32	0	75	0	107	81	376	0	4	461	94	183	142	0	419	0	453	19	12	484	1471
% App. Total	29.9	0	70.1	0		17.6	81.6	0	0.9		22.4	43.7	33.9	0		0	93.6	3.9	2.5		
PHF	.727	.000	.815	.000	.787	.880	.887	.000	.500	.900	.940	.863	.934	.000	.903	.000	.845	.792	.500	.852	.960

N/S: Northern Avenue/ East Service Road
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File Name : 154839 BB
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Page No : 1

Groups Printed- Heavy Vehicles

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	0	2	0	3	15	0	0	1	1	0	0	0	5	2	0	30
07:15 AM	3	0	4	0	2	11	0	0	0	0	5	0	0	13	2	0	40
07:30 AM	2	0	6	0	3	9	0	0	1	2	4	0	0	9	0	0	36
07:45 AM	3	0	5	0	2	18	0	0	0	2	1	0	0	11	0	0	42
Total	9	0	17	0	10	53	0	0	2	5	10	0	0	38	4	0	148
08:00 AM	2	0	3	0	1	8	0	0	0	1	2	0	0	6	0	0	23
08:15 AM	2	0	4	0	3	16	0	0	1	4	1	0	0	9	3	0	43
08:30 AM	3	0	3	0	1	15	0	0	0	1	2	0	0	7	1	0	33
08:45 AM	2	0	2	0	3	22	0	0	2	1	0	0	0	5	0	0	37
Total	9	0	12	0	8	61	0	0	3	7	5	0	0	27	4	0	136
Grand Total	18	0	29	0	18	114	0	0	5	12	15	0	0	65	8	0	284
Apprch %	38.3	0	61.7	0	13.6	86.4	0	0	15.6	37.5	46.9	0	0	89	11	0	
Total %	6.3	0	10.2	0	6.3	40.1	0	0	1.8	4.2	5.3	0	0	22.9	2.8	0	

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	0	2	0	3	3	15	0	0	18	1	1	0	0	2	0	5	2	0	7	30
07:15 AM	3	0	4	0	7	2	11	0	0	13	0	0	5	0	5	0	13	2	0	15	40
07:30 AM	2	0	6	0	8	3	9	0	0	12	1	2	4	0	7	0	9	0	0	9	36
07:45 AM	3	0	5	0	8	2	18	0	0	20	0	2	1	0	3	0	11	0	0	11	42
Total Volume	9	0	17	0	26	10	53	0	0	63	2	5	10	0	17	0	38	4	0	42	148
% App. Total	34.6	0	65.4	0		15.9	84.1	0	0		11.8	29.4	58.8	0		0	90.5	9.5	0		
PHF	.750	.000	.708	.000	.813	.833	.736	.000	.000	.788	.500	.625	.500	.000	.607	.000	.731	.500	.000	.700	.881

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Start Date : 12/15/2015
Page No : 1

Groups Printed- Peds and Bikes

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	5	1	1	1	0	0	5	0	0	0	7	2	0	0	0	2	0	24
07:15 AM	0	0	0	7	5	1	0	0	3	6	0	0	0	7	1	0	0	0	1	1	32
07:30 AM	0	0	0	22	11	0	0	0	4	1	0	0	0	17	4	0	0	0	3	1	63
07:45 AM	0	0	0	20	13	1	1	0	2	6	0	0	0	15	6	0	0	0	2	2	68
Total	0	0	0	54	30	3	2	0	9	18	0	0	0	46	13	0	0	0	8	4	187
08:00 AM	0	0	0	34	13	0	1	0	1	3	0	0	0	29	8	0	5	0	0	7	101
08:15 AM	0	0	0	19	20	0	0	0	3	2	0	0	0	35	26	0	0	0	3	6	114
08:30 AM	0	0	0	40	12	0	1	0	5	5	0	0	0	45	18	0	2	1	5	2	136
08:45 AM	0	0	0	29	15	0	1	0	4	7	0	0	0	26	26	0	2	1	3	5	119
Total	0	0	0	122	60	0	3	0	13	17	0	0	0	135	78	0	9	2	11	20	470
Grand Total	0	0	0	176	90	3	5	0	22	35	0	0	0	181	91	0	9	2	19	24	657
Apprch %	0	0	0	66.2	33.8	4.6	7.7	0	33.8	53.8	0	0	0	66.5	33.5	0	16.7	3.7	35.2	44.4	
Total %	0	0	0	26.8	13.7	0.5	0.8	0	3.3	5.3	0	0	0	27.5	13.9	0	1.4	0.3	2.9	3.7	

	Northern Avenue From North						Seaport Boulevard From East						East Service Road From South						Seaport Boulevard From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	34	13	47	0	1	0	1	3	5	0	0	0	29	8	37	0	5	0	0	7	12	101
08:15 AM	0	0	0	19	20	39	0	0	0	3	2	5	0	0	0	35	26	61	0	0	0	3	6	9	114
08:30 AM	0	0	0	40	12	52	0	1	0	5	5	11	0	0	0	45	18	63	0	2	1	5	2	10	136
08:45 AM	0	0	0	29	15	44	0	1	0	4	7	12	0	0	0	26	26	52	0	2	1	3	5	11	119
Total Volume	0	0	0	122	60	182	0	3	0	13	17	33	0	0	0	135	78	213	0	9	2	11	20	42	470
% App. Total	0	0	0	67	33		0	9.1	0	39.4	51.5		0	0	0	63.4	36.6		0	21.4	4.8	26.2	47.6		
PHF	.000	.000	.000	.763	.750	.875	.000	.750	.000	.650	.607	.688	.000	.000	.000	.750	.750	.845	.000	.450	.500	.550	.714	.875	.864

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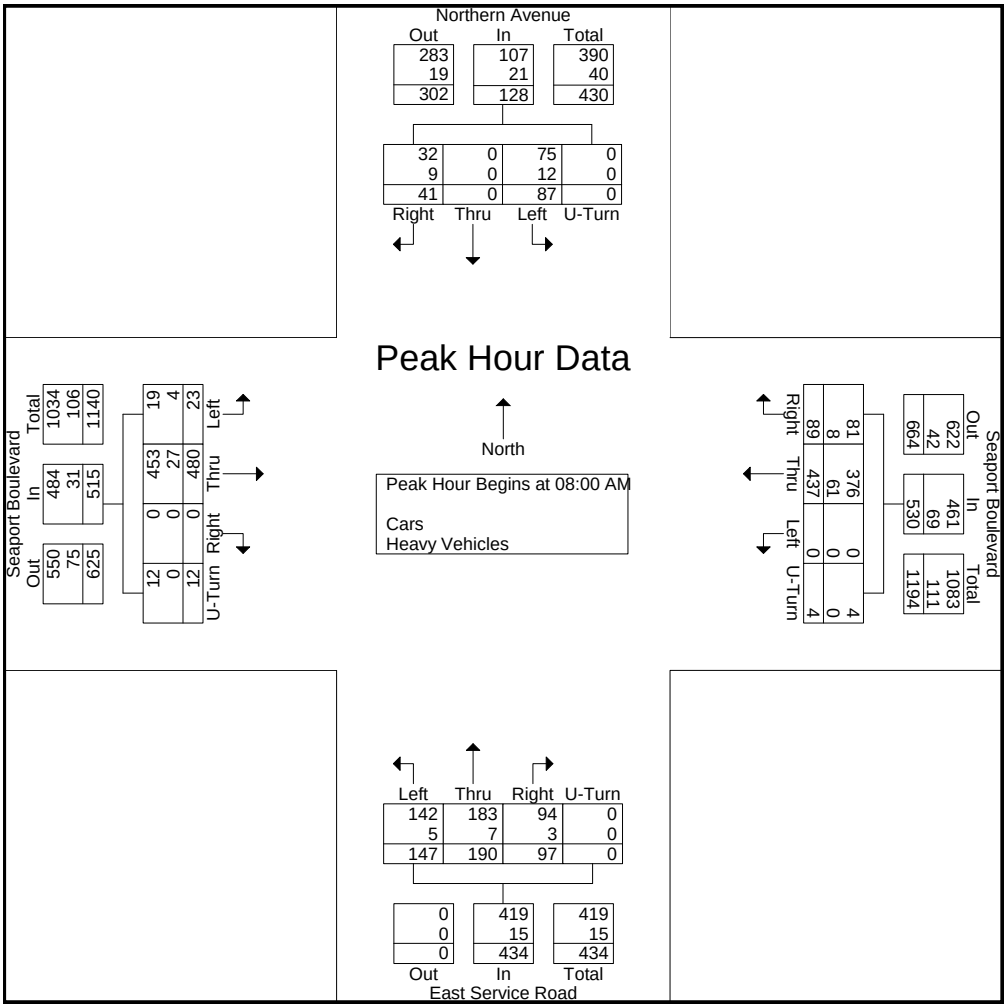
	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	13	0	26	0	39	22	96	0	1	119	24	41	35	0	100	0	140	5	3	148	406
08:15 AM	7	0	22	0	29	26	107	0	0	133	24	48	36	0	108	0	104	6	2	112	382
08:30 AM	12	0	19	0	31	17	106	0	2	125	25	54	40	0	119	0	128	7	1	136	411
08:45 AM	9	0	20	0	29	24	128	0	1	153	24	47	36	0	107	0	108	5	6	119	408
Total Volume	41	0	87	0	128	89	437	0	4	530	97	190	147	0	434	0	480	23	12	515	1607
% App. Total	32	0	68	0		16.8	82.5	0	0.8		22.4	43.8	33.9	0		0	93.2	4.5	2.3		
PHF	.788	.000	.837	.000	.821	.856	.854	.000	.500	.866	.970	.880	.919	.000	.912	.000	.857	.821	.500	.870	.977
Cars	32	0	75	0	107	81	376	0	4	461	94	183	142	0	419	0	453	19	12	484	1471
% Cars	78.0	0	86.2	0	83.6	91.0	86.0	0	100	87.0	96.9	96.3	96.6	0	96.5	0	94.4	82.6	100	94.0	91.5
Heavy Vehicles	9	0	12	0	21	8	61	0	0	69	3	7	5	0	15	0	27	4	0	31	136
% Heavy Vehicles	22.0	0	13.8	0	16.4	9.0	14.0	0	0	13.0	3.1	3.7	3.4	0	3.5	0	5.6	17.4	0	6.0	8.5



N/S: Northern Avenue/ East Service Road
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Groups Printed- Cars - Heavy Vehicles

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	6	0	40	0	17	109	0	0	15	9	15	0	0	85	5	2	303
04:15 PM	19	0	27	0	16	109	0	1	18	10	23	0	0	91	11	1	326
04:30 PM	17	0	34	0	19	98	0	0	19	9	30	0	0	80	12	3	321
04:45 PM	3	0	43	0	19	96	0	0	17	11	30	0	0	92	12	3	326
Total	45	0	144	0	71	412	0	1	69	39	98	0	0	348	40	9	1276
05:00 PM	13	0	44	0	20	97	0	1	13	17	31	0	0	99	9	0	344
05:15 PM	17	0	34	0	15	93	0	1	22	14	37	0	0	92	10	2	337
05:30 PM	10	0	36	0	26	95	0	0	24	22	32	0	0	96	9	0	350
05:45 PM	15	0	32	0	29	103	0	1	18	14	20	0	0	101	8	1	342
Total	55	0	146	0	90	388	0	3	77	67	120	0	0	388	36	3	1373
Grand Total	100	0	290	0	161	800	0	4	146	106	218	0	0	736	76	12	2649
Apprch %	25.6	0	74.4	0	16.7	82.9	0	0.4	31.1	22.6	46.4	0	0	89.3	9.2	1.5	
Total %	3.8	0	10.9	0	6.1	30.2	0	0.2	5.5	4	8.2	0	0	27.8	2.9	0.5	
Cars	93	0	288	0	148	758	0	4	141	104	211	0	0	682	65	12	2506
% Cars	93	0	99.3	0	91.9	94.8	0	100	96.6	98.1	96.8	0	0	92.7	85.5	100	94.6
Heavy Vehicles	7	0	2	0	13	42	0	0	5	2	7	0	0	54	11	0	143
% Heavy Vehicles	7	0	0.7	0	8.1	5.2	0	0	3.4	1.9	3.2	0	0	7.3	14.5	0	5.4

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	13	0	44	0	57	20	97	0	1	118	13	17	31	0	61	0	99	9	0	108	344
05:15 PM	17	0	34	0	51	15	93	0	1	109	22	14	37	0	73	0	92	10	2	104	337
05:30 PM	10	0	36	0	46	26	95	0	0	121	24	22	32	0	78	0	96	9	0	105	350
05:45 PM	15	0	32	0	47	29	103	0	1	133	18	14	20	0	52	0	101	8	1	110	342
Total Volume	55	0	146	0	201	90	388	0	3	481	77	67	120	0	264	0	388	36	3	427	1373
% App. Total	27.4	0	72.6	0		18.7	80.7	0	0.6		29.2	25.4	45.5	0		0	90.9	8.4	0.7		
PHF	.809	.000	.830	.000	.882	.776	.942	.000	.750	.904	.802	.761	.811	.000	.846	.000	.960	.900	.375	.970	.981
Cars	51	0	146	0	197	83	371	0	3	457	75	65	114	0	254	0	364	32	3	399	1307
% Cars	92.7	0	100	0	98.0	92.2	95.6	0	100	95.0	97.4	97.0	95.0	0	96.2	0	93.8	88.9	100	93.4	95.2
Heavy Vehicles	4	0	0	0	4	7	17	0	0	24	2	2	6	0	10	0	24	4	0	28	66
% Heavy Vehicles	7.3	0	0	0	2.0	7.8	4.4	0	0	5.0	2.6	3.0	5.0	0	3.8	0	6.2	11.1	0	6.6	4.8

N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Start Date : 12/15/2015
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Groups Printed- Cars

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	6	0	39	0	16	103	0	0	13	9	14	0	0	79	3	2	284
04:15 PM	18	0	27	0	15	105	0	1	18	10	23	0	0	83	11	1	312
04:30 PM	15	0	34	0	17	90	0	0	18	9	30	0	0	71	9	3	296
04:45 PM	3	0	42	0	17	89	0	0	17	11	30	0	0	85	10	3	307
Total	42	0	142	0	65	387	0	1	66	39	97	0	0	318	33	9	1199
05:00 PM	13	0	44	0	18	91	0	1	13	17	30	0	0	94	9	0	330
05:15 PM	15	0	34	0	15	89	0	1	20	13	35	0	0	88	9	2	321
05:30 PM	8	0	36	0	24	91	0	0	24	21	30	0	0	87	8	0	329
05:45 PM	15	0	32	0	26	100	0	1	18	14	19	0	0	95	6	1	327
Total	51	0	146	0	83	371	0	3	75	65	114	0	0	364	32	3	1307
Grand Total	93	0	288	0	148	758	0	4	141	104	211	0	0	682	65	12	2506
Apprch %	24.4	0	75.6	0	16.3	83.3	0	0.4	30.9	22.8	46.3	0	0	89.9	8.6	1.6	
Total %	3.7	0	11.5	0	5.9	30.2	0	0.2	5.6	4.2	8.4	0	0	27.2	2.6	0.5	

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	13	0	44	0	57	18	91	0	1	110	13	17	30	0	60	0	94	9	0	103	330
05:15 PM	15	0	34	0	49	15	89	0	1	105	20	13	35	0	68	0	88	9	2	99	321
05:30 PM	8	0	36	0	44	24	91	0	0	115	24	21	30	0	75	0	87	8	0	95	329
05:45 PM	15	0	32	0	47	26	100	0	1	127	18	14	19	0	51	0	95	6	1	102	327
Total Volume	51	0	146	0	197	83	371	0	3	457	75	65	114	0	254	0	364	32	3	399	1307
% App. Total	25.9	0	74.1	0		18.2	81.2	0	0.7		29.5	25.6	44.9	0		0	91.2	8	0.8		
PHF	.850	.000	.830	.000	.864	.798	.928	.000	.750	.900	.781	.774	.814	.000	.847	.000	.958	.889	.375	.968	.990

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Groups Printed- Heavy Vehicles

	Northern Avenue From North				Seaport Boulevard From East				East Service Road From South				Seaport Boulevard From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	1	0	1	6	0	0	2	0	1	0	0	6	2	0	19
04:15 PM	1	0	0	0	1	4	0	0	0	0	0	0	0	8	0	0	14
04:30 PM	2	0	0	0	2	8	0	0	1	0	0	0	0	9	3	0	25
04:45 PM	0	0	1	0	2	7	0	0	0	0	0	0	0	7	2	0	19
Total	3	0	2	0	6	25	0	0	3	0	1	0	0	30	7	0	77
05:00 PM	0	0	0	0	2	6	0	0	0	0	1	0	0	5	0	0	14
05:15 PM	2	0	0	0	0	4	0	0	2	1	2	0	0	4	1	0	16
05:30 PM	2	0	0	0	2	4	0	0	0	1	2	0	0	9	1	0	21
05:45 PM	0	0	0	0	3	3	0	0	0	0	1	0	0	6	2	0	15
Total	4	0	0	0	7	17	0	0	2	2	6	0	0	24	4	0	66
Grand Total	7	0	2	0	13	42	0	0	5	2	7	0	0	54	11	0	143
Apprch %	77.8	0	22.2	0	23.6	76.4	0	0	35.7	14.3	50	0	0	83.1	16.9	0	
Total %	4.9	0	1.4	0	9.1	29.4	0	0	3.5	1.4	4.9	0	0	37.8	7.7	0	

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	1	0	1	1	6	0	0	7	2	0	1	0	3	0	6	2	0	8	19
04:15 PM	1	0	0	0	1	1	4	0	0	5	0	0	0	0	0	0	8	0	0	8	14
04:30 PM	2	0	0	0	2	2	8	0	0	10	1	0	0	0	1	0	9	3	0	12	25
04:45 PM	0	0	1	0	1	2	7	0	0	9	0	0	0	0	0	0	7	2	0	9	19
Total Volume	3	0	2	0	5	6	25	0	0	31	3	0	1	0	4	0	30	7	0	37	77
% App. Total	60	0	40	0		19.4	80.6	0	0		75	0	25	0		0	81.1	18.9	0		
PHF	.375	.000	.500	.000	.625	.750	.781	.000	.000	.775	.375	.000	.250	.000	.333	.000	.833	.583	.000	.771	.770

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Groups Printed- Peds and Bikes

	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	9	19	3	0	0	1	0	0	0	0	6	15	0	1	0	1	1	56
04:15 PM	0	0	0	10	18	1	2	0	3	15	0	0	0	10	28	0	2	0	2	6	97
04:30 PM	0	0	0	10	25	0	0	0	4	10	0	0	0	12	14	0	3	0	0	0	78
04:45 PM	0	0	0	5	29	0	0	0	4	4	0	0	0	10	20	0	0	0	3	0	75
Total	0	0	0	34	91	4	2	0	12	29	0	0	0	38	77	0	6	0	6	7	306
05:00 PM	0	0	1	14	31	0	6	0	6	0	0	0	0	8	18	0	0	0	2	1	87
05:15 PM	0	0	0	12	40	0	4	0	3	3	0	0	0	14	23	0	0	0	1	1	101
05:30 PM	0	0	0	11	26	0	2	0	4	2	0	0	0	12	31	0	1	0	0	0	89
05:45 PM	0	0	0	44	33	0	5	0	4	4	0	0	0	6	29	0	2	0	0	0	127
Total	0	0	1	81	130	0	17	0	17	9	0	0	0	40	101	0	3	0	3	2	404
Grand Total	0	0	1	115	221	4	19	0	29	38	0	0	0	78	178	0	9	0	9	9	710
Apprch %	0	0	0.3	34.1	65.6	4.4	21.1	0	32.2	42.2	0	0	0	30.5	69.5	0	33.3	0	33.3	33.3	
Total %	0	0	0.1	16.2	31.1	0.6	2.7	0	4.1	5.4	0	0	0	11	25.1	0	1.3	0	1.3	1.3	

	Northern Avenue From North						Seaport Boulevard From East						East Service Road From South						Seaport Boulevard From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	1	14	31	46	0	6	0	6	0	12	0	0	0	8	18	26	0	0	0	2	1	3	87
05:15 PM	0	0	0	12	40	52	0	4	0	3	3	10	0	0	0	14	23	37	0	0	0	1	1	2	101
05:30 PM	0	0	0	11	26	37	0	2	0	4	2	8	0	0	0	12	31	43	0	1	0	0	0	1	89
05:45 PM	0	0	0	44	33	77	0	5	0	4	4	13	0	0	0	6	29	35	0	2	0	0	0	2	127
Total Volume	0	0	1	81	130	212	0	17	0	17	9	43	0	0	0	40	101	141	0	3	0	3	2	8	404
% App. Total	0	0	0.5	38.2	61.3		0	39.5	0	39.5	20.9		0	0	0	28.4	71.6		0	37.5	0	37.5	25		
PHF	.000	.000	.250	.460	.813	.688	.000	.708	.000	.708	.563	.827	.000	.000	.000	.714	.815	.820	.000	.375	.000	.375	.500	.667	.795

N/S: Northern Avenue/ East Service Road
E/W: Seaport Boulevard
City, State: Boston, MA
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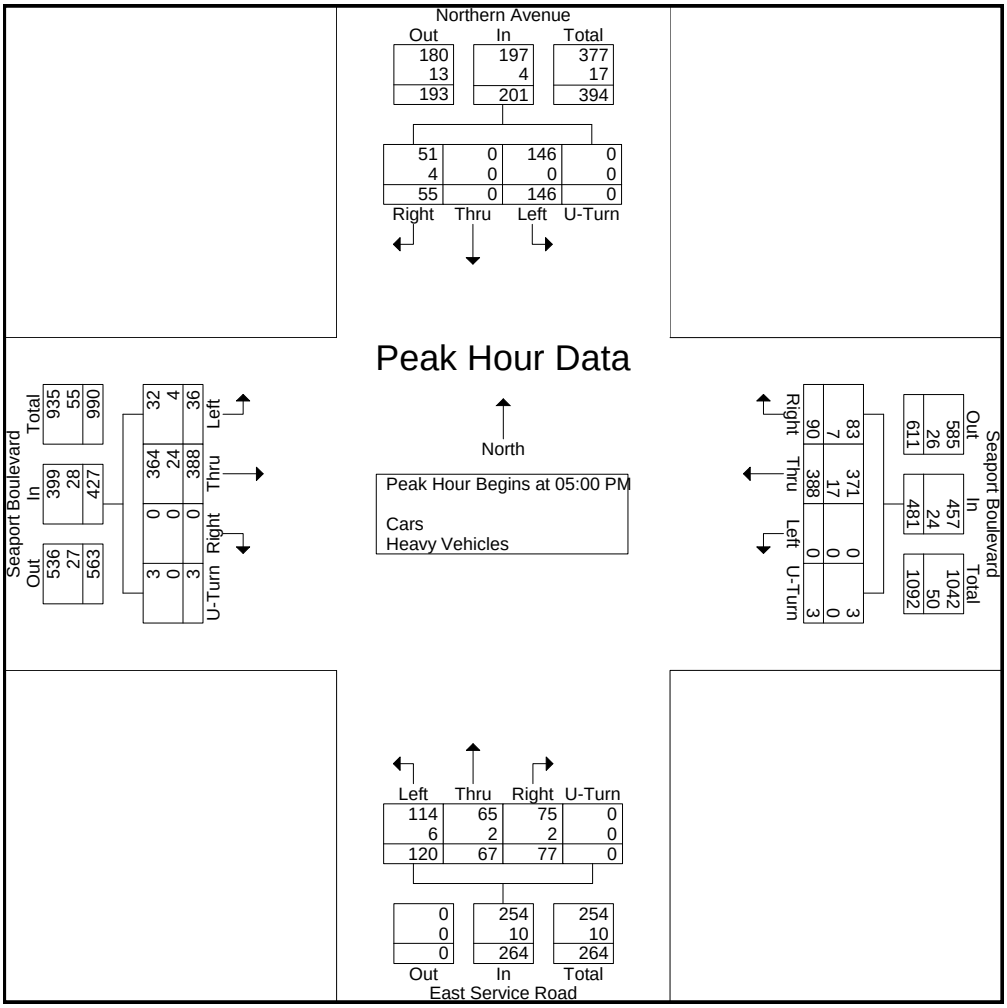
	Northern Avenue From North					Seaport Boulevard From East					East Service Road From South					Seaport Boulevard From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	13	0	44	0	57	20	97	0	1	118	13	17	31	0	61	0	99	9	0	108	344
05:15 PM	17	0	34	0	51	15	93	0	1	109	22	14	37	0	73	0	92	10	2	104	337
05:30 PM	10	0	36	0	46	26	95	0	0	121	24	22	32	0	78	0	96	9	0	105	350
05:45 PM	15	0	32	0	47	29	103	0	1	133	18	14	20	0	52	0	101	8	1	110	342
Total Volume	55	0	146	0	201	90	388	0	3	481	77	67	120	0	264	0	388	36	3	427	1373
% App. Total	27.4	0	72.6	0		18.7	80.7	0	0.6		29.2	25.4	45.5	0		0	90.9	8.4	0.7		
PHF	.809	.000	.830	.000	.882	.776	.942	.000	.750	.904	.802	.761	.811	.000	.846	.000	.960	.900	.375	.970	.981
Cars	51	0	146	0	197	83	371	0	3	457	75	65	114	0	254	0	364	32	3	399	1307
% Cars	92.7	0	100	0	98.0	92.2	95.6	0	100	95.0	97.4	97.0	95.0	0	96.2	0	93.8	88.9	100	93.4	95.2
Heavy Vehicles	4	0	0	0	4	7	17	0	0	24	2	2	6	0	10	0	24	4	0	28	66
% Heavy Vehicles	7.3	0	0	0	2.0	7.8	4.4	0	0	5.0	2.6	3.0	5.0	0	3.8	0	6.2	11.1	0	6.6	4.8



S: B Street
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Groups Printed- Cars

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
12:00 PM	40	2	2	7	19	0	17	67	0	154
12:15 PM	35	2	4	12	24	0	13	54	0	144
12:30 PM	49	11	0	16	14	1	13	73	0	177
12:45 PM	44	4	2	12	16	0	12	57	1	148
Total	168	19	8	47	73	1	55	251	1	623
01:00 PM	38	7	4	18	16	0	22	61	0	166
01:15 PM	38	7	0	16	24	1	17	75	0	178
01:30 PM	42	8	1	12	19	0	18	75	0	175
01:45 PM	40	6	0	13	29	0	12	56	0	156
Total	158	28	5	59	88	1	69	267	0	675
Grand Total	326	47	13	106	161	2	124	518	1	1298
Apprch %	84.5	12.2	3.4	39.4	59.9	0.7	19.3	80.6	0.2	
Total %	25.1	3.6	1	8.2	12.4	0.2	9.6	39.9	0.1	

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 01:00 PM													
01:00 PM	38	7	4	49	18	16	0	34	22	61	0	83	166
01:15 PM	38	7	0	45	16	24	1	41	17	75	0	92	178
01:30 PM	42	8	1	51	12	19	0	31	18	75	0	93	175
01:45 PM	40	6	0	46	13	29	0	42	12	56	0	68	156
Total Volume	158	28	5	191	59	88	1	148	69	267	0	336	675
% App. Total	82.7	14.7	2.6		39.9	59.5	0.7		20.5	79.5	0		
PHF	.940	.875	.313	.936	.819	.759	.250	.881	.784	.890	.000	.903	.948

S: B Street
E/W: Seaport Boulevard
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Groups Printed- Heavy Vehicles

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
12:00 PM	2	2	0	0	0	0	1	4	0	9
12:15 PM	2	0	0	0	0	0	0	1	0	3
12:30 PM	4	0	0	0	0	0	0	0	0	4
12:45 PM	3	1	0	1	1	0	0	1	0	7
Total	11	3	0	1	1	0	1	6	0	23
01:00 PM	2	0	0	0	0	0	0	1	0	3
01:15 PM	1	0	0	1	0	0	0	1	0	3
01:30 PM	2	0	0	0	1	0	0	3	0	6
01:45 PM	3	1	0	0	0	0	0	2	0	6
Total	8	1	0	1	1	0	0	7	0	18
Grand Total	19	4	0	2	2	0	1	13	0	41
Apprch %	82.6	17.4	0	50	50	0	7.1	92.9	0	
Total %	46.3	9.8	0	4.9	4.9	0	2.4	31.7	0	

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	2	2	0	4	0	0	0	0	1	4	0	5	9
12:15 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
12:30 PM	4	0	0	4	0	0	0	0	0	0	0	0	4
12:45 PM	3	1	0	4	1	1	0	2	0	1	0	1	7
Total Volume	11	3	0	14	1	1	0	2	1	6	0	7	23
% App. Total	78.6	21.4	0		50	50	0		14.3	85.7	0		
PHF	.688	.375	.000	.875	.250	.250	.000	.250	.250	.375	.000	.350	.639

S: B Street
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Groups Printed- Peds and Bikes

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
12:00 PM	2	0	8	9	0	0	9	9	0	1	5	0	43
12:15 PM	3	0	9	17	0	0	17	6	1	1	2	1	57
12:30 PM	1	0	5	8	1	0	10	6	0	2	0	0	33
12:45 PM	2	0	4	6	0	0	14	4	0	0	1	1	32
Total	8	0	26	40	1	0	50	25	1	4	8	2	165
01:00 PM	4	0	3	7	0	0	4	5	0	0	2	1	26
01:15 PM	2	0	4	6	0	2	5	2	0	1	13	0	35
01:30 PM	3	0	3	7	0	0	9	9	0	1	4	2	38
01:45 PM	0	0	3	2	0	1	7	15	0	0	3	5	36
Total	9	0	13	22	0	3	25	31	0	2	22	8	135
Grand Total	17	0	39	62	1	3	75	56	1	6	30	10	300
Apprch %	14.4	0	33.1	52.5	0.7	2.2	55.6	41.5	2.1	12.8	63.8	21.3	
Total %	5.7	0	13	20.7	0.3	1	25	18.7	0.3	2	10	3.3	

	Seaport Boulevard From East					B Street From South					Seaport Boulevard From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 12:00 PM																
12:00 PM	2	0	8	9	19	0	0	9	9	18	0	1	5	0	6	43
12:15 PM	3	0	9	17	29	0	0	17	6	23	1	1	2	1	5	57
12:30 PM	1	0	5	8	14	1	0	10	6	17	0	2	0	0	2	33
12:45 PM	2	0	4	6	12	0	0	14	4	18	0	0	1	1	2	32
Total Volume	8	0	26	40	74	1	0	50	25	76	1	4	8	2	15	165
% App. Total	10.8	0	35.1	54.1		1.3	0	65.8	32.9		6.7	26.7	53.3	13.3		
PHF	.667	.000	.722	.588	.638	.250	.000	.735	.694	.826	.250	.500	.400	.500	.625	.724

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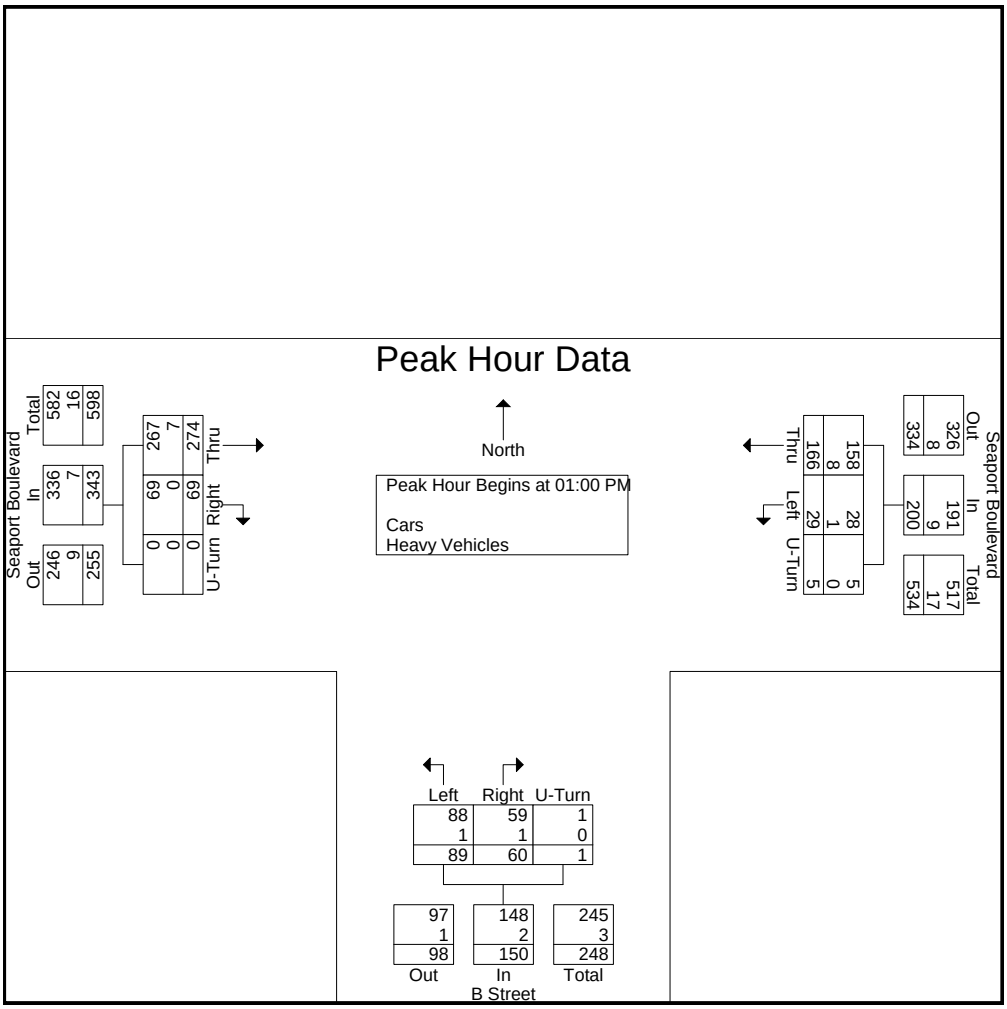
	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 01:00 PM													
01:00 PM	40	7	4	51	18	16	0	34	22	62	0	84	169
01:15 PM	39	7	0	46	17	24	1	42	17	76	0	93	181
01:30 PM	44	8	1	53	12	20	0	32	18	78	0	96	181
01:45 PM	43	7	0	50	13	29	0	42	12	58	0	70	162
Total Volume	166	29	5	200	60	89	1	150	69	274	0	343	693
% App. Total	83	14.5	2.5		40	59.3	0.7		20.1	79.9	0		
PHF	.943	.906	.313	.943	.833	.767	.250	.893	.784	.878	.000	.893	.957
Cars	158	28	5	191	59	88	1	148	69	267	0	336	675
% Cars	95.2	96.6	100	95.5	98.3	98.9	100	98.7	100	97.4	0	98.0	97.4
Heavy Vehicles	8	1	0	9	1	1	0	2	0	7	0	7	18
% Heavy Vehicles	4.8	3.4	0	4.5	1.7	1.1	0	1.3	0	2.6	0	2.0	2.6



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Groups Printed- Cars - Heavy Vehicles

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	52	5	1	23	37	1	10	120	0	249
07:15 AM	58	5	1	6	32	0	21	134	0	257
07:30 AM	59	10	0	35	50	0	12	148	0	314
07:45 AM	71	6	2	30	51	0	17	128	0	305
Total	240	26	4	94	170	1	60	530	0	1125
08:00 AM	61	9	0	46	58	0	24	161	0	359
08:15 AM	78	6	1	32	62	0	14	119	0	312
08:30 AM	86	11	1	45	35	0	16	135	2	331
08:45 AM	91	11	2	32	59	1	15	151	0	362
Total	316	37	4	155	214	1	69	566	2	1364
Grand Total	556	63	8	249	384	2	129	1096	2	2489
Apprch %	88.7	10	1.3	39.2	60.5	0.3	10.5	89.3	0.2	
Total %	22.3	2.5	0.3	10	15.4	0.1	5.2	44	0.1	
Cars	441	51	8	219	366	2	118	1011	2	2218
% Cars	79.3	81	100	88	95.3	100	91.5	92.2	100	89.1
Heavy Vehicles	115	12	0	30	18	0	11	85	0	271
% Heavy Vehicles	20.7	19	0	12	4.7	0	8.5	7.8	0	10.9

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	61	9	0	70	46	58	0	104	24	161	0	185	359
08:15 AM	78	6	1	85	32	62	0	94	14	119	0	133	312
08:30 AM	86	11	1	98	45	35	0	80	16	135	2	153	331
08:45 AM	91	11	2	104	32	59	1	92	15	151	0	166	362
Total Volume	316	37	4	357	155	214	1	370	69	566	2	637	1364
% App. Total	88.5	10.4	1.1		41.9	57.8	0.3		10.8	88.9	0.3		
PHF	.868	.841	.500	.858	.842	.863	.250	.889	.719	.879	.250	.861	.942
Cars	259	31	4	294	134	203	1	338	65	529	2	596	1228
% Cars	82.0	83.8	100	82.4	86.5	94.9	100	91.4	94.2	93.5	100	93.6	90.0
Heavy Vehicles	57	6	0	63	21	11	0	32	4	37	0	41	136
% Heavy Vehicles	18.0	16.2	0	17.6	13.5	5.1	0	8.6	5.8	6.5	0	6.4	10.0

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Groups Printed- Cars

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	36	2	1	20	33	1	10	113	0	216
07:15 AM	47	5	1	5	31	0	20	119	0	228
07:30 AM	49	8	0	32	48	0	11	132	0	280
07:45 AM	50	5	2	28	51	0	12	118	0	266
Total	182	20	4	85	163	1	53	482	0	990
08:00 AM	55	7	0	38	56	0	24	151	0	331
08:15 AM	61	4	1	27	58	0	12	108	0	271
08:30 AM	72	10	1	43	32	0	14	128	2	302
08:45 AM	71	10	2	26	57	1	15	142	0	324
Total	259	31	4	134	203	1	65	529	2	1228
Grand Total	441	51	8	219	366	2	118	1011	2	2218
Apprch %	88.2	10.2	1.6	37.3	62.4	0.3	10.4	89.4	0.2	
Total %	19.9	2.3	0.4	9.9	16.5	0.1	5.3	45.6	0.1	

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	55	7	0	62	38	56	0	94	24	151	0	175	331
08:15 AM	61	4	1	66	27	58	0	85	12	108	0	120	271
08:30 AM	72	10	1	83	43	32	0	75	14	128	2	144	302
08:45 AM	71	10	2	83	26	57	1	84	15	142	0	157	324
Total Volume	259	31	4	294	134	203	1	338	65	529	2	596	1228
% App. Total	88.1	10.5	1.4		39.6	60.1	0.3		10.9	88.8	0.3		
PHF	.899	.775	.500	.886	.779	.875	.250	.899	.677	.876	.250	.851	.927

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Groups Printed- Heavy Vehicles

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	16	3	0	3	4	0	0	7	0	33
07:15 AM	11	0	0	1	1	0	1	15	0	29
07:30 AM	10	2	0	3	2	0	1	16	0	34
07:45 AM	21	1	0	2	0	0	5	10	0	39
Total	58	6	0	9	7	0	7	48	0	135
08:00 AM	6	2	0	8	2	0	0	10	0	28
08:15 AM	17	2	0	5	4	0	2	11	0	41
08:30 AM	14	1	0	2	3	0	2	7	0	29
08:45 AM	20	1	0	6	2	0	0	9	0	38
Total	57	6	0	21	11	0	4	37	0	136
Grand Total	115	12	0	30	18	0	11	85	0	271
Apprch %	90.6	9.4	0	62.5	37.5	0	11.5	88.5	0	
Total %	42.4	4.4	0	11.1	6.6	0	4.1	31.4	0	

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	10	2	0	12	3	2	0	5	1	16	0	17	34
07:45 AM	21	1	0	22	2	0	0	2	5	10	0	15	39
08:00 AM	6	2	0	8	8	2	0	10	0	10	0	10	28
08:15 AM	17	2	0	19	5	4	0	9	2	11	0	13	41
Total Volume	54	7	0	61	18	8	0	26	8	47	0	55	142
% App. Total	88.5	11.5	0		69.2	30.8	0		14.5	85.5	0		
PHF	.643	.875	.000	.693	.563	.500	.000	.650	.400	.734	.000	.809	.866

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Groups Printed- Peds and Bikes

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
07:00 AM	2	0	4	4	0	1	5	10	0	2	1	1	30
07:15 AM	1	0	3	6	0	0	4	7	0	1	2	0	24
07:30 AM	0	0	2	10	1	0	10	11	0	1	0	0	35
07:45 AM	2	0	9	10	0	1	15	16	2	0	4	0	59
Total	5	0	18	30	1	2	34	44	2	4	7	1	148
08:00 AM	2	0	8	13	0	0	23	22	1	3	4	0	76
08:15 AM	0	0	7	14	0	0	26	29	2	4	9	2	93
08:30 AM	3	0	14	12	0	0	30	25	0	3	2	2	91
08:45 AM	1	0	7	11	1	1	27	18	1	2	2	2	73
Total	6	0	36	50	1	1	106	94	4	12	17	6	333
Grand Total	11	0	54	80	2	3	140	138	6	16	24	7	481
Apprch %	7.6	0	37.2	55.2	0.7	1.1	49.5	48.8	11.3	30.2	45.3	13.2	
Total %	2.3	0	11.2	16.6	0.4	0.6	29.1	28.7	1.2	3.3	5	1.5	

	Seaport Boulevard From East					B Street From South					Seaport Boulevard From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	2	0	8	13	23	0	0	23	22	45	1	3	4	0	8	76
08:15 AM	0	0	7	14	21	0	0	26	29	55	2	4	9	2	17	93
08:30 AM	3	0	14	12	29	0	0	30	25	55	0	3	2	2	7	91
08:45 AM	1	0	7	11	19	1	1	27	18	47	1	2	2	2	7	73
Total Volume	6	0	36	50	92	1	1	106	94	202	4	12	17	6	39	333
% App. Total	6.5	0	39.1	54.3		0.5	0.5	52.5	46.5		10.3	30.8	43.6	15.4		
PHF	.500	.000	.643	.893	.793	.250	.250	.883	.810	.918	.500	.750	.472	.750	.574	.895

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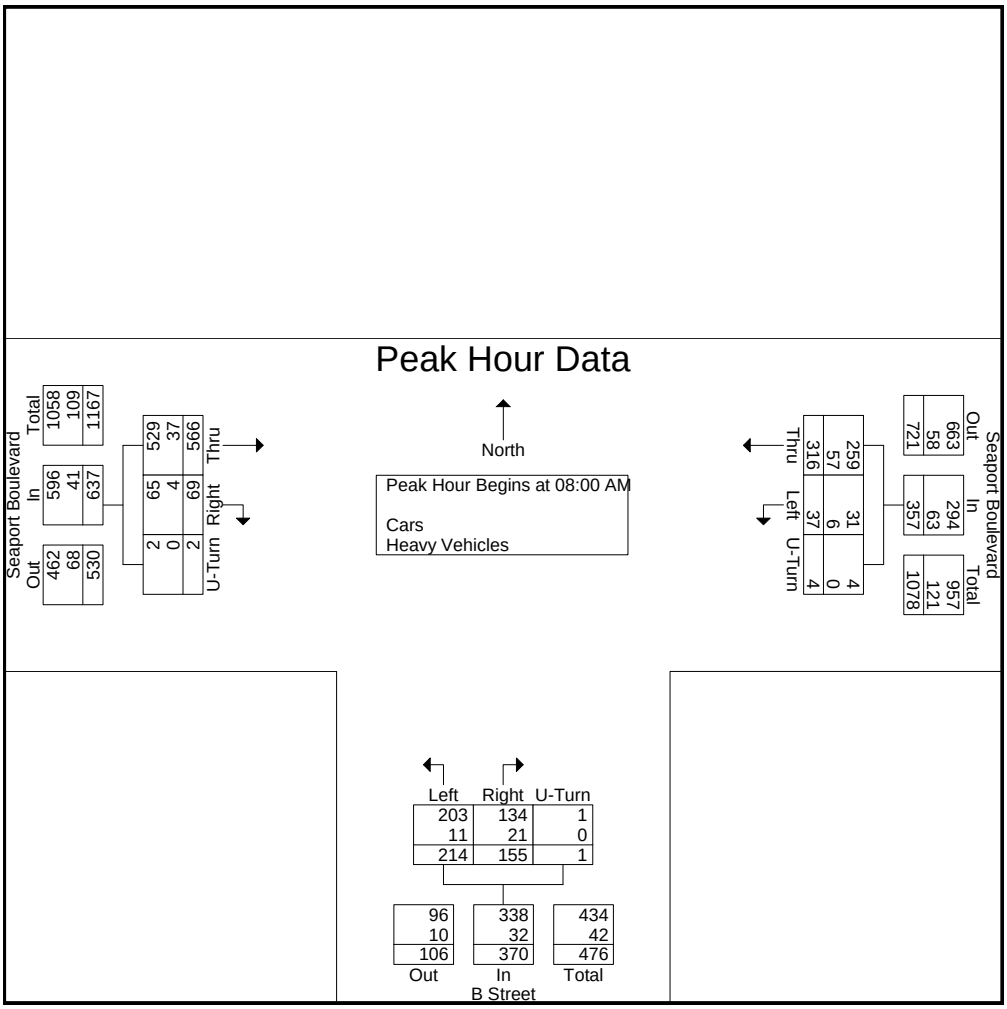
	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	61	9	0	70	46	58	0	104	24	161	0	185	359
08:15 AM	78	6	1	85	32	62	0	94	14	119	0	133	312
08:30 AM	86	11	1	98	45	35	0	80	16	135	2	153	331
08:45 AM	91	11	2	104	32	59	1	92	15	151	0	166	362
Total Volume	316	37	4	357	155	214	1	370	69	566	2	637	1364
% App. Total	88.5	10.4	1.1		41.9	57.8	0.3		10.8	88.9	0.3		
PHF	.868	.841	.500	.858	.842	.863	.250	.889	.719	.879	.250	.861	.942
Cars	259	31	4	294	134	203	1	338	65	529	2	596	1228
% Cars	82.0	83.8	100	82.4	86.5	94.9	100	91.4	94.2	93.5	100	93.6	90.0
Heavy Vehicles	57	6	0	63	21	11	0	32	4	37	0	41	136
% Heavy Vehicles	18.0	16.2	0	17.6	13.5	5.1	0	8.6	5.8	6.5	0	6.4	10.0



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Groups Printed- Cars - Heavy Vehicles

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	90	14	3	22	43	0	38	113	1	324
04:15 PM	73	13	0	22	45	0	40	108	0	301
04:30 PM	77	13	2	35	35	0	28	110	0	300
04:45 PM	75	13	1	34	42	0	39	121	1	326
Total	315	53	6	113	165	0	145	452	2	1251
05:00 PM	83	16	2	27	44	4	41	138	0	355
05:15 PM	71	23	1	33	47	0	33	116	0	324
05:30 PM	80	11	2	26	32	1	43	145	1	341
05:45 PM	71	11	1	27	55	0	25	141	1	332
Total	305	61	6	113	178	5	142	540	2	1352
Grand Total	620	114	12	226	343	5	287	992	4	2603
Apprch %	83.1	15.3	1.6	39.4	59.8	0.9	22.4	77.3	0.3	
Total %	23.8	4.4	0.5	8.7	13.2	0.2	11	38.1	0.2	
Cars	565	100	12	208	337	5	283	937	4	2451
% Cars	91.1	87.7	100	92	98.3	100	98.6	94.5	100	94.2
Heavy Vehicles	55	14	0	18	6	0	4	55	0	152
% Heavy Vehicles	8.9	12.3	0	8	1.7	0	1.4	5.5	0	5.8

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	83	16	2	101	27	44	4	75	41	138	0	179	355
05:15 PM	71	23	1	95	33	47	0	80	33	116	0	149	324
05:30 PM	80	11	2	93	26	32	1	59	43	145	1	189	341
05:45 PM	71	11	1	83	27	55	0	82	25	141	1	167	332
Total Volume	305	61	6	372	113	178	5	296	142	540	2	684	1352
% App. Total	82	16.4	1.6		38.2	60.1	1.7		20.8	78.9	0.3		
PHF	.919	.663	.750	.921	.856	.809	.313	.902	.826	.931	.500	.905	.952
Cars	277	54	6	337	103	177	5	285	139	519	2	660	1282
% Cars	90.8	88.5	100	90.6	91.2	99.4	100	96.3	97.9	96.1	100	96.5	94.8
Heavy Vehicles	28	7	0	35	10	1	0	11	3	21	0	24	70
% Heavy Vehicles	9.2	11.5	0	9.4	8.8	0.6	0	3.7	2.1	3.9	0	3.5	5.2

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Groups Printed- Cars

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	83	12	3	20	42	0	38	104	1	303
04:15 PM	70	11	0	22	43	0	40	100	0	286
04:30 PM	67	11	2	34	35	0	28	100	0	277
04:45 PM	68	12	1	29	40	0	38	114	1	303
Total	288	46	6	105	160	0	144	418	2	1169
05:00 PM	74	13	2	25	44	4	40	134	0	336
05:15 PM	65	22	1	31	47	0	32	111	0	309
05:30 PM	72	9	2	23	32	1	43	138	1	321
05:45 PM	66	10	1	24	54	0	24	136	1	316
Total	277	54	6	103	177	5	139	519	2	1282
Grand Total	565	100	12	208	337	5	283	937	4	2451
Apprch %	83.5	14.8	1.8	37.8	61.3	0.9	23.1	76.6	0.3	
Total %	23.1	4.1	0.5	8.5	13.7	0.2	11.5	38.2	0.2	

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	74	13	2	89	25	44	4	73	40	134	0	174	336
05:15 PM	65	22	1	88	31	47	0	78	32	111	0	143	309
05:30 PM	72	9	2	83	23	32	1	56	43	138	1	182	321
05:45 PM	66	10	1	77	24	54	0	78	24	136	1	161	316
Total Volume	277	54	6	337	103	177	5	285	139	519	2	660	1282
% App. Total	82.2	16	1.8		36.1	62.1	1.8		21.1	78.6	0.3		
PHF	.936	.614	.750	.947	.831	.819	.313	.913	.808	.940	.500	.907	.954

S: B Street
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Site Code : TBA
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Groups Printed- Heavy Vehicles

	Seaport Boulevard From East			B Street From South			Seaport Boulevard From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	7	2	0	2	1	0	0	9	0	21
04:15 PM	3	2	0	0	2	0	0	8	0	15
04:30 PM	10	2	0	1	0	0	0	10	0	23
04:45 PM	7	1	0	5	2	0	1	7	0	23
Total	27	7	0	8	5	0	1	34	0	82
05:00 PM	9	3	0	2	0	0	1	4	0	19
05:15 PM	6	1	0	2	0	0	1	5	0	15
05:30 PM	8	2	0	3	0	0	0	7	0	20
05:45 PM	5	1	0	3	1	0	1	5	0	16
Total	28	7	0	10	1	0	3	21	0	70
Grand Total	55	14	0	18	6	0	4	55	0	152
Apprch %	79.7	20.3	0	75	25	0	6.8	93.2	0	
Total %	36.2	9.2	0	11.8	3.9	0	2.6	36.2	0	

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	7	2	0	9	2	1	0	3	0	9	0	9	21
04:15 PM	3	2	0	5	0	2	0	2	0	8	0	8	15
04:30 PM	10	2	0	12	1	0	0	1	0	10	0	10	23
04:45 PM	7	1	0	8	5	2	0	7	1	7	0	8	23
Total Volume	27	7	0	34	8	5	0	13	1	34	0	35	82
% App. Total	79.4	20.6	0		61.5	38.5	0		2.9	97.1	0		
PHF	.675	.875	.000	.708	.400	.625	.000	.464	.250	.850	.000	.875	.891

S: B Street
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 CCC
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Groups Printed- Peds and Bikes

	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
04:00 PM	4	0	6	11	1	1	18	12	0	1	2	1	57
04:15 PM	3	0	3	9	0	0	12	13	0	2	4	1	47
04:30 PM	0	0	6	5	0	0	10	10	1	1	6	3	42
04:45 PM	3	0	8	4	0	0	7	8	0	0	1	4	35
Total	10	0	23	29	1	1	47	43	1	4	13	9	181
05:00 PM	6	0	1	1	0	1	10	12	1	2	2	3	39
05:15 PM	3	0	3	7	0	0	7	10	0	2	7	11	50
05:30 PM	4	0	2	7	0	1	5	18	0	0	1	3	41
05:45 PM	5	0	4	4	0	2	14	26	0	0	4	3	62
Total	18	0	10	19	0	4	36	66	1	4	14	20	192
Grand Total	28	0	33	48	1	5	83	109	2	8	27	29	373
Apprch %	25.7	0	30.3	44	0.5	2.5	41.9	55.1	3	12.1	40.9	43.9	
Total %	7.5	0	8.8	12.9	0.3	1.3	22.3	29.2	0.5	2.1	7.2	7.8	

	Seaport Boulevard From East					B Street From South					Seaport Boulevard From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	6	0	1	1	8	0	1	10	12	23	1	2	2	3	8	39
05:15 PM	3	0	3	7	13	0	0	7	10	17	0	2	7	11	20	50
05:30 PM	4	0	2	7	13	0	1	5	18	24	0	0	1	3	4	41
05:45 PM	5	0	4	4	13	0	2	14	26	42	0	0	4	3	7	62
Total Volume	18	0	10	19	47	0	4	36	66	106	1	4	14	20	39	192
% App. Total	38.3	0	21.3	40.4		0	3.8	34	62.3		2.6	10.3	35.9	51.3		
PHF	.750	.000	.625	.679	.904	.000	.500	.643	.635	.631	.250	.500	.500	.455	.488	.774

S: B Street
E/W: Seaport Boulevard
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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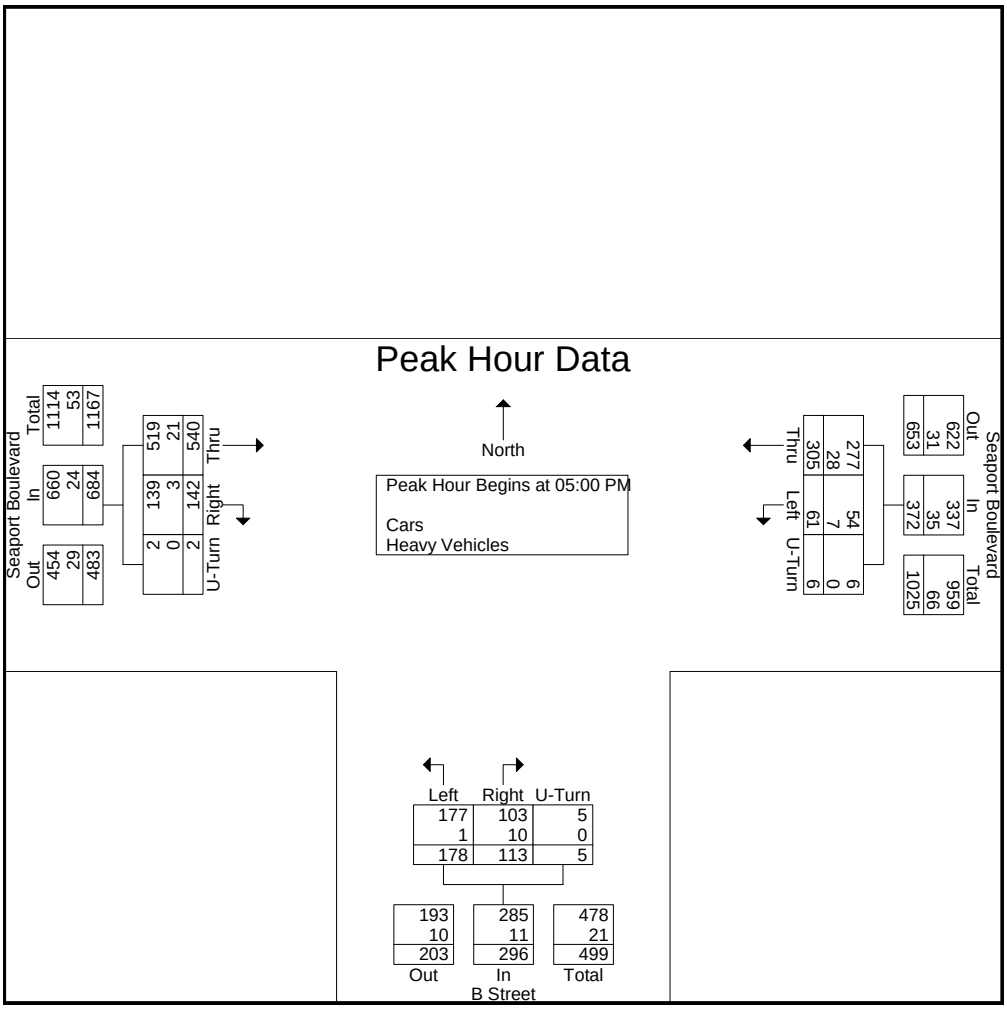
	Seaport Boulevard From East				B Street From South				Seaport Boulevard From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	83	16	2	101	27	44	4	75	41	138	0	179	355
05:15 PM	71	23	1	95	33	47	0	80	33	116	0	149	324
05:30 PM	80	11	2	93	26	32	1	59	43	145	1	189	341
05:45 PM	71	11	1	83	27	55	0	82	25	141	1	167	332
Total Volume	305	61	6	372	113	178	5	296	142	540	2	684	1352
% App. Total	82	16.4	1.6		38.2	60.1	1.7		20.8	78.9	0.3		
PHF	.919	.663	.750	.921	.856	.809	.313	.902	.826	.931	.500	.905	.952
Cars	277	54	6	337	103	177	5	285	139	519	2	660	1282
% Cars	90.8	88.5	100	90.6	91.2	99.4	100	96.3	97.9	96.1	100	96.5	94.8
Heavy Vehicles	28	7	0	35	10	1	0	11	3	21	0	24	70
% Heavy Vehicles	9.2	11.5	0	9.4	8.8	0.6	0	3.7	2.1	3.9	0	3.5	5.2



N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Groups Printed- Cars - Heavy Vehicles

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	0	0	0	0	2	41	0	0	23	44	23	1	0	55	7	2	198
12:15 PM	0	0	0	0	9	42	0	0	23	31	15	0	0	44	7	3	174
12:30 PM	0	0	0	0	2	32	0	0	23	29	20	0	0	49	6	1	162
12:45 PM	0	0	0	0	3	58	0	1	17	32	22	0	0	49	6	4	192
Total	0	0	0	0	16	173	0	1	86	136	80	1	0	197	26	10	726
01:00 PM	0	0	0	0	4	46	0	0	32	46	17	0	0	46	3	0	194
01:15 PM	0	0	0	0	3	47	0	0	26	24	13	0	0	64	7	1	185
01:30 PM	0	0	0	0	2	35	0	0	28	28	17	0	0	66	6	1	183
01:45 PM	0	0	0	0	5	53	0	0	26	19	31	0	0	48	4	5	191
Total	0	0	0	0	14	181	0	0	112	117	78	0	0	224	20	7	753
Grand Total	0	0	0	0	30	354	0	1	198	253	158	1	0	421	46	17	1479
Apprch %	0	0	0	0	7.8	91.9	0	0.3	32.5	41.5	25.9	0.2	0	87	9.5	3.5	
Total %	0	0	0	0	2	23.9	0	0.1	13.4	17.1	10.7	0.1	0	28.5	3.1	1.1	
Cars	0	0	0	0	30	345	0	1	196	251	156	1	0	409	40	17	1446
% Cars	0	0	0	0	100	97.5	0	100	99	99.2	98.7	100	0	97.1	87	100	97.8
Heavy Vehicles	0	0	0	0	0	9	0	0	2	2	2	0	0	12	6	0	33
% Heavy Vehicles	0	0	0	0	0	2.5	0	0	1	0.8	1.3	0	0	2.9	13	0	2.2

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	0	0	3	58	0	1	62	17	32	22	0	71	0	49	6	4	59	192
01:00 PM	0	0	0	0	0	4	46	0	0	50	32	46	17	0	95	0	46	3	0	49	194
01:15 PM	0	0	0	0	0	3	47	0	0	50	26	24	13	0	63	0	64	7	1	72	185
01:30 PM	0	0	0	0	0	2	35	0	0	37	28	28	17	0	73	0	66	6	1	73	183
Total Volume	0	0	0	0	0	12	186	0	1	199	103	130	69	0	302	0	225	22	6	253	754
% App. Total	0	0	0	0		6	93.5	0	0.5		34.1	43	22.8	0		0	88.9	8.7	2.4		
PHF	.000	.000	.000	.000	.000	.750	.802	.000	.250	.802	.805	.707	.784	.000	.795	.000	.852	.786	.375	.866	.972
Cars	0	0	0	0	0	12	179	0	1	192	102	129	69	0	300	0	222	21	6	249	741
% Cars	0	0	0	0	0	100	96.2	0	100	96.5	99.0	99.2	100	0	99.3	0	98.7	95.5	100	98.4	98.3
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	1	1	0	0	2	0	3	1	0	4	13
% Heavy Vehicles	0	0	0	0	0	0	3.8	0	0	3.5	1.0	0.8	0	0	0.7	0	1.3	4.5	0	1.6	1.7

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Site Code : TBA
Start Date : 12/12/2015
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Groups Printed- Cars

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	0	0	0	0	2	40	0	0	23	44	23	1	0	53	6	2	194
12:15 PM	0	0	0	0	9	42	0	0	23	31	14	0	0	42	6	3	170
12:30 PM	0	0	0	0	2	32	0	0	23	28	20	0	0	46	5	1	157
12:45 PM	0	0	0	0	3	55	0	1	17	32	22	0	0	47	6	4	187
Total	0	0	0	0	16	169	0	1	86	135	79	1	0	188	23	10	708
01:00 PM	0	0	0	0	4	46	0	0	31	46	17	0	0	46	3	0	193
01:15 PM	0	0	0	0	3	43	0	0	26	24	13	0	0	63	6	1	179
01:30 PM	0	0	0	0	2	35	0	0	28	27	17	0	0	66	6	1	182
01:45 PM	0	0	0	0	5	52	0	0	25	19	30	0	0	46	2	5	184
Total	0	0	0	0	14	176	0	0	110	116	77	0	0	221	17	7	738
Grand Total	0	0	0	0	30	345	0	1	196	251	156	1	0	409	40	17	1446
Apprch %	0	0	0	0	8	91.8	0	0.3	32.5	41.6	25.8	0.2	0	87.8	8.6	3.6	
Total %	0	0	0	0	2.1	23.9	0	0.1	13.6	17.4	10.8	0.1	0	28.3	2.8	1.2	

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	0	0	3	55	0	1	59	17	32	22	0	71	0	47	6	4	57	187
01:00 PM	0	0	0	0	0	4	46	0	0	50	31	46	17	0	94	0	46	3	0	49	193
01:15 PM	0	0	0	0	0	3	43	0	0	46	26	24	13	0	63	0	63	6	1	70	179
01:30 PM	0	0	0	0	0	2	35	0	0	37	28	27	17	0	72	0	66	6	1	73	182
Total Volume	0	0	0	0	0	12	179	0	1	192	102	129	69	0	300	0	222	21	6	249	741
% App. Total	0	0	0	0		6.2	93.2	0	0.5		34	43	23	0		0	89.2	8.4	2.4		
PHF	.000	.000	.000	.000	.000	.750	.814	.000	.250	.814	.823	.701	.784	.000	.798	.000	.841	.875	.375	.853	.960

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
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Groups Printed- Heavy Vehicles

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	4
12:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	4
12:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	1	0	5
12:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	5
Total	0	0	0	0	0	4	0	0	0	1	1	0	0	9	3	0	18
01:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
01:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	1	0	6
01:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
01:45 PM	0	0	0	0	0	1	0	0	1	0	1	0	0	2	2	0	7
Total	0	0	0	0	0	5	0	0	2	1	1	0	0	3	3	0	15
Grand Total	0	0	0	0	0	9	0	0	2	2	2	0	0	12	6	0	33
Apprch %	0	0	0	0	0	100	0	0	33.3	33.3	33.3	0	0	66.7	33.3	0	
Total %	0	0	0	0	0	27.3	0	0	6.1	6.1	6.1	0	0	36.4	18.2	0	

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	4
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	3	4
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	1	0	4	5
12:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
Total Volume	0	0	0	0	0	0	4	0	0	4	0	1	1	0	2	0	9	3	0	12	18
% App. Total	0	0	0	0		0	100	0	0		0	50	50	0		0	75	25	0		
PHF	.000	.000	.000	.000	.000	.000	.333	.000	.000	.333	.000	.250	.250	.000	.500	.000	.750	.750	.000	.750	.900

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Groups Printed- Peds and Bikes

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
12:00 PM	0	0	0	7	8	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	20
12:15 PM	0	0	0	8	6	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	18
12:30 PM	0	0	0	3	9	0	0	0	0	2	0	0	0	2	6	0	0	0	0	0	22
12:45 PM	0	0	0	6	5	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	15
Total	0	0	0	24	28	0	2	0	0	2	0	0	0	9	10	0	0	0	0	0	75
01:00 PM	0	0	0	12	8	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	23
01:15 PM	0	0	0	8	8	0	0	0	0	0	0	0	0	0	2	0	1	2	1	0	22
01:30 PM	0	0	0	0	16	0	0	0	0	0	0	0	0	3	4	0	0	0	0	1	24
01:45 PM	0	0	0	10	5	0	0	0	0	0	0	0	0	3	4	0	1	0	2	0	25
Total	0	0	0	30	37	0	1	0	0	0	0	0	0	7	10	0	3	2	3	1	94
Grand Total	0	0	0	54	65	0	3	0	0	2	0	0	0	16	20	0	3	2	3	1	169
Apprch %	0	0	0	45.4	54.6	0	60	0	0	40	0	0	0	44.4	55.6	0	33.3	22.2	33.3	11.1	
Total %	0	0	0	32	38.5	0	1.8	0	0	1.2	0	0	0	9.5	11.8	0	1.8	1.2	1.8	0.6	

	East Service Road From North						Congress Street From East						I-90 Ramps From South						Congress Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 01:00 PM																									
01:00 PM	0	0	0	12	8	20	0	1	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	1	23
01:15 PM	0	0	0	8	8	16	0	0	0	0	0	0	0	0	0	0	2	2	0	1	2	1	0	4	22
01:30 PM	0	0	0	0	16	16	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0	0	1	1	24
01:45 PM	0	0	0	10	5	15	0	0	0	0	0	0	0	0	0	3	4	7	0	1	0	2	0	3	25
Total Volume	0	0	0	30	37	67	0	1	0	0	0	1	0	0	0	7	10	17	0	3	2	3	1	9	94
% App. Total	0	0	0	44.8	55.2		0	100	0	0	0		0	0	0	41.2	58.8		0	33.3	22.2	33.3	11.1		
PHF	.000	.000	.000	.625	.578	.838	.000	.250	.000	.000	.000	.250	.000	.000	.000	.583	.625	.607	.000	.750	.250	.375	.250	.563	.940

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Site Code : TBA
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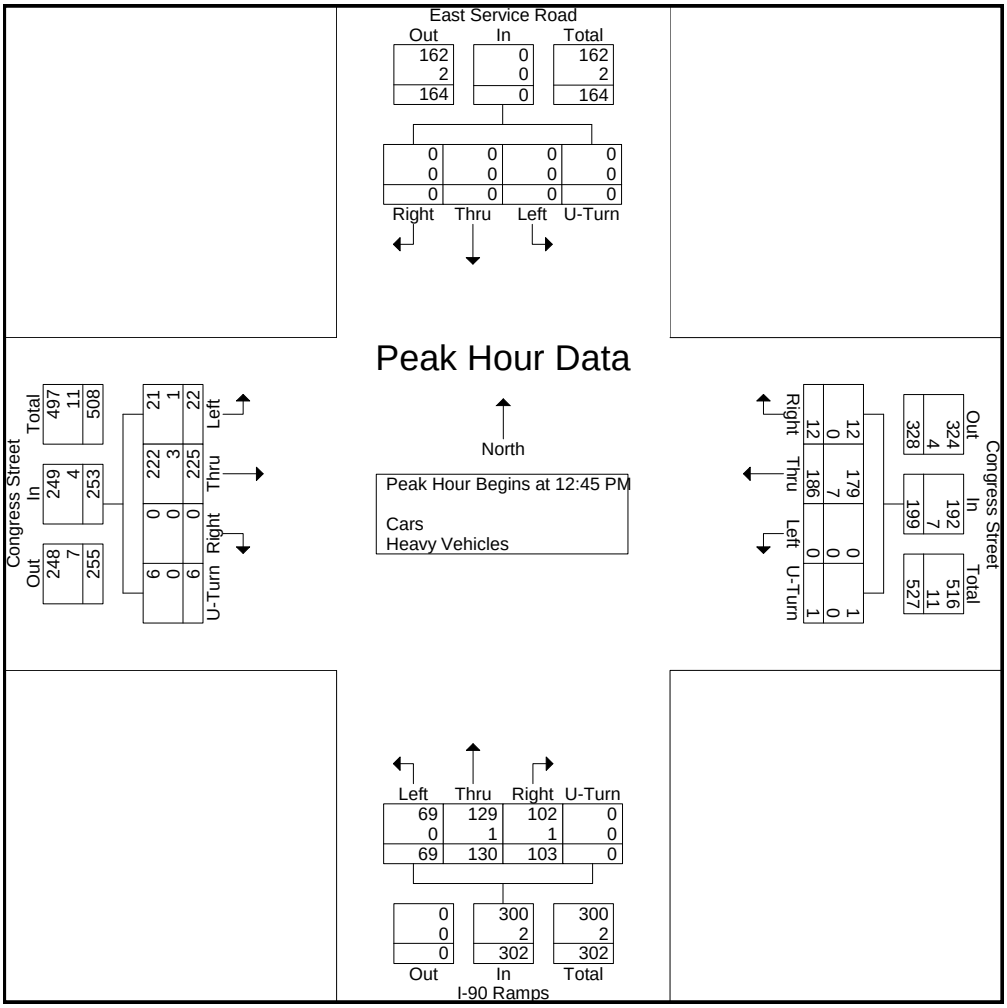
	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	0	0	3	58	0	1	62	17	32	22	0	71	0	49	6	4	59	192
01:00 PM	0	0	0	0	0	4	46	0	0	50	32	46	17	0	95	0	46	3	0	49	194
01:15 PM	0	0	0	0	0	3	47	0	0	50	26	24	13	0	63	0	64	7	1	72	185
01:30 PM	0	0	0	0	0	2	35	0	0	37	28	28	17	0	73	0	66	6	1	73	183
Total Volume	0	0	0	0	0	12	186	0	1	199	103	130	69	0	302	0	225	22	6	253	754
% App. Total	0	0	0	0		6	93.5	0	0.5		34.1	43	22.8	0		0	88.9	8.7	2.4		
PHF	.000	.000	.000	.000	.000	.750	.802	.000	.250	.802	.805	.707	.784	.000	.795	.000	.852	.786	.375	.866	.972
Cars	0	0	0	0	0	12	179	0	1	192	102	129	69	0	300	0	222	21	6	249	741
% Cars	0	0	0	0	0	100	96.2	0	100	96.5	99.0	99.2	100	0	99.3	0	98.7	95.5	100	98.4	98.3
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	1	1	0	0	2	0	3	1	0	4	13
% Heavy Vehicles	0	0	0	0	0	0	3.8	0	0	3.5	1.0	0.8	0	0	0.7	0	1.3	4.5	0	1.6	1.7



N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Site Code : TBA
Start Date : 12/15/2015
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Groups Printed- Cars - Heavy Vehicles

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	7	74	0	0	73	46	33	0	0	54	5	0	292
07:15 AM	0	0	0	0	19	69	0	0	77	87	44	0	0	51	7	0	354
07:30 AM	0	0	0	0	8	90	0	0	86	101	68	0	0	68	10	1	432
07:45 AM	0	0	0	0	17	70	0	0	100	95	47	0	0	55	7	0	391
Total	0	0	0	0	51	303	0	0	336	329	192	0	0	228	29	1	1469
08:00 AM	0	0	0	0	22	108	0	0	95	100	65	0	0	83	12	0	485
08:15 AM	0	0	0	0	21	109	0	0	95	110	75	0	0	67	16	0	493
08:30 AM	0	0	0	0	21	87	0	0	108	124	67	0	0	69	20	0	496
08:45 AM	0	0	0	0	20	103	0	0	86	134	101	0	0	72	10	1	527
Total	0	0	0	0	84	407	0	0	384	468	308	0	0	291	58	1	2001
Grand Total	0	0	0	0	135	710	0	0	720	797	500	0	0	519	87	2	3470
Apprch %	0	0	0	0	16	84	0	0	35.7	39.5	24.8	0	0	85.4	14.3	0.3	
Total %	0	0	0	0	3.9	20.5	0	0	20.7	23	14.4	0	0	15	2.5	0.1	
Cars	0	0	0	0	129	671	0	0	710	787	494	0	0	467	74	2	3334
% Cars	0	0	0	0	95.6	94.5	0	0	98.6	98.7	98.8	0	0	90	85.1	100	96.1
Heavy Vehicles	0	0	0	0	6	39	0	0	10	10	6	0	0	52	13	0	136
% Heavy Vehicles	0	0	0	0	4.4	5.5	0	0	1.4	1.3	1.2	0	0	10	14.9	0	3.9

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	22	108	0	0	130	95	100	65	0	260	0	83	12	0	95	485
08:15 AM	0	0	0	0	0	21	109	0	0	130	95	110	75	0	280	0	67	16	0	83	493
08:30 AM	0	0	0	0	0	21	87	0	0	108	108	124	67	0	299	0	69	20	0	89	496
08:45 AM	0	0	0	0	0	20	103	0	0	123	86	134	101	0	321	0	72	10	1	83	527
Total Volume	0	0	0	0	0	84	407	0	0	491	384	468	308	0	1160	0	291	58	1	350	2001
% App. Total	0	0	0	0		17.1	82.9	0	0		33.1	40.3	26.6	0		0	83.1	16.6	0.3		
PHF	.000	.000	.000	.000	.000	.955	.933	.000	.000	.944	.889	.873	.762	.000	.903	.000	.877	.725	.250	.921	.949
Cars	0	0	0	0	0	80	381	0	0	461	381	463	306	0	1150	0	261	51	1	313	1924
% Cars	0	0	0	0	0	95.2	93.6	0	0	93.9	99.2	98.9	99.4	0	99.1	0	89.7	87.9	100	89.4	96.2
Heavy Vehicles	0	0	0	0	0	4	26	0	0	30	3	5	2	0	10	0	30	7	0	37	77
% Heavy Vehicles	0	0	0	0	0	4.8	6.4	0	0	6.1	0.8	1.1	0.6	0	0.9	0	10.3	12.1	0	10.6	3.8

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 DD
Site Code : TBA
Start Date : 12/15/2015
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Groups Printed- Cars

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	7	69	0	0	71	46	31	0	0	48	4	0	276
07:15 AM	0	0	0	0	18	65	0	0	77	85	44	0	0	46	7	0	342
07:30 AM	0	0	0	0	7	88	0	0	83	99	68	0	0	63	6	1	415
07:45 AM	0	0	0	0	17	68	0	0	98	94	45	0	0	49	6	0	377
Total	0	0	0	0	49	290	0	0	329	324	188	0	0	206	23	1	1410
08:00 AM	0	0	0	0	21	103	0	0	95	100	65	0	0	74	10	0	468
08:15 AM	0	0	0	0	20	102	0	0	95	107	74	0	0	61	13	0	472
08:30 AM	0	0	0	0	20	79	0	0	108	124	67	0	0	63	18	0	479
08:45 AM	0	0	0	0	19	97	0	0	83	132	100	0	0	63	10	1	505
Total	0	0	0	0	80	381	0	0	381	463	306	0	0	261	51	1	1924
Grand Total	0	0	0	0	129	671	0	0	710	787	494	0	0	467	74	2	3334
Apprch %	0	0	0	0	16.1	83.9	0	0	35.7	39.5	24.8	0	0	86	13.6	0.4	
Total %	0	0	0	0	3.9	20.1	0	0	21.3	23.6	14.8	0	0	14	2.2	0.1	

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	21	103	0	0	124	95	100	65	0	260	0	74	10	0	84	468
08:15 AM	0	0	0	0	0	20	102	0	0	122	95	107	74	0	276	0	61	13	0	74	472
08:30 AM	0	0	0	0	0	20	79	0	0	99	108	124	67	0	299	0	63	18	0	81	479
08:45 AM	0	0	0	0	0	19	97	0	0	116	83	132	100	0	315	0	63	10	1	74	505
Total Volume	0	0	0	0	0	80	381	0	0	461	381	463	306	0	1150	0	261	51	1	313	1924
% App. Total	0	0	0	0		17.4	82.6	0	0		33.1	40.3	26.6	0		0	83.4	16.3	0.3		
PHF	.000	.000	.000	.000	.000	.952	.925	.000	.000	.929	.882	.877	.765	.000	.913	.000	.882	.708	.250	.932	.952

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
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Groups Printed- Heavy Vehicles

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	5	0	0	2	0	2	0	0	6	1	0	16
07:15 AM	0	0	0	0	1	4	0	0	0	2	0	0	0	5	0	0	12
07:30 AM	0	0	0	0	1	2	0	0	3	2	0	0	0	5	4	0	17
07:45 AM	0	0	0	0	0	2	0	0	2	1	2	0	0	6	1	0	14
Total	0	0	0	0	2	13	0	0	7	5	4	0	0	22	6	0	59
08:00 AM	0	0	0	0	1	5	0	0	0	0	0	0	0	9	2	0	17
08:15 AM	0	0	0	0	1	7	0	0	0	3	1	0	0	6	3	0	21
08:30 AM	0	0	0	0	1	8	0	0	0	0	0	0	0	6	2	0	17
08:45 AM	0	0	0	0	1	6	0	0	3	2	1	0	0	9	0	0	22
Total	0	0	0	0	4	26	0	0	3	5	2	0	0	30	7	0	77
Grand Total	0	0	0	0	6	39	0	0	10	10	6	0	0	52	13	0	136
Apprch %	0	0	0	0	13.3	86.7	0	0	38.5	38.5	23.1	0	0	80	20	0	
Total %	0	0	0	0	4.4	28.7	0	0	7.4	7.4	4.4	0	0	38.2	9.6	0	

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	9	2	0	11	17
08:15 AM	0	0	0	0	0	1	7	0	0	8	0	3	1	0	4	0	6	3	0	9	21
08:30 AM	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	6	2	0	8	17
08:45 AM	0	0	0	0	0	1	6	0	0	7	3	2	1	0	6	0	9	0	0	9	22
Total Volume	0	0	0	0	0	4	26	0	0	30	3	5	2	0	10	0	30	7	0	37	77
% App. Total	0	0	0	0		13.3	86.7	0	0		30	50	20	0		0	81.1	18.9	0		
PHF	.000	.000	.000	.000	.000	1.00	.813	.000	.000	.833	.250	.417	.500	.000	.417	.000	.833	.583	.000	.841	.875

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Groups Printed- Peds and Bikes

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	4	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	7
07:15 AM	0	0	0	6	5	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	17
07:30 AM	0	0	0	9	7	0	0	0	0	0	0	0	0	1	2	0	2	0	1	0	22
07:45 AM	0	0	0	11	6	0	0	0	0	0	0	0	0	2	6	0	1	0	2	0	28
Total	0	0	0	30	19	0	0	0	0	0	0	0	0	5	14	0	3	0	3	0	74
08:00 AM	0	0	0	17	12	0	0	0	1	0	0	0	0	2	5	0	2	0	0	0	39
08:15 AM	0	0	0	22	12	0	1	0	1	1	0	0	0	3	9	0	2	0	3	0	54
08:30 AM	0	0	0	27	19	0	0	0	0	1	0	0	0	5	4	0	2	0	1	0	59
08:45 AM	0	0	0	22	9	0	3	0	1	0	0	0	0	6	3	0	4	0	4	0	52
Total	0	0	0	88	52	0	4	0	3	2	0	0	0	16	21	0	10	0	8	0	204
Grand Total	0	0	0	118	71	0	4	0	3	2	0	0	0	21	35	0	13	0	11	0	278
Apprch %	0	0	0	62.4	37.6	0	44.4	0	33.3	22.2	0	0	0	37.5	62.5	0	54.2	0	45.8	0	
Total %	0	0	0	42.4	25.5	0	1.4	0	1.1	0.7	0	0	0	7.6	12.6	0	4.7	0	4	0	

	East Service Road From North						Congress Street From East						I-90 Ramps From South						Congress Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	17	12	29	0	0	0	1	0	1	0	0	0	2	5	7	0	2	0	0	0	2	39
08:15 AM	0	0	0	22	12	34	0	1	0	1	1	3	0	0	0	3	9	12	0	2	0	3	0	5	54
08:30 AM	0	0	0	27	19	46	0	0	0	0	1	1	0	0	0	5	4	9	0	2	0	1	0	3	59
08:45 AM	0	0	0	22	9	31	0	3	0	1	0	4	0	0	0	6	3	9	0	4	0	4	0	8	52
Total Volume	0	0	0	88	52	140	0	4	0	3	2	9	0	0	0	16	21	37	0	10	0	8	0	18	204
% App. Total	0	0	0	62.9	37.1		0	44.4	0	33.3	22.2		0	0	0	43.2	56.8		0	55.6	0	44.4	0		
PHF	.000	.000	.000	.815	.684	.761	.000	.333	.000	.750	.500	.563	.000	.000	.000	.667	.583	.771	.000	.625	.000	.500	.000	.563	.864

N/S: East Service Road/ I-90 Ramps
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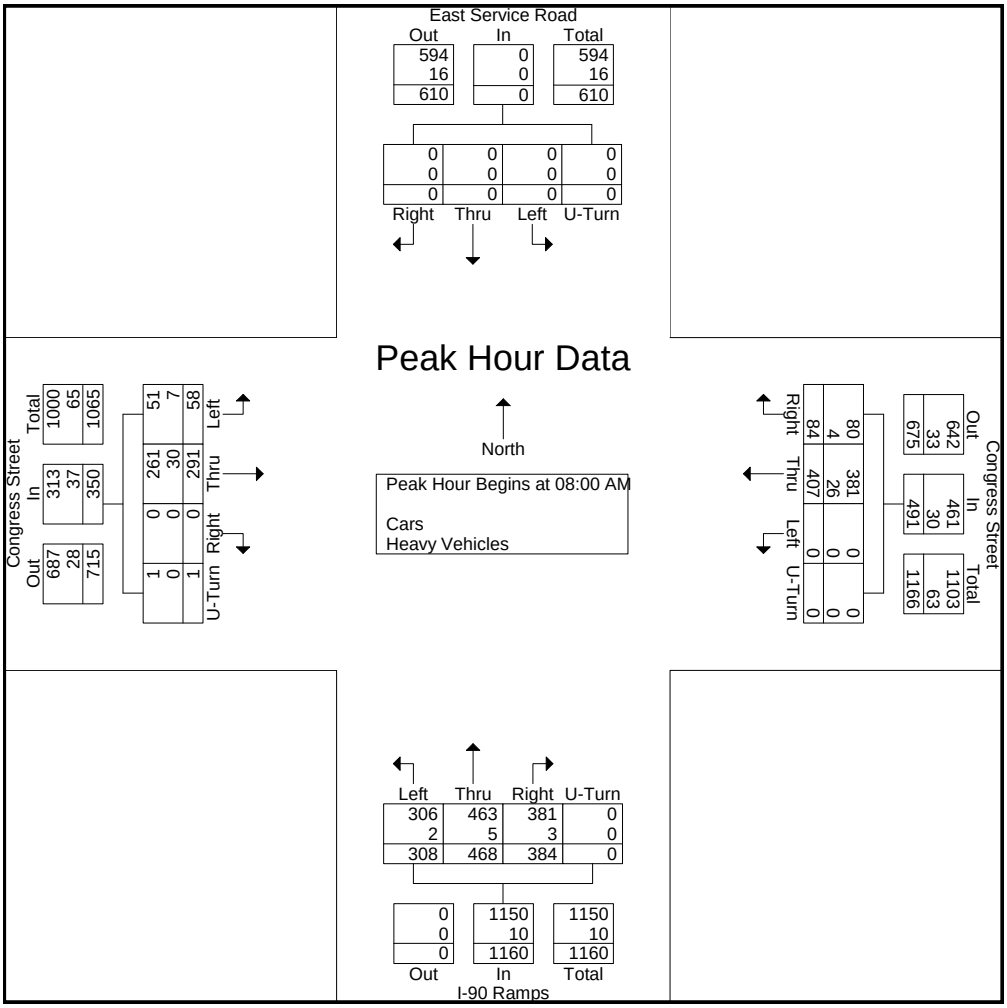
	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	22	108	0	0	130	95	100	65	0	260	0	83	12	0	95	485
08:15 AM	0	0	0	0	0	21	109	0	0	130	95	110	75	0	280	0	67	16	0	83	493
08:30 AM	0	0	0	0	0	21	87	0	0	108	108	124	67	0	299	0	69	20	0	89	496
08:45 AM	0	0	0	0	0	20	103	0	0	123	86	134	101	0	321	0	72	10	1	83	527
Total Volume	0	0	0	0	0	84	407	0	0	491	384	468	308	0	1160	0	291	58	1	350	2001
% App. Total	0	0	0	0		17.1	82.9	0	0		33.1	40.3	26.6	0		0	83.1	16.6	0.3		
PHF	.000	.000	.000	.000	.000	.955	.933	.000	.000	.944	.889	.873	.762	.000	.903	.000	.877	.725	.250	.921	.949
Cars	0	0	0	0	0	80	381	0	0	461	381	463	306	0	1150	0	261	51	1	313	1924
% Cars	0	0	0	0	0	95.2	93.6	0	0	93.9	99.2	98.9	99.4	0	99.1	0	89.7	87.9	100	89.4	96.2
Heavy Vehicles	0	0	0	0	0	4	26	0	0	30	3	5	2	0	10	0	30	7	0	37	77
% Heavy Vehicles	0	0	0	0	0	4.8	6.4	0	0	6.1	0.8	1.1	0.6	0	0.9	0	10.3	12.1	0	10.6	3.8



N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
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File Name : 154839 DDD
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	3	71	0	0	23	25	11	0	0	66	9	6	214
04:15 PM	0	0	0	0	11	78	0	0	35	35	24	0	0	77	8	3	271
04:30 PM	0	0	0	0	10	82	0	0	36	38	27	0	0	70	10	10	283
04:45 PM	0	0	0	0	11	76	0	0	36	33	10	0	0	84	6	3	259
Total	0	0	0	0	35	307	0	0	130	131	72	0	0	297	33	22	1027
05:00 PM	0	0	0	0	8	103	0	0	25	20	21	0	0	82	13	4	276
05:15 PM	0	0	0	0	7	105	0	0	30	47	16	0	0	91	8	8	312
05:30 PM	0	0	0	0	3	80	0	0	37	45	23	0	0	110	15	7	320
05:45 PM	0	0	0	0	10	86	0	0	38	39	35	0	0	74	7	8	297
Total	0	0	0	0	28	374	0	0	130	151	95	0	0	357	43	27	1205
Grand Total	0	0	0	0	63	681	0	0	260	282	167	0	0	654	76	49	2232
Apprch %	0	0	0	0	8.5	91.5	0	0	36.7	39.8	23.6	0	0	84	9.8	6.3	
Total %	0	0	0	0	2.8	30.5	0	0	11.6	12.6	7.5	0	0	29.3	3.4	2.2	
Cars	0	0	0	0	57	651	0	0	257	278	163	0	0	630	66	49	2151
% Cars	0	0	0	0	90.5	95.6	0	0	98.8	98.6	97.6	0	0	96.3	86.8	100	96.4
Heavy Vehicles	0	0	0	0	6	30	0	0	3	4	4	0	0	24	10	0	81
% Heavy Vehicles	0	0	0	0	9.5	4.4	0	0	1.2	1.4	2.4	0	0	3.7	13.2	0	3.6

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	8	103	0	0	111	25	20	21	0	66	0	82	13	4	99	276
05:15 PM	0	0	0	0	0	7	105	0	0	112	30	47	16	0	93	0	91	8	8	107	312
05:30 PM	0	0	0	0	0	3	80	0	0	83	37	45	23	0	105	0	110	15	7	132	320
05:45 PM	0	0	0	0	0	10	86	0	0	96	38	39	35	0	112	0	74	7	8	89	297
Total Volume	0	0	0	0	0	28	374	0	0	402	130	151	95	0	376	0	357	43	27	427	1205
% App. Total	0	0	0	0		7	93	0	0		34.6	40.2	25.3	0		0	83.6	10.1	6.3		
PHF	.000	.000	.000	.000	.000	.700	.890	.000	.000	.897	.855	.803	.679	.000	.839	.000	.811	.717	.844	.809	.941
Cars	0	0	0	0	0	26	362	0	0	388	128	151	91	0	370	0	348	39	27	414	1172
% Cars	0	0	0	0	0	92.9	96.8	0	0	96.5	98.5	100	95.8	0	98.4	0	97.5	90.7	100	97.0	97.3
Heavy Vehicles	0	0	0	0	0	2	12	0	0	14	2	0	4	0	6	0	9	4	0	13	33
% Heavy Vehicles	0	0	0	0	0	7.1	3.2	0	0	3.5	1.5	0	4.2	0	1.6	0	2.5	9.3	0	3.0	2.7

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 DDD
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Cars

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	3	69	0	0	23	22	11	0	0	63	8	6	205
04:15 PM	0	0	0	0	9	72	0	0	35	35	24	0	0	73	5	3	256
04:30 PM	0	0	0	0	9	78	0	0	36	37	27	0	0	68	8	10	273
04:45 PM	0	0	0	0	10	70	0	0	35	33	10	0	0	78	6	3	245
Total	0	0	0	0	31	289	0	0	129	127	72	0	0	282	27	22	979
05:00 PM	0	0	0	0	8	99	0	0	24	20	20	0	0	78	12	4	265
05:15 PM	0	0	0	0	6	104	0	0	29	47	14	0	0	90	7	8	305
05:30 PM	0	0	0	0	3	76	0	0	37	45	22	0	0	108	13	7	311
05:45 PM	0	0	0	0	9	83	0	0	38	39	35	0	0	72	7	8	291
Total	0	0	0	0	26	362	0	0	128	151	91	0	0	348	39	27	1172
Grand Total	0	0	0	0	57	651	0	0	257	278	163	0	0	630	66	49	2151
Apprch %	0	0	0	0	8.1	91.9	0	0	36.8	39.8	23.4	0	0	84.6	8.9	6.6	
Total %	0	0	0	0	2.6	30.3	0	0	11.9	12.9	7.6	0	0	29.3	3.1	2.3	

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	8	99	0	0	107	24	20	20	0	64	0	78	12	4	94	265
05:15 PM	0	0	0	0	0	6	104	0	0	110	29	47	14	0	90	0	90	7	8	105	305
05:30 PM	0	0	0	0	0	3	76	0	0	79	37	45	22	0	104	0	108	13	7	128	311
05:45 PM	0	0	0	0	0	9	83	0	0	92	38	39	35	0	112	0	72	7	8	87	291
Total Volume	0	0	0	0	0	26	362	0	0	388	128	151	91	0	370	0	348	39	27	414	1172
% App. Total	0	0	0	0		6.7	93.3	0	0		34.6	40.8	24.6	0		0	84.1	9.4	6.5		
PHF	.000	.000	.000	.000	.000	.722	.870	.000	.000	.882	.842	.803	.650	.000	.826	.000	.806	.750	.844	.809	.942

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 DDD
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Heavy Vehicles

	East Service Road From North				Congress Street From East				I-90 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	2	0	0	0	3	0	0	0	3	1	0	9
04:15 PM	0	0	0	0	2	6	0	0	0	0	0	0	0	4	3	0	15
04:30 PM	0	0	0	0	1	4	0	0	0	1	0	0	0	2	2	0	10
04:45 PM	0	0	0	0	1	6	0	0	1	0	0	0	0	6	0	0	14
Total	0	0	0	0	4	18	0	0	1	4	0	0	0	15	6	0	48
05:00 PM	0	0	0	0	0	4	0	0	1	0	1	0	0	4	1	0	11
05:15 PM	0	0	0	0	1	1	0	0	1	0	2	0	0	1	1	0	7
05:30 PM	0	0	0	0	0	4	0	0	0	0	1	0	0	2	2	0	9
05:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	0	6
Total	0	0	0	0	2	12	0	0	2	0	4	0	0	9	4	0	33
Grand Total	0	0	0	0	6	30	0	0	3	4	4	0	0	24	10	0	81
Apprch %	0	0	0	0	16.7	83.3	0	0	27.3	36.4	36.4	0	0	70.6	29.4	0	
Total %	0	0	0	0	7.4	37	0	0	3.7	4.9	4.9	0	0	29.6	12.3	0	

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0	0	2	6	0	0	8	0	0	0	0	0	0	4	3	0	7	15
04:30 PM	0	0	0	0	0	1	4	0	0	5	0	1	0	0	1	0	2	2	0	4	10
04:45 PM	0	0	0	0	0	1	6	0	0	7	1	0	0	0	1	0	6	0	0	6	14
05:00 PM	0	0	0	0	0	0	4	0	0	4	1	0	1	0	2	0	4	1	0	5	11
Total Volume	0	0	0	0	0	4	20	0	0	24	2	1	1	0	4	0	16	6	0	22	50
% App. Total	0	0	0	0		16.7	83.3	0	0		50	25	25	0		0	72.7	27.3	0		
PHF	.000	.000	.000	.000	.000	.500	.833	.000	.000	.750	.500	.250	.250	.000	.500	.000	.667	.500	.000	.786	.833

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 DDD
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Peds and Bikes

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8
04:15 PM	0	0	0	2	7	0	1	0	0	0	0	0	0	5	0	0	1	0	0	0	16
04:30 PM	0	0	0	2	15	0	2	0	0	1	0	0	0	4	1	0	1	0	0	3	29
04:45 PM	0	0	0	9	23	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	36
Total	0	0	0	14	51	0	4	0	0	1	0	0	0	9	1	0	4	0	0	5	89
05:00 PM	0	0	0	7	33	0	0	0	0	0	0	0	0	2	6	0	0	0	1	1	50
05:15 PM	0	0	0	26	29	0	2	0	0	0	0	0	0	5	2	0	1	0	11	0	76
05:30 PM	0	0	0	15	32	0	3	0	0	0	0	0	0	2	2	0	1	0	2	0	57
05:45 PM	0	0	0	21	16	0	4	0	0	0	0	0	0	4	12	0	1	0	2	2	62
Total	0	0	0	69	110	0	9	0	0	0	0	0	0	13	22	0	3	0	16	3	245
Grand Total	0	0	0	83	161	0	13	0	0	1	0	0	0	22	23	0	7	0	16	8	334
Apprch %	0	0	0	34	66	0	92.9	0	0	7.1	0	0	0	48.9	51.1	0	22.6	0	51.6	25.8	
Total %	0	0	0	24.9	48.2	0	3.9	0	0	0.3	0	0	0	6.6	6.9	0	2.1	0	4.8	2.4	

	East Service Road From North						Congress Street From East						I-90 Ramps From South						Congress Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	7	33	40	0	0	0	0	0	0	0	0	0	2	6	8	0	0	0	1	1	2	50
05:15 PM	0	0	0	26	29	55	0	2	0	0	0	2	0	0	0	5	2	7	0	1	0	11	0	12	76
05:30 PM	0	0	0	15	32	47	0	3	0	0	0	3	0	0	0	2	2	4	0	1	0	2	0	3	57
05:45 PM	0	0	0	21	16	37	0	4	0	0	0	4	0	0	0	4	12	16	0	1	0	2	2	5	62
Total Volume	0	0	0	69	110	179	0	9	0	0	0	9	0	0	0	13	22	35	0	3	0	16	3	22	245
% App. Total	0	0	0	38.5	61.5		0	100	0	0	0		0	0	0	37.1	62.9		0	13.6	0	72.7	13.6		
PHF	.000	.000	.000	.663	.833	.814	.000	.563	.000	.000	.000	.563	.000	.000	.000	.650	.458	.547	.000	.750	.000	.364	.375	.458	.806

N/S: East Service Road/ I-90 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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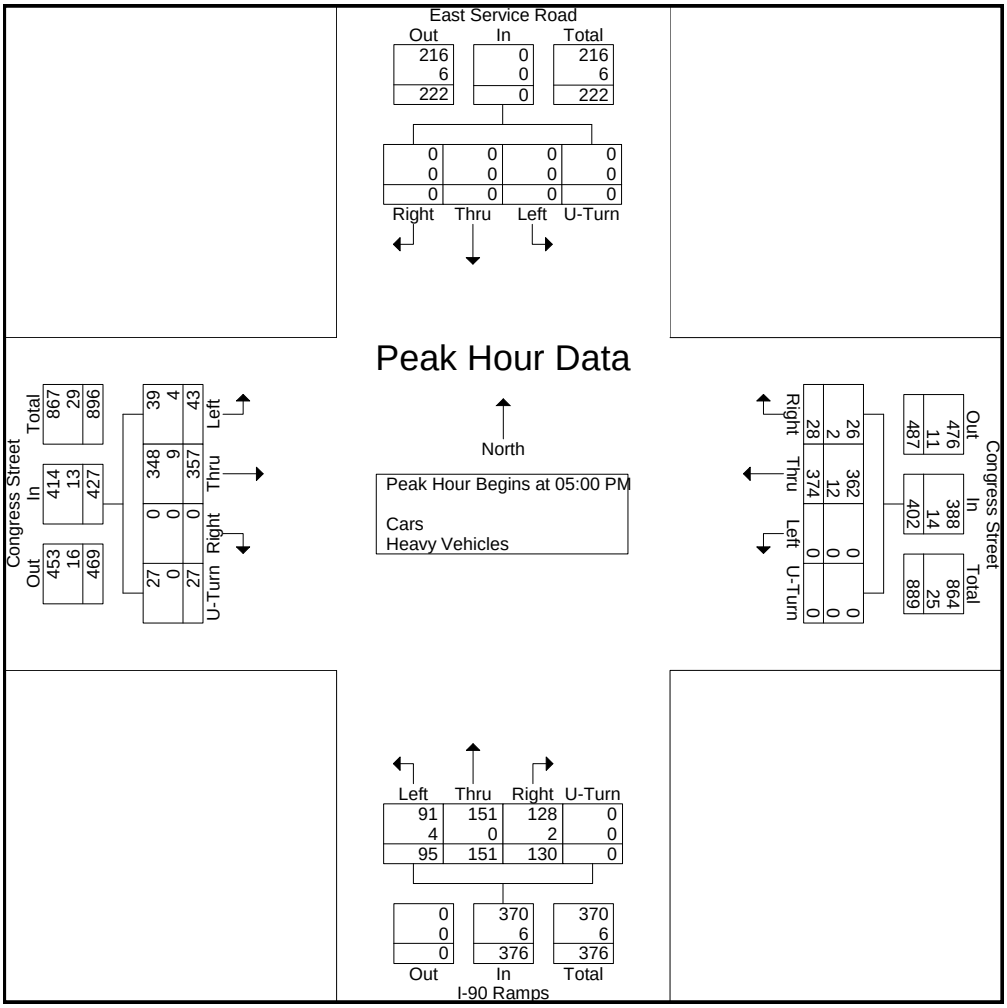
Start Date : 12/15/2015
Page No : 1

	East Service Road From North					Congress Street From East					I-90 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	8	103	0	0	111	25	20	21	0	66	0	82	13	4	99	276
05:15 PM	0	0	0	0	0	7	105	0	0	112	30	47	16	0	93	0	91	8	8	107	312
05:30 PM	0	0	0	0	0	3	80	0	0	83	37	45	23	0	105	0	110	15	7	132	320
05:45 PM	0	0	0	0	0	10	86	0	0	96	38	39	35	0	112	0	74	7	8	89	297
Total Volume	0	0	0	0	0	28	374	0	0	402	130	151	95	0	376	0	357	43	27	427	1205
% App. Total	0	0	0	0		7	93	0	0		34.6	40.2	25.3	0		0	83.6	10.1	6.3		
PHF	.000	.000	.000	.000	.000	.700	.890	.000	.000	.897	.855	.803	.679	.000	.839	.000	.811	.717	.844	.809	.941
Cars	0	0	0	0	0	26	362	0	0	388	128	151	91	0	370	0	348	39	27	414	1172
% Cars	0	0	0	0	0	92.9	96.8	0	0	96.5	98.5	100	95.8	0	98.4	0	97.5	90.7	100	97.0	97.3
Heavy Vehicles	0	0	0	0	0	2	12	0	0	14	2	0	4	0	6	0	9	4	0	13	33
% Heavy Vehicles	0	0	0	0	0	7.1	3.2	0	0	3.5	1.5	0	4.2	0	1.6	0	2.5	9.3	0	3.0	2.7



N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 E
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	5	15	2	0	14	21	77	0	40	10	14	0	19	48	6	0	271
12:15 PM	6	9	0	0	17	22	86	1	32	9	17	0	21	42	11	1	274
12:30 PM	7	17	1	0	15	8	61	1	37	10	19	0	18	46	7	0	247
12:45 PM	7	11	1	0	15	17	88	0	39	8	27	0	28	32	8	0	281
Total	25	52	4	0	61	68	312	2	148	37	77	0	86	168	32	1	1073
01:00 PM	7	21	1	0	10	17	89	2	37	15	23	1	21	43	8	1	296
01:15 PM	4	13	1	0	17	25	77	1	38	17	22	0	26	56	9	0	306
01:30 PM	5	23	2	0	8	14	84	2	34	13	23	2	39	40	13	0	302
01:45 PM	7	10	0	0	13	21	64	0	46	10	31	2	26	42	13	0	285
Total	23	67	4	0	48	77	314	5	155	55	99	5	112	181	43	1	1189
Grand Total	48	119	8	0	109	145	626	7	303	92	176	5	198	349	75	2	2262
Apprch %	27.4	68	4.6	0	12.3	16.3	70.6	0.8	52.6	16	30.6	0.9	31.7	55.9	12	0.3	
Total %	2.1	5.3	0.4	0	4.8	6.4	27.7	0.3	13.4	4.1	7.8	0.2	8.8	15.4	3.3	0.1	
Cars	48	114	8	0	106	140	621	7	281	91	171	5	194	340	73	2	2201
% Cars	100	95.8	100	0	97.2	96.6	99.2	100	92.7	98.9	97.2	100	98	97.4	97.3	100	97.3
Heavy Vehicles	0	5	0	0	3	5	5	0	22	1	5	0	4	9	2	0	61
% Heavy Vehicles	0	4.2	0	0	2.8	3.4	0.8	0	7.3	1.1	2.8	0	2	2.6	2.7	0	2.7

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	7	21	1	0	29	10	17	89	2	118	37	15	23	1	76	21	43	8	1	73	296
01:15 PM	4	13	1	0	18	17	25	77	1	120	38	17	22	0	77	26	56	9	0	91	306
01:30 PM	5	23	2	0	30	8	14	84	2	108	34	13	23	2	72	39	40	13	0	92	302
01:45 PM	7	10	0	0	17	13	21	64	0	98	46	10	31	2	89	26	42	13	0	81	285
Total Volume	23	67	4	0	94	48	77	314	5	444	155	55	99	5	314	112	181	43	1	337	1189
% App. Total	24.5	71.3	4.3	0		10.8	17.3	70.7	1.1		49.4	17.5	31.5	1.6		33.2	53.7	12.8	0.3		
PHF	.821	.728	.500	.000	.783	.706	.770	.882	.625	.925	.842	.809	.798	.625	.882	.718	.808	.827	.250	.916	.971
Cars	23	66	4	0	93	47	75	310	5	437	144	55	96	5	300	112	177	42	1	332	1162
% Cars	100	98.5	100	0	98.9	97.9	97.4	98.7	100	98.4	92.9	100	97.0	100	95.5	100	97.8	97.7	100	98.5	97.7
Heavy Vehicles	0	1	0	0	1	1	2	4	0	7	11	0	3	0	14	0	4	1	0	5	27
% Heavy Vehicles	0	1.5	0	0	1.1	2.1	2.6	1.3	0	1.6	7.1	0	3.0	0	4.5	0	2.2	2.3	0	1.5	2.3

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 E
Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Cars

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	5	12	2	0	14	19	76	0	36	10	14	0	19	47	6	0	260
12:15 PM	6	9	0	0	17	22	86	1	29	8	17	0	20	40	11	1	267
12:30 PM	7	17	1	0	14	8	61	1	34	10	18	0	16	46	6	0	239
12:45 PM	7	10	1	0	14	16	88	0	38	8	26	0	27	30	8	0	273
Total	25	48	4	0	59	65	311	2	137	36	75	0	82	163	31	1	1039
01:00 PM	7	21	1	0	10	17	89	2	34	15	22	1	21	42	8	1	291
01:15 PM	4	13	1	0	17	23	77	1	35	17	21	0	26	55	8	0	298
01:30 PM	5	23	2	0	7	14	81	2	32	13	23	2	39	40	13	0	296
01:45 PM	7	9	0	0	13	21	63	0	43	10	30	2	26	40	13	0	277
Total	23	66	4	0	47	75	310	5	144	55	96	5	112	177	42	1	1162
Grand Total	48	114	8	0	106	140	621	7	281	91	171	5	194	340	73	2	2201
Apprch %	28.2	67.1	4.7	0	12.1	16	71.1	0.8	51.3	16.6	31.2	0.9	31.9	55.8	12	0.3	
Total %	2.2	5.2	0.4	0	4.8	6.4	28.2	0.3	12.8	4.1	7.8	0.2	8.8	15.4	3.3	0.1	

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	7	21	1	0	29	10	17	89	2	118	34	15	22	1	72	21	42	8	1	72	291
01:15 PM	4	13	1	0	18	17	23	77	1	118	35	17	21	0	73	26	55	8	0	89	298
01:30 PM	5	23	2	0	30	7	14	81	2	104	32	13	23	2	70	39	40	13	0	92	296
01:45 PM	7	9	0	0	16	13	21	63	0	97	43	10	30	2	85	26	40	13	0	79	277
Total Volume	23	66	4	0	93	47	75	310	5	437	144	55	96	5	300	112	177	42	1	332	1162
% App. Total	24.7	71	4.3	0		10.8	17.2	70.9	1.1		48	18.3	32	1.7		33.7	53.3	12.7	0.3		
PHF	.821	.717	.500	.000	.775	.691	.815	.871	.625	.926	.837	.809	.800	.625	.882	.718	.805	.808	.250	.902	.975

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 E
Site Code : TBA
Start Date : 12/12/2015
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Groups Printed- Heavy Vehicles

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
12:00 PM	0	3	0	0	0	2	1	0	4	0	0	0	0	1	0	0	11
12:15 PM	0	0	0	0	0	0	0	0	3	1	0	0	1	2	0	0	7
12:30 PM	0	0	0	0	1	0	0	0	3	0	1	0	2	0	1	0	8
12:45 PM	0	1	0	0	1	1	0	0	1	0	1	0	1	2	0	0	8
Total	0	4	0	0	2	3	1	0	11	1	2	0	4	5	1	0	34
01:00 PM	0	0	0	0	0	0	0	0	3	0	1	0	0	1	0	0	5
01:15 PM	0	0	0	0	0	2	0	0	3	0	1	0	0	1	1	0	8
01:30 PM	0	0	0	0	1	0	3	0	2	0	0	0	0	0	0	0	6
01:45 PM	0	1	0	0	0	0	1	0	3	0	1	0	0	2	0	0	8
Total	0	1	0	0	1	2	4	0	11	0	3	0	0	4	1	0	27
Grand Total	0	5	0	0	3	5	5	0	22	1	5	0	4	9	2	0	61
Apprch %	0	100	0	0	23.1	38.5	38.5	0	78.6	3.6	17.9	0	26.7	60	13.3	0	
Total %	0	8.2	0	0	4.9	8.2	8.2	0	36.1	1.6	8.2	0	6.6	14.8	3.3	0	

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	0	3	0	0	3	0	2	1	0	3	4	0	0	0	4	0	1	0	0	1	11
12:15 PM	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4	1	2	0	0	3	7
12:30 PM	0	0	0	0	0	1	0	0	0	1	3	0	1	0	4	2	0	1	0	3	8
12:45 PM	0	1	0	0	1	1	1	0	0	2	1	0	1	0	2	1	2	0	0	3	8
Total Volume	0	4	0	0	4	2	3	1	0	6	11	1	2	0	14	4	5	1	0	10	34
% App. Total	0	100	0	0		33.3	50	16.7	0		78.6	7.1	14.3	0		40	50	10	0		
PHF	.000	.333	.000	.000	.333	.500	.375	.250	.000	.500	.688	.250	.500	.000	.875	.500	.625	.250	.000	.833	.773

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
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Site Code : TBA
Start Date : 12/12/2015
Page No : 1

Groups Printed- Peds and Bikes

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
12:00 PM	0	0	0	0	0	0	3	0	1	0	0	0	0	3	0	0	0	0	0	0	7
12:15 PM	0	0	1	0	0	0	0	0	0	4	0	0	0	3	3	0	0	0	0	1	12
12:30 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	2	5	0	0	0	0	0	13
12:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	6	2	0	0	0	2	0	12
Total	0	0	1	0	0	0	3	0	2	11	0	0	0	14	10	0	0	0	2	1	44
01:00 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	3	1	0	1	0	1	0	9
01:15 PM	0	0	0	0	0	0	0	0	4	9	0	0	0	0	2	0	1	0	0	0	16
01:30 PM	0	0	0	0	0	0	0	0	2	4	0	0	0	5	1	0	0	0	6	1	19
01:45 PM	0	0	0	0	0	0	0	0	3	7	0	0	0	3	4	0	1	0	1	0	19
Total	0	0	0	0	0	0	0	0	10	22	0	0	0	11	8	0	3	0	8	1	63
Grand Total	0	0	1	0	0	0	3	0	12	33	0	0	0	25	18	0	3	0	10	2	107
Apprch %	0	0	100	0	0	0	6.2	0	25	68.8	0	0	0	58.1	41.9	0	20	0	66.7	13.3	
Total %	0	0	0.9	0	0	0	2.8	0	11.2	30.8	0	0	0	23.4	16.8	0	2.8	0	9.3	1.9	

	B Street From North						Congress Street From East						I-90/93 Ramps From South						Congress Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 01:00 PM																									
01:00 PM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	3	1	4	0	1	0	1	0	2	9
01:15 PM	0	0	0	0	0	0	0	0	0	4	9	13	0	0	0	0	2	2	0	1	0	0	0	1	16
01:30 PM	0	0	0	0	0	0	0	0	0	2	4	6	0	0	0	5	1	6	0	0	0	6	1	7	19
01:45 PM	0	0	0	0	0	0	0	0	0	3	7	10	0	0	0	3	4	7	0	1	0	1	0	2	19
Total Volume	0	0	0	0	0	0	0	0	0	10	22	32	0	0	0	11	8	19	0	3	0	8	1	12	63
% App. Total	0	0	0	0	0		0	0	0	31.2	68.8		0	0	0	57.9	42.1		0	25	0	66.7	8.3		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.625	.611	.615	.000	.000	.000	.550	.500	.679	.000	.750	.000	.333	.250	.429	.829

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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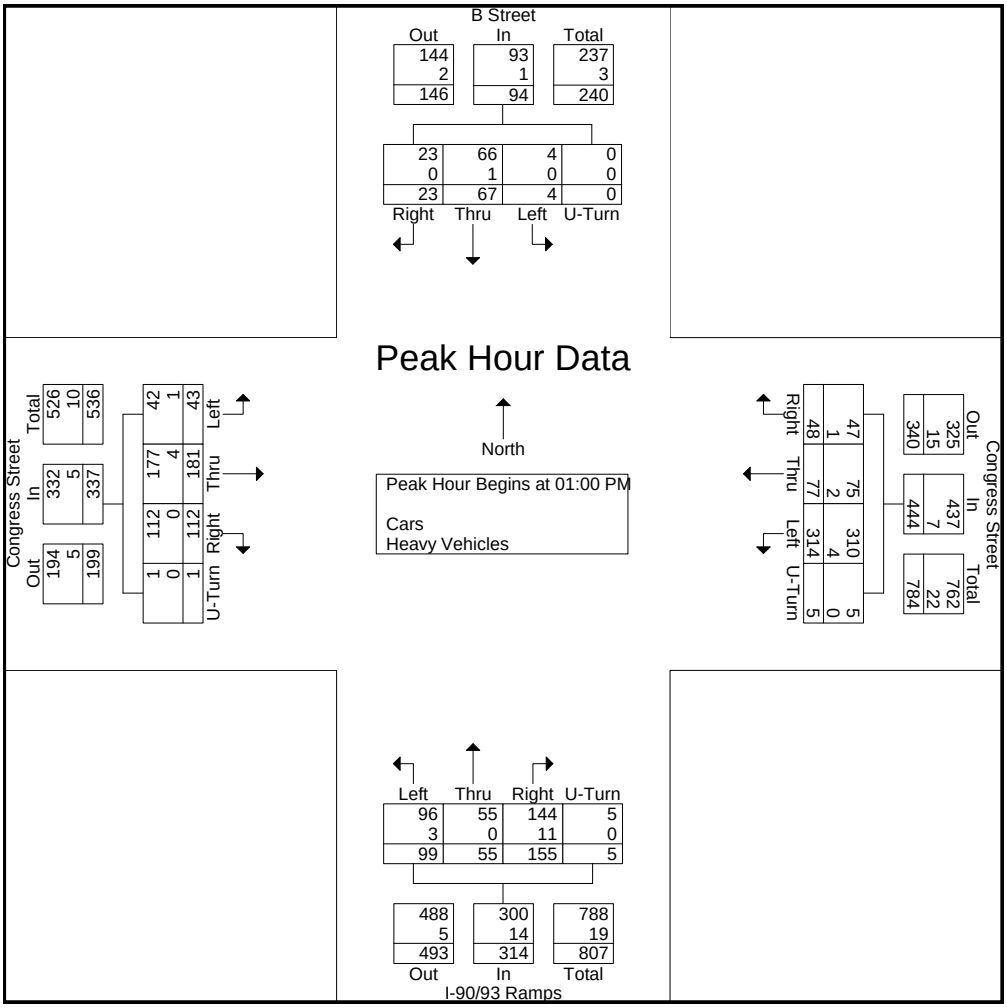
	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	7	21	1	0	29	10	17	89	2	118	37	15	23	1	76	21	43	8	1	73	296
01:15 PM	4	13	1	0	18	17	25	77	1	120	38	17	22	0	77	26	56	9	0	91	306
01:30 PM	5	23	2	0	30	8	14	84	2	108	34	13	23	2	72	39	40	13	0	92	302
01:45 PM	7	10	0	0	17	13	21	64	0	98	46	10	31	2	89	26	42	13	0	81	285
Total Volume	23	67	4	0	94	48	77	314	5	444	155	55	99	5	314	112	181	43	1	337	1189
% App. Total	24.5	71.3	4.3	0		10.8	17.3	70.7	1.1		49.4	17.5	31.5	1.6		33.2	53.7	12.8	0.3		
PHF	.821	.728	.500	.000	.783	.706	.770	.882	.625	.925	.842	.809	.798	.625	.882	.718	.808	.827	.250	.916	.971
Cars	23	66	4	0	93	47	75	310	5	437	144	55	96	5	300	112	177	42	1	332	1162
% Cars	100	98.5	100	0	98.9	97.9	97.4	98.7	100	98.4	92.9	100	97.0	100	95.5	100	97.8	97.7	100	98.5	97.7
Heavy Vehicles	0	1	0	0	1	1	2	4	0	7	11	0	3	0	14	0	4	1	0	5	27
% Heavy Vehicles	0	1.5	0	0	1.1	2.1	2.6	1.3	0	1.6	7.1	0	3.0	0	4.5	0	2.2	2.3	0	1.5	2.3



N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
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Site Code : TBA
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Groups Printed- Cars - Heavy Vehicles

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	6	10	0	0	14	19	65	0	96	34	63	0	32	44	38	1	422
07:15 AM	15	10	1	0	13	20	118	0	83	26	54	0	23	55	41	0	459
07:30 AM	4	15	0	0	24	25	106	0	89	50	81	0	28	65	57	0	544
07:45 AM	7	19	0	0	26	24	117	0	104	50	53	0	10	74	68	1	553
Total	32	54	1	0	77	88	406	0	372	160	251	0	93	238	204	2	1978
08:00 AM	14	17	0	0	32	28	106	0	115	55	83	0	22	90	82	0	644
08:15 AM	12	9	0	0	24	28	114	0	90	61	93	1	20	86	56	0	594
08:30 AM	17	15	0	0	19	28	97	0	88	52	69	1	21	84	74	0	565
08:45 AM	14	12	0	0	29	34	115	0	101	61	78	0	20	79	52	0	595
Total	57	53	0	0	104	118	432	0	394	229	323	2	83	339	264	0	2398
Grand Total	89	107	1	0	181	206	838	0	766	389	574	2	176	577	468	2	4376
Apprch %	45.2	54.3	0.5	0	14.8	16.8	68.4	0	44.3	22.5	33.2	0.1	14.4	47.2	38.3	0.2	
Total %	2	2.4	0	0	4.1	4.7	19.1	0	17.5	8.9	13.1	0	4	13.2	10.7	0	
Cars	80	92	1	0	161	183	764	0	695	374	558	2	173	533	456	2	4074
% Cars	89.9	86	100	0	89	88.8	91.2	0	90.7	96.1	97.2	100	98.3	92.4	97.4	100	93.1
Heavy Vehicles	9	15	0	0	20	23	74	0	71	15	16	0	3	44	12	0	302
% Heavy Vehicles	10.1	14	0	0	11	11.2	8.8	0	9.3	3.9	2.8	0	1.7	7.6	2.6	0	6.9

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	14	17	0	0	31	32	28	106	0	166	115	55	83	0	253	22	90	82	0	194	644
08:15 AM	12	9	0	0	21	24	28	114	0	166	90	61	93	1	245	20	86	56	0	162	594
08:30 AM	17	15	0	0	32	19	28	97	0	144	88	52	69	1	210	21	84	74	0	179	565
08:45 AM	14	12	0	0	26	29	34	115	0	178	101	61	78	0	240	20	79	52	0	151	595
Total Volume	57	53	0	0	110	104	118	432	0	654	394	229	323	2	948	83	339	264	0	686	2398
% App. Total	51.8	48.2	0	0		15.9	18	66.1	0		41.6	24.2	34.1	0.2		12.1	49.4	38.5	0		
PHF	.838	.779	.000	.000	.859	.813	.868	.939	.000	.919	.857	.939	.868	.500	.937	.943	.942	.805	.000	.884	.931
Cars	50	50	0	0	100	92	102	378	0	572	348	221	314	2	885	81	317	255	0	653	2210
% Cars	87.7	94.3	0	0	90.9	88.5	86.4	87.5	0	87.5	88.3	96.5	97.2	100	93.4	97.6	93.5	96.6	0	95.2	92.2
Heavy Vehicles	7	3	0	0	10	12	16	54	0	82	46	8	9	0	63	2	22	9	0	33	188
% Heavy Vehicles	12.3	5.7	0	0	9.1	11.5	13.6	12.5	0	12.5	11.7	3.5	2.8	0	6.6	2.4	6.5	3.4	0	4.8	7.8

N/S: B Street/ I-90/93 Ramps
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Groups Printed- Cars

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	6	8	0	0	11	15	62	0	89	30	62	0	31	41	37	1	393
07:15 AM	14	8	1	0	13	20	113	0	78	25	51	0	23	50	41	0	437
07:30 AM	3	13	0	0	21	24	103	0	84	48	79	0	28	59	57	0	519
07:45 AM	7	13	0	0	24	22	108	0	96	50	52	0	10	66	66	1	515
Total	30	42	1	0	69	81	386	0	347	153	244	0	92	216	201	2	1864
08:00 AM	14	15	0	0	30	26	97	0	100	53	79	0	21	84	78	0	597
08:15 AM	9	8	0	0	21	24	109	0	80	59	91	1	20	82	54	0	558
08:30 AM	14	15	0	0	14	22	78	0	75	51	68	1	20	83	74	0	515
08:45 AM	13	12	0	0	27	30	94	0	93	58	76	0	20	68	49	0	540
Total	50	50	0	0	92	102	378	0	348	221	314	2	81	317	255	0	2210
Grand Total	80	92	1	0	161	183	764	0	695	374	558	2	173	533	456	2	4074
Apprch %	46.2	53.2	0.6	0	14.5	16.5	69	0	42.7	23	34.3	0.1	14.9	45.8	39.2	0.2	
Total %	2	2.3	0	0	4	4.5	18.8	0	17.1	9.2	13.7	0	4.2	13.1	11.2	0	

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	14	15	0	0	29	30	26	97	0	153	100	53	79	0	232	21	84	78	0	183	597
08:15 AM	9	8	0	0	17	21	24	109	0	154	80	59	91	1	231	20	82	54	0	156	558
08:30 AM	14	15	0	0	29	14	22	78	0	114	75	51	68	1	195	20	83	74	0	177	515
08:45 AM	13	12	0	0	25	27	30	94	0	151	93	58	76	0	227	20	68	49	0	137	540
Total Volume	50	50	0	0	100	92	102	378	0	572	348	221	314	2	885	81	317	255	0	653	2210
% App. Total	50	50	0	0		16.1	17.8	66.1	0		39.3	25	35.5	0.2		12.4	48.5	39.1	0		
PHF	.893	.833	.000	.000	.862	.767	.850	.867	.000	.929	.870	.936	.863	.500	.954	.964	.943	.817	.000	.892	.925

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
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File Name : 154839 EE
Site Code : TBA
Start Date : 12/15/2015
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Groups Printed- Heavy Vehicles

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	2	0	0	3	4	3	0	7	4	1	0	1	3	1	0	29
07:15 AM	1	2	0	0	0	0	5	0	5	1	3	0	0	5	0	0	22
07:30 AM	1	2	0	0	3	1	3	0	5	2	2	0	0	6	0	0	25
07:45 AM	0	6	0	0	2	2	9	0	8	0	1	0	0	8	2	0	38
Total	2	12	0	0	8	7	20	0	25	7	7	0	1	22	3	0	114
08:00 AM	0	2	0	0	2	2	9	0	15	2	4	0	1	6	4	0	47
08:15 AM	3	1	0	0	3	4	5	0	10	2	2	0	0	4	2	0	36
08:30 AM	3	0	0	0	5	6	19	0	13	1	1	0	1	1	0	0	50
08:45 AM	1	0	0	0	2	4	21	0	8	3	2	0	0	11	3	0	55
Total	7	3	0	0	12	16	54	0	46	8	9	0	2	22	9	0	188
Grand Total	9	15	0	0	20	23	74	0	71	15	16	0	3	44	12	0	302
Apprch %	37.5	62.5	0	0	17.1	19.7	63.2	0	69.6	14.7	15.7	0	5.1	74.6	20.3	0	
Total %	3	5	0	0	6.6	7.6	24.5	0	23.5	5	5.3	0	1	14.6	4	0	

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	2	0	0	2	2	2	9	0	13	15	2	4	0	21	1	6	4	0	11	47
08:15 AM	3	1	0	0	4	3	4	5	0	12	10	2	2	0	14	0	4	2	0	6	36
08:30 AM	3	0	0	0	3	5	6	19	0	30	13	1	1	0	15	1	1	0	0	2	50
08:45 AM	1	0	0	0	1	2	4	21	0	27	8	3	2	0	13	0	11	3	0	14	55
Total Volume	7	3	0	0	10	12	16	54	0	82	46	8	9	0	63	2	22	9	0	33	188
% App. Total	70	30	0	0		14.6	19.5	65.9	0		73	12.7	14.3	0		6.1	66.7	27.3	0		
PHF	.583	.375	.000	.000	.625	.600	.667	.643	.000	.683	.767	.667	.563	.000	.750	.500	.500	.563	.000	.589	.855

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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Groups Printed- Peds and Bikes

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	3
07:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	2	5	0	0	0	0	0	10
07:30 AM	0	0	0	0	0	0	0	0	1	10	0	0	0	1	1	0	0	0	0	0	13
07:45 AM	0	0	0	1	0	0	0	0	0	14	0	0	0	4	9	0	0	0	1	0	29
Total	0	0	0	1	0	0	0	0	1	28	0	0	0	7	16	0	0	0	2	0	55
08:00 AM	0	0	0	0	0	0	0	0	2	18	0	0	0	2	4	0	0	0	0	0	26
08:15 AM	0	0	0	0	0	0	0	0	0	15	0	0	0	2	7	0	0	0	1	0	25
08:30 AM	0	0	0	0	0	0	1	0	1	13	0	0	0	4	4	0	0	0	2	0	25
08:45 AM	0	0	0	0	0	1	3	0	1	13	0	0	0	5	3	0	0	0	0	0	26
Total	0	0	0	0	0	1	4	0	4	59	0	0	0	13	18	0	0	0	3	0	102
Grand Total	0	0	0	1	0	1	4	0	5	87	0	0	0	20	34	0	0	0	5	0	157
Apprch %	0	0	0	100	0	1	4.1	0	5.2	89.7	0	0	0	37	63	0	0	0	100	0	
Total %	0	0	0	0.6	0	0.6	2.5	0	3.2	55.4	0	0	0	12.7	21.7	0	0	0	3.2	0	

	B Street From North						Congress Street From East						I-90/93 Ramps From South						Congress Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:45 AM																									
07:45 AM	0	0	0	1	0	1	0	0	0	0	14	14	0	0	0	4	9	13	0	0	0	1	0	1	29
08:00 AM	0	0	0	0	0	0	0	0	0	2	18	20	0	0	0	2	4	6	0	0	0	0	0	0	26
08:15 AM	0	0	0	0	0	0	0	0	0	0	15	15	0	0	0	2	7	9	0	0	0	1	0	1	25
08:30 AM	0	0	0	0	0	0	0	1	0	1	13	15	0	0	0	4	4	8	0	0	0	2	0	2	25
Total Volume	0	0	0	1	0	1	0	1	0	3	60	64	0	0	0	12	24	36	0	0	0	4	0	4	105
% App. Total	0	0	0	100	0		0	1.6	0	4.7	93.8		0	0	0	33.3	66.7		0	0	0	100	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.250	.000	.375	.833	.800	.000	.000	.000	.750	.667	.692	.000	.000	.000	.500	.000	.500	.905

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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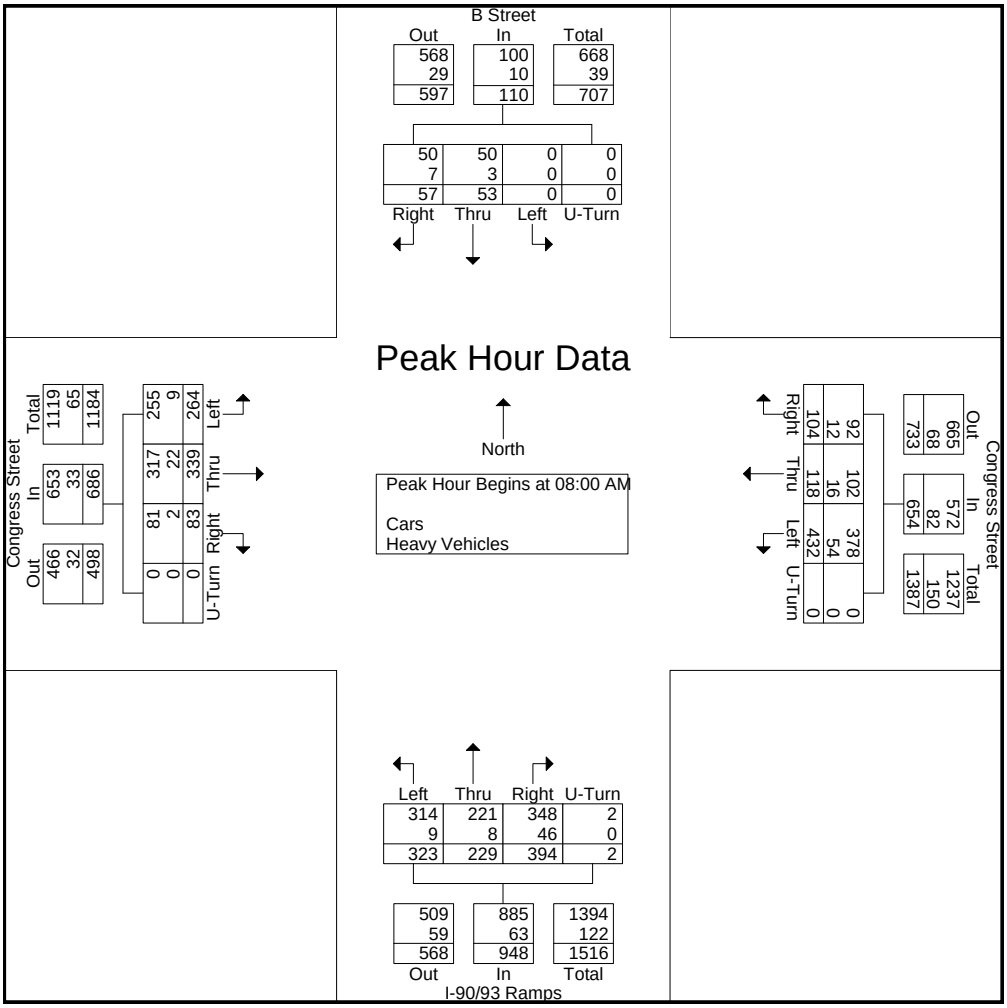
	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	14	17	0	0	31	32	28	106	0	166	115	55	83	0	253	22	90	82	0	194	644
08:15 AM	12	9	0	0	21	24	28	114	0	166	90	61	93	1	245	20	86	56	0	162	594
08:30 AM	17	15	0	0	32	19	28	97	0	144	88	52	69	1	210	21	84	74	0	179	565
08:45 AM	14	12	0	0	26	29	34	115	0	178	101	61	78	0	240	20	79	52	0	151	595
Total Volume	57	53	0	0	110	104	118	432	0	654	394	229	323	2	948	83	339	264	0	686	2398
% App. Total	51.8	48.2	0	0		15.9	18	66.1	0		41.6	24.2	34.1	0.2		12.1	49.4	38.5	0		
PHF	.838	.779	.000	.000	.859	.813	.868	.939	.000	.919	.857	.939	.868	.500	.937	.943	.942	.805	.000	.884	.931
Cars	50	50	0	0	100	92	102	378	0	572	348	221	314	2	885	81	317	255	0	653	2210
% Cars	87.7	94.3	0	0	90.9	88.5	86.4	87.5	0	87.5	88.3	96.5	97.2	100	93.4	97.6	93.5	96.6	0	95.2	92.2
Heavy Vehicles	7	3	0	0	10	12	16	54	0	82	46	8	9	0	63	2	22	9	0	33	188
% Heavy Vehicles	12.3	5.7	0	0	9.1	11.5	13.6	12.5	0	12.5	11.7	3.5	2.8	0	6.6	2.4	6.5	3.4	0	4.8	7.8



N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

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File Name : 154839 EEE
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	8	37	5	0	18	24	89	0	99	33	40	0	35	47	16	1	452
04:15 PM	14	34	3	0	16	27	105	0	104	33	47	0	41	53	15	1	493
04:30 PM	10	26	2	0	27	35	108	2	87	24	48	0	37	53	15	2	476
04:45 PM	14	41	2	0	29	34	115	1	81	30	38	0	48	47	23	0	503
Total	46	138	12	0	90	120	417	3	371	120	173	0	161	200	69	4	1924
05:00 PM	15	40	1	0	23	44	155	0	95	20	46	0	36	49	8	1	533
05:15 PM	12	41	2	0	26	33	132	1	94	26	66	0	53	49	18	0	553
05:30 PM	16	41	1	0	21	29	110	0	81	15	37	0	50	76	25	1	503
05:45 PM	14	22	0	0	25	34	85	0	105	27	51	0	39	60	16	1	479
Total	57	144	4	0	95	140	482	1	375	88	200	0	178	234	67	3	2068
Grand Total	103	282	16	0	185	260	899	4	746	208	373	0	339	434	136	7	3992
Apprch %	25.7	70.3	4	0	13.7	19.3	66.7	0.3	56.2	15.7	28.1	0	37	47.4	14.8	0.8	
Total %	2.6	7.1	0.4	0	4.6	6.5	22.5	0.1	18.7	5.2	9.3	0	8.5	10.9	3.4	0.2	
Cars	100	268	16	0	178	254	871	4	695	201	347	0	337	416	126	7	3820
% Cars	97.1	95	100	0	96.2	97.7	96.9	100	93.2	96.6	93	0	99.4	95.9	92.6	100	95.7
Heavy Vehicles	3	14	0	0	7	6	28	0	51	7	26	0	2	18	10	0	172
% Heavy Vehicles	2.9	5	0	0	3.8	2.3	3.1	0	6.8	3.4	7	0	0.6	4.1	7.4	0	4.3

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	14	41	2	0	57	29	34	115	1	179	81	30	38	0	149	48	47	23	0	118	503
05:00 PM	15	40	1	0	56	23	44	155	0	222	95	20	46	0	161	36	49	8	1	94	533
05:15 PM	12	41	2	0	55	26	33	132	1	192	94	26	66	0	186	53	49	18	0	120	553
05:30 PM	16	41	1	0	58	21	29	110	0	160	81	15	37	0	133	50	76	25	1	152	503
Total Volume	57	163	6	0	226	99	140	512	2	753	351	91	187	0	629	187	221	74	2	484	2092
% App. Total	25.2	72.1	2.7	0		13.1	18.6	68	0.3		55.8	14.5	29.7	0		38.6	45.7	15.3	0.4		
PHF	.891	.994	.750	.000	.974	.853	.795	.826	.500	.848	.924	.758	.708	.000	.845	.882	.727	.740	.500	.796	.946
Cars	54	157	6	0	217	96	139	503	2	740	333	88	177	0	598	186	210	67	2	465	2020
% Cars	94.7	96.3	100	0	96.0	97.0	99.3	98.2	100	98.3	94.9	96.7	94.7	0	95.1	99.5	95.0	90.5	100	96.1	96.6
Heavy Vehicles	3	6	0	0	9	3	1	9	0	13	18	3	10	0	31	1	11	7	0	19	72
% Heavy Vehicles	5.3	3.7	0	0	4.0	3.0	0.7	1.8	0	1.7	5.1	3.3	5.3	0	4.9	0.5	5.0	9.5	0	3.9	3.4

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
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Groups Printed- Cars

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	8	35	5	0	17	24	83	0	89	32	37	0	35	45	15	1	426
04:15 PM	14	32	3	0	16	26	98	0	101	32	40	0	41	50	14	1	468
04:30 PM	10	24	2	0	26	33	102	2	81	23	45	0	37	52	14	2	453
04:45 PM	13	40	2	0	27	33	113	1	76	28	35	0	48	44	20	0	480
Total	45	131	12	0	86	116	396	3	347	115	157	0	161	191	63	4	1827
05:00 PM	14	39	1	0	23	44	152	0	91	19	43	0	35	47	8	1	517
05:15 PM	11	38	2	0	25	33	130	1	89	26	65	0	53	46	17	0	536
05:30 PM	16	40	1	0	21	29	108	0	77	15	34	0	50	73	22	1	487
05:45 PM	14	20	0	0	23	32	85	0	91	26	48	0	38	59	16	1	453
Total	55	137	4	0	92	138	475	1	348	86	190	0	176	225	63	3	1993
Grand Total	100	268	16	0	178	254	871	4	695	201	347	0	337	416	126	7	3820
Apprch %	26	69.8	4.2	0	13.6	19.4	66.6	0.3	55.9	16.2	27.9	0	38	47	14.2	0.8	
Total %	2.6	7	0.4	0	4.7	6.6	22.8	0.1	18.2	5.3	9.1	0	8.8	10.9	3.3	0.2	

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	40	2	0	55	27	33	113	1	174	76	28	35	0	139	48	44	20	0	112	480
05:00 PM	14	39	1	0	54	23	44	152	0	219	91	19	43	0	153	35	47	8	1	91	517
05:15 PM	11	38	2	0	51	25	33	130	1	189	89	26	65	0	180	53	46	17	0	116	536
05:30 PM	16	40	1	0	57	21	29	108	0	158	77	15	34	0	126	50	73	22	1	146	487
Total Volume	54	157	6	0	217	96	139	503	2	740	333	88	177	0	598	186	210	67	2	465	2020
% App. Total	24.9	72.4	2.8	0		13	18.8	68	0.3		55.7	14.7	29.6	0		40	45.2	14.4	0.4		
PHF	.844	.981	.750	.000	.952	.889	.790	.827	.500	.845	.915	.786	.681	.000	.831	.877	.719	.761	.500	.796	.942

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
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Groups Printed- Heavy Vehicles

	B Street From North				Congress Street From East				I-90/93 Ramps From South				Congress Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	2	0	0	1	0	6	0	10	1	3	0	0	2	1	0	26
04:15 PM	0	2	0	0	0	1	7	0	3	1	7	0	0	3	1	0	25
04:30 PM	0	2	0	0	1	2	6	0	6	1	3	0	0	1	1	0	23
04:45 PM	1	1	0	0	2	1	2	0	5	2	3	0	0	3	3	0	23
Total	1	7	0	0	4	4	21	0	24	5	16	0	0	9	6	0	97
05:00 PM	1	1	0	0	0	0	3	0	4	1	3	0	1	2	0	0	16
05:15 PM	1	3	0	0	1	0	2	0	5	0	1	0	0	3	1	0	17
05:30 PM	0	1	0	0	0	0	2	0	4	0	3	0	0	3	3	0	16
05:45 PM	0	2	0	0	2	2	0	0	14	1	3	0	1	1	0	0	26
Total	2	7	0	0	3	2	7	0	27	2	10	0	2	9	4	0	75
Grand Total	3	14	0	0	7	6	28	0	51	7	26	0	2	18	10	0	172
Apprch %	17.6	82.4	0	0	17.1	14.6	68.3	0	60.7	8.3	31	0	6.7	60	33.3	0	
Total %	1.7	8.1	0	0	4.1	3.5	16.3	0	29.7	4.1	15.1	0	1.2	10.5	5.8	0	

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	2	0	0	2	1	0	6	0	7	10	1	3	0	14	0	2	1	0	3	26
04:15 PM	0	2	0	0	2	0	1	7	0	8	3	1	7	0	11	0	3	1	0	4	25
04:30 PM	0	2	0	0	2	1	2	6	0	9	6	1	3	0	10	0	1	1	0	2	23
04:45 PM	1	1	0	0	2	2	1	2	0	5	5	2	3	0	10	0	3	3	0	6	23
Total Volume	1	7	0	0	8	4	4	21	0	29	24	5	16	0	45	0	9	6	0	15	97
% App. Total	12.5	87.5	0	0		13.8	13.8	72.4	0		53.3	11.1	35.6	0		0	60	40	0		
PHF	.250	.875	.000	.000	1.00	.500	.500	.750	.000	.806	.600	.625	.571	.000	.804	.000	.750	.500	.000	.625	.933

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
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File Name : 154839 EEE
Site Code : TBA
Start Date : 12/15/2015
Page No : 1

Groups Printed- Peds and Bikes

	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	0	0	1	0	0	5	2	0	0	0	1	0	0	1	1	2	0	13
04:15 PM	0	0	0	0	1	0	0	0	4	1	0	0	0	5	3	0	0	0	0	0	14
04:30 PM	0	0	0	0	0	0	0	0	5	2	0	0	0	5	0	0	1	0	0	0	13
04:45 PM	0	0	0	0	1	0	0	0	6	6	0	0	0	0	0	0	1	0	0	0	14
Total	0	0	0	0	2	1	0	0	20	11	0	0	0	11	3	0	3	1	2	0	54
05:00 PM	0	0	0	1	0	2	0	0	12	6	0	0	0	2	6	0	0	0	0	0	29
05:15 PM	0	0	0	0	0	0	1	0	5	4	0	0	0	5	0	0	0	0	0	0	15
05:30 PM	0	0	0	0	0	0	0	0	7	5	0	0	0	3	4	0	1	0	0	0	20
05:45 PM	0	0	0	0	0	1	3	0	4	5	0	0	0	5	11	0	0	0	2	1	32
Total	0	0	0	1	0	3	4	0	28	20	0	0	0	15	21	0	1	0	2	1	96
Grand Total	0	0	0	1	2	4	4	0	48	31	0	0	0	26	24	0	4	1	4	1	150
Apprch %	0	0	0	33.3	66.7	4.6	4.6	0	55.2	35.6	0	0	0	52	48	0	40	10	40	10	
Total %	0	0	0	0.7	1.3	2.7	2.7	0	32	20.7	0	0	0	17.3	16	0	2.7	0.7	2.7	0.7	

	B Street From North						Congress Street From East						I-90/93 Ramps From South						Congress Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	1	0	1	2	0	0	12	6	20	0	0	0	2	6	8	0	0	0	0	0	0	29
05:15 PM	0	0	0	0	0	0	0	1	0	5	4	10	0	0	0	5	0	5	0	0	0	0	0	0	15
05:30 PM	0	0	0	0	0	0	0	0	0	7	5	12	0	0	0	3	4	7	0	1	0	0	0	1	20
05:45 PM	0	0	0	0	0	0	1	3	0	4	5	13	0	0	0	5	11	16	0	0	0	2	1	3	32
Total Volume	0	0	0	1	0	1	3	4	0	28	20	55	0	0	0	15	21	36	0	1	0	2	1	4	96
% App. Total	0	0	0	100	0		5.5	7.3	0	50.9	36.4		0	0	0	41.7	58.3		0	25	0	50	25		
PHF	.000	.000	.000	.250	.000	.250	.375	.333	.000	.583	.833	.688	.000	.000	.000	.750	.477	.563	.000	.250	.000	.250	.250	.333	.750

N/S: B Street/ I-90/93 Ramps
E/W: Congress Street
City, State: Boston, MA
Client: Fort Hill/ C. Tobias

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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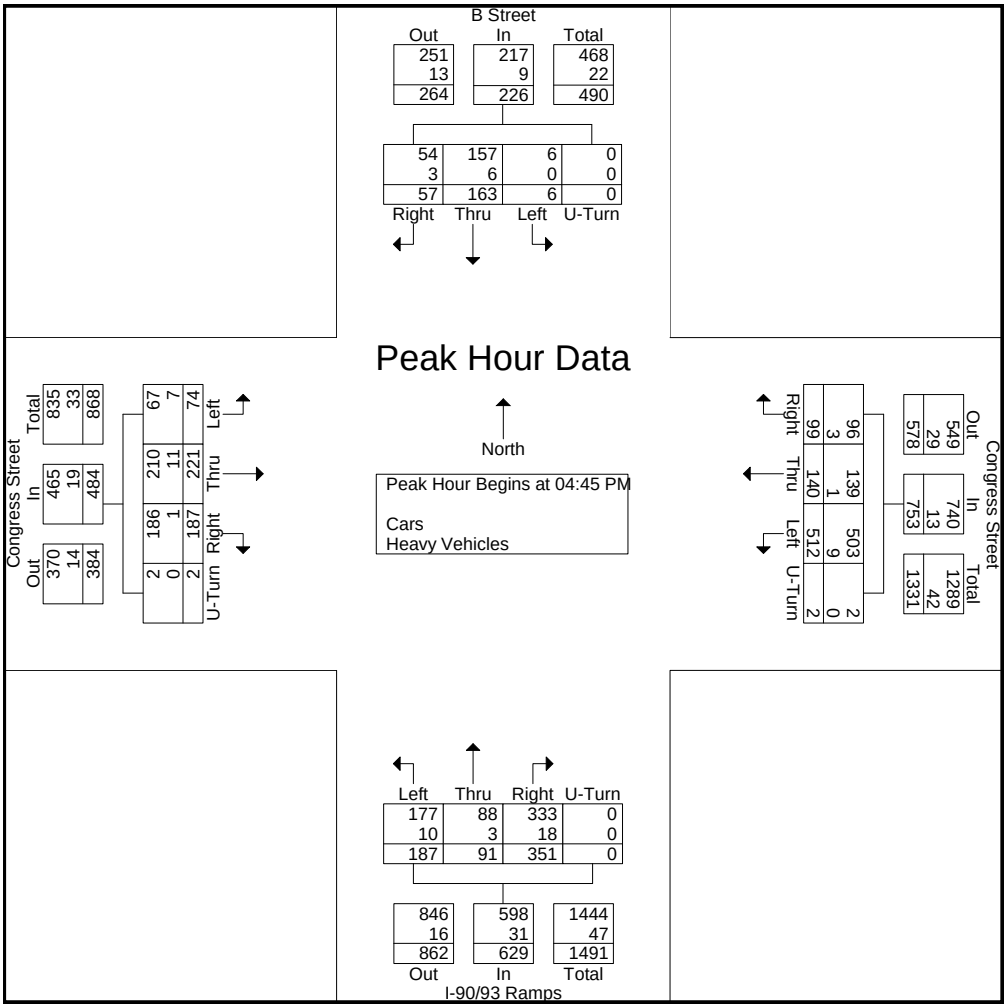
	B Street From North					Congress Street From East					I-90/93 Ramps From South					Congress Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	14	41	2	0	57	29	34	115	1	179	81	30	38	0	149	48	47	23	0	118	503
05:00 PM	15	40	1	0	56	23	44	155	0	222	95	20	46	0	161	36	49	8	1	94	533
05:15 PM	12	41	2	0	55	26	33	132	1	192	94	26	66	0	186	53	49	18	0	120	553
05:30 PM	16	41	1	0	58	21	29	110	0	160	81	15	37	0	133	50	76	25	1	152	503
Total Volume	57	163	6	0	226	99	140	512	2	753	351	91	187	0	629	187	221	74	2	484	2092
% App. Total	25.2	72.1	2.7	0		13.1	18.6	68	0.3		55.8	14.5	29.7	0		38.6	45.7	15.3	0.4		
PHF	.891	.994	.750	.000	.974	.853	.795	.826	.500	.848	.924	.758	.708	.000	.845	.882	.727	.740	.500	.796	.946
Cars	54	157	6	0	217	96	139	503	2	740	333	88	177	0	598	186	210	67	2	465	2020
% Cars	94.7	96.3	100	0	96.0	97.0	99.3	98.2	100	98.3	94.9	96.7	94.7	0	95.1	99.5	95.0	90.5	100	96.1	96.6
Heavy Vehicles	3	6	0	0	9	3	1	9	0	13	18	3	10	0	31	1	11	7	0	19	72
% Heavy Vehicles	5.3	3.7	0	0	4.0	3.0	0.7	1.8	0	1.7	5.1	3.3	5.3	0	4.9	0.5	5.0	9.5	0	3.9	3.4



Appendix B – Crash Records

2011

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	Distance from Nearest Milemarker	Distance from Nearest Exit	Distance from Nearest Landmark	Non Motorist Type
2701350	BOSTON	27-Feb-2011	3:09 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Entering traffic lane	V1:Northbound	V1: Collision with median barrier	V1: Passenger car	Snow	Dark - lighted roadway	Snow	RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S / MASSACHUSETTS TURNPIKE Rte 90 W			Exit RAMP D on Rte 93 N		
2720804	BOSTON	04-May-2011	7:53 AM	Non-fatal injury	2	1	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Daylight	Clear		SUMNER TUNNEL Rte 1A S / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S				
2728300	BOSTON	25-May-2011	4:10 PM	Non-fatal injury	2	1	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear		RAMP - RT 90 EB TO HAUL ROAD & Congress / HAUL ROAD			AT RRT 90 X25 EXIT RAMP	
2728302	BOSTON	25-May-2011	5:20 PM	Non-fatal injury	2	1	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	RAMP - RT 90 EB TO HAUL ROAD & Congress / HAUL ROAD				EXIT RAMP TO X25	
3335673	BOSTON	16-Jun-2011	10:29 AM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2:Turning left	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Tractor/semi-trailer	Dry	Daylight	Clear		Congress STREET / B STREET				
2741159	BOSTON	22-Jun-2011	4:30 PM	Non-fatal injury	2	1	0	Rear-end	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Other	Other		RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S	Rte 90 W Milemarker 136.0		TWT WB	
3374651	BOSTON	14-Jul-2011	9:40 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Dark - lighted roadway	Clear	D STREET / Congress STREET					
3374592	BOSTON	15-Aug-2011	2:43 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with guardrail	V1: Passenger car	Dry	Dark - lighted roadway	Clear		MASSACHUSETTS TURNPIKE Rte 90 W / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S			RAMP F BEFORE EXIT 25	
2829771	BOSTON	08-Dec-2011	10:49 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Tractor/semi-trailer	Dry	Daylight	Clear	RAMP-RT 90 EB TO HAUL RD & Congress ST / HAUL ROAD				SOUTH BOSTON BY PASS RD/ RAMP A	
2832326	BOSTON	15-Dec-2011	8:49 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Turning left	V1:Southbound	V1: Collision with curb	V1: Passenger car	Wet	Dark - lighted roadway	Rain		Congress STREET / B STREET			ENTRANCE TO 93	

2012

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	Distance from Nearest Milemarker	Distance from Nearest Exit	Distance from Nearest Landmark	Non Motorist Type
3083133	BOSTON	02-Mar-2012	12:11 PM	Not Reported	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Southbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Passenger car / V2:Truck/trailer	Dry	Daylight	Cloudy		D STREET / Congress STREET				
3190530	BOSTON	23-Apr-2012	4:50 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Wet	Daylight	Cloudy	B STREET / Congress STREET					
3116438	BOSTON	18-May-2012	10:20 AM	Not Reported	1	0	0	Single vehicle crash	V1: Turning left	V1:Westbound	V1: Other	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear		Seaport BOULEVARD			Northern AVENUE	P1:Pedestrian
3380323	BOSTON	03-Jun-2012	2:10 AM	Not Reported	1	0	0	Single vehicle crash	V1: Other	V1:Westbound	V1: Collision with median barrier	V1: Passenger car	Wet	Dark - lighted road	Rain	RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				RAMP D	
3201749	BOSTON	16-Jul-2012	12:05 PM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Turning left	V1:Northbound	V1: Collision with light pole or other post/support	V1: Passenger car	Dry	Daylight	Clear		WEST SERVICE HAUL ROAD CONNECTOR / Congress STREET				
3381333	BOSTON	24-Oct-2012	12:38 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Entering traffic lane	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear		Seaport BOULEVARD / BOSTON WHARF ROAD				

2013

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	Distance from Nearest Milemarker	Distance from Nearest Exit	Distance from Nearest Landmark	Non Motorist Type
3354836	BOSTON	05-Feb-2013	10:39 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Turning right / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Other / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Wet	Dark - lighted roadway	Snow	RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				RAMP D/RT 93 SPLIT	
3354837	BOSTON	05-Feb-2013	11:10 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with median barrier	V1: Passenger car	Wet	Dark - lighted roadway	Snow	RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB TO RT 93 NB				RAMP D/RT 93 SPLIT	
3384619	BOSTON	14-Feb-2013	5:15 PM	Non-fatal injury	3	1	0	Rear-end	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	Dry	Dark - lighted roadway	Cloudy		MASSACHUSETTS TURNPIKE Rte 90 W / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S			TED WILLIAMS TUNNEL	
3366232	BOSTON	07-Mar-2013	4:20 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Other	V1:Westbound	V1: Collision with median barrier	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Dark - lighted roadway	Clear	RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB TO RT 93 NB			Exit 24/25 on Rte 90 W	RAMP D SPLIT	
3384634	BOSTON	11-Mar-2013	12:21 PM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Other	V1: Passenger car	Dry	Daylight	Clear	RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				D RAMP	
3694970	BOSTON	27-Nov-2013	2:39 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with median barrier	V1: Passenger car	Dry	Dark - lighted roadway	Clear	RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB TO RT 93 NB				RAMP D	

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	Distance from Nearest Milemarker	Distance from Nearest Exit	Distance from Nearest Landmark	Non Motorist Type
3390473	BOSTON	05-Apr-2013	5:00 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Other	V1: Passenger car	Wet	Dark - lighted roadway	Clear	RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				SPLIT TO RT 93 N/S	
3396260	BOSTON	09-Apr-2013	5:45 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with median barrier	V1: Passenger car	Dry	Other	Cloudy	RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				RAMP D	
3425354	BOSTON	11-May-2013	10:08 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2:Changing lanes	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Dark - lighted roadway	Clear	RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB TO RT 93 NB				D RAMP AT SPLIT FOR 93 N/S	
3523216	BOSTON	14-Jul-2013	5:25 PM	Non-fatal injury	1	2	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with median barrier	V1: Motorcycle	Dry	Daylight	Clear/Cloudy	RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				RAMP D AT RT 93 SPLIT	
3535254	BOSTON	18-Jul-2013	8:08 AM	Property damage only (none injured)	2	0	0	Angle	V1: Changing lanes / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Tractor/semi-trailer	Dry	Daylight	Cloudy		MASSACHUSETTS TURNPIKE Rte 90 W / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S			TWT	
3545826	BOSTON	29-Jul-2013	2:45 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Other	Clear		MASSACHUSETTS TURNPIKE Rte 90 W / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S			TWT	
3419703	BOSTON	10-May-2013	5:44 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Changing lanes	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear		MASSACHUSETTS TURNPIKE Rte 90 W / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S			IN TED WILLIAMS TUNNEL	
3453110	BOSTON	03-Jun-2013	11:25 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with median barrier	V1: Passenger car	Wet	Other	Rain		RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S / RAMP - RT 90 WB TO RT 93 SB Rte 1A S			RAMP D	
3453111	BOSTON	05-Jun-2013	2:15 PM	Property damage only (none injured)	3	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Passenger car	Dry	Daylight	Clear	RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				RAMP D AT THE 93 SPLIT	
3491272	BOSTON	20-Jun-2013	7:40 AM	Non-fatal injury	3	1	0	Rear-end	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Not Reported		MASSACHUSETTS TURNPIKE Rte 90 W / RAMP - RT 90 WB TO RT 93/ Congress STREE Rte 1A S				
3505756	BOSTON	16-Jun-2013	3:03 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Leaving traffic lane	V1:Westbound	V1: Collision with median barrier	V1: Passenger car	Dry	Daylight	Clear	RAMP - RT 90 WB TO RT 93 SB Rte 1A S / RAMP - RT 90 WB TO RT 93 NB / RAMP - RT 90 WB/Congress STREET TO RT 93 Rte 1A S				D-RAMP	
3414335	BOSTON	11-May-2013	4:19 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	Congress STREET / B STREET					
3375970	BOSTON	16-Mar-2013	6:01 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Turning right / V2:Turning right	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Bus (seats for more than 15 people, including driver)	Dry	Daylight	Clear/Clear	Congress STREET / D STREET					
3594149	BOSTON	17-Sep-2013	11:00 PM	Non-fatal injury	2	3	0	Angle	V1: Turning left / V2:Travelling straight ahead	V1:Not reported / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Dark - lighted roadway	Clear	D STREET / Congress STREET	C				
3531818	BOSTON	12-May-2013	11:00 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Turning left	V1:Not reported	V1: Collision with pedestrian	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear/Clear		601 Congress STREET	@ D STREET			P2:Pedestrian
3348628	BOSTON	30-Jan-2013	8:53 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Turning left	V1:Eastbound	V1: Collision with curb	V1: Passenger car	Dry	Daylight	Cloudy		Congress STREET / EAST SERVICE ROAD				
3590611	BOSTON	10-Sep-2013	4:38 PM	Non-fatal injury	2	1	0	Head-on	V1: Travelling straight ahead / V2:Other	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear/Cloudy		WEST SERVICE HAUL ROAD CONNECTOR Rte UNKNOW / Congress STREET				
3415446	BOSTON	07-May-2013	8:56 AM	Property damage only (none injured)	2	0	0	Single vehicle crash	V1: Travelling straight ahead / V2:Turning left	V1:Not reported / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Unknown vehicle configuration	Dry	Daylight	Clear/Clear	BOSTON WHARF ROAD / Congress STREET					
3484081	BOSTON	20-Jun-2013	1:24 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Eastbound	V1: Other	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Dark - lighted roadway	Clear	Seaport BOULEVARD / B STREET / Northern AVENUE	WHISK				
3543173	BOSTON	12-Jul-2013	11:20 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2:Not reported	V1:Not reported / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Passenger car / V2:Passenger car	Dry	Dark - lighted roadway	Clear/Clear	Northern AVENUE / B STREET					
3611020	BOSTON	30-Sep-2013	9:05 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Backing	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear		D STREET / Northern AVENUE				
3585219	BOSTON	25-Jun-2013	8:30 AM	Property damage only (none injured)	1	0	0	Angle	V1: Turning left	V1:Eastbound	V1: Collision with motor vehicle in traffic	V1: Passenger car	Dry	Daylight	Clear	Seaport BOULEVARD / D STREET					P2:Pedalcyclist (bicycle, tricycle, unicycle, pedal car)
3510755	BOSTON	12-Jul-2013	10:49 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Turning left / V2:Travelling straight ahead	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Dark - lighted roadway	Clear	Seaport BOULEVARDALIAS Northern AVENUE / D STREET					

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2013

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Seaport Boulevard/ Northern Avenue

MINOR STREET(S) : D Street

Boston Fish Pier

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	435	585	110	65		1,195

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **13,278**

TOTAL # OF CRASHES : 4 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.33**

CRASH RATE CALCULATION : 0.28

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2015

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Seaport Boulevard

MINOR STREET(S) : Boston Wharf Road

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	420	690	200	100		1,410

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,667**

TOTAL # OF CRASHES : 1 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : 0.06

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2015

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Seaport Boulevard

MINOR STREET(S) : B Street

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	635	353	369			1,357

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,078**

TOTAL # OF CRASHES : 2 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.67**

CRASH RATE CALCULATION : 0.12

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2013

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Congress Street

MINOR STREET(S) : D Street

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	765	165	635	195		1,760

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **19,556**

TOTAL # OF CRASHES : 5 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.67**

CRASH RATE CALCULATION : 0.23

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2015

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ **INTERSECTION DATA** ~

MAJOR STREET : Congress Street

MINOR STREET(S) : Boston Wharf Road

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	430	690	200	100		1,420

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,778**

TOTAL # OF CRASHES : 1 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : 0.06

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2015

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Congress Street

MINOR STREET(S) : East Service Road

Mass Haul Road

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	349	491	1,160			2,000

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **22,222**

TOTAL # OF CRASHES : 6 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.00**

CRASH RATE CALCULATION : 0.25

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DA December, 2015

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Congress Street

MINOR STREET(S) : B Street

I-90 Ramp D

I-90 Ramp F

INTERSECTION DIAGRAM (Label Approaches)

North

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	686	654	946	110		2,396

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **26,622**

TOTAL # OF CRASHES : 26 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **8.67**

CRASH RATE CALCULATION : 0.89

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments :

Project Title & Date:

Appendix C – Parking Survey

Parking Survey Results:

Brimmer Garage:

The Brimmer garage has 153 parking spaces for 110 owners and 43 renters. There is no public parking, although 2 hour guest parking is allowed. After 2 hours there is a charge for guests. All parking is valet-only.

The garage has 3 levels; the first level is the street level. This level is primarily used for people who commute in the "early morning". The other two levels of parking must be reached through a garage elevator; however the street level parking allows the garage to quickly move a subset of people in and out of the garage without taking the elevator. The valet supervisor indicated that the 3rd parking level is primarily used for people who store their vehicles more than drive them.

Cars move in and out of the garage quickly, there is no queuing that extends onto the street as the street-level parking allows vehicles to queue indoors, and it allows the valets to move the vehicles out of the way quickly in the event of congestion.

3 valets are on per shift. The garage is open from 6:30 am – midnight, sun – Thursday and from 6:30 AM – 1:00 AM Fri and Saturday.

In the event that the garage is closed, there is an outdoor parking space in front of the garage where the owner can drop their keys off after hours, and the vehicle will get parked in the morning.

There is no additional valet zone outside of the garage.

The valet indicated that a typical queue is 2-3 vehicles during the peak hour and the longest line they get is 4-5 vehicles. Vehicles with children/babies generally cause some congestion as it takes longer for families to exit the vehicle.

There are two elevators that the valets use to access the other two levels of the garage.

144 Charles Street Garage:

The Charles Street garage is set up similarly to the Brimmer Garage, with street parking on one level and 3 other parking levels accessible by the two elevators (for a total of 4 parking levels). All of the parking is valet-only.

There are approximately 135 spaces plus an additional 75 spaces in stackers.

The Charles Street garage has less parking on the street level; however it still contains the entire valet zone indoors, and did not indicate that there are any queuing issues that extend outside of the garage for an extended period of time. A "typical queue" was described as 1-2 vehicles, and a "bad queue" was described as 5 vehicles entering at once.

There were only 2 valets on shift during the PM peak hour. Public parking is available at the Charles Street garage in 0 – 24 hour increments.

The primary concern at the Charles Street garage was due to people waiting for their vehicles. The "wait" and queue leaving the garage in the morning was described as the most challenging time period, however, since it was for vehicles leaving the garage, did not impact queuing onto the street.

80 Broad Street (Folio):

This property uses two garage elevators and has 3 levels of underground valet parking. The Folio building has 96 residential units, retail space on the first floor, and 118 permitted parking spaces.

During the busy time periods they have 3 valets on staff parking cars. It takes roughly 1-2 minutes to park each car, and the elevators move quickly.

The garage entrance to the building is located off of an alley way, Well Street, which is used by the Folio building and the building across the street. Queuing occurs in the alley way, and during busy time periods spills out onto Franklin Street. They routinely have 15 cars waiting to get in, and during the evening peak hour, the queue will be 20+ cars on a regular basis. Most of the vehicles queue in the alley, however Franklin Street in this location is a low volume road and the longer queue doesn't impact traffic in any significant manner. The parking at this location is not restricted to residential units and is often used to facilitate other customers such as retail customers and public parking. This exacerbates the queuing significantly, a condition that is not expected to occur at 150 Seaport Boulevard.

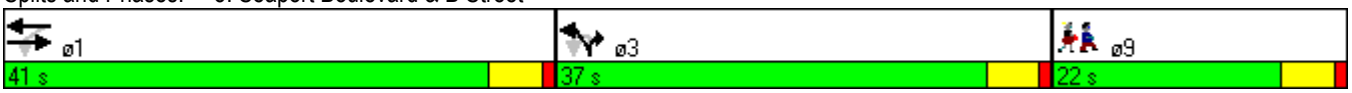
Appendix D – Traffic Analysis

Lane Group	EBT	WBL	WBT	NBL	NBR	ø9
Lane Configurations						
Volume (vph)	566	37	316	214	155	
Turn Type		Perm			Prot	
Protected Phases	1		1	3	3	9
Permitted Phases		1				
Detector Phase	1	1	1	3	3	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	41.0	41.0	41.0	37.0	37.0	22.0
Total Split (%)	41.0%	41.0%	41.0%	37.0%	37.0%	22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	76.8		76.8	13.2	13.2	
Actuated g/C Ratio	0.77		0.77	0.13	0.13	
v/c Ratio	0.30		0.19	0.60	0.53	
Control Delay	2.9		3.6	46.4	11.7	
Queue Delay	0.2		0.0	0.0	0.0	
Total Delay	3.0		3.6	46.4	11.7	
LOS	A		A	D	B	
Approach Delay	3.0		3.6	31.8		
Approach LOS	A		A	C		

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 3 (3%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 54.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Seaport Boulevard & B Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	739	407	253	185
v/c Ratio	0.30	0.19	0.60	0.53
Control Delay	2.9	3.6	46.4	11.7
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	3.0	3.6	46.4	11.7
Queue Length 50th (ft)	32	30	79	0
Queue Length 95th (ft)	37	50	109	47
Internal Link Dist (ft)	277	566	433	
Turn Bay Length (ft)				
Base Capacity (vph)	2489	2157	1030	579
Starvation Cap Reductn	846	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.19	0.25	0.32

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Volume (vph)	566	69	37	316	1	214	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0
Lane Util. Factor	0.95			0.95		0.97	1.00
Frpb, ped/bikes	0.99			1.00		1.00	1.00
Flpb, ped/bikes	1.00			1.00		0.91	1.00
Frt	0.98			1.00		1.00	0.85
Flt Protected	1.00			0.99		0.95	1.00
Satd. Flow (prot)	3273			3400		3047	1417
Flt Permitted	1.00			0.82		0.95	1.00
Satd. Flow (perm)	3273			2818		3047	1417
Peak-hour factor, PHF	0.88	0.72	0.84	0.87	0.25	0.86	0.84
Adj. Flow (vph)	643	96	44	363	4	249	185
RTOR Reduction (vph)	4	0	0	0	0	0	161
Lane Group Flow (vph)	735	0	0	407	0	253	24
Confl. Peds. (#/hr)		200	200			23	86
Confl. Bikes (#/hr)		12					1
Heavy Vehicles (%)	7%	6%	16%	4%	0%	5%	14%
Turn Type			Perm		Perm		Prot
Protected Phases	1			1		3	3
Permitted Phases			1		3		
Actuated Green, G (s)	76.8			76.8		13.2	13.2
Effective Green, g (s)	76.8			76.8		13.2	13.2
Actuated g/C Ratio	0.77			0.77		0.13	0.13
Clearance Time (s)	5.0			5.0		5.0	5.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	2514			2164		402	187
v/s Ratio Prot	c0.22						0.02
v/s Ratio Perm				0.14		0.08	
v/c Ratio	0.29			0.19		0.63	0.13
Uniform Delay, d1	3.5			3.1		41.1	38.3
Progression Factor	0.70			1.00		1.00	1.00
Incremental Delay, d2	0.3			0.2		3.1	0.3
Delay (s)	2.7			3.3		44.2	38.6
Level of Service	A			A		D	D
Approach Delay (s)	2.7			3.3		41.8	
Approach LOS	A			A		D	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	339	432	118	229	53	57
Turn Type		Split				Prot
Protected Phases	1	2	2	3	4	4
Permitted Phases						
Detector Phase	1	2	2	3	4	4
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	26.0	16.0	16.0	13.0	13.0	13.0
Total Split (s)	27.0	20.0	20.0	17.0	13.0	13.0
Total Split (%)	35.1%	26.0%	26.0%	22.1%	16.9%	16.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	C-Max	None	None	None	None	None
Act Effct Green (s)	24.6	14.6	14.6	12.4	8.0	8.0
Actuated g/C Ratio	0.32	0.19	0.19	0.16	0.10	0.10
v/c Ratio	0.73	0.89	0.81	1.66	0.19	0.32
Control Delay	28.8	64.6	39.1	326.6	33.1	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	64.6	39.1	326.6	33.1	13.6
LOS	C	E	D	F	C	B
Approach Delay	28.8		47.7	326.6	23.3	
Approach LOS	C		D	F	C	

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 77
Offset: 0 (0%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.66
Intersection Signal Delay: 151.4 Intersection LOS: F
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 6: Congress Street & B Street

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	779	244	480	1073	68	68
v/c Ratio	0.73	0.89	0.81	1.66	0.19	0.32
Control Delay	28.8	64.6	39.1	326.6	33.1	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	64.6	39.1	326.6	33.1	13.6
Queue Length 50th (ft)	177	125	107	~362	15	0
Queue Length 95th (ft)	#255	#263	#171	#484	30	31
Internal Link Dist (ft)	434		585	93	433	
Turn Bay Length (ft)						
Base Capacity (vph)	1071	283	604	646	354	211
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.86	0.79	1.66	0.19	0.32

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	264	339	83	432	118	104	323	229	394	0	53	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	5.0
Lane Util. Factor		0.95		0.91	0.91			0.95			0.95	1.00
Frpb, ped/bikes		0.99		1.00	1.00			0.95			1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	1.00
Frt		0.98		1.00	0.96			0.94			1.00	0.85
Flt Protected		0.98		0.95	0.98			0.98			1.00	1.00
Satd. Flow (prot)		3316		1454	2873			2940			3406	1442
Flt Permitted		0.98		0.95	0.98			0.98			1.00	1.00
Satd. Flow (perm)		3316		1454	2873			2940			3406	1442
Peak-hour factor, PHF	0.80	0.94	0.94	0.94	0.87	0.81	0.87	0.94	0.86	0.92	0.78	0.84
Adj. Flow (vph)	330	361	88	460	136	128	371	244	458	0	68	68
RTOR Reduction (vph)	0	12	0	0	45	0	0	173	0	0	0	62
Lane Group Flow (vph)	0	767	0	244	435	0	0	900	0	0	68	6
Confl. Peds. (#/hr)			31	31			3		63	63		3
Heavy Vehicles (%)	3%	6%	2%	13%	14%	12%	3%	3%	12%	2%	6%	12%
Turn Type	Split			Split			Split					Prot
Protected Phases	1	1		2	2		3	3			4	4
Permitted Phases												
Actuated Green, G (s)		23.6		14.6	14.6			12.4			6.4	6.4
Effective Green, g (s)		23.6		14.6	14.6			12.4			6.4	6.4
Actuated g/C Ratio		0.31		0.19	0.19			0.16			0.08	0.08
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		1016		276	545			473			283	120
v/s Ratio Prot		c0.23		c0.17	0.15			c0.31			c0.02	0.00
v/s Ratio Perm												
v/c Ratio		0.75		0.88	0.80			1.90			0.24	0.05
Uniform Delay, d1		24.1		30.4	29.8			32.3			33.0	32.5
Progression Factor		1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2		5.2		26.6	8.0			414.3			0.4	0.2
Delay (s)		29.3		57.0	37.8			446.6			33.5	32.7
Level of Service		C		E	D			F			C	C
Approach Delay (s)		29.3			44.3			446.6			33.1	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM Average Control Delay	198.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBU	EBL	EBT	WBT	NBL	NBT	NBR	ø2	ø3
Lane Configurations									
Volume (vph)	1	58	291	407	308	468	384		
Turn Type	Perm	Perm			Perm		Perm		
Protected Phases			1	1		2 3		2	3
Permitted Phases	1	1			2 3		2 3		
Detector Phase	1	1	1	1	2 3	2 3	2 3		
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0				8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0				17.0	14.0
Total Split (s)	34.0	34.0	34.0	34.0	73.0	73.0	73.0	32.0	41.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	68.2%	68.2%	68.2%	30%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lead	Lead	Lead	Lead				Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None
Act Effct Green (s)		45.4	45.4	45.4	49.6	49.6	49.6		
Actuated g/C Ratio		0.42	0.42	0.42	0.46	0.46	0.46		
v/c Ratio		0.31	0.24	0.38	0.47	0.48	0.43		
Control Delay		27.9	22.0	22.9	20.9	19.2	10.8		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		27.9	22.0	22.9	20.9	19.2	10.8		
LOS		C	C	C	C	B	B		
Approach Delay			23.2	22.9		17.7			
Approach LOS			C	C		B			

Intersection Summary

Cycle Length: 107
Actuated Cycle Length: 107
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 56.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Congress Street & East Service Road

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	83	331	526	348	711	315
v/c Ratio	0.31	0.24	0.38	0.47	0.48	0.43
Control Delay	27.9	22.0	22.9	20.9	19.2	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	22.0	22.9	20.9	19.2	10.8
Queue Length 50th (ft)	37	74	121	175	182	80
Queue Length 95th (ft)	72	125	201	162	176	117
Internal Link Dist (ft)		439	434		373	
Turn Bay Length (ft)						
Base Capacity (vph)	269	1391	1369	986	1934	918
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.24	0.38	0.35	0.37	0.34

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	58	291	0	0	407	84	308	468	384	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0		6.0	6.0	6.0		
Lane Util. Factor		1.00	0.95			0.95		0.91	0.86	0.91		
Frpb, ped/bikes		1.00	1.00			0.96		1.00	0.99	0.97		
Flpb, ped/bikes		0.91	1.00			1.00		0.99	1.00	1.00		
Frt		1.00	1.00			0.97		1.00	0.98	0.85		
Flt Protected		0.95	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (prot)		1474	3282			3201		1603	3122	1404		
Flt Permitted		0.40	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (perm)		628	3282			3201		1603	3122	1404		
Peak-hour factor, PHF	0.25	0.73	0.88	0.92	0.92	0.93	0.95	0.76	0.87	0.89	0.92	0.92
Adj. Flow (vph)	4	79	331	0	0	438	88	405	538	431	0	0
RTOR Reduction (vph)	0	0	0	0	0	12	0	0	19	76	0	0
Lane Group Flow (vph)	0	83	331	0	0	514	0	348	692	239	0	0
Confl. Peds. (#/hr)		140		37	37		140	5		8		
Confl. Bikes (#/hr)				10			4					
Heavy Vehicles (%)	0%	12%	10%	2%	2%	6%	5%	1%	1%	1%	2%	2%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases			1			1			2 3			
Permitted Phases	1	1						2 3		2 3		
Actuated Green, G (s)		45.4	45.4			45.4		49.6	49.6	49.6		
Effective Green, g (s)		45.4	45.4			45.4		49.6	49.6	49.6		
Actuated g/C Ratio		0.42	0.42			0.42		0.46	0.46	0.46		
Clearance Time (s)		6.0	6.0			6.0						
Vehicle Extension (s)		3.0	3.0			3.0						
Lane Grp Cap (vph)		266	1393			1358		743	1447	651		
v/s Ratio Prot			0.10			c0.16						
v/s Ratio Perm		0.13						0.22	0.22	0.17		
v/c Ratio		0.31	0.24			0.38		0.47	0.48	0.37		
Uniform Delay, d1		20.4	19.7			21.1		19.7	19.8	18.6		
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00		
Incremental Delay, d2		3.0	0.4			0.8		0.5	0.3	0.4		
Delay (s)		23.5	20.1			21.9		20.1	20.0	18.9		
Level of Service		C	C			C		C	C	B		
Approach Delay (s)			20.8			21.9			19.8			0.0
Approach LOS			C			C			B			A

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	12	23	480	437	190	87	0
Turn Type	custom	D.P+P				Split	
Protected Phases		6	1 6	1	5	2	2
Permitted Phases	6	1					
Detector Phase	6	6	1 6	1	5	2	2
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0		22.0	22.0	22.0	22.0
Total Split (s)	13.0	13.0	46.0	33.0	26.0	28.0	28.0
Total Split (%)	13.0%	13.0%	46.0%	33.0%	26.0%	28.0%	28.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None		C-Max	None	None	None
Act Effct Green (s)		50.8	55.8	37.9	20.1	11.6	11.6
Actuated g/C Ratio		0.51	0.56	0.38	0.20	0.12	0.12
v/c Ratio		0.14	0.31	0.57	0.73	0.51	0.39
Control Delay		18.9	16.7	27.6	41.6	52.3	22.5
Queue Delay		0.0	0.0	0.1	0.0	0.0	0.0
Total Delay		18.9	16.7	27.7	41.6	52.3	22.5
LOS		B	B	C	D	D	C
Approach Delay			16.9	27.7	41.6		38.0
Approach LOS			B	C	D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 28.6 Intersection LOS: C
Intersection Capacity Utilization 64.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: Seaport Boulevard & Northern Avenue

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	52	558	617	476	81	75
v/c Ratio	0.14	0.31	0.57	0.73	0.51	0.39
Control Delay	18.9	16.7	27.6	41.6	52.3	22.5
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	18.9	16.7	27.7	41.6	52.3	22.5
Queue Length 50th (ft)	15	94	177	141	51	14
Queue Length 95th (ft)	47	167	224	177	90	56
Internal Link Dist (ft)		428	277	680		273
Turn Bay Length (ft)						
Base Capacity (vph)	364	1806	1077	717	311	333
Starvation Cap Reductn	0	0	48	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.31	0.60	0.66	0.26	0.23

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	23	480	0	0	437	89	147	190	97	87	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0			5.0		5.0	5.0
Lane Util. Factor		1.00	0.95			0.95			0.95		0.95	0.95
Frpb, ped/bikes		1.00	1.00			0.95			0.99		1.00	0.95
Flpb, ped/bikes		0.97	1.00			1.00			1.00		1.00	1.00
Frt		1.00	1.00			0.97			0.97		1.00	0.90
Flt Protected		0.95	1.00			1.00			0.98		0.95	0.98
Satd. Flow (prot)		1448	3235			2801			3115		1354	1272
Flt Permitted		0.32	1.00			1.00			0.98		0.95	0.98
Satd. Flow (perm)		485	3235			2801			3115		1354	1272
Peak-hour factor, PHF	0.50	0.82	0.86	0.92	0.92	0.85	0.86	0.92	0.88	0.97	0.84	0.92
Adj. Flow (vph)	24	28	558	0	0	514	103	160	216	100	104	0
RTOR Reduction (vph)	0	0	0	0	0	14	0	0	24	0	0	47
Lane Group Flow (vph)	0	52	558	0	0	603	0	0	452	0	81	28
Confl. Peds. (#/hr)		182		213	213		182	31		30	30	
Confl. Bikes (#/hr)				9			3					
Heavy Vehicles (%)	0%	17%	6%	2%	2%	14%	9%	3%	4%	3%	14%	2%
Parking (#/hr)		0	0			0	0	0	0	0	0	
Turn Type	custom	D.P+P						Split			Split	
Protected Phases		6	1 6			1		5	5		2	2
Permitted Phases	6	1										
Actuated Green, G (s)		49.9	54.9			37.0			20.1		10.0	10.0
Effective Green, g (s)		49.9	54.9			37.0			20.1		10.0	10.0
Actuated g/C Ratio		0.50	0.55			0.37			0.20		0.10	0.10
Clearance Time (s)		5.0				5.0			5.0		5.0	5.0
Vehicle Extension (s)		3.0				3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		366	1776			1036			626		135	127
v/s Ratio Prot		0.02	c0.17			c0.22			c0.15		c0.06	0.02
v/s Ratio Perm		0.05										
v/c Ratio		0.14	0.31			0.58			0.72		0.60	0.22
Uniform Delay, d1		13.4	12.3			25.3			37.3		43.1	41.4
Progression Factor		1.25	1.15			0.93			1.00		1.00	1.00
Incremental Delay, d2		0.2	0.1			2.4			4.1		7.0	0.9
Delay (s)		17.0	14.3			26.0			41.4		50.1	42.3
Level of Service		B	B			C			D		D	D
Approach Delay (s)			14.5			26.0			41.4			46.3
Approach LOS			B			C			D			D

Intersection Summary			
HCM Average Control Delay	27.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	41
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	52
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	31
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	22%
Parking (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

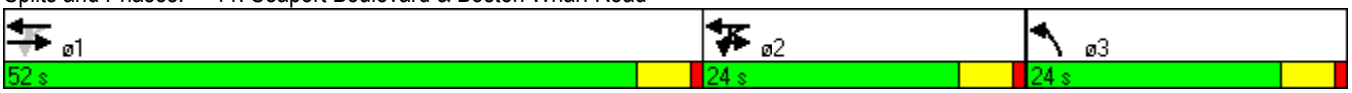
Intersection Summary

Lane Group	EBU	EBT	WBU	WBL	WBT	NBL
Lane Configurations						
Volume (vph)	1	473	17	45	575	95
Turn Type	Perm		D.P+P	D.P+P		
Protected Phases		1	2	2	1 2	3
Permitted Phases	1		1	1		
Detector Phase	1	1	2	2	1 2	3
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0
Minimum Split (s)	23.0	23.0	23.0	23.0		23.0
Total Split (s)	52.0	52.0	24.0	24.0	76.0	24.0
Total Split (%)	52.0%	52.0%	24.0%	24.0%	76.0%	24.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	None	None		None
Act Effct Green (s)		65.4		74.9	79.9	10.1
Actuated g/C Ratio		0.65		0.75	0.80	0.10
v/c Ratio		0.43		0.20	0.27	0.49
Control Delay		9.0		1.8	1.6	39.1
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		9.0		1.8	1.6	39.1
LOS		A		A	A	D
Approach Delay		9.0			1.6	39.1
Approach LOS		A			A	D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 8.3 Intersection LOS: A
Intersection Capacity Utilization 62.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 11: Seaport Boulevard & Boston Wharf Road



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	732	84	661	148
v/c Ratio	0.43	0.20	0.27	0.49
Control Delay	9.0	1.8	1.6	39.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.0	1.8	1.6	39.1
Queue Length 50th (ft)	93	2	7	37
Queue Length 95th (ft)	147	m5	15	64
Internal Link Dist (ft)	509		428	794
Turn Bay Length (ft)				
Base Capacity (vph)	1717	558	2737	541
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.15	0.24	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	1	473	146	17	45	575	95	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	5.0	
Lane Util. Factor		0.95			1.00	0.95	0.97	
Frpb, ped/bikes		0.86			1.00	1.00	0.93	
Flpb, ped/bikes		1.00			0.94	1.00	1.00	
Frt		0.96			1.00	1.00	0.96	
Flt Protected		1.00			0.95	1.00	0.96	
Satd. Flow (prot)		2725			1336	3062	2718	
Flt Permitted		0.95			0.35	1.00	0.96	
Satd. Flow (perm)		2596			489	3062	2718	
Peak-hour factor, PHF	0.25	0.85	0.85	0.61	0.80	0.87	0.88	0.73
Adj. Flow (vph)	4	556	172	28	56	661	108	40
RTOR Reduction (vph)	0	19	0	0	0	0	27	0
Lane Group Flow (vph)	0	713	0	0	84	661	121	0
Confl. Peds. (#/hr)			303		303		45	146
Confl. Bikes (#/hr)			22					
Heavy Vehicles (%)	0%	5%	3%	0%	22%	12%	11%	10%
Parking (#/hr)	0	0	0	0	0	0	0	0
Turn Type	Perm			D.P+P	D.P+P			
Protected Phases		1		2	2	1 2	3	
Permitted Phases	1			1	1			
Actuated Green, G (s)		65.3			74.9	79.9	10.1	
Effective Green, g (s)		65.3			74.9	79.9	10.1	
Actuated g/C Ratio		0.65			0.75	0.80	0.10	
Clearance Time (s)		5.0			5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	
Lane Grp Cap (vph)		1695			448	2447	275	
v/s Ratio Prot					0.02	c0.22	c0.04	
v/s Ratio Perm		c0.27			0.12			
v/c Ratio		0.42			0.19	0.27	0.44	
Uniform Delay, d1		8.3			5.2	2.6	42.3	
Progression Factor		1.00			0.28	0.48	1.00	
Incremental Delay, d2		0.8			0.2	0.1	1.1	
Delay (s)		9.1			1.6	1.3	43.4	
Level of Service		A			A	A	D	
Approach Delay (s)		9.1				1.3	43.4	
Approach LOS		A				A	D	

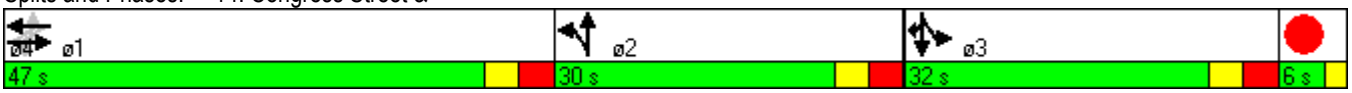
Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBT	SBT	SBR	ø4
Lane Configurations											
Volume (vph)	90	230	110	10	25	600	135	40	25	45	
Turn Type	Perm		Perm	Perm	Perm		Split			Prot	
Protected Phases		1				1	2	2	3	3	4
Permitted Phases	1		1	1	1						
Detector Phase	1	1	1	1	1	1	2	2	3	3	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	29.0	29.0	26.0	26.0	6.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	30.0	30.0	32.0	32.0	6.0
Total Split (%)	40.9%	40.9%	40.9%	40.9%	40.9%	40.9%	26.1%	26.1%	27.8%	27.8%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	6.0	5.0	5.0	6.0	5.0	7.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		74.8	74.8		74.8	72.8	16.6	16.6	11.4	11.4	
Actuated g/C Ratio		0.65	0.65		0.65	0.63	0.14	0.14	0.10	0.10	
v/c Ratio		0.57	0.14		0.07	0.34	0.62	0.29	0.40	0.28	
Control Delay		18.0	2.6		10.9	11.9	56.7	31.8	55.5	16.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		18.0	2.6		10.9	11.9	56.7	31.8	55.5	16.3	
LOS		B	A		B	B	E	C	E	B	
Approach Delay		14.5				11.8		48.6	37.9		
Approach LOS		B				B		D	D		

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 48 (42%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 67.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Congress Street &



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	390	116	38	707	155	75	66	54
v/c Ratio	0.57	0.14	0.07	0.34	0.62	0.29	0.40	0.28
Control Delay	18.0	2.6	10.9	11.9	56.7	31.8	55.5	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	2.6	10.9	11.9	56.7	31.8	55.5	16.3
Queue Length 50th (ft)	164	0	10	124	109	33	47	0
Queue Length 95th (ft)	303	24	31	201	164	71	82	32
Internal Link Dist (ft)	489			439		348	794	
Turn Bay Length (ft)			150					125
Base Capacity (vph)	687	822	559	2092	374	383	388	380
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.14	0.07	0.34	0.41	0.20	0.17	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	90	230	110	10	25	600	65	135	40	25	30	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	7.0		5.0	5.0			5.0
Lane Util. Factor		0.95	0.95		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.90		1.00	0.96		1.00	0.98			1.00
Flpb, ped/bikes		0.97	1.00		0.94	1.00		1.00	1.00			1.00
Frt		0.99	0.85		1.00	0.99		1.00	0.94			1.00
Flt Protected		0.99	1.00		0.95	1.00		0.95	1.00			0.97
Satd. Flow (prot)		1500	1205		1636	3299		1719	1673			1651
Flt Permitted		0.69	1.00		0.47	1.00		0.95	1.00			0.97
Satd. Flow (perm)		1044	1205		810	3299		1719	1673			1651
Peak-hour factor, PHF	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.87	0.87	0.87	0.83	0.83
Adj. Flow (vph)	106	271	129	11	27	638	69	155	46	29	36	30
RTOR Reduction (vph)	0	1	42	0	0	4	0	0	21	0	0	0
Lane Group Flow (vph)	0	389	74	0	38	703	0	155	54	0	0	66
Confl. Peds. (#/hr)	274		42	17	42		274	18		17	17	
Confl. Bikes (#/hr)			13				1					
Heavy Vehicles (%)	14%	14%	14%	4%	4%	4%	4%	5%	5%	5%	12%	12%
Turn Type	Perm		Perm	Perm	Perm			Split			Split	
Protected Phases		1				1		2	2		3	3
Permitted Phases	1		1	1	1							
Actuated Green, G (s)		72.6	72.6		72.6	72.6		15.6	15.6			8.8
Effective Green, g (s)		73.6	73.6		73.6	71.6		16.6	16.6			9.8
Actuated g/C Ratio		0.64	0.64		0.64	0.62		0.14	0.14			0.09
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		668	771		518	2054		248	241			141
v/s Ratio Prot						0.21		c0.09	0.03			c0.04
v/s Ratio Perm		c0.37	0.06		0.05							
v/c Ratio		0.58	0.10		0.07	0.34		0.62	0.22			0.47
Uniform Delay, d1		11.9	7.9		7.8	10.4		46.3	43.5			50.1
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		3.7	0.2		0.3	0.5		4.8	0.5			2.4
Delay (s)		15.6	8.2		8.1	10.9		51.1	44.0			52.6
Level of Service		B	A		A	B		D	D			D
Approach Delay (s)		13.9				10.7			48.8			50.7
Approach LOS		B				B			D			D

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	45
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1442
Flt Permitted	1.00
Satd. Flow (perm)	1442
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	54
RTOR Reduction (vph)	49
Lane Group Flow (vph)	5
Confl. Peds. (#/hr)	18
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	12%
Turn Type	Prot
Protected Phases	3
Permitted Phases	
Actuated Green, G (s)	8.8
Effective Green, g (s)	9.8
Actuated g/C Ratio	0.09
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	123
v/s Ratio Prot	0.00
v/s Ratio Perm	
v/c Ratio	0.04
Uniform Delay, d1	48.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	48.4
Level of Service	D
Approach Delay (s)	
Approach LOS	

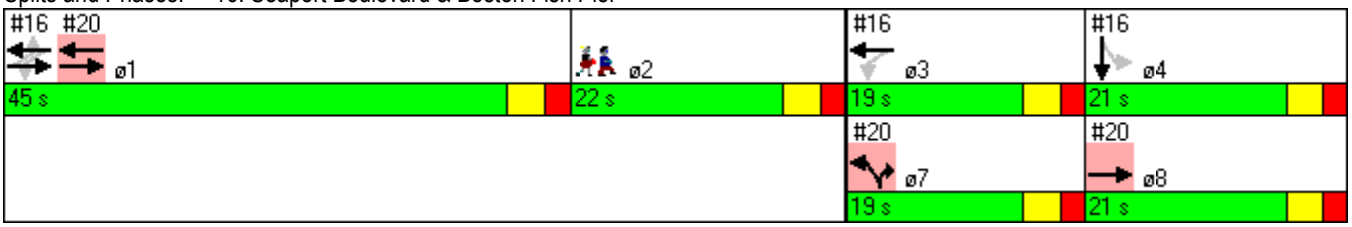
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	SBT	ø2	ø3	ø7	ø8
Lane Configurations									
Volume (vph)	40	280	85	455	15				
Turn Type	Perm		Perm						
Protected Phases		1		1 3	4	2	3	7	8
Permitted Phases	1		1 3						
Detector Phase	1	1	1 3	1 3	4				
Switch Phase									
Minimum Initial (s)	16.0	16.0			3.0	5.0	3.0	3.0	3.0
Minimum Split (s)	21.0	21.0			8.0	22.0	8.0	8.0	8.0
Total Split (s)	45.0	45.0	64.0	64.0	21.0	22.0	19.0	19.0	21.0
Total Split (%)	42.1%	42.1%	59.8%	59.8%	19.6%	21%	18%	18%	20%
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0				
Lead/Lag	Lead	Lead			Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min			None	None	None	None	None
Act Effct Green (s)		36.2		51.3	8.5				
Actuated g/C Ratio		0.55		0.78	0.13				
v/c Ratio		0.29		0.29	0.30				
Control Delay		8.6		0.9	28.1				
Queue Delay		0.0		0.1	0.0				
Total Delay		8.6		1.0	28.1				
LOS		A		A	C				
Approach Delay		8.6		1.0	28.1				
Approach LOS		A		A	C				

Intersection Summary

Cycle Length: 107
Actuated Cycle Length: 65.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 5.7 Intersection LOS: A
Intersection Capacity Utilization 48.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 16: Seaport Boulevard & Boston Fish Pier



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	472	636	70
v/c Ratio	0.29	0.29	0.30
Control Delay	8.6	0.9	28.1
Queue Delay	0.0	0.1	0.0
Total Delay	8.6	1.0	28.1
Queue Length 50th (ft)	46	0	24
Queue Length 95th (ft)	86	8	61
Internal Link Dist (ft)	566	65	394
Turn Bay Length (ft)			
Base Capacity (vph)	1843	2359	445
Starvation Cap Reductn	0	782	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.26	0.40	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	280	115	85	455	45	0	0	0	35	15	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						5.0	
Lane Util. Factor		0.95			0.95						1.00	
Frpb, ped/bikes		1.00			1.00						0.99	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.96			0.99						0.97	
Flt Protected		1.00			0.99						0.97	
Satd. Flow (prot)		3366			3466						1743	
Flt Permitted		0.86			0.82						0.97	
Satd. Flow (perm)		2919			2860						1743	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	304	125	92	495	49	0	0	0	38	16	16
RTOR Reduction (vph)	0	25	0	0	3	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	447	0	0	633	0	0	0	0	0	59	0
Confl. Peds. (#/hr)	4		12	12		4						9
Turn Type	Perm			Perm						Perm		
Protected Phases		1			1 3						4	
Permitted Phases	1			1 3						4		
Actuated Green, G (s)		36.2			49.8						7.0	
Effective Green, g (s)		36.2			49.8						7.0	
Actuated g/C Ratio		0.54			0.75						0.10	
Clearance Time (s)		5.0									5.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1582			2132						183	
v/s Ratio Prot												
v/s Ratio Perm		0.15			c0.22						0.03	
v/c Ratio		0.28			0.30						0.32	
Uniform Delay, d1		8.3			2.8						27.7	
Progression Factor		1.00			0.17						1.00	
Incremental Delay, d2		0.1			0.1						1.0	
Delay (s)		8.4			0.6						28.7	
Level of Service		A			A						C	
Approach Delay (s)		8.4			0.6			0.0			28.7	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	5.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBT	NBL	NBT	SBU	SBL	SBT
Lane Configurations										
Volume (vph)	5	85	275	405	75	475	120	5	20	145
Turn Type	Perm	Split		Prot		Split		Perm	Split	
Protected Phases		1	1	1	4	2	2		3	3
Permitted Phases	1							3		
Detector Phase	1	1	1	1	4	2	2	3	3	3
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	22.0	22.0	22.0	22.0	17.0	27.0	27.0	18.0	18.0	18.0
Total Split (s)	39.0	39.0	39.0	39.0	19.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	35.5%	35.5%	35.5%	35.5%	17.3%	29.1%	29.1%	18.2%	18.2%	18.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lost Time Adjust (s)	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	8.0	8.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0	6.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	None	None	None
Act Effct Green (s)			34.1	34.1	12.6	25.0	25.0			13.3
Actuated g/C Ratio			0.31	0.31	0.11	0.23	0.23			0.12
v/c Ratio			0.64	0.46	0.63	0.71	0.49			0.60
Control Delay			33.3	6.2	49.4	45.2	39.2			49.6
Queue Delay			0.0	0.0	0.0	0.0	0.0			0.0
Total Delay			33.3	6.2	49.4	45.2	39.2			49.6
LOS			C	A	D	D	D			D
Approach Delay			24.7		49.4		43.7			49.6
Approach LOS			C		D		D			D

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 37 (34%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 36.8 Intersection LOS: D
Intersection Capacity Utilization 64.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 17: Congress Street & D Street

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	606	280	232	522	176	225
v/c Ratio	0.64	0.46	0.63	0.71	0.49	0.60
Control Delay	33.3	6.2	49.4	45.2	39.2	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	6.2	49.4	45.2	39.2	49.6
Queue Length 50th (ft)	185	0	74	176	100	74
Queue Length 95th (ft)	240	58	87	235	170	114
Internal Link Dist (ft)	585		748		366	170
Turn Bay Length (ft)		150		250		
Base Capacity (vph)	947	608	381	737	362	398
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.46	0.61	0.71	0.49	0.57

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	5	85	275	405	55	75	35	475	120	40	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0		7.0	7.0			
Lane Util. Factor			0.91	0.91		0.95		0.97	1.00			
Frpb, ped/bikes			0.98	1.00		0.92		1.00	0.91			
Flpb, ped/bikes			1.00	1.00		1.00		1.00	1.00			
Frt			0.95	0.85		0.97		1.00	0.96			
Flt Protected			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (prot)			2920	1336		3027		3242	1545			
Flt Permitted			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (perm)			2920	1336		3027		3242	1545			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.71	0.71	0.71	0.91	0.91	0.91	0.89	0.89
Adj. Flow (vph)	6	98	316	466	77	106	49	522	132	44	6	22
RTOR Reduction (vph)	0	0	41	193	0	22	0	0	11	0	0	0
Lane Group Flow (vph)	0	0	565	87	0	210	0	522	165	0	0	0
Confl. Peds. (#/hr)	13	153		14	14		153	13		156	153	156
Confl. Bikes (#/hr)				2			1			3		
Heavy Vehicles (%)	10%	10%	10%	10%	5%	5%	5%	8%	8%	8%	15%	15%
Turn Type	Perm	Split		Prot	Split			Split			Perm	Split
Protected Phases		1	1	1	4	4		2	2			3
Permitted Phases	1										3	
Actuated Green, G (s)			32.1	32.1		10.6		23.0	23.0			
Effective Green, g (s)			34.1	34.1		12.6		25.0	25.0			
Actuated g/C Ratio			0.31	0.31		0.11		0.23	0.23			
Clearance Time (s)			8.0	8.0		8.0		9.0	9.0			
Vehicle Extension (s)			3.0	3.0		3.0		3.0	3.0			
Lane Grp Cap (vph)			905	414		347		737	351			
v/s Ratio Prot			c0.19	0.06		c0.07		c0.16	0.11			
v/s Ratio Perm												
v/c Ratio			0.62	0.21		0.60		0.71	0.47			
Uniform Delay, d1			32.5	28.0		46.3		39.1	36.8			
Progression Factor			1.00	1.00		1.00		1.00	1.00			
Incremental Delay, d2			3.2	1.1		3.0		5.7	4.5			
Delay (s)			35.7	29.2		49.3		44.8	41.2			
Level of Service			D	C		D		D	D			
Approach Delay (s)			33.6			49.3			43.9			
Approach LOS			C			D			D			

Intersection Summary			
HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

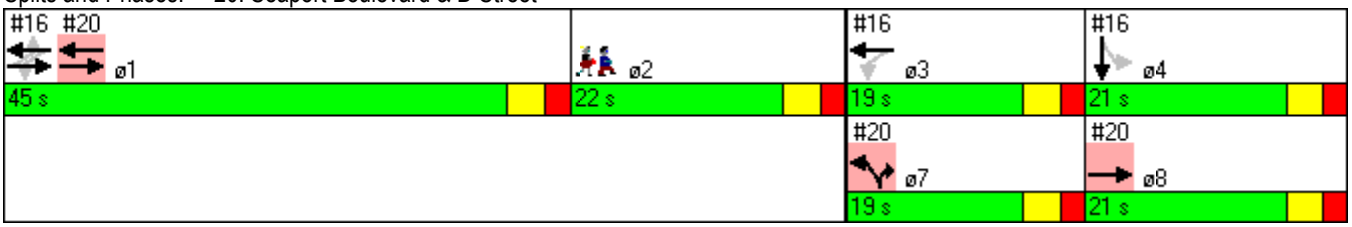
Movement	SBT	SBR
Lane Configurations		
Volume (vph)	145	30
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	0.99	
Satd. Flow (prot)	3023	
Flt Permitted	0.99	
Satd. Flow (perm)	3023	
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	163	34
RTOR Reduction (vph)	13	0
Lane Group Flow (vph)	212	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	15%	15%
Turn Type		
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	11.3	
Effective Green, g (s)	13.3	
Actuated g/C Ratio	0.12	
Clearance Time (s)	8.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	366	
v/s Ratio Prot	c0.07	
v/s Ratio Perm		
v/c Ratio	0.58	
Uniform Delay, d1	45.7	
Progression Factor	1.00	
Incremental Delay, d2	2.2	
Delay (s)	47.9	
Level of Service	D	
Approach Delay (s)	47.9	
Approach LOS	D	

Intersection Summary

Lane Group	EBT	WBT	NBL	NBR	ø2	ø3	ø4	ø8
Lane Configurations								
Volume (vph)	315	490	95	15				
Turn Type				Prot				
Protected Phases	1 8	1	7	7	2	3	4	8
Permitted Phases								
Detector Phase	1 8	1	7	7				
Switch Phase								
Minimum Initial (s)		16.0	3.0	3.0	5.0	3.0	3.0	3.0
Minimum Split (s)		21.0	8.0	8.0	22.0	8.0	8.0	8.0
Total Split (s)	66.0	45.0	19.0	19.0	22.0	19.0	21.0	21.0
Total Split (%)	61.7%	42.1%	17.8%	17.8%	21%	18%	20%	20%
Yellow Time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0				
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		Min	None	None	None	None	None	None
Act Effct Green (s)	50.6	36.2	9.4	9.4				
Actuated g/C Ratio	0.77	0.55	0.14	0.14				
v/c Ratio	0.13	0.27	0.41	0.07				
Control Delay	1.1	9.4	33.4	14.6				
Queue Delay	0.2	0.0	0.0	0.0				
Total Delay	1.2	9.4	33.4	14.6				
LOS	A	A	C	B				
Approach Delay	1.2	9.4	30.9					
Approach LOS	A	A	C					

Intersection Summary	
Cycle Length: 107	
Actuated Cycle Length: 65.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.41	
Intersection Signal Delay: 9.2	Intersection LOS: A
Intersection Capacity Utilization 27.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 20: Seaport Boulevard & D Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	342	533	103	16
v/c Ratio	0.13	0.27	0.41	0.07
Control Delay	1.1	9.4	33.4	14.6
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	1.2	9.4	33.4	14.6
Queue Length 50th (ft)	5	59	42	0
Queue Length 95th (ft)	7	104	90	16
Internal Link Dist (ft)	65	523	146	
Turn Bay Length (ft)			25	
Base Capacity (vph)	2881	2213	387	359
Starvation Cap Reductn	1729	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	0.24	0.27	0.04

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	315	0	0	490	95	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	342	0	0	533	103	16
RTOR Reduction (vph)	0	0	0	0	0	14
Lane Group Flow (vph)	342	0	0	533	103	2
Turn Type						Prot
Protected Phases	1 8			1	7	7
Permitted Phases						
Actuated Green, G (s)	49.1			36.2	7.7	7.7
Effective Green, g (s)	49.1			36.2	7.7	7.7
Actuated g/C Ratio	0.74			0.54	0.12	0.12
Clearance Time (s)				5.0	5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0
Lane Grp Cap (vph)	2601			1918	204	182
v/s Ratio Prot	c0.10			c0.15	c0.06	0.00
v/s Ratio Perm						
v/c Ratio	0.13			0.28	0.50	0.01
Uniform Delay, d1	2.6			8.3	27.8	26.2
Progression Factor	0.31			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.1	2.0	0.0
Delay (s)	0.8			8.3	29.7	26.2
Level of Service	A			A	C	C
Approach Delay (s)	0.8			8.3	29.2	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBT	SBT	SBR	ø4
Lane Configurations											
Volume (vph)	90	365	405	20	180	315	30	20	195	85	
Turn Type	Perm		Perm	Perm	Perm		Split			Prot	
Protected Phases		1				1	2	2	3	3	4
Permitted Phases	1		1	1	1						
Detector Phase	1	1	1	1	1	1	2	2	3	3	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	30.0	30.0	26.0	26.0	6.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	30.0	30.0	31.0	31.0	6.0
Total Split (%)	39.1%	39.1%	39.1%	39.1%	39.1%	39.1%	27.3%	27.3%	28.2%	28.2%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	6.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		64.2	64.2		64.2	64.2	9.8	9.8	23.8	23.8	
Actuated g/C Ratio		0.58	0.58		0.58	0.58	0.09	0.09	0.22	0.22	
v/c Ratio		0.65	0.55		0.62	0.23	0.24	0.34	0.74	0.23	
Control Delay		22.9	4.2		28.4	12.6	50.2	29.0	51.7	10.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		22.9	4.2		28.4	12.6	50.2	29.0	51.7	10.2	
LOS		C	A		C	B	D	C	D	B	
Approach Delay		14.1				18.0		37.0	41.6		
Approach LOS		B				B		D	D		

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 97 (88%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 21.1 Intersection LOS: C
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Congress Street &

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	555	494	228	432	36	60	291	93
v/c Ratio	0.65	0.55	0.62	0.23	0.24	0.34	0.74	0.23
Control Delay	22.9	4.2	28.4	12.6	50.2	29.0	51.7	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	4.2	28.4	12.6	50.2	29.0	51.7	10.2
Queue Length 50th (ft)	258	1	104	71	24	16	193	6
Queue Length 95th (ft)	409	34	#263	122	51	50	265	45
Internal Link Dist (ft)	740			366		594	778	
Turn Bay Length (ft)			150					125
Base Capacity (vph)	859	900	367	1887	383	390	446	446
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.55	0.62	0.23	0.09	0.15	0.65	0.21

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	90	365	405	20	180	315	65	30	20	30	70	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0		5.0	5.0			5.0
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.76		1.00	0.94		1.00	0.99			1.00
Flpb, ped/bikes		0.97	1.00		0.94	1.00		1.00	1.00			1.00
Frt		1.00	0.85		1.00	0.97		1.00	0.91			1.00
Flt Protected		0.99	1.00		0.95	1.00		0.95	1.00			0.99
Satd. Flow (prot)		1764	1192		1653	3218		1687	1592			1803
Flt Permitted		0.82	1.00		0.34	1.00		0.95	1.00			0.99
Satd. Flow (perm)		1466	1192		593	3218		1687	1592			1803
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.88	0.83	0.83	0.83	0.91	0.91
Adj. Flow (vph)	110	445	494	23	205	358	74	36	24	36	77	214
RTOR Reduction (vph)	0	0	209	0	0	10	0	0	33	0	0	0
Lane Group Flow (vph)	0	555	285	0	228	422	0	36	27	0	0	291
Confl. Peds. (#/hr)	222		65	6	65		222	27		6	6	
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	7%	7%	7%	4%	4%
Turn Type	Perm		Perm	Perm	Perm			Split			Split	
Protected Phases		1				1		2	2		3	3
Permitted Phases	1		1	1	1							
Actuated Green, G (s)		62.0	62.0		62.0	62.0		7.2	7.2			22.8
Effective Green, g (s)		63.0	63.0		63.0	63.0		8.2	8.2			23.8
Actuated g/C Ratio		0.57	0.57		0.57	0.57		0.07	0.07			0.22
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		840	683		340	1843		126	119			390
v/s Ratio Prot						0.13		c0.02	0.02			c0.16
v/s Ratio Perm		0.38	0.24		c0.38							
v/c Ratio		0.66	0.42		0.67	0.23		0.29	0.22			0.75
Uniform Delay, d1		16.2	13.2		16.3	11.6		48.1	47.9			40.3
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		4.1	1.9		10.1	0.3		1.3	1.0			7.6
Delay (s)		20.2	15.1		26.4	11.8		49.4	48.9			47.9
Level of Service		C	B		C	B		D	D			D
Approach Delay (s)		17.8				16.9			49.1			44.6
Approach LOS		B				B			D			D

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	85
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	93
RTOR Reduction (vph)	64
Lane Group Flow (vph)	29
Confl. Peds. (#/hr)	27
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	4%
Turn Type	Prot
Protected Phases	3
Permitted Phases	
Actuated Green, G (s)	22.8
Effective Green, g (s)	23.8
Actuated g/C Ratio	0.22
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	336
v/s Ratio Prot	0.02
v/s Ratio Perm	
v/c Ratio	0.09
Uniform Delay, d1	34.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	34.5
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR	ø9
Lane Configurations						
Volume (vph)	540	61	305	178	113	
Turn Type		Perm			Prot	
Protected Phases	1		1	3	3	9
Permitted Phases		1				
Detector Phase	1	1	1	3	3	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	53.0	53.0	53.0	25.0	25.0	22.0
Total Split (%)	53.0%	53.0%	53.0%	25.0%	25.0%	22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	77.5		77.5	12.5	12.5	
Actuated g/C Ratio	0.78		0.78	0.12	0.12	
v/c Ratio	0.29		0.24	0.58	0.42	
Control Delay	3.1		3.7	46.9	11.8	
Queue Delay	0.2		0.0	0.0	0.0	
Total Delay	3.3		3.7	46.9	11.8	
LOS	A		A	D	B	
Approach Delay	3.3		3.7	34.7		
Approach LOS	A		A	C		

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 90 (90%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 54.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Seaport Boulevard & B Street

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	752	424	230	122
v/c Ratio	0.29	0.24	0.58	0.42
Control Delay	3.1	3.7	46.9	11.8
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	3.3	3.7	46.9	11.8
Queue Length 50th (ft)	33	31	72	0
Queue Length 95th (ft)	44	55	97	49
Internal Link Dist (ft)	277	613	433	
Turn Bay Length (ft)				
Base Capacity (vph)	2574	1769	635	394
Starvation Cap Reductn	946	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.24	0.36	0.31

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Volume (vph)	540	142	61	305	5	178	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0
Lane Util. Factor	0.95			0.95		0.97	1.00
Frpb, ped/bikes	0.99			1.00		1.00	1.00
Flpb, ped/bikes	1.00			1.00		0.86	1.00
Frt	0.97			1.00		1.00	0.85
Flt Protected	1.00			0.99		0.95	1.00
Satd. Flow (prot)	3326			3254		2998	1482
Flt Permitted	1.00			0.69		0.95	1.00
Satd. Flow (perm)	3326			2285		2998	1482
Peak-hour factor, PHF	0.93	0.83	0.66	0.92	0.31	0.83	0.93
Adj. Flow (vph)	581	171	92	332	16	214	122
RTOR Reduction (vph)	12	0	0	0	0	0	107
Lane Group Flow (vph)	740	0	0	424	0	230	15
Confl. Peds. (#/hr)		102	102			34	29
Confl. Bikes (#/hr)		14					4
Heavy Vehicles (%)	4%	2%	11%	9%	0%	1%	9%
Turn Type			Perm		Perm		Prot
Protected Phases	1			1		3	3
Permitted Phases			1		3		
Actuated Green, G (s)	77.5			77.5		12.5	12.5
Effective Green, g (s)	77.5			77.5		12.5	12.5
Actuated g/C Ratio	0.78			0.78		0.12	0.12
Clearance Time (s)	5.0			5.0		5.0	5.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	2578			1771		375	185
v/s Ratio Prot	c0.22						0.01
v/s Ratio Perm				0.19		0.08	
v/c Ratio	0.29			0.24		0.61	0.08
Uniform Delay, d1	3.3			3.1		41.5	38.7
Progression Factor	0.87			1.00		1.00	1.00
Incremental Delay, d2	0.3			0.3		3.0	0.2
Delay (s)	3.1			3.4		44.4	38.9
Level of Service	A			A		D	D
Approach Delay (s)	3.1			3.4		42.5	
Approach LOS	A			A		D	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Configurations							
Volume (vph)	234	482	140	88	4	144	57
Turn Type		Split			Perm		Prot
Protected Phases	1	2	2	3		4	4
Permitted Phases					4		
Detector Phase	1	2	2	3	4	4	4
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	26.0	16.0	16.0	13.0	13.0	13.0	13.0
Total Split (s)	29.0	23.0	23.0	21.0	14.0	14.0	14.0
Total Split (%)	33.3%	26.4%	26.4%	24.1%	16.1%	16.1%	16.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	None	None	None
Act Effct Green (s)	17.9	18.1	18.1	16.1		8.7	8.7
Actuated g/C Ratio	0.22	0.22	0.22	0.20		0.11	0.11
v/c Ratio	0.74	0.92	0.83	0.94		0.52	0.28
Control Delay	25.5	65.5	41.4	41.8		41.4	13.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	25.5	65.5	41.4	41.8		41.4	13.6
LOS	C	E	D	D		D	B
Approach Delay	25.5		49.8	41.8		33.8	
Approach LOS	C		D	D		C	

Intersection Summary	
Cycle Length: 87	
Actuated Cycle Length: 80.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 39.8	Intersection LOS: D
Intersection Capacity Utilization 76.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Congress Street & B Street

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	650	321	597	793	172	64
v/c Ratio	0.74	0.92	0.83	0.94	0.52	0.28
Control Delay	25.5	65.5	41.4	41.8	41.4	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	65.5	41.4	41.8	41.4	13.6
Queue Length 50th (ft)	111	178	155	140	44	0
Queue Length 95th (ft)	129	#286	#221	#219	79	36
Internal Link Dist (ft)	434		612	93	433	
Turn Bay Length (ft)						
Base Capacity (vph)	1109	350	718	844	340	231
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.92	0.83	0.94	0.51	0.28

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	67	234	178	1	482	140	95	200	88	375	4	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0			5.0
Lane Util. Factor		0.95			0.91	0.91			0.95			0.95
Frpb, ped/bikes		0.99			1.00	1.00			0.97			1.00
Flpb, ped/bikes		1.00			1.00	1.00			1.00			1.00
Frt		0.94			1.00	0.97			0.92			1.00
Flt Protected		0.99			0.95	0.97			0.98			1.00
Satd. Flow (prot)		3247			1565	3127			3092			3434
Flt Permitted		0.99			0.95	0.97			0.98			0.89
Satd. Flow (perm)		3247			1565	3127			3092			3047
Peak-hour factor, PHF	0.84	0.77	0.67	0.25	0.76	0.81	0.89	0.76	0.81	0.89	0.50	0.88
Adj. Flow (vph)	80	304	266	4	634	173	107	263	109	421	8	164
RTOR Reduction (vph)	0	156	0	0	0	19	0	0	231	0	0	0
Lane Group Flow (vph)	0	494	0	0	321	578	0	0	562	0	0	172
Confl. Peds. (#/hr)	1		3		3		1	48		36	36	
Confl. Bikes (#/hr)			1				4					
Heavy Vehicles (%)	6%	4%	1%	0%	5%	2%	7%	1%	1%	3%	0%	5%
Turn Type	Split			Split	Split			Split			Perm	
Protected Phases	1	1		2	2	2		3	3			4
Permitted Phases											4	
Actuated Green, G (s)		17.9			18.1	18.1			16.1			8.7
Effective Green, g (s)		17.9			18.1	18.1			16.1			8.7
Actuated g/C Ratio		0.22			0.22	0.22			0.20			0.11
Clearance Time (s)		5.0			5.0	5.0			5.0			5.0
Vehicle Extension (s)		3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)		719			351	700			616			328
v/s Ratio Prot		c0.15			c0.21	0.18			c0.18			
v/s Ratio Perm												c0.06
v/c Ratio		0.69			0.91	0.83			0.91			0.52
Uniform Delay, d1		28.9			30.6	29.8			31.7			34.1
Progression Factor		1.00			1.00	1.00			1.00			1.00
Incremental Delay, d2		2.7			27.4	7.9			18.0			1.5
Delay (s)		31.6			58.0	37.7			49.6			35.6
Level of Service		C			E	D			D			D
Approach Delay (s)		31.6				44.8			49.6			34.7
Approach LOS		C				D			D			C

Intersection Summary			
HCM Average Control Delay	42.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	57
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	64
RTOR Reduction (vph)	57
Lane Group Flow (vph)	7
Confl. Peds. (#/hr)	48
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	4%
Turn Type	Prot
Protected Phases	4
Permitted Phases	
Actuated Green, G (s)	8.7
Effective Green, g (s)	8.7
Actuated g/C Ratio	0.11
Clearance Time (s)	5.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	167
v/s Ratio Prot	0.00
v/s Ratio Perm	
v/c Ratio	0.04
Uniform Delay, d1	32.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	32.4
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBL	NBT	NBR	ø2	ø3
Lane Configurations									
Volume (vph)	27	43	357	374	95	151	130		
Turn Type	Perm	Perm			Perm		Perm		
Protected Phases			1	1		2 3		2	3
Permitted Phases	1	1			2 3		2 3		
Detector Phase	1	1	1	1	2 3	2 3	2 3		
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0				8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0				17.0	14.0
Total Split (s)	31.0	31.0	31.0	31.0	65.0	65.0	65.0	30.0	35.0
Total Split (%)	32.3%	32.3%	32.3%	32.3%	67.7%	67.7%	67.7%	31%	36%
Yellow Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lead	Lead	Lead	Lead				Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	
Recall Mode	None	None	None	None				None	None
Act Effct Green (s)		16.7	16.7	16.7	24.0	24.0	24.0		
Actuated g/C Ratio		0.32	0.32	0.32	0.45	0.45	0.45		
v/c Ratio		0.38	0.40	0.43	0.18	0.17	0.16		
Control Delay		18.9	15.1	15.1	11.1	8.6	5.1		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		18.9	15.1	15.1	11.1	8.6	5.1		
LOS		B	B	B	B	A	A		
Approach Delay			15.7	15.1		8.5			
Approach LOS			B	B		A			

Intersection Summary

Cycle Length: 96
Actuated Cycle Length: 53
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 45.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Congress Street & East Service Road

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	92	441	460	122	249	109
v/c Ratio	0.38	0.40	0.43	0.18	0.17	0.16
Control Delay	18.9	15.1	15.1	11.1	8.6	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	15.1	15.1	11.1	8.6	5.1
Queue Length 50th (ft)	21	53	55	23	20	5
Queue Length 95th (ft)	44	83	96	47	43	31
Internal Link Dist (ft)		366	434		373	
Turn Bay Length (ft)						
Base Capacity (vph)	372	1686	1627	1285	2696	1246
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.26	0.28	0.09	0.09	0.09

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	27	43	357	0	0	374	28	95	151	130	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0		6.0	6.0	6.0		
Lane Util. Factor		1.00	0.95			0.95		0.91	0.86	0.91		
Frpb, ped/bikes		1.00	1.00			0.99		1.00	1.00	1.00		
Flpb, ped/bikes		0.93	1.00			1.00		0.97	1.00	1.00		
Frt		1.00	1.00			0.99		1.00	0.97	0.85		
Flt Protected		0.95	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (prot)		1584	3505			3403		1536	3148	1441		
Flt Permitted		0.49	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (perm)		812	3505			3403		1536	3148	1441		
Peak-hour factor, PHF	0.84	0.72	0.81	0.89	0.89	0.89	0.70	0.68	0.80	0.86	0.92	0.92
Adj. Flow (vph)	32	60	441	0	0	420	40	140	189	151	0	0
RTOR Reduction (vph)	0	0	0	0	0	7	0	0	22	44	0	0
Lane Group Flow (vph)	0	92	441	0	0	453	0	122	227	65	0	0
Confl. Peds. (#/hr)		179		35	35		179	19				
Confl. Bikes (#/hr)				3			9					
Heavy Vehicles (%)	0%	9%	3%	2%	2%	3%	7%	4%	0%	2%	2%	2%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases			1			1			2 3			
Permitted Phases	1	1						2 3		2 3		
Actuated Green, G (s)		16.7	16.7			16.7		23.9	23.9	23.9		
Effective Green, g (s)		16.7	16.7			16.7		23.9	23.9	23.9		
Actuated g/C Ratio		0.32	0.32			0.32		0.45	0.45	0.45		
Clearance Time (s)		6.0	6.0			6.0						
Vehicle Extension (s)		3.0	3.0			3.0						
Lane Grp Cap (vph)		258	1113			1080		698	1430	655		
v/s Ratio Prot			0.13			c0.13						
v/s Ratio Perm		0.11						c0.08	0.07	0.05		
v/c Ratio		0.36	0.40			0.42		0.17	0.16	0.10		
Uniform Delay, d1		13.8	14.0			14.1		8.5	8.4	8.2		
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00		
Incremental Delay, d2		0.8	0.2			0.3		0.1	0.1	0.1		
Delay (s)		14.7	14.2			14.4		8.6	8.5	8.3		
Level of Service		B	B			B		A	A	A		
Approach Delay (s)			14.3			14.4			8.5			0.0
Approach LOS			B			B			A			A

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	3	36	388	388	67	146	0
Turn Type	custom	D.P+P				Split	
Protected Phases		6	1 6	1	5	2	2
Permitted Phases	6	1					
Detector Phase	6	6	1 6	1	5	2	2
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0		22.0	22.0	22.0	22.0
Total Split (s)	13.0	13.0	46.0	33.0	26.0	28.0	28.0
Total Split (%)	13.0%	13.0%	46.0%	33.0%	26.0%	28.0%	28.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None		C-Max	None	None	None
Act Effct Green (s)		53.1	58.1	41.6	14.1	12.8	12.8
Actuated g/C Ratio		0.53	0.58	0.42	0.14	0.13	0.13
v/c Ratio		0.11	0.20	0.40	0.66	0.58	0.47
Control Delay		11.8	10.9	20.3	39.8	51.1	25.4
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		11.8	10.9	20.3	39.8	51.1	25.4
LOS		B	B	C	D	D	C
Approach Delay			11.0	20.3	39.8		38.7
Approach LOS			B	C	D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 58.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: Seaport Boulevard & Northern Avenue

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	48	404	528	332	127	117
v/c Ratio	0.11	0.20	0.40	0.66	0.58	0.47
Control Delay	11.8	10.9	20.3	39.8	51.1	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	10.9	20.3	39.8	51.1	25.4
Queue Length 50th (ft)	11	53	112	88	81	31
Queue Length 95th (ft)	35	97	170	102	125	85
Internal Link Dist (ft)		428	277	680		273
Turn Bay Length (ft)						
Base Capacity (vph)	443	1979	1307	722	394	395
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.20	0.40	0.46	0.32	0.30

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	3	36	388	0	0	388	90	120	67	77	146	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0			5.0		5.0	5.0
Lane Util. Factor		1.00	0.95			0.95			0.95		0.95	0.95
Frpb, ped/bikes		1.00	1.00			0.93			0.99		1.00	0.97
Flpb, ped/bikes		0.95	1.00			1.00			1.00		1.00	1.00
Frt		1.00	1.00			0.97			0.96		1.00	0.91
Flt Protected		0.95	1.00			1.00			0.98		0.95	0.98
Satd. Flow (prot)		1578	3406			3098			3232		1715	1499
Flt Permitted		0.39	1.00			1.00			0.98		0.95	0.98
Satd. Flow (perm)		654	3406			3098			3232		1715	1499
Peak-hour factor, PHF	0.38	0.90	0.96	0.92	0.92	0.94	0.78	0.81	0.76	0.80	0.83	0.92
Adj. Flow (vph)	8	40	404	0	0	413	115	148	88	96	176	0
RTOR Reduction (vph)	0	0	0	0	0	20	0	0	47	0	0	57
Lane Group Flow (vph)	0	48	404	0	0	508	0	0	285	0	127	60
Confl. Peds. (#/hr)		211		141	141		211	26		5	5	
Heavy Vehicles (%)	0%	11%	6%	2%	2%	4%	8%	5%	3%	3%	0%	2%
Turn Type	custom	D.P+P						Split			Split	
Protected Phases		6	1 6			1		5	5		2	2
Permitted Phases	6	1										
Actuated Green, G (s)		53.1	58.1			41.6			14.1		12.8	12.8
Effective Green, g (s)		53.1	58.1			41.6			14.1		12.8	12.8
Actuated g/C Ratio		0.53	0.58			0.42			0.14		0.13	0.13
Clearance Time (s)		5.0				5.0			5.0		5.0	5.0
Vehicle Extension (s)		3.0				3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		454	1979			1289			456		220	192
v/s Ratio Prot		0.01	c0.12			c0.16			c0.09		c0.07	0.04
v/s Ratio Perm		0.04										
v/c Ratio		0.11	0.20			0.39			0.62		0.58	0.31
Uniform Delay, d1		11.5	10.0			20.4			40.5		41.1	39.6
Progression Factor		0.98	0.95			0.90			1.00		1.00	1.00
Incremental Delay, d2		0.1	0.0			0.9			2.7		3.6	0.9
Delay (s)		11.4	9.5			19.3			43.1		44.7	40.6
Level of Service		B	A			B			D		D	D
Approach Delay (s)			9.7			19.3			43.1			42.7
Approach LOS			A			B			D			D

Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.81
Adj. Flow (vph)	68
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	26
Heavy Vehicles (%)	7%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

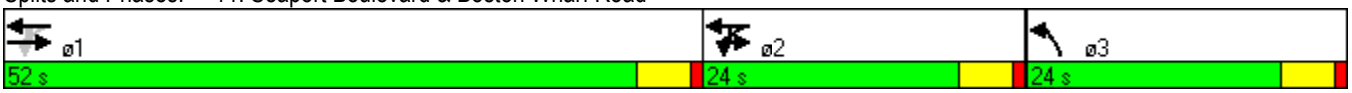
Intersection Summary

Lane Group	EBU	EBT	WBU	WBL	WBT	NBL
Lane Configurations						
Volume (vph)	3	383	18	83	480	84
Turn Type	Perm		D.P+P	D.P+P		
Protected Phases		1	2	2	1 2	3
Permitted Phases	1		1	1		
Detector Phase	1	1	2	2	1 2	3
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0
Minimum Split (s)	23.0	23.0	23.0	23.0		23.0
Total Split (s)	52.0	52.0	24.0	24.0	76.0	24.0
Total Split (%)	52.0%	52.0%	24.0%	24.0%	76.0%	24.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	None	None		None
Act Effct Green (s)		66.7		75.4	80.4	9.6
Actuated g/C Ratio		0.67		0.75	0.80	0.10
v/c Ratio		0.32		0.24	0.20	0.49
Control Delay		7.0		2.4	1.5	32.6
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		7.0		2.4	1.5	32.6
LOS		A		A	A	C
Approach Delay		7.0			1.6	32.6
Approach LOS		A			A	C

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 56.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 11: Seaport Boulevard & Boston Wharf Road



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	543	116	527	160
v/c Ratio	0.32	0.24	0.20	0.49
Control Delay	7.0	2.4	1.5	32.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.0	2.4	1.5	32.6
Queue Length 50th (ft)	56	2	4	32
Queue Length 95th (ft)	100	4	7	54
Internal Link Dist (ft)	509		428	778
Turn Bay Length (ft)				
Base Capacity (vph)	1700	642	2961	594
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.18	0.18	0.27

Intersection Summary

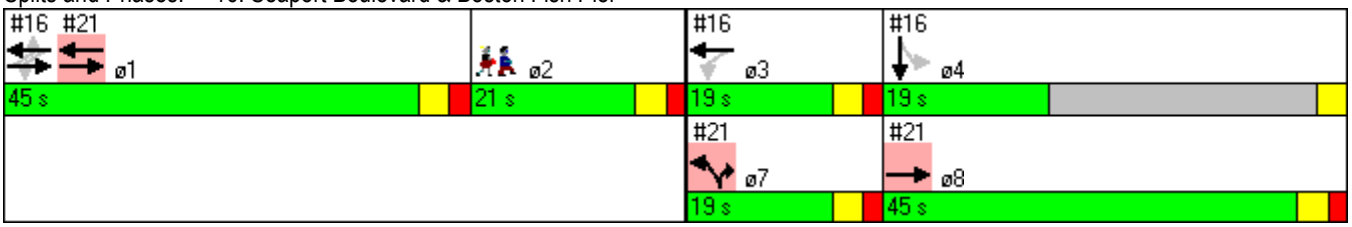
Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	3	383	127	18	83	480	84	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	5.0	
Lane Util. Factor		0.95			1.00	0.95	0.97	
Frpb, ped/bikes		0.85			1.00	1.00	0.94	
Flpb, ped/bikes		1.00			0.90	1.00	1.00	
Frt		0.96			1.00	1.00	0.95	
Flt Protected		1.00			0.95	1.00	0.97	
Satd. Flow (prot)		2653			1337	3266	2885	
Flt Permitted		0.95			0.44	1.00	0.97	
Satd. Flow (perm)		2516			620	3266	2885	
Peak-hour factor, PHF	0.38	0.98	0.88	0.64	0.94	0.91	0.81	0.68
Adj. Flow (vph)	8	391	144	28	88	527	104	56
RTOR Reduction (vph)	0	23	0	0	0	0	51	0
Lane Group Flow (vph)	0	520	0	0	116	527	109	0
Confl. Peds. (#/hr)			259		259		47	98
Confl. Bikes (#/hr)			2					
Heavy Vehicles (%)	0%	7%	2%	6%	10%	5%	5%	3%
Parking (#/hr)	0	0	0	0	0	0	0	0
Turn Type	Perm			D.P+P	D.P+P			
Protected Phases		1		2	2	1 2	3	
Permitted Phases	1			1	1			
Actuated Green, G (s)		66.6			75.4	80.4	9.6	
Effective Green, g (s)		66.6			75.4	80.4	9.6	
Actuated g/C Ratio		0.67			0.75	0.80	0.10	
Clearance Time (s)		5.0			5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	
Lane Grp Cap (vph)		1676			531	2626	277	
v/s Ratio Prot					0.02	c0.16	c0.04	
v/s Ratio Perm		c0.21			0.15			
v/c Ratio		0.31			0.22	0.20	0.39	
Uniform Delay, d1		7.0			4.1	2.3	42.5	
Progression Factor		1.00			0.44	0.53	1.00	
Incremental Delay, d2		0.5			0.2	0.0	0.9	
Delay (s)		7.5			2.0	1.3	43.4	
Level of Service		A			A	A	D	
Approach Delay (s)		7.5				1.4	43.4	
Approach LOS		A				A	D	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	SBT	ø2	ø3	ø7	ø8
Lane Configurations									
Volume (vph)	20	350	50	460	40				
Turn Type	Perm		Perm						
Protected Phases		1		1 3	4	2	3	7	8
Permitted Phases	1		1 3						
Detector Phase	1	1	1 3	1 3	4				
Switch Phase									
Minimum Initial (s)	16.0	16.0			3.0	5.0	3.0	3.0	16.0
Minimum Split (s)	21.0	21.0			8.0	21.0	8.0	8.0	21.0
Total Split (s)	45.0	45.0	64.0	64.0	19.0	21.0	19.0	19.0	45.0
Total Split (%)	34.6%	34.6%	49.2%	49.2%	14.6%	16%	15%	15%	35%
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0			0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0	3.0				
Lead/Lag	Lead	Lead			Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None			None	Min	None	None	None
Act Effct Green (s)		37.4		52.2	13.6				
Actuated g/C Ratio		0.43		0.61	0.16				
v/c Ratio		0.57		0.33	0.31				
Control Delay		15.6		1.5	27.4				
Queue Delay		0.0		0.1	0.0				
Total Delay		15.6		1.6	27.4				
LOS		B		A	C				
Approach Delay		15.6		1.6	27.4				
Approach LOS		B		A	C				

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 86.2	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 16: Seaport Boulevard & Boston Fish Pier



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	810	581	92
v/c Ratio	0.57	0.33	0.31
Control Delay	15.6	1.5	27.4
Queue Delay	0.0	0.1	0.0
Total Delay	15.6	1.6	27.4
Queue Length 50th (ft)	130	7	31
Queue Length 95th (ft)	200	14	76
Internal Link Dist (ft)	613	32	232
Turn Bay Length (ft)			
Base Capacity (vph)	1530	1897	874
Starvation Cap Reductn	0	404	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.53	0.39	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	350	375	50	460	25	0	0	0	10	40	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						3.0	
Lane Util. Factor		0.95			0.95						1.00	
Frpb, ped/bikes		0.99			1.00						0.98	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.92			0.99						0.94	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		3231			3492						1712	
Flt Permitted		0.93			0.82						0.99	
Satd. Flow (perm)		3009			2865						1712	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	380	408	54	500	27	0	0	0	11	43	38
RTOR Reduction (vph)	0	116	0	0	2	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	694	0	0	579	0	0	0	0	0	67	0
Confl. Peds. (#/hr)	16		14	14		16						19
Turn Type	Perm			Perm						Perm		
Protected Phases		1			1 3						4	
Permitted Phases	1			1 3						4		
Actuated Green, G (s)		37.4			50.9						12.6	
Effective Green, g (s)		37.4			50.9						12.6	
Actuated g/C Ratio		0.43			0.58						0.14	
Clearance Time (s)		5.0									3.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1292			1674						248	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			c0.20						0.04	
v/c Ratio		0.54			0.35						0.27	
Uniform Delay, d1		18.4			9.4						33.2	
Progression Factor		1.00			0.19						1.00	
Incremental Delay, d2		0.4			0.1						0.6	
Delay (s)		18.9			1.9						33.8	
Level of Service		B			A						C	
Approach Delay (s)		18.9			1.9			0.0			33.8	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	23.6
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBT	NBL	NBT	SBU	SBL	SBT
Lane Configurations										
Volume (vph)	10	105	140	520	130	365	200	10	5	585
Turn Type	Perm	Split		Prot		Split		Perm	Split	
Protected Phases		1	1	1	4	2	2		3	3
Permitted Phases	1							3		
Detector Phase	1	1	1	1	4	2	2	3	3	3
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	22.0	22.0	22.0	22.0	17.0	27.0	27.0	18.0	18.0	18.0
Total Split (s)	38.0	38.0	38.0	38.0	17.0	27.0	27.0	28.0	28.0	28.0
Total Split (%)	34.5%	34.5%	34.5%	34.5%	15.5%	24.5%	24.5%	25.5%	25.5%	25.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lost Time Adjust (s)	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	8.0	8.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0	6.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	None	None	None
Act Effct Green (s)			32.0	32.0	11.0	20.0	20.0			22.0
Actuated g/C Ratio			0.29	0.29	0.10	0.18	0.18			0.20
v/c Ratio			0.65	0.69	0.87	0.69	0.92			1.02
Control Delay			38.4	44.9	73.4	48.9	77.7			83.5
Queue Delay			0.0	0.0	0.0	0.0	0.0			0.0
Total Delay			38.4	44.9	73.4	48.9	77.7			83.5
LOS			D	D	E	D	E			F
Approach Delay			40.5		73.4		60.6			83.5
Approach LOS			D		E		E			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 32 (29%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 61.9 Intersection LOS: E
Intersection Capacity Utilization 79.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 17: Congress Street & D Street

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	566	285	296	424	291	727
v/c Ratio	0.65	0.69	0.87	0.69	0.92	1.02
Control Delay	38.4	44.9	73.4	48.9	77.7	83.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	44.9	73.4	48.9	77.7	83.5
Queue Length 50th (ft)	191	196	107	145	198	~286
Queue Length 95th (ft)	256	306	#172	189	#336	#394
Internal Link Dist (ft)	612		721		358	155
Turn Bay Length (ft)		150		250		
Base Capacity (vph)	867	411	340	612	316	710
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.69	0.87	0.69	0.92	1.02

Intersection Summary

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

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	10	105	140	520	105	130	20	365	200	50	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0		7.0	7.0			
Lane Util. Factor			0.91	0.91		0.95		0.97	1.00			
Frpb, ped/bikes			0.98	1.00		0.99		1.00	0.95			
Flpb, ped/bikes			1.00	1.00		1.00		1.00	1.00			
Frt			0.92	0.85		0.99		1.00	0.97			
Flt Protected			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (prot)			2982	1413		3348		3367	1692			
Flt Permitted			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (perm)			2982	1413		3348		3367	1692			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.86	0.86	0.88	0.88
Adj. Flow (vph)	11	115	154	571	122	151	23	424	233	58	11	6
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	8	0	0	0
Lane Group Flow (vph)	0	0	566	285	0	291	0	424	283	0	0	0
Confl. Peds. (#/hr)	10	81		12	12		81	10		106	61	106
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	4%	4%	4%	1%	1%
Turn Type	Perm	Split		Prot	Split			Split			Perm	Split
Protected Phases		1	1	1	4	4		2	2			3
Permitted Phases	1										3	
Actuated Green, G (s)			30.0	30.0		9.0		18.0	18.0			
Effective Green, g (s)			32.0	32.0		11.0		20.0	20.0			
Actuated g/C Ratio			0.29	0.29		0.10		0.18	0.18			
Clearance Time (s)			8.0	8.0		8.0		9.0	9.0			
Vehicle Extension (s)			3.0	3.0		3.0		3.0	3.0			
Lane Grp Cap (vph)			867	411		335		612	308			
v/s Ratio Prot			0.19	c0.20		c0.09		0.13	c0.17			
v/s Ratio Perm												
v/c Ratio			0.65	0.69		0.87		0.69	0.92			
Uniform Delay, d1			34.1	34.6		48.8		42.1	44.2			
Progression Factor			1.00	1.00		1.00		1.00	1.00			
Incremental Delay, d2			3.8	9.3		20.3		6.3	34.1			
Delay (s)			37.9	43.9		69.1		48.5	78.3			
Level of Service			D	D		E		D	E			
Approach Delay (s)			40.0			69.1			60.6			
Approach LOS			D			E			E			

Intersection Summary			
HCM Average Control Delay	61.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

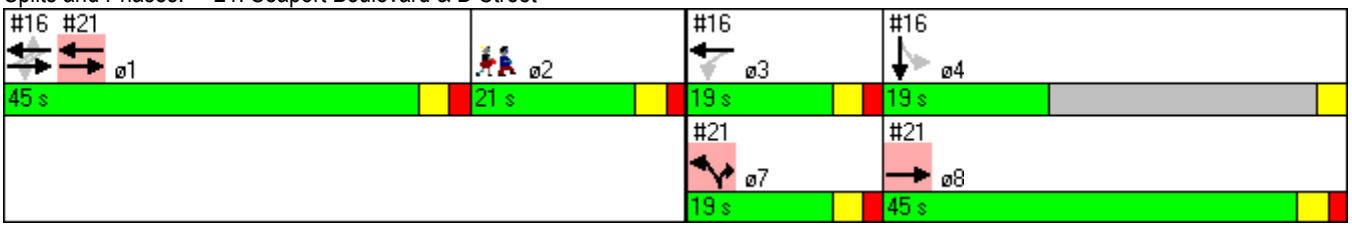
Movement	SBT	SBR
Lane Configurations		
Volume (vph)	585	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3530	
Flt Permitted	1.00	
Satd. Flow (perm)	3530	
Peak-hour factor, PHF	0.88	0.88
Adj. Flow (vph)	665	45
RTOR Reduction (vph)	4	0
Lane Group Flow (vph)	723	0
Confl. Peds. (#/hr)		10
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type		
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	20.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.20	
Clearance Time (s)	8.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	706	
v/s Ratio Prot	c0.20	
v/s Ratio Perm		
v/c Ratio	1.02	
Uniform Delay, d1	44.0	
Progression Factor	1.00	
Incremental Delay, d2	40.1	
Delay (s)	84.1	
Level of Service	F	
Approach Delay (s)	84.1	
Approach LOS	F	

Intersection Summary

Lane Group	EBT	WBT	NBL	NBR	ø2	ø3	ø4	ø8
Lane Configurations								
Volume (vph)	360	460	75	15				
Turn Type				Prot				
Protected Phases	1 8	1	7	7	2	3	4	8
Permitted Phases								
Detector Phase	1 8	1	7	7				
Switch Phase								
Minimum Initial (s)		16.0	3.0	3.0	5.0	3.0	3.0	16.0
Minimum Split (s)		21.0	8.0	8.0	21.0	8.0	8.0	21.0
Total Split (s)	90.0	45.0	19.0	19.0	21.0	19.0	19.0	45.0
Total Split (%)	69.2%	34.6%	14.6%	14.6%	16%	15%	15%	35%
Yellow Time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0				
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		None	None	None	Min	None	None	None
Act Effct Green (s)	58.9	37.4	9.5	9.5				
Actuated g/C Ratio	0.68	0.43	0.11	0.11				
v/c Ratio	0.16	0.33	0.42	0.09				
Control Delay	1.9	17.4	45.0	17.7				
Queue Delay	0.4	0.0	0.0	0.0				
Total Delay	2.3	17.4	45.0	17.7				
LOS	A	B	D	B				
Approach Delay	2.3	17.4	40.5					
Approach LOS	A	B	D					

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 86.2	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 13.7	Intersection LOS: B
Intersection Capacity Utilization 28.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 21: Seaport Boulevard & D Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	391	500	82	16
v/c Ratio	0.16	0.33	0.42	0.09
Control Delay	1.9	17.4	45.0	17.7
Queue Delay	0.4	0.0	0.0	0.0
Total Delay	2.3	17.4	45.0	17.7
Queue Length 50th (ft)	11	95	45	0
Queue Length 95th (ft)	14	141	90	19
Internal Link Dist (ft)	32	512	121	
Turn Bay Length (ft)				
Base Capacity (vph)	2558	1677	293	276
Starvation Cap Reductn	1634	0	0	0
Spillback Cap Reductn	0	33	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.30	0.28	0.06

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	360	0	0	460	75	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	0	0	500	82	16
RTOR Reduction (vph)	0	0	0	0	0	15
Lane Group Flow (vph)	391	0	0	500	82	1
Confl. Peds. (#/hr)						10
Turn Type						Prot
Protected Phases	1 8			1	7	7
Permitted Phases						
Actuated Green, G (s)	58.7			37.4	7.8	7.8
Effective Green, g (s)	58.7			37.4	7.8	7.8
Actuated g/C Ratio	0.67			0.43	0.09	0.09
Clearance Time (s)				5.0	5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0
Lane Grp Cap (vph)	2385			1520	159	142
v/s Ratio Prot	c0.11			c0.14	c0.05	0.00
v/s Ratio Perm						
v/c Ratio	0.16			0.33	0.52	0.01
Uniform Delay, d1	5.2			16.5	37.8	36.1
Progression Factor	0.32			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.1	2.8	0.0
Delay (s)	1.7			16.6	40.7	36.2
Level of Service	A			B	D	D
Approach Delay (s)	1.7			16.6	39.9	
Approach LOS	A			B	D	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	25.6
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBT	SBT	SBR	ø4
Lane Configurations											
Volume (vph)	94	419	421	20	192	383	31	38	206	93	
Turn Type	Perm		Perm	Perm	Perm		Split			Prot	
Protected Phases		1				1	2	2	3	3	4
Permitted Phases	1		1	1	1						
Detector Phase	1	1	1	1	1	1	2	2	3	3	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	30.0	30.0	26.0	26.0	6.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	30.0	30.0	31.0	31.0	6.0
Total Split (%)	39.1%	39.1%	39.1%	39.1%	39.1%	39.1%	27.3%	27.3%	28.2%	28.2%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	6.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		62.2	62.2		62.2	62.2	10.7	10.7	24.9	24.9	
Actuated g/C Ratio		0.57	0.57		0.57	0.57	0.10	0.10	0.23	0.23	
v/c Ratio		0.76	0.59		0.83	0.28	0.23	0.44	0.75	0.24	
Control Delay		29.2	6.3		49.6	14.4	48.3	36.2	50.9	10.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		29.2	6.3		49.6	14.4	48.3	36.2	50.9	10.4	
LOS		C	A		D	B	D	D	D	B	
Approach Delay		18.9				25.7		39.9	40.7		
Approach LOS		B				C		D	D		

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 97 (88%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 79.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Congress Street &

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	626	513	241	512	37	83	306	102
v/c Ratio	0.76	0.59	0.83	0.28	0.23	0.44	0.75	0.24
Control Delay	29.2	6.3	49.6	14.4	48.3	36.2	50.9	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	6.3	49.6	14.4	48.3	36.2	50.9	10.4
Queue Length 50th (ft)	332	20	137	92	25	33	203	9
Queue Length 95th (ft)	#567	74	#335	155	51	71	276	48
Internal Link Dist (ft)	740			366		594	778	
Turn Bay Length (ft)			150					125
Base Capacity (vph)	825	870	291	1847	383	399	455	456
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.59	0.83	0.28	0.10	0.21	0.67	0.22

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	94	419	421	20	192	383	68	31	38	31	73	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0		5.0	5.0			5.0
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.76		1.00	0.95		1.00	0.99			1.00
Flpb, ped/bikes		0.97	1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00	0.85		1.00	0.98		1.00	0.93			1.00
Flt Protected		0.99	1.00		0.95	1.00		0.95	1.00			0.99
Satd. Flow (prot)		1779	1192		1752	3252		1687	1639			1803
Flt Permitted		0.81	1.00		0.28	1.00		0.95	1.00			0.99
Satd. Flow (perm)		1455	1192		515	3252		1687	1639			1803
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.88	0.83	0.83	0.83	0.91	0.91
Adj. Flow (vph)	115	511	513	23	218	435	77	37	46	37	80	226
RTOR Reduction (vph)	0	0	201	0	0	9	0	0	31	0	0	0
Lane Group Flow (vph)	0	626	312	0	241	503	0	37	52	0	0	306
Confl. Peds. (#/hr)	222		65	6	65		222	27		6	6	
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	7%	7%	7%	4%	4%
Turn Type	Perm		Perm	Perm	Perm			Split			Split	
Protected Phases		1				1		2	2		3	3
Permitted Phases	1		1	1	1							
Actuated Green, G (s)		60.0	60.0		60.0	60.0		8.1	8.1			23.9
Effective Green, g (s)		61.0	61.0		61.0	61.0		9.1	9.1			24.9
Actuated g/C Ratio		0.55	0.55		0.55	0.55		0.08	0.08			0.23
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		807	661		286	1803		140	136			408
v/s Ratio Prot						0.15		0.02	c0.03			c0.17
v/s Ratio Perm		0.43	0.26		c0.47							
v/c Ratio		0.78	0.47		0.84	0.28		0.26	0.38			0.75
Uniform Delay, d1		19.2	14.8		20.5	12.9		47.3	47.8			39.6
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		7.2	2.4		24.9	0.4		1.0	1.8			7.6
Delay (s)		26.4	17.2		45.4	13.3		48.3	49.6			47.2
Level of Service		C	B		D	B		D	D			D
Approach Delay (s)		22.2				23.6			49.2			43.9
Approach LOS		C				C			D			D

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	93
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	102
RTOR Reduction (vph)	67
Lane Group Flow (vph)	35
Confl. Peds. (#/hr)	27
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	4%
Turn Type	Prot
Protected Phases	3
Permitted Phases	
Actuated Green, G (s)	23.9
Effective Green, g (s)	24.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	352
v/s Ratio Prot	0.02
v/s Ratio Perm	
v/c Ratio	0.10
Uniform Delay, d1	33.7
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	33.8
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR	ø9
Lane Configurations						
Volume (vph)	667	63	559	215	116	
Turn Type		Perm			Prot	
Protected Phases	1		1	3	3	9
Permitted Phases		1				
Detector Phase	1	1	1	3	3	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	53.0	53.0	53.0	25.0	25.0	22.0
Total Split (%)	53.0%	53.0%	53.0%	25.0%	25.0%	22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	76.1		76.1	13.9	13.9	
Actuated g/C Ratio	0.76		0.76	0.14	0.14	
v/c Ratio	0.42		0.41	0.62	0.40	
Control Delay	2.6		5.3	46.7	10.8	
Queue Delay	0.2		0.0	0.0	0.0	
Total Delay	2.8		5.3	46.7	10.8	
LOS	A		A	D	B	
Approach Delay	2.8		5.3	35.4		
Approach LOS	A		A	D		

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 90 (90%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 69.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Seaport Boulevard & B Street

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1048	703	275	125
v/c Ratio	0.42	0.41	0.62	0.40
Control Delay	2.6	5.3	46.7	10.8
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	2.8	5.3	46.7	10.8
Queue Length 50th (ft)	38	66	86	0
Queue Length 95th (ft)	58	113	112	49
Internal Link Dist (ft)	277	613	433	
Turn Bay Length (ft)				
Base Capacity (vph)	2494	1717	635	396
Starvation Cap Reductn	571	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.41	0.43	0.32

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Volume (vph)	667	275	63	559	5	215	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0
Lane Util. Factor	0.95			0.95		0.97	1.00
Frpb, ped/bikes	0.98			1.00		1.00	1.00
Flpb, ped/bikes	1.00			1.00		0.88	1.00
Frt	0.95			1.00		1.00	0.85
Flt Protected	1.00			0.99		0.95	1.00
Satd. Flow (prot)	3269			3278		3045	1482
Flt Permitted	1.00			0.68		0.95	1.00
Satd. Flow (perm)	3269			2257		3045	1482
Peak-hour factor, PHF	0.93	0.83	0.66	0.92	0.31	0.83	0.93
Adj. Flow (vph)	717	331	95	608	16	259	125
RTOR Reduction (vph)	25	0	0	0	0	0	108
Lane Group Flow (vph)	1023	0	0	703	0	275	17
Confl. Peds. (#/hr)		102	102			34	29
Confl. Bikes (#/hr)		14					4
Heavy Vehicles (%)	4%	2%	11%	9%	0%	1%	9%
Turn Type			Perm		Perm		Prot
Protected Phases	1			1		3	3
Permitted Phases			1		3		
Actuated Green, G (s)	76.1			76.1		13.9	13.9
Effective Green, g (s)	76.1			76.1		13.9	13.9
Actuated g/C Ratio	0.76			0.76		0.14	0.14
Clearance Time (s)	5.0			5.0		5.0	5.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	2488			1718		423	206
v/s Ratio Prot	c0.31						0.01
v/s Ratio Perm				0.31		0.09	
v/c Ratio	0.41			0.41		0.65	0.08
Uniform Delay, d1	4.2			4.1		40.7	37.5
Progression Factor	0.54			1.00		1.00	1.00
Incremental Delay, d2	0.5			0.7		3.6	0.2
Delay (s)	2.7			4.9		44.3	37.7
Level of Service	A			A		D	D
Approach Delay (s)	2.7			4.9		42.2	
Approach LOS	A			A		D	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Configurations							
Volume (vph)	281	495	201	368	4	321	69
Turn Type		Split			Perm		Prot
Protected Phases	1	2	2	3		4	4
Permitted Phases					4		
Detector Phase	1	2	2	3	4	4	4
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	26.0	16.0	16.0	13.0	13.0	13.0	13.0
Total Split (s)	29.0	23.0	23.0	21.0	14.0	14.0	14.0
Total Split (%)	33.3%	26.4%	26.4%	24.1%	16.1%	16.1%	16.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	None	None	None
Act Effct Green (s)	20.8	18.0	18.0	16.0		9.0	9.0
Actuated g/C Ratio	0.25	0.21	0.21	0.19		0.11	0.11
v/c Ratio	0.79	1.04	0.99	1.80		1.13	0.33
Control Delay	29.4	94.4	65.1	390.3		127.7	13.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	29.4	94.4	65.1	390.3		127.7	13.4
LOS	C	F	E	F		F	B
Approach Delay	29.4		74.9	390.3		108.0	
Approach LOS	C		E	F		F	

Intersection Summary	
Cycle Length: 87	
Actuated Cycle Length: 83.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.80	
Intersection Signal Delay: 185.3	Intersection LOS: F
Intersection Capacity Utilization 90.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Congress Street & B Street

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	735	349	689	1288	373	78
v/c Ratio	0.79	1.04	0.99	1.80	1.13	0.33
Control Delay	29.4	94.4	65.1	390.3	127.7	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	94.4	65.1	390.3	127.7	13.4
Queue Length 50th (ft)	148	~227	~198	~533	~125	0
Queue Length 95th (ft)	165	#321	#277	#587	#212	39
Internal Link Dist (ft)	434		612	93	433	
Turn Bay Length (ft)						
Base Capacity (vph)	1052	337	697	714	329	237
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	1.04	0.99	1.80	1.13	0.33

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	69	281	193	1	495	201	120	269	368	427	4	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0			5.0
Lane Util. Factor		0.95			0.91	0.91			0.95			0.95
Frpb, ped/bikes		0.99			1.00	1.00			0.97			1.00
Flpb, ped/bikes		1.00			1.00	1.00			1.00			1.00
Frt		0.94			1.00	0.97			0.94			1.00
Flt Protected		0.99			0.95	0.98			0.99			1.00
Satd. Flow (prot)		3258			1565	3136			3221			3437
Flt Permitted		0.99			0.95	0.98			0.99			0.89
Satd. Flow (perm)		3258			1565	3136			3221			3060
Peak-hour factor, PHF	0.84	0.77	0.67	0.25	0.76	0.81	0.89	0.76	0.81	0.89	0.50	0.88
Adj. Flow (vph)	82	365	288	4	651	248	135	354	454	480	8	365
RTOR Reduction (vph)	0	125	0	0	0	23	0	0	99	0	0	0
Lane Group Flow (vph)	0	610	0	0	349	666	0	0	1189	0	0	373
Confl. Peds. (#/hr)	1		3		3		1	48		36	36	
Confl. Bikes (#/hr)			1				4					
Heavy Vehicles (%)	6%	4%	1%	0%	5%	2%	7%	1%	1%	3%	0%	5%
Turn Type	Split			Split	Split			Split			Perm	
Protected Phases	1	1		2	2	2		3	3			4
Permitted Phases											4	
Actuated Green, G (s)		20.7			18.0	18.0			16.0			9.0
Effective Green, g (s)		20.7			18.0	18.0			16.0			9.0
Actuated g/C Ratio		0.25			0.22	0.22			0.19			0.11
Clearance Time (s)		5.0			5.0	5.0			5.0			5.0
Vehicle Extension (s)		3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)		806			337	674			616			329
v/s Ratio Prot		c0.19			c0.22	0.21			c0.37			
v/s Ratio Perm												c0.12
v/c Ratio		0.76			1.04	0.99			1.93			1.13
Uniform Delay, d1		29.2			32.9	32.7			33.9			37.4
Progression Factor		1.00			1.00	1.00			1.00			1.00
Incremental Delay, d2		4.1			58.5	31.4			424.2			90.9
Delay (s)		33.3			91.4	64.2			458.1			128.2
Level of Service		C			F	E			F			F
Approach Delay (s)		33.3				73.3			458.1			111.9
Approach LOS		C				E			F			F

Intersection Summary			
HCM Average Control Delay	211.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	69
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	78
RTOR Reduction (vph)	70
Lane Group Flow (vph)	8
Confl. Peds. (#/hr)	48
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	4%
Turn Type	Prot
Protected Phases	4
Permitted Phases	
Actuated Green, G (s)	9.0
Effective Green, g (s)	9.0
Actuated g/C Ratio	0.11
Clearance Time (s)	5.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	167
v/s Ratio Prot	0.01
v/s Ratio Perm	
v/c Ratio	0.05
Uniform Delay, d1	33.5
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	33.6
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBL	NBT	NBR	ø2	ø3
Lane Configurations									
Volume (vph)	27	77	387	443	148	240	139		
Turn Type	Perm	Perm			Perm		Perm		
Protected Phases			1	1		2 3		2	3
Permitted Phases	1	1			2 3		2 3		
Detector Phase	1	1	1	1	2 3	2 3	2 3		
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0				8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0				17.0	14.0
Total Split (s)	31.0	31.0	31.0	31.0	65.0	65.0	65.0	30.0	35.0
Total Split (%)	32.3%	32.3%	32.3%	32.3%	67.7%	67.7%	67.7%	31%	36%
Yellow Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lead	Lead	Lead	Lead				Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	
Recall Mode	None	None	None	None				None	None
Act Effct Green (s)		25.1	25.1	25.1	27.7	27.7	27.7		
Actuated g/C Ratio		0.39	0.39	0.39	0.43	0.43	0.43		
v/c Ratio		0.61	0.35	0.51	0.27	0.26	0.22		
Control Delay		33.3	16.0	17.0	12.9	12.0	7.4		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		33.3	16.0	17.0	12.9	12.0	7.4		
LOS		C	B	B	B	B	A		
Approach Delay			19.9	17.0		11.2			
Approach LOS			B	B		B			

Intersection Summary

Cycle Length: 96
Actuated Cycle Length: 64.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 47.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Congress Street & East Service Road

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	139	478	642	174	360	146
v/c Ratio	0.61	0.35	0.51	0.27	0.26	0.22
Control Delay	33.3	16.0	17.0	12.9	12.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	16.0	17.0	12.9	12.0	7.4
Queue Length 50th (ft)	41	65	88	46	49	19
Queue Length 95th (ft)	89	110	166	61	66	48
Internal Link Dist (ft)		366	434		373	
Turn Bay Length (ft)						
Base Capacity (vph)	227	1358	1249	1102	2343	1076
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.35	0.51	0.16	0.15	0.14

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	27	77	387	0	0	443	101	148	240	139	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0		6.0	6.0	6.0		
Lane Util. Factor		1.00	0.95			0.95		0.91	0.86	0.91		
Frpb, ped/bikes		1.00	1.00			0.96		1.00	1.00	1.00		
Flpb, ped/bikes		0.94	1.00			1.00		0.97	1.00	1.00		
Frt		1.00	1.00			0.97		1.00	0.99	0.85		
Flt Protected		0.95	1.00			1.00		0.95	0.99	1.00		
Satd. Flow (prot)		1582	3505			3224		1526	3195	1441		
Flt Permitted		0.36	1.00			1.00		0.95	0.99	1.00		
Satd. Flow (perm)		594	3505			3224		1526	3195	1441		
Peak-hour factor, PHF	0.84	0.72	0.81	0.89	0.89	0.89	0.70	0.68	0.80	0.86	0.92	0.92
Adj. Flow (vph)	32	107	478	0	0	498	144	218	300	162	0	0
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	5	38	0	0
Lane Group Flow (vph)	0	139	478	0	0	619	0	174	355	108	0	0
Confl. Peds. (#/hr)		179		35	35		179	19				
Confl. Bikes (#/hr)				3			9					
Heavy Vehicles (%)	0%	9%	3%	2%	2%	3%	7%	4%	0%	2%	2%	2%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases			1			1			2 3			
Permitted Phases	1	1						2 3		2 3		
Actuated Green, G (s)		25.2	25.2			25.2		27.6	27.6	27.6		
Effective Green, g (s)		25.2	25.2			25.2		27.6	27.6	27.6		
Actuated g/C Ratio		0.39	0.39			0.39		0.43	0.43	0.43		
Clearance Time (s)		6.0	6.0			6.0						
Vehicle Extension (s)		3.0	3.0			3.0						
Lane Grp Cap (vph)		231	1363			1254		650	1361	614		
v/s Ratio Prot			0.14			0.19						
v/s Ratio Perm		c0.23						c0.11	0.11	0.08		
v/c Ratio		0.60	0.35			0.49		0.27	0.26	0.18		
Uniform Delay, d1		15.8	14.0			15.0		12.1	12.0	11.5		
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00		
Incremental Delay, d2		4.4	0.2			0.3		0.2	0.1	0.1		
Delay (s)		20.2	14.2			15.3		12.3	12.1	11.7		
Level of Service		C	B			B		B	B	B		
Approach Delay (s)			15.5			15.3			12.1			0.0
Approach LOS			B			B			B			A

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	3	47	498	590	80	245	0
Turn Type	custom	D.P+P				Split	
Protected Phases		6	1 6	1	5	2	2
Permitted Phases	6	1					
Detector Phase	6	6	1 6	1	5	2	2
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0		22.0	22.0	22.0	22.0
Total Split (s)	13.0	13.0	46.0	33.0	26.0	28.0	28.0
Total Split (%)	13.0%	13.0%	46.0%	33.0%	26.0%	28.0%	28.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None		C-Max	None	None	None
Act Effct Green (s)		47.2	52.2	35.2	15.6	17.2	17.2
Actuated g/C Ratio		0.47	0.52	0.35	0.16	0.17	0.17
v/c Ratio		0.19	0.29	0.73	0.69	0.69	0.63
Control Delay		20.0	17.7	30.9	40.9	50.7	36.6
Queue Delay		0.0	0.0	0.7	0.0	0.0	0.0
Total Delay		20.0	17.7	31.5	40.9	50.7	36.6
LOS		C	B	C	D	D	D
Approach Delay			17.9	31.5	40.9		43.9
Approach LOS			B	C	D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 67.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: Seaport Boulevard & Northern Avenue

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	60	519	810	375	204	191
v/c Ratio	0.19	0.29	0.73	0.69	0.69	0.63
Control Delay	20.0	17.7	30.9	40.9	50.7	36.6
Queue Delay	0.0	0.0	0.7	0.0	0.0	0.0
Total Delay	20.0	17.7	31.5	40.9	50.7	36.6
Queue Length 50th (ft)	17	86	207	104	130	87
Queue Length 95th (ft)	56	164	#345	116	177	153
Internal Link Dist (ft)		428	277	680		273
Turn Bay Length (ft)						
Base Capacity (vph)	318	1778	1110	719	394	389
Starvation Cap Reductn	0	0	87	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.29	0.79	0.52	0.52	0.49

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	3	47	498	0	0	590	142	137	80	81	245	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0			5.0		5.0	5.0
Lane Util. Factor		1.00	0.95			0.95			0.95		0.95	0.95
Frpb, ped/bikes		1.00	1.00			0.93			0.99		1.00	0.97
Flpb, ped/bikes		0.99	1.00			1.00			1.00		1.00	1.00
Frt		1.00	1.00			0.97			0.96		1.00	0.92
Flt Protected		0.95	1.00			1.00			0.98		0.95	0.98
Satd. Flow (prot)		1633	3406			3086			3242		1715	1520
Flt Permitted		0.20	1.00			1.00			0.98		0.95	0.98
Satd. Flow (perm)		339	3406			3086			3242		1715	1520
Peak-hour factor, PHF	0.38	0.90	0.96	0.92	0.92	0.94	0.78	0.81	0.76	0.80	0.83	0.92
Adj. Flow (vph)	8	52	519	0	0	628	182	169	105	101	295	0
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	41	0	0	42
Lane Group Flow (vph)	0	60	519	0	0	786	0	0	334	0	204	149
Confl. Peds. (#/hr)		211		141	141		211	26		5	5	
Heavy Vehicles (%)	0%	11%	6%	2%	2%	4%	8%	5%	3%	3%	0%	2%
Turn Type	custom	D.P+P						Split			Split	
Protected Phases		6	1 6			1		5	5		2	2
Permitted Phases	6	1										
Actuated Green, G (s)		47.2	52.2			35.2			15.6		17.2	17.2
Effective Green, g (s)		47.2	52.2			35.2			15.6		17.2	17.2
Actuated g/C Ratio		0.47	0.52			0.35			0.16		0.17	0.17
Clearance Time (s)		5.0				5.0			5.0		5.0	5.0
Vehicle Extension (s)		3.0				3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		315	1778			1086			506		295	261
v/s Ratio Prot		0.02	c0.15			c0.25			c0.10		c0.12	0.10
v/s Ratio Perm		0.07										
v/c Ratio		0.19	0.29			0.72			0.66		0.69	0.57
Uniform Delay, d1		15.7	13.5			28.2			39.7		38.9	38.0
Progression Factor		1.24	1.14			0.91			1.00		1.00	1.00
Incremental Delay, d2		0.3	0.1			3.9			3.2		6.8	3.0
Delay (s)		19.7	15.5			29.5			42.9		45.7	41.0
Level of Service		B	B			C			D		D	D
Approach Delay (s)			15.9			29.5			42.9			43.4
Approach LOS			B			C			D			D

Intersection Summary			
HCM Average Control Delay	30.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	81
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.81
Adj. Flow (vph)	100
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	26
Heavy Vehicles (%)	7%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

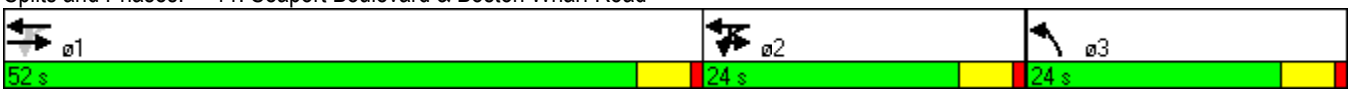
Intersection Summary

Lane Group	EBU	EBT	WBU	WBL	WBT	NBL
Lane Configurations						
Volume (vph)	3	530	18	103	655	87
Turn Type	Perm		D.P+P	D.P+P		
Protected Phases		1	2	2	1 2	3
Permitted Phases	1		1	1		
Detector Phase	1	1	2	2	1 2	3
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0
Minimum Split (s)	23.0	23.0	23.0	23.0		23.0
Total Split (s)	52.0	52.0	24.0	24.0	76.0	24.0
Total Split (%)	52.0%	52.0%	24.0%	24.0%	76.0%	24.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	None	None		None
Act Effct Green (s)		64.7		75.0	80.0	10.0
Actuated g/C Ratio		0.65		0.75	0.80	0.10
v/c Ratio		0.41		0.30	0.28	0.51
Control Delay		9.2		2.4	0.9	36.4
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		9.2		2.4	0.9	36.4
LOS		A		A	A	D
Approach Delay		9.2			1.1	36.4
Approach LOS		A			A	D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 7.8 Intersection LOS: A
Intersection Capacity Utilization 65.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 11: Seaport Boulevard & Boston Wharf Road



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	698	138	720	167
v/c Ratio	0.41	0.30	0.28	0.51
Control Delay	9.2	2.4	0.9	36.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.2	2.4	0.9	36.4
Queue Length 50th (ft)	91	1	4	38
Queue Length 95th (ft)	156	m7	15	60
Internal Link Dist (ft)	509		428	778
Turn Bay Length (ft)				
Base Capacity (vph)	1708	592	2898	582
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.23	0.25	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	3	530	131	18	103	655	87	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	5.0	
Lane Util. Factor		0.95			1.00	0.95	0.97	
Frpb, ped/bikes		0.88			1.00	1.00	0.93	
Flpb, ped/bikes		1.00			0.94	1.00	1.00	
Frt		0.97			1.00	1.00	0.95	
Flt Protected		1.00			0.95	1.00	0.97	
Satd. Flow (prot)		2758			1397	3266	2878	
Flt Permitted		0.95			0.36	1.00	0.97	
Satd. Flow (perm)		2614			533	3266	2878	
Peak-hour factor, PHF	0.38	0.98	0.88	0.64	0.94	0.91	0.81	0.68
Adj. Flow (vph)	8	541	149	28	110	720	107	60
RTOR Reduction (vph)	0	16	0	0	0	0	40	0
Lane Group Flow (vph)	0	682	0	0	138	720	127	0
Confl. Peds. (#/hr)			259		259		47	98
Confl. Bikes (#/hr)			2					
Heavy Vehicles (%)	0%	7%	2%	6%	10%	5%	5%	3%
Parking (#/hr)	0	0	0	0	0	0	0	0
Turn Type	Perm			D.P+P	D.P+P			
Protected Phases		1		2	2	1 2	3	
Permitted Phases	1			1	1			
Actuated Green, G (s)		64.8			75.0	80.0	10.0	
Effective Green, g (s)		64.8			75.0	80.0	10.0	
Actuated g/C Ratio		0.65			0.75	0.80	0.10	
Clearance Time (s)		5.0			5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	
Lane Grp Cap (vph)		1694			488	2613	288	
v/s Ratio Prot					0.03	c0.22	c0.04	
v/s Ratio Perm		c0.26			0.18			
v/c Ratio		0.40			0.28	0.28	0.44	
Uniform Delay, d1		8.4			5.6	2.6	42.4	
Progression Factor		1.00			0.33	0.25	1.00	
Incremental Delay, d2		0.7			0.2	0.0	1.1	
Delay (s)		9.1			2.1	0.7	43.5	
Level of Service		A			A	A	D	
Approach Delay (s)		9.1				0.9	43.5	
Approach LOS		A				A	D	

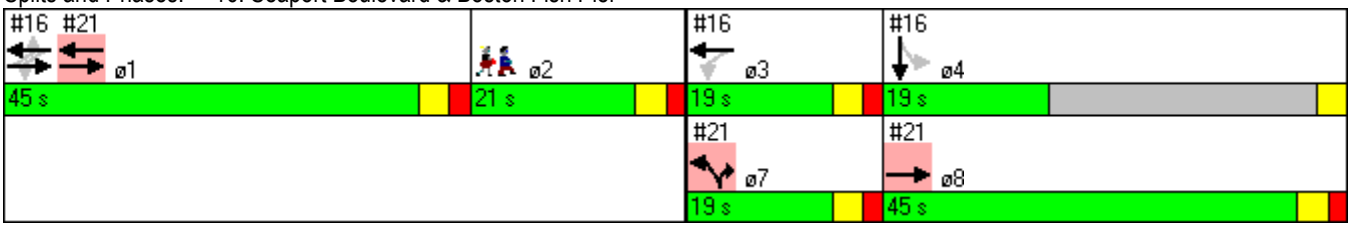
Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	SBT	ø2	ø3	ø7	ø8
Lane Configurations									
Volume (vph)	21	426	127	673	42				
Turn Type	Perm		Perm						
Protected Phases		1		1 3	4	2	3	7	8
Permitted Phases	1		1 3						
Detector Phase	1	1	1 3	1 3	4				
Switch Phase									
Minimum Initial (s)	16.0	16.0			3.0	5.0	3.0	3.0	16.0
Minimum Split (s)	21.0	21.0			8.0	21.0	8.0	8.0	21.0
Total Split (s)	45.0	45.0	64.0	64.0	19.0	21.0	19.0	19.0	45.0
Total Split (%)	34.6%	34.6%	49.2%	49.2%	14.6%	16%	15%	15%	35%
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0			0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0	3.0				
Lead/Lag	Lead	Lead			Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None			None	Min	None	None	None
Act Effct Green (s)		40.0		58.5	15.1				
Actuated g/C Ratio		0.42		0.62	0.16				
v/c Ratio		0.70		0.70	0.29				
Control Delay		20.8		7.7	28.7				
Queue Delay		0.0		0.3	0.0				
Total Delay		20.8		7.9	28.7				
LOS		C		A	C				
Approach Delay		20.8		7.9	28.7				
Approach LOS		C		A	C				

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 94.2
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 70.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 16: Seaport Boulevard & Boston Fish Pier



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	963	898	85
v/c Ratio	0.70	0.70	0.29
Control Delay	20.8	7.7	28.7
Queue Delay	0.0	0.3	0.0
Total Delay	20.8	7.9	28.7
Queue Length 50th (ft)	199	83	34
Queue Length 95th (ft)	274	111	76
Internal Link Dist (ft)	613	32	232
Turn Bay Length (ft)			
Base Capacity (vph)	1373	1282	793
Starvation Cap Reductn	0	71	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.70	0.74	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	426	439	127	673	26	0	0	0	10	42	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						3.0	
Lane Util. Factor		0.95			0.95						1.00	
Frpb, ped/bikes		0.99			1.00						0.98	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						0.96	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		3237			3491						1739	
Flt Permitted		0.92			0.59						0.99	
Satd. Flow (perm)		2972			2065						1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	463	477	138	732	28	0	0	0	11	46	28
RTOR Reduction (vph)	0	114	0	0	1	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	849	0	0	897	0	0	0	0	0	68	0
Confl. Peds. (#/hr)	16		14	14		16						19
Turn Type	Perm			Perm						Perm		
Protected Phases		1			1 3						4	
Permitted Phases	1			1 3						4		
Actuated Green, G (s)		40.0			57.4						13.9	
Effective Green, g (s)		40.0			57.4						13.9	
Actuated g/C Ratio		0.42			0.61						0.15	
Clearance Time (s)		5.0									3.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1254			1250						255	
v/s Ratio Prot												
v/s Ratio Perm		0.29			c0.43						0.04	
v/c Ratio		0.68			0.72						0.27	
Uniform Delay, d1		22.2			13.0						35.9	
Progression Factor		1.00			0.58						1.00	
Incremental Delay, d2		1.5			1.6						0.6	
Delay (s)		23.6			9.2						36.5	
Level of Service		C			A						D	
Approach Delay (s)		23.6			9.2			0.0			36.5	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	28.2
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBT	NBL	NBT	SBU	SBL	SBT
Lane Configurations										
Volume (vph)	10	134	162	560	155	425	264	10	5	687
Turn Type	Perm	Split		Prot		Split		Perm	Split	
Protected Phases		1	1	1	4	2	2		3	3
Permitted Phases	1							3		
Detector Phase	1	1	1	1	4	2	2	3	3	3
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	22.0	22.0	22.0	22.0	17.0	27.0	27.0	18.0	18.0	18.0
Total Split (s)	38.0	38.0	38.0	38.0	17.0	27.0	27.0	28.0	28.0	28.0
Total Split (%)	34.5%	34.5%	34.5%	34.5%	15.5%	24.5%	24.5%	25.5%	25.5%	25.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lost Time Adjust (s)	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	8.0	8.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0	6.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	None	None	None
Act Effct Green (s)			32.0	32.0	11.0	20.0	20.0			22.0
Actuated g/C Ratio			0.29	0.29	0.10	0.18	0.18			0.20
v/c Ratio			0.73	0.76	1.04	0.81	1.25			1.22
Control Delay			40.9	49.3	107.8	54.6	174.4			147.9
Queue Delay			0.0	0.0	0.0	0.0	0.0			0.0
Total Delay			40.9	49.3	107.8	54.6	174.4			147.9
LOS			D	D	F	D	F			F
Approach Delay			43.7		107.8		107.6			147.9
Approach LOS			D		F		F			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 32 (29%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.25
Intersection Signal Delay: 99.1 Intersection LOS: F
Intersection Capacity Utilization 90.1% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 17: Congress Street & D Street

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	637	314	354	494	393	863
v/c Ratio	0.73	0.76	1.04	0.81	1.25	1.22
Control Delay	40.9	49.3	107.8	54.6	174.4	147.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	49.3	107.8	54.6	174.4	147.9
Queue Length 50th (ft)	222	221	~141	174	~343	~393
Queue Length 95th (ft)	293	#368	#222	221	#502	#503
Internal Link Dist (ft)	612		721		358	155
Turn Bay Length (ft)		150		250		
Base Capacity (vph)	872	411	340	612	314	710
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.76	1.04	0.81	1.25	1.22

Intersection Summary

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

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	10	134	162	560	129	155	21	425	264	74	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0		7.0	7.0			
Lane Util. Factor			0.91	0.91		0.95		0.97	1.00			
Frpb, ped/bikes			0.98	1.00		0.99		1.00	0.95			
Flpb, ped/bikes			1.00	1.00		1.00		1.00	1.00			
Frt			0.93	0.85		0.99		1.00	0.97			
Flt Protected			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (prot)			2998	1413		3357		3367	1679			
Flt Permitted			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (perm)			2998	1413		3357		3367	1679			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.86	0.86	0.88	0.88
Adj. Flow (vph)	11	147	178	615	150	180	24	494	307	86	11	6
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	9	0	0	0
Lane Group Flow (vph)	0	0	637	314	0	350	0	494	384	0	0	0
Confl. Peds. (#/hr)	10	81		12	12		81	10		106	61	106
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	4%	4%	4%	1%	1%
Turn Type	Perm	Split		Prot	Split			Split			Perm	Split
Protected Phases		1	1	1	4	4		2	2			3
Permitted Phases	1										3	
Actuated Green, G (s)			30.0	30.0		9.0		18.0	18.0			
Effective Green, g (s)			32.0	32.0		11.0		20.0	20.0			
Actuated g/C Ratio			0.29	0.29		0.10		0.18	0.18			
Clearance Time (s)			8.0	8.0		8.0		9.0	9.0			
Vehicle Extension (s)			3.0	3.0		3.0		3.0	3.0			
Lane Grp Cap (vph)			872	411		336		612	305			
v/s Ratio Prot			0.21	c0.22		c0.10		0.15	c0.23			
v/s Ratio Perm												
v/c Ratio			0.73	0.76		1.04		0.81	1.26			
Uniform Delay, d1			35.1	35.6		49.5		43.2	45.0			
Progression Factor			1.00	1.00		1.00		1.00	1.00			
Incremental Delay, d2			5.4	12.7		59.9		10.9	140.4			
Delay (s)			40.5	48.2		109.4		54.1	185.4			
Level of Service			D	D		F		D	F			
Approach Delay (s)			43.0			109.4			112.3			
Approach LOS			D			F			F			

Intersection Summary			
HCM Average Control Delay	102.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Volume (vph)	687	57
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3522	
Flt Permitted	1.00	
Satd. Flow (perm)	3522	
Peak-hour factor, PHF	0.88	0.88
Adj. Flow (vph)	781	65
RTOR Reduction (vph)	6	0
Lane Group Flow (vph)	857	0
Confl. Peds. (#/hr)		10
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type		
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	20.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.20	
Clearance Time (s)	8.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	704	
v/s Ratio Prot	c0.24	
v/s Ratio Perm		
v/c Ratio	1.22	
Uniform Delay, d1	44.0	
Progression Factor	1.00	
Incremental Delay, d2	110.7	
Delay (s)	154.7	
Level of Service	F	
Approach Delay (s)	154.7	
Approach LOS	F	

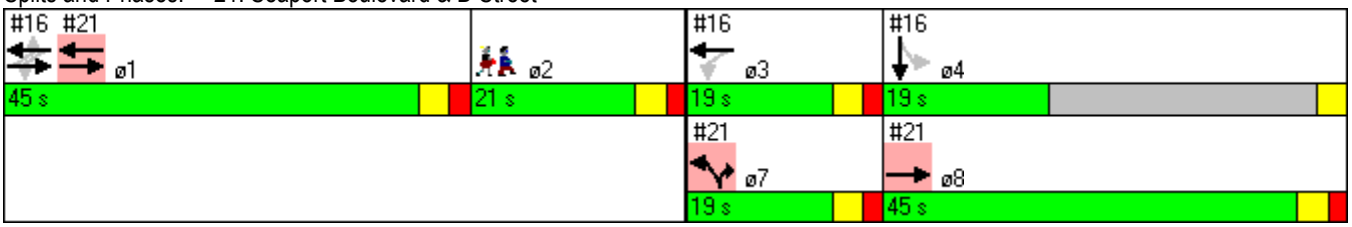
Intersection Summary

Lane Group	EBT	WBT	NBL	NBR	ø2	ø3	ø4	ø8
Lane Configurations								
Volume (vph)	436	810	137	45				
Turn Type				Prot				
Protected Phases	1 8	1	7	7	2	3	4	8
Permitted Phases								
Detector Phase	1 8	1	7	7				
Switch Phase								
Minimum Initial (s)		16.0	3.0	3.0	5.0	3.0	3.0	16.0
Minimum Split (s)		21.0	8.0	8.0	21.0	8.0	8.0	21.0
Total Split (s)	90.0	45.0	19.0	19.0	21.0	19.0	19.0	45.0
Total Split (%)	69.2%	34.6%	14.6%	14.6%	16%	15%	15%	35%
Yellow Time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0				
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		None	None	None	Min	None	None	None
Act Effct Green (s)	61.0	40.0	12.7	12.7				
Actuated g/C Ratio	0.65	0.42	0.13	0.13				
v/c Ratio	0.21	0.59	0.62	0.19				
Control Delay	2.1	22.9	50.6	12.8				
Queue Delay	1.3	0.7	0.0	0.0				
Total Delay	3.4	23.6	50.6	12.8				
LOS	A	C	D	B				
Approach Delay	3.4	23.6	41.3					
Approach LOS	A	C	D					

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 94.2
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 39.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 21: Seaport Boulevard & D Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	474	880	149	49
v/c Ratio	0.21	0.59	0.62	0.19
Control Delay	2.1	22.9	50.6	12.8
Queue Delay	1.3	0.7	0.0	0.0
Total Delay	3.4	23.6	50.6	12.8
Queue Length 50th (ft)	14	211	85	0
Queue Length 95th (ft)	15	274	149	32
Internal Link Dist (ft)	32	512	121	
Turn Bay Length (ft)				
Base Capacity (vph)	2292	1502	263	277
Starvation Cap Reductn	1568	0	0	0
Spillback Cap Reductn	0	298	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.73	0.57	0.18

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	436	0	0	810	137	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	474	0	0	880	149	49
RTOR Reduction (vph)	0	0	0	0	0	42
Lane Group Flow (vph)	474	0	0	880	149	7
Confl. Peds. (#/hr)						10
Turn Type						Prot
Protected Phases	1 8			1	7	7
Permitted Phases						
Actuated Green, G (s)	61.6			40.0	12.7	12.7
Effective Green, g (s)	61.6			40.0	12.7	12.7
Actuated g/C Ratio	0.65			0.42	0.13	0.13
Clearance Time (s)				5.0	5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0
Lane Grp Cap (vph)	2300			1493	237	212
v/s Ratio Prot	c0.13			c0.25	c0.08	0.00
v/s Ratio Perm						
v/c Ratio	0.21			0.59	0.63	0.03
Uniform Delay, d1	6.7			21.1	38.8	35.7
Progression Factor	0.28			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.6	5.1	0.1
Delay (s)	1.9			21.7	44.0	35.8
Level of Service	A			C	D	D
Approach Delay (s)	1.9			21.7	41.9	
Approach LOS	A			C	D	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	94.8	Sum of lost time (s)	25.5
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

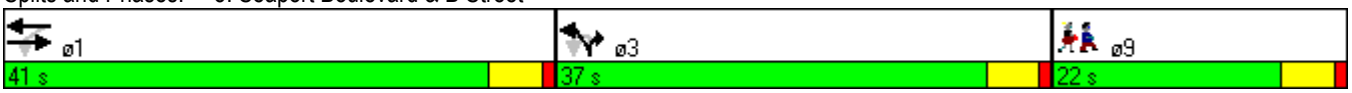
c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR	ø9
Lane Configurations						
Volume (vph)	749	38	394	275	160	
Turn Type		Perm			Prot	
Protected Phases	1		1	3	3	9
Permitted Phases		1				
Detector Phase	1	1	1	3	3	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	41.0	41.0	41.0	37.0	37.0	22.0
Total Split (%)	41.0%	41.0%	41.0%	37.0%	37.0%	22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	74.4		74.4	15.6	15.6	
Actuated g/C Ratio	0.74		0.74	0.16	0.16	
v/c Ratio	0.49		0.25	0.65	0.50	
Control Delay	3.0		4.7	45.4	10.1	
Queue Delay	0.2		0.0	0.0	0.0	
Total Delay	3.2		4.7	45.4	10.1	
LOS	A		A	D	B	
Approach Delay	3.2		4.7	32.3		
Approach LOS	A		A	C		

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 3 (3%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 61.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Seaport Boulevard & B Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1133	498	324	190
v/c Ratio	0.49	0.25	0.65	0.50
Control Delay	3.0	4.7	45.4	10.1
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	3.2	4.7	45.4	10.1
Queue Length 50th (ft)	50	43	101	0
Queue Length 95th (ft)	54	73	131	46
Internal Link Dist (ft)	277	566	433	
Turn Bay Length (ft)				
Base Capacity (vph)	2327	1998	1029	583
Starvation Cap Reductn	464	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.25	0.31	0.33

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Volume (vph)	749	203	38	394	1	275	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0
Lane Util. Factor	0.95			0.95		0.97	1.00
Frpb, ped/bikes	0.98			1.00		1.00	1.00
Flpb, ped/bikes	1.00			1.00		0.93	1.00
Frt	0.96			1.00		1.00	0.85
Flt Protected	1.00			1.00		0.95	1.00
Satd. Flow (prot)	3179			3415		3091	1417
Flt Permitted	1.00			0.78		0.95	1.00
Satd. Flow (perm)	3179			2685		3091	1417
Peak-hour factor, PHF	0.88	0.72	0.84	0.87	0.25	0.86	0.84
Adj. Flow (vph)	851	282	45	453	4	320	190
RTOR Reduction (vph)	13	0	0	0	0	0	160
Lane Group Flow (vph)	1120	0	0	498	0	324	30
Confl. Peds. (#/hr)		200	200			23	86
Confl. Bikes (#/hr)		12					1
Heavy Vehicles (%)	7%	6%	16%	4%	0%	5%	14%
Turn Type			Perm		Perm		Prot
Protected Phases	1			1		3	3
Permitted Phases			1		3		
Actuated Green, G (s)	74.4			74.4		15.6	15.6
Effective Green, g (s)	74.4			74.4		15.6	15.6
Actuated g/C Ratio	0.74			0.74		0.16	0.16
Clearance Time (s)	5.0			5.0		5.0	5.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	2365			1998		482	221
v/s Ratio Prot	c0.35						0.02
v/s Ratio Perm				0.19		0.10	
v/c Ratio	0.47			0.25		0.67	0.13
Uniform Delay, d1	5.1			4.0		39.8	36.4
Progression Factor	0.44			1.00		1.00	1.00
Incremental Delay, d2	0.6			0.3		3.7	0.3
Delay (s)	2.8			4.3		43.5	36.7
Level of Service	A			A		D	D
Approach Delay (s)	2.8			4.3		40.9	
Approach LOS	A			A		D	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	429	445	141	299	291	77
Turn Type		Split				Prot
Protected Phases	1	2	2	3	4	4
Permitted Phases						
Detector Phase	1	2	2	3	4	4
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	26.0	16.0	16.0	13.0	13.0	13.0
Total Split (s)	27.0	20.0	20.0	17.0	13.0	13.0
Total Split (%)	35.1%	26.0%	26.0%	22.1%	16.9%	16.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	C-Max	None	None	None	None	None
Act Effct Green (s)	22.0	15.0	15.0	12.0	8.0	8.0
Actuated g/C Ratio	0.29	0.19	0.19	0.16	0.10	0.10
v/c Ratio	0.94	0.92	0.84	1.97	1.05	0.40
Control Delay	45.1	69.8	41.4	462.8	99.0	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	69.8	41.4	462.8	99.0	13.4
LOS	D	E	D	F	F	B
Approach Delay	45.1		51.0	462.8	82.0	
Approach LOS	D		D	F	F	

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 77
Offset: 0 (0%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.97
Intersection Signal Delay: 206.4 Intersection LOS: F
Intersection Capacity Utilization 96.8% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 6: Congress Street & B Street

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	900	260	508	1257	373	92
v/c Ratio	0.94	0.92	0.84	1.97	1.05	0.40
Control Delay	45.1	69.8	41.4	462.8	99.0	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	69.8	41.4	462.8	99.0	13.4
Queue Length 50th (ft)	216	135	116	~458	~104	0
Queue Length 95th (ft)	#336	#284	#189	#586	#151	35
Internal Link Dist (ft)	434		585	93	433	
Turn Bay Length (ft)						
Base Capacity (vph)	961	283	603	638	354	232
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.92	0.84	1.97	1.05	0.40

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	272	429	98	445	141	108	340	299	471	0	291	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	5.0
Lane Util. Factor		0.95		0.91	0.91			0.95			0.95	1.00
Frpb, ped/bikes		0.99		1.00	1.00			0.94			1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	1.00
Frt		0.98		1.00	0.96			0.93			1.00	0.85
Flt Protected		0.98		0.95	0.98			0.98			1.00	1.00
Satd. Flow (prot)		3317		1454	2878			2930			3406	1442
Flt Permitted		0.98		0.95	0.98			0.98			1.00	1.00
Satd. Flow (perm)		3317		1454	2878			2930			3406	1442
Peak-hour factor, PHF	0.80	0.94	0.94	0.94	0.87	0.81	0.87	0.94	0.86	0.92	0.78	0.84
Adj. Flow (vph)	340	456	104	473	162	133	391	318	548	0	373	92
RTOR Reduction (vph)	0	13	0	0	43	0	0	181	0	0	0	82
Lane Group Flow (vph)	0	887	0	260	465	0	0	1076	0	0	373	10
Confl. Peds. (#/hr)			31	31			3		63	63		3
Heavy Vehicles (%)	3%	6%	2%	13%	14%	12%	3%	3%	12%	2%	6%	12%
Turn Type	Split			Split			Split					Prot
Protected Phases	1	1		2	2		3	3			4	4
Permitted Phases												
Actuated Green, G (s)		22.0		15.0	15.0			12.0			8.0	8.0
Effective Green, g (s)		22.0		15.0	15.0			12.0			8.0	8.0
Actuated g/C Ratio		0.29		0.19	0.19			0.16			0.10	0.10
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		948		283	561			457			354	150
v/s Ratio Prot		c0.27		c0.18	0.16			c0.37			c0.11	0.01
v/s Ratio Perm												
v/c Ratio		0.94		0.92	0.83			2.35			1.05	0.06
Uniform Delay, d1		26.8		30.4	29.8			32.5			34.5	31.1
Progression Factor		1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2		17.3		32.6	9.8			615.8			62.6	0.2
Delay (s)		44.1		63.0	39.6			648.3			97.1	31.3
Level of Service		D		E	D			F			F	C
Approach Delay (s)		44.1			47.5			648.3			84.1	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM Average Control Delay	274.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBU	EBL	EBT	WBT	NBL	NBT	NBR	ø2	ø3
Lane Configurations									
Volume (vph)	1	67	326	470	323	502	463		
Turn Type	Perm	Perm			Perm		Perm		
Protected Phases			1	1		2 3		2	3
Permitted Phases	1	1			2 3		2 3		
Detector Phase	1	1	1	1	2 3	2 3	2 3		
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0				8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0				17.0	14.0
Total Split (s)	34.0	34.0	34.0	34.0	73.0	73.0	73.0	32.0	41.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	68.2%	68.2%	68.2%	30%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lead	Lead	Lead	Lead				Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None
Act Effct Green (s)		41.5	41.5	41.5	53.5	53.5	53.5		
Actuated g/C Ratio		0.39	0.39	0.39	0.50	0.50	0.50		
v/c Ratio		0.45	0.29	0.48	0.48	0.50	0.46		
Control Delay		37.5	25.4	27.2	18.7	17.0	12.0		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		37.5	25.4	27.2	18.7	17.0	12.0		
LOS		D	C	C	B	B	B		
Approach Delay			27.9	27.2		16.3			
Approach LOS			C	C		B			

Intersection Summary

Cycle Length: 107
Actuated Cycle Length: 107
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 58.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Congress Street & East Service Road

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	96	370	600	382	792	348
v/c Ratio	0.45	0.29	0.48	0.48	0.50	0.46
Control Delay	37.5	25.4	27.2	18.7	17.0	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	25.4	27.2	18.7	17.0	12.0
Queue Length 50th (ft)	46	87	148	190	197	109
Queue Length 95th (ft)	94	153	254	153	168	128
Internal Link Dist (ft)		439	434		373	
Turn Bay Length (ft)						
Base Capacity (vph)	212	1274	1258	986	1923	908
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.29	0.48	0.39	0.41	0.38

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	67	326	0	0	470	90	323	502	463	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0		6.0	6.0	6.0		
Lane Util. Factor		1.00	0.95			0.95		0.91	0.86	0.91		
Frpb, ped/bikes		1.00	1.00			0.96		1.00	0.99	0.97		
Flpb, ped/bikes		0.92	1.00			1.00		0.99	1.00	1.00		
Frt		1.00	1.00			0.98		1.00	0.97	0.85		
Flt Protected		0.95	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (prot)		1497	3282			3212		1603	3096	1404		
Flt Permitted		0.34	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (perm)		542	3282			3212		1603	3096	1404		
Peak-hour factor, PHF	0.25	0.73	0.88	0.92	0.92	0.93	0.95	0.76	0.87	0.89	0.92	0.92
Adj. Flow (vph)	4	92	370	0	0	505	95	425	577	520	0	0
RTOR Reduction (vph)	0	0	0	0	0	12	0	0	27	58	0	0
Lane Group Flow (vph)	0	96	370	0	0	588	0	382	765	290	0	0
Confl. Peds. (#/hr)		140		37	37		140	5		8		
Confl. Bikes (#/hr)				10			4					
Heavy Vehicles (%)	0%	12%	10%	2%	2%	6%	5%	1%	1%	1%	2%	2%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases			1			1			2 3			
Permitted Phases	1	1						2 3		2 3		
Actuated Green, G (s)		41.5	41.5			41.5		53.5	53.5	53.5		
Effective Green, g (s)		41.5	41.5			41.5		53.5	53.5	53.5		
Actuated g/C Ratio		0.39	0.39			0.39		0.50	0.50	0.50		
Clearance Time (s)		6.0	6.0			6.0						
Vehicle Extension (s)		3.0	3.0			3.0						
Lane Grp Cap (vph)		210	1273			1246		802	1548	702		
v/s Ratio Prot			0.11			c0.18						
v/s Ratio Perm		0.18						0.24	0.25	0.21		
v/c Ratio		0.46	0.29			0.47		0.48	0.49	0.41		
Uniform Delay, d1		24.4	22.6			24.5		17.6	17.8	16.9		
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00		
Incremental Delay, d2		7.0	0.6			1.3		0.4	0.2	0.4		
Delay (s)		31.4	23.2			25.8		18.0	18.0	17.3		
Level of Service		C	C			C		B	B	B		
Approach Delay (s)			24.9			25.8			17.8			0.0
Approach LOS			C			C			B			A

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	12	43	716	491	222	120	0
Turn Type	custom	D.P+P				Split	
Protected Phases		6	1 6	1	5	2	2
Permitted Phases	6	1					
Detector Phase	6	6	1 6	1	5	2	2
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0		22.0	22.0	22.0	22.0
Total Split (s)	13.0	13.0	46.0	33.0	26.0	28.0	28.0
Total Split (%)	13.0%	13.0%	46.0%	33.0%	26.0%	28.0%	28.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None		C-Max	None	None	None
Act Effct Green (s)		43.0	48.0	29.9	23.8	13.2	13.2
Actuated g/C Ratio		0.43	0.48	0.30	0.24	0.13	0.13
v/c Ratio		0.29	0.54	0.93	0.78	0.59	0.44
Control Delay		26.6	25.1	50.3	40.6	53.6	23.1
Queue Delay		0.0	0.0	0.3	0.0	0.0	0.0
Total Delay		26.6	25.1	50.6	40.6	53.6	23.1
LOS		C	C	D	D	D	C
Approach Delay			25.2	50.6	40.6		38.8
Approach LOS			C	D	D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 38.0 Intersection LOS: D
Intersection Capacity Utilization 73.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: Seaport Boulevard & Northern Avenue

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	76	833	784	601	106	99
v/c Ratio	0.29	0.54	0.93	0.78	0.59	0.44
Control Delay	26.6	25.1	50.3	40.6	53.6	23.1
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	26.6	25.1	50.6	40.6	53.6	23.1
Queue Length 50th (ft)	27	162	236	173	68	22
Queue Length 95th (ft)	70	275	#346	229	110	70
Internal Link Dist (ft)		428	277	680		273
Turn Bay Length (ft)						
Base Capacity (vph)	263	1553	839	784	311	345
Starvation Cap Reductn	0	0	3	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.54	0.94	0.77	0.34	0.29

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	43	716	0	0	491	177	177	222	152	120	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0			5.0		5.0	5.0
Lane Util. Factor		1.00	0.95			0.95			0.95		0.95	0.95
Frpb, ped/bikes		1.00	1.00			0.92			0.98		1.00	0.96
Flpb, ped/bikes		0.99	1.00			1.00			1.00		1.00	1.00
Frt		1.00	1.00			0.96			0.96		1.00	0.91
Flt Protected		0.95	1.00			1.00			0.98		0.95	0.98
Satd. Flow (prot)		1445	3235			2684			3084		1354	1294
Flt Permitted		0.17	1.00			1.00			0.98		0.95	0.98
Satd. Flow (perm)		254	3235			2684			3084		1354	1294
Peak-hour factor, PHF	0.50	0.82	0.86	0.92	0.92	0.85	0.86	0.92	0.88	0.97	0.84	0.92
Adj. Flow (vph)	24	52	833	0	0	578	206	192	252	157	143	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	34	0	0	54
Lane Group Flow (vph)	0	76	833	0	0	749	0	0	567	0	106	45
Confl. Peds. (#/hr)		182		213	213		182	31		30	30	
Confl. Bikes (#/hr)				9			3					
Heavy Vehicles (%)	0%	17%	6%	2%	2%	14%	9%	3%	4%	3%	14%	2%
Parking (#/hr)		0	0			0	0	0	0	0	0	
Turn Type	custom	D.P+P						Split			Split	
Protected Phases		6	1 6			1		5	5		2	2
Permitted Phases	6	1										
Actuated Green, G (s)		43.0	48.0			29.9			23.8		13.2	13.2
Effective Green, g (s)		43.0	48.0			29.9			23.8		13.2	13.2
Actuated g/C Ratio		0.43	0.48			0.30			0.24		0.13	0.13
Clearance Time (s)		5.0				5.0			5.0		5.0	5.0
Vehicle Extension (s)		3.0				3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		265	1553			803			734		179	171
v/s Ratio Prot		0.04	c0.26			c0.28			c0.18		c0.08	0.03
v/s Ratio Perm		0.09										
v/c Ratio		0.29	0.54			0.93			0.77		0.59	0.26
Uniform Delay, d1		18.6	18.2			34.1			35.6		40.9	39.0
Progression Factor		1.40	1.20			0.94			1.00		1.00	1.00
Incremental Delay, d2		0.6	0.3			18.7			5.1		5.2	0.8
Delay (s)		26.6	22.2			50.7			40.6		46.0	39.9
Level of Service		C	C			D			D		D	D
Approach Delay (s)			22.6			50.7			40.6			43.1
Approach LOS			C			D			D			D

Intersection Summary			
HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	49
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	31
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	22%
Parking (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

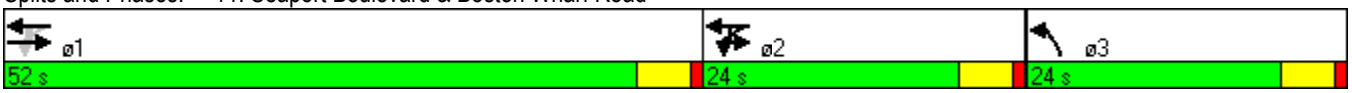
Intersection Summary

Lane Group	EBU	EBT	WBU	WBL	WBT	NBL
Lane Configurations						
Volume (vph)	1	612	17	52	670	98
Turn Type	Perm		D.P+P	D.P+P		
Protected Phases		1	2	2	1 2	3
Permitted Phases	1		1	1		
Detector Phase	1	1	2	2	1 2	3
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0
Minimum Split (s)	23.0	23.0	23.0	23.0		23.0
Total Split (s)	52.0	52.0	24.0	24.0	76.0	24.0
Total Split (%)	52.0%	52.0%	24.0%	24.0%	76.0%	24.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	None	None		None
Act Effct Green (s)		63.9		74.4	79.4	10.6
Actuated g/C Ratio		0.64		0.74	0.79	0.11
v/c Ratio		0.52		0.24	0.32	0.51
Control Delay		11.3		2.8	1.2	42.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		11.3		2.8	1.2	42.3
LOS		B		A	A	D
Approach Delay		11.3			1.4	42.3
Approach LOS		B			A	D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 11: Seaport Boulevard & Boston Wharf Road



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	900	93	770	156
v/c Ratio	0.52	0.24	0.32	0.51
Control Delay	11.3	2.8	1.2	42.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.3	2.8	1.2	42.3
Queue Length 50th (ft)	138	3	12	42
Queue Length 95th (ft)	210	m8	m33	70
Internal Link Dist (ft)	509		428	794
Turn Bay Length (ft)				
Base Capacity (vph)	1729	505	2693	529
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.18	0.29	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	1	612	150	17	52	670	98	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	5.0	
Lane Util. Factor		0.95			1.00	0.95	0.97	
Frpb, ped/bikes		0.88			1.00	1.00	0.92	
Flpb, ped/bikes		1.00			0.97	1.00	1.00	
Frt		0.97			1.00	1.00	0.96	
Flt Protected		1.00			0.95	1.00	0.97	
Satd. Flow (prot)		2814			1365	3062	2699	
Flt Permitted		0.95			0.28	1.00	0.97	
Satd. Flow (perm)		2681			399	3062	2699	
Peak-hour factor, PHF	0.25	0.85	0.85	0.61	0.80	0.87	0.88	0.73
Adj. Flow (vph)	4	720	176	28	65	770	111	45
RTOR Reduction (vph)	0	14	0	0	0	0	18	0
Lane Group Flow (vph)	0	886	0	0	93	770	138	0
Confl. Peds. (#/hr)			303		303		45	146
Confl. Bikes (#/hr)			22					
Heavy Vehicles (%)	0%	5%	3%	0%	22%	12%	11%	10%
Parking (#/hr)	0	0	0	0	0	0	0	0
Turn Type	Perm			D.P+P	D.P+P			
Protected Phases		1		2	2	1 2	3	
Permitted Phases	1			1	1			
Actuated Green, G (s)		64.0			74.4	79.4	10.6	
Effective Green, g (s)		64.0			74.4	79.4	10.6	
Actuated g/C Ratio		0.64			0.74	0.79	0.11	
Clearance Time (s)		5.0			5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	
Lane Grp Cap (vph)		1716			397	2431	286	
v/s Ratio Prot					0.02	c0.25	c0.05	
v/s Ratio Perm		c0.33			0.15			
v/c Ratio		0.52			0.23	0.32	0.48	
Uniform Delay, d1		9.7			7.0	2.8	42.1	
Progression Factor		1.00			0.53	0.33	1.00	
Incremental Delay, d2		1.1			0.2	0.0	1.3	
Delay (s)		10.8			3.9	1.0	43.4	
Level of Service		B			A	A	D	
Approach Delay (s)		10.8				1.3	43.4	
Approach LOS		B				A	D	

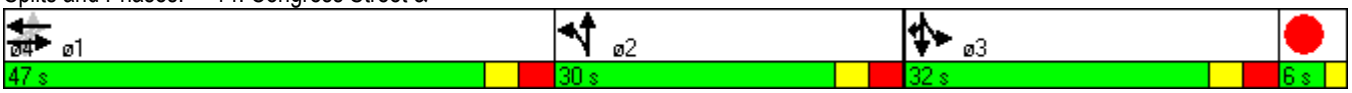
Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBT	SBT	SBR	ø4
Lane Configurations											
Volume (vph)	94	249	114	10	25	667	140	46	27	55	
Turn Type	Perm		Perm	Perm	Perm		Split			Prot	
Protected Phases		1				1	2	2	3	3	4
Permitted Phases	1		1	1	1						
Detector Phase	1	1	1	1	1	1	2	2	3	3	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	29.0	29.0	26.0	26.0	6.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	30.0	30.0	32.0	32.0	6.0
Total Split (%)	40.9%	40.9%	40.9%	40.9%	40.9%	40.9%	26.1%	26.1%	27.8%	27.8%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	6.0	5.0	5.0	6.0	5.0	7.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		74.2	74.2		74.2	72.2	17.0	17.0	11.6	11.6	
Actuated g/C Ratio		0.65	0.65		0.65	0.63	0.15	0.15	0.10	0.10	
v/c Ratio		0.63	0.15		0.07	0.38	0.63	0.31	0.42	0.32	
Control Delay		21.0	2.7		11.3	12.7	56.8	33.6	55.6	15.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		21.0	2.7		11.3	12.7	56.8	33.6	55.6	15.4	
LOS		C	A		B	B	E	C	E	B	
Approach Delay		16.8				12.6		48.9	36.1		
Approach LOS		B				B		D	D		

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 48 (42%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 70.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Congress Street &



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	417	121	38	782	161	83	70	66
v/c Ratio	0.63	0.15	0.07	0.38	0.63	0.31	0.42	0.32
Control Delay	21.0	2.7	11.3	12.7	56.8	33.6	55.6	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	2.7	11.3	12.7	56.8	33.6	55.6	15.4
Queue Length 50th (ft)	190	0	10	144	114	40	50	0
Queue Length 95th (ft)	356	25	32	232	168	79	86	34
Internal Link Dist (ft)	489			439		348	794	
Turn Bay Length (ft)			150					125
Base Capacity (vph)	659	818	528	2080	374	384	388	389
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.15	0.07	0.38	0.43	0.22	0.18	0.17

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	94	249	114	10	25	667	68	140	46	26	31	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	7.0		5.0	5.0			5.0
Lane Util. Factor		0.95	0.95		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.90		1.00	0.97		1.00	0.98			1.00
Flpb, ped/bikes		0.97	1.00		0.95	1.00		1.00	1.00			1.00
Frt		1.00	0.85		1.00	0.99		1.00	0.95			1.00
Flt Protected		0.99	1.00		0.95	1.00		0.95	1.00			0.97
Satd. Flow (prot)		1510	1205		1645	3309		1719	1682			1653
Flt Permitted		0.66	1.00		0.45	1.00		0.95	1.00			0.97
Satd. Flow (perm)		1012	1205		777	3309		1719	1682			1653
Peak-hour factor, PHF	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.87	0.87	0.87	0.83	0.83
Adj. Flow (vph)	111	293	134	11	27	710	72	161	53	30	37	33
RTOR Reduction (vph)	0	1	44	0	0	4	0	0	20	0	0	0
Lane Group Flow (vph)	0	416	77	0	38	778	0	161	63	0	0	70
Confl. Peds. (#/hr)	274		42	17	42		274	18		17	17	
Confl. Bikes (#/hr)			13				1					
Heavy Vehicles (%)	14%	14%	14%	4%	4%	4%	4%	5%	5%	5%	12%	12%
Turn Type	Perm		Perm	Perm	Perm			Split			Split	
Protected Phases		1				1		2	2		3	3
Permitted Phases	1		1	1	1							
Actuated Green, G (s)		72.0	72.0		72.0	72.0		16.0	16.0			9.0
Effective Green, g (s)		73.0	73.0		73.0	71.0		17.0	17.0			10.0
Actuated g/C Ratio		0.63	0.63		0.63	0.62		0.15	0.15			0.09
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		642	765		493	2043		254	249			144
v/s Ratio Prot						0.24		c0.09	0.04			c0.04
v/s Ratio Perm		c0.41	0.06		0.05							
v/c Ratio		0.65	0.10		0.08	0.38		0.63	0.25			0.49
Uniform Delay, d1		13.0	8.2		8.1	11.0		46.1	43.4			50.1
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		5.0	0.3		0.3	0.5		5.1	0.5			2.6
Delay (s)		18.0	8.5		8.4	11.5		51.2	43.9			52.6
Level of Service		B	A		A	B		D	D			D
Approach Delay (s)		15.9				11.4			48.7			50.5
Approach LOS		B				B			D			D

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1442
Flt Permitted	1.00
Satd. Flow (perm)	1442
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	66
RTOR Reduction (vph)	60
Lane Group Flow (vph)	6
Confl. Peds. (#/hr)	18
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	12%
Turn Type	Prot
Protected Phases	3
Permitted Phases	
Actuated Green, G (s)	9.0
Effective Green, g (s)	10.0
Actuated g/C Ratio	0.09
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	125
v/s Ratio Prot	0.00
v/s Ratio Perm	
v/c Ratio	0.05
Uniform Delay, d1	48.1
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	48.3
Level of Service	D
Approach Delay (s)	
Approach LOS	

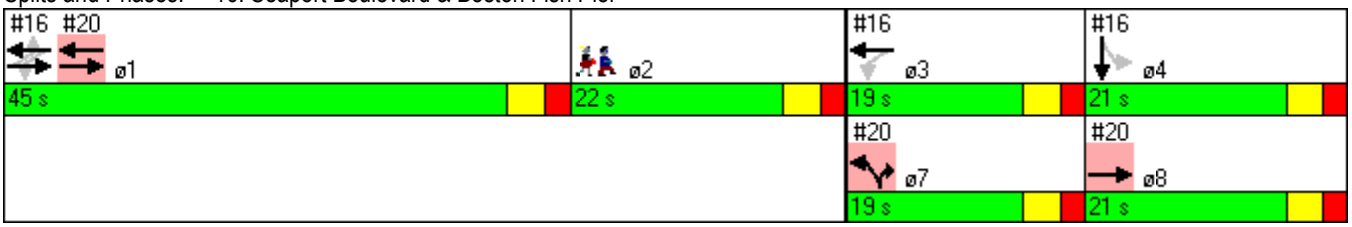
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	SBT	ø2	ø3	ø7	ø8
Lane Configurations									
Volume (vph)	42	398	106	631	16				
Turn Type	Perm		Perm						
Protected Phases		1		1 3	4	2	3	7	8
Permitted Phases	1		1 3						
Detector Phase	1	1	1 3	1 3	4				
Switch Phase									
Minimum Initial (s)	16.0	16.0			3.0	5.0	3.0	3.0	3.0
Minimum Split (s)	21.0	21.0			8.0	22.0	8.0	8.0	8.0
Total Split (s)	45.0	45.0	64.0	64.0	21.0	22.0	19.0	19.0	21.0
Total Split (%)	42.1%	42.1%	59.8%	59.8%	19.6%	21%	18%	18%	20%
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0				
Lead/Lag	Lead	Lead			Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min			None	None	None	None	None
Act Effct Green (s)		39.6		59.4	9.0				
Actuated g/C Ratio		0.53		0.79	0.12				
v/c Ratio		0.44		0.40	0.33				
Control Delay		11.4		1.6	30.8				
Queue Delay		0.0		0.1	0.0				
Total Delay		11.4		1.6	30.8				
LOS		B		A	C				
Approach Delay		11.4		1.6	30.8				
Approach LOS		B		A	C				

Intersection Summary

Cycle Length: 107
Actuated Cycle Length: 74.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 59.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 16: Seaport Boulevard & Boston Fish Pier



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	674	852	73
v/c Ratio	0.44	0.40	0.33
Control Delay	11.4	1.6	30.8
Queue Delay	0.0	0.1	0.0
Total Delay	11.4	1.6	30.8
Queue Length 50th (ft)	84	14	26
Queue Length 95th (ft)	146	28	65
Internal Link Dist (ft)	566	65	394
Turn Bay Length (ft)			
Base Capacity (vph)	1564	2163	385
Starvation Cap Reductn	0	304	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.46	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	398	179	106	631	47	0	0	0	36	16	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						5.0	
Lane Util. Factor		0.95			0.95						1.00	
Frpb, ped/bikes		0.99			1.00						0.99	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.96			0.99						0.97	
Flt Protected		1.00			0.99						0.97	
Satd. Flow (prot)		3356			3478						1742	
Flt Permitted		0.85			0.76						0.97	
Satd. Flow (perm)		2860			2674						1742	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	433	195	115	686	51	0	0	0	39	17	17
RTOR Reduction (vph)	0	31	0	0	2	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	643	0	0	850	0	0	0	0	0	62	0
Confl. Peds. (#/hr)	4		12	12		4						9
Turn Type	Perm			Perm						Perm		
Protected Phases		1			1 3						4	
Permitted Phases	1			1 3						4		
Actuated Green, G (s)		39.6			58.2						7.7	
Effective Green, g (s)		39.6			58.2						7.7	
Actuated g/C Ratio		0.52			0.77						0.10	
Clearance Time (s)		5.0									5.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1492			2050						177	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.32						0.04	
v/c Ratio		0.43			0.41						0.35	
Uniform Delay, d1		11.2			3.0						31.8	
Progression Factor		1.00			0.29						1.00	
Incremental Delay, d2		0.2			0.1						1.2	
Delay (s)		11.4			1.0						33.0	
Level of Service		B			A						C	
Approach Delay (s)		11.4			1.0			0.0			33.0	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	6.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBT	NBL	NBT	SBU	SBL	SBT
Lane Configurations										
Volume (vph)	5	149	291	470	92	496	146	5	21	172
Turn Type	Perm	Split		Prot		Split		Perm	Split	
Protected Phases		1	1	1	4	2	2		3	3
Permitted Phases	1							3		
Detector Phase	1	1	1	1	4	2	2	3	3	3
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	22.0	22.0	22.0	22.0	17.0	27.0	27.0	18.0	18.0	18.0
Total Split (s)	39.0	39.0	39.0	39.0	19.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	35.5%	35.5%	35.5%	35.5%	17.3%	29.1%	29.1%	18.2%	18.2%	18.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lost Time Adjust (s)	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	8.0	8.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0	6.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	None	None	None
Act Effct Green (s)			33.5	33.5	12.9	25.0	25.0			13.6
Actuated g/C Ratio			0.30	0.30	0.12	0.23	0.23			0.12
v/c Ratio			0.77	0.52	0.74	0.74	0.63			0.68
Control Delay			39.1	6.5	56.4	46.4	44.1			52.8
Queue Delay			0.0	0.0	0.0	0.0	0.0			0.0
Total Delay			39.1	6.5	56.4	46.4	44.1			52.8
LOS			D	A	E	D	D			D
Approach Delay			28.7		56.4		45.8			52.8
Approach LOS			C		E		D			D

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 37 (34%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 40.2 Intersection LOS: D
Intersection Capacity Utilization 67.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 17: Congress Street & D Street

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	716	335	281	545	224	262
v/c Ratio	0.77	0.52	0.74	0.74	0.63	0.68
Control Delay	39.1	6.5	56.4	46.4	44.1	52.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	6.5	56.4	46.4	44.1	52.8
Queue Length 50th (ft)	237	0	95	185	133	88
Queue Length 95th (ft)	299	62	107	247	218	132
Internal Link Dist (ft)	585		748		366	170
Turn Bay Length (ft)		150		250		
Base Capacity (vph)	925	640	381	737	358	398
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.52	0.74	0.74	0.63	0.66

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	5	149	291	470	71	92	36	496	146	58	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0		7.0	7.0			
Lane Util. Factor			0.91	0.91		0.95		0.97	1.00			
Frpb, ped/bikes			0.98	1.00		0.94		1.00	0.90			
Flpb, ped/bikes			1.00	1.00		1.00		1.00	1.00			
Frt			0.96	0.85		0.97		1.00	0.96			
Flt Protected			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (prot)			2922	1336		3073		3242	1516			
Flt Permitted			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (perm)			2922	1336		3073		3242	1516			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.71	0.71	0.71	0.91	0.91	0.91	0.89	0.89
Adj. Flow (vph)	6	171	334	540	100	130	51	545	160	64	6	24
RTOR Reduction (vph)	0	0	35	233	0	18	0	0	13	0	0	0
Lane Group Flow (vph)	0	0	681	102	0	263	0	545	211	0	0	0
Confl. Peds. (#/hr)	13	153		14	14		153	13		156	153	156
Confl. Bikes (#/hr)				2			1			3		
Heavy Vehicles (%)	10%	10%	10%	10%	5%	5%	5%	8%	8%	8%	15%	15%
Turn Type	Perm	Split		Prot	Split			Split			Perm	Split
Protected Phases		1	1	1	4	4		2	2			3
Permitted Phases	1										3	
Actuated Green, G (s)			31.5	31.5		10.9		23.0	23.0			
Effective Green, g (s)			33.5	33.5		12.9		25.0	25.0			
Actuated g/C Ratio			0.30	0.30		0.12		0.23	0.23			
Clearance Time (s)			8.0	8.0		8.0		9.0	9.0			
Vehicle Extension (s)			3.0	3.0		3.0		3.0	3.0			
Lane Grp Cap (vph)			890	407		360		737	345			
v/s Ratio Prot			c0.23	0.08		c0.09		c0.17	0.14			
v/s Ratio Perm												
v/c Ratio			0.76	0.25		0.73		0.74	0.61			
Uniform Delay, d1			34.7	28.8		46.9		39.5	38.1			
Progression Factor			1.00	1.00		1.00		1.00	1.00			
Incremental Delay, d2			6.2	1.5		7.5		6.6	7.8			
Delay (s)			40.9	30.3		54.3		46.0	46.0			
Level of Service			D	C		D		D	D			
Approach Delay (s)			37.5			54.3			46.0			
Approach LOS			D			D			D			

Intersection Summary			
HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

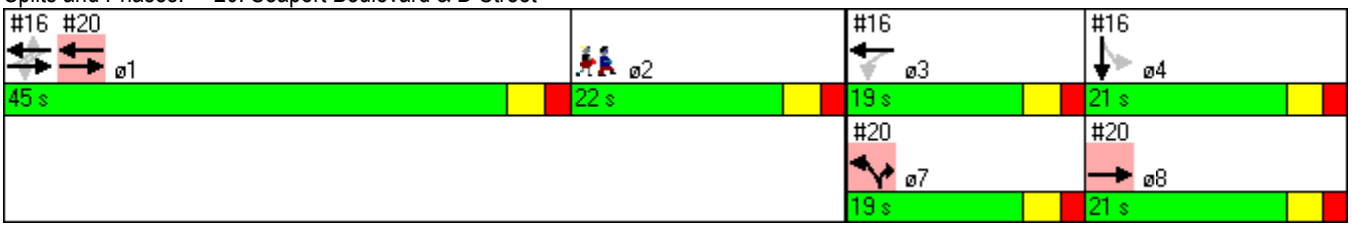
Movement	SBT	SBR
Lane Configurations		
Volume (vph)	172	35
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	0.99	
Satd. Flow (prot)	3026	
Flt Permitted	0.99	
Satd. Flow (perm)	3026	
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	193	39
RTOR Reduction (vph)	13	0
Lane Group Flow (vph)	249	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	15%	15%
Turn Type		
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	11.6	
Effective Green, g (s)	13.6	
Actuated g/C Ratio	0.12	
Clearance Time (s)	8.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	374	
v/s Ratio Prot	c0.08	
v/s Ratio Perm		
v/c Ratio	0.67	
Uniform Delay, d1	46.0	
Progression Factor	1.00	
Incremental Delay, d2	4.4	
Delay (s)	50.5	
Level of Service	D	
Approach Delay (s)	50.5	
Approach LOS	D	

Intersection Summary

Lane Group	EBT	WBT	NBL	NBR	ø2	ø3	ø4	ø8
Lane Configurations								
Volume (vph)	434	663	121	80				
Turn Type				Prot				
Protected Phases	1 8	1	7	7	2	3	4	8
Permitted Phases								
Detector Phase	1 8	1	7	7				
Switch Phase								
Minimum Initial (s)		16.0	3.0	3.0	5.0	3.0	3.0	3.0
Minimum Split (s)		21.0	8.0	8.0	22.0	8.0	8.0	8.0
Total Split (s)	66.0	45.0	19.0	19.0	22.0	19.0	21.0	21.0
Total Split (%)	61.7%	42.1%	17.8%	17.8%	21%	18%	20%	20%
Yellow Time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0				
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		Min	None	None	None	None	None	None
Act Effct Green (s)	54.2	39.6	10.7	10.7				
Actuated g/C Ratio	0.72	0.53	0.14	0.14				
v/c Ratio	0.18	0.39	0.52	0.29				
Control Delay	1.2	11.8	38.1	10.1				
Queue Delay	0.3	0.0	0.0	0.0				
Total Delay	1.5	11.8	38.1	10.1				
LOS	A	B	D	B				
Approach Delay	1.5	11.8	27.0					
Approach LOS	A	B	C					

Intersection Summary	
Cycle Length: 107	
Actuated Cycle Length: 74.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 10.7	Intersection LOS: B
Intersection Capacity Utilization 33.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 20: Seaport Boulevard & D Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	472	721	132	87
v/c Ratio	0.18	0.39	0.52	0.29
Control Delay	1.2	11.8	38.1	10.1
Queue Delay	0.3	0.0	0.0	0.0
Total Delay	1.5	11.8	38.1	10.1
Queue Length 50th (ft)	7	98	58	0
Queue Length 95th (ft)	10	160	114	38
Internal Link Dist (ft)	65	523	146	
Turn Bay Length (ft)			25	
Base Capacity (vph)	2573	1900	333	368
Starvation Cap Reductn	1490	0	0	0
Spillback Cap Reductn	0	42	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.39	0.40	0.24

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	434	0	0	663	121	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	472	0	0	721	132	87
RTOR Reduction (vph)	0	0	0	0	0	75
Lane Group Flow (vph)	472	0	0	721	132	12
Turn Type						Prot
Protected Phases	1 8			1	7	7
Permitted Phases						
Actuated Green, G (s)	55.2			39.6	10.7	10.7
Effective Green, g (s)	55.2			39.6	10.7	10.7
Actuated g/C Ratio	0.73			0.52	0.14	0.14
Clearance Time (s)				5.0	5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0
Lane Grp Cap (vph)	2574			1846	250	223
v/s Ratio Prot	c0.13			c0.20	c0.07	0.01
v/s Ratio Perm						
v/c Ratio	0.18			0.39	0.53	0.05
Uniform Delay, d1	3.3			10.9	30.3	28.2
Progression Factor	0.29			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.1	2.0	0.1
Delay (s)	1.0			11.0	32.3	28.3
Level of Service	A			B	C	C
Approach Delay (s)	1.0			11.0	30.7	
Approach LOS	A			B	C	

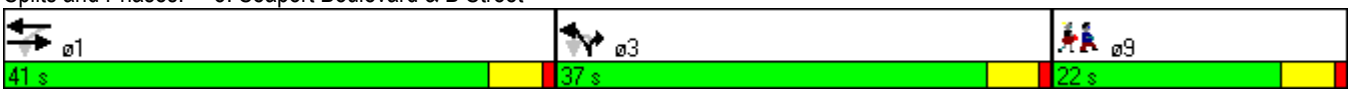
Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBL	WBT	NBL	NBR	ø9
Lane Configurations						
Volume (vph)	751	38	395	276	160	
Turn Type		Perm			Prot	
Protected Phases	1		1	3	3	9
Permitted Phases		1				
Detector Phase	1	1	1	3	3	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	41.0	41.0	41.0	37.0	37.0	22.0
Total Split (%)	41.0%	41.0%	41.0%	37.0%	37.0%	22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	74.4		74.4	15.6	15.6	
Actuated g/C Ratio	0.74		0.74	0.16	0.16	
v/c Ratio	0.49		0.25	0.65	0.50	
Control Delay	3.0		4.8	45.3	10.0	
Queue Delay	0.2		0.0	0.0	0.0	
Total Delay	3.3		4.8	45.3	10.0	
LOS	A		A	D	B	
Approach Delay	3.3		4.8	32.3		
Approach LOS	A		A	C		

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 3 (3%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 61.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Seaport Boulevard & B Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1138	499	325	190
v/c Ratio	0.49	0.25	0.65	0.50
Control Delay	3.0	4.8	45.3	10.0
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	3.3	4.8	45.3	10.0
Queue Length 50th (ft)	51	43	101	0
Queue Length 95th (ft)	55	73	131	46
Internal Link Dist (ft)	277	566	433	
Turn Bay Length (ft)				
Base Capacity (vph)	2323	1994	1029	583
Starvation Cap Reductn	463	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.25	0.32	0.33

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Volume (vph)	751	205	38	395	1	276	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0
Lane Util. Factor	0.95			0.95		0.97	1.00
Frpb, ped/bikes	0.98			1.00		1.00	1.00
Flpb, ped/bikes	1.00			1.00		0.93	1.00
Frt	0.96			1.00		1.00	0.85
Flt Protected	1.00			1.00		0.95	1.00
Satd. Flow (prot)	3178			3415		3091	1417
Flt Permitted	1.00			0.78		0.95	1.00
Satd. Flow (perm)	3178			2683		3091	1417
Peak-hour factor, PHF	0.88	0.72	0.84	0.87	0.25	0.86	0.84
Adj. Flow (vph)	853	285	45	454	4	321	190
RTOR Reduction (vph)	13	0	0	0	0	0	160
Lane Group Flow (vph)	1125	0	0	499	0	325	30
Confl. Peds. (#/hr)		200	200			23	86
Confl. Bikes (#/hr)		12					1
Heavy Vehicles (%)	7%	6%	16%	4%	0%	5%	14%
Turn Type			Perm		Perm		Prot
Protected Phases	1			1		3	3
Permitted Phases			1		3		
Actuated Green, G (s)	74.4			74.4		15.6	15.6
Effective Green, g (s)	74.4			74.4		15.6	15.6
Actuated g/C Ratio	0.74			0.74		0.16	0.16
Clearance Time (s)	5.0			5.0		5.0	5.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	2364			1996		482	221
v/s Ratio Prot	c0.35						0.02
v/s Ratio Perm				0.19		0.11	
v/c Ratio	0.48			0.25		0.67	0.13
Uniform Delay, d1	5.1			4.0		39.8	36.4
Progression Factor	0.45			1.00		1.00	1.00
Incremental Delay, d2	0.6			0.3		3.7	0.3
Delay (s)	2.8			4.3		43.5	36.7
Level of Service	A			A		D	D
Approach Delay (s)	2.8			4.3		41.0	
Approach LOS	A			A		D	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	429	445	141	300	293	77
Turn Type		Split				Prot
Protected Phases	1	2	2	3	4	4
Permitted Phases						
Detector Phase	1	2	2	3	4	4
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	26.0	16.0	16.0	13.0	13.0	13.0
Total Split (s)	27.0	20.0	20.0	17.0	13.0	13.0
Total Split (%)	35.1%	26.0%	26.0%	22.1%	16.9%	16.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						
Recall Mode	C-Max	None	None	None	None	None
Act Effct Green (s)	22.0	15.0	15.0	12.0	8.0	8.0
Actuated g/C Ratio	0.29	0.19	0.19	0.16	0.10	0.10
v/c Ratio	0.94	0.92	0.84	1.97	1.06	0.40
Control Delay	45.1	69.8	41.4	463.5	101.4	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	69.8	41.4	463.5	101.4	13.4
LOS	D	E	D	F	F	B
Approach Delay	45.1		51.0	463.5	84.1	
Approach LOS	D		D	F	F	

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 77
Offset: 0 (0%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.97
Intersection Signal Delay: 206.9 Intersection LOS: F
Intersection Capacity Utilization 96.9% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 6: Congress Street & B Street

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	900	260	508	1258	376	92
v/c Ratio	0.94	0.92	0.84	1.97	1.06	0.40
Control Delay	45.1	69.8	41.4	463.5	101.4	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	69.8	41.4	463.5	101.4	13.4
Queue Length 50th (ft)	216	135	116	~459	~106	0
Queue Length 95th (ft)	#336	#284	#189	#587	#152	35
Internal Link Dist (ft)	434		585	93	433	
Turn Bay Length (ft)						
Base Capacity (vph)	961	283	603	638	354	232
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.92	0.84	1.97	1.06	0.40

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	272	429	98	445	141	108	340	300	471	0	293	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0			5.0			5.0	5.0
Lane Util. Factor		0.95		0.91	0.91			0.95			0.95	1.00
Frpb, ped/bikes		0.99		1.00	1.00			0.94			1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	1.00
Frt		0.98		1.00	0.96			0.93			1.00	0.85
Flt Protected		0.98		0.95	0.98			0.98			1.00	1.00
Satd. Flow (prot)		3317		1454	2878			2930			3406	1442
Flt Permitted		0.98		0.95	0.98			0.98			1.00	1.00
Satd. Flow (perm)		3317		1454	2878			2930			3406	1442
Peak-hour factor, PHF	0.80	0.94	0.94	0.94	0.87	0.81	0.87	0.94	0.86	0.92	0.78	0.84
Adj. Flow (vph)	340	456	104	473	162	133	391	319	548	0	376	92
RTOR Reduction (vph)	0	13	0	0	43	0	0	181	0	0	0	82
Lane Group Flow (vph)	0	887	0	260	465	0	0	1077	0	0	376	10
Confl. Peds. (#/hr)			31	31			3		63	63		3
Heavy Vehicles (%)	3%	6%	2%	13%	14%	12%	3%	3%	12%	2%	6%	12%
Turn Type	Split			Split			Split					Prot
Protected Phases	1	1		2	2		3	3			4	4
Permitted Phases												
Actuated Green, G (s)		22.0		15.0	15.0			12.0			8.0	8.0
Effective Green, g (s)		22.0		15.0	15.0			12.0			8.0	8.0
Actuated g/C Ratio		0.29		0.19	0.19			0.16			0.10	0.10
Clearance Time (s)		5.0		5.0	5.0			5.0			5.0	5.0
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)		948		283	561			457			354	150
v/s Ratio Prot		c0.27		c0.18	0.16			c0.37			c0.11	0.01
v/s Ratio Perm												
v/c Ratio		0.94		0.92	0.83			2.36			1.06	0.06
Uniform Delay, d1		26.8		30.4	29.8			32.5			34.5	31.1
Progression Factor		1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2		17.3		32.6	9.8			617.6			65.2	0.2
Delay (s)		44.1		63.0	39.6			650.1			99.7	31.3
Level of Service		D		E	D			F			F	C
Approach Delay (s)		44.1			47.5			650.1			86.3	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM Average Control Delay	275.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBU	EBL	EBT	WBT	NBL	NBT	NBR	ø2	ø3
Lane Configurations									
Volume (vph)	1	67	326	470	323	504	463		
Turn Type	Perm	Perm			Perm		Perm		
Protected Phases			1	1		2 3		2	3
Permitted Phases	1	1			2 3		2 3		
Detector Phase	1	1	1	1	2 3	2 3	2 3		
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0				8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0				17.0	14.0
Total Split (s)	34.0	34.0	34.0	34.0	73.0	73.0	73.0	32.0	41.0
Total Split (%)	31.8%	31.8%	31.8%	31.8%	68.2%	68.2%	68.2%	30%	38%
Yellow Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lead	Lead	Lead	Lead				Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	
Recall Mode	C-Max	C-Max	C-Max	C-Max				None	None
Act Effct Green (s)		41.3	41.3	41.3	53.7	53.7	53.7		
Actuated g/C Ratio		0.39	0.39	0.39	0.50	0.50	0.50		
v/c Ratio		0.46	0.29	0.48	0.47	0.50	0.46		
Control Delay		37.9	25.6	27.4	18.5	16.9	11.9		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		37.9	25.6	27.4	18.5	16.9	11.9		
LOS		D	C	C	B	B	B		
Approach Delay			28.1	27.4		16.2			
Approach LOS			C	C		B			

Intersection Summary

Cycle Length: 107
Actuated Cycle Length: 107
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 58.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: Congress Street & East Service Road

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	96	370	600	382	794	348
v/c Ratio	0.46	0.29	0.48	0.47	0.50	0.46
Control Delay	37.9	25.6	27.4	18.5	16.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	25.6	27.4	18.5	16.9	11.9
Queue Length 50th (ft)	47	88	151	185	194	107
Queue Length 95th (ft)	94	153	254	153	169	128
Internal Link Dist (ft)		439	434		373	
Turn Bay Length (ft)						
Base Capacity (vph)	210	1267	1252	986	1925	908
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.29	0.48	0.39	0.41	0.38

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	1	67	326	0	0	470	90	323	504	463	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0		6.0	6.0	6.0		
Lane Util. Factor		1.00	0.95			0.95		0.91	0.86	0.91		
Frpb, ped/bikes		1.00	1.00			0.96		1.00	0.99	0.97		
Flpb, ped/bikes		0.92	1.00			1.00		0.99	1.00	1.00		
Frt		1.00	1.00			0.98		1.00	0.97	0.85		
Flt Protected		0.95	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (prot)		1497	3282			3212		1603	3096	1404		
Flt Permitted		0.34	1.00			1.00		0.95	1.00	1.00		
Satd. Flow (perm)		540	3282			3212		1603	3096	1404		
Peak-hour factor, PHF	0.25	0.73	0.88	0.92	0.92	0.93	0.95	0.76	0.87	0.89	0.92	0.92
Adj. Flow (vph)	4	92	370	0	0	505	95	425	579	520	0	0
RTOR Reduction (vph)	0	0	0	0	0	12	0	0	26	58	0	0
Lane Group Flow (vph)	0	96	370	0	0	588	0	382	768	290	0	0
Confl. Peds. (#/hr)		140		37	37		140	5		8		
Confl. Bikes (#/hr)				10			4					
Heavy Vehicles (%)	0%	12%	10%	2%	2%	6%	5%	1%	1%	1%	2%	2%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases			1			1			2 3			
Permitted Phases	1	1						2 3		2 3		
Actuated Green, G (s)		41.3	41.3			41.3		53.7	53.7	53.7		
Effective Green, g (s)		41.3	41.3			41.3		53.7	53.7	53.7		
Actuated g/C Ratio		0.39	0.39			0.39		0.50	0.50	0.50		
Clearance Time (s)		6.0	6.0			6.0						
Vehicle Extension (s)		3.0	3.0			3.0						
Lane Grp Cap (vph)		208	1267			1240		804	1554	705		
v/s Ratio Prot			0.11			c0.18						
v/s Ratio Perm		0.18						0.24	0.25	0.21		
v/c Ratio		0.46	0.29			0.47		0.48	0.49	0.41		
Uniform Delay, d1		24.5	22.7			24.7		17.4	17.7	16.7		
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00		
Incremental Delay, d2		7.2	0.6			1.3		0.4	0.2	0.4		
Delay (s)		31.7	23.3			26.0		17.9	17.9	17.1		
Level of Service		C	C			C		B	B	B		
Approach Delay (s)			25.1			26.0			17.7			0.0
Approach LOS			C			C			B			A

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	12	43	717	493	222	120	0
Turn Type	custom	D.P+P				Split	
Protected Phases		6	1 6	1	5	2	2
Permitted Phases	6	1					
Detector Phase	6	6	1 6	1	5	2	2
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0		22.0	22.0	22.0	22.0
Total Split (s)	13.0	13.0	46.0	33.0	26.0	28.0	28.0
Total Split (%)	13.0%	13.0%	46.0%	33.0%	26.0%	28.0%	28.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None		C-Max	None	None	None
Act Effct Green (s)		42.9	47.9	29.9	23.9	13.2	13.2
Actuated g/C Ratio		0.43	0.48	0.30	0.24	0.13	0.13
v/c Ratio		0.29	0.54	0.94	0.78	0.59	0.44
Control Delay		26.8	25.2	50.8	40.4	53.6	23.1
Queue Delay		0.0	0.0	0.3	0.0	0.0	0.0
Total Delay		26.8	25.2	51.2	40.4	53.6	23.1
LOS		C	C	D	D	D	C
Approach Delay			25.3	51.2	40.4		38.8
Approach LOS			C	D	D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 38.2 Intersection LOS: D
Intersection Capacity Utilization 73.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 9: Seaport Boulevard & Northern Avenue

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	76	834	786	603	106	99
v/c Ratio	0.29	0.54	0.94	0.78	0.59	0.44
Control Delay	26.8	25.2	50.8	40.4	53.6	23.1
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	26.8	25.2	51.2	40.4	53.6	23.1
Queue Length 50th (ft)	27	162	237	173	68	22
Queue Length 95th (ft)	70	275	#347	230	110	70
Internal Link Dist (ft)		428	277	680		273
Turn Bay Length (ft)						
Base Capacity (vph)	261	1549	838	786	311	345
Starvation Cap Reductn	0	0	3	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.54	0.94	0.77	0.34	0.29

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	12	43	717	0	0	493	177	177	222	154	120	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0			5.0		5.0	5.0
Lane Util. Factor		1.00	0.95			0.95			0.95		0.95	0.95
Frpb, ped/bikes		1.00	1.00			0.92			0.98		1.00	0.96
Flpb, ped/bikes		0.99	1.00			1.00			1.00		1.00	1.00
Frt		1.00	1.00			0.96			0.96		1.00	0.91
Flt Protected		0.95	1.00			1.00			0.98		0.95	0.98
Satd. Flow (prot)		1446	3235			2685			3082		1354	1294
Flt Permitted		0.17	1.00			1.00			0.98		0.95	0.98
Satd. Flow (perm)		252	3235			2685			3082		1354	1294
Peak-hour factor, PHF	0.50	0.82	0.86	0.92	0.92	0.85	0.86	0.92	0.88	0.97	0.84	0.92
Adj. Flow (vph)	24	52	834	0	0	580	206	192	252	159	143	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	35	0	0	54
Lane Group Flow (vph)	0	76	834	0	0	751	0	0	568	0	106	45
Confl. Peds. (#/hr)		182		213	213		182	31		30	30	
Confl. Bikes (#/hr)				9			3					
Heavy Vehicles (%)	0%	17%	6%	2%	2%	14%	9%	3%	4%	3%	14%	2%
Parking (#/hr)		0	0			0	0	0	0	0	0	
Turn Type	custom	D.P+P						Split			Split	
Protected Phases		6	1 6			1		5	5		2	2
Permitted Phases	6	1										
Actuated Green, G (s)		42.9	47.9			29.9			23.9		13.2	13.2
Effective Green, g (s)		42.9	47.9			29.9			23.9		13.2	13.2
Actuated g/C Ratio		0.43	0.48			0.30			0.24		0.13	0.13
Clearance Time (s)		5.0				5.0			5.0		5.0	5.0
Vehicle Extension (s)		3.0				3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		263	1550			803			737		179	171
v/s Ratio Prot		0.04	c0.26			c0.28			c0.18		c0.08	0.03
v/s Ratio Perm		0.09										
v/c Ratio		0.29	0.54			0.94			0.77		0.59	0.26
Uniform Delay, d1		18.7	18.3			34.1			35.5		40.9	39.0
Progression Factor		1.41	1.20			0.94			1.00		1.00	1.00
Incremental Delay, d2		0.6	0.3			19.1			5.0		5.2	0.8
Delay (s)		26.8	22.3			51.0			40.5		46.0	39.9
Level of Service		C	C			D			D		D	D
Approach Delay (s)			22.7			51.0			40.5			43.1
Approach LOS			C			D			D			D

Intersection Summary			
HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	49
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.79
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	31
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	22%
Parking (#/hr)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

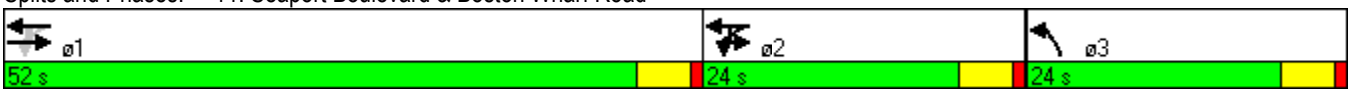
Intersection Summary

Lane Group	EBU	EBT	WBU	WBL	WBT	NBL
Lane Configurations						
Volume (vph)	1	613	17	53	672	98
Turn Type	Perm		D.P+P	D.P+P		
Protected Phases		1	2	2	1 2	3
Permitted Phases	1		1	1		
Detector Phase	1	1	2	2	1 2	3
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0
Minimum Split (s)	23.0	23.0	23.0	23.0		23.0
Total Split (s)	52.0	52.0	24.0	24.0	76.0	24.0
Total Split (%)	52.0%	52.0%	24.0%	24.0%	76.0%	24.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	None	None		None
Act Effct Green (s)		63.9		74.4	79.4	10.6
Actuated g/C Ratio		0.64		0.74	0.79	0.11
v/c Ratio		0.52		0.25	0.32	0.51
Control Delay		11.3		3.0	1.2	42.3
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		11.3		3.0	1.2	42.3
LOS		B		A	A	D
Approach Delay		11.3			1.4	42.3
Approach LOS		B			A	D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 68.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 11: Seaport Boulevard & Boston Wharf Road



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	901	94	772	156
v/c Ratio	0.52	0.25	0.32	0.51
Control Delay	11.3	3.0	1.2	42.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.3	3.0	1.2	42.3
Queue Length 50th (ft)	138	3	13	42
Queue Length 95th (ft)	210	m8	m33	70
Internal Link Dist (ft)	509		428	794
Turn Bay Length (ft)				
Base Capacity (vph)	1729	504	2693	529
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.19	0.29	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	1	613	150	17	53	672	98	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	5.0	
Lane Util. Factor		0.95			1.00	0.95	0.97	
Frpb, ped/bikes		0.88			1.00	1.00	0.92	
Flpb, ped/bikes		1.00			0.97	1.00	1.00	
Frt		0.97			1.00	1.00	0.96	
Flt Protected		1.00			0.95	1.00	0.97	
Satd. Flow (prot)		2814			1364	3062	2699	
Flt Permitted		0.95			0.28	1.00	0.97	
Satd. Flow (perm)		2682			398	3062	2699	
Peak-hour factor, PHF	0.25	0.85	0.85	0.61	0.80	0.87	0.88	0.73
Adj. Flow (vph)	4	721	176	28	66	772	111	45
RTOR Reduction (vph)	0	14	0	0	0	0	18	0
Lane Group Flow (vph)	0	887	0	0	94	772	138	0
Confl. Peds. (#/hr)			303		303		45	146
Confl. Bikes (#/hr)			22					
Heavy Vehicles (%)	0%	5%	3%	0%	22%	12%	11%	10%
Parking (#/hr)	0	0	0	0	0	0	0	0
Turn Type	Perm			D.P+P	D.P+P			
Protected Phases		1		2	2	1 2	3	
Permitted Phases	1			1	1			
Actuated Green, G (s)		64.0			74.4	79.4	10.6	
Effective Green, g (s)		64.0			74.4	79.4	10.6	
Actuated g/C Ratio		0.64			0.74	0.79	0.11	
Clearance Time (s)		5.0			5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	
Lane Grp Cap (vph)		1716			397	2431	286	
v/s Ratio Prot					0.02	c0.25	c0.05	
v/s Ratio Perm		c0.33			0.15			
v/c Ratio		0.52			0.24	0.32	0.48	
Uniform Delay, d1		9.7			7.1	2.8	42.1	
Progression Factor		1.00			0.55	0.33	1.00	
Incremental Delay, d2		1.1			0.2	0.0	1.3	
Delay (s)		10.8			4.1	1.0	43.4	
Level of Service		B			A	A	D	
Approach Delay (s)		10.8				1.3	43.4	
Approach LOS		B				A	D	

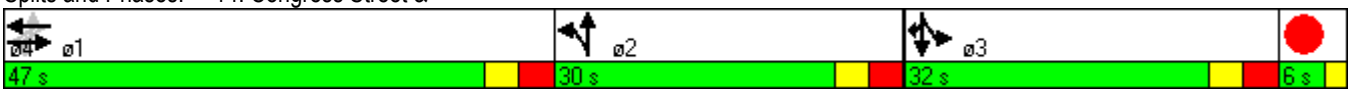
Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBT	SBT	SBR	ø4
Lane Configurations											
Volume (vph)	94	249	114	10	25	667	140	46	28	55	
Turn Type	Perm		Perm	Perm	Perm		Split			Prot	
Protected Phases		1				1	2	2	3	3	4
Permitted Phases	1		1	1	1						
Detector Phase	1	1	1	1	1	1	2	2	3	3	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0	29.0	29.0	26.0	26.0	6.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	47.0	30.0	30.0	32.0	32.0	6.0
Total Split (%)	40.9%	40.9%	40.9%	40.9%	40.9%	40.9%	26.1%	26.1%	27.8%	27.8%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	6.0	5.0	5.0	6.0	5.0	7.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		74.1	74.1		74.1	72.1	17.0	17.0	11.7	11.7	
Actuated g/C Ratio		0.64	0.64		0.64	0.63	0.15	0.15	0.10	0.10	
v/c Ratio		0.63	0.15		0.07	0.38	0.63	0.31	0.42	0.32	
Control Delay		21.0	2.7		11.4	12.7	56.8	33.6	55.6	15.3	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		21.0	2.7		11.4	12.7	56.8	33.6	55.6	15.3	
LOS		C	A		B	B	E	C	E	B	
Approach Delay		16.9				12.6		48.9	36.2		
Approach LOS		B				B		D	D		

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 115
Offset: 48 (42%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 70.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Congress Street &



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	417	121	38	782	161	83	71	66
v/c Ratio	0.63	0.15	0.07	0.38	0.63	0.31	0.42	0.32
Control Delay	21.0	2.7	11.4	12.7	56.8	33.6	55.6	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	2.7	11.4	12.7	56.8	33.6	55.6	15.3
Queue Length 50th (ft)	191	0	10	145	114	40	50	0
Queue Length 95th (ft)	356	25	32	232	168	79	87	34
Internal Link Dist (ft)	489			439		348	794	
Turn Bay Length (ft)			150					125
Base Capacity (vph)	658	817	527	2079	374	384	388	389
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.15	0.07	0.38	0.43	0.22	0.18	0.17

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	94	249	114	10	25	667	68	140	46	26	31	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	7.0		5.0	5.0			5.0
Lane Util. Factor		0.95	0.95		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.90		1.00	0.97		1.00	0.98			1.00
Flpb, ped/bikes		0.97	1.00		0.95	1.00		1.00	1.00			1.00
Frt		1.00	0.85		1.00	0.99		1.00	0.95			1.00
Flt Protected		0.99	1.00		0.95	1.00		0.95	1.00			0.97
Satd. Flow (prot)		1510	1205		1645	3309		1719	1682			1653
Flt Permitted		0.66	1.00		0.45	1.00		0.95	1.00			0.97
Satd. Flow (perm)		1011	1205		776	3309		1719	1682			1653
Peak-hour factor, PHF	0.85	0.85	0.85	0.94	0.94	0.94	0.94	0.87	0.87	0.87	0.83	0.83
Adj. Flow (vph)	111	293	134	11	27	710	72	161	53	30	37	34
RTOR Reduction (vph)	0	1	44	0	0	4	0	0	20	0	0	0
Lane Group Flow (vph)	0	416	77	0	38	778	0	161	63	0	0	71
Confl. Peds. (#/hr)	274		42	17	42		274	18		17	17	
Confl. Bikes (#/hr)			13				1					
Heavy Vehicles (%)	14%	14%	14%	4%	4%	4%	4%	5%	5%	5%	12%	12%
Turn Type	Perm		Perm	Perm	Perm			Split			Split	
Protected Phases		1				1		2	2		3	3
Permitted Phases	1		1	1	1							
Actuated Green, G (s)		71.9	71.9		71.9	71.9		16.0	16.0			9.1
Effective Green, g (s)		72.9	72.9		72.9	70.9		17.0	17.0			10.1
Actuated g/C Ratio		0.63	0.63		0.63	0.62		0.15	0.15			0.09
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		641	764		492	2040		254	249			145
v/s Ratio Prot						0.24		c0.09	0.04			c0.04
v/s Ratio Perm		c0.41	0.06		0.05							
v/c Ratio		0.65	0.10		0.08	0.38		0.63	0.25			0.49
Uniform Delay, d1		13.1	8.2		8.1	11.1		46.1	43.4			50.0
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		5.0	0.3		0.3	0.5		5.1	0.5			2.6
Delay (s)		18.1	8.5		8.4	11.6		51.2	43.9			52.6
Level of Service		B	A		A	B		D	D			D
Approach Delay (s)		16.0				11.5			48.7			50.5
Approach LOS		B				B			D			D

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	55
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1442
Flt Permitted	1.00
Satd. Flow (perm)	1442
Peak-hour factor, PHF	0.83
Adj. Flow (vph)	66
RTOR Reduction (vph)	60
Lane Group Flow (vph)	6
Confl. Peds. (#/hr)	18
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	12%
Turn Type	Prot
Protected Phases	3
Permitted Phases	
Actuated Green, G (s)	9.1
Effective Green, g (s)	10.1
Actuated g/C Ratio	0.09
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	127
v/s Ratio Prot	0.00
v/s Ratio Perm	
v/c Ratio	0.05
Uniform Delay, d1	48.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	48.2
Level of Service	D
Approach Delay (s)	
Approach LOS	

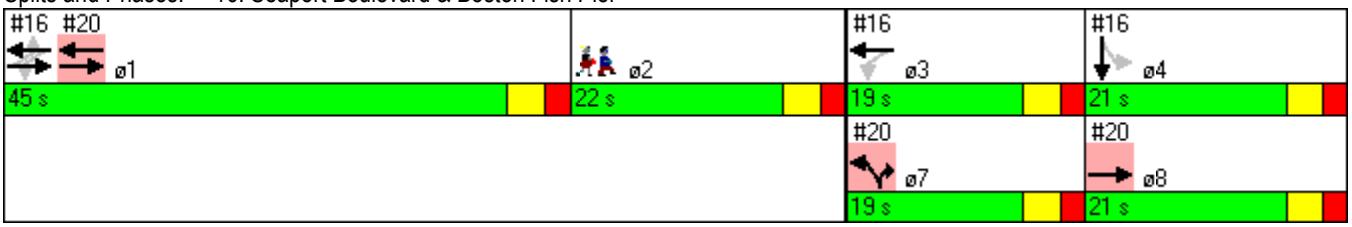
Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	SBT	ø2	ø3	ø7	ø8
Lane Configurations									
Volume (vph)	42	399	106	631	16				
Turn Type	Perm		Perm						
Protected Phases		1		1 3	4	2	3	7	8
Permitted Phases	1		1 3						
Detector Phase	1	1	1 3	1 3	4				
Switch Phase									
Minimum Initial (s)	16.0	16.0			3.0	5.0	3.0	3.0	3.0
Minimum Split (s)	21.0	21.0			8.0	22.0	8.0	8.0	8.0
Total Split (s)	45.0	45.0	64.0	64.0	21.0	22.0	19.0	19.0	21.0
Total Split (%)	42.1%	42.1%	59.8%	59.8%	19.6%	21%	18%	18%	20%
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0			2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0				
Lead/Lag	Lead	Lead			Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min			None	None	None	None	None
Act Effct Green (s)		39.6		59.4	9.0				
Actuated g/C Ratio		0.53		0.79	0.12				
v/c Ratio		0.44		0.40	0.33				
Control Delay		11.4		1.6	30.8				
Queue Delay		0.0		0.1	0.0				
Total Delay		11.4		1.6	30.8				
LOS		B		A	C				
Approach Delay		11.4		1.6	30.8				
Approach LOS		B		A	C				

Intersection Summary

Cycle Length: 107
Actuated Cycle Length: 74.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.53
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 59.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 16: Seaport Boulevard & Boston Fish Pier



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	676	852	73
v/c Ratio	0.44	0.40	0.33
Control Delay	11.4	1.6	30.8
Queue Delay	0.0	0.1	0.0
Total Delay	11.4	1.6	30.8
Queue Length 50th (ft)	84	14	26
Queue Length 95th (ft)	146	28	65
Internal Link Dist (ft)	566	65	394
Turn Bay Length (ft)			
Base Capacity (vph)	1567	2159	385
Starvation Cap Reductn	0	303	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.43	0.46	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	399	180	106	631	47	0	0	0	36	16	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						5.0	
Lane Util. Factor		0.95			0.95						1.00	
Frpb, ped/bikes		0.99			1.00						0.99	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.96			0.99						0.97	
Flt Protected		1.00			0.99						0.97	
Satd. Flow (prot)		3355			3478						1742	
Flt Permitted		0.85			0.76						0.97	
Satd. Flow (perm)		2860			2673						1742	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	434	196	115	686	51	0	0	0	39	17	17
RTOR Reduction (vph)	0	32	0	0	2	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	644	0	0	850	0	0	0	0	0	62	0
Confl. Peds. (#/hr)	4		12	12		4						9
Turn Type	Perm			Perm						Perm		
Protected Phases		1			1 3						4	
Permitted Phases	1			1 3						4		
Actuated Green, G (s)		39.6			58.2						7.7	
Effective Green, g (s)		39.6			58.2						7.7	
Actuated g/C Ratio		0.52			0.77						0.10	
Clearance Time (s)		5.0									5.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1492			2050						177	
v/s Ratio Prot												
v/s Ratio Perm		0.23			c0.32						0.04	
v/c Ratio		0.43			0.41						0.35	
Uniform Delay, d1		11.2			3.0						31.8	
Progression Factor		1.00			0.29						1.00	
Incremental Delay, d2		0.2			0.1						1.2	
Delay (s)		11.4			1.0						33.0	
Level of Service		B			A						C	
Approach Delay (s)		11.4			1.0			0.0			33.0	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBT	NBL	NBT	SBU	SBL	SBT
Lane Configurations										
Volume (vph)	5	149	291	470	92	496	147	5	21	173
Turn Type	Perm	Split		Prot		Split		Perm	Split	
Protected Phases		1	1	1	4	2	2		3	3
Permitted Phases	1							3		
Detector Phase	1	1	1	1	4	2	2	3	3	3
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	22.0	22.0	22.0	22.0	17.0	27.0	27.0	18.0	18.0	18.0
Total Split (s)	39.0	39.0	39.0	39.0	19.0	32.0	32.0	20.0	20.0	20.0
Total Split (%)	35.5%	35.5%	35.5%	35.5%	17.3%	29.1%	29.1%	18.2%	18.2%	18.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lost Time Adjust (s)	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	8.0	8.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0	6.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	None	None	None
Act Effct Green (s)			33.5	33.5	12.9	25.0	25.0			13.6
Actuated g/C Ratio			0.30	0.30	0.12	0.23	0.23			0.12
v/c Ratio			0.77	0.52	0.74	0.74	0.63			0.68
Control Delay			39.1	6.5	56.4	46.4	44.3			52.9
Queue Delay			0.0	0.0	0.0	0.0	0.0			0.0
Total Delay			39.1	6.5	56.4	46.4	44.3			52.9
LOS			D	A	E	D	D			D
Approach Delay			28.7		56.4		45.8			52.9
Approach LOS			C		E		D			D

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 37 (34%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 40.3 Intersection LOS: D
Intersection Capacity Utilization 67.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 17: Congress Street & D Street

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	716	335	281	545	226	263
v/c Ratio	0.77	0.52	0.74	0.74	0.63	0.68
Control Delay	39.1	6.5	56.4	46.4	44.3	52.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	6.5	56.4	46.4	44.3	52.9
Queue Length 50th (ft)	237	0	95	185	134	88
Queue Length 95th (ft)	299	62	107	247	219	132
Internal Link Dist (ft)	585		748		366	170
Turn Bay Length (ft)		150		250		
Base Capacity (vph)	925	640	381	737	358	398
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.52	0.74	0.74	0.63	0.66

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	5	149	291	470	71	92	36	496	147	58	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0		7.0	7.0			
Lane Util. Factor			0.91	0.91		0.95		0.97	1.00			
Frpb, ped/bikes			0.98	1.00		0.94		1.00	0.90			
Flpb, ped/bikes			1.00	1.00		1.00		1.00	1.00			
Frt			0.96	0.85		0.97		1.00	0.96			
Flt Protected			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (prot)			2922	1336		3073		3242	1518			
Flt Permitted			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (perm)			2922	1336		3073		3242	1518			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.71	0.71	0.71	0.91	0.91	0.91	0.89	0.89
Adj. Flow (vph)	6	171	334	540	100	130	51	545	162	64	6	24
RTOR Reduction (vph)	0	0	35	233	0	18	0	0	13	0	0	0
Lane Group Flow (vph)	0	0	681	102	0	263	0	545	213	0	0	0
Confl. Peds. (#/hr)	13	153		14	14		153	13		156	153	156
Confl. Bikes (#/hr)				2			1			3		
Heavy Vehicles (%)	10%	10%	10%	10%	5%	5%	5%	8%	8%	8%	15%	15%
Turn Type	Perm	Split		Prot	Split			Split			Perm	Split
Protected Phases		1	1	1	4	4		2	2			3
Permitted Phases	1										3	
Actuated Green, G (s)			31.5	31.5		10.9		23.0	23.0			
Effective Green, g (s)			33.5	33.5		12.9		25.0	25.0			
Actuated g/C Ratio			0.30	0.30		0.12		0.23	0.23			
Clearance Time (s)			8.0	8.0		8.0		9.0	9.0			
Vehicle Extension (s)			3.0	3.0		3.0		3.0	3.0			
Lane Grp Cap (vph)			890	407		360		737	345			
v/s Ratio Prot			c0.23	0.08		c0.09		c0.17	0.14			
v/s Ratio Perm												
v/c Ratio			0.76	0.25		0.73		0.74	0.62			
Uniform Delay, d1			34.7	28.8		46.9		39.5	38.2			
Progression Factor			1.00	1.00		1.00		1.00	1.00			
Incremental Delay, d2			6.2	1.5		7.5		6.6	8.0			
Delay (s)			40.9	30.3		54.3		46.0	46.2			
Level of Service			D	C		D		D	D			
Approach Delay (s)			37.5			54.3			46.1			
Approach LOS			D			D			D			

Intersection Summary			
HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

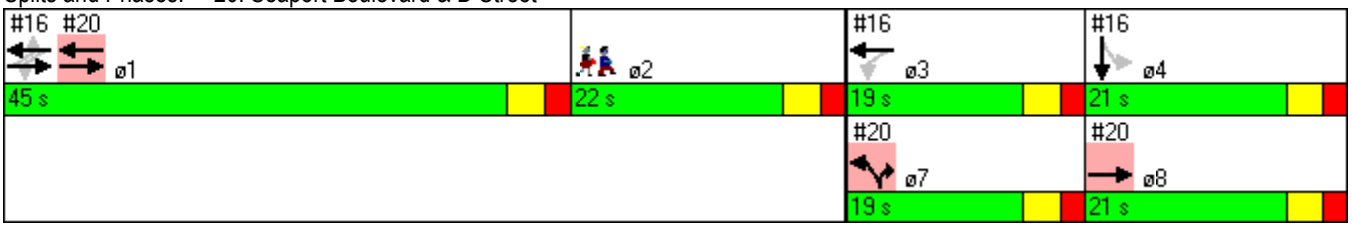
Movement	SBT	SBR
Lane Configurations		
Volume (vph)	173	35
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	0.99	
Satd. Flow (prot)	3027	
Flt Permitted	0.99	
Satd. Flow (perm)	3027	
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	194	39
RTOR Reduction (vph)	13	0
Lane Group Flow (vph)	250	0
Confl. Peds. (#/hr)		13
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	15%	15%
Turn Type		
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	11.6	
Effective Green, g (s)	13.6	
Actuated g/C Ratio	0.12	
Clearance Time (s)	8.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	374	
v/s Ratio Prot	c0.08	
v/s Ratio Perm		
v/c Ratio	0.67	
Uniform Delay, d1	46.0	
Progression Factor	1.00	
Incremental Delay, d2	4.5	
Delay (s)	50.5	
Level of Service	D	
Approach Delay (s)	50.5	
Approach LOS	D	

Intersection Summary

Lane Group	EBT	WBT	NBL	NBR	ø2	ø3	ø4	ø8
Lane Configurations								
Volume (vph)	435	663	122	80				
Turn Type				Prot				
Protected Phases	1 8	1	7	7	2	3	4	8
Permitted Phases								
Detector Phase	1 8	1	7	7				
Switch Phase								
Minimum Initial (s)		16.0	3.0	3.0	5.0	3.0	3.0	3.0
Minimum Split (s)		21.0	8.0	8.0	22.0	8.0	8.0	8.0
Total Split (s)	66.0	45.0	19.0	19.0	22.0	19.0	21.0	21.0
Total Split (%)	61.7%	42.1%	17.8%	17.8%	21%	18%	20%	20%
Yellow Time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0				
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		Min	None	None	None	None	None	None
Act Effct Green (s)	54.2	39.6	10.7	10.7				
Actuated g/C Ratio	0.72	0.53	0.14	0.14				
v/c Ratio	0.18	0.39	0.53	0.29				
Control Delay	1.2	11.8	38.3	10.1				
Queue Delay	0.3	0.0	0.0	0.0				
Total Delay	1.5	11.8	38.3	10.1				
LOS	A	B	D	B				
Approach Delay	1.5	11.8	27.1					
Approach LOS	A	B	C					

Intersection Summary	
Cycle Length: 107	
Actuated Cycle Length: 74.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 10.8	Intersection LOS: B
Intersection Capacity Utilization 33.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 20: Seaport Boulevard & D Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	473	721	133	87
v/c Ratio	0.18	0.39	0.53	0.29
Control Delay	1.2	11.8	38.3	10.1
Queue Delay	0.3	0.0	0.0	0.0
Total Delay	1.5	11.8	38.3	10.1
Queue Length 50th (ft)	7	98	59	0
Queue Length 95th (ft)	10	160	115	38
Internal Link Dist (ft)	65	523	146	
Turn Bay Length (ft)			25	
Base Capacity (vph)	2573	1900	333	368
Starvation Cap Reductn	1488	0	0	0
Spillback Cap Reductn	0	42	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.39	0.40	0.24

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	435	0	0	663	122	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	473	0	0	721	133	87
RTOR Reduction (vph)	0	0	0	0	0	75
Lane Group Flow (vph)	473	0	0	721	133	12
Turn Type						Prot
Protected Phases	1 8			1	7	7
Permitted Phases						
Actuated Green, G (s)	55.2			39.6	10.7	10.7
Effective Green, g (s)	55.2			39.6	10.7	10.7
Actuated g/C Ratio	0.73			0.52	0.14	0.14
Clearance Time (s)				5.0	5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0
Lane Grp Cap (vph)	2574			1846	250	223
v/s Ratio Prot	c0.13			c0.20	c0.08	0.01
v/s Ratio Perm						
v/c Ratio	0.18			0.39	0.53	0.05
Uniform Delay, d1	3.3			10.9	30.3	28.2
Progression Factor	0.29			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.1	2.2	0.1
Delay (s)	1.0			11.0	32.4	28.3
Level of Service	A			B	C	C
Approach Delay (s)	1.0			11.0	30.8	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	33.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	NBL	NBT	SBT	SBR	ø4
Lane Configurations											
Volume (vph)	94	420	421	20	192	383	31	38	208	94	
Turn Type	Perm		Perm	Perm	Perm		Split			Prot	
Protected Phases		1				1	2	2	3	3	4
Permitted Phases	1		1	1	1						
Detector Phase	1	1	1	1	1	1	2	2	3	3	
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	30.0	30.0	26.0	26.0	6.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	30.0	30.0	31.0	31.0	6.0
Total Split (%)	39.1%	39.1%	39.1%	39.1%	39.1%	39.1%	27.3%	27.3%	28.2%	28.2%	5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Lost Time Adjust (s)	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	6.0	5.0	5.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)		62.0	62.0		62.0	62.0	10.7	10.7	25.1	25.1	
Actuated g/C Ratio		0.56	0.56		0.56	0.56	0.10	0.10	0.23	0.23	
v/c Ratio		0.76	0.59		0.84	0.28	0.23	0.44	0.75	0.24	
Control Delay		29.5	6.4		51.2	14.5	48.3	36.2	50.7	10.4	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		29.5	6.4		51.2	14.5	48.3	36.2	50.7	10.4	
LOS		C	A		D	B	D	D	D	B	
Approach Delay		19.1				26.3		39.9	40.6		
Approach LOS		B				C		D	D		

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 97 (88%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 79.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: Congress Street &

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	627	513	241	512	37	83	309	103
v/c Ratio	0.76	0.59	0.84	0.28	0.23	0.44	0.75	0.24
Control Delay	29.5	6.4	51.2	14.5	48.3	36.2	50.7	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	6.4	51.2	14.5	48.3	36.2	50.7	10.4
Queue Length 50th (ft)	334	20	138	92	25	33	205	9
Queue Length 95th (ft)	#572	75	#337	156	51	71	278	49
Internal Link Dist (ft)	740			366		594	778	
Turn Bay Length (ft)			150					125
Base Capacity (vph)	822	868	288	1840	383	399	456	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.59	0.84	0.28	0.10	0.21	0.68	0.23

Intersection Summary

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	94	420	421	20	192	383	68	31	38	31	73	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0	5.0		5.0	5.0			5.0
Lane Util. Factor		1.00	1.00		1.00	0.95		1.00	1.00			1.00
Frpb, ped/bikes		1.00	0.76		1.00	0.95		1.00	0.99			1.00
Flpb, ped/bikes		0.97	1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00	0.85		1.00	0.98		1.00	0.93			1.00
Flt Protected		0.99	1.00		0.95	1.00		0.95	1.00			0.99
Satd. Flow (prot)		1780	1192		1752	3252		1687	1639			1804
Flt Permitted		0.81	1.00		0.28	1.00		0.95	1.00			0.99
Satd. Flow (perm)		1455	1192		512	3252		1687	1639			1804
Peak-hour factor, PHF	0.82	0.82	0.82	0.88	0.88	0.88	0.88	0.83	0.83	0.83	0.91	0.91
Adj. Flow (vph)	115	512	513	23	218	435	77	37	46	37	80	229
RTOR Reduction (vph)	0	0	201	0	0	9	0	0	31	0	0	0
Lane Group Flow (vph)	0	627	312	0	241	503	0	37	52	0	0	309
Confl. Peds. (#/hr)	222		65	6	65		222	27		6	6	
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	7%	7%	7%	4%	4%
Turn Type	Perm		Perm	Perm	Perm			Split			Split	
Protected Phases		1				1		2	2		3	3
Permitted Phases	1		1	1	1							
Actuated Green, G (s)		59.8	59.8		59.8	59.8		8.1	8.1			24.1
Effective Green, g (s)		60.8	60.8		60.8	60.8		9.1	9.1			25.1
Actuated g/C Ratio		0.55	0.55		0.55	0.55		0.08	0.08			0.23
Clearance Time (s)		6.0	6.0		6.0	6.0		6.0	6.0			6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		804	659		283	1797		140	136			412
v/s Ratio Prot						0.15		0.02	c0.03			c0.17
v/s Ratio Perm		0.43	0.26		c0.47							
v/c Ratio		0.78	0.47		0.85	0.28		0.26	0.38			0.75
Uniform Delay, d1		19.3	14.9		20.8	13.0		47.3	47.8			39.5
Progression Factor		1.00	1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		7.4	2.4		26.2	0.4		1.0	1.8			7.5
Delay (s)		26.7	17.3		47.0	13.4		48.3	49.6			47.0
Level of Service		C	B		D	B		D	D			D
Approach Delay (s)		22.5				24.2			49.2			43.7
Approach LOS		C				C			D			D

Intersection Summary			
HCM Average Control Delay	27.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	94
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	103
RTOR Reduction (vph)	66
Lane Group Flow (vph)	37
Confl. Peds. (#/hr)	27
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	4%
Turn Type	Prot
Protected Phases	3
Permitted Phases	
Actuated Green, G (s)	24.1
Effective Green, g (s)	25.1
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	354
v/s Ratio Prot	0.02
v/s Ratio Perm	
v/c Ratio	0.10
Uniform Delay, d1	33.6
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	33.7
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBT	WBL	WBT	NBL	NBR	ø9
Lane Configurations						
Volume (vph)	670	63	564	218	116	
Turn Type		Perm			Prot	
Protected Phases	1		1	3	3	9
Permitted Phases		1				
Detector Phase	1	1	1	3	3	
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	53.0	53.0	53.0	25.0	25.0	22.0
Total Split (%)	53.0%	53.0%	53.0%	25.0%	25.0%	22%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	None	None	None
Act Effct Green (s)	76.0		76.0	14.0	14.0	
Actuated g/C Ratio	0.76		0.76	0.14	0.14	
v/c Ratio	0.42		0.41	0.63	0.40	
Control Delay	2.7		5.4	46.6	10.7	
Queue Delay	0.2		0.0	0.0	0.0	
Total Delay	2.9		5.4	46.6	10.7	
LOS	A		A	D	B	
Approach Delay	2.9		5.4	35.5		
Approach LOS	A		A	D		

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 90 (90%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 69.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: Seaport Boulevard & B Street

Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	1055	708	279	125
v/c Ratio	0.42	0.41	0.63	0.40
Control Delay	2.7	5.4	46.6	10.7
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	2.9	5.4	46.6	10.7
Queue Length 50th (ft)	40	67	87	0
Queue Length 95th (ft)	60	114	113	49
Internal Link Dist (ft)	277	613	433	
Turn Bay Length (ft)				
Base Capacity (vph)	2487	1712	635	396
Starvation Cap Reductn	561	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.41	0.44	0.32

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Volume (vph)	670	278	63	564	5	218	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		5.0	5.0
Lane Util. Factor	0.95			0.95		0.97	1.00
Frpb, ped/bikes	0.98			1.00		1.00	1.00
Flpb, ped/bikes	1.00			1.00		0.88	1.00
Frt	0.95			1.00		1.00	0.85
Flt Protected	1.00			0.99		0.95	1.00
Satd. Flow (prot)	3268			3278		3048	1482
Flt Permitted	1.00			0.68		0.95	1.00
Satd. Flow (perm)	3268			2255		3048	1482
Peak-hour factor, PHF	0.93	0.83	0.66	0.92	0.31	0.83	0.93
Adj. Flow (vph)	720	335	95	613	16	263	125
RTOR Reduction (vph)	25	0	0	0	0	0	108
Lane Group Flow (vph)	1030	0	0	708	0	279	18
Confl. Peds. (#/hr)		102	102			34	29
Confl. Bikes (#/hr)		14					4
Heavy Vehicles (%)	4%	2%	11%	9%	0%	1%	9%
Turn Type			Perm		Perm		Prot
Protected Phases	1			1		3	3
Permitted Phases			1		3		
Actuated Green, G (s)	76.0			76.0		14.0	14.0
Effective Green, g (s)	76.0			76.0		14.0	14.0
Actuated g/C Ratio	0.76			0.76		0.14	0.14
Clearance Time (s)	5.0			5.0		5.0	5.0
Vehicle Extension (s)	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	2484			1714		427	207
v/s Ratio Prot	c0.32						0.01
v/s Ratio Perm				0.31		0.09	
v/c Ratio	0.41			0.41		0.65	0.08
Uniform Delay, d1	4.2			4.2		40.7	37.4
Progression Factor	0.55			1.00		1.00	1.00
Incremental Delay, d2	0.5			0.7		3.6	0.2
Delay (s)	2.8			4.9		44.3	37.6
Level of Service	A			A		D	D
Approach Delay (s)	2.8			4.9		42.2	
Approach LOS	A			A		D	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Configurations							
Volume (vph)	281	495	201	371	4	324	69
Turn Type		Split			Perm		Prot
Protected Phases	1	2	2	3		4	4
Permitted Phases					4		
Detector Phase	1	2	2	3	4	4	4
Switch Phase							
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	26.0	16.0	16.0	13.0	13.0	13.0	13.0
Total Split (s)	29.0	23.0	23.0	21.0	14.0	14.0	14.0
Total Split (%)	33.3%	26.4%	26.4%	24.1%	16.1%	16.1%	16.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	None	None	None
Act Effct Green (s)	20.8	18.0	18.0	16.0		9.0	9.0
Actuated g/C Ratio	0.25	0.21	0.21	0.19		0.11	0.11
v/c Ratio	0.79	1.04	0.99	1.81		1.14	0.33
Control Delay	29.4	94.4	65.1	393.9		130.8	13.4
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	29.4	94.4	65.1	393.9		130.8	13.4
LOS	C	F	E	F		F	B
Approach Delay	29.4		74.9	393.9		110.6	
Approach LOS	C		E	F		F	

Intersection Summary	
Cycle Length: 87	
Actuated Cycle Length: 83.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.81	
Intersection Signal Delay: 187.1	Intersection LOS: F
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Congress Street & B Street

Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	735	349	689	1292	376	78
v/c Ratio	0.79	1.04	0.99	1.81	1.14	0.33
Control Delay	29.4	94.4	65.1	393.9	130.8	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	94.4	65.1	393.9	130.8	13.4
Queue Length 50th (ft)	148	~227	~198	~536	~127	0
Queue Length 95th (ft)	165	#321	#277	#590	#214	39
Internal Link Dist (ft)	434		612	93	433	
Turn Bay Length (ft)						
Base Capacity (vph)	1052	337	697	713	329	237
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	1.04	0.99	1.81	1.14	0.33

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	69	281	193	1	495	201	120	269	371	427	4	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0			5.0
Lane Util. Factor		0.95			0.91	0.91			0.95			0.95
Frpb, ped/bikes		0.99			1.00	1.00			0.97			1.00
Flpb, ped/bikes		1.00			1.00	1.00			1.00			1.00
Frt		0.94			1.00	0.97			0.94			1.00
Flt Protected		0.99			0.95	0.98			0.99			1.00
Satd. Flow (prot)		3258			1565	3136			3222			3437
Flt Permitted		0.99			0.95	0.98			0.99			0.89
Satd. Flow (perm)		3258			1565	3136			3222			3061
Peak-hour factor, PHF	0.84	0.77	0.67	0.25	0.76	0.81	0.89	0.76	0.81	0.89	0.50	0.88
Adj. Flow (vph)	82	365	288	4	651	248	135	354	458	480	8	368
RTOR Reduction (vph)	0	125	0	0	0	23	0	0	99	0	0	0
Lane Group Flow (vph)	0	610	0	0	349	666	0	0	1193	0	0	376
Confl. Peds. (#/hr)	1		3		3		1	48		36	36	
Confl. Bikes (#/hr)			1				4					
Heavy Vehicles (%)	6%	4%	1%	0%	5%	2%	7%	1%	1%	3%	0%	5%
Turn Type	Split			Split	Split			Split			Perm	
Protected Phases	1	1		2	2	2		3	3			4
Permitted Phases											4	
Actuated Green, G (s)		20.7			18.0	18.0			16.0			9.0
Effective Green, g (s)		20.7			18.0	18.0			16.0			9.0
Actuated g/C Ratio		0.25			0.22	0.22			0.19			0.11
Clearance Time (s)		5.0			5.0	5.0			5.0			5.0
Vehicle Extension (s)		3.0			3.0	3.0			3.0			3.0
Lane Grp Cap (vph)		806			337	674			616			329
v/s Ratio Prot		c0.19			c0.22	0.21			c0.37			
v/s Ratio Perm												c0.12
v/c Ratio		0.76			1.04	0.99			1.94			1.14
Uniform Delay, d1		29.2			32.9	32.7			33.9			37.4
Progression Factor		1.00			1.00	1.00			1.00			1.00
Incremental Delay, d2		4.1			58.5	31.4			427.7			94.2
Delay (s)		33.3			91.4	64.2			461.6			131.5
Level of Service		C			F	E			F			F
Approach Delay (s)		33.3				73.3			461.6			114.7
Approach LOS		C				E			F			F

Intersection Summary			
HCM Average Control Delay	212.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	69
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	78
RTOR Reduction (vph)	70
Lane Group Flow (vph)	8
Confl. Peds. (#/hr)	48
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	4%
Turn Type	Prot
Protected Phases	4
Permitted Phases	
Actuated Green, G (s)	9.0
Effective Green, g (s)	9.0
Actuated g/C Ratio	0.11
Clearance Time (s)	5.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	167
v/s Ratio Prot	0.01
v/s Ratio Perm	
v/c Ratio	0.05
Uniform Delay, d1	33.5
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	33.6
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBL	NBT	NBR	ø2	ø3
Lane Configurations									
Volume (vph)	27	78	387	443	148	246	139		
Turn Type	Perm	Perm			Perm		Perm		
Protected Phases			1	1		2 3		2	3
Permitted Phases	1	1			2 3		2 3		
Detector Phase	1	1	1	1	2 3	2 3	2 3		
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0				8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	27.0				17.0	14.0
Total Split (s)	31.0	31.0	31.0	31.0	65.0	65.0	65.0	30.0	35.0
Total Split (%)	32.3%	32.3%	32.3%	32.3%	67.7%	67.7%	67.7%	31%	36%
Yellow Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0				3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0		
Lead/Lag	Lead	Lead	Lead	Lead				Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				Yes	
Recall Mode	None	None	None	None				None	None
Act Effct Green (s)		25.2	25.2	25.2	27.8	27.8	27.8		
Actuated g/C Ratio		0.39	0.39	0.39	0.43	0.43	0.43		
v/c Ratio		0.62	0.35	0.51	0.28	0.27	0.22		
Control Delay		33.7	16.1	17.0	13.0	12.0	7.4		
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay		33.7	16.1	17.0	13.0	12.0	7.4		
LOS		C	B	B	B	B	A		
Approach Delay			20.1	17.0		11.2			
Approach LOS			C	B		B			

Intersection Summary

Cycle Length: 96
Actuated Cycle Length: 65
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 47.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: Congress Street & East Service Road

Lane Group	EBL	EBT	WBT	NBL	NBT	NBR
Lane Group Flow (vph)	140	478	642	177	365	146
v/c Ratio	0.62	0.35	0.51	0.28	0.27	0.22
Control Delay	33.7	16.1	17.0	13.0	12.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	16.1	17.0	13.0	12.0	7.4
Queue Length 50th (ft)	42	66	89	47	50	19
Queue Length 95th (ft)	#90	111	166	62	67	48
Internal Link Dist (ft)		366	434		373	
Turn Bay Length (ft)						
Base Capacity (vph)	226	1356	1247	1102	2343	1075
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.35	0.51	0.16	0.16	0.14

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	27	78	387	0	0	443	101	148	246	139	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			6.0		6.0	6.0	6.0		
Lane Util. Factor		1.00	0.95			0.95		0.91	0.86	0.91		
Frpb, ped/bikes		1.00	1.00			0.96		1.00	1.00	1.00		
Flpb, ped/bikes		0.94	1.00			1.00		0.97	1.00	1.00		
Frt		1.00	1.00			0.97		1.00	0.99	0.85		
Flt Protected		0.95	1.00			1.00		0.95	0.99	1.00		
Satd. Flow (prot)		1582	3505			3223		1526	3199	1441		
Flt Permitted		0.36	1.00			1.00		0.95	0.99	1.00		
Satd. Flow (perm)		593	3505			3223		1526	3199	1441		
Peak-hour factor, PHF	0.84	0.72	0.81	0.89	0.89	0.89	0.70	0.68	0.80	0.86	0.92	0.92
Adj. Flow (vph)	32	108	478	0	0	498	144	218	308	162	0	0
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	5	38	0	0
Lane Group Flow (vph)	0	140	478	0	0	619	0	177	360	108	0	0
Confl. Peds. (#/hr)		179		35	35		179	19				
Confl. Bikes (#/hr)				3			9					
Heavy Vehicles (%)	0%	9%	3%	2%	2%	3%	7%	4%	0%	2%	2%	2%
Turn Type	Perm	Perm						Perm		Perm		
Protected Phases			1			1			2 3			
Permitted Phases	1	1						2 3		2 3		
Actuated Green, G (s)		25.2	25.2			25.2		27.8	27.8	27.8		
Effective Green, g (s)		25.2	25.2			25.2		27.8	27.8	27.8		
Actuated g/C Ratio		0.39	0.39			0.39		0.43	0.43	0.43		
Clearance Time (s)		6.0	6.0			6.0						
Vehicle Extension (s)		3.0	3.0			3.0						
Lane Grp Cap (vph)		230	1359			1250		653	1368	616		
v/s Ratio Prot			0.14			0.19						
v/s Ratio Perm		c0.24						c0.12	0.11	0.08		
v/c Ratio		0.61	0.35			0.49		0.27	0.26	0.18		
Uniform Delay, d1		15.9	14.1			15.1		12.0	12.0	11.5		
Progression Factor		1.00	1.00			1.00		1.00	1.00	1.00		
Incremental Delay, d2		4.5	0.2			0.3		0.2	0.1	0.1		
Delay (s)		20.5	14.3			15.4		12.3	12.1	11.6		
Level of Service		C	B			B		B	B	B		
Approach Delay (s)			15.7			15.4			12.0			0.0
Approach LOS			B			B			B			A

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Volume (vph)	0
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	0
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBU	EBL	EBT	WBT	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	3	47	503	593	80	245	0
Turn Type	custom	D.P+P				Split	
Protected Phases		6	1 6	1	5	2	2
Permitted Phases	6	1					
Detector Phase	6	6	1 6	1	5	2	2
Switch Phase							
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	13.0	13.0		22.0	22.0	22.0	22.0
Total Split (s)	13.0	13.0	46.0	33.0	26.0	28.0	28.0
Total Split (%)	13.0%	13.0%	46.0%	33.0%	26.0%	28.0%	28.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes
Recall Mode	None	None		C-Max	None	None	None
Act Effct Green (s)		46.9	51.9	35.0	15.9	17.2	17.2
Actuated g/C Ratio		0.47	0.52	0.35	0.16	0.17	0.17
v/c Ratio		0.19	0.30	0.74	0.69	0.69	0.63
Control Delay		20.3	17.9	31.2	40.2	50.7	36.6
Queue Delay		0.0	0.0	0.6	0.0	0.0	0.0
Total Delay		20.3	17.9	31.8	40.2	50.7	36.6
LOS		C	B	C	D	D	D
Approach Delay			18.2	31.8	40.2		43.9
Approach LOS			B	C	D		D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 81 (81%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 68.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 9: Seaport Boulevard & Northern Avenue

Lane Group	EBL	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	60	524	813	384	204	191
v/c Ratio	0.19	0.30	0.74	0.69	0.69	0.63
Control Delay	20.3	17.9	31.2	40.2	50.7	36.6
Queue Delay	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	20.3	17.9	31.8	40.2	50.7	36.6
Queue Length 50th (ft)	17	87	209	105	130	87
Queue Length 95th (ft)	56	165	#347	117	177	153
Internal Link Dist (ft)		428	277	680		273
Turn Bay Length (ft)						
Base Capacity (vph)	315	1769	1104	722	394	389
Starvation Cap Reductn	0	0	81	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.30	0.79	0.53	0.52	0.49

Intersection Summary

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	3	47	503	0	0	593	142	137	80	88	245	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0			5.0		5.0	5.0
Lane Util. Factor		1.00	0.95			0.95			0.95		0.95	0.95
Frpb, ped/bikes		1.00	1.00			0.93			0.99		1.00	0.97
Flpb, ped/bikes		0.99	1.00			1.00			1.00		1.00	1.00
Frt		1.00	1.00			0.97			0.96		1.00	0.92
Flt Protected		0.95	1.00			1.00			0.98		0.95	0.98
Satd. Flow (prot)		1634	3406			3088			3235		1715	1520
Flt Permitted		0.19	1.00			1.00			0.98		0.95	0.98
Satd. Flow (perm)		333	3406			3088			3235		1715	1520
Peak-hour factor, PHF	0.38	0.90	0.96	0.92	0.92	0.94	0.78	0.81	0.76	0.80	0.83	0.92
Adj. Flow (vph)	8	52	524	0	0	631	182	169	105	110	295	0
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	45	0	0	42
Lane Group Flow (vph)	0	60	524	0	0	789	0	0	339	0	204	149
Confl. Peds. (#/hr)		211		141	141		211	26		5	5	
Heavy Vehicles (%)	0%	11%	6%	2%	2%	4%	8%	5%	3%	3%	0%	2%
Turn Type	custom	D.P+P						Split			Split	
Protected Phases		6	1 6			1		5	5		2	2
Permitted Phases	6	1										
Actuated Green, G (s)		46.9	51.9			34.9			15.9		17.2	17.2
Effective Green, g (s)		46.9	51.9			34.9			15.9		17.2	17.2
Actuated g/C Ratio		0.47	0.52			0.35			0.16		0.17	0.17
Clearance Time (s)		5.0				5.0			5.0		5.0	5.0
Vehicle Extension (s)		3.0				3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		312	1768			1078			514		295	261
v/s Ratio Prot		0.02	c0.15			c0.26			c0.10		c0.12	0.10
v/s Ratio Perm		0.07										
v/c Ratio		0.19	0.30			0.73			0.66		0.69	0.57
Uniform Delay, d1		15.9	13.7			28.5			39.5		38.9	38.0
Progression Factor		1.24	1.14			0.91			1.00		1.00	1.00
Incremental Delay, d2		0.3	0.1			4.1			3.0		6.8	3.0
Delay (s)		20.1	15.7			29.9			42.6		45.7	41.0
Level of Service		C	B			C			D		D	D
Approach Delay (s)			16.2			29.9			42.6			43.4
Approach LOS			B			C			D			D

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	81
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.81
Adj. Flow (vph)	100
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	26
Heavy Vehicles (%)	7%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

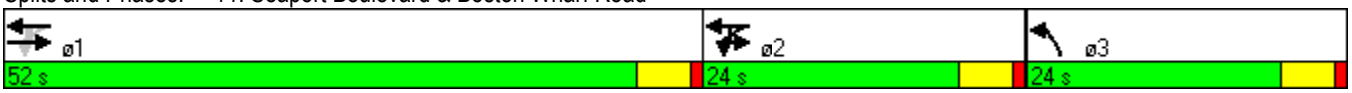
Intersection Summary

Lane Group	EBU	EBT	WBU	WBL	WBT	NBL
Lane Configurations						
Volume (vph)	3	535	18	106	658	87
Turn Type	Perm		D.P+P	D.P+P		
Protected Phases		1	2	2	1 2	3
Permitted Phases	1		1	1		
Detector Phase	1	1	2	2	1 2	3
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0	8.0		8.0
Minimum Split (s)	23.0	23.0	23.0	23.0		23.0
Total Split (s)	52.0	52.0	24.0	24.0	76.0	24.0
Total Split (%)	52.0%	52.0%	24.0%	24.0%	76.0%	24.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0
All-Red Time (s)	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lag	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	C-Max	C-Max	None	None		None
Act Effct Green (s)		64.7		75.0	80.0	10.0
Actuated g/C Ratio		0.65		0.75	0.80	0.10
v/c Ratio		0.41		0.31	0.28	0.51
Control Delay		9.3		2.6	0.9	36.7
Queue Delay		0.0		0.0	0.0	0.0
Total Delay		9.3		2.6	0.9	36.7
LOS		A		A	A	D
Approach Delay		9.3			1.2	36.7
Approach LOS		A			A	D

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 7.9 Intersection LOS: A
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 11: Seaport Boulevard & Boston Wharf Road



Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	703	141	723	167
v/c Ratio	0.41	0.31	0.28	0.51
Control Delay	9.3	2.6	0.9	36.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.3	2.6	0.9	36.7
Queue Length 50th (ft)	92	2	4	39
Queue Length 95th (ft)	158	m7	15	60
Internal Link Dist (ft)	509		428	778
Turn Bay Length (ft)				
Base Capacity (vph)	1710	591	2898	581
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.24	0.25	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

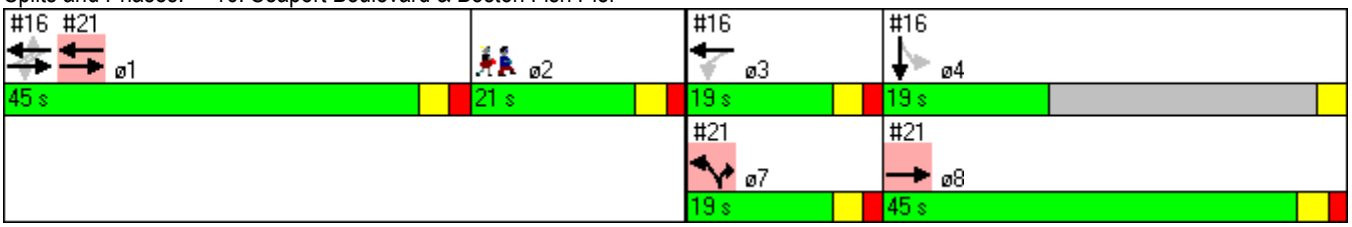
Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	3	535	131	18	106	658	87	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	5.0	
Lane Util. Factor		0.95			1.00	0.95	0.97	
Frpb, ped/bikes		0.88			1.00	1.00	0.93	
Flpb, ped/bikes		1.00			0.94	1.00	1.00	
Frt		0.97			1.00	1.00	0.95	
Flt Protected		1.00			0.95	1.00	0.97	
Satd. Flow (prot)		2762			1399	3266	2878	
Flt Permitted		0.95			0.36	1.00	0.97	
Satd. Flow (perm)		2617			530	3266	2878	
Peak-hour factor, PHF	0.38	0.98	0.88	0.64	0.94	0.91	0.81	0.68
Adj. Flow (vph)	8	546	149	28	113	723	107	60
RTOR Reduction (vph)	0	16	0	0	0	0	39	0
Lane Group Flow (vph)	0	687	0	0	141	723	128	0
Confl. Peds. (#/hr)			259		259		47	98
Confl. Bikes (#/hr)			2					
Heavy Vehicles (%)	0%	7%	2%	6%	10%	5%	5%	3%
Parking (#/hr)	0	0	0	0	0	0	0	0
Turn Type	Perm			D.P+P	D.P+P			
Protected Phases		1		2	2	1 2	3	
Permitted Phases	1			1	1			
Actuated Green, G (s)		64.8			75.0	80.0	10.0	
Effective Green, g (s)		64.8			75.0	80.0	10.0	
Actuated g/C Ratio		0.65			0.75	0.80	0.10	
Clearance Time (s)		5.0			5.0		5.0	
Vehicle Extension (s)		3.0			3.0		3.0	
Lane Grp Cap (vph)		1696			486	2613	288	
v/s Ratio Prot					0.03	c0.22	c0.04	
v/s Ratio Perm		c0.26			0.19			
v/c Ratio		0.40			0.29	0.28	0.45	
Uniform Delay, d1		8.4			5.6	2.6	42.4	
Progression Factor		1.00			0.35	0.25	1.00	
Incremental Delay, d2		0.7			0.2	0.0	1.1	
Delay (s)		9.1			2.2	0.7	43.5	
Level of Service		A			A	A	D	
Approach Delay (s)		9.1				0.9	43.5	
Approach LOS		A				A	D	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	SBT	ø2	ø3	ø7	ø8
Lane Configurations									
Volume (vph)	21	427	127	675	42				
Turn Type	Perm		Perm						
Protected Phases		1		1 3	4	2	3	7	8
Permitted Phases	1		1 3						
Detector Phase	1	1	1 3	1 3	4				
Switch Phase									
Minimum Initial (s)	16.0	16.0			3.0	5.0	3.0	3.0	16.0
Minimum Split (s)	21.0	21.0			8.0	21.0	8.0	8.0	21.0
Total Split (s)	45.0	45.0	64.0	64.0	19.0	21.0	19.0	19.0	45.0
Total Split (%)	34.6%	34.6%	49.2%	49.2%	14.6%	16%	15%	15%	35%
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0			0.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0	3.0				
Lead/Lag	Lead	Lead			Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None			None	Min	None	None	None
Act Effct Green (s)		40.0		58.6	15.1				
Actuated g/C Ratio		0.42		0.62	0.16				
v/c Ratio		0.70		0.70	0.29				
Control Delay		20.9		7.7	28.7				
Queue Delay		0.0		0.3	0.0				
Total Delay		20.9		8.0	28.7				
LOS		C		A	C				
Approach Delay		20.9		8.0	28.7				
Approach LOS		C		A	C				

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 94.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 71.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 16: Seaport Boulevard & Boston Fish Pier



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	966	900	85
v/c Ratio	0.70	0.70	0.29
Control Delay	20.9	7.7	28.7
Queue Delay	0.0	0.3	0.0
Total Delay	20.9	8.0	28.7
Queue Length 50th (ft)	200	83	34
Queue Length 95th (ft)	274	112	76
Internal Link Dist (ft)	613	32	232
Turn Bay Length (ft)			
Base Capacity (vph)	1372	1280	791
Starvation Cap Reductn	0	71	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.70	0.74	0.11

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	427	441	127	675	26	0	0	0	10	42	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						3.0	
Lane Util. Factor		0.95			0.95						1.00	
Frpb, ped/bikes		0.99			1.00						0.98	
Flpb, ped/bikes		1.00			1.00						1.00	
Frt		0.93			1.00						0.96	
Flt Protected		1.00			0.99						0.99	
Satd. Flow (prot)		3236			3491						1739	
Flt Permitted		0.92			0.59						0.99	
Satd. Flow (perm)		2971			2061						1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	464	479	138	734	28	0	0	0	11	46	28
RTOR Reduction (vph)	0	115	0	0	1	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	851	0	0	899	0	0	0	0	0	68	0
Confl. Peds. (#/hr)	16		14	14		16						19
Turn Type	Perm			Perm						Perm		
Protected Phases		1			1 3						4	
Permitted Phases	1			1 3						4		
Actuated Green, G (s)		40.0			57.5						14.0	
Effective Green, g (s)		40.0			57.5						14.0	
Actuated g/C Ratio		0.42			0.61						0.15	
Clearance Time (s)		5.0									3.0	
Vehicle Extension (s)		3.0									3.0	
Lane Grp Cap (vph)		1251			1247						256	
v/s Ratio Prot												
v/s Ratio Perm		0.29			c0.44						0.04	
v/c Ratio		0.68			0.72						0.27	
Uniform Delay, d1		22.3			13.1						35.9	
Progression Factor		1.00			0.58						1.00	
Incremental Delay, d2		1.5			1.7						0.6	
Delay (s)		23.9			9.3						36.5	
Level of Service		C			A						D	
Approach Delay (s)		23.9			9.3			0.0			36.5	
Approach LOS		C			A			A			D	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	28.1
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBL	EBT	EBR	WBT	NBL	NBT	SBU	SBL	SBT
Lane Configurations										
Volume (vph)	10	134	162	560	155	425	267	10	5	689
Turn Type	Perm	Split		Prot		Split		Perm	Split	
Protected Phases		1	1	1	4	2	2		3	3
Permitted Phases	1							3		
Detector Phase	1	1	1	1	4	2	2	3	3	3
Switch Phase										
Minimum Initial (s)	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	22.0	22.0	22.0	22.0	17.0	27.0	27.0	18.0	18.0	18.0
Total Split (s)	38.0	38.0	38.0	38.0	17.0	27.0	27.0	28.0	28.0	28.0
Total Split (%)	34.5%	34.5%	34.5%	34.5%	15.5%	24.5%	24.5%	25.5%	25.5%	25.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lost Time Adjust (s)	0.0	0.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	8.0	8.0	6.0	6.0	6.0	7.0	7.0	8.0	8.0	6.0
Lead/Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	None	None	None
Act Effct Green (s)			32.0	32.0	11.0	20.0	20.0			22.0
Actuated g/C Ratio			0.29	0.29	0.10	0.18	0.18			0.20
v/c Ratio			0.73	0.76	1.04	0.81	1.26			1.22
Control Delay			40.9	49.3	107.8	54.6	178.0			149.0
Queue Delay			0.0	0.0	0.0	0.0	0.0			0.0
Total Delay			40.9	49.3	107.8	54.6	178.0			149.0
LOS			D	D	F	D	F			F
Approach Delay			43.7		107.8		109.5			149.0
Approach LOS			D		F		F			F

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 32 (29%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 100.0 Intersection LOS: F
Intersection Capacity Utilization 90.3% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 17: Congress Street & D Street

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	637	314	354	494	396	865
v/c Ratio	0.73	0.76	1.04	0.81	1.26	1.22
Control Delay	40.9	49.3	107.8	54.6	178.0	149.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	49.3	107.8	54.6	178.0	149.0
Queue Length 50th (ft)	222	221	~141	174	~347	~395
Queue Length 95th (ft)	293	#368	#222	221	#505	#505
Internal Link Dist (ft)	612		721		358	155
Turn Bay Length (ft)		150		250		
Base Capacity (vph)	872	411	340	612	314	710
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.76	1.04	0.81	1.26	1.22

Intersection Summary

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

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

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	10	134	162	560	129	155	21	425	267	74	10	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0		7.0	7.0			
Lane Util. Factor			0.91	0.91		0.95		0.97	1.00			
Frpb, ped/bikes			0.98	1.00		0.99		1.00	0.95			
Flpb, ped/bikes			1.00	1.00		1.00		1.00	1.00			
Frt			0.93	0.85		0.99		1.00	0.97			
Flt Protected			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (prot)			2998	1413		3357		3367	1681			
Flt Permitted			0.99	1.00		0.98		0.95	1.00			
Satd. Flow (perm)			2998	1413		3357		3367	1681			
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.86	0.86	0.88	0.88
Adj. Flow (vph)	11	147	178	615	150	180	24	494	310	86	11	6
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	9	0	0	0
Lane Group Flow (vph)	0	0	637	314	0	350	0	494	387	0	0	0
Confl. Peds. (#/hr)	10	81		12	12		81	10		106	61	106
Confl. Bikes (#/hr)				1								
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	4%	4%	4%	1%	1%
Turn Type	Perm	Split		Prot	Split			Split			Perm	Split
Protected Phases		1	1	1	4	4		2	2			3
Permitted Phases	1										3	
Actuated Green, G (s)			30.0	30.0		9.0		18.0	18.0			
Effective Green, g (s)			32.0	32.0		11.0		20.0	20.0			
Actuated g/C Ratio			0.29	0.29		0.10		0.18	0.18			
Clearance Time (s)			8.0	8.0		8.0		9.0	9.0			
Vehicle Extension (s)			3.0	3.0		3.0		3.0	3.0			
Lane Grp Cap (vph)			872	411		336		612	306			
v/s Ratio Prot			0.21	c0.22		c0.10		0.15	c0.23			
v/s Ratio Perm												
v/c Ratio			0.73	0.76		1.04		0.81	1.26			
Uniform Delay, d1			35.1	35.6		49.5		43.2	45.0			
Progression Factor			1.00	1.00		1.00		1.00	1.00			
Incremental Delay, d2			5.4	12.7		59.9		10.9	142.6			
Delay (s)			40.5	48.2		109.4		54.1	187.6			
Level of Service			D	D		F		D	F			
Approach Delay (s)			43.0			109.4			113.5			
Approach LOS			D			F			F			

Intersection Summary			
HCM Average Control Delay	103.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Volume (vph)	689	57
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.0	
Lane Util. Factor	0.95	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	3522	
Flt Permitted	1.00	
Satd. Flow (perm)	3522	
Peak-hour factor, PHF	0.88	0.88
Adj. Flow (vph)	783	65
RTOR Reduction (vph)	6	0
Lane Group Flow (vph)	859	0
Confl. Peds. (#/hr)		10
Confl. Bikes (#/hr)		1
Heavy Vehicles (%)	1%	1%
Turn Type		
Protected Phases	3	
Permitted Phases		
Actuated Green, G (s)	20.0	
Effective Green, g (s)	22.0	
Actuated g/C Ratio	0.20	
Clearance Time (s)	8.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	704	
v/s Ratio Prot	c0.24	
v/s Ratio Perm		
v/c Ratio	1.22	
Uniform Delay, d1	44.0	
Progression Factor	1.00	
Incremental Delay, d2	111.9	
Delay (s)	155.9	
Level of Service	F	
Approach Delay (s)	155.9	
Approach LOS	F	

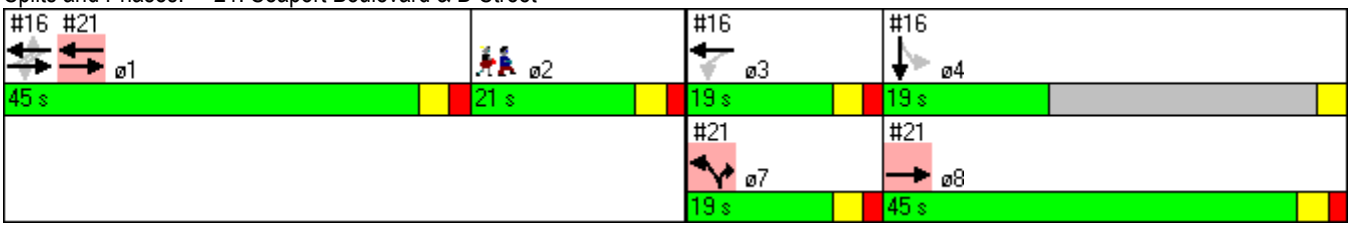
Intersection Summary

Lane Group	EBT	WBT	NBL	NBR	ø2	ø3	ø4	ø8
Lane Configurations								
Volume (vph)	437	810	140	45				
Turn Type				Prot				
Protected Phases	1 8	1	7	7	2	3	4	8
Permitted Phases								
Detector Phase	1 8	1	7	7				
Switch Phase								
Minimum Initial (s)		16.0	3.0	3.0	5.0	3.0	3.0	16.0
Minimum Split (s)		21.0	8.0	8.0	21.0	8.0	8.0	21.0
Total Split (s)	90.0	45.0	19.0	19.0	21.0	19.0	19.0	45.0
Total Split (%)	69.2%	34.6%	14.6%	14.6%	16%	15%	15%	35%
Yellow Time (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)		2.0	2.0	2.0	2.0	2.0	0.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0	5.0	5.0				
Lead/Lag		Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode		None	None	None	Min	None	None	None
Act Effct Green (s)	61.0	40.0	12.9	12.9				
Actuated g/C Ratio	0.65	0.42	0.14	0.14				
v/c Ratio	0.21	0.59	0.63	0.19				
Control Delay	2.1	23.0	50.9	12.8				
Queue Delay	1.4	0.7	0.0	0.0				
Total Delay	3.5	23.7	50.9	12.8				
LOS	A	C	D	B				
Approach Delay	3.5	23.7	41.6					
Approach LOS	A	C	D					

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 94.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 40.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 21: Seaport Boulevard & D Street



Lane Group	EBT	WBT	NBL	NBR
Lane Group Flow (vph)	475	880	152	49
v/c Ratio	0.21	0.59	0.63	0.19
Control Delay	2.1	23.0	50.9	12.8
Queue Delay	1.4	0.7	0.0	0.0
Total Delay	3.5	23.7	50.9	12.8
Queue Length 50th (ft)	14	211	87	0
Queue Length 95th (ft)	15	274	152	32
Internal Link Dist (ft)	32	512	121	
Turn Bay Length (ft)				
Base Capacity (vph)	2288	1500	262	277
Starvation Cap Reductn	1569	0	0	0
Spillback Cap Reductn	0	298	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.73	0.58	0.18

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	437	0	0	810	140	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	5.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	0	0	880	152	49
RTOR Reduction (vph)	0	0	0	0	0	42
Lane Group Flow (vph)	475	0	0	880	152	7
Confl. Peds. (#/hr)						10
Turn Type						Prot
Protected Phases	1 8			1	7	7
Permitted Phases						
Actuated Green, G (s)	61.6			40.0	12.9	12.9
Effective Green, g (s)	61.6			40.0	12.9	12.9
Actuated g/C Ratio	0.65			0.42	0.14	0.14
Clearance Time (s)				5.0	5.0	5.0
Vehicle Extension (s)				3.0	3.0	3.0
Lane Grp Cap (vph)	2295			1490	240	215
v/s Ratio Prot	c0.13			c0.25	c0.09	0.00
v/s Ratio Perm						
v/c Ratio	0.21			0.59	0.63	0.03
Uniform Delay, d1	6.8			21.2	38.8	35.6
Progression Factor	0.28			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.6	5.4	0.1
Delay (s)	1.9			21.8	44.2	35.7
Level of Service	A			C	D	D
Approach Delay (s)	1.9			21.8	42.1	
Approach LOS	A			C	D	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	25.5
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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WIND ENGINEERING AND AIR QUALITY CONSULTANTS

Interim Pedestrian-Level Winds Report

Wind Tunnel Tests for

150 SEAPORT BLVD.

Boston, Massachusetts

CPP Project 8591

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EXECUTIVE SUMMARY

A wind tunnel study of the 150 Seaport Blvd. development, to be located in Boston, MA, was conducted to assess pedestrian wind comfort. A scale model of the project was centered on a turntable in a boundary-layer wind tunnel of CPP, Inc. in Fort Collins, Colorado. Replicas of surrounding buildings were constructed and placed on the turntable (Figure 1). Approach boundary layers with the appropriate mean profile and turbulence characteristics were established in the test section of the wind tunnel.

Two configurations of the surroundings were tested. Configuration B was the base configuration (Figure 1a) with existing building in place. An additional configuration, Configuration C, was tested with the new proposed building at 150 Seaport Blvd. Plans for the future building were provided by Elkus Manfredi Architects and were dated 21 December 2015 and 6 January 2016 (Figure 1b).

Measurements of winds likely to be experienced by pedestrians were combined with wind statistics and compared to the comfort criteria of Lawson (1990) and the BRA criterion (31 MPH not exceeded more than 1% of the time). The results are summarized in Figure 2 and discussed in Section 3; the testing was performed without the presence of landscaping in order to provide a conservative (worst-case) wind environment.

The area of influence of the proposed 150 Seaport Blvd. is bounded within a radius of about one block or less. This influence is limited in magnitude. Some areas benefit from the effect of the proposed structure on the wind field, while marginal adverse effects occur in other areas. Overall, the proposed development's influence on ground level wind environment is neutral. All 101 test locations passed the BRA criterion in both configurations in the all-season (yearly average) analysis. Winter, Spring, and Autumn seasonal analyses showed some test locations failed the BRA criterion while other improved. Many of these failures are due to seasonal wind climate and not the proposed development at 150 Seaport Blvd.

General information, including the wind climate analysis, is given in Appendix A. Supplemental information pertaining to the results presented in this report can be found in Appendix B.

All data in this report should be regarded as preliminary and subject to alteration during the final stage of CPP's quality assurance procedures.

The following table summarizes the details for the wind tunnel studies:

Summary of Test Parameters

General Information	
Model scale	1:350
Surrounding model radius (full-scale)	1635 ft
Mean wind speed profile Power Law exponents	Open-country environment approach, n = 0.14 Built-up environment approach, n = 0.23
Pedestrian Comfort Study Information	
Number of points	101
Testing Configuration(s)	
Configuration B	The 150 Seaport Blvd. existing development with nearby buildings, as shown in Figure 1.
Configuration C	The 150 Seaport Blvd. proposed development with nearby buildings, as shown in Figure 1.

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1. INTRODUCTION

Pedestrian acceptability of sidewalks, entrances, plazas, and terraces is often an important design parameter of interest to the building owners, architects, and tenants. Assessment of the acceptability of the pedestrian-level wind environment is desirable during the project design phase so that modifications can be made, if necessary, to improve areas found to be excessively windy.

This report includes wind tunnel test procedures, test results, and a discussion of test results obtained in the CPP, Inc. Wind Engineering Laboratory. Supplemental information pertaining to the results in this report can be found in Appendix A and Appendix B.

All data collection was performed in accordance with the American Society of Civil Engineers (ASCE) Standard 7-10 (2010), the ASCE Manual of Practice Number 67 on Wind Tunnel Studies of Buildings and Structures (1999), the ASCE Standard 49-12 on Wind Tunnel Testing of Buildings and Other Structures (2012), and the BRA Development Review Guidelines (2006).

2. PEDESTRIAN-LEVEL WINDS

2.1 Lawson and BRA Criteria

Over the years, a number of researchers have added to the knowledge of wind effects on pedestrians by suggesting criteria for comfort and safety. Because pedestrians will tolerate higher wind speeds for a smaller period of time than for lower wind speeds, these criteria provide a means of evaluating overall acceptability of a pedestrian location. Also, a location can be evaluated for its intended use, such as for an outdoor café or sidewalk. One of the most widely accepted set of criteria was developed by Lawson (1990).

Lawson's criteria allow planners to judge the usability of the locations for various purposes, such as for long-duration activities (e.g., outdoor café) or ordinary walkways, and to highlight areas that may be dangerous to elderly or infirm individuals.

There are categories for comfort, based on the larger of a mean or gust-equivalent mean wind speed (U_{GEM}) exceeded 5% of the time (about eight hours per week on average). The gust-equivalent mean is the peak gust wind speed divided by 1.85.

The Boston Redevelopment Authority (BRA) has defined its own pedestrian wind criterion. This criterion requires that the BRA equivalent gust (defined as the mean velocity plus 1.5 times the root mean square value) speed of 31 mph should not be exceeded more than one percent of the time.

The wind speeds for each category are as follows:

Comfort	
<9 mph	"Pedestrian Sitting" – considered to be of long duration;
9-13 mph	"Pedestrian Standing" – or sitting for a short time or exposure;
13-18 mph	"Pedestrian Walking";
18-22 mph	"Business Walking" – objective walking from A to B or for cycling;
>22 mph	"Uncomfortable";
BRA Criterion	
31 mph	Not to be exceeded more than 1% of the time

The level and severity of the comfort categories can vary based on individual preference, so calibration to the local wind environment is recommended when evaluating the Lawson ratings.

For regular outdoor dining, and in semi-enclosed spaces, it has been the experience of CPP that the comfort rating of "pedestrian sitting" may be slightly non-conservative and that a wind speed of less than 6 mph may be required. This lower wind speed is recommended to assure optimal quality of the outdoor dining experience.

2.2 Measurement Points

Wind speed measurements were made at a number of selected locations to evaluate pedestrian comfort and safety around the project site. Mean (average) wind speed and turbulence intensity measurements were made at the model-scale equivalent of 5 to 7 ft above the surface for 16 wind directions in 22.5° increments from 0° (north). Wind speeds were measured with a CPP Probe (calibratable pedestrian-level pressure probe). Supplemental information pertaining to the pedestrian wind results is provided in Appendix B.

Measurement points were prescribed to determine the degree of pedestrian comfort or discomfort at locations where relatively severe conditions are frequently found, such as at the building corners, near entrances and on adjacent sidewalks with heavy pedestrian traffic. Locations used in this study were approved by the BRA.

2.3 Wind Climate

To enable a quantitative assessment of the wind environment, the wind tunnel data were combined with wind frequency and direction information derived from data measured at the Logan International Airport and adjusted to the site location. Appendix A provides a description and a graphical representation of the climate data. These data were combined statistically with the wind tunnel data to obtain cumulative probability distributions of wind speed for the full-scale site at each pedestrian measurement location. These results can then be compared to criteria for pedestrian wind comfort and safety.

A detailed presentation of the wind tunnel data, the general wind climate, and their integration to determine pedestrian wind comfort and distress is presented in Appendix B. Refer to the text at the beginning of the appendix for a description of how to interpret this information.

3. DISCUSSION OF RESULTS

3.1 Summary

The assessment of pedestrian comfort and safety with respect to the Lawson criteria is presented in Figure 2 using color location identifiers on a site plan. Figure 3 is also useful as an aid in assessing where each location falls within the range of wind speeds ascribed to each comfort rating. For example, Figure 3a shows that Point 5 received the "pedestrian sitting" rating category.

The BRA criterion ratings are indicated by the border color, with black indicating a pass and red indicating a fail.

It should be noted that all measurements were made without landscaping in place and, as such, can be considered a worst-case condition. Testing in this condition does, though, give guidance on the types of landscaping and other mitigation measures that will be required. These are discussed in the following paragraphs.

Analyses were performed on both an annual (i.e., average over all seasons) and a seasonal basis to identify wind conditions that may be important to seasonal use of certain areas. The majority of the following discussion will concentrate on annual conditions, except where otherwise referenced.

For some areas, it is important to evaluate how much of the time wind speeds will be below the wind speed criteria associated with each comfort category. Figure 4 is included to help evaluate the overall comfort at specific areas of concern and shows the percentage of time that different ranges of wind speed will occur. This assists in gaining a better understanding of the expected comfort ratings shown in Figure 2. Again, Lawson's criteria and the analysis are based on wind speeds that will occur 5% of the time. The criteria are based on experiences that suggest that if certain wind speeds are exceeded 5% of the time in outdoor areas then complaints are likely.

Ultimately, mitigation decisions are up to the design team and what is practical given the local wind conditions and project location. Since the perception of comfort varies from city to city and individually, areas that require mitigation must be decided with some local knowledge based on typical city conditions. The comfort criteria of Lawson can vary based on individual

preference, so calibration to the local wind environment is recommended when evaluating these ratings.

3.2 Surrounding Conditions

Wind speeds at test locations at a distance of more than one block from the proposed development at 150 Seaport Blvd. would not be affected by the proposed building. These locations exhibit the same measured wind speeds as in the existing configuration. The new proposed development has minimum impact on the wind environment of most of its surroundings. This can be shown by comparison, between the same locations in both configurations, of the polar plots attached in Appendix B. Outside of the immediate (one block) area around the proposed building, the ratios of mean wind speeds to reference wind speed, peak wind speeds (gusts) to reference wind speed, and directionality are unchanged.

3.3 Site Conditions

The influence on wind conditions at ground-level around the new development at 150 Seaport Blvd. is limited. The development site with the existing low rise building (Configuration B) received comfort ratings of “pedestrian standing” (Points 78 to 80, and 85) to “pedestrian walking” (Points 83 and 84). The wind tunnel test showed that the proposed building would have a slightly adverse influence on the alley between 100 Pier 4 and 150 Seaport Blvd., slightly raising the 5% wind speeds of points 78-80 (Figure 3). Points 79 and 80 would become slightly less comfortable, with ratings changing from “pedestrian standing” to “pedestrian walking”. A contributing factor to this change is the redirection of downwash, caused by north-easterly to easterly winds, along the west face of the proposed structure. The resulting flow is partially channelled through the alley. If these conditions are not acceptable, possible mitigation measures would include oversized canopies, at the one-story level, spanning the west elevation of the proposed building and east elevation of the 100 Pier 4 building. The canopies connected by pergola type structure (brise soleil) and dense landscaping pods (sculpture, landscaping feature) placed at the north entrance to the alley would likely help to mitigate these wind conditions. Point 87 was only tested in the proposed condition, as this point is located along the new harborwalk which does not currently exist. During testing it was determined that Point 87 has the potential for higher gusts in the autumn and spring seasons due to strong north-easterly winds from the harbour. These gusts occur in the current condition and are not caused nor worsened by the proposed development. If needed tall glass screen walls can be placed around the perimeter of the waterfront to help mitigate these conditions locally while leaving the ocean view unobstructed.

The general ground-level wind conditions around the new proposed development are acceptable for pedestrian use. Nevertheless, if outdoor dining is planned for this development,

CPP would recommend mitigation measures such as local screen walls, dense planters in areas of outdoor dining to lower the wind speed below CPP recommended threshold of 6 mph for outdoor dining.

The ground wind conditions at the corner of E. Service Rd. and Seaport Blvd. (Points 40 and 46) benefited from the new development (Figure 3). In the existing configuration (B) the north-easterly to easterly flows being accelerated over the existing low rise structure adversely impact the corner of E. Service Rd. and Seaport Blvd., where the comfort ratings were "business walking" (Point 46) and "pedestrian walking" (Point 40). With the new development in place, these ratings improved to "pedestrian walking" and "pedestrian standing," respectively. The new development serves in this case as a buffer that redirects the north-easterly and easterly flows away from the corner. Wind speeds at the waterfront southeast of the new development (Points 89 and 90 in Configuration (C) would increase slightly compared to the existing configuration (Figure 3); this is due to north-easterly to easterly flows that are redirected by the new development.

3.4 Seasonal Results

A seasonal analysis was also performed to identify wind conditions that may be important to seasonal use of outdoor areas. Based on our seasonal wind climate data analysis, it should be noted that the summer results give the most favorable ratings, as the summer winds are generally not as strong as the other seasons; the summer analysis may be more relevant to some of the outdoor terrace areas that may be used more in the summer months.

While new failures of the BRA criterion occur in the non-summer seasons, these are generally offset by the mitigation of existing failure locations. For example, in autumn, point 46 fails in the existing configuration (B), while Point 80 passes. The reverse is true in the proposed configuration (C). In winter, Points 46 and 50 fail in Configuration B, but both pass in Configuration C while Point 80 fails. Finally, in spring, Points 40, 46, 50 and 82 fail in Configuration B but pass in Configuration C, while the reverse is true for Points 75, 80 and 89. Other failures not mentioned here are common to both configurations.

REFERENCES

American Society of Civil Engineers (1999), *Wind Tunnel Studies of Buildings and Structures* (ASCE Manual of Practice Number 67).

American Society of Civil Engineers (2010), *Minimum Design Loads for Buildings and Other Structures* (ASCE 7–10).

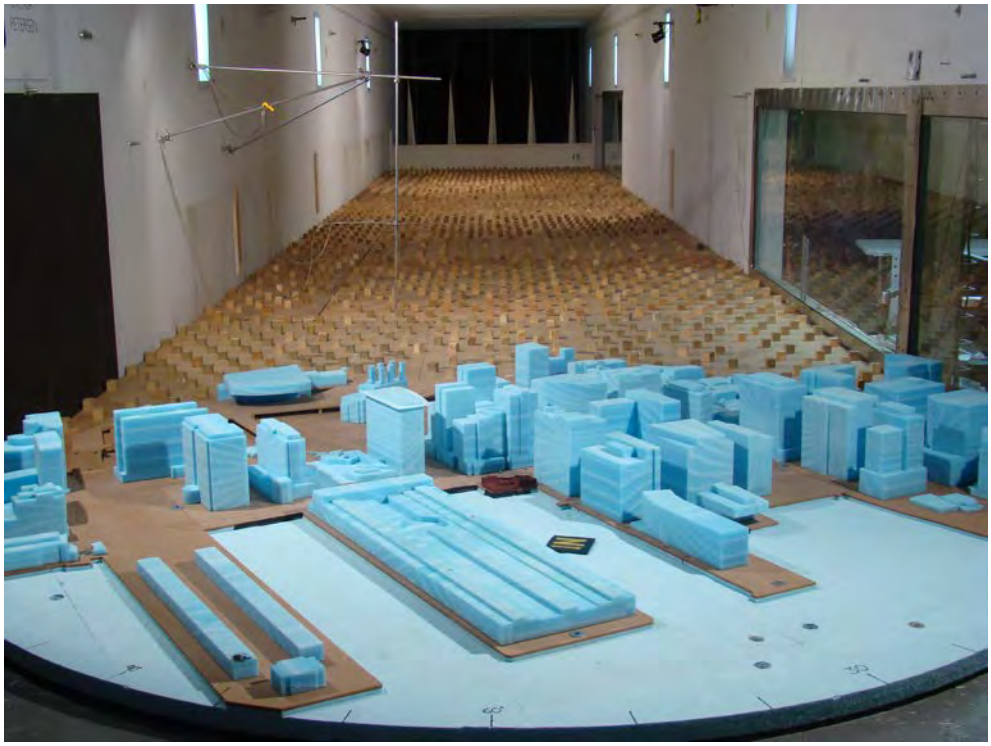
American Society of Civil Engineers (2012), *Wind Tunnel Testing for Buildings and Other Structures* (ASCE 49-12).

Lawson, T.V. (1990), "The Determination of the Wind Environment of a Building Complex before Construction," Department of Aerospace Engineering, University of Bristol, Report Number TVL 9025.

BRA Development Review Guidelines (2006).

FIGURES

a)



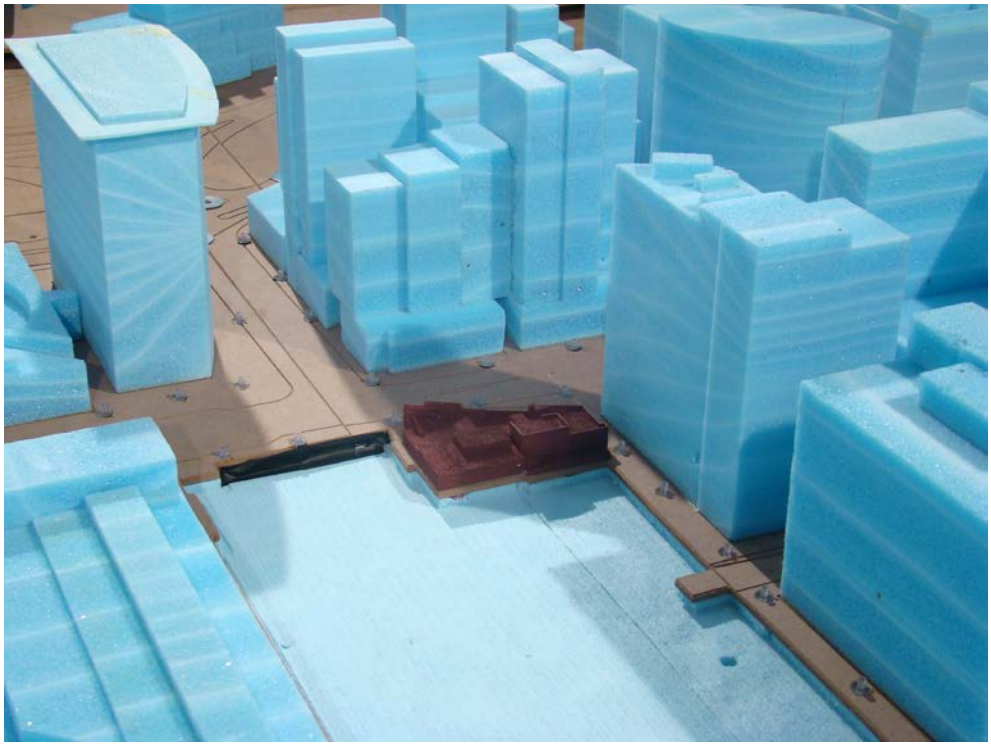
b)

Figure 1. Photographs of the completed model in the wind tunnel: (a) View from northeast, simulating south-westerly wind, existing building in place (Configuration B); (b) View from east, simulating westerly wind, proposed building in place (Configuration C).

c)

d)

Figure 1. Photographs of the completed model in the wind tunnel: (c) Overhead view of configuration B (existing); (d) Overhead view of the configuration C (proposed).

e) 

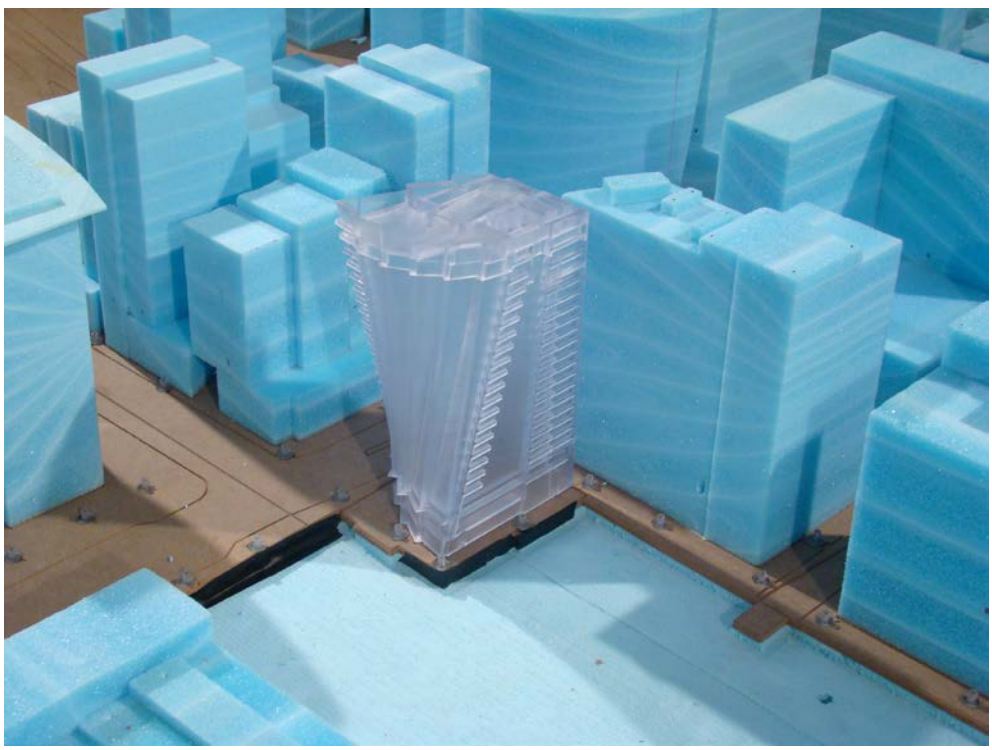
f) 

Figure 1. Photographs of the completed model in the wind tunnel: (e) Close-up view of Configuration B (existing); (f) Close-up view of the configuration C (proposed).

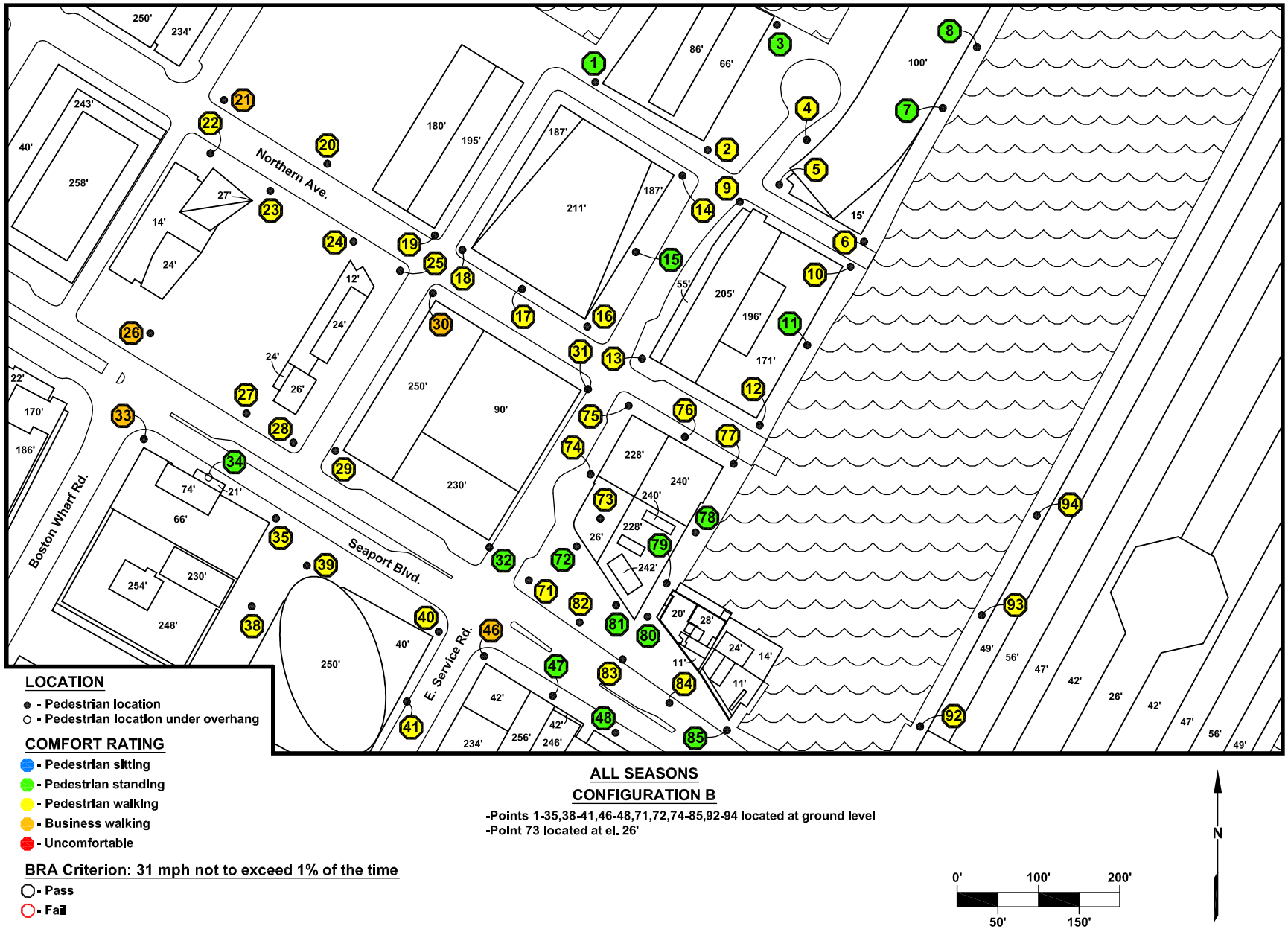
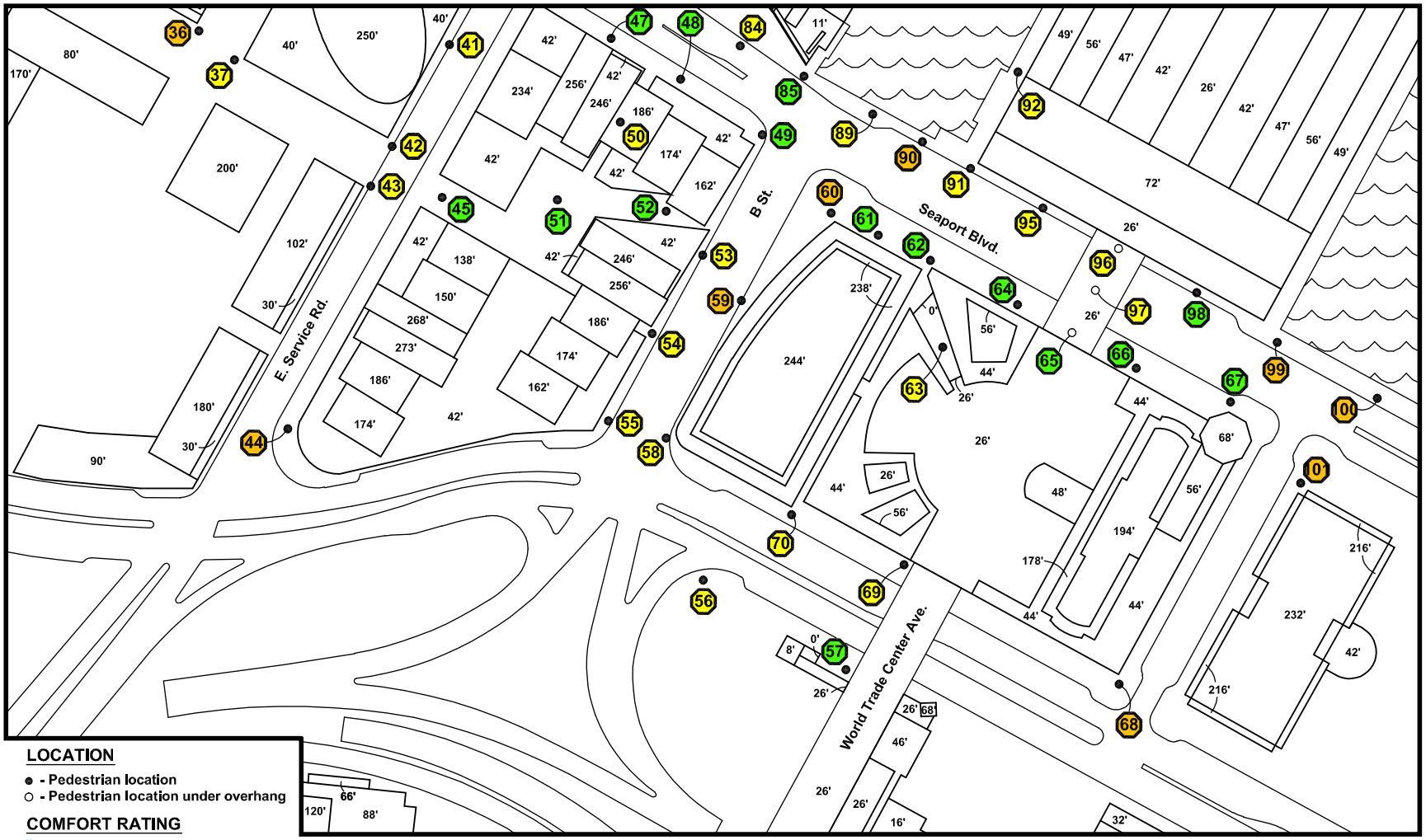


Figure 2a. Pedestrian wind speed measurement points with comfort/distress ratings – Annual.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

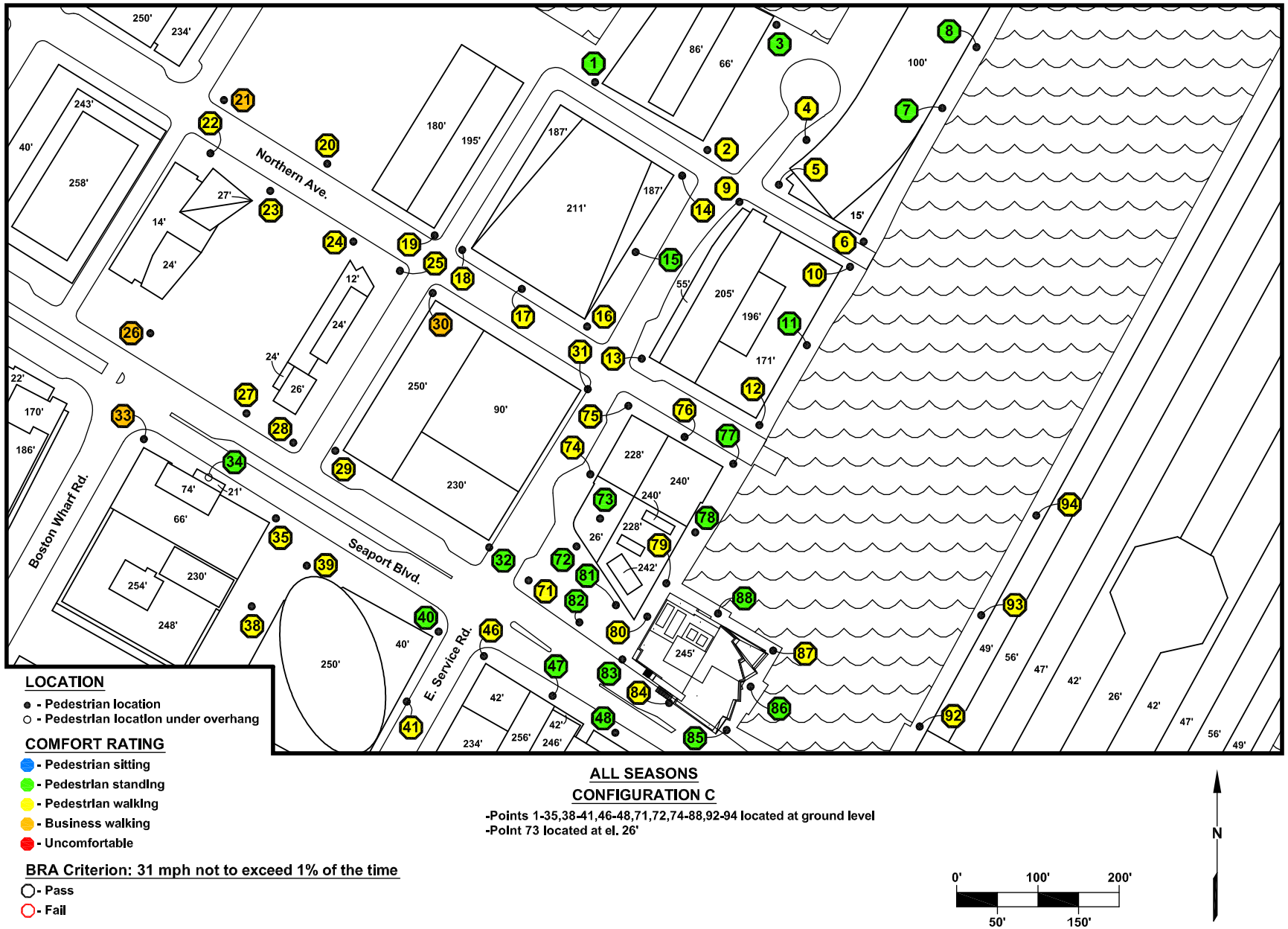
ALL SEASONS

CONFIGURATION B

-Points 36,37,41-45,47-62,64-70,84,85,89-92,95-101 at ground level
-Point 63 located at el. 13'

0' 50' 100' 150' 200'

Figure 2b. Pedestrian wind speed measurement points with comfort/distress ratings – Annual.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

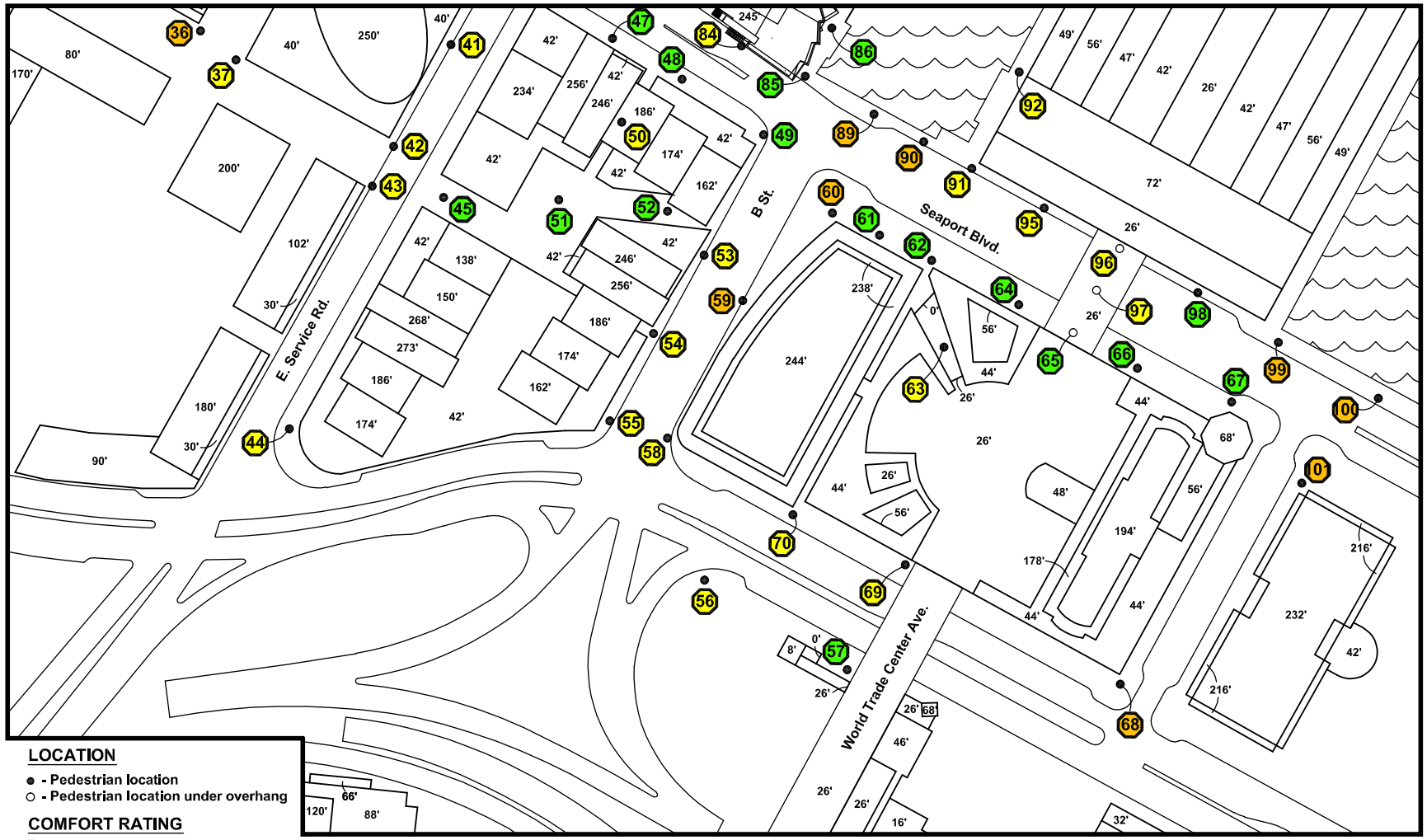
- Pass
- Fail

ALL SEASONS

CONFIGURATION C

-Points 1-35,38-41,46-48,71,72,74-88,92-94 located at ground level
-Point 73 located at el. 26'

Figure 2c. Pedestrian wind speed measurement points with comfort/distress ratings – Annual.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

ALL SEASONS

CONFIGURATION C

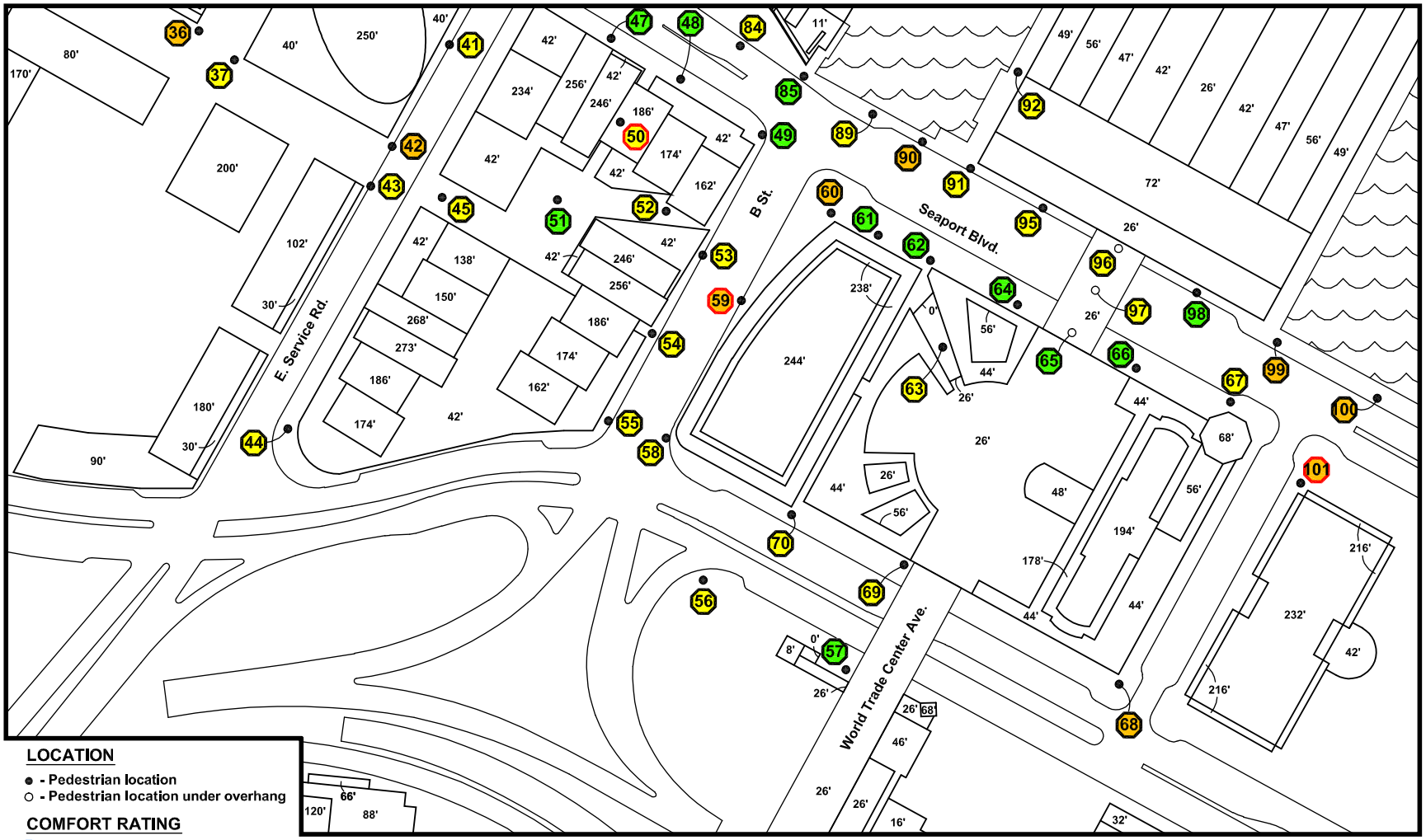
-Points 36,37,41-45,47-62,64-70,84,85,86,89-92,95-101 at ground level
-Point 63 located at el. 13'

0' 50' 100' 150' 200'

N

Figure 2d. Pedestrian wind speed measurement points with comfort/distress ratings – Annual.

Figure 2e. Pedestrian wind speed measurement points with comfort/distress ratings – Winter.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

WINTER

CONFIGURATION B

-Points 36,37,41-45,47-62,64-70,84,85,89-92,95-101 at ground level
-Point 63 located at el. 13'

0' 50' 100' 150' 200'

N

Figure 2f. Pedestrian wind speed measurement points with comfort/distress ratings – Winter.

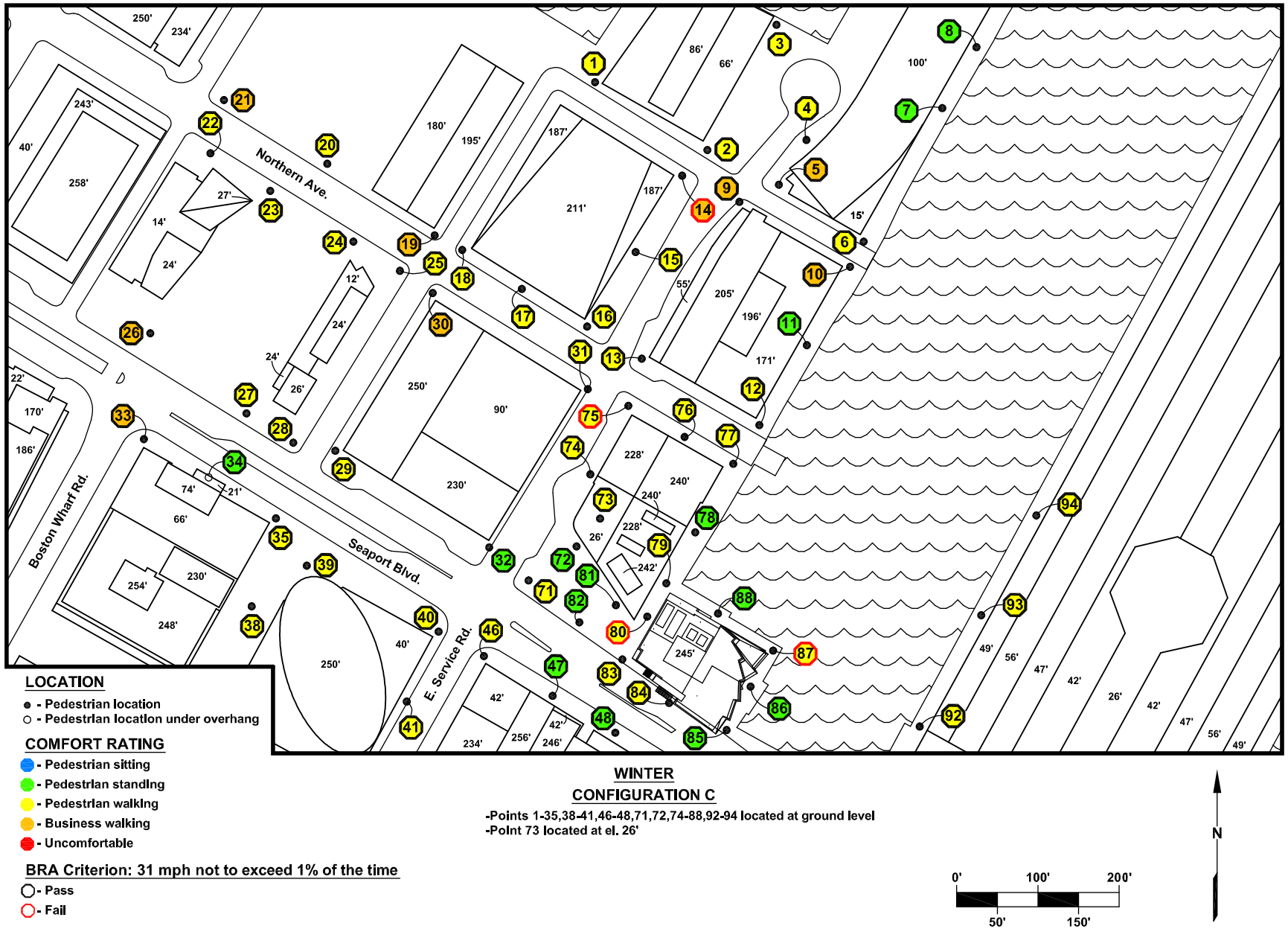


Figure 2g. Pedestrian wind speed measurement points with comfort/distress ratings – Winter.

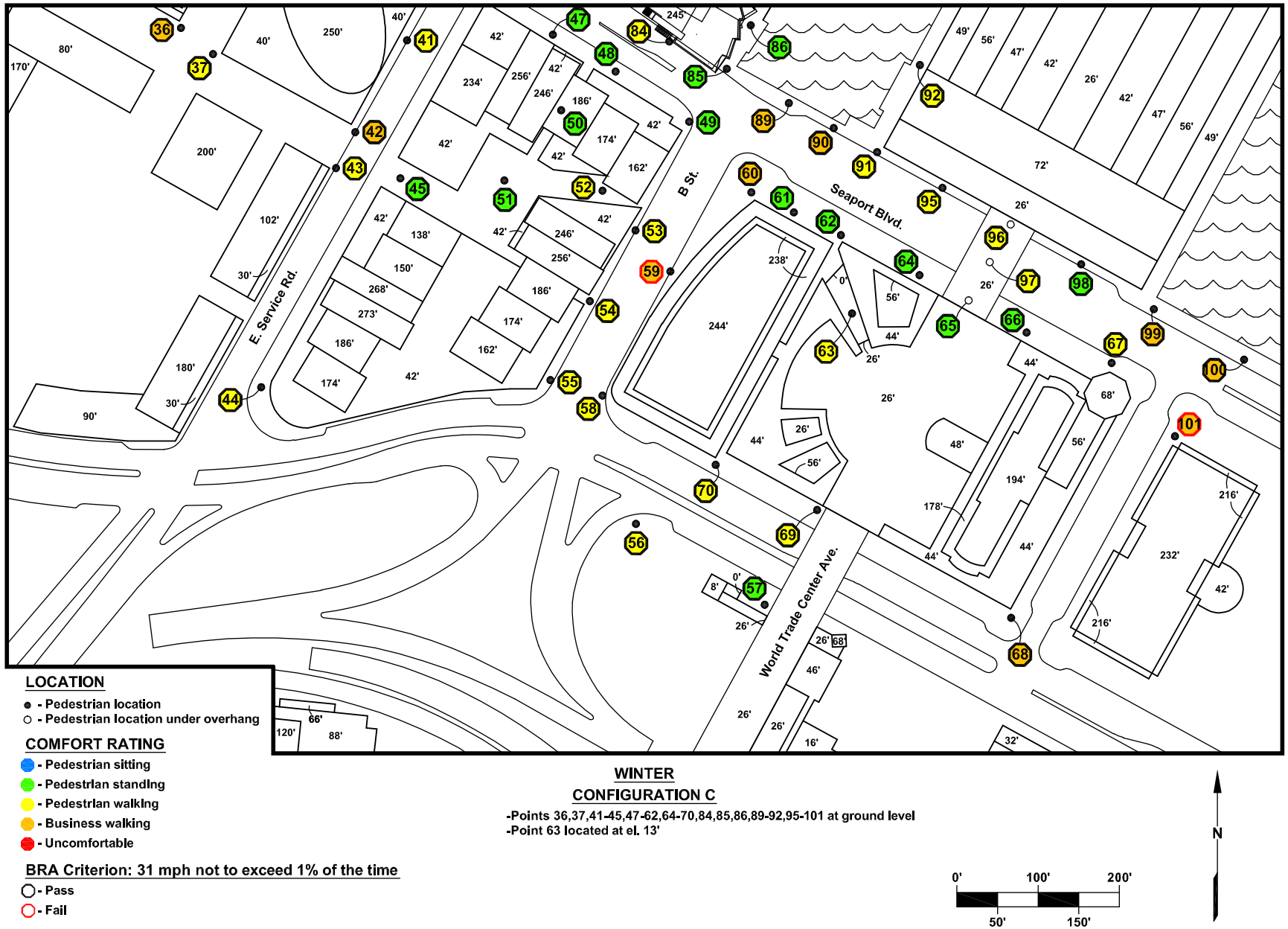


Figure 2h. Pedestrian wind speed measurement points with comfort/distress ratings – Winter.

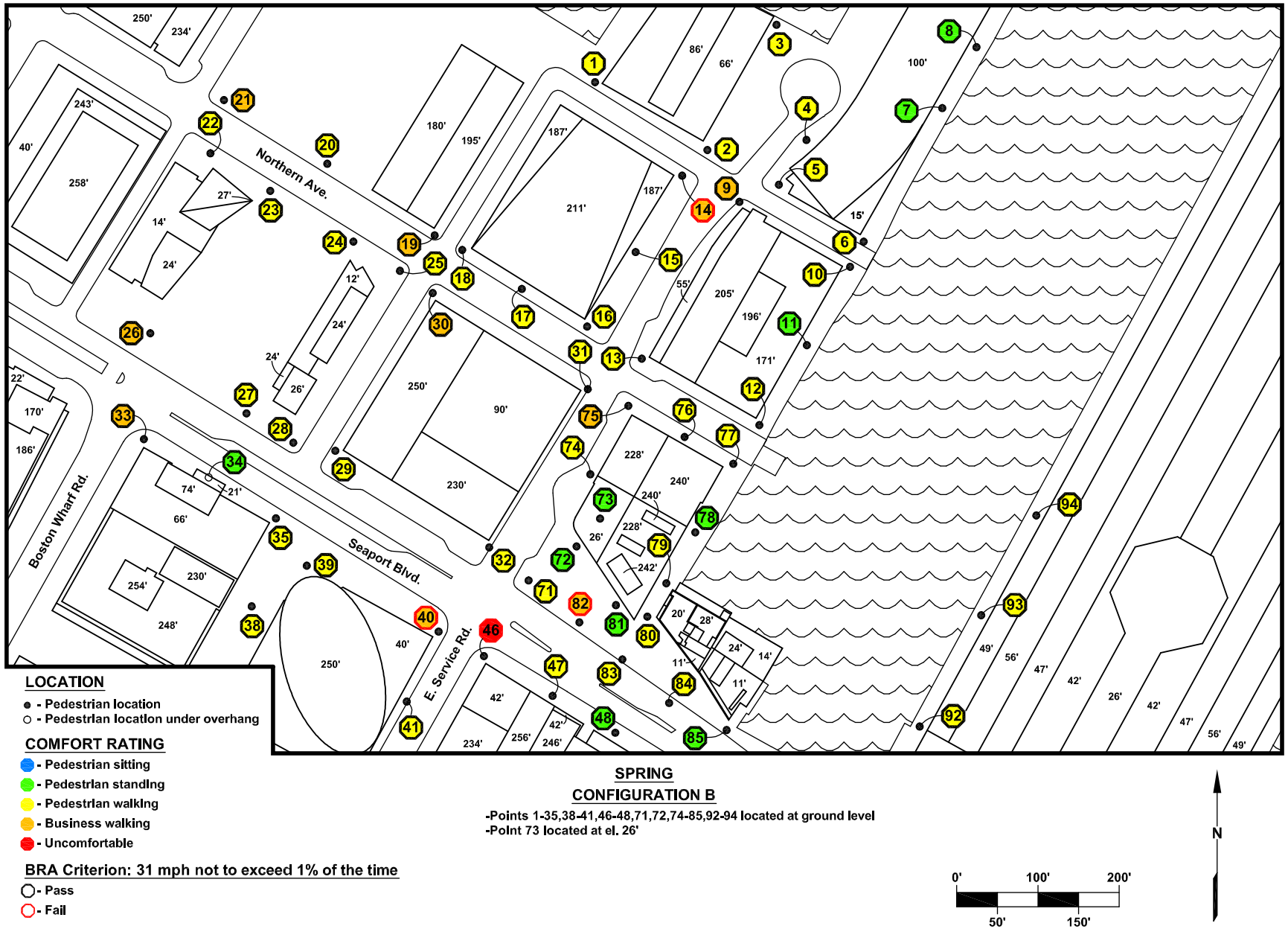


Figure 2i. Pedestrian wind speed measurement points with comfort/distress ratings – Spring.

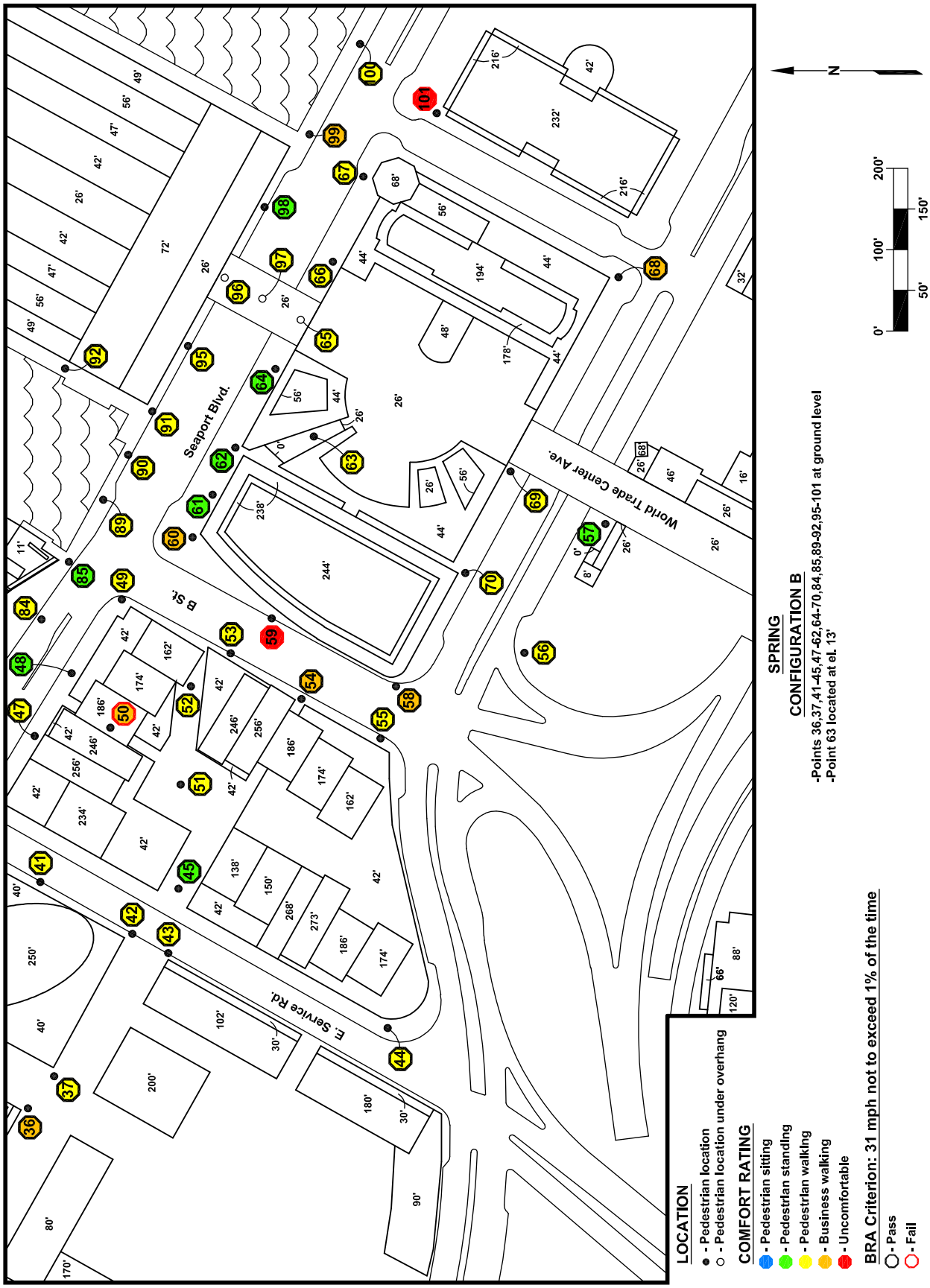


Figure 2j. Pedestrian wind speed measurement points with comfort/distress ratings – Spring.

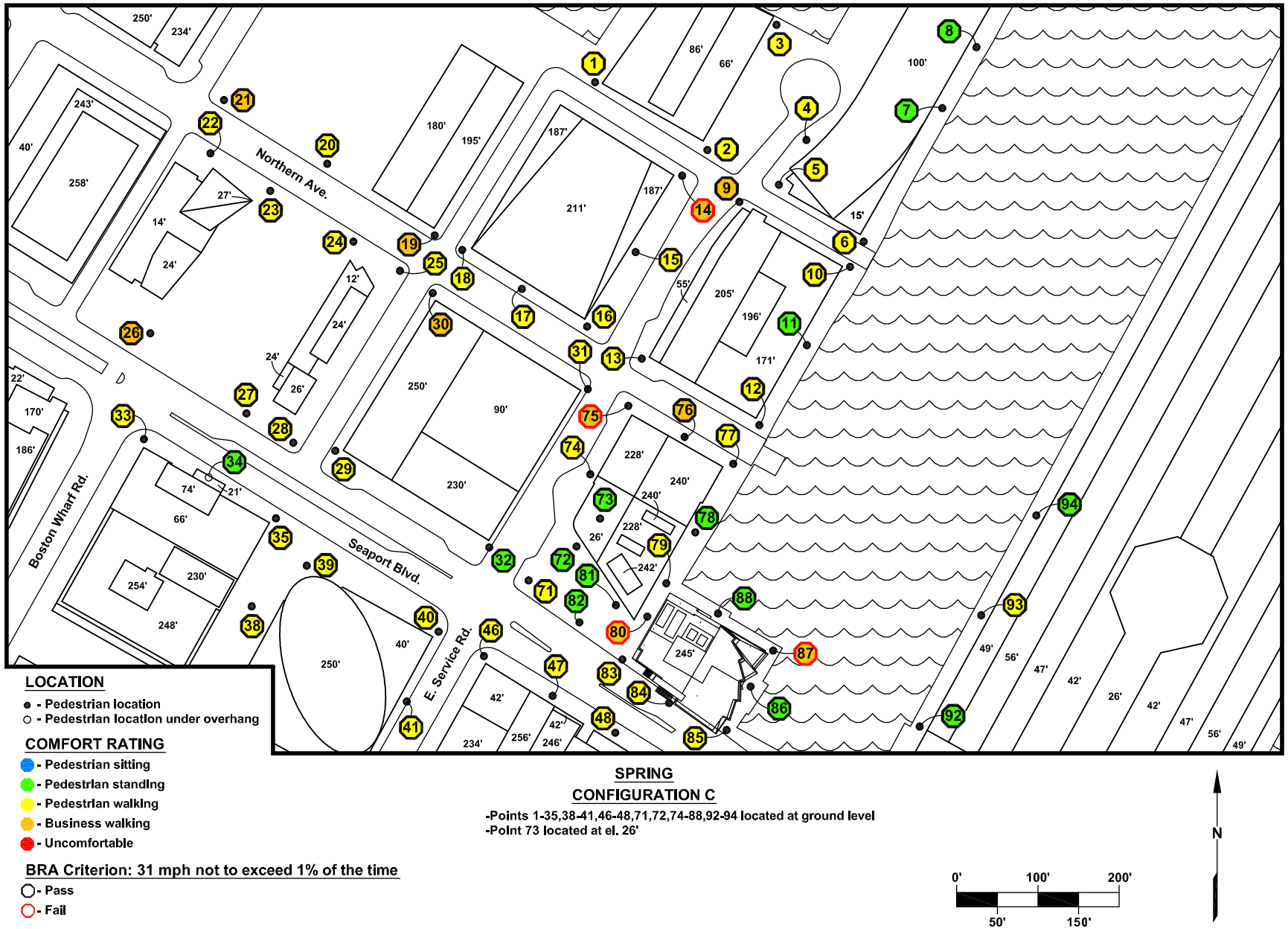


Figure 2k. Pedestrian wind speed measurement points with comfort/distress ratings – Spring.

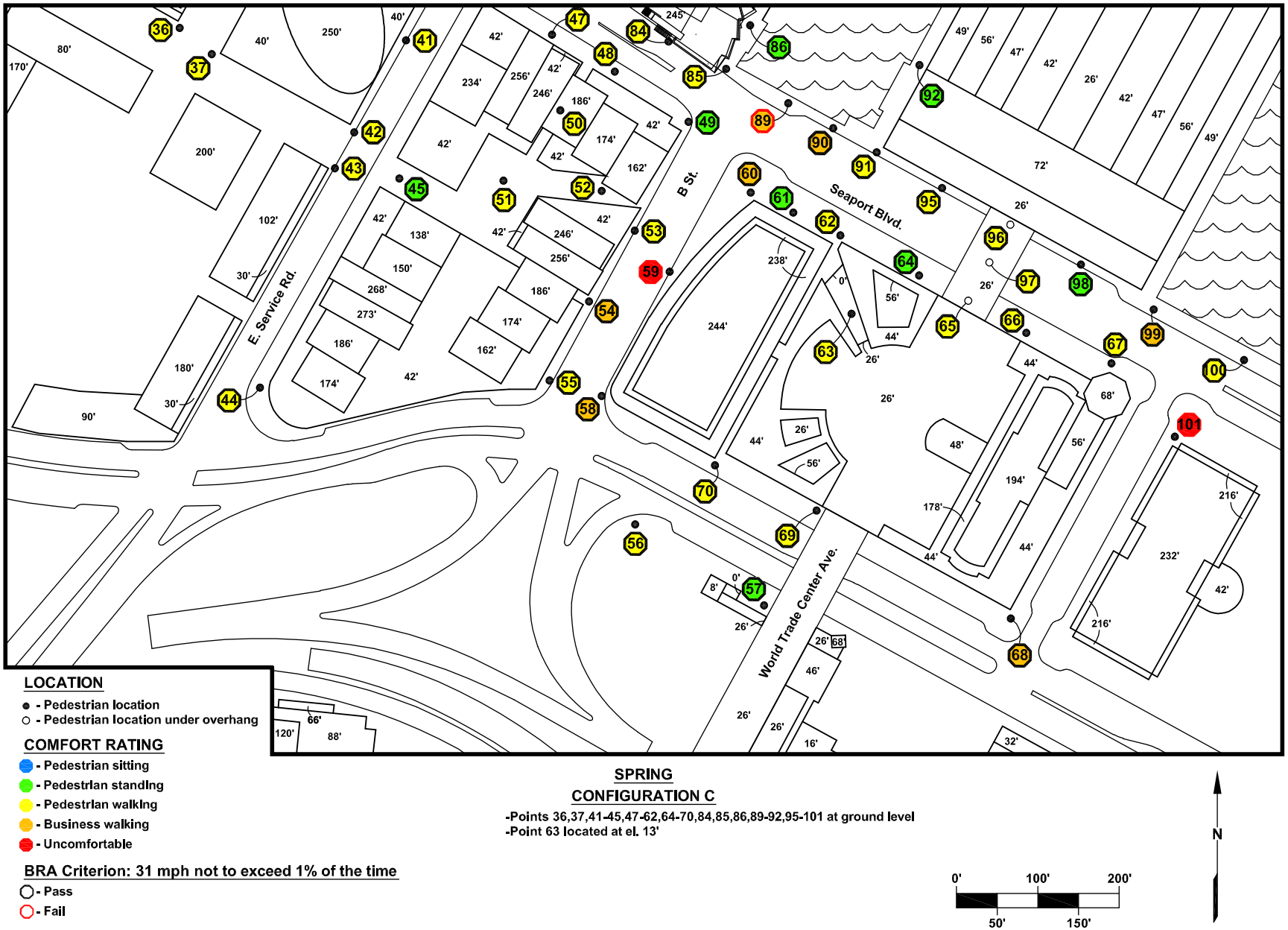


Figure 2l. Pedestrian wind speed measurement points with comfort/distress ratings – Spring.

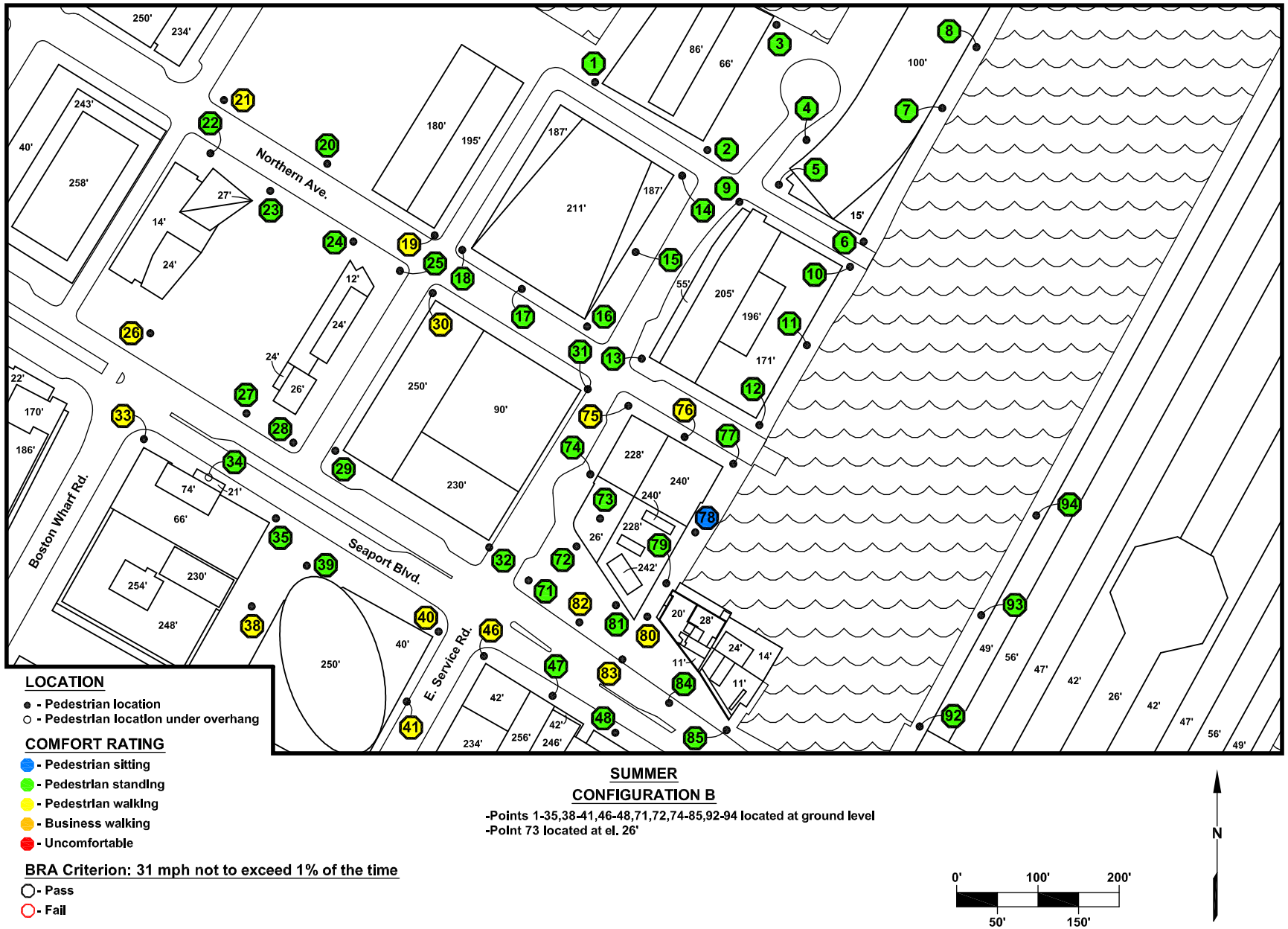
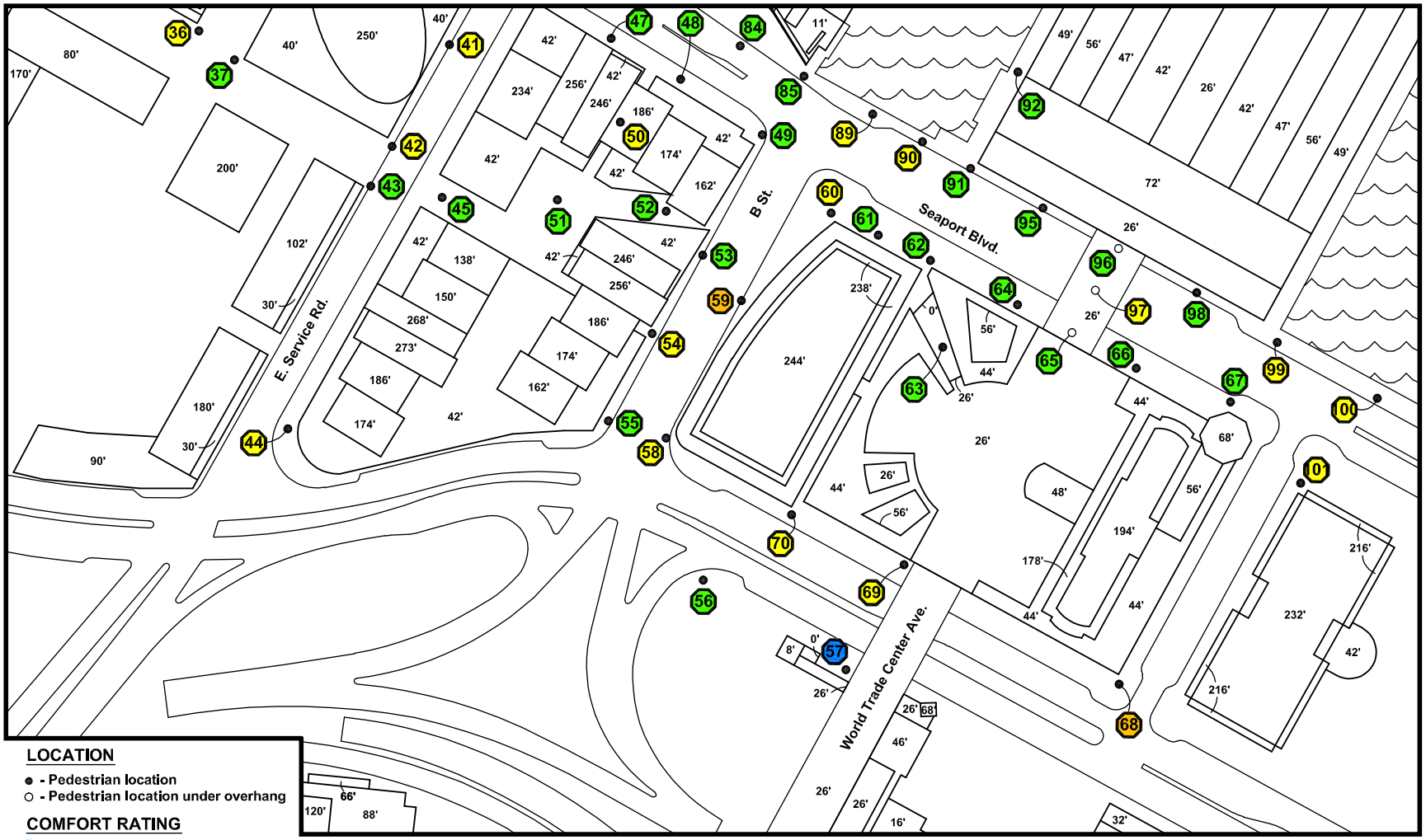


Figure 2m. Pedestrian wind speed measurement points with comfort/distress ratings – Summer.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

SUMMER

CONFIGURATION B

-Points 36,37,41-45,47-62,64-70,84,85,89-92,95-101 at ground level
-Point 63 located at el. 13'

0' 50' 100' 150' 200'

Figure 2n. Pedestrian wind speed measurement points with comfort/distress ratings – Summer.

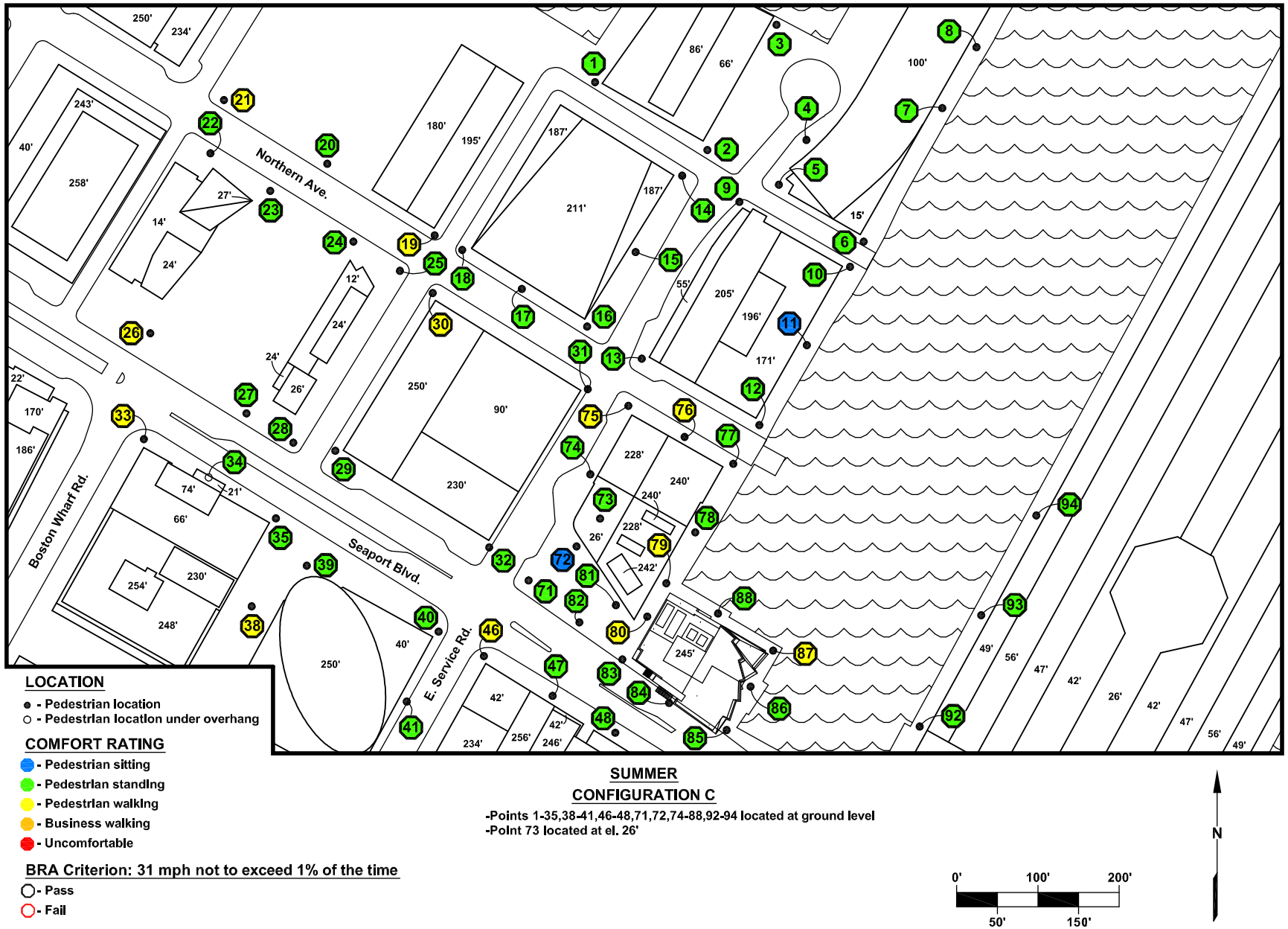
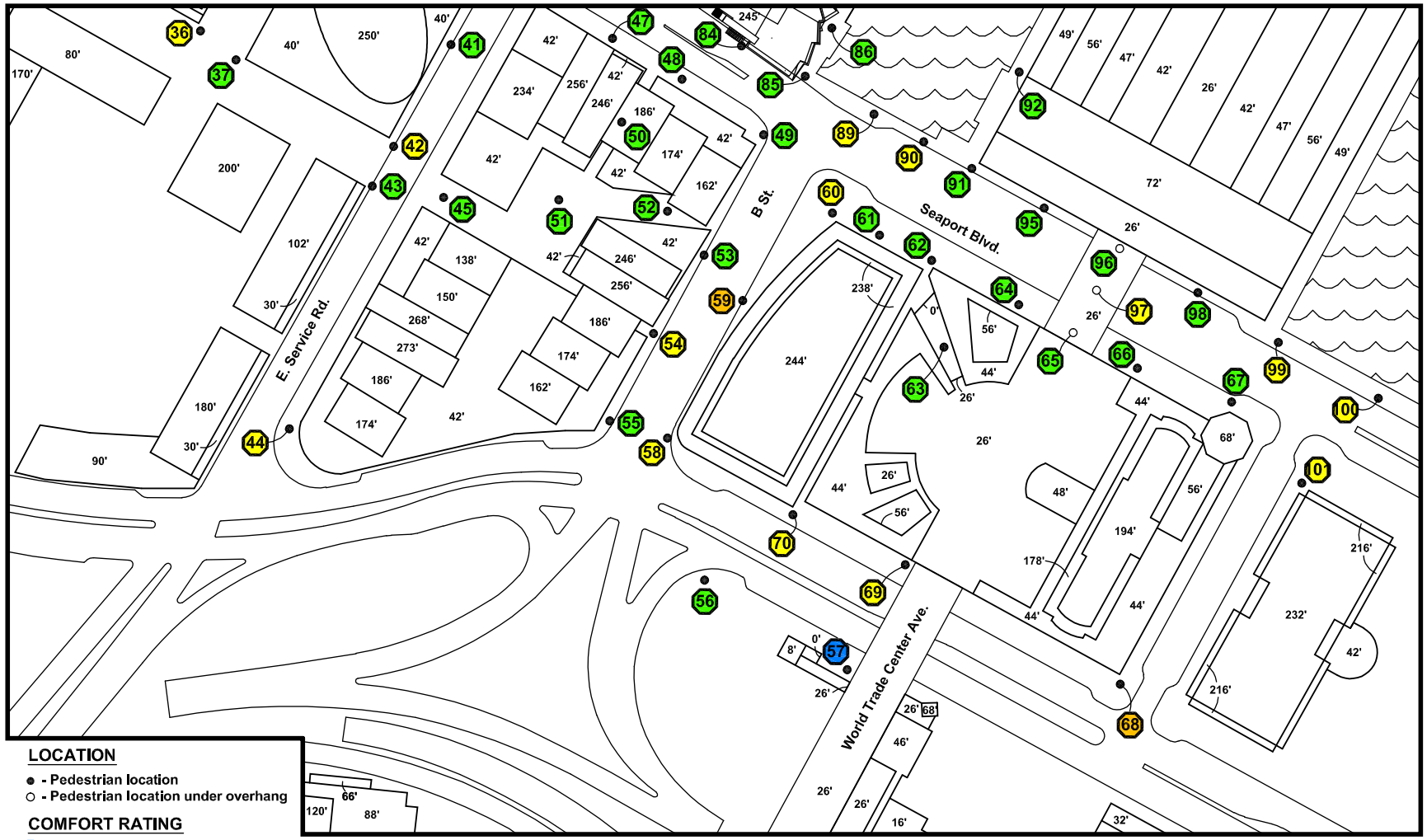


Figure 2o. Pedestrian wind speed measurement points with comfort/distress ratings – Summer.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

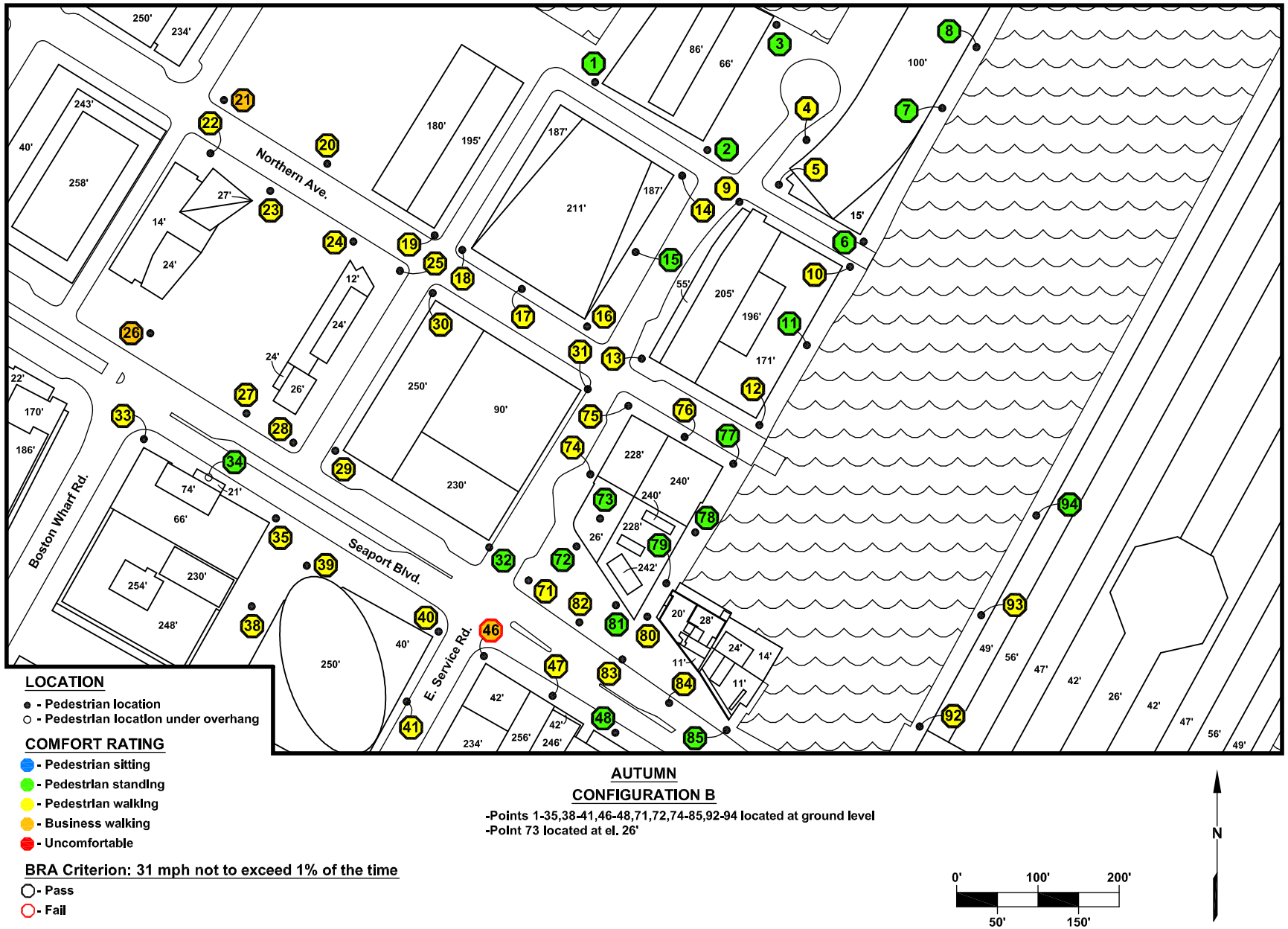
SUMMER

CONFIGURATION C

-Points 36,37,41-45,47-62,64-70,84,85,86,89-92,95-101 at ground level
-Point 63 located at el. 13'

0' 50' 100' 150' 200'

Figure 2p. Pedestrian wind speed measurement points with comfort/distress ratings – Summer.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

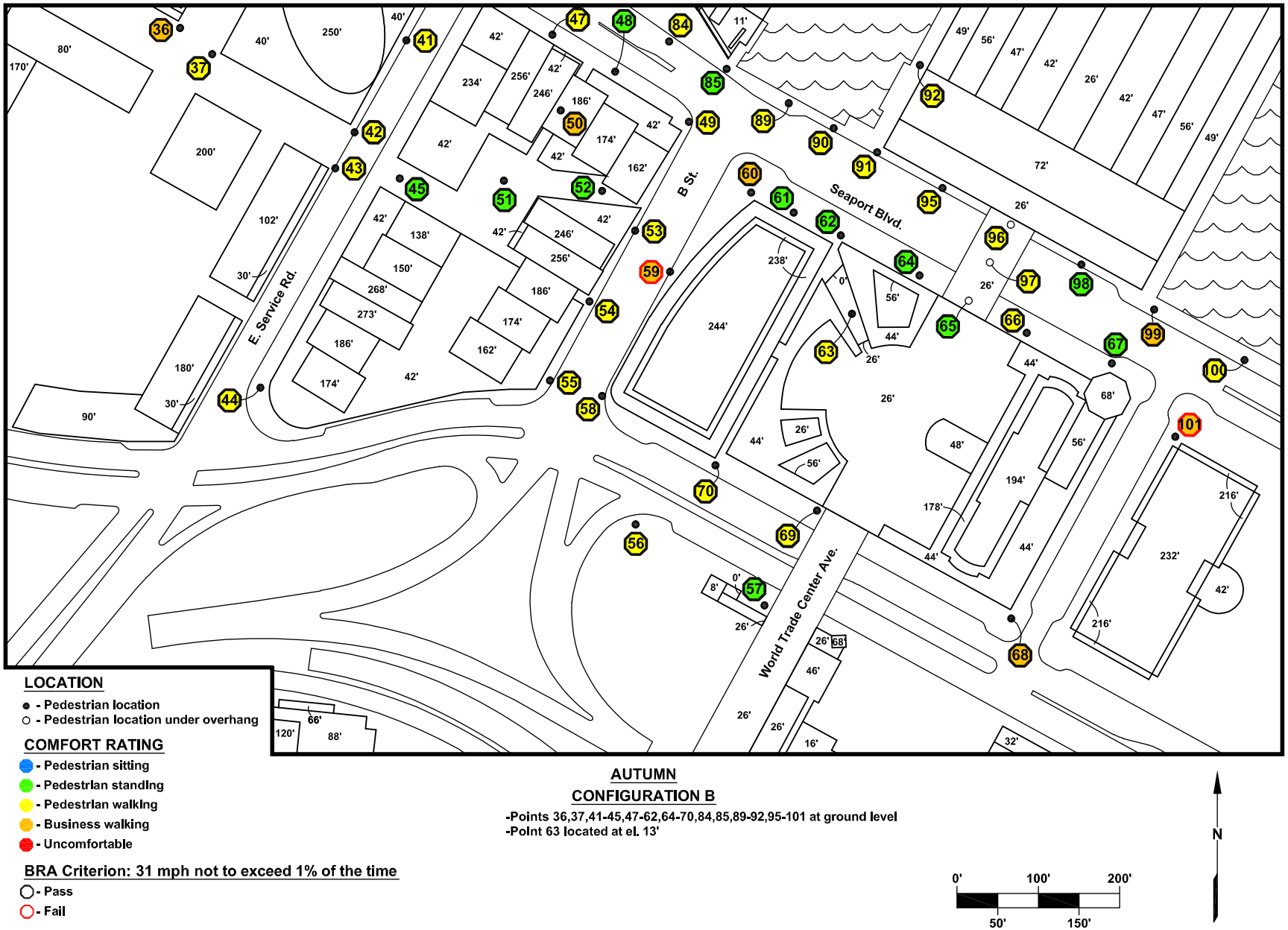
- Pass
- Fail

AUTUMN

CONFIGURATION B

-Points 1-35,38-41,46-48,71,72,74-85,92-94 located at ground level
-Point 73 located at el. 26'

Figure 2q. Pedestrian wind speed measurement points with comfort/distress ratings – Autumn.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

AUTUMN

CONFIGURATION B

-Points 36,37,41-45,47-62,64-70,84,85,89-92,95-101 at ground level
-Point 63 located at el. 13'

Figure 2r. Pedestrian wind speed measurement points with comfort/distress ratings – Autumn.

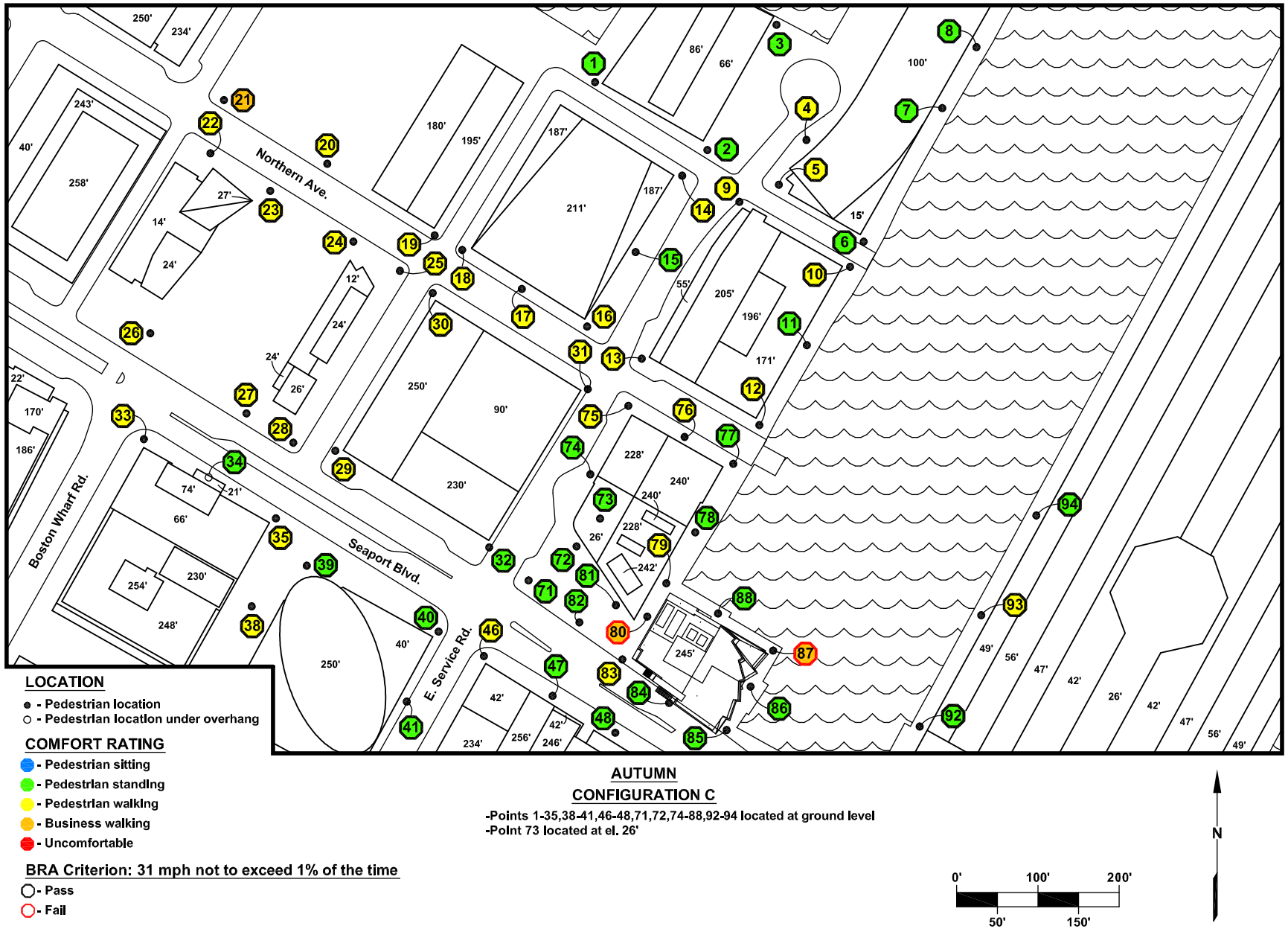
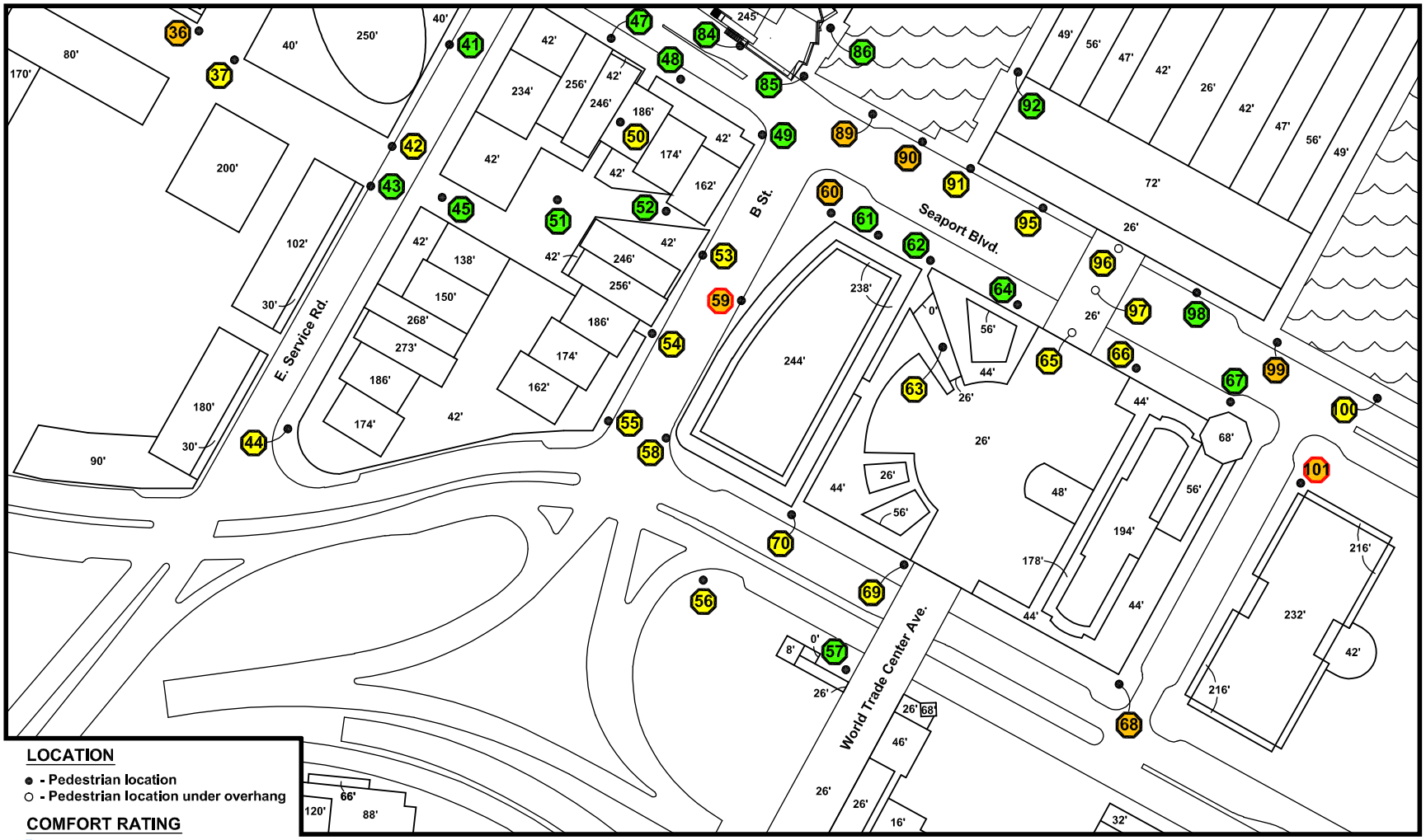


Figure 2s. Pedestrian wind speed measurement points with comfort/distress ratings – Autumn.



LOCATION

- ● - Pedestrian location
- ○ - Pedestrian location under overhang

COMFORT RATING

- Pedestrian sitting
- Pedestrian standing
- Pedestrian walking
- Business walking
- Uncomfortable

BRA Criterion: 31 mph not to exceed 1% of the time

- Pass
- Fail

AUTUMN

CONFIGURATION C

-Points 36,37,41-45,47-62,64-70,84,85,86,89-92,95-101 at ground level
-Point 63 located at el. 13'

0' 50' 100' 150' 200'

N

Figure 2t. Pedestrian wind speed measurement points with comfort/distress ratings – Autumn.

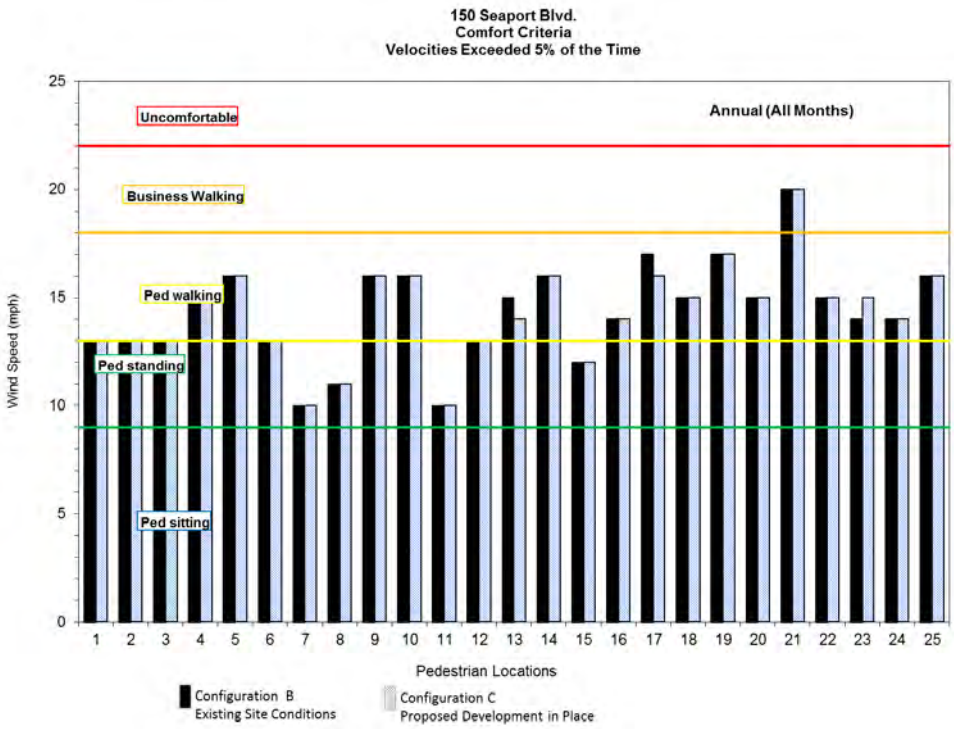


Figure 3a. Summary of pedestrian wind comfort ratings – Annual.

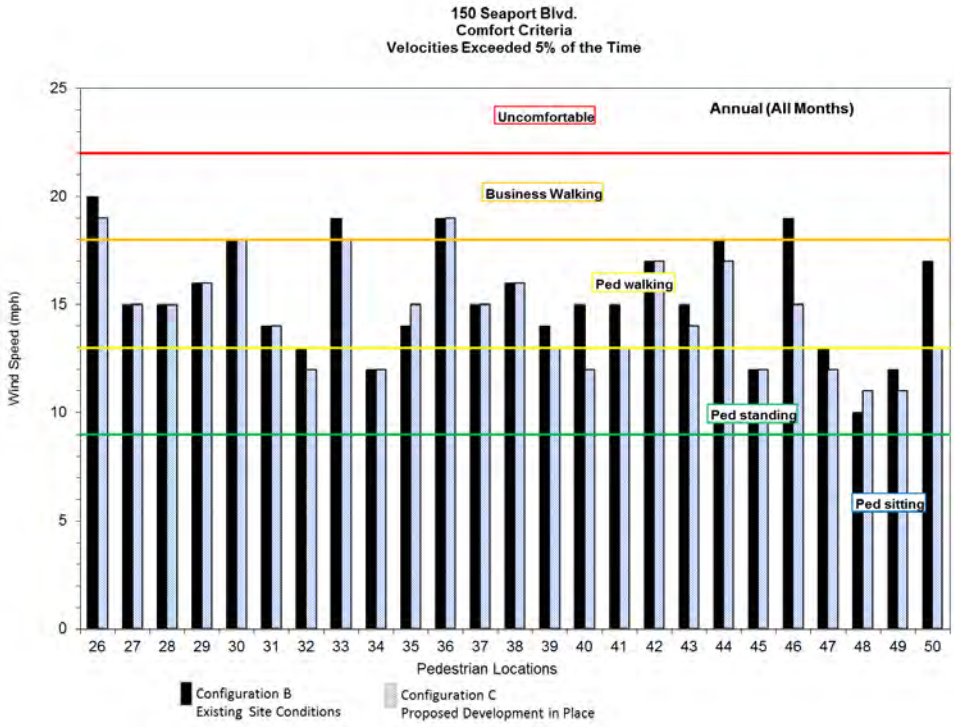


Figure 3b. Summary of pedestrian wind comfort ratings – Annual.

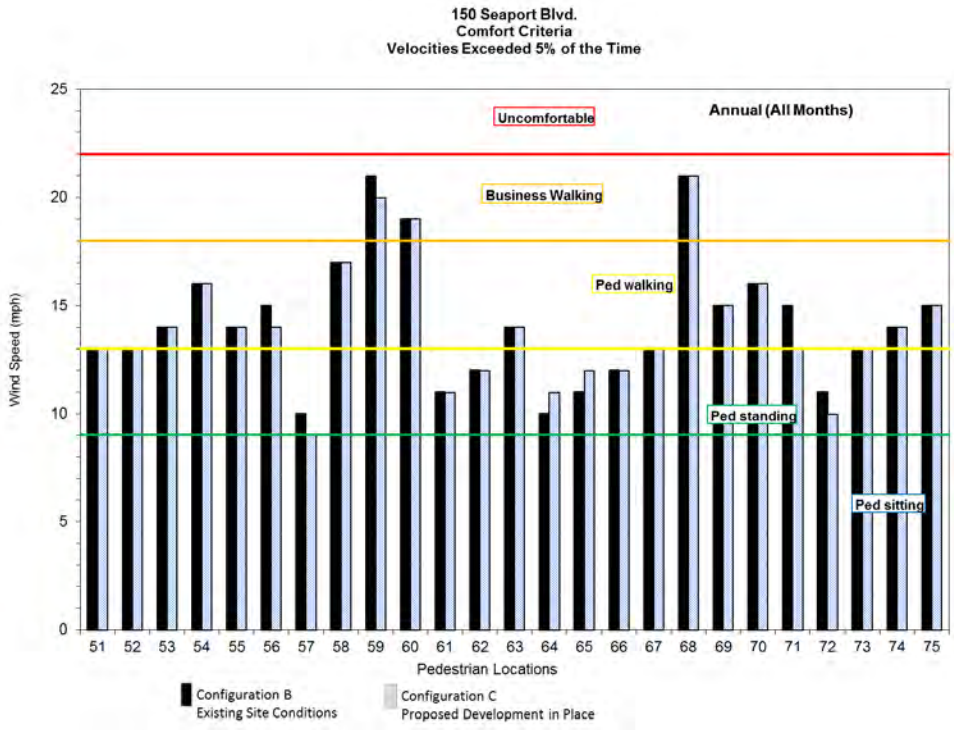


Figure 3c. Summary of pedestrian wind comfort ratings – Annual.

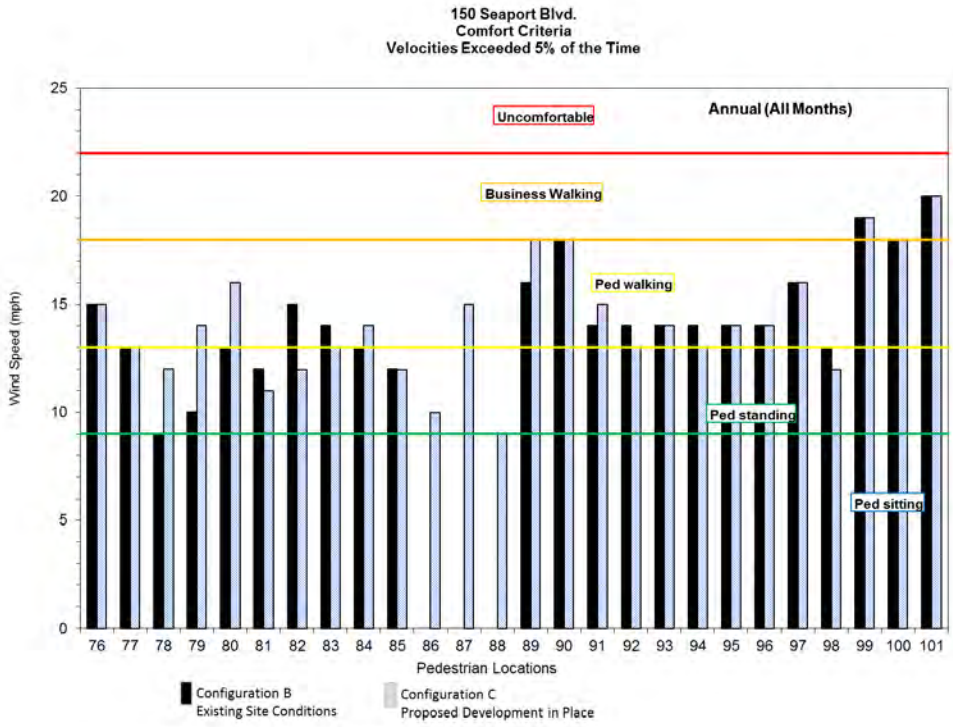


Figure 3d. Summary of pedestrian wind comfort ratings – Annual.

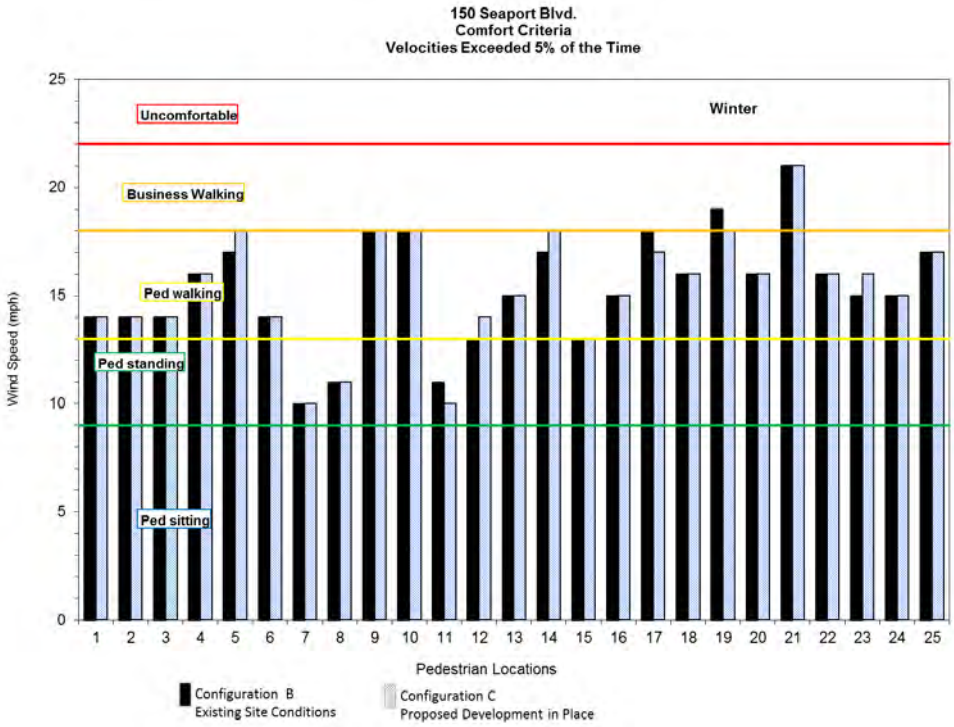


Figure 3e. Summary of pedestrian wind comfort ratings – Winter.

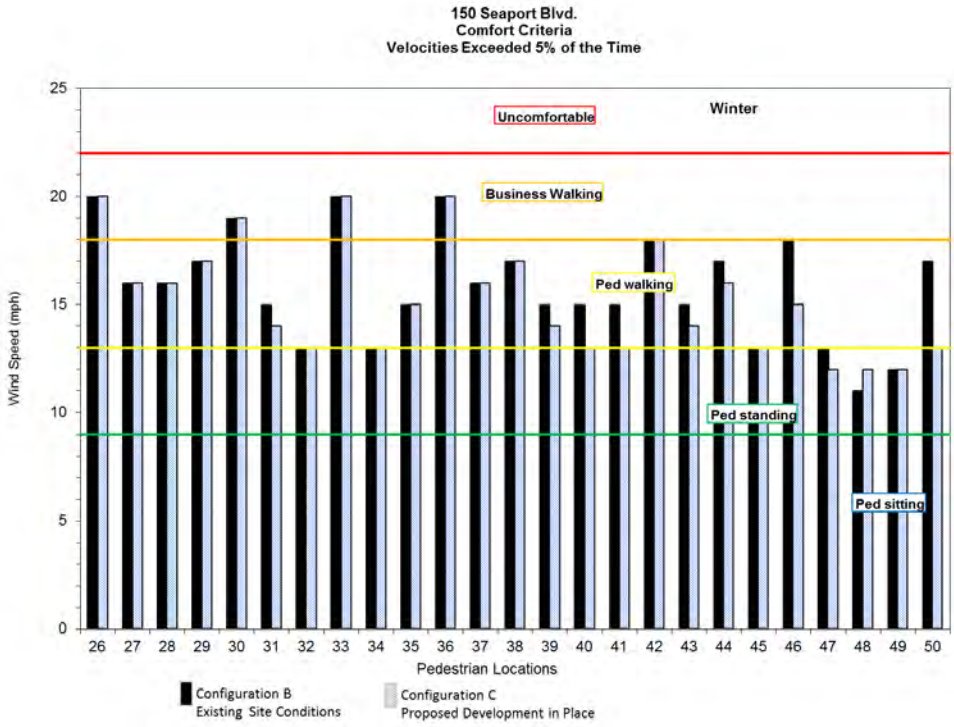


Figure 3f. Summary of pedestrian wind comfort ratings – Winter.

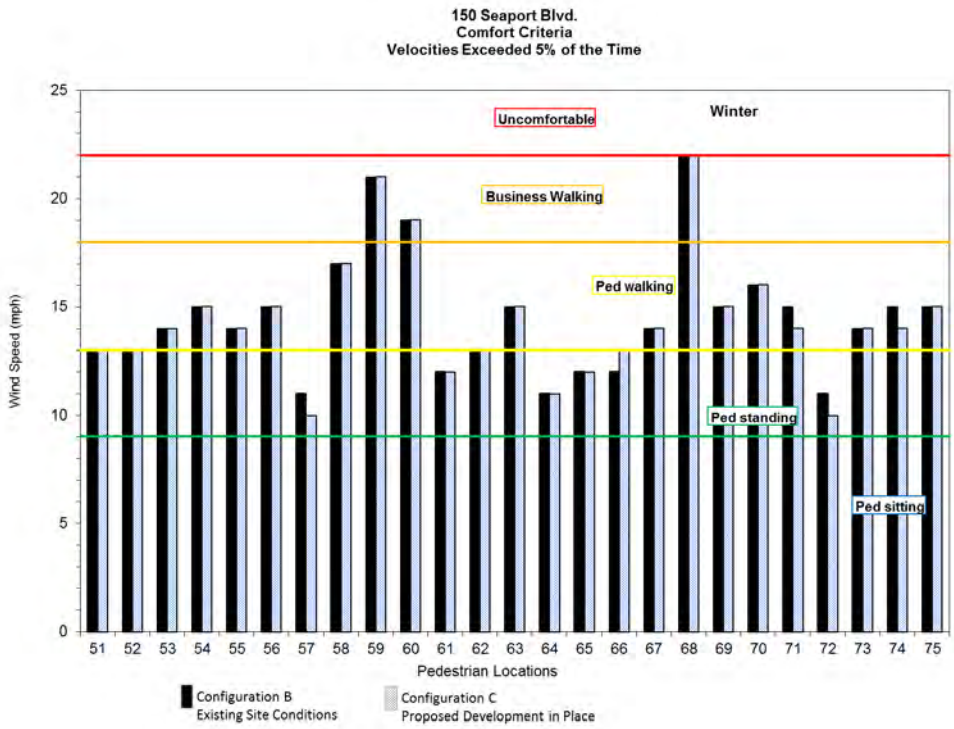


Figure 3g. Summary of pedestrian wind comfort ratings – Winter.

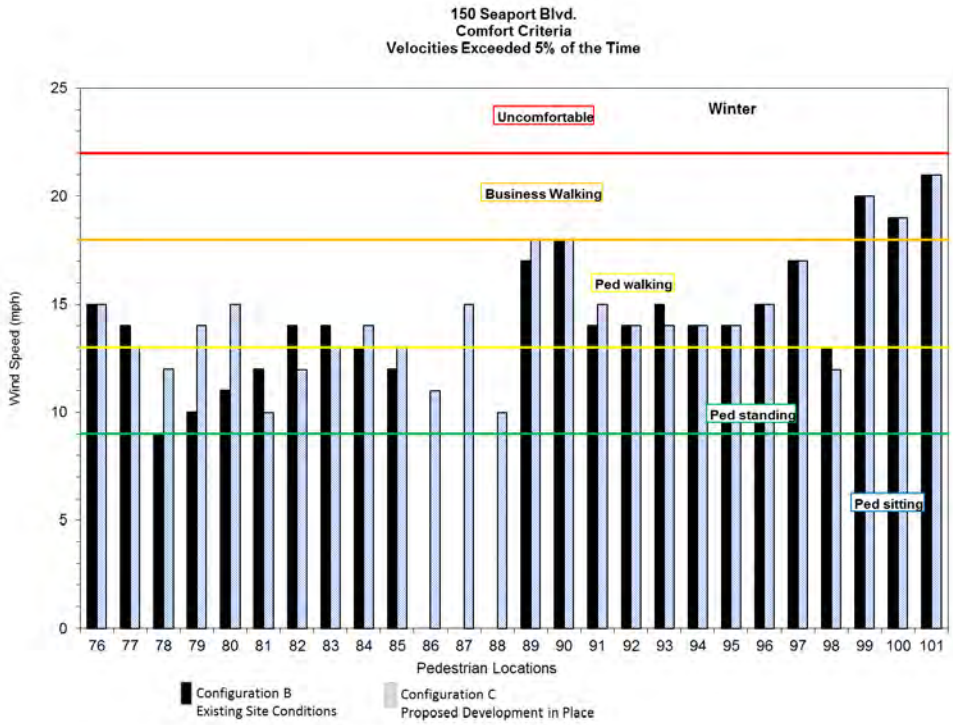


Figure 3h. Summary of pedestrian wind comfort ratings – Winter.

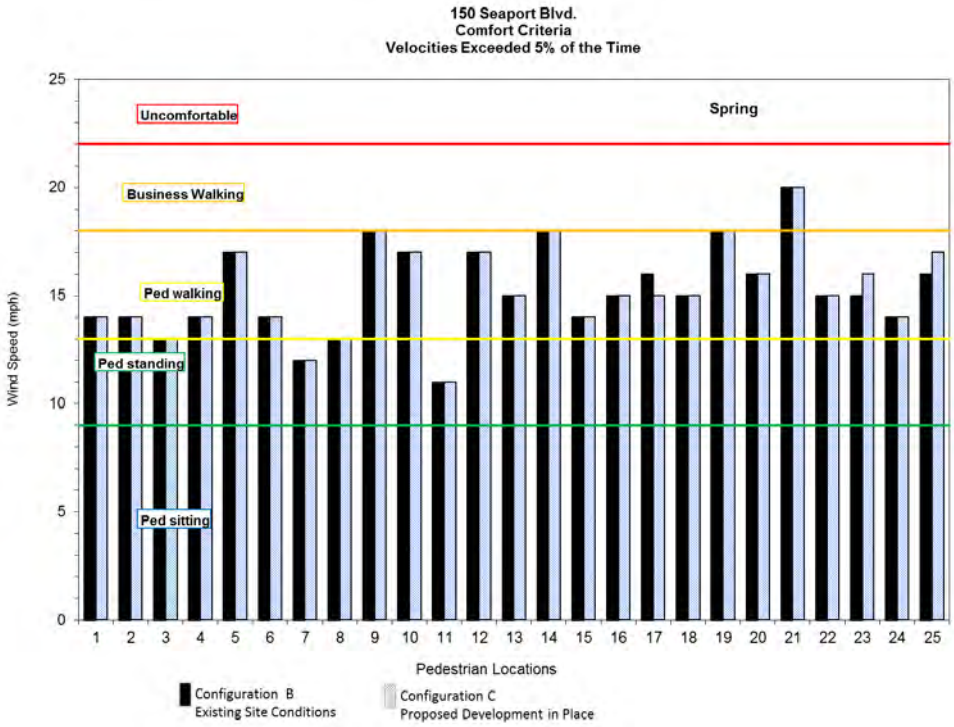


Figure 3i. Summary of pedestrian wind comfort ratings – Spring.

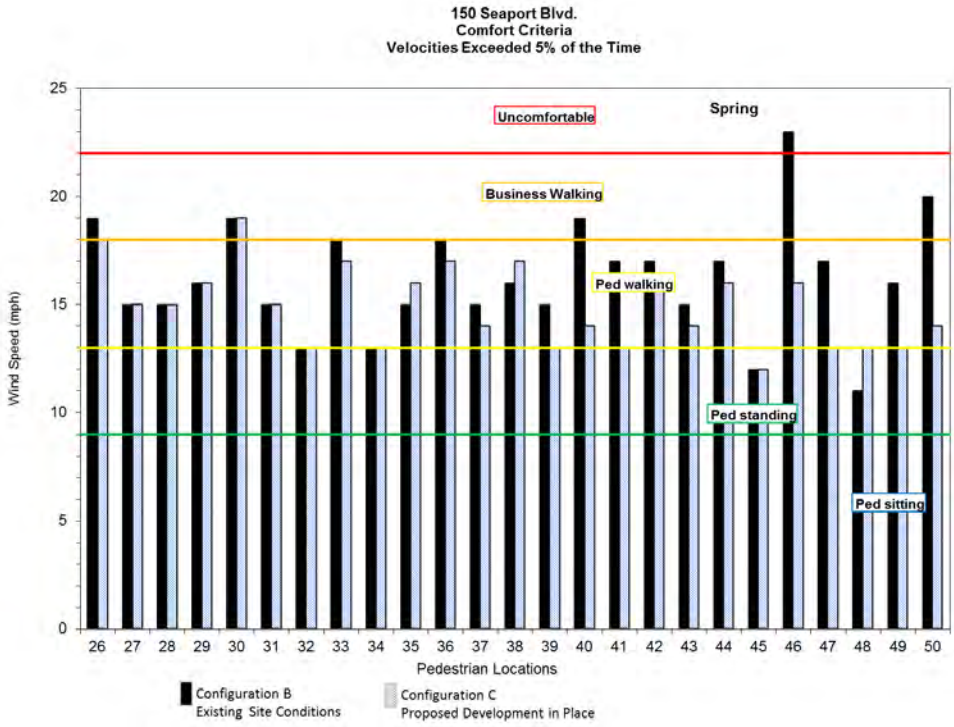


Figure 3j. Summary of pedestrian wind comfort ratings – Spring.

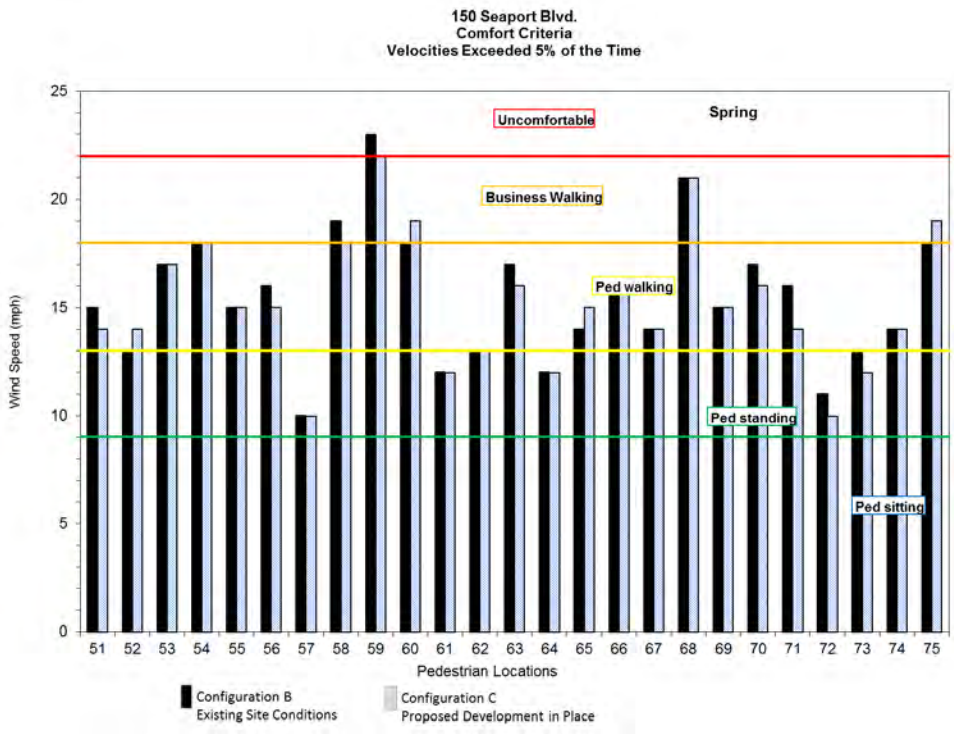


Figure 3k. Summary of pedestrian wind comfort ratings – Spring.

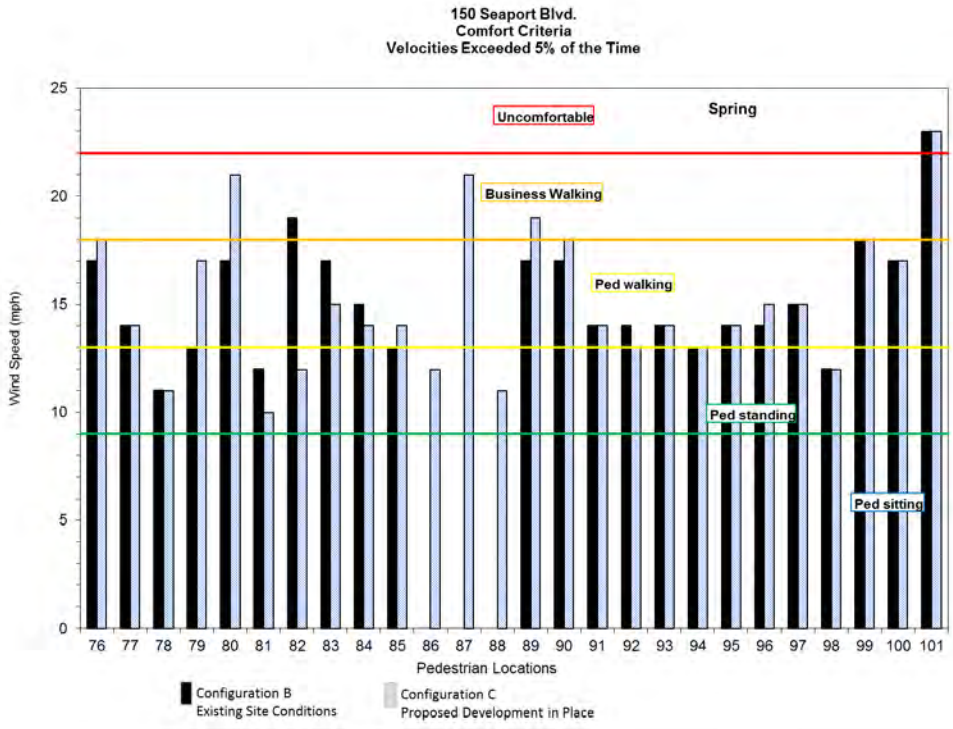


Figure 3l. Summary of pedestrian wind comfort ratings – Spring.

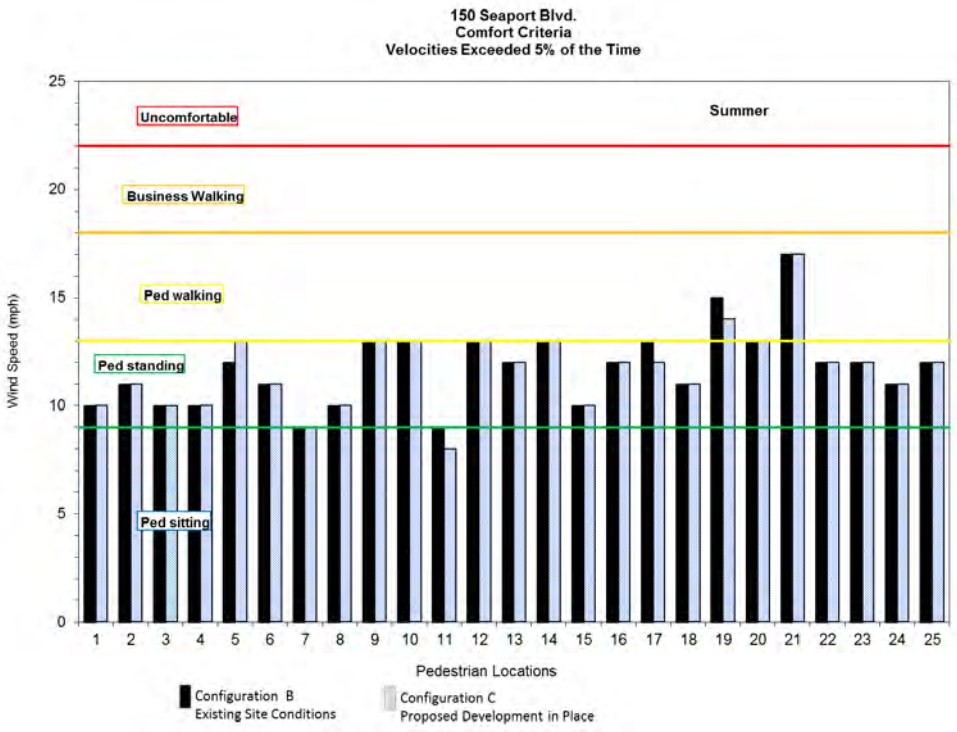


Figure 3m. Summary of pedestrian wind comfort ratings – Summer.

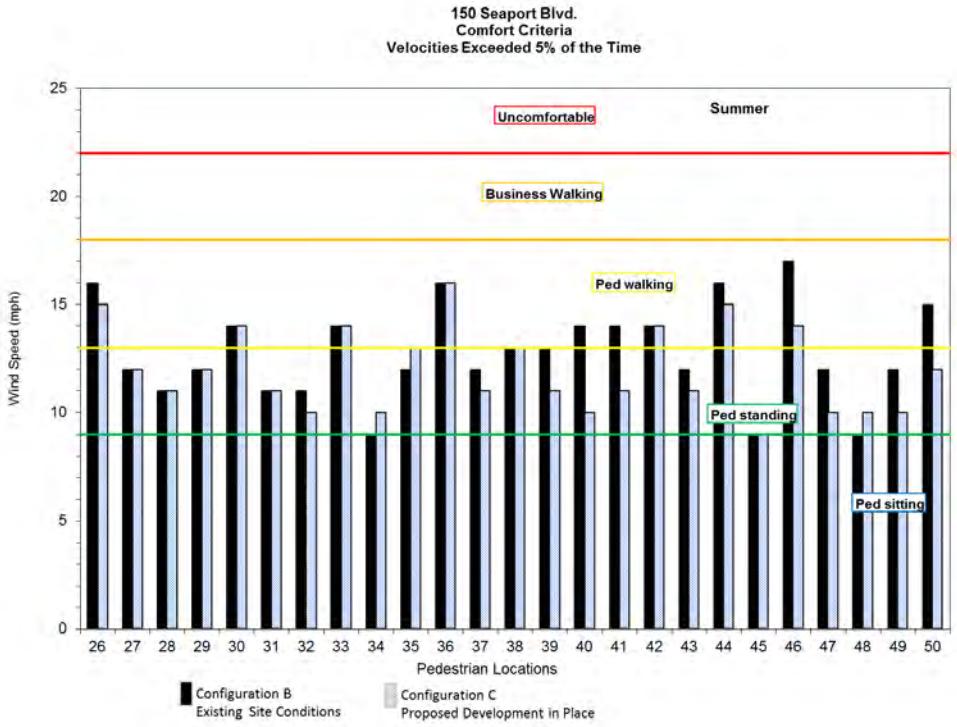


Figure 3n. Summary of pedestrian wind comfort ratings – Summer.

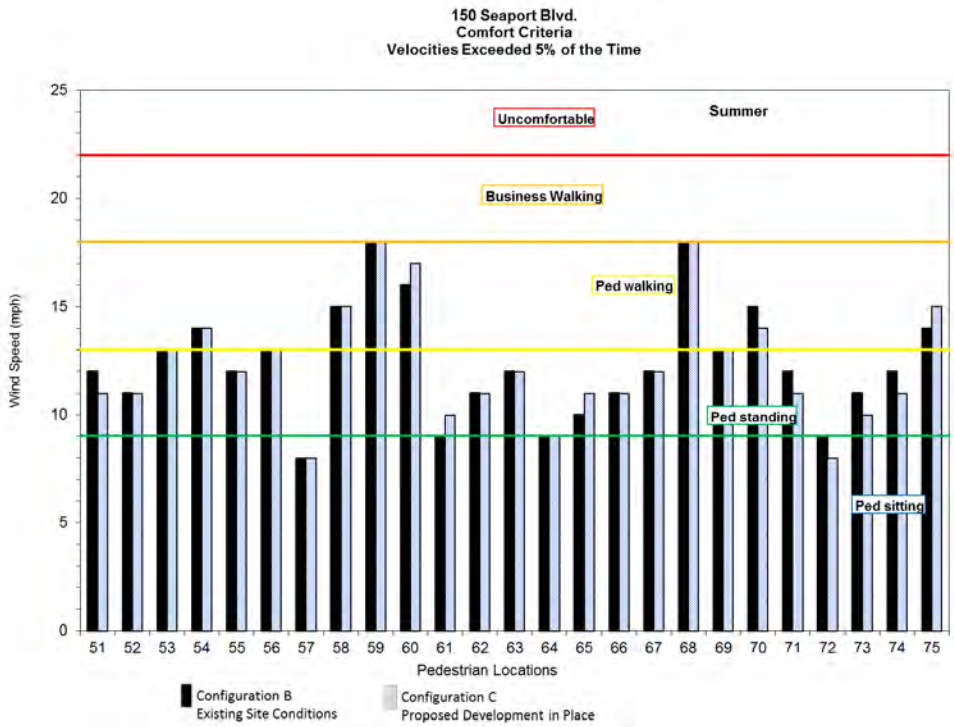


Figure 3o. Summary of pedestrian wind comfort ratings – Summer.

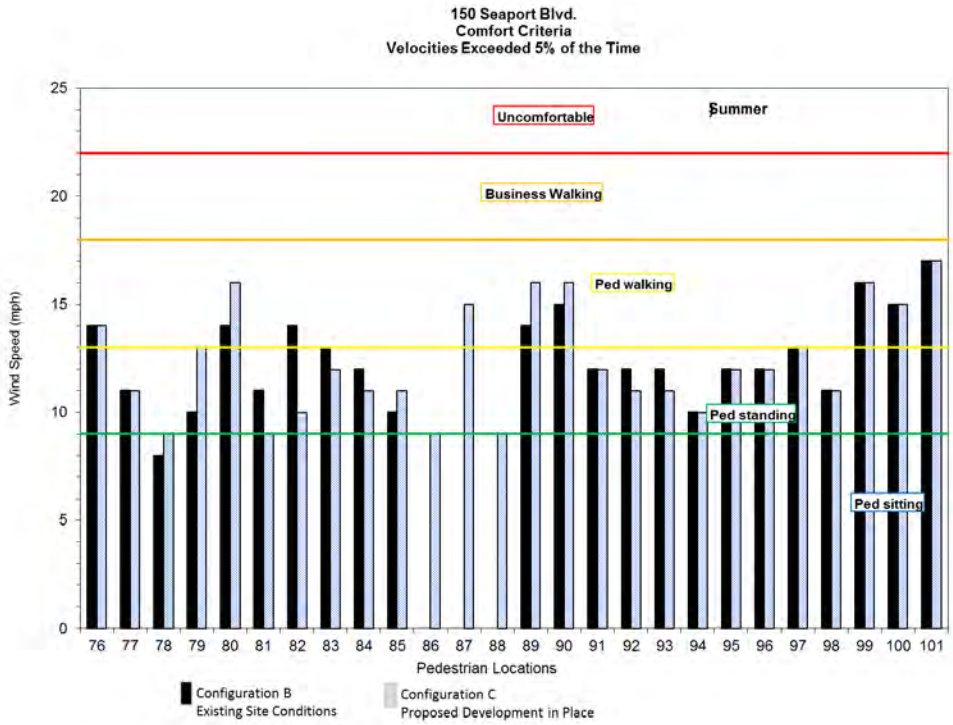


Figure 3p. Summary of pedestrian wind comfort ratings – Summer.

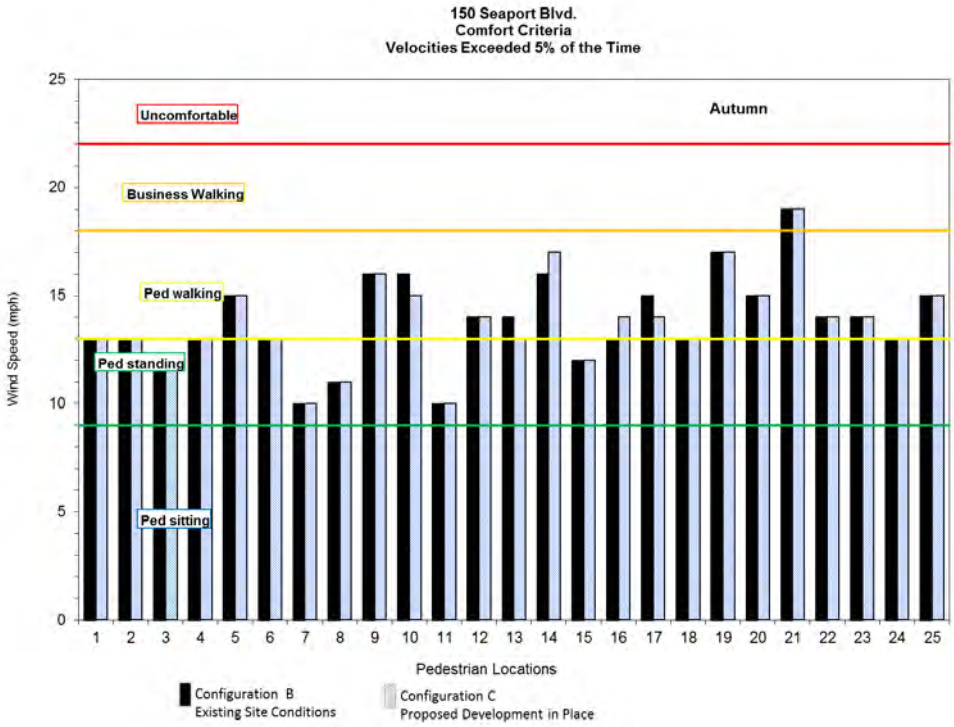


Figure 3q. Summary of pedestrian wind comfort ratings – Autumn.

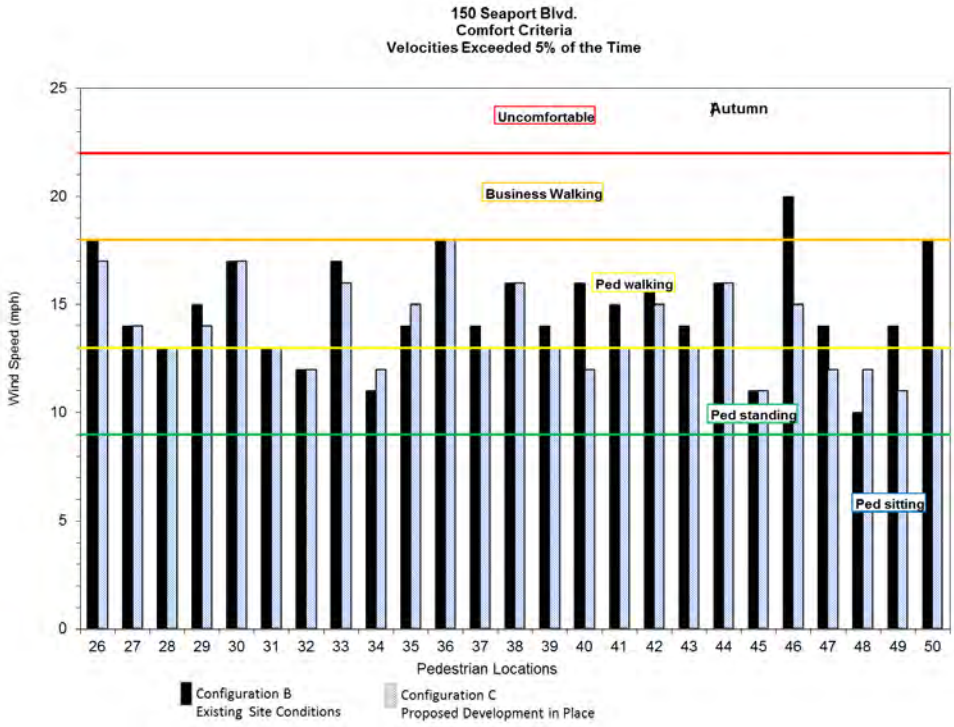


Figure 3r. Summary of pedestrian wind comfort ratings – Autumn.

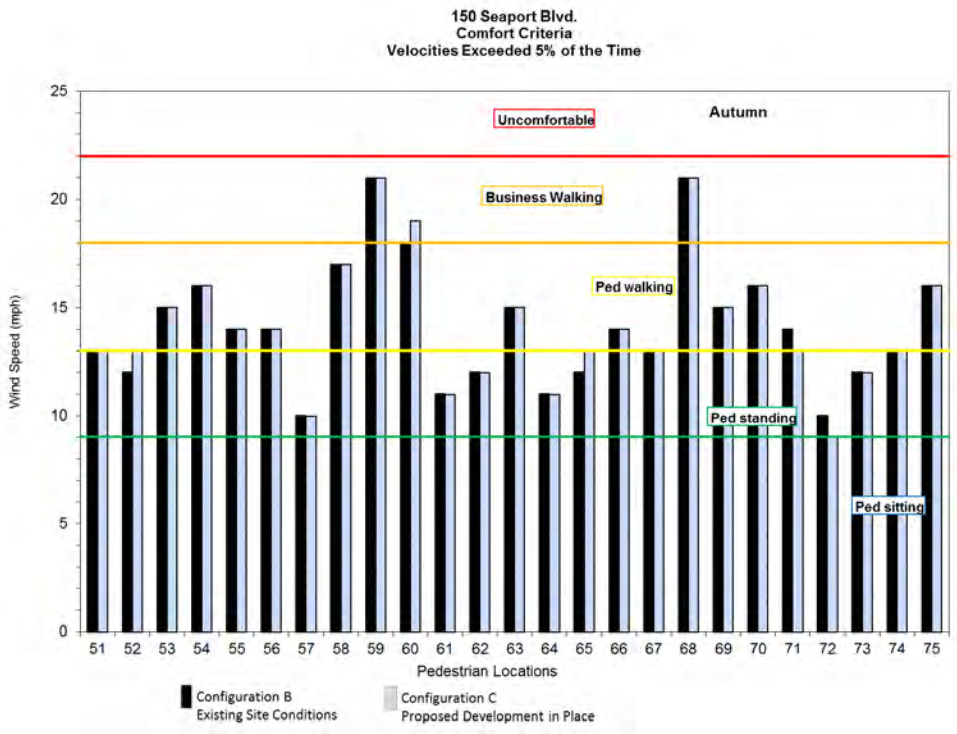


Figure 3s. Summary of pedestrian wind comfort ratings – Autumn.

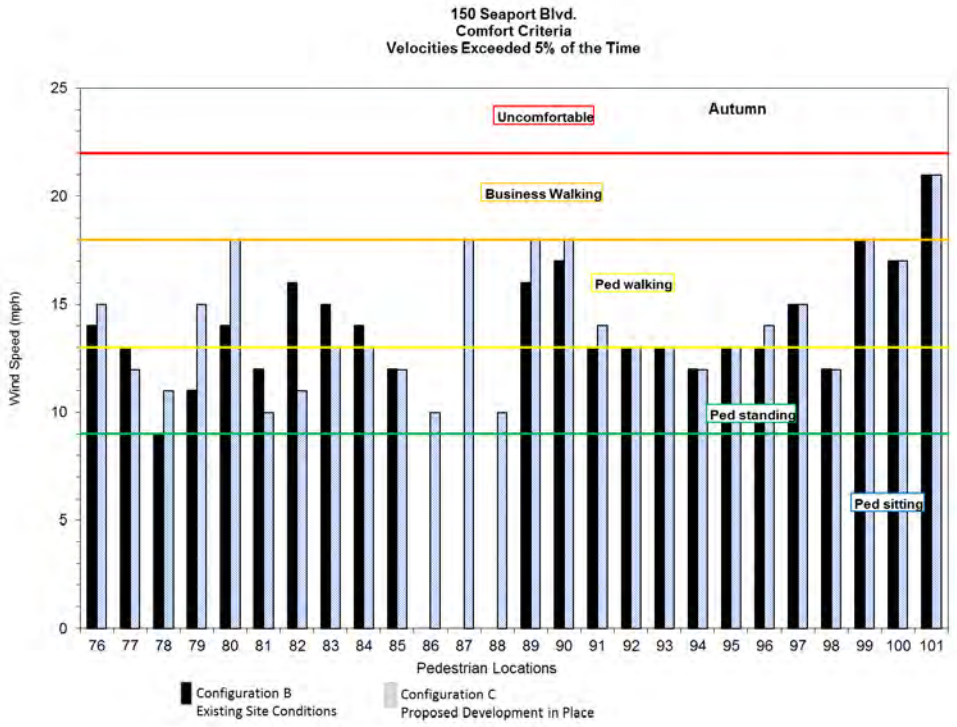


Figure 3t. Summary of pedestrian wind comfort ratings – Autumn.

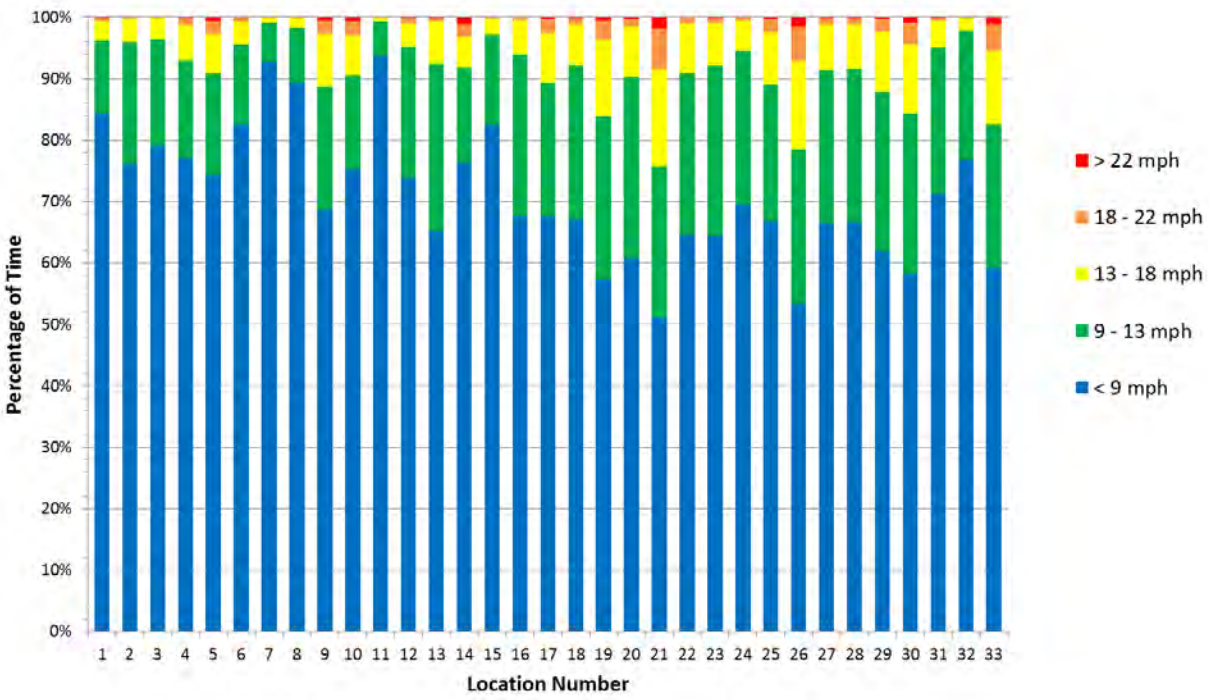


Figure 4a. Percentage of time that the wind speeds will be within each wind speed range – Annual.

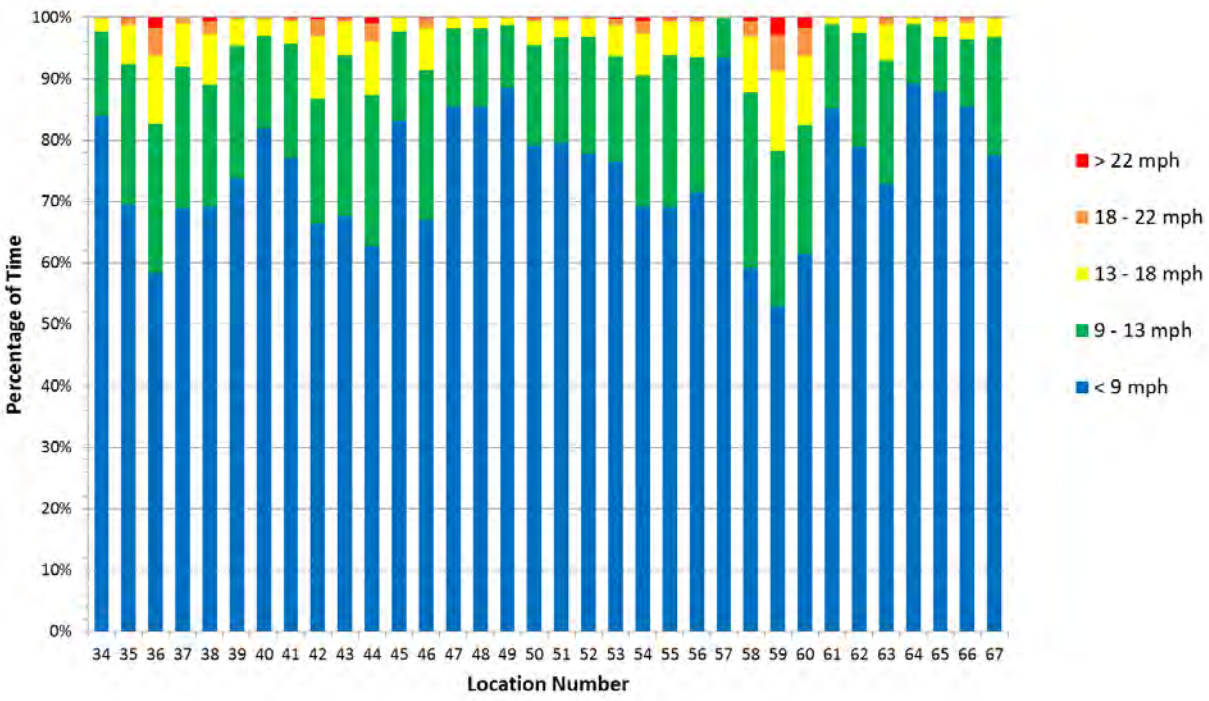


Figure 4b. Percentage of time that the wind speeds will be within each wind speed range – Annual.

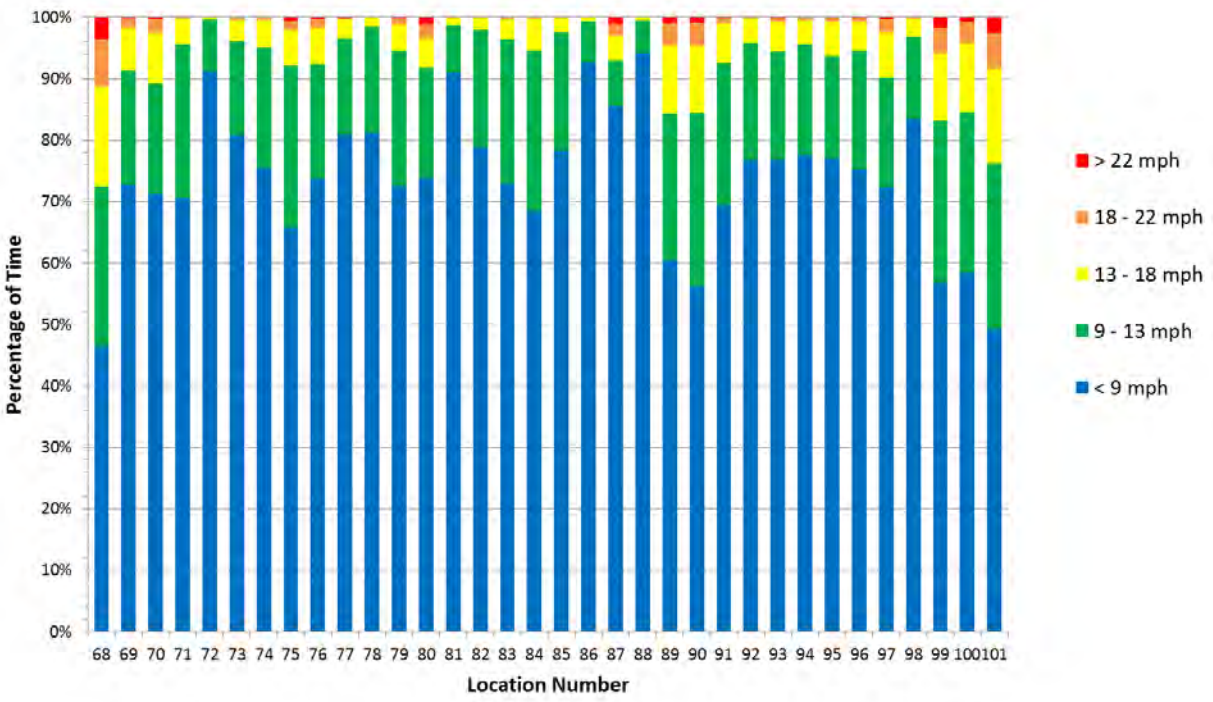


Figure 4c. Percentage of time that the wind speeds will be within each wind speed range – Annual.

APPENDIX A

GENERAL PROJECT INFORMATION

A1. WIND SPEEDS FOR PEDESTRIAN WIND COMFORT

For the prediction of pedestrian wind comfort, all 2-minute mean data from the Logan International Airport were used to form a joint probability density of speed and direction, called a wind rose. The wind rose is shown in Figure A1 for the data at 33 ft above the ground corrected to open country.

The wind rose data were fit to a Weibull distribution at the 33 ft height of the form,

$$P_i(>U) = a_i \ \exp\left[-(u/C)^k\right]$$

and at the pitot reference elevation (z_{ref} = 400 ft)

$$P_i(>U) = a_i \ \exp\left[-(u/C_{\mathrm{ref}})^k\right]$$

where i = 1, 16 directions, a_i is the probability of wind coming from direction i, and k and C are variables in the Weibull distribution. C_{ref} results from the multiplication of C by the site ratio that converts the wind speeds to the reference height and also accounts for terrain category upwind of the site by means of an ESDU (2006) analysis.

The Weibull coefficients in Table A1 were used to predict reference wind speeds at the site for use in the prediction of pedestrian wind comfort.

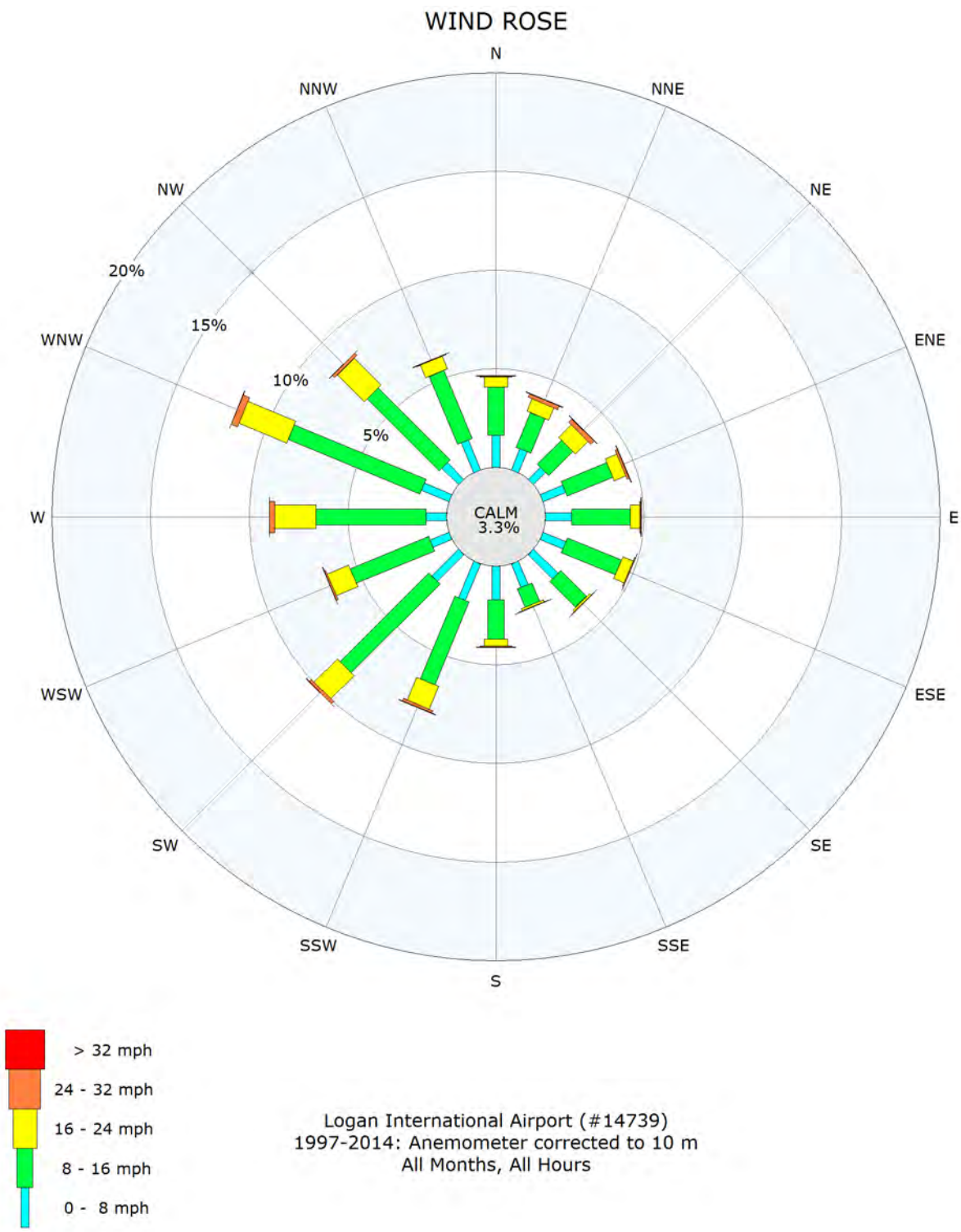


Figure A1: Probability of occurrence of wind speed by direction.

Table A1
Weibull Coefficients

Direction	a	k	C33ft (mph)	site ratio	Cref (mph)
N	0.0465	2.14	11.83	1.556	19.06
NNE	0.0393	1.99	13.26	1.298	15.50
NE	0.0376	2.14	14.51	1.435	18.41
ENE	0.0451	2.07	13.16	1.489	16.95
E	0.0486	2.16	12.61	1.450	15.91
ESE	0.0484	2.19	12.63	1.447	16.70
SE	0.0373	1.96	9.97	1.427	14.74
SSE	0.0243	1.64	9.47	1.418	14.20
S	0.0411	1.86	11.19	1.457	17.60
SSW	0.0795	2.33	13.34	1.450	21.77
SW	0.1010	2.75	13.83	1.480	22.65
WSW	0.0660	2.80	14.15	1.469	22.19
W	0.0900	2.93	15.48	1.408	23.47
WNW	0.1171	2.92	15.34	1.543	27.04
NW	0.0844	2.93	14.80	1.581	25.48
NNW	0.0611	2.65	12.34	1.532	21.10

A2. WIND TUNNEL TEST FACILITIES

The wind tunnel testing was performed at the CPP wind engineering laboratory in Fort Collins, Colorado. Specifications for the wind tunnel used for this project are given in Figure A2.

The mean velocity profile approaching the modeled area for each direction has the form:

$$\frac{U}{U_{ref}} = \left(\frac{z}{z_{ref}}\right)^n$$

in which U is the mean velocity at height z, U_{ref} is a reference wind speed at reference height z_{ref}, and n is a constant which depends on the characteristics of the upstream roughness for each direction. The turbulence intensities are appropriate for the approach mean velocity profile(s) selected.

CPP Wind Tunnel 1

Dimensions

Test section length	68.0 ft (20.6 m)
Test section width	10.0 ft (3.0 m)
Ceiling height	Adjustable from 7.5 to 9.0 ft (2.3 to 2.7 m)

Drive Specifications

Total power	75 hp (56 kW)
Type of drive	AC motor/6-blade axial fan
Speed control	Variable frequency drive

Flow Characteristics

Mean velocity	0 to 60 fps (0 to 18 m/s)
Boundary-layer thickness*	Up to 5.0 ft (1.5 m)
Turbulence	About 2 percent at entrance to test section
Longitudinal pressure gradient	Zeroed by ceiling adjustment

*Function of boundary roughness and thickening devices at test-section entrance

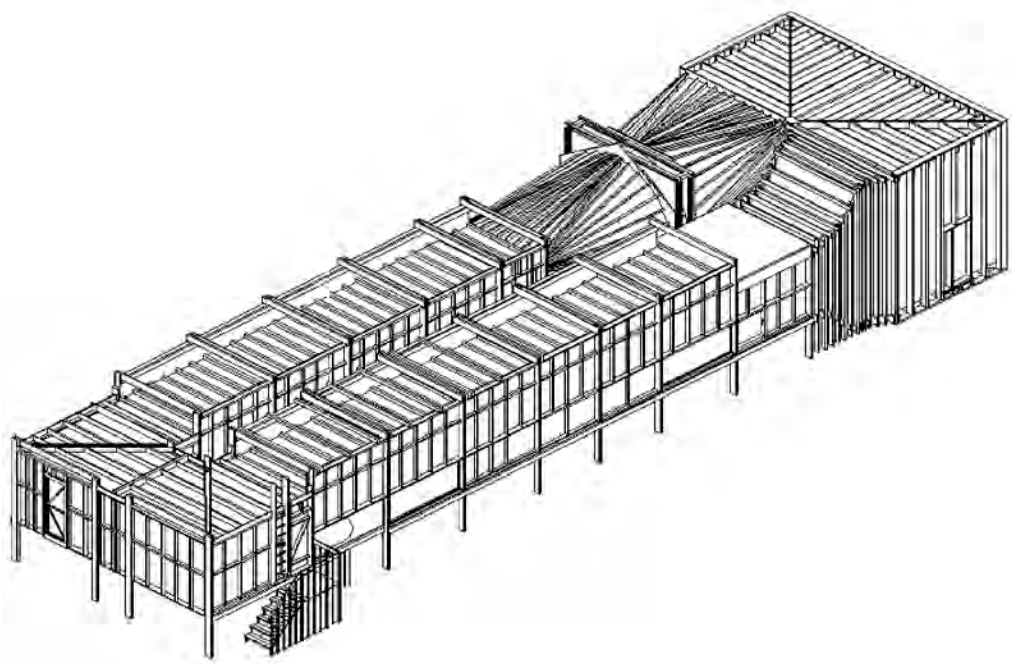


Figure A2: CPP Wind Tunnel 1.

A3. PROJECT INFORMATION SOURCES

Proximity Model

1. Google Earth
2. Pictometry

Test Building Model

1. Sketchup model from Elkus Manfredi Architects, received 21 December 2015 and 6 January 2016.

A4. REFERENCES

ESDU 01008 (2006), Computer program for wind speeds and turbulence properties: flat or hilly sites in terrain with roughness change, IHS ESDU International.

APPENDIX B

PEDESTRIAN-LEVEL WINDS STUDY SUPPLEMENTAL INFORMATION

INTERPRETATION OF PEDESTRIAN WIND FIGURES

For explanatory purposes the local wind climate used for the pedestrian wind study is shown in Figure B1. This figure represents the general wind climate unaffected by the site or surrounding buildings. Conditions within the site are determined through combination of this climate data with the wind tunnel data. The results of this combination are presented in Figure B2 and will be discussed further below. The details of the Lawson analysis are discussed in Section 2 in the main body of the report.

The climate shown in Figure B1 demonstrates the directionality of the general wind climate by plotting the probability of occurrence due to each of the 16 wind directions for various overall occurrences (i.e. 50% of the time, 20% of the time, etc.). These plots represent the wind climate unaffected by accelerations or shielding caused by surrounding buildings. In each plot the sum of the individual probabilities for all 16 wind directions is equal to the total percent occurrence labeled above each plot.

The 50% and 20% occurrence plots in Figure B1 provide a reference to the directionality that pedestrians familiar with the area might be accustomed to on approximately a daily or weekly basis, respectively. The 5% and 0.022% plots correspond to the occurrences for the Lawson comfort and distress analyses (respectively) as described in this report and detailed in Figure B2. In these analyses the comfort criteria are based on a 5% occurrence, while the distress criterion is based on a 0.022% occurrence annually.

For each location in Figure B2 the left plot represents the non-dimensional wind tunnel data obtained by dividing the measured directional wind speeds by the mean reference wind speed (in the free stream upwind of the model). This technique allows the wind tunnel data to be combined with the wind climate data adjusted to the same reference height. Both mean and peak wind speeds are shown (as described in the legend).

The middle plot shows the details of the Lawson comfort analysis. The Lawson comfort rating is shown under each plot, along with the critical mean and gust equivalent mean wind speeds ($U_{GEM} = U_{peak} / 1.85$). The black bars indicate for the given location which directions are most sensitive to the general wind climate. In other words, the longest black bar indicates the wind direction contributing most to the Lawson rating. The sum of the length of all bars equals the 5% occurrence noted above.

The right plot for each location shows the details of the Lawson distress analysis in the same manner as the middle plot. The sum of the length of all bars equals 0.022% per year.

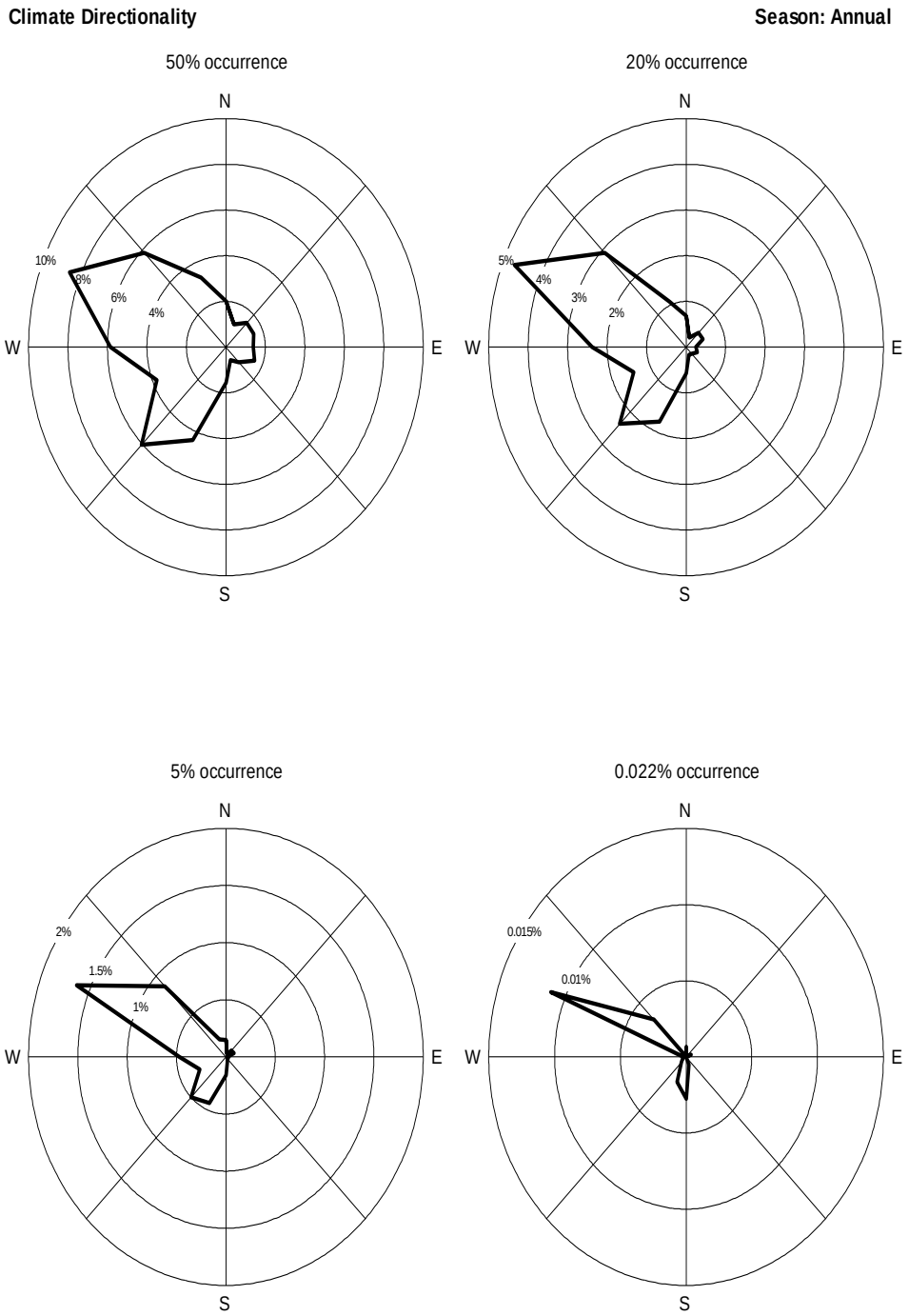


Figure B1. Wind climate directionality.

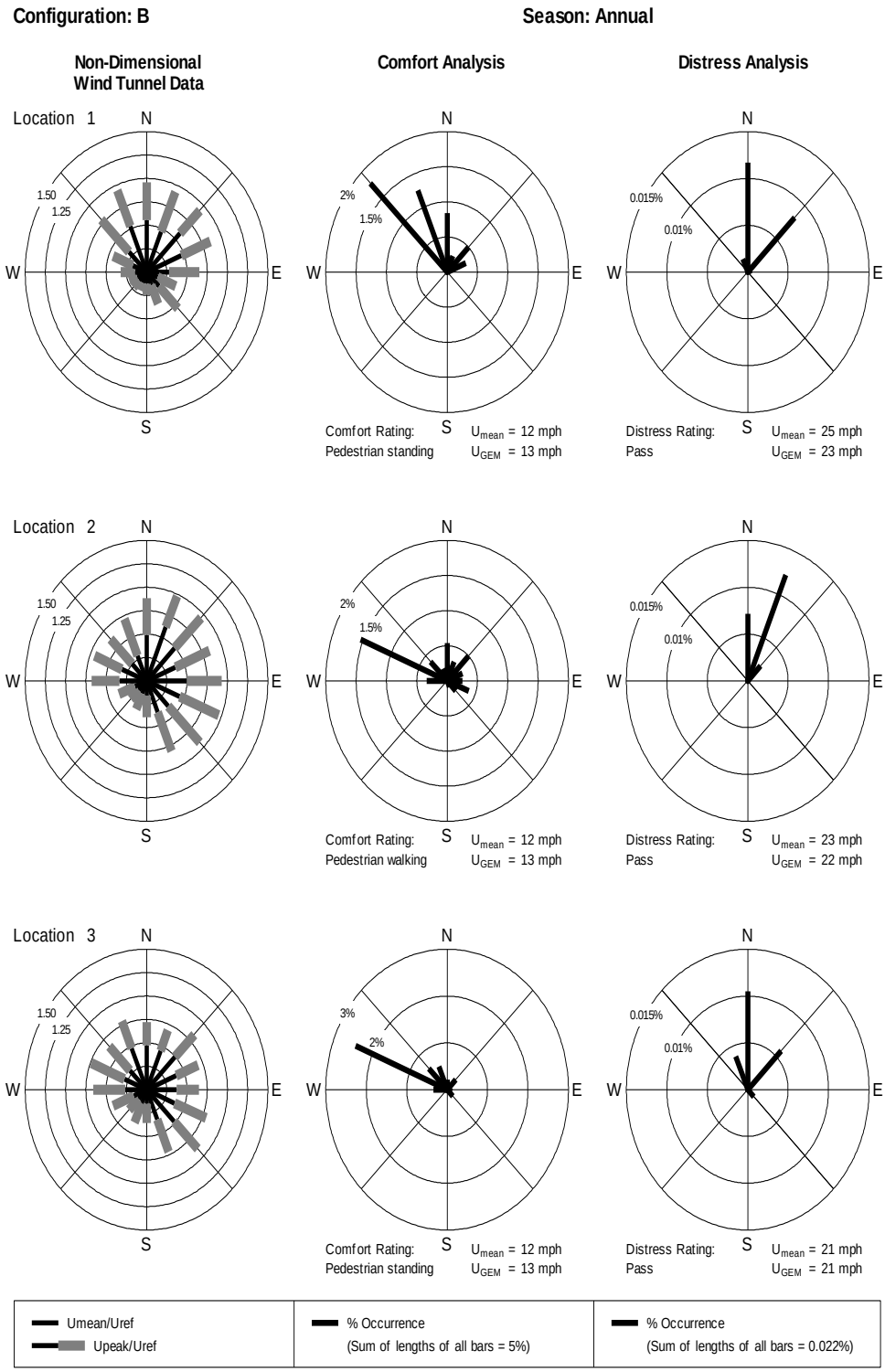


Figure B2a. Combination of wind tunnel data with general wind climate – Configuration B.

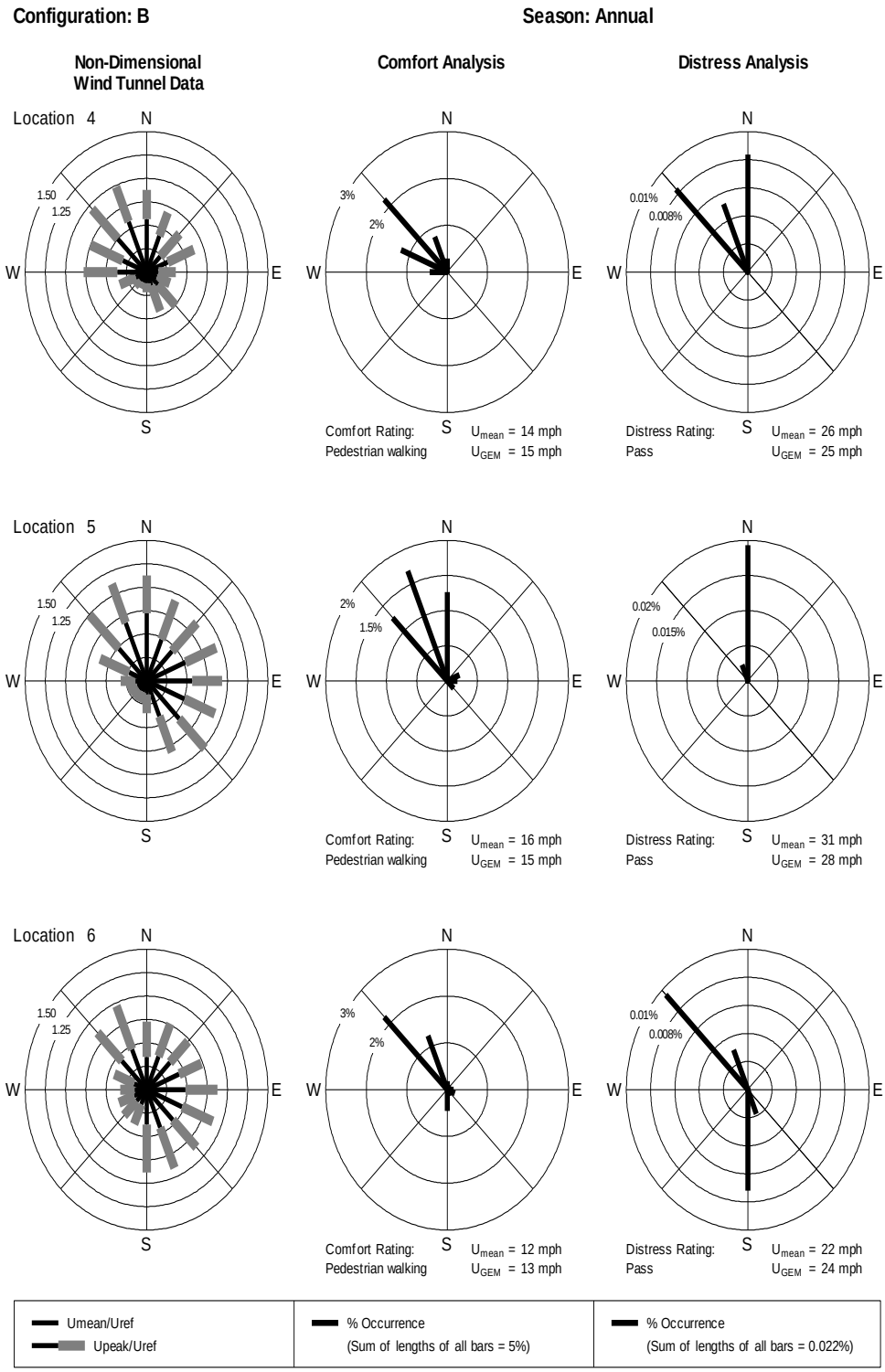


Figure B2b. Combination of wind tunnel data with general wind climate– Configuration B.

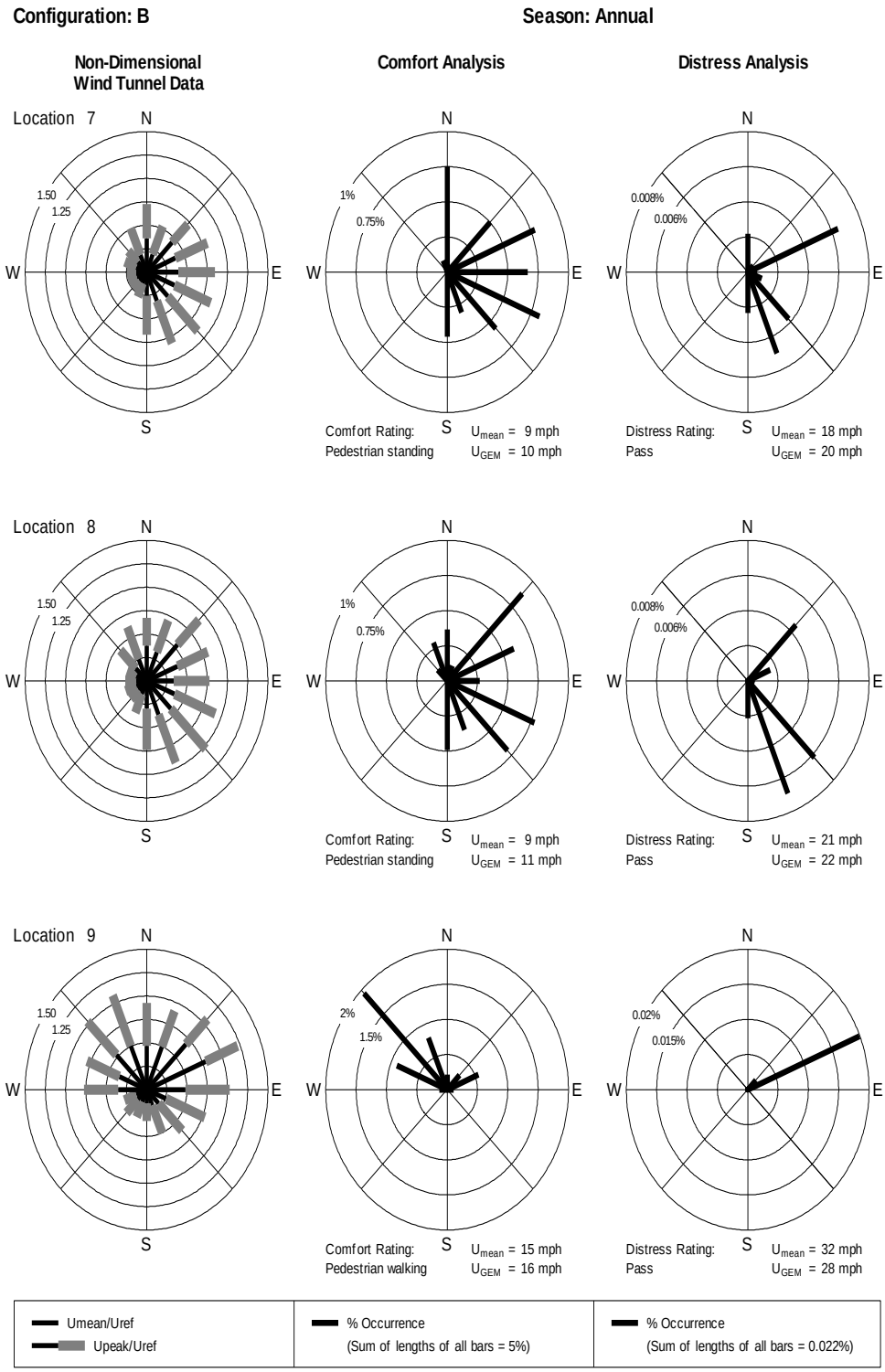


Figure B2c. Combination of wind tunnel data with general wind climate – Configuration B.

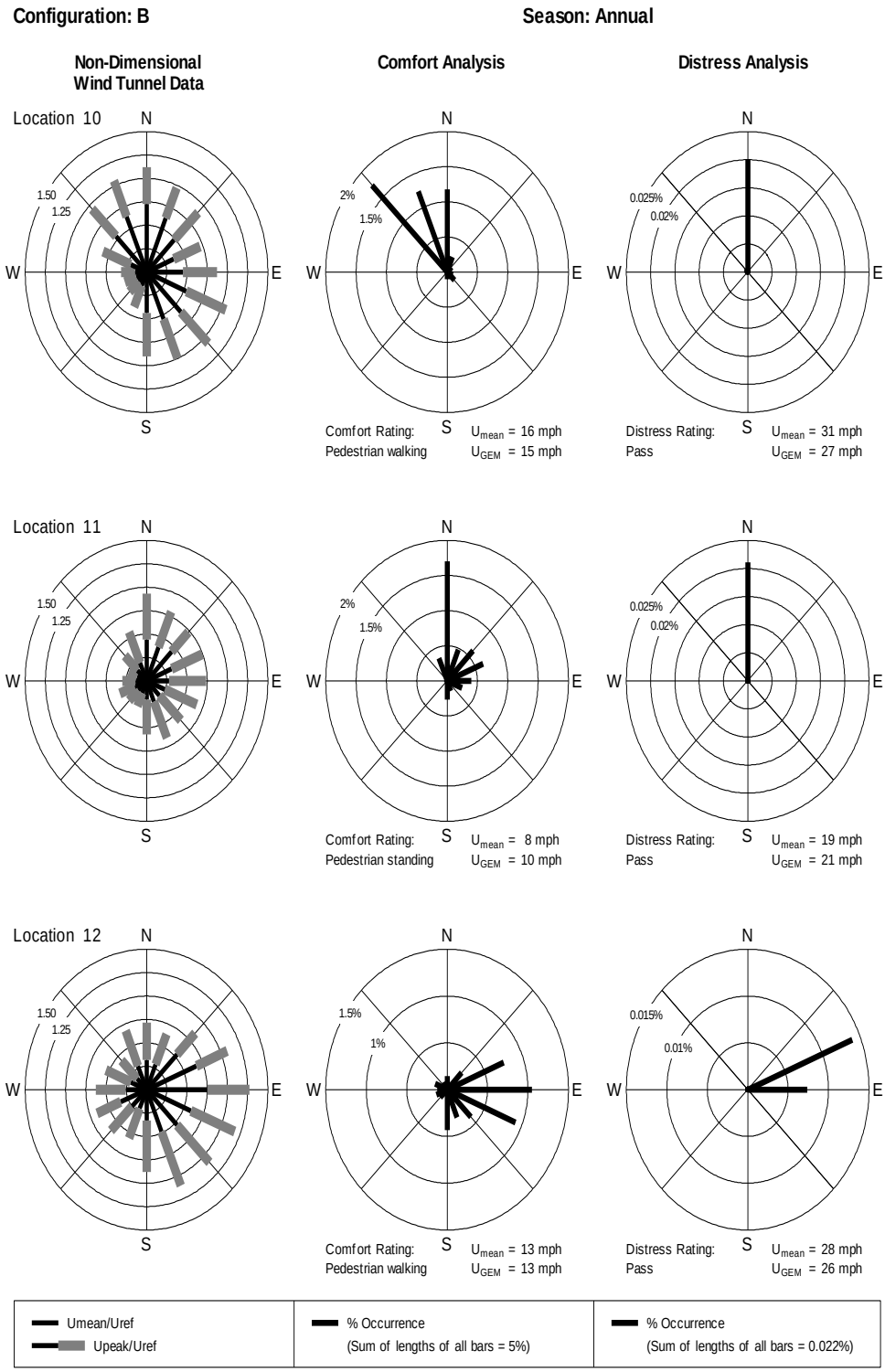


Figure B2d. Combination of wind tunnel data with general wind climate – Configuration B.

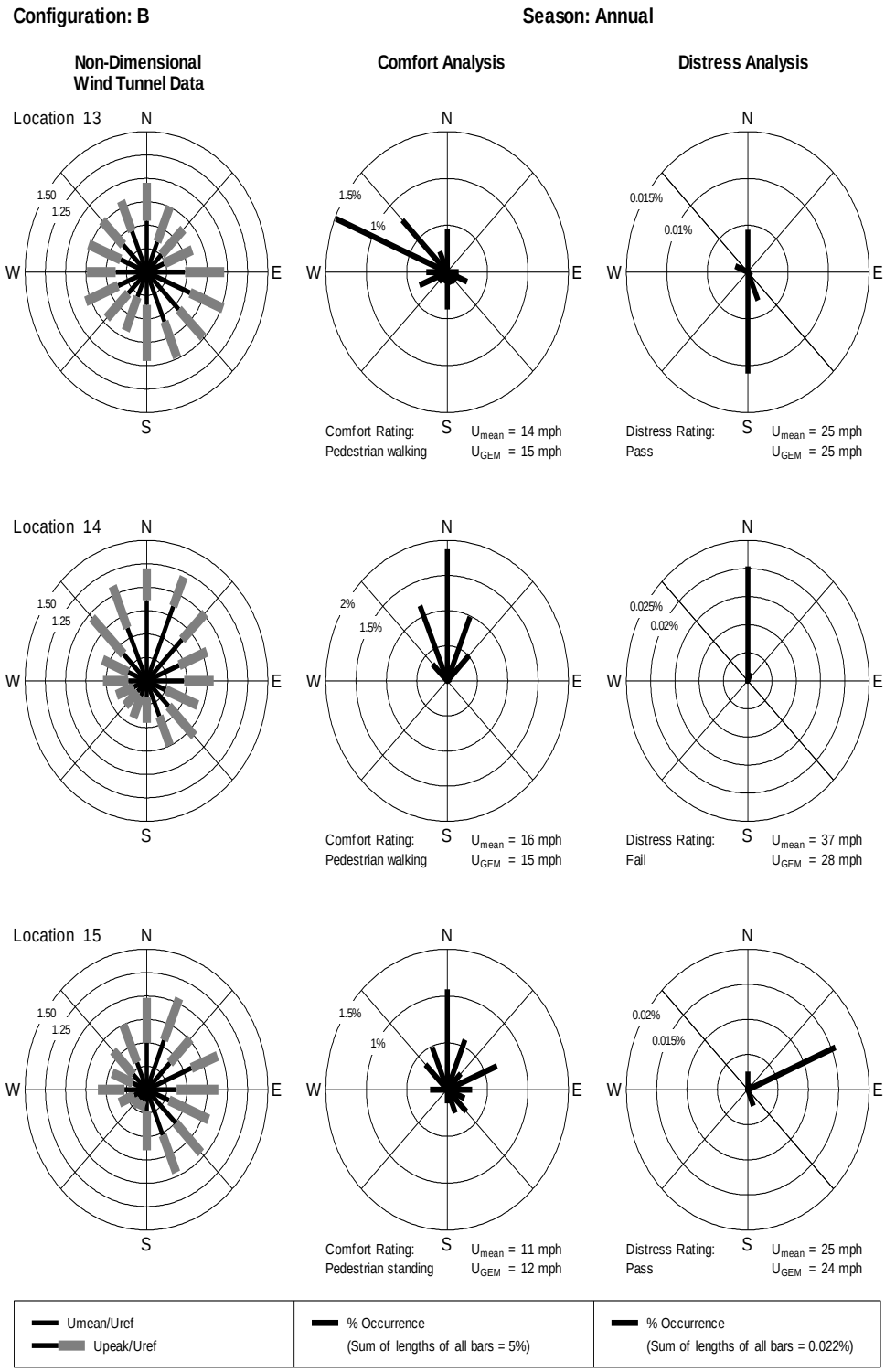


Figure B2e. Combination of wind tunnel data with general wind climate – Configuration B.

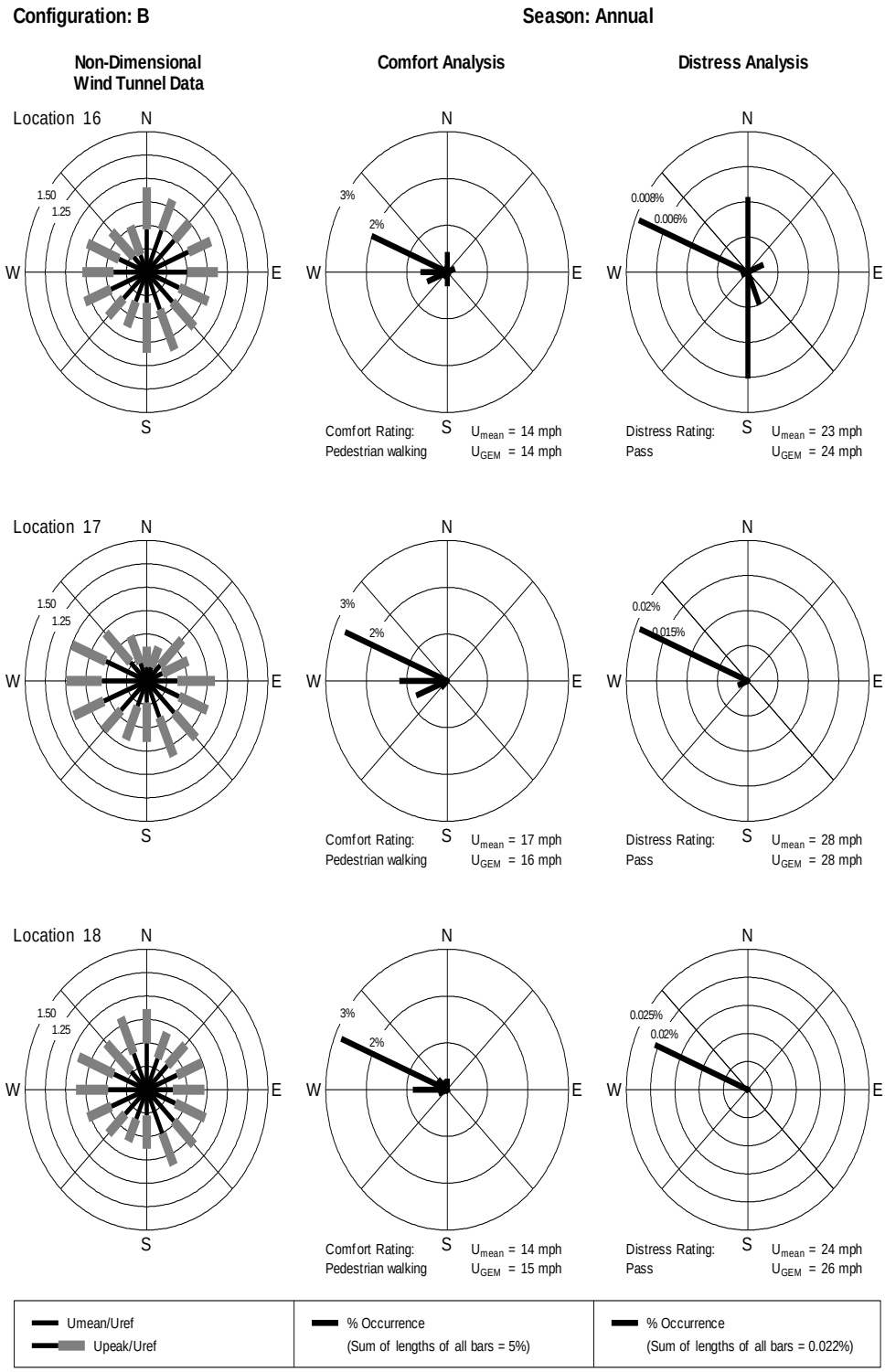


Figure B2f. Combination of wind tunnel data with general wind climate – Configuration B.

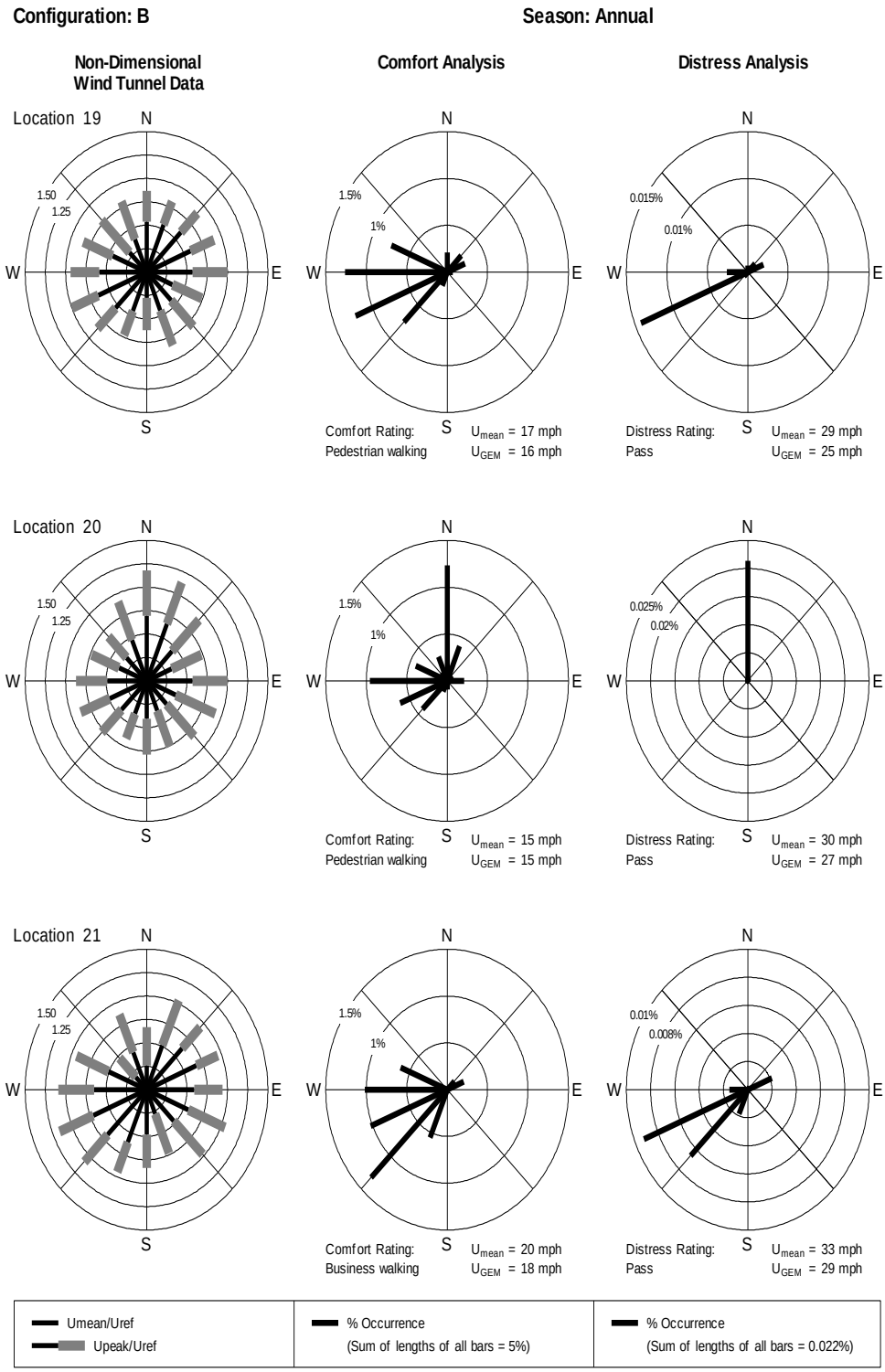


Figure B2g. Combination of wind tunnel data with general wind climate – Configuration B.

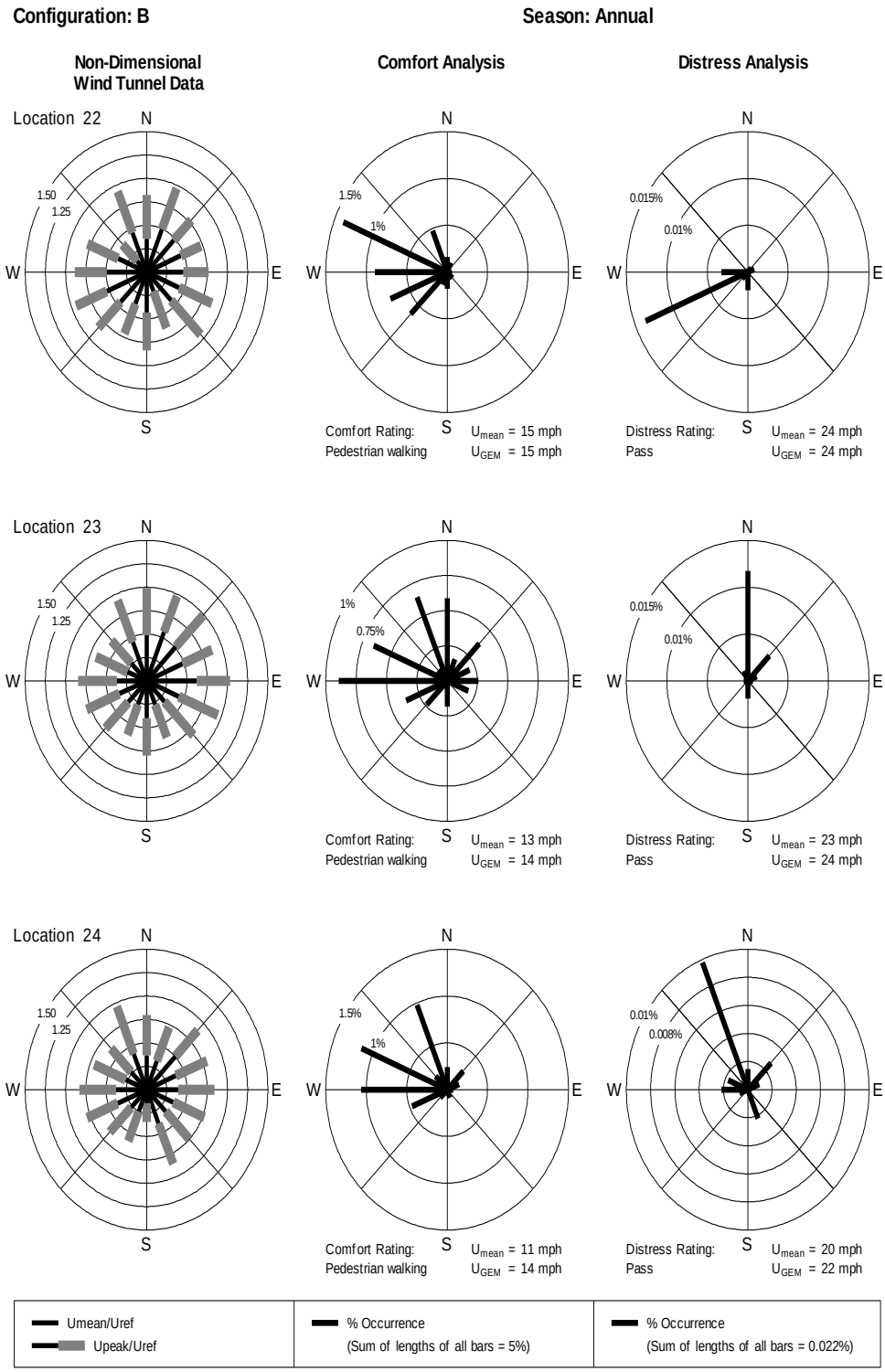


Figure B2h. Combination of wind tunnel data with general wind climate – Configuration B.

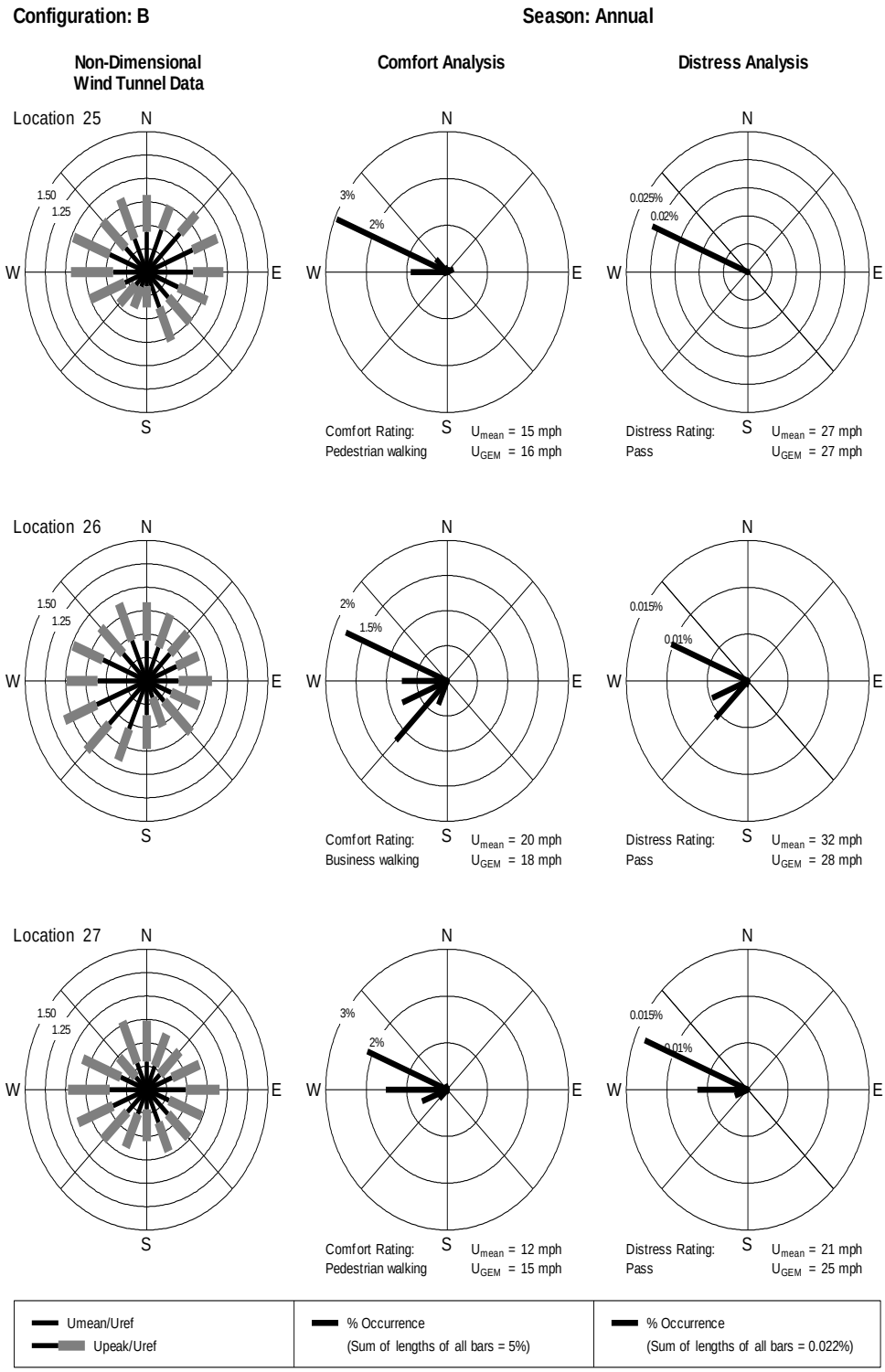


Figure B2i. Combination of wind tunnel data with general wind climate – Configuration B.

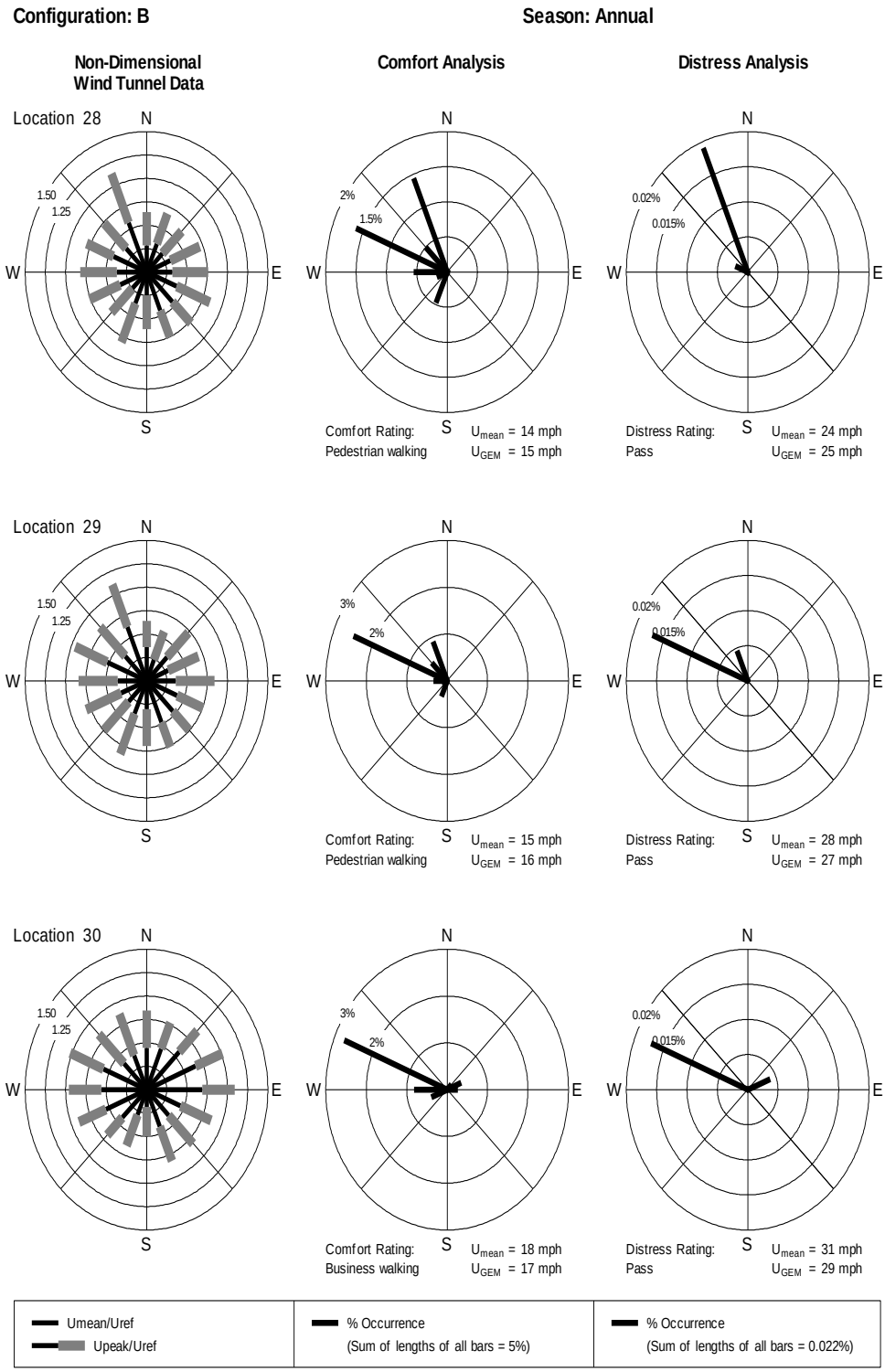


Figure B2j. Combination of wind tunnel data with general wind climate – Configuration B.

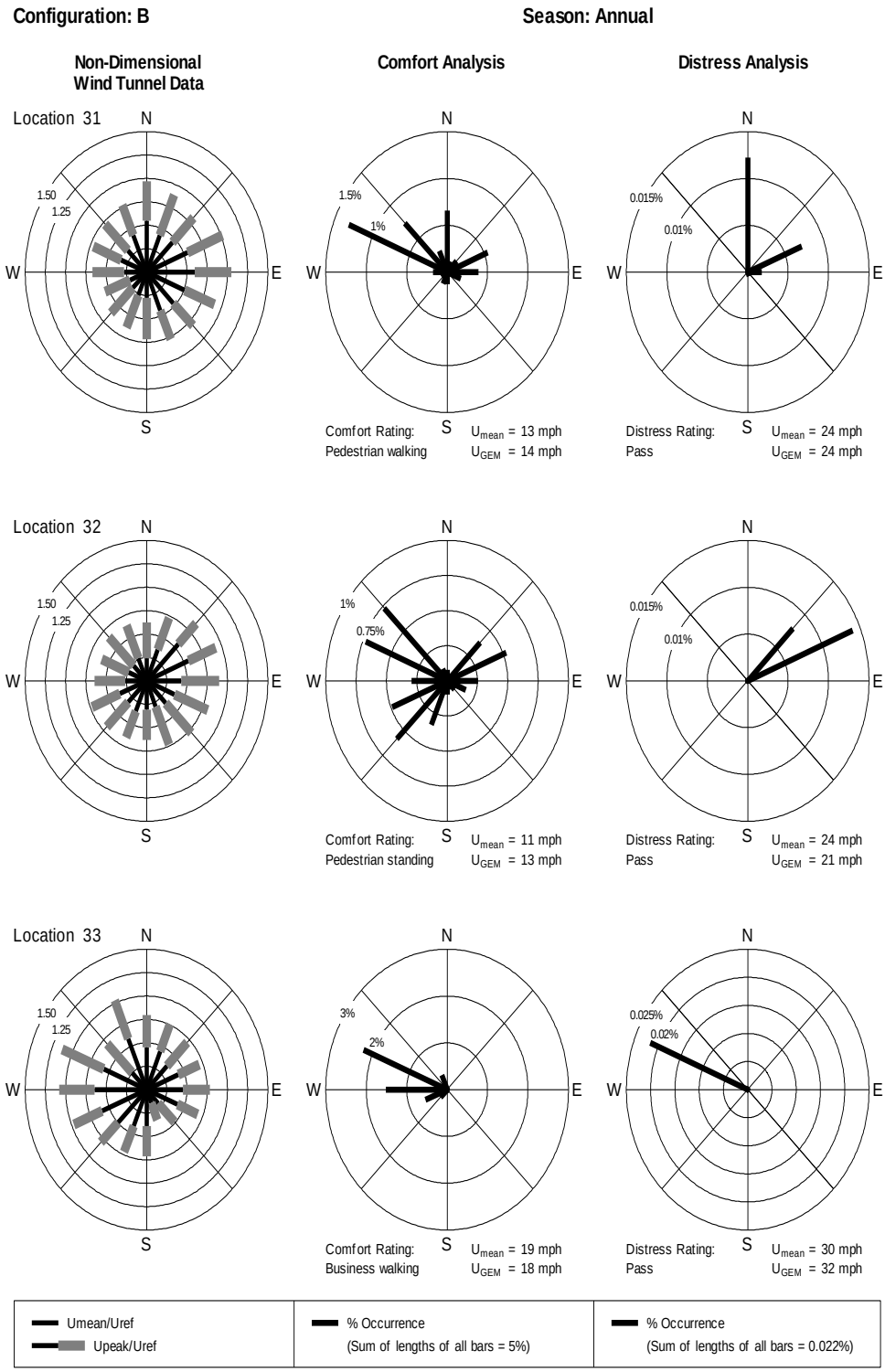


Figure B2k. Combination of wind tunnel data with general wind climate – Configuration B.

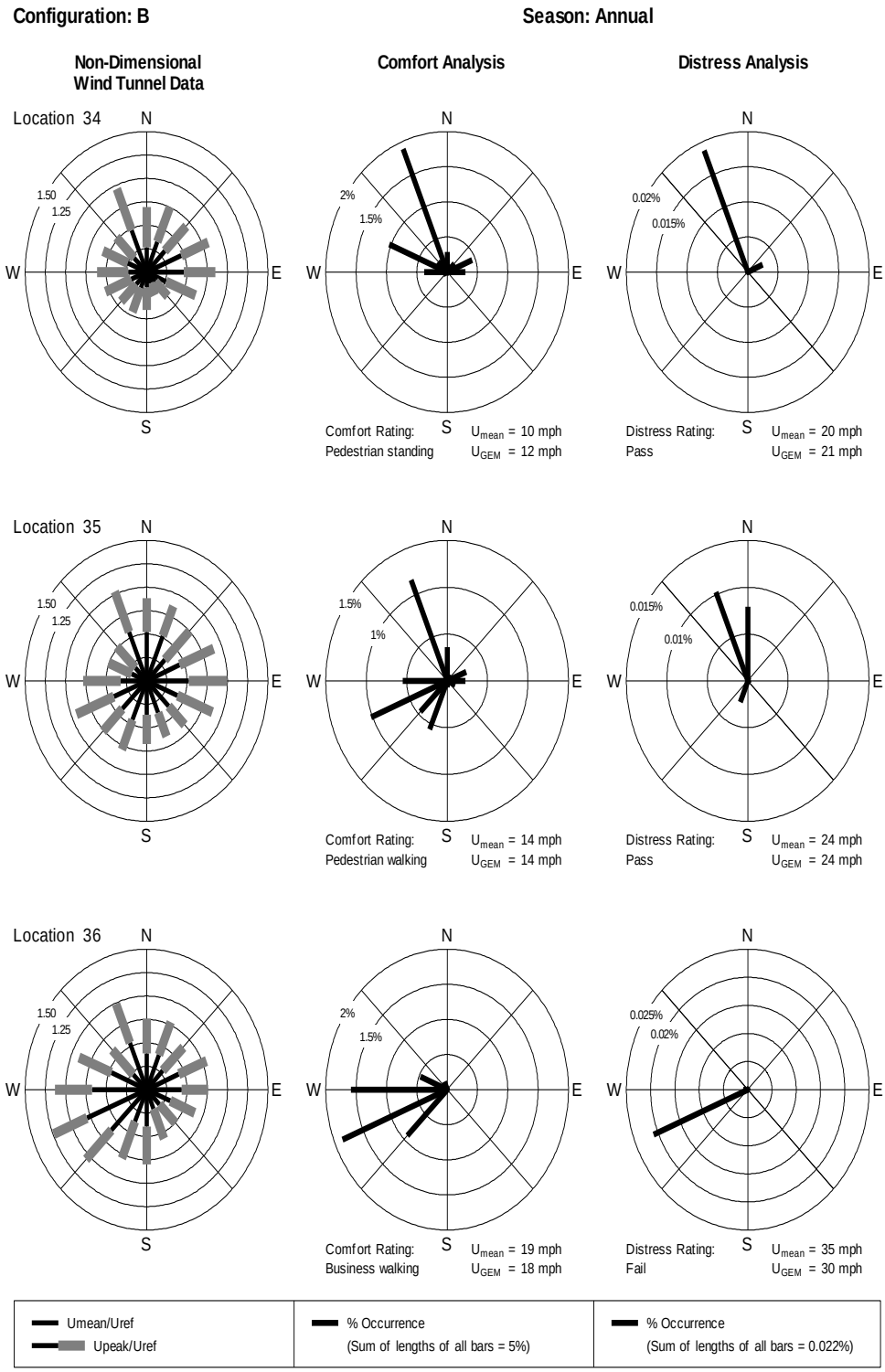


Figure B2l. Combination of wind tunnel data with general wind climate – Configuration B.

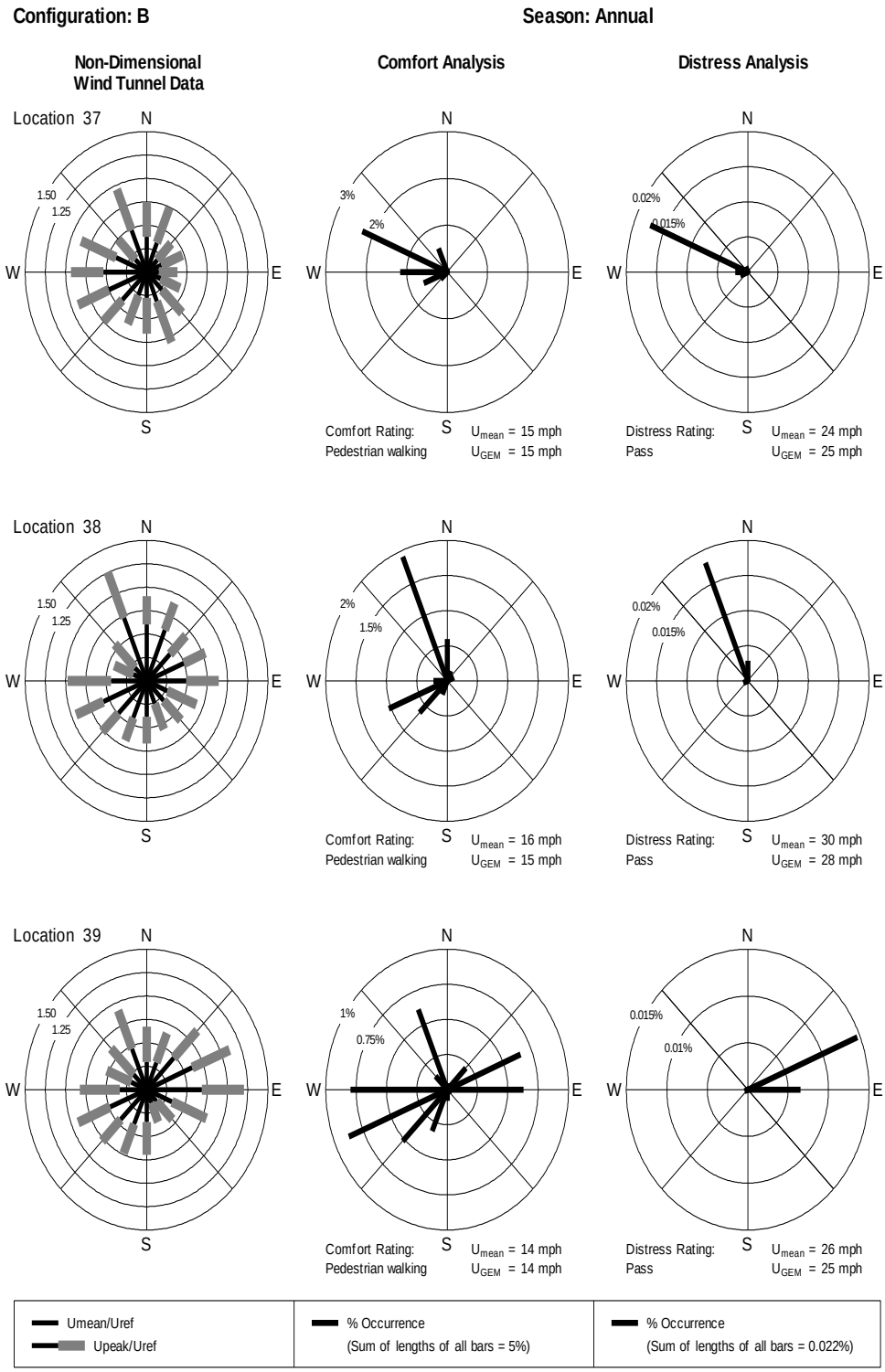


Figure B2m. Combination of wind tunnel data with general wind climate – Configuration B.

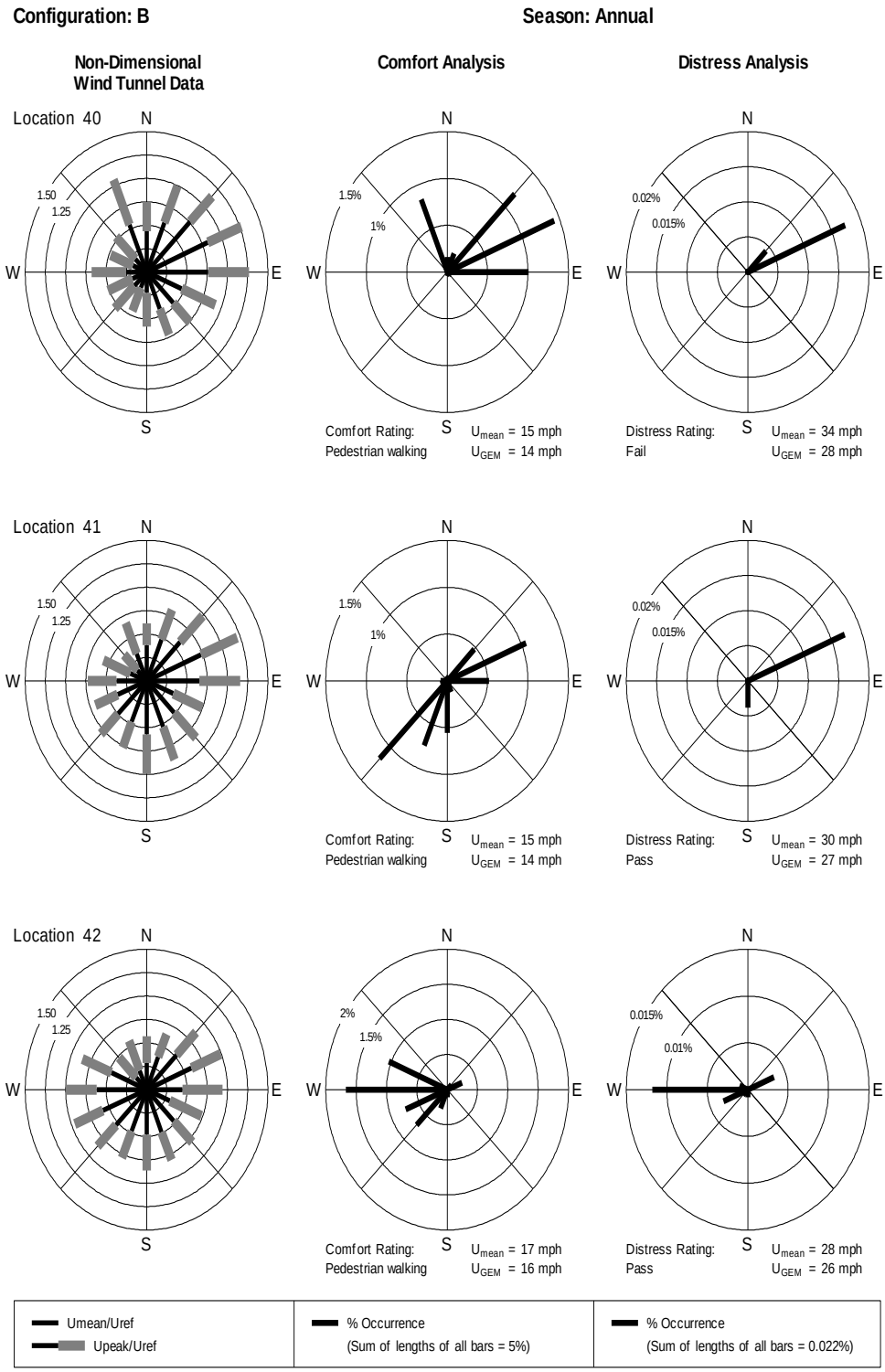


Figure B2n. Combination of wind tunnel data with general wind climate – Configuration B.

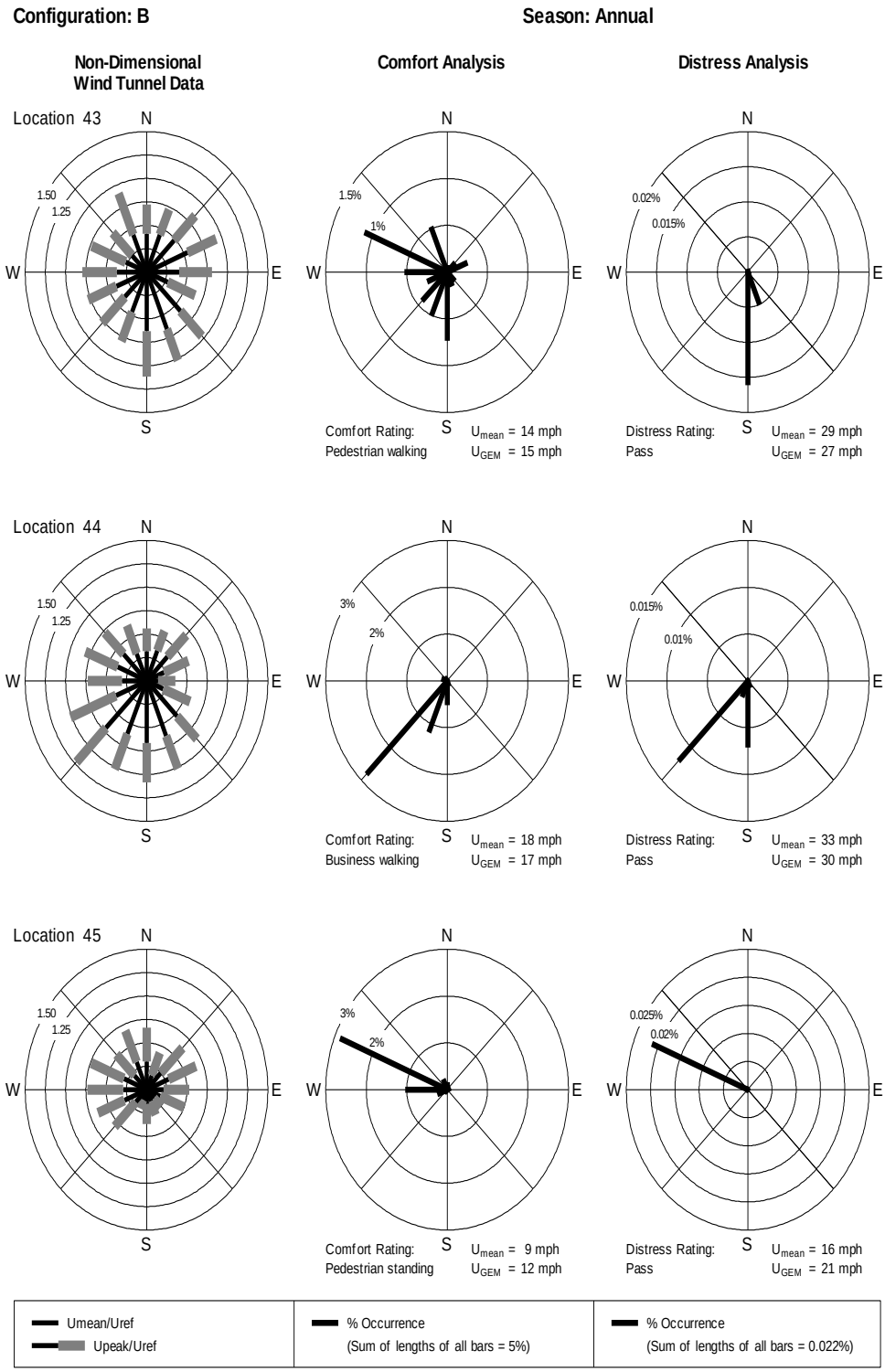


Figure B2o. Combination of wind tunnel data with general wind climate – Configuration B.

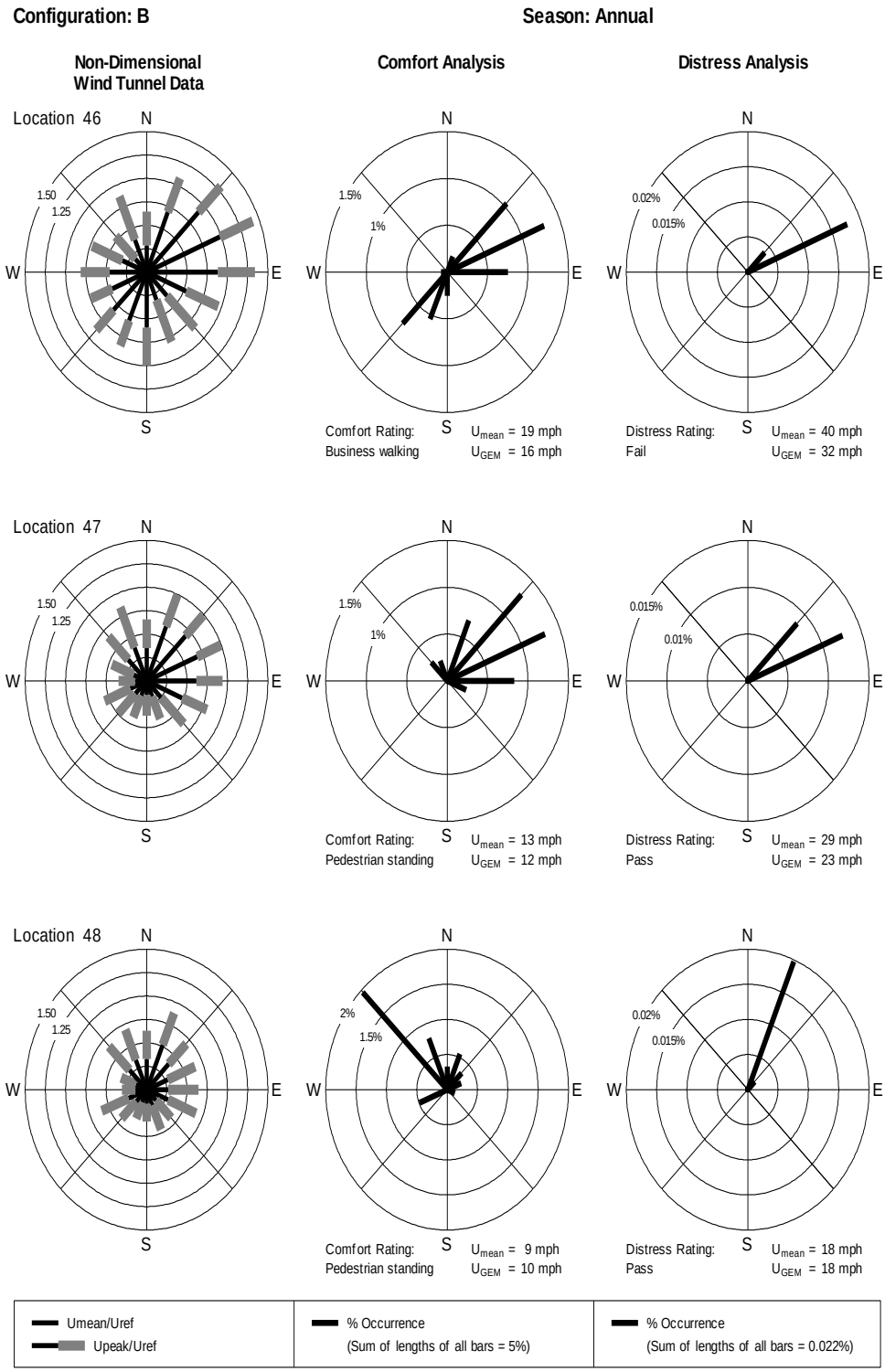


Figure B2p. Combination of wind tunnel data with general wind climate – Configuration B.

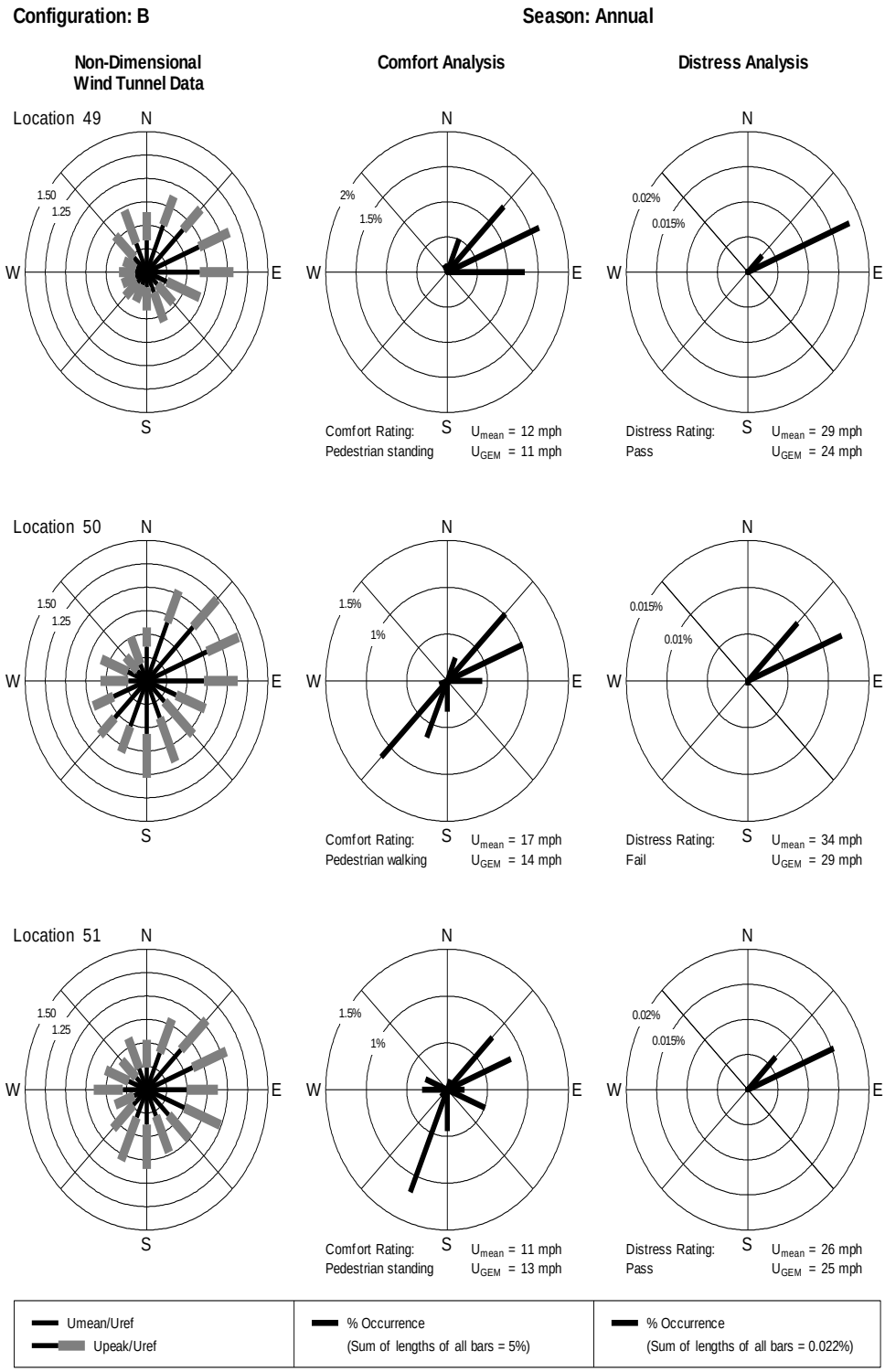


Figure B2q. Combination of wind tunnel data with general wind climate – Configuration B.

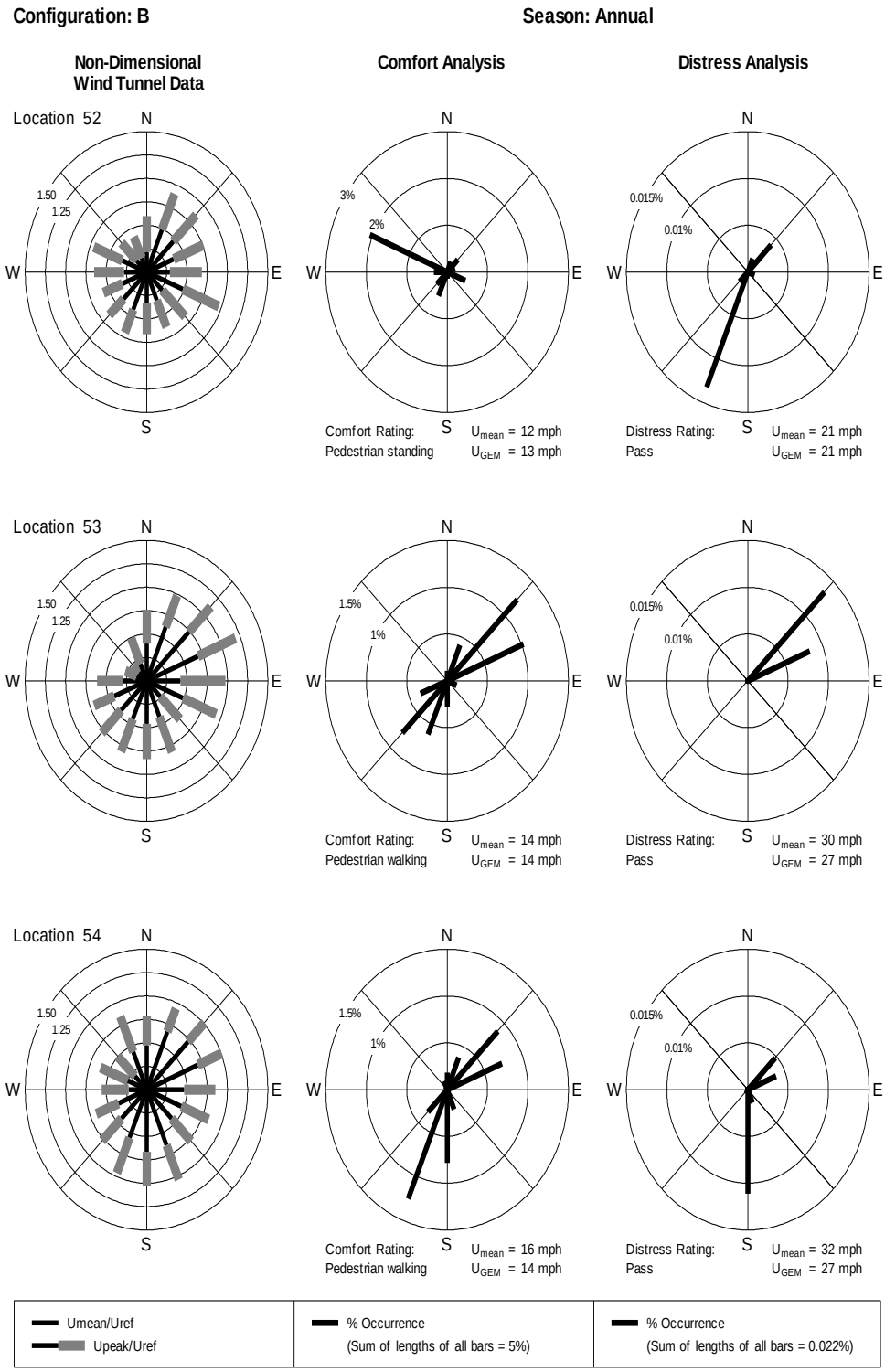


Figure B2r. Combination of wind tunnel data with general wind climate – Configuration B.

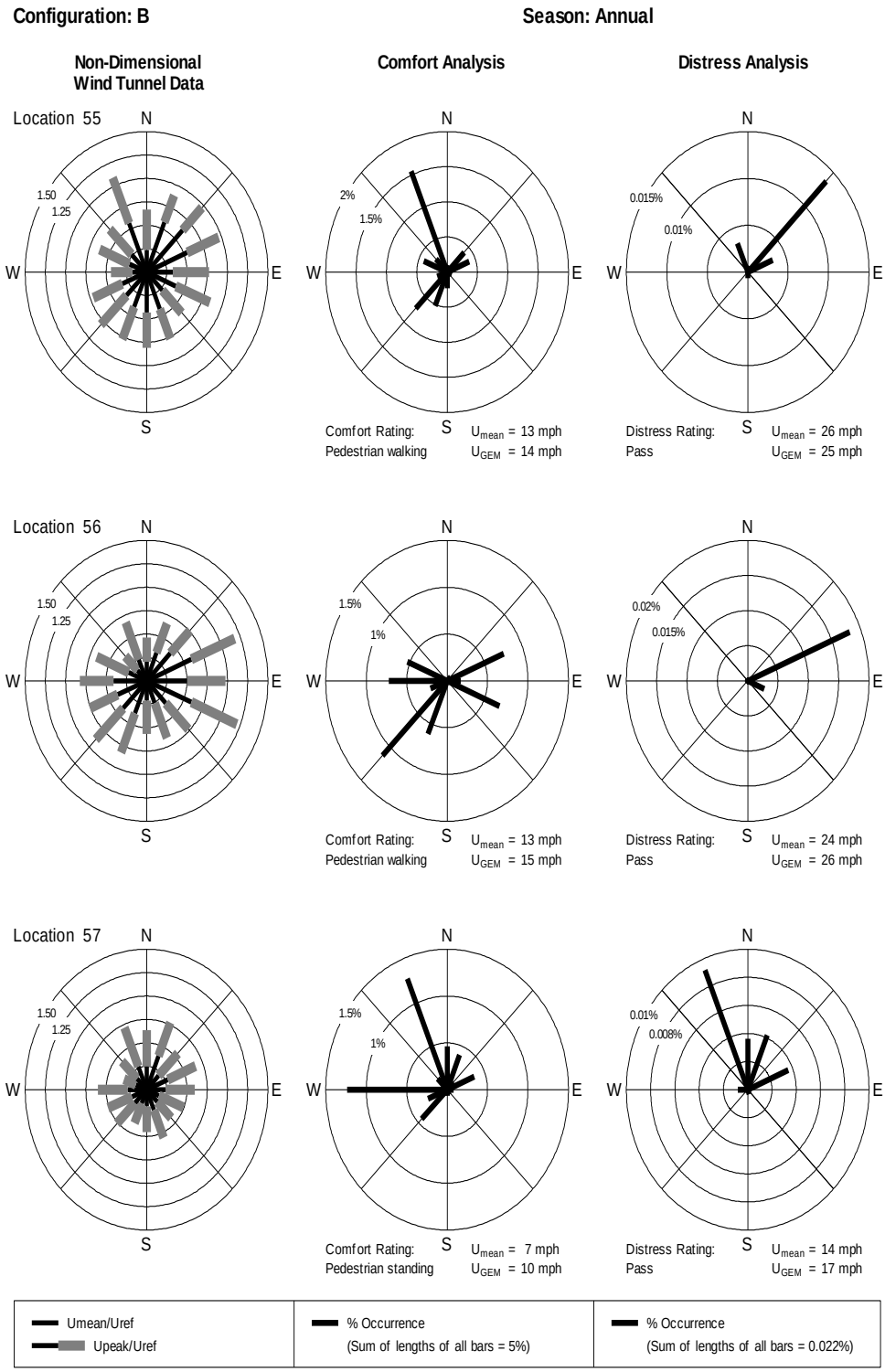


Figure B2s. Combination of wind tunnel data with general wind climate – Configuration B.

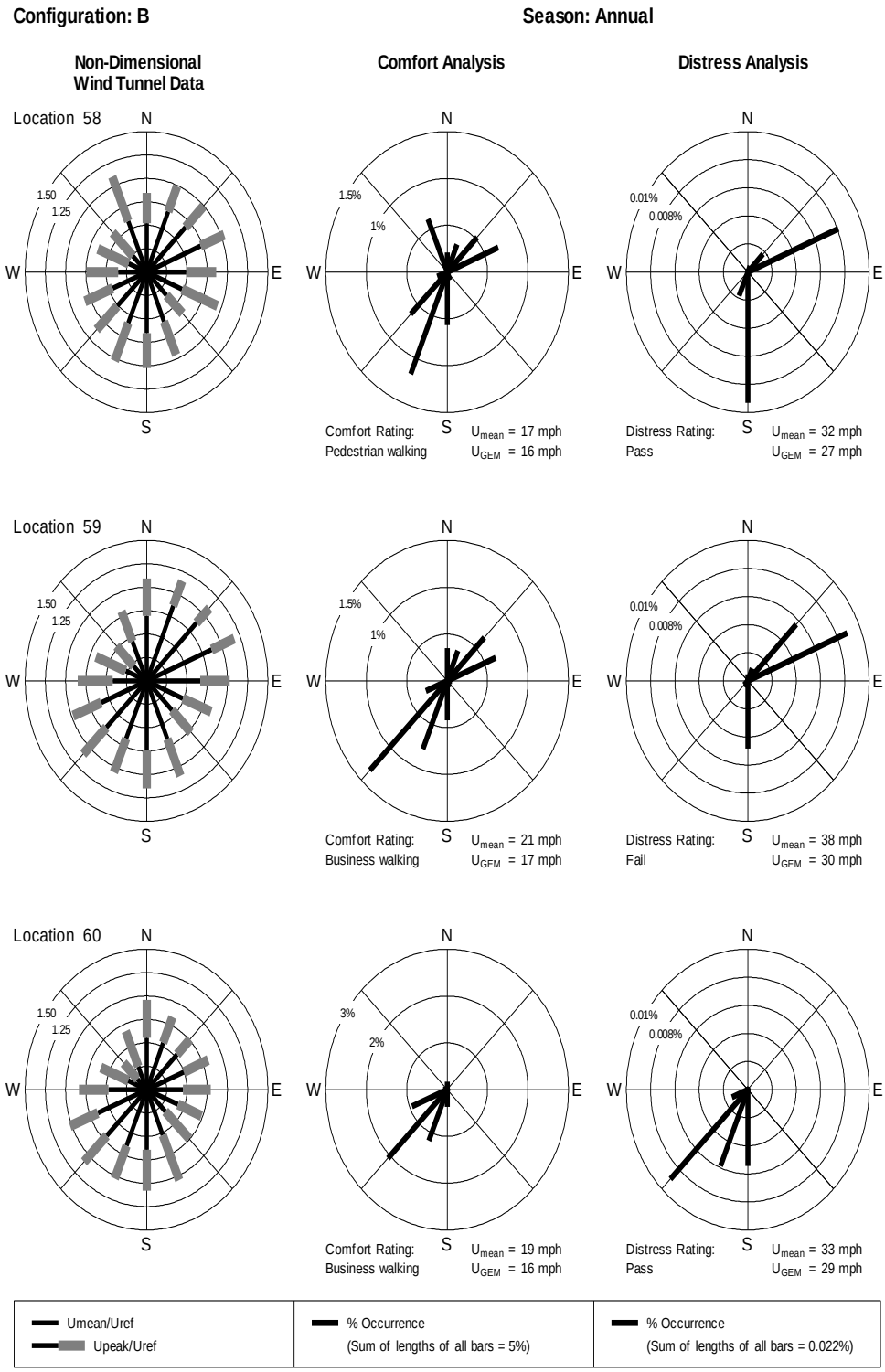


Figure B2t. Combination of wind tunnel data with general wind climate – Configuration B.

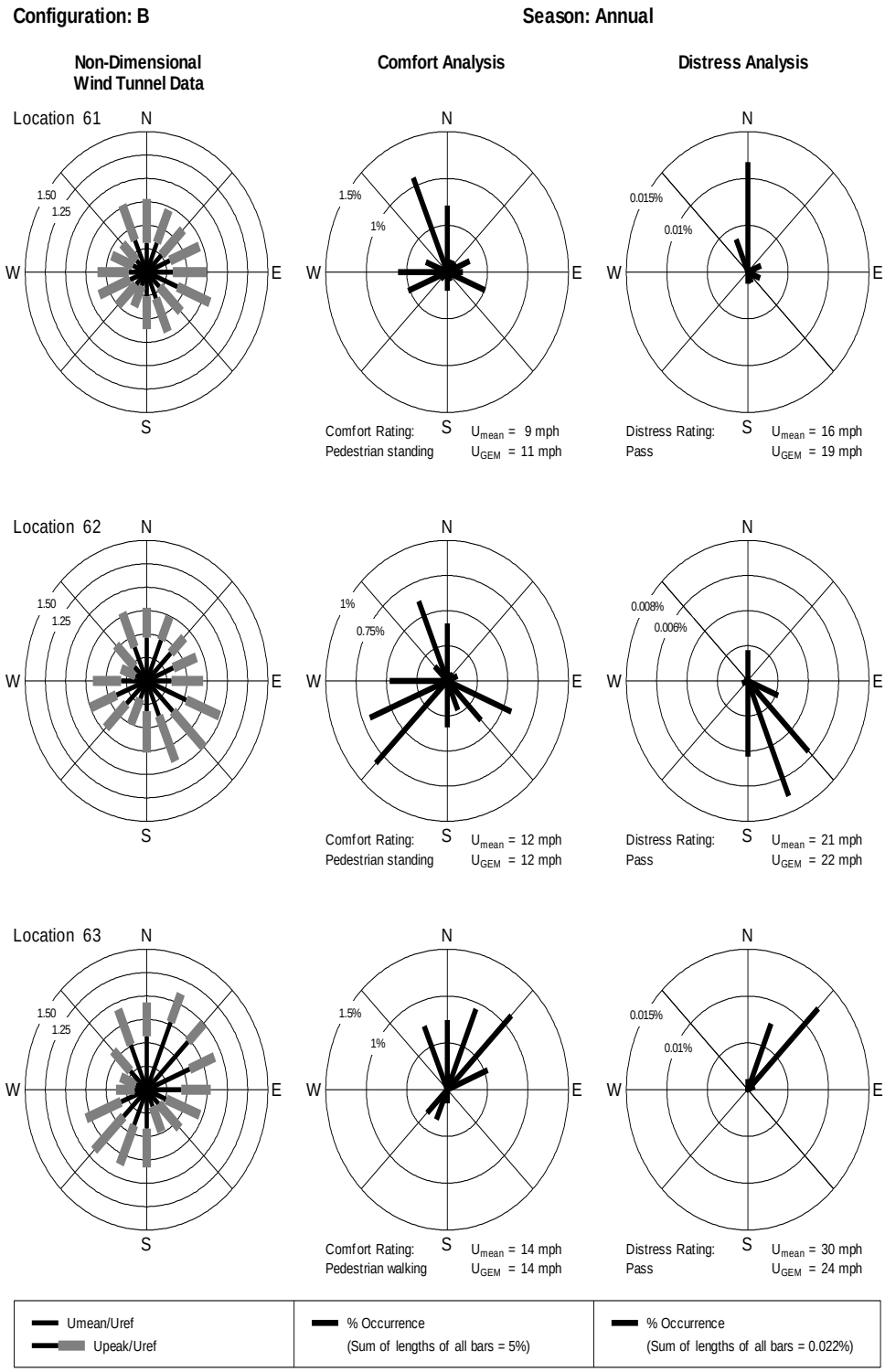


Figure B2u. Combination of wind tunnel data with general wind climate – Configuration B.

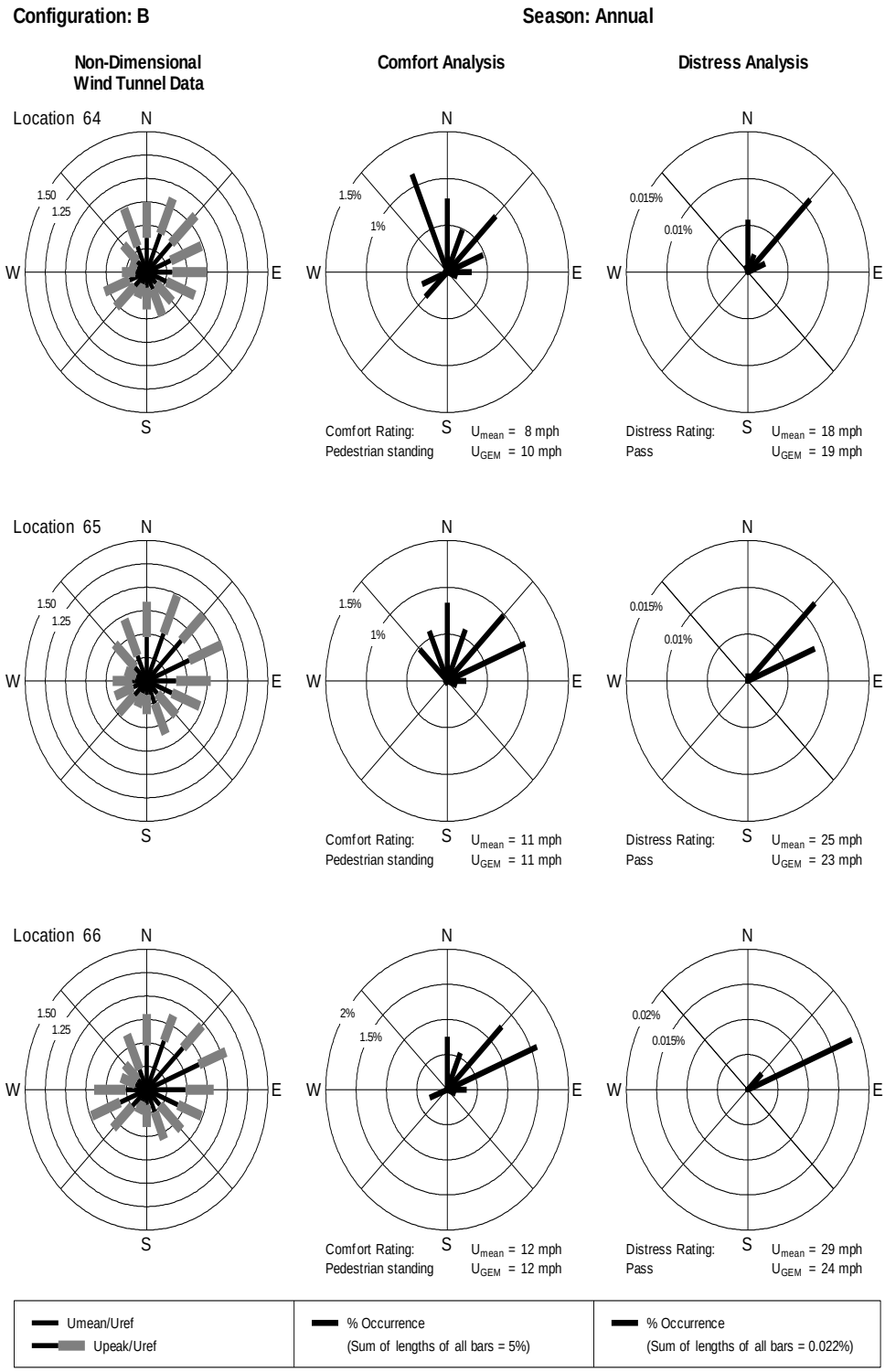


Figure B2v. Combination of wind tunnel data with general wind climate – Configuration B.

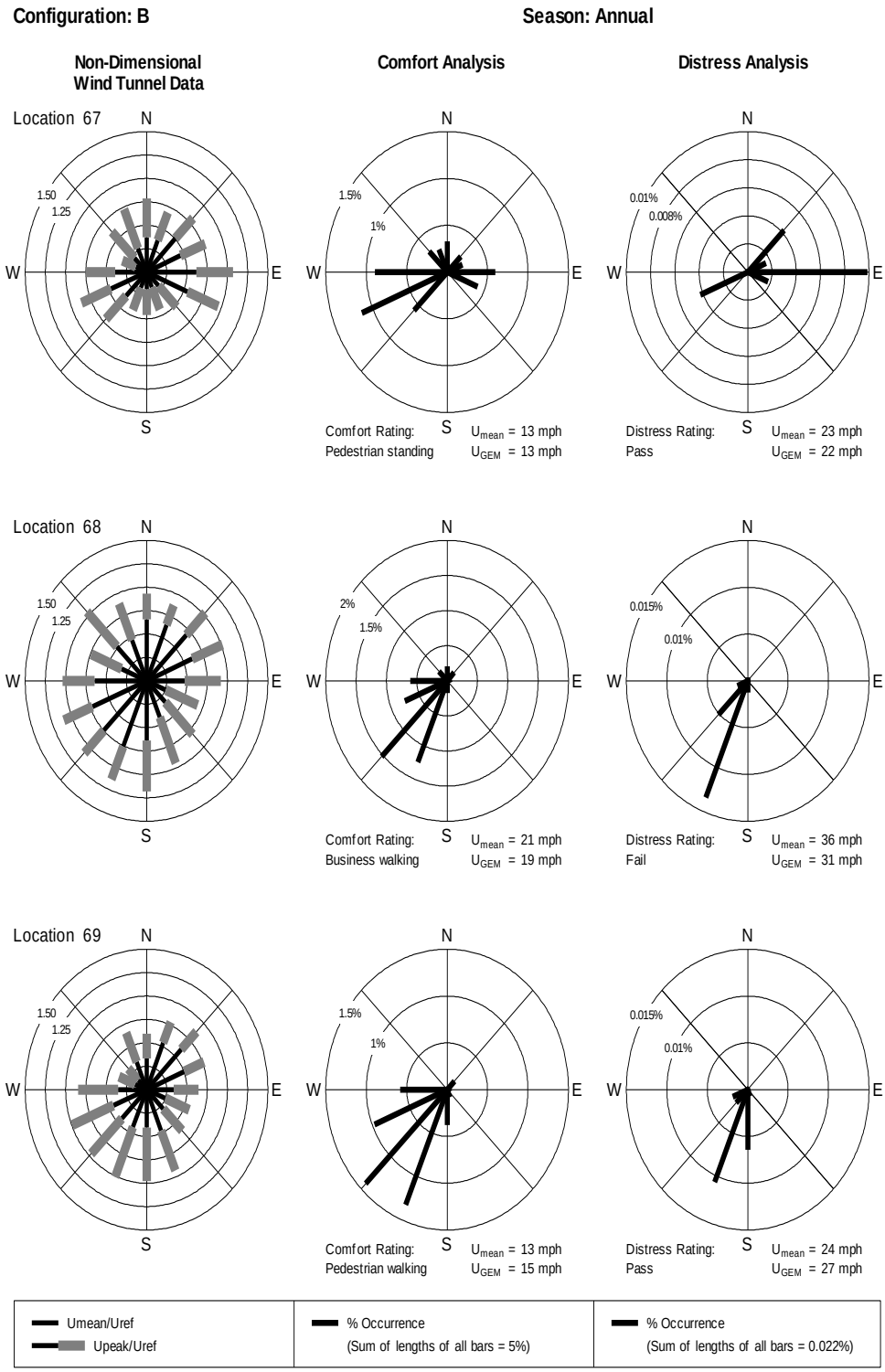


Figure B2w. Combination of wind tunnel data with general wind climate – Configuration B.

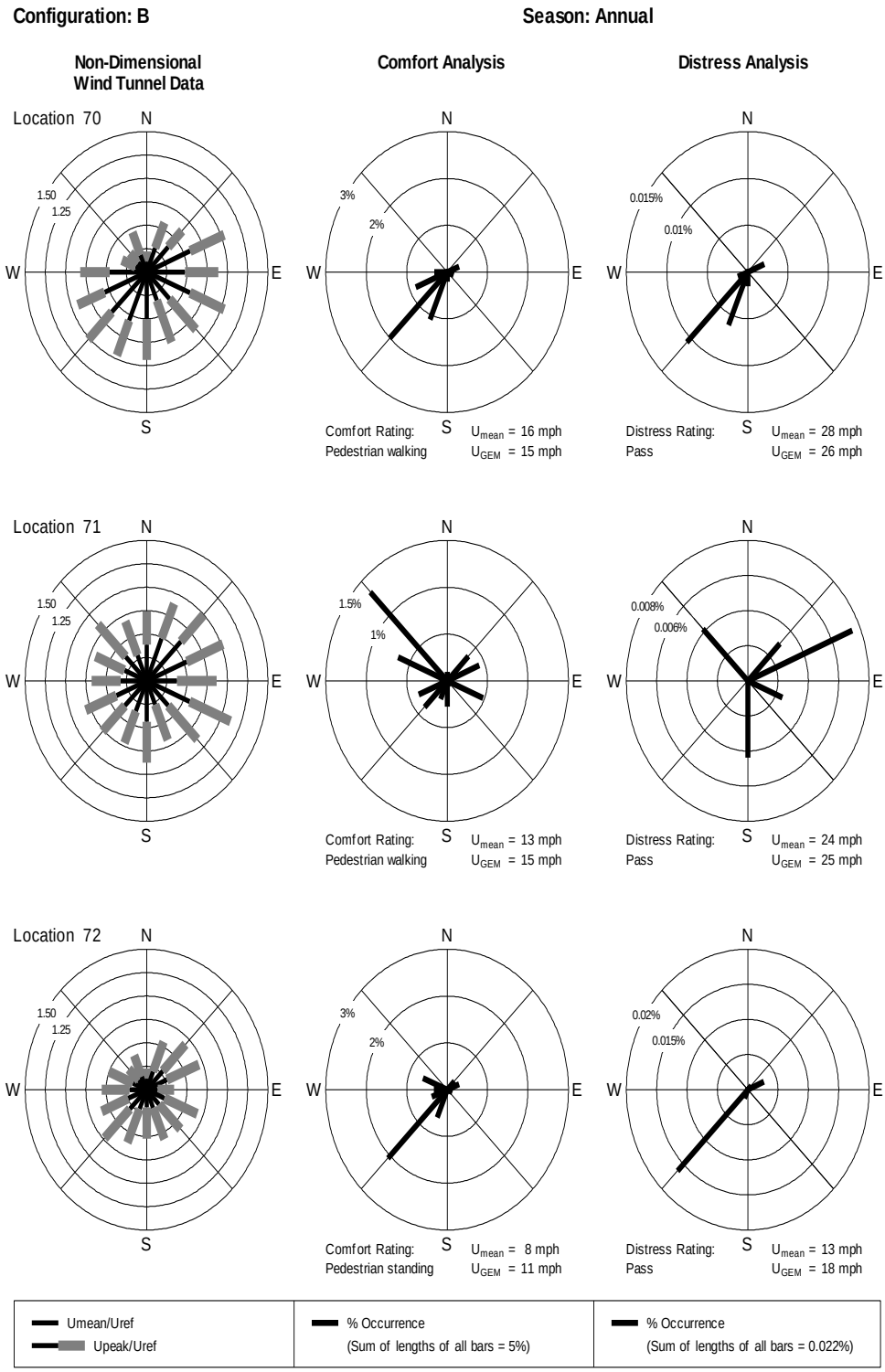


Figure B2x. Combination of wind tunnel data with general wind climate – Configuration B.

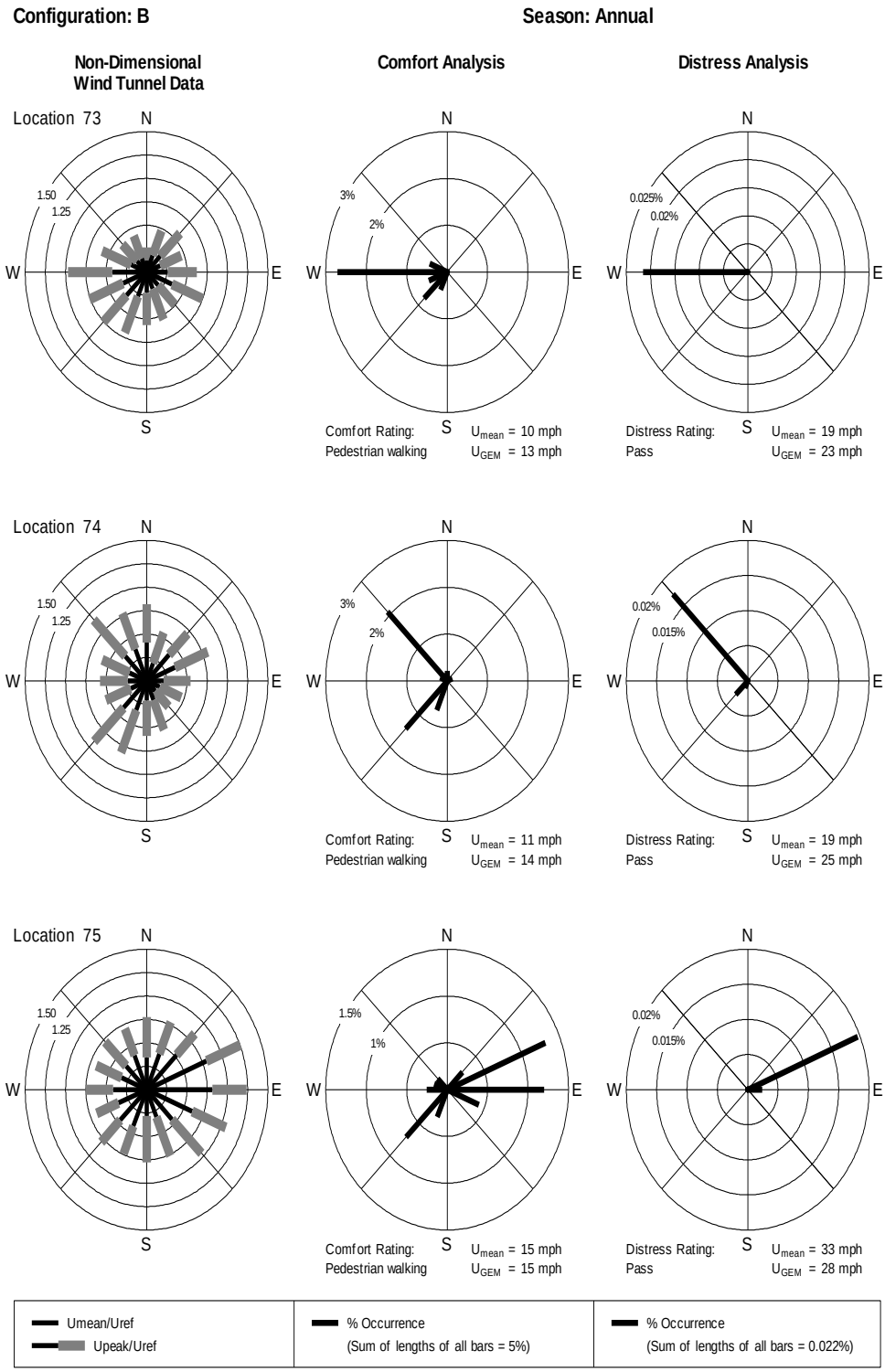


Figure B2y. Combination of wind tunnel data with general wind climate – Configuration B.

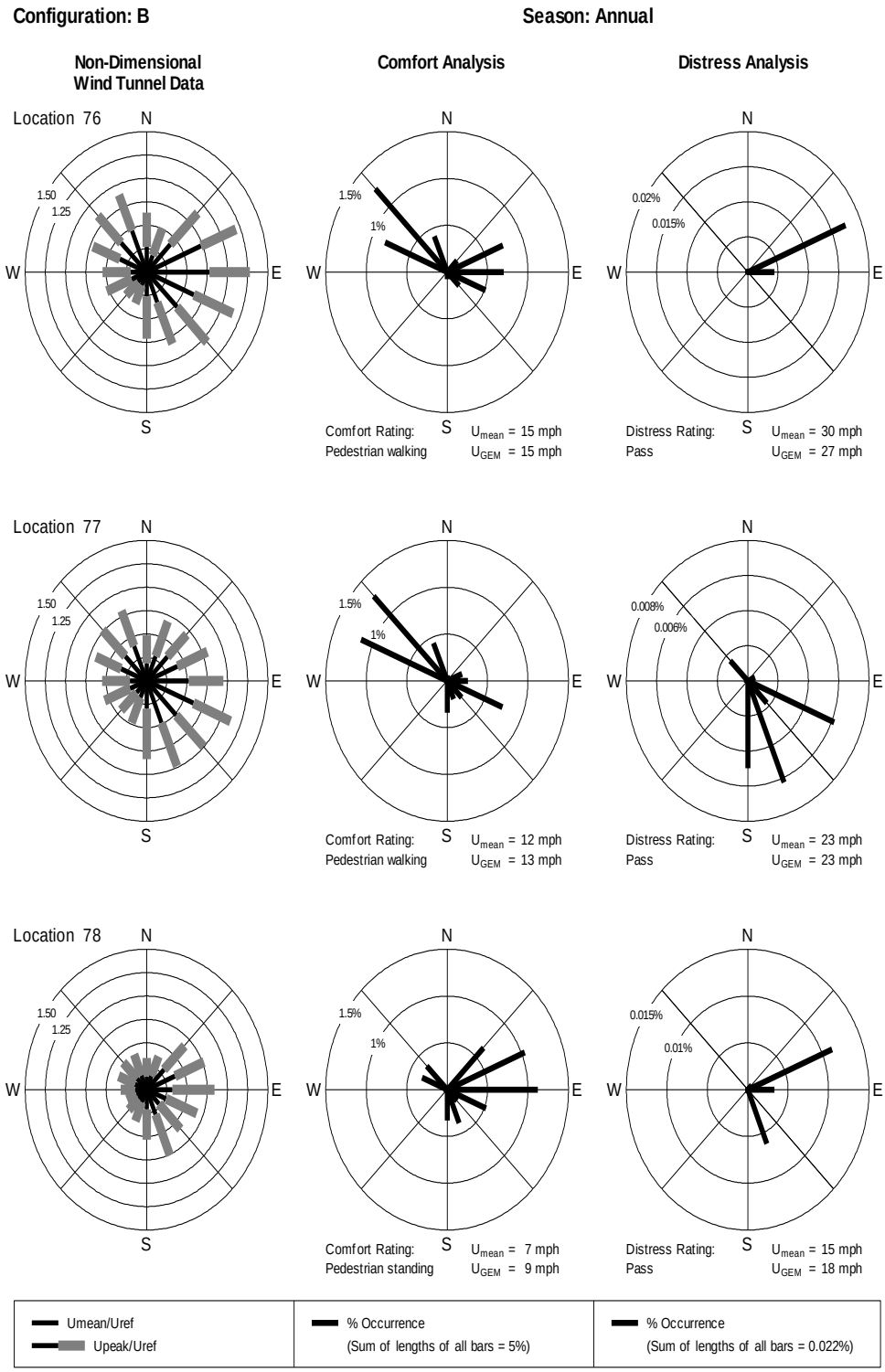


Figure B2z. Combination of wind tunnel data with general wind climate – Configuration B.

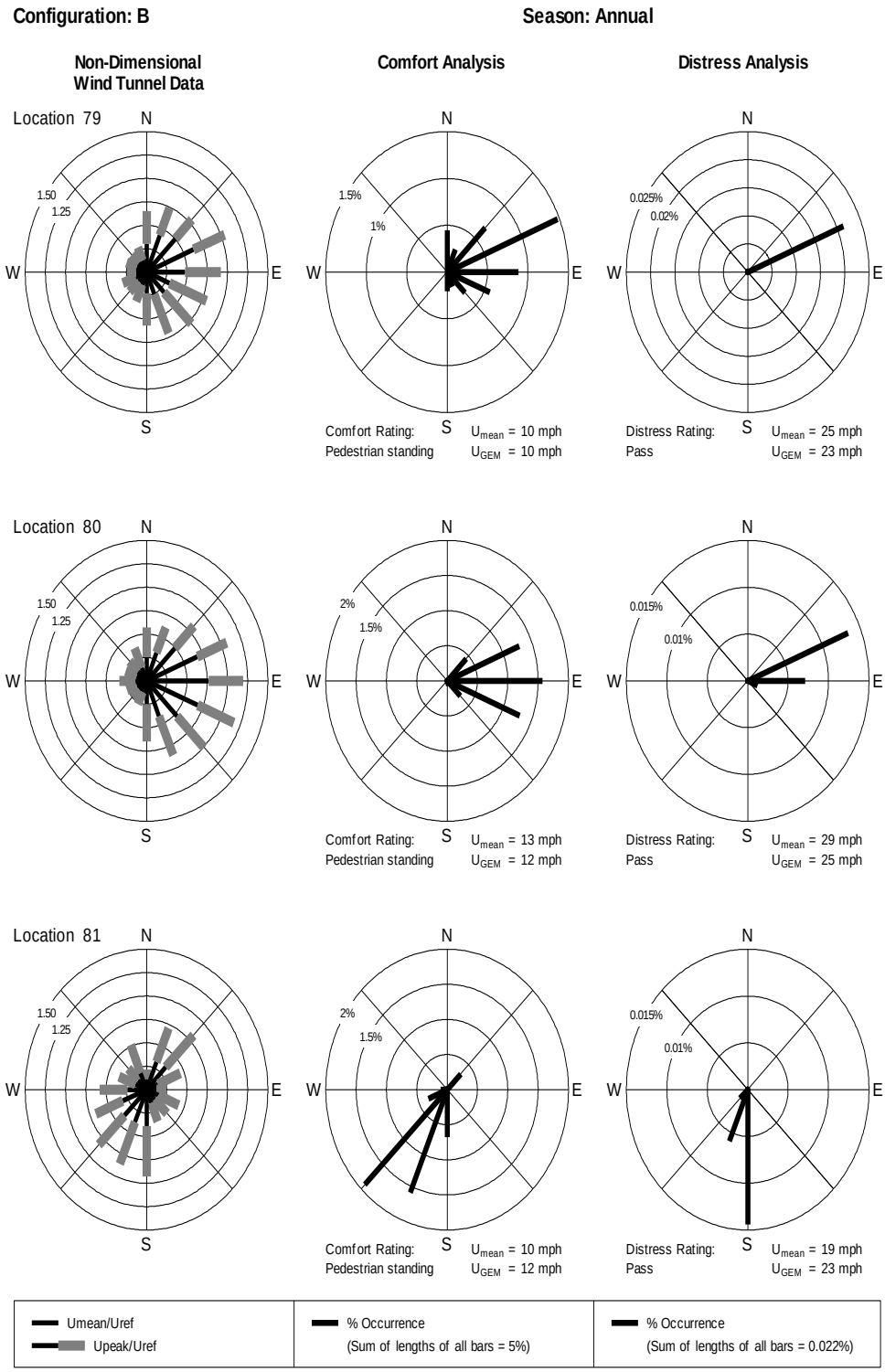


Figure B2aa. Combination of wind tunnel data with general wind climate – Configuration B.

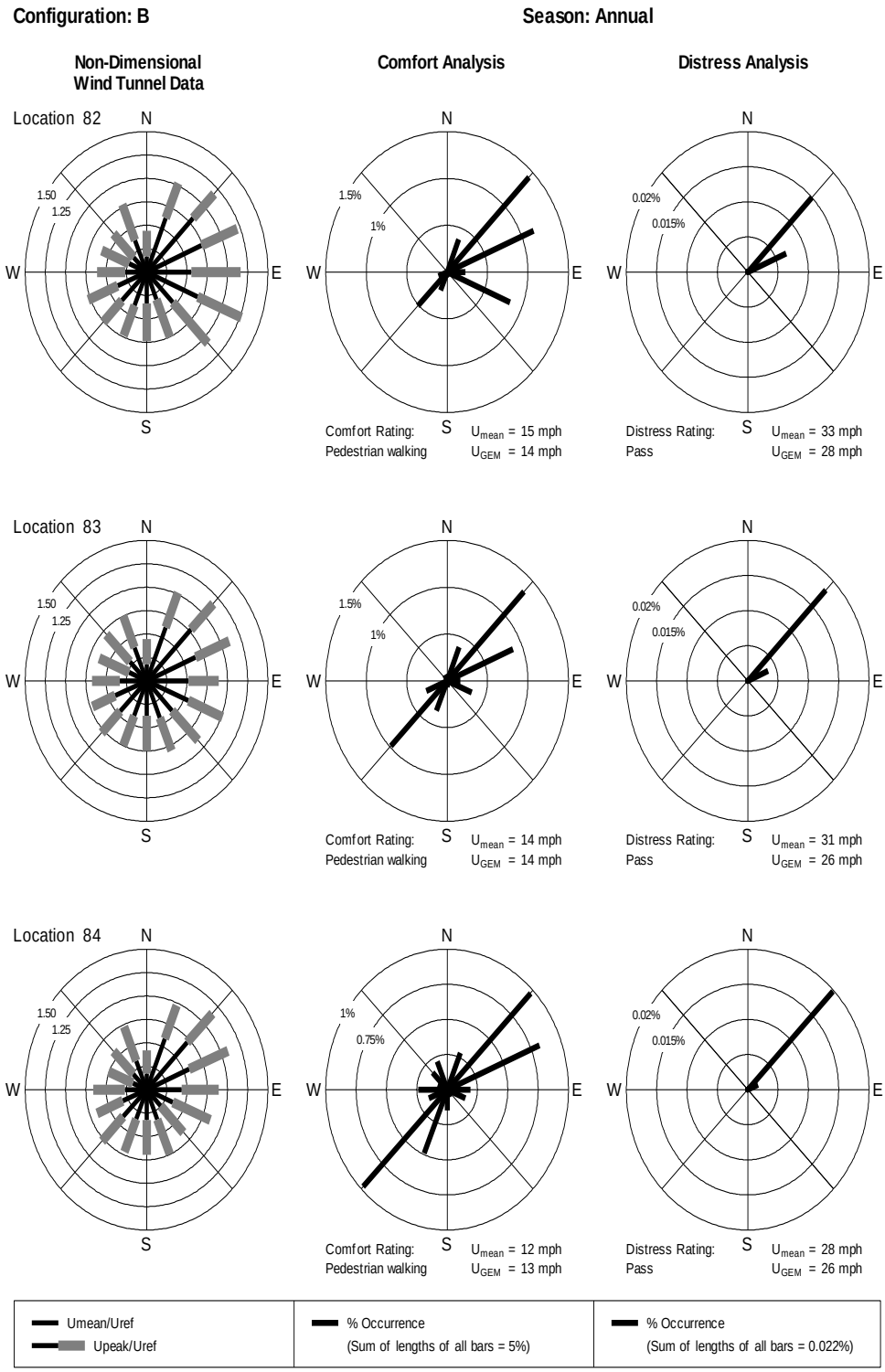


Figure B2ab. Combination of wind tunnel data with general wind climate – Configuration B.

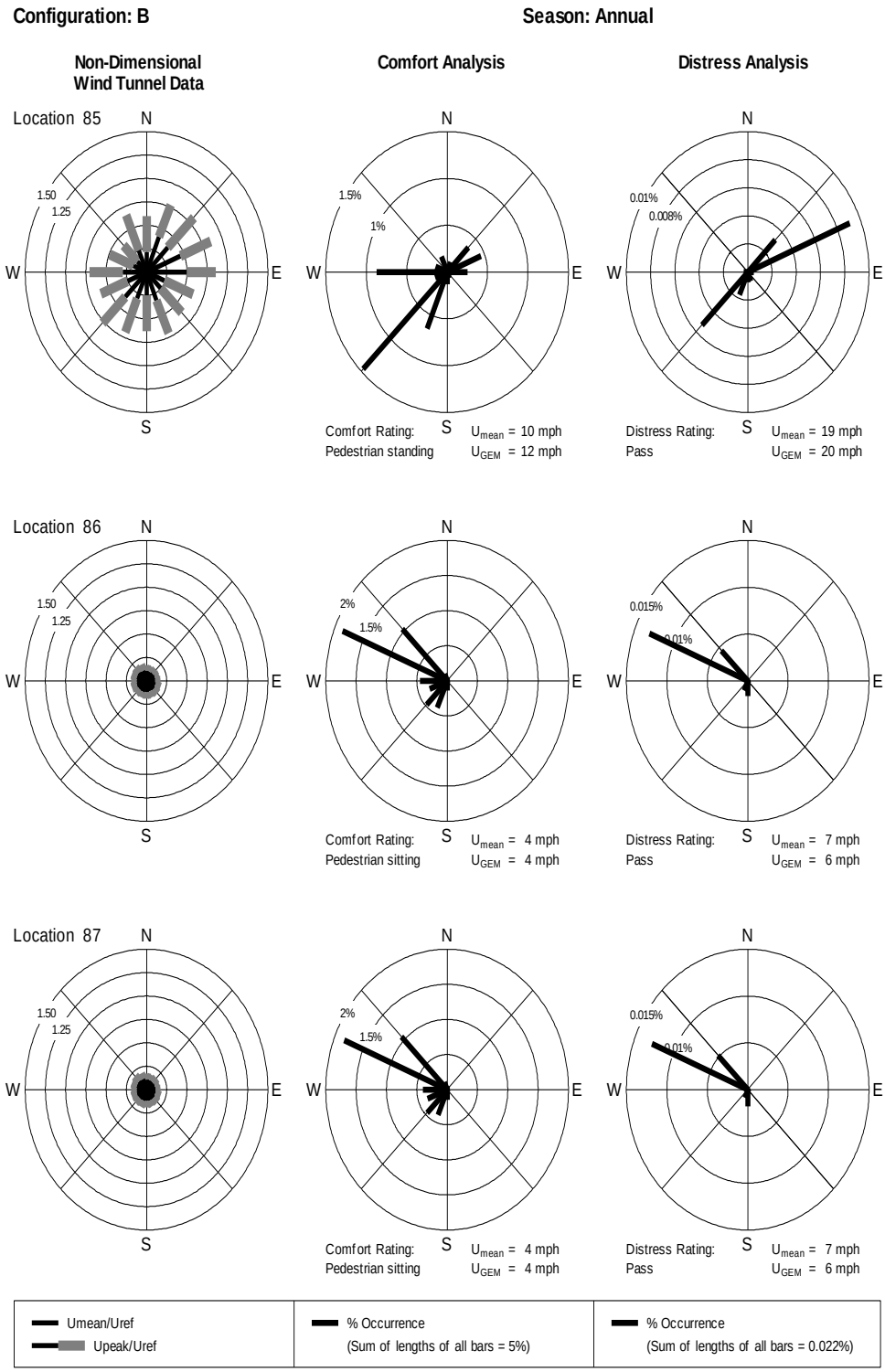


Figure B2ac. Combination of wind tunnel data with general wind climate – Configuration B.

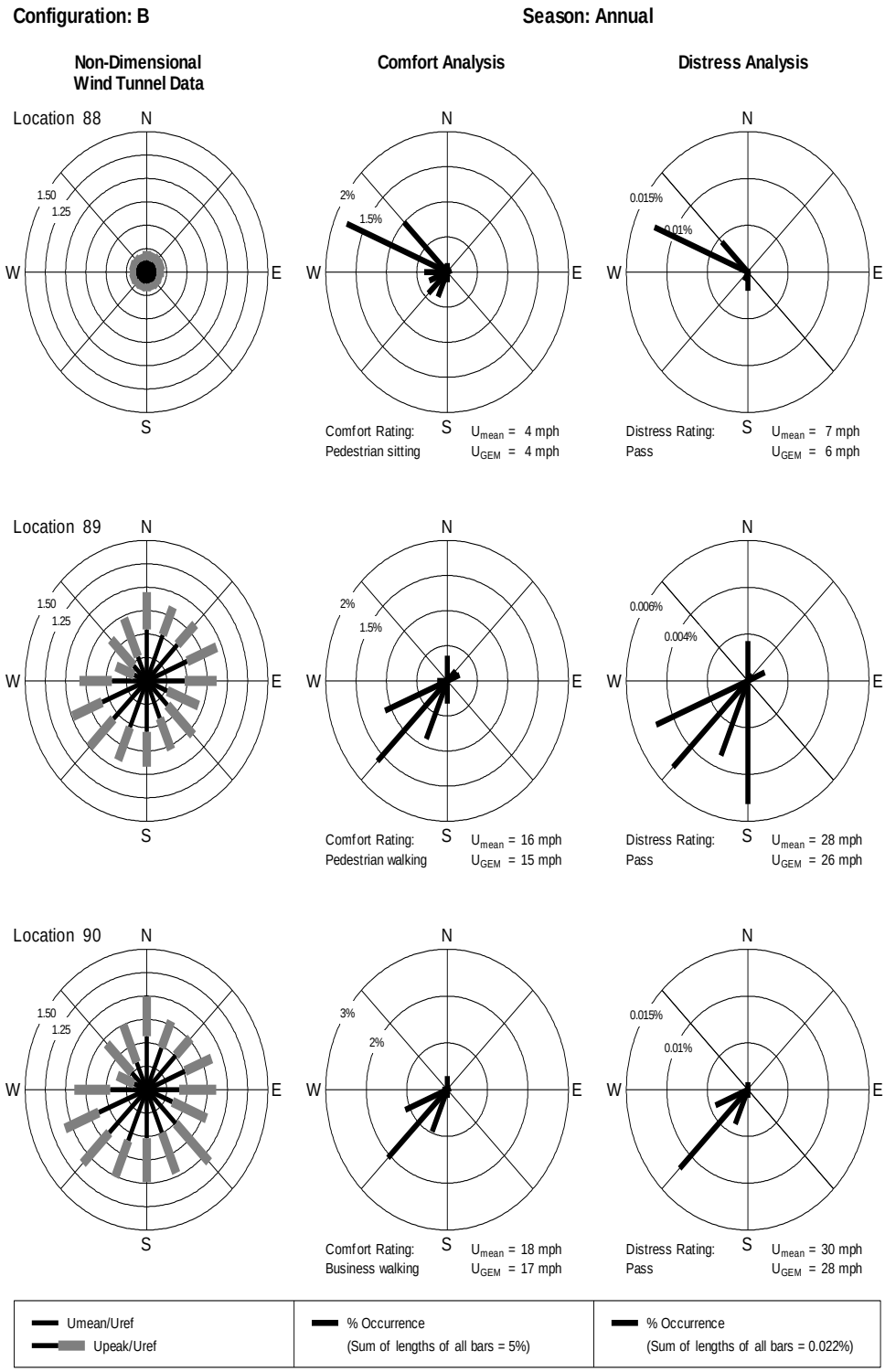


Figure B2ad. Combination of wind tunnel data with general wind climate – Configuration B.

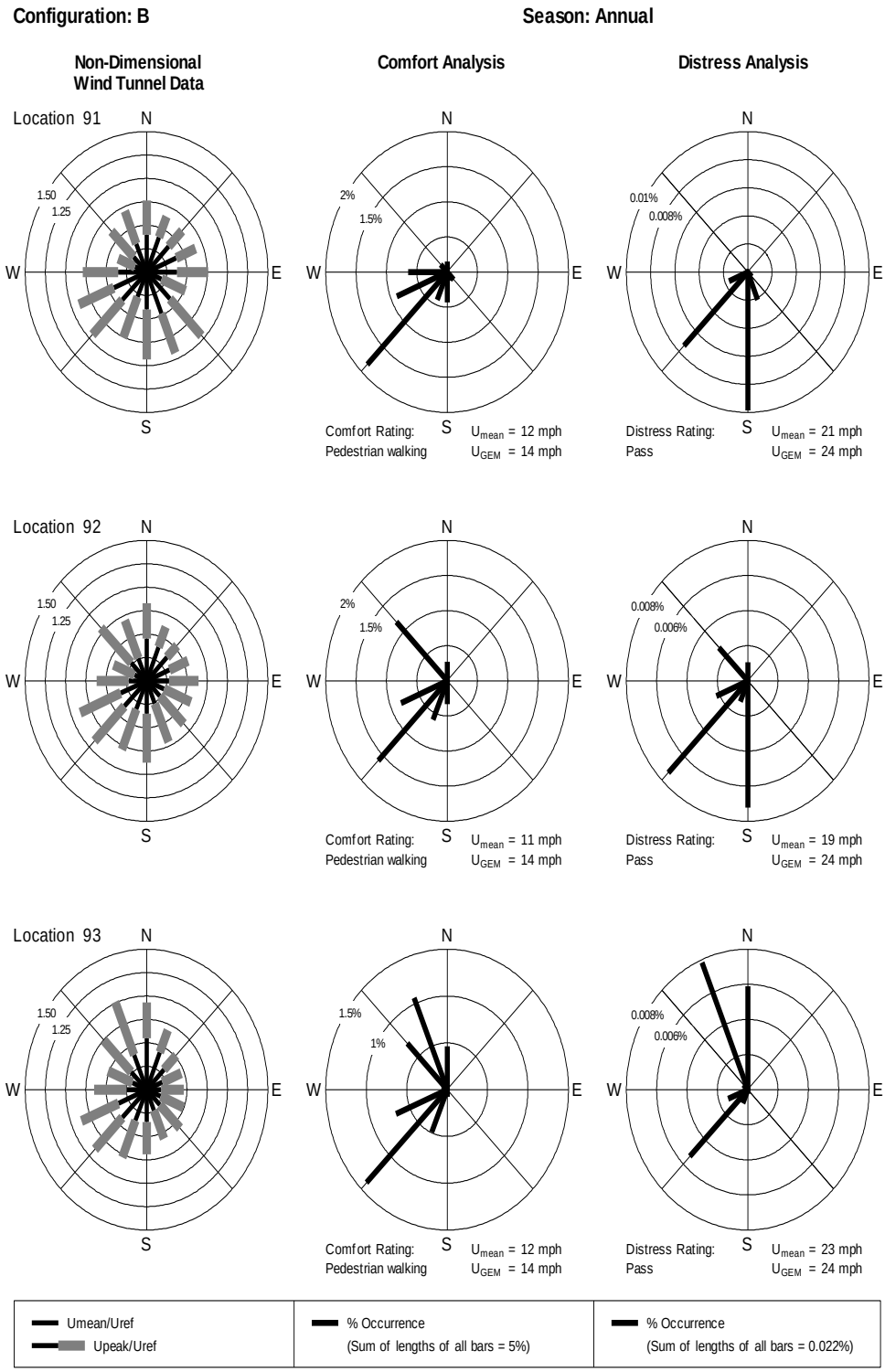


Figure B2ae. Combination of wind tunnel data with general wind climate – Configuration B.

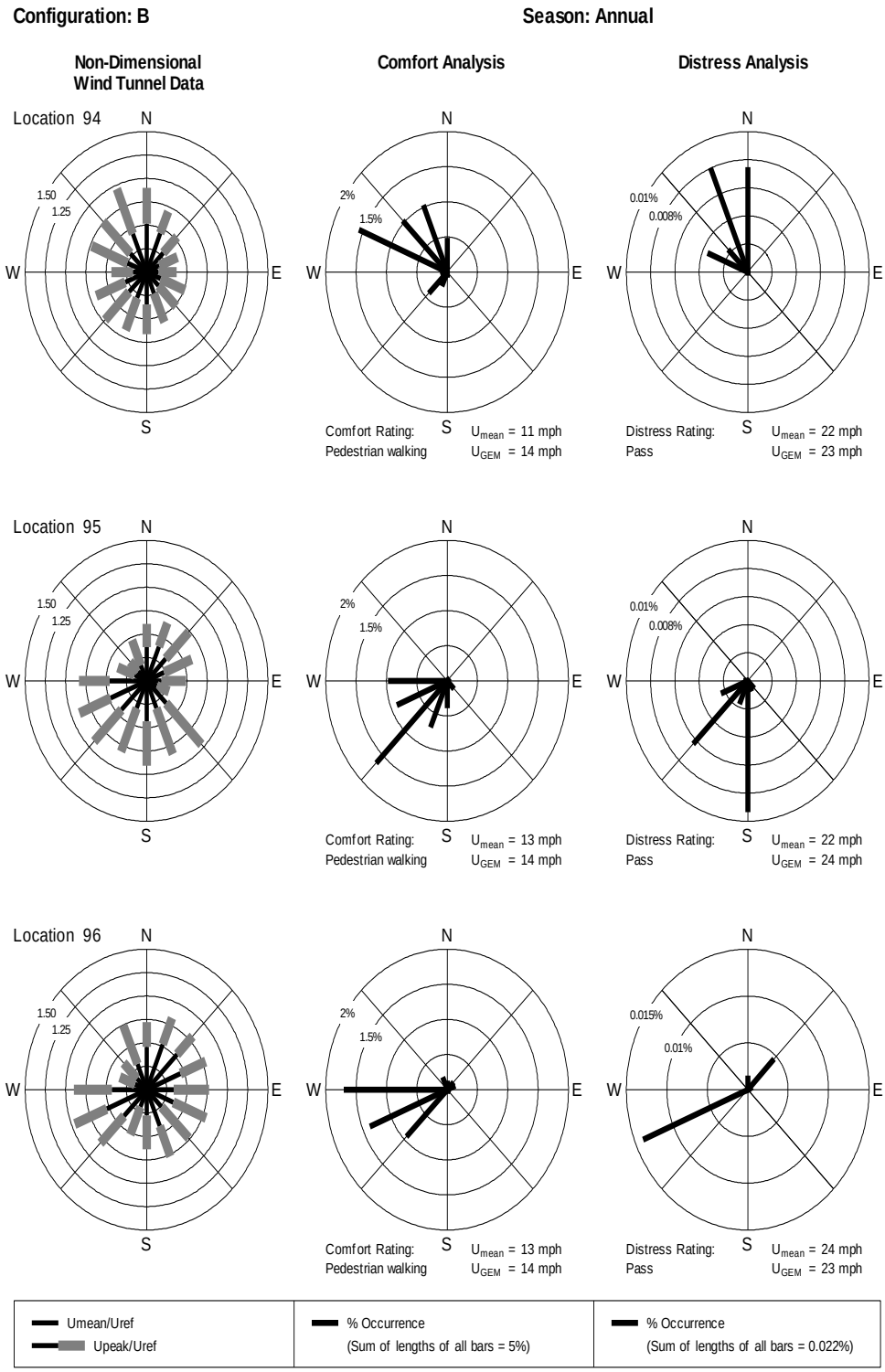


Figure B2af. Combination of wind tunnel data with general wind climate – Configuration B.

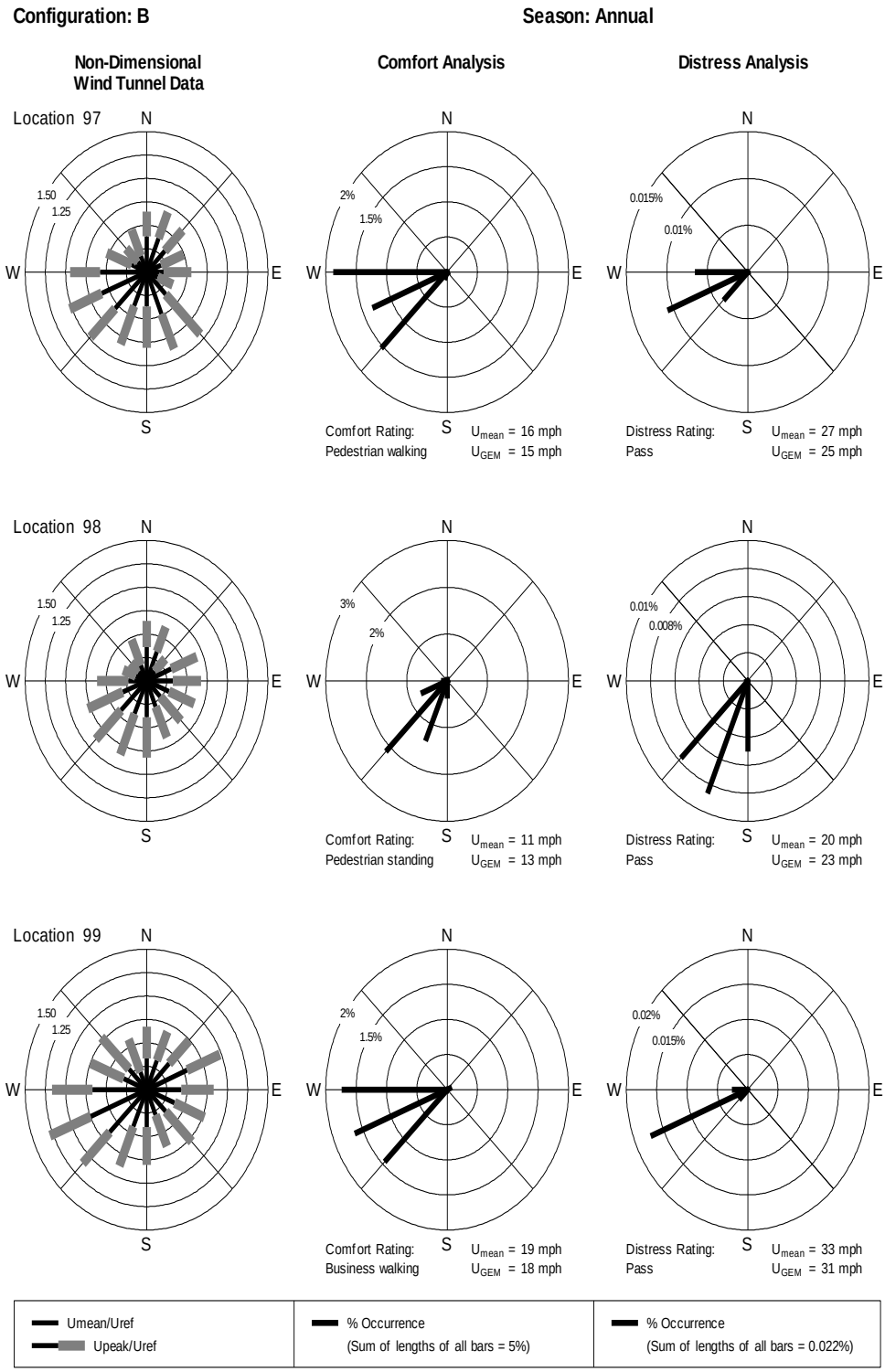


Figure B2ag. Combination of wind tunnel data with general wind climate – Configuration B.

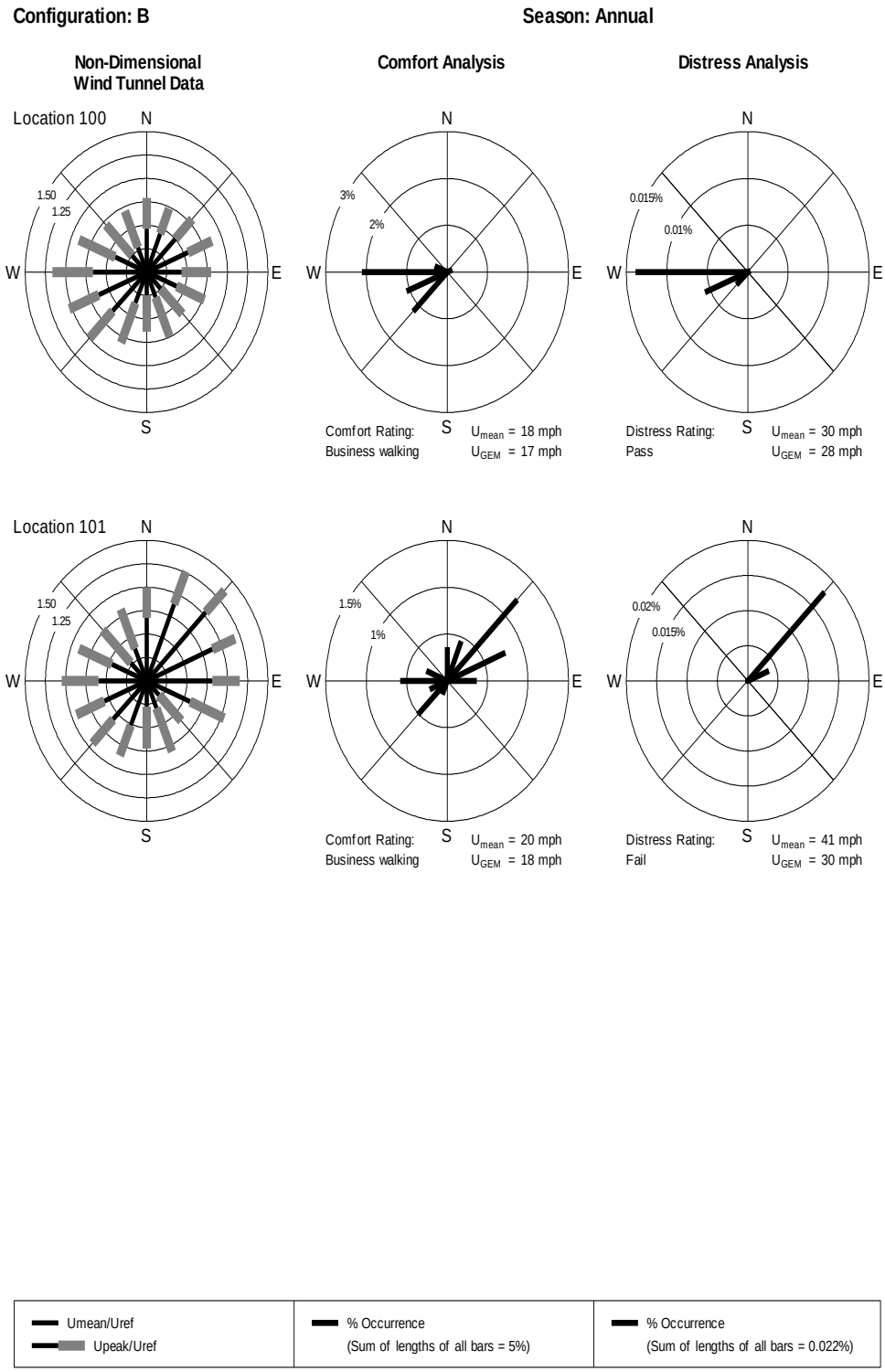


Figure B2ah. Combination of wind tunnel data with general wind climate – Configuration B.

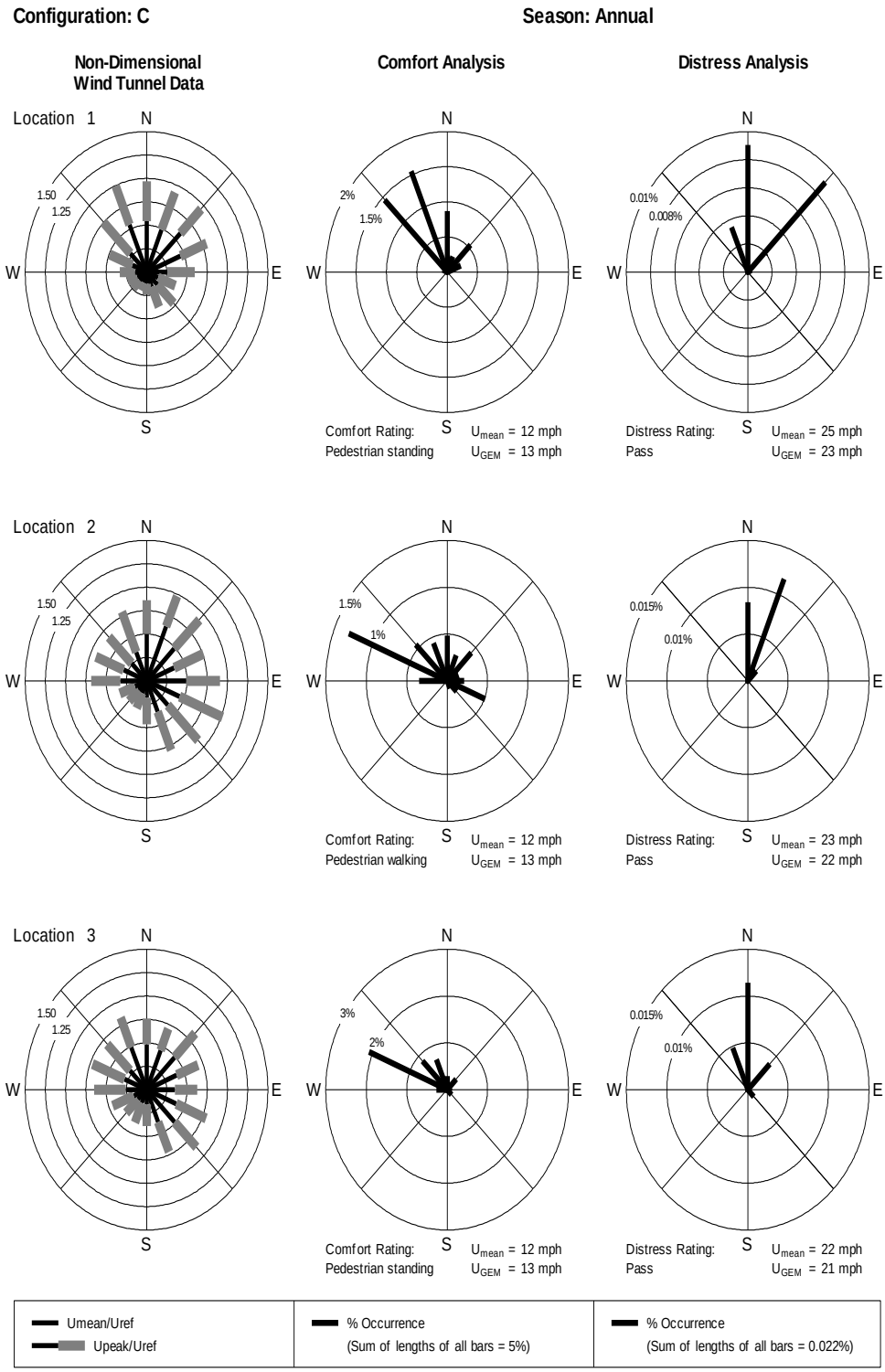


Figure B3a. Combination of wind tunnel data with general wind climate – Configuration C.

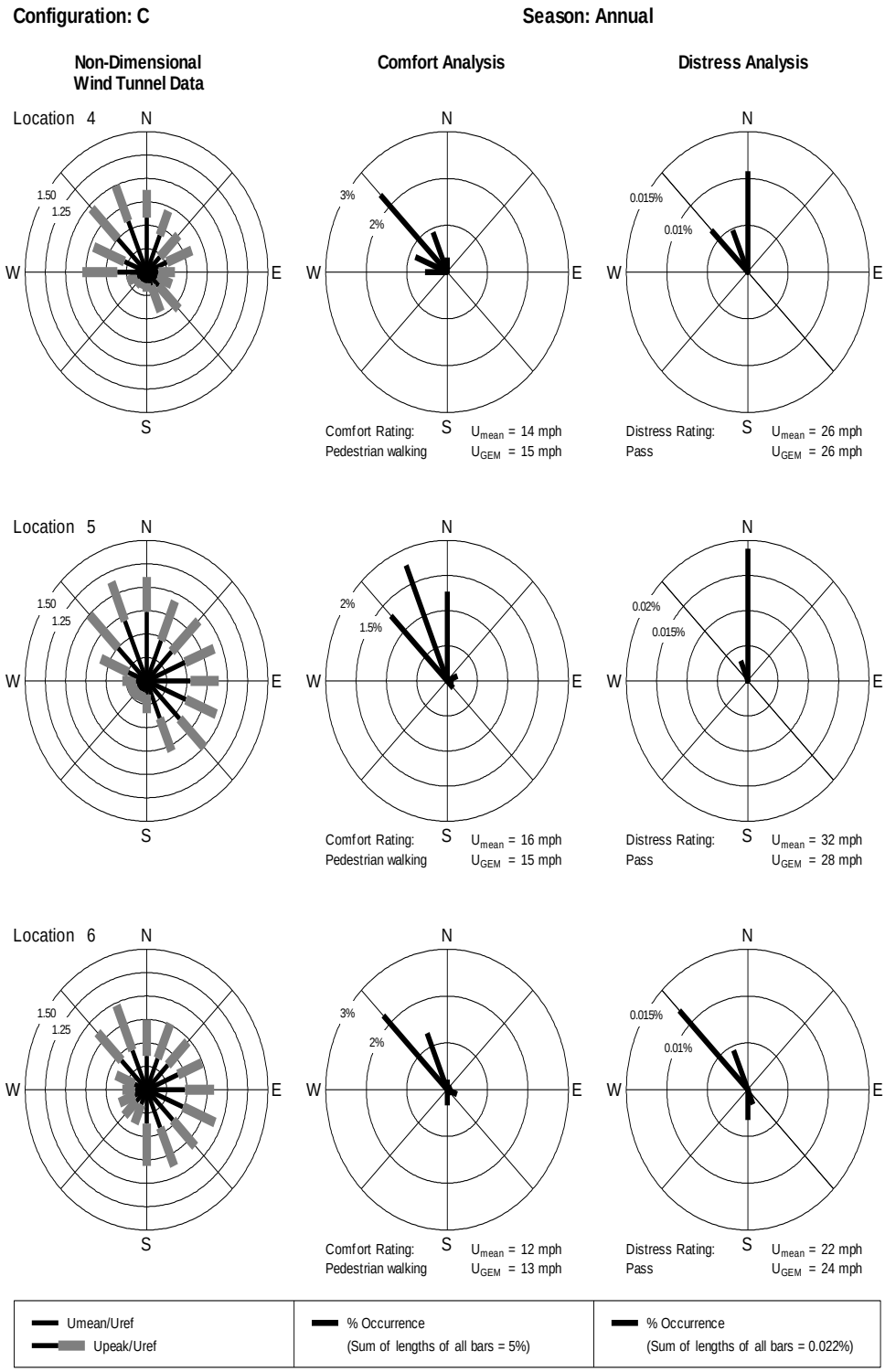


Figure B3b. Combination of wind tunnel data with general wind climate– Configuration C.

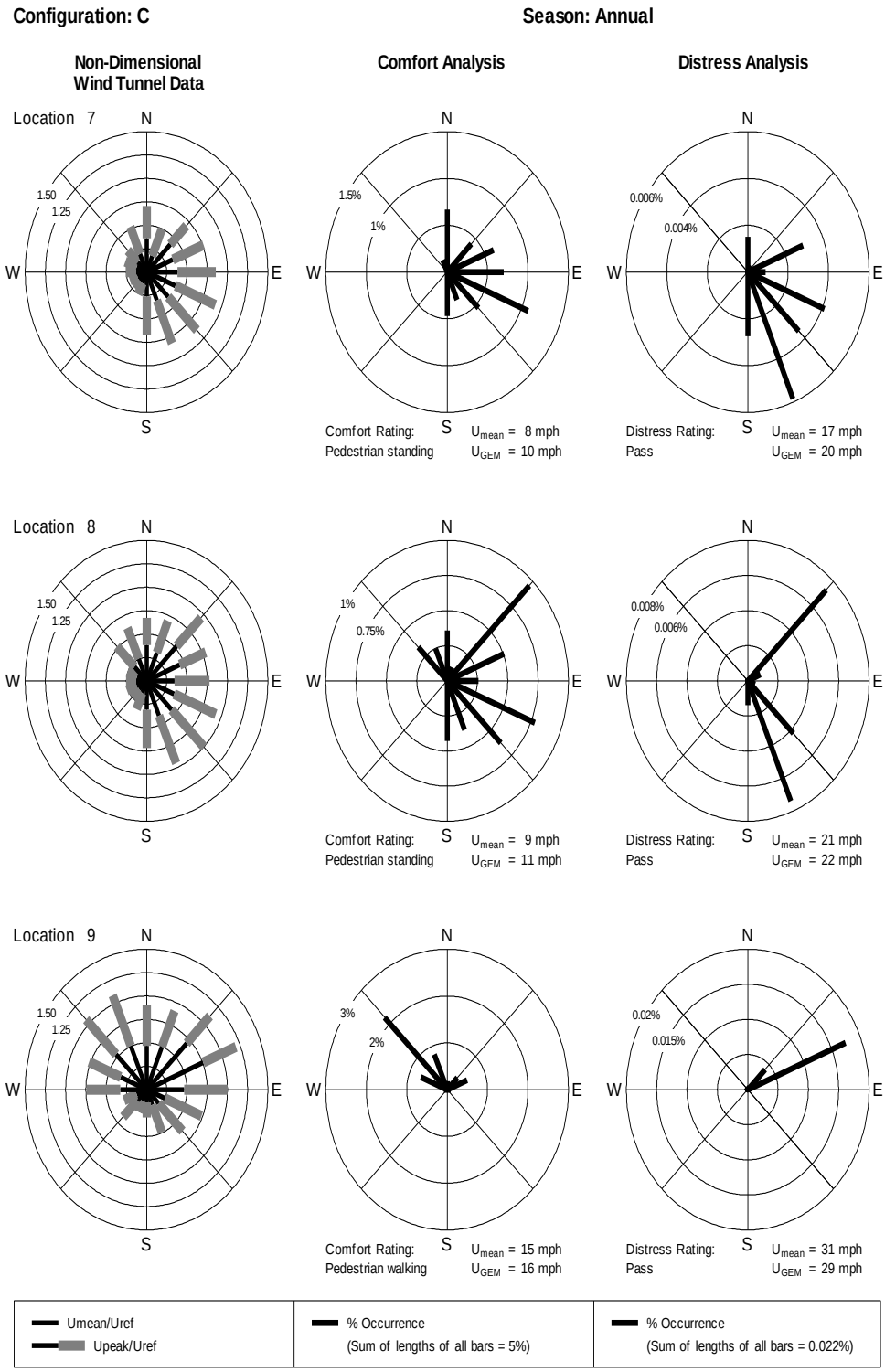


Figure B3c. Combination of wind tunnel data with general wind climate – Configuration C.

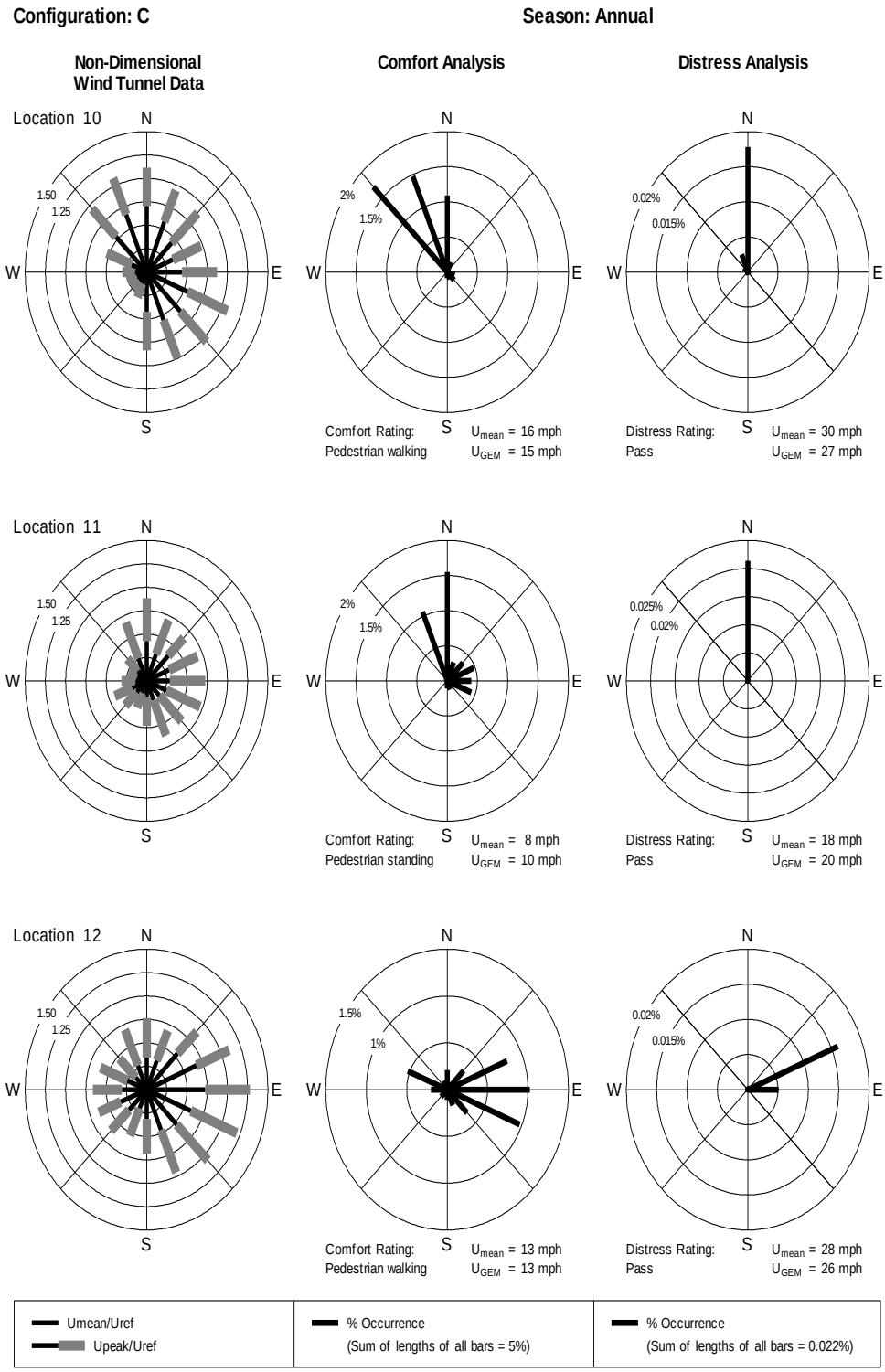


Figure B3d. Combination of wind tunnel data with general wind climate – Configuration C.

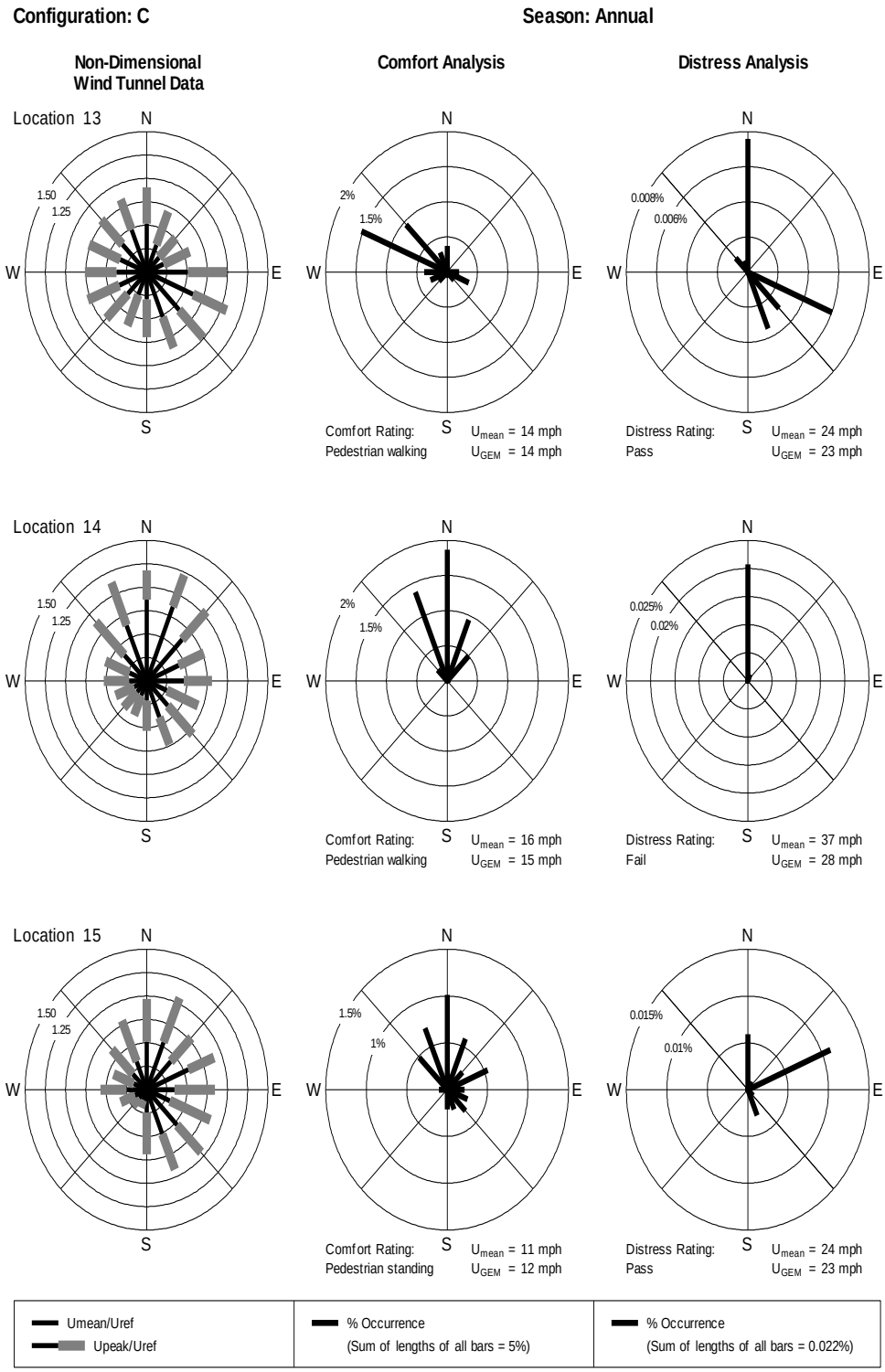


Figure B3e. Combination of wind tunnel data with general wind climate – Configuration C.

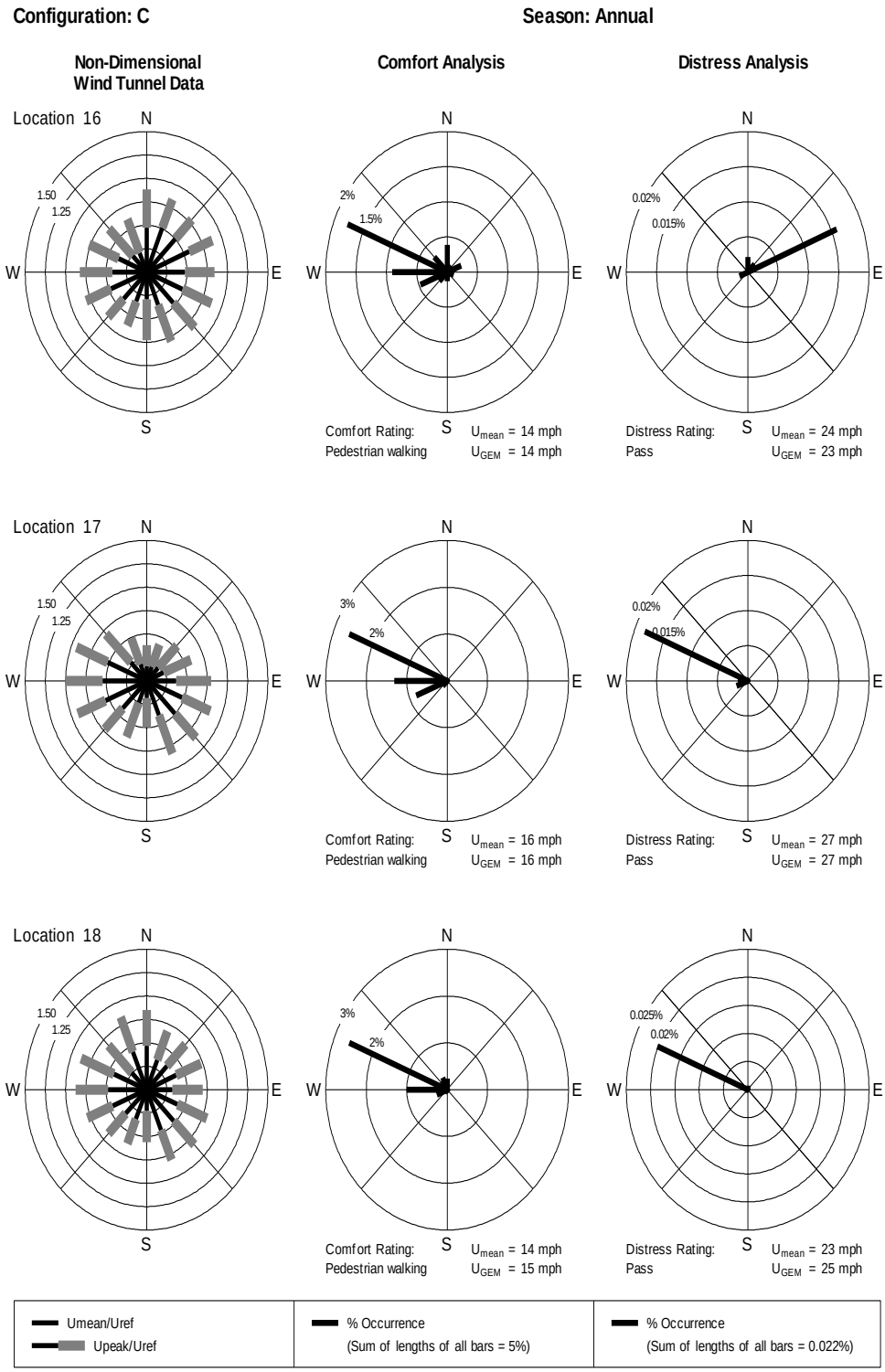


Figure B3f. Combination of wind tunnel data with general wind climate – Configuration C.

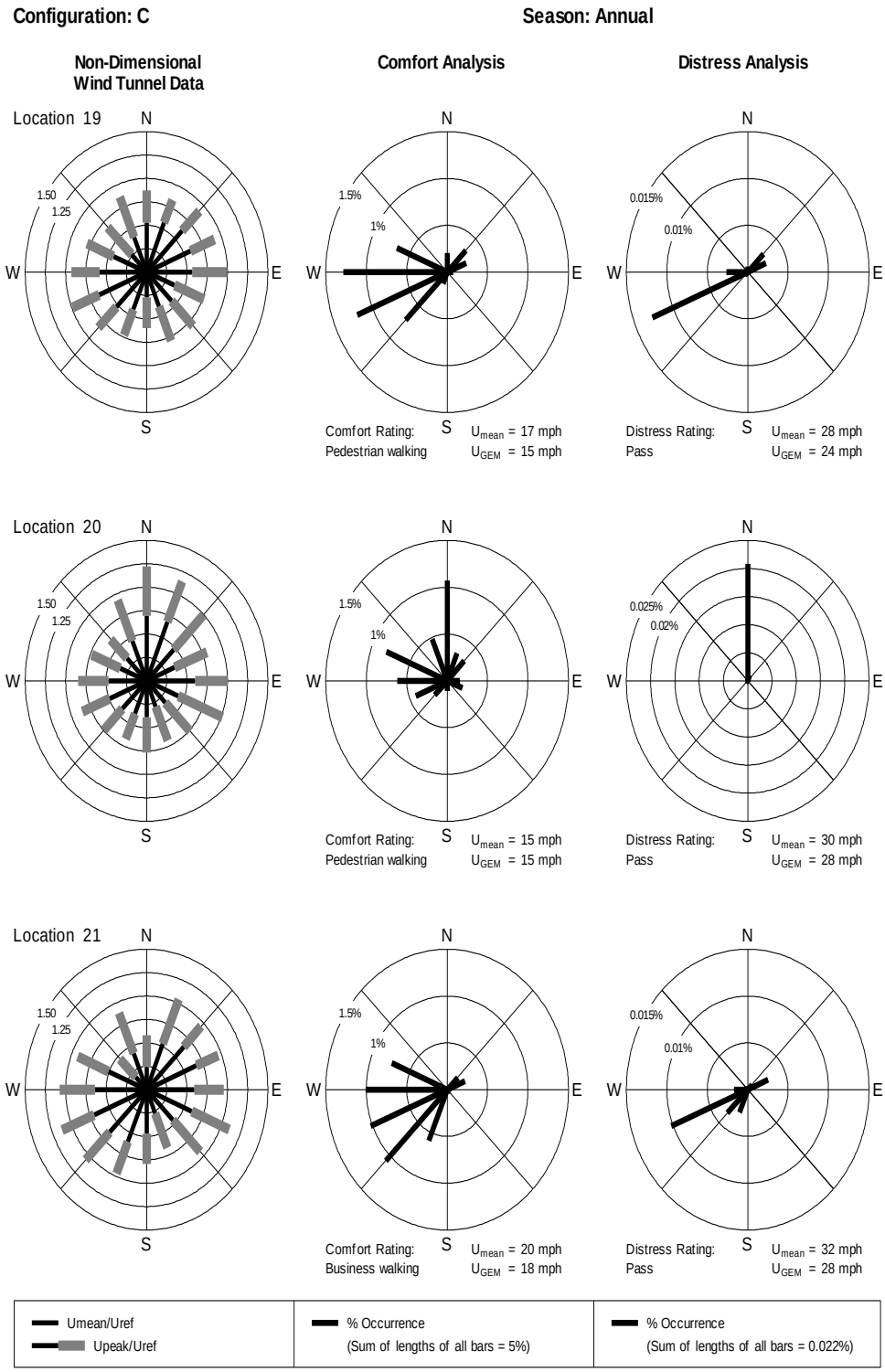


Figure B3g. Combination of wind tunnel data with general wind climate – Configuration C.

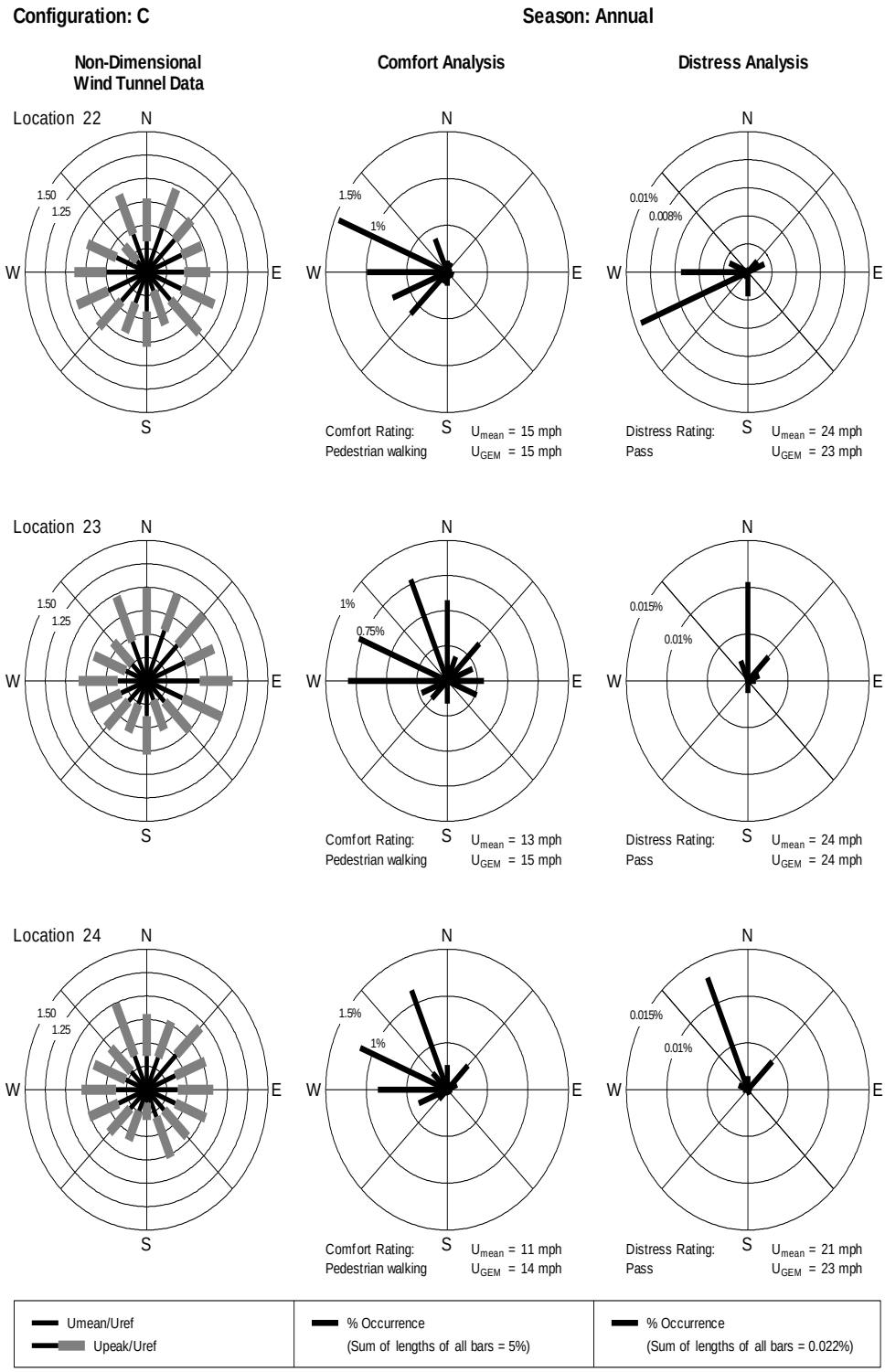


Figure B3h. Combination of wind tunnel data with general wind climate – Configuration C.

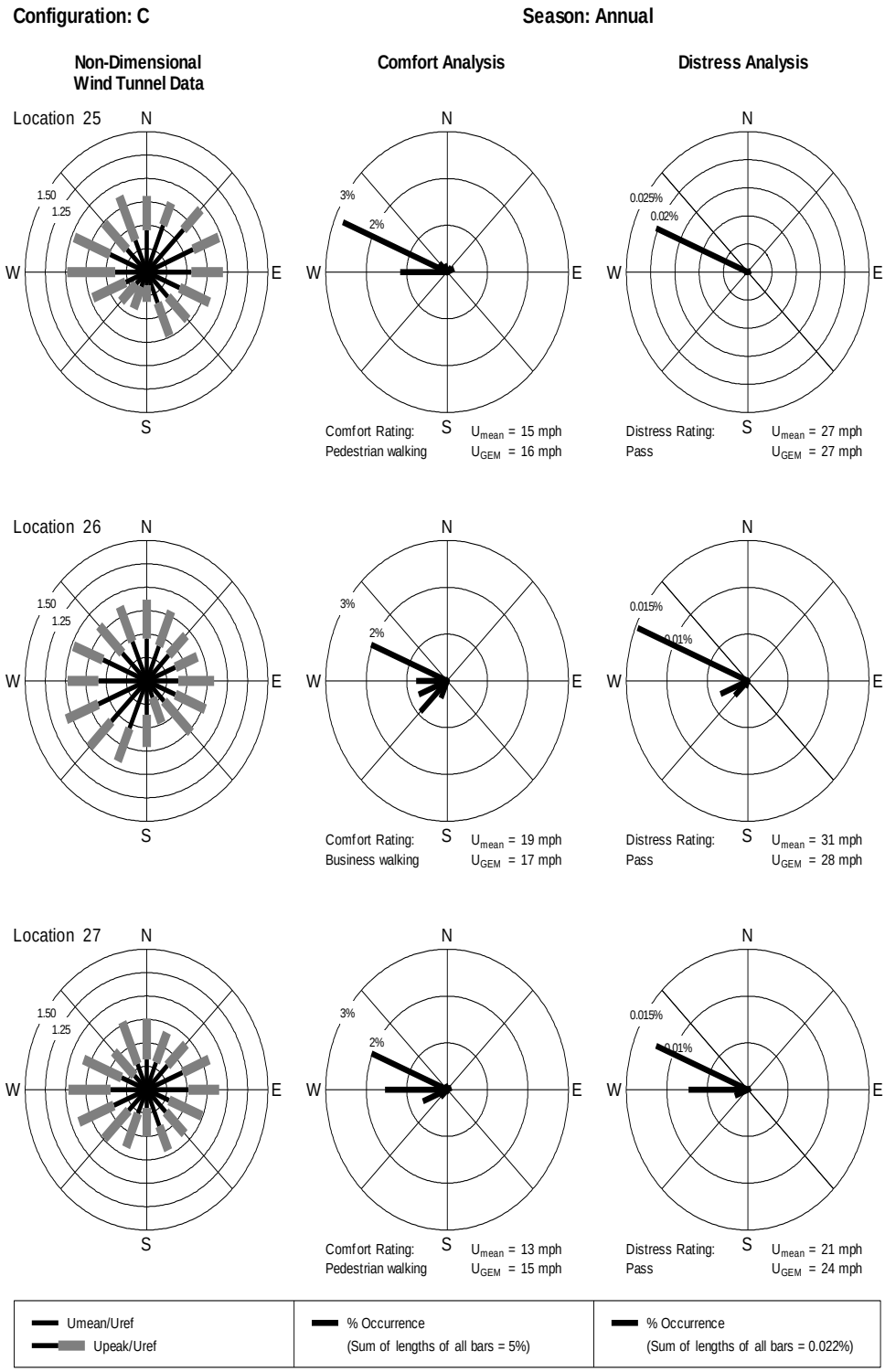


Figure B3i. Combination of wind tunnel data with general wind climate – Configuration C.

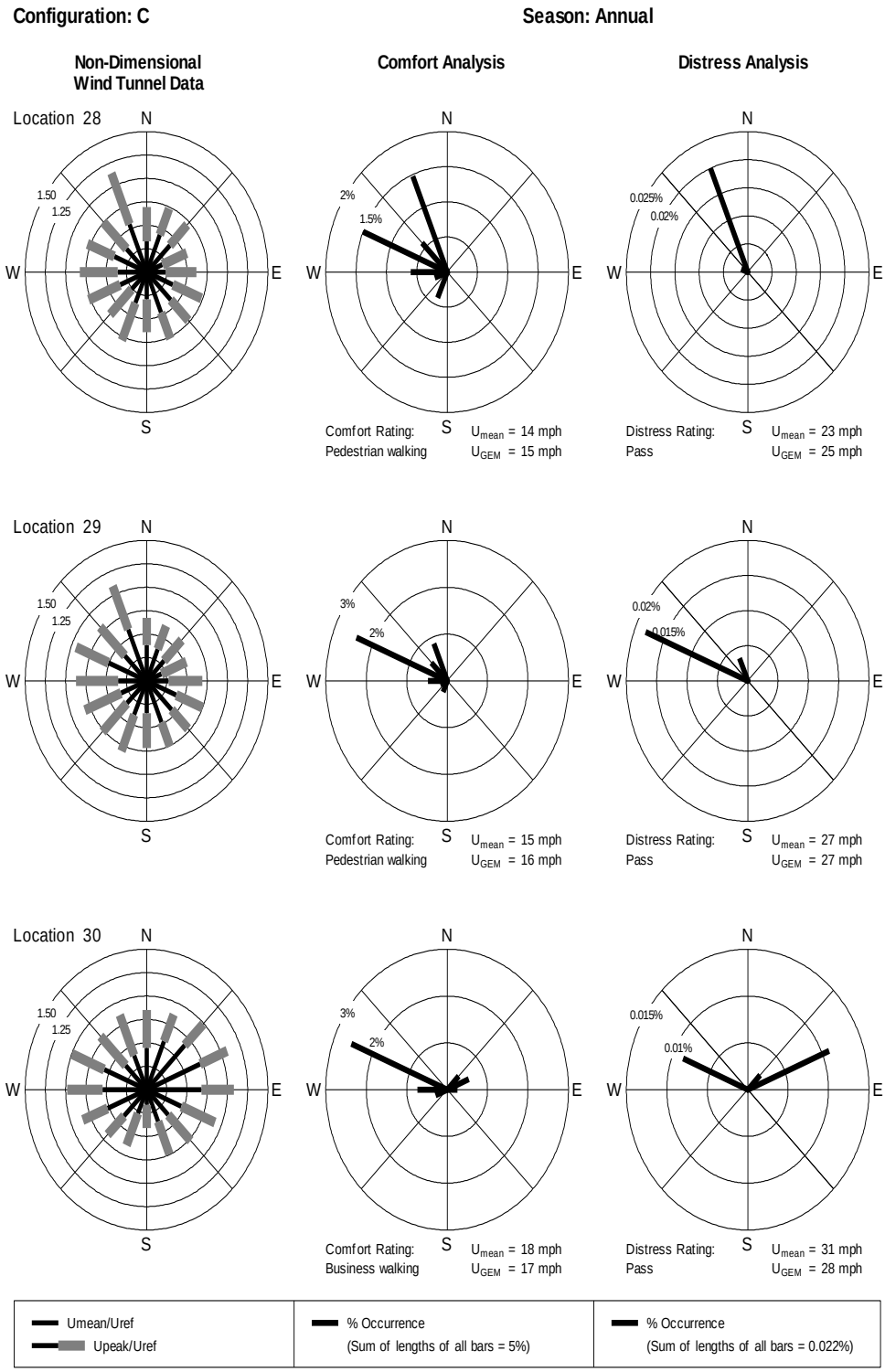


Figure B3j. Combination of wind tunnel data with general wind climate – Configuration C.

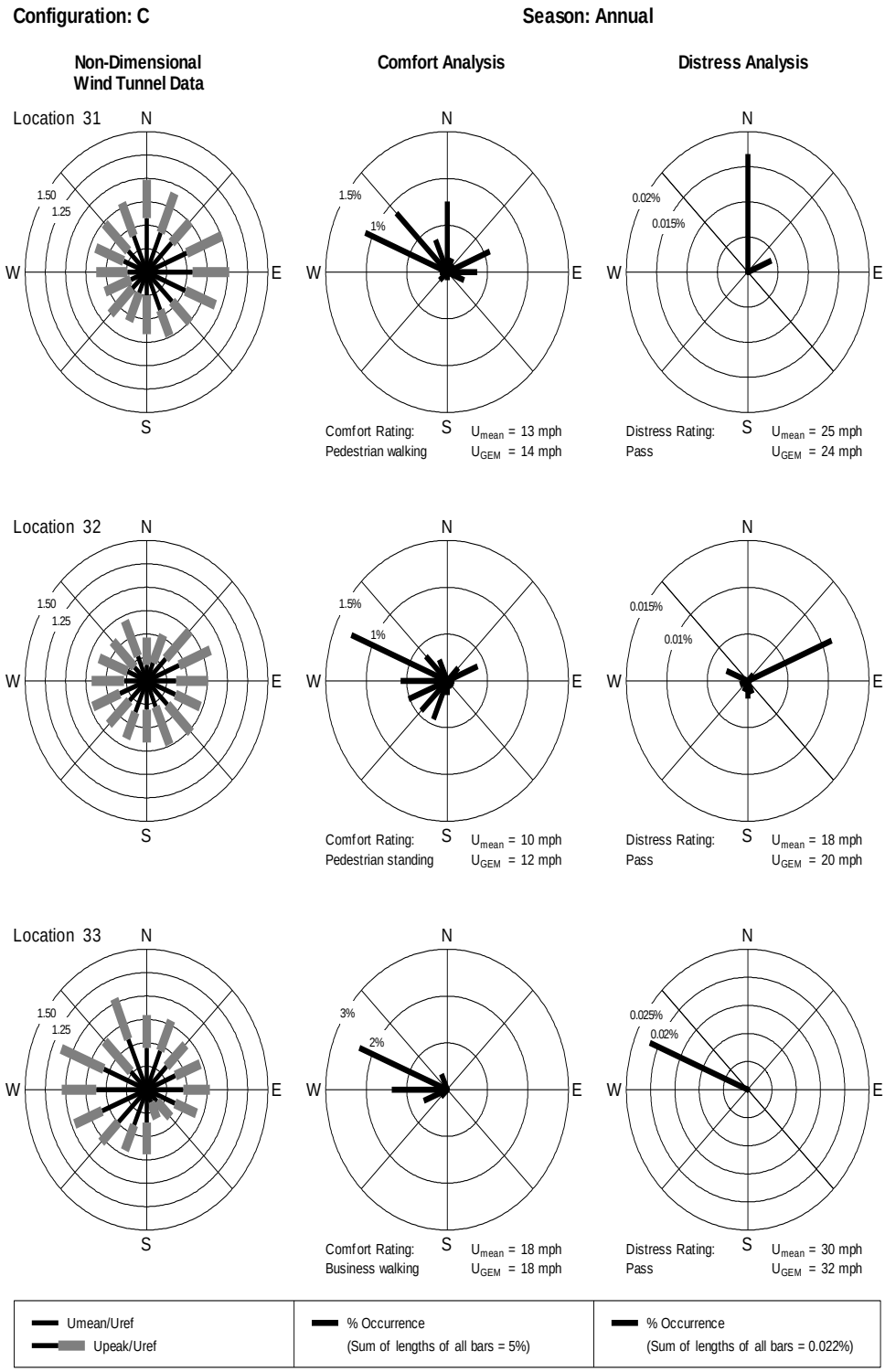


Figure B3k. Combination of wind tunnel data with general wind climate – Configuration C.

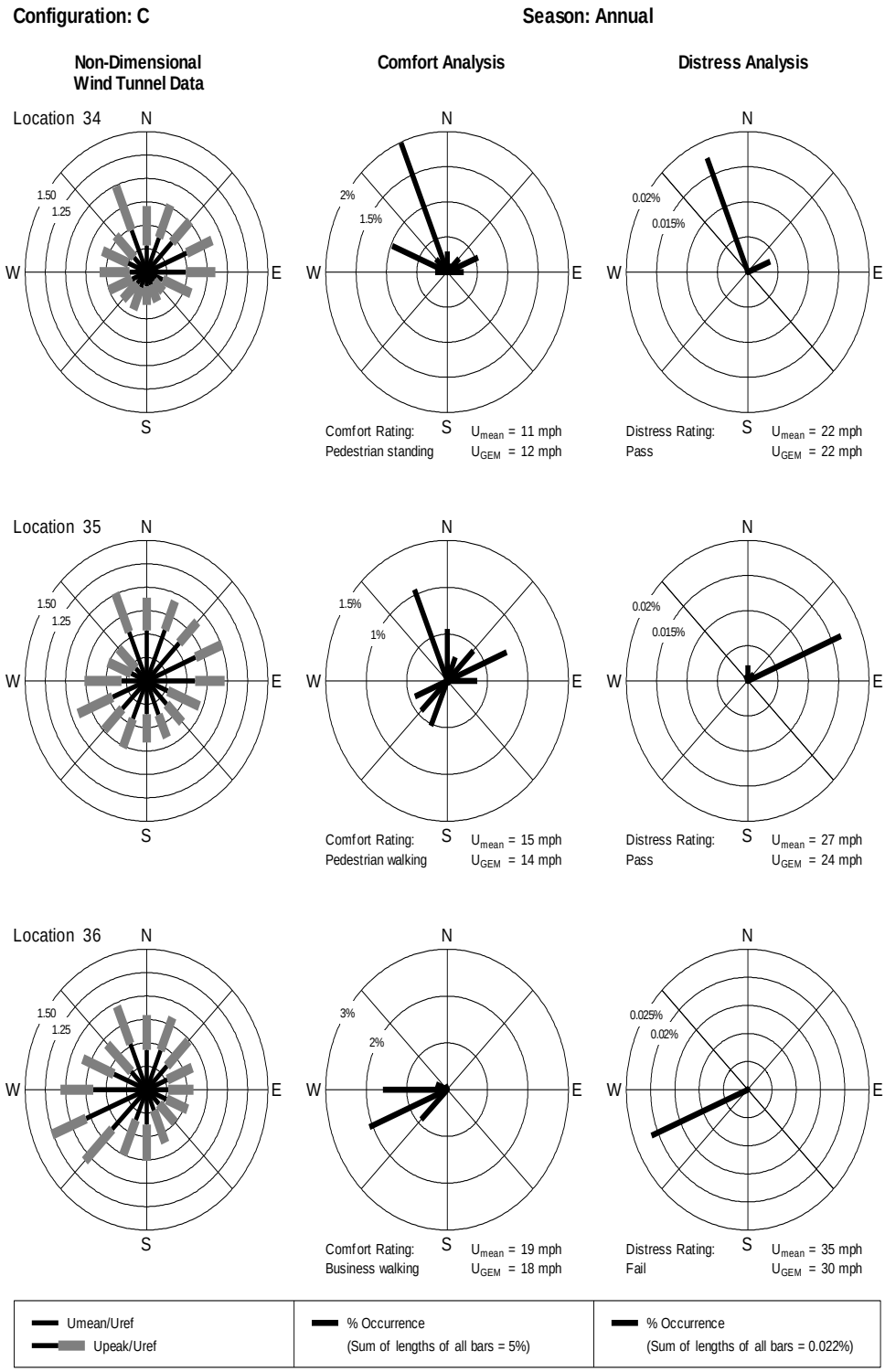


Figure B3l. Combination of wind tunnel data with general wind climate – Configuration C.

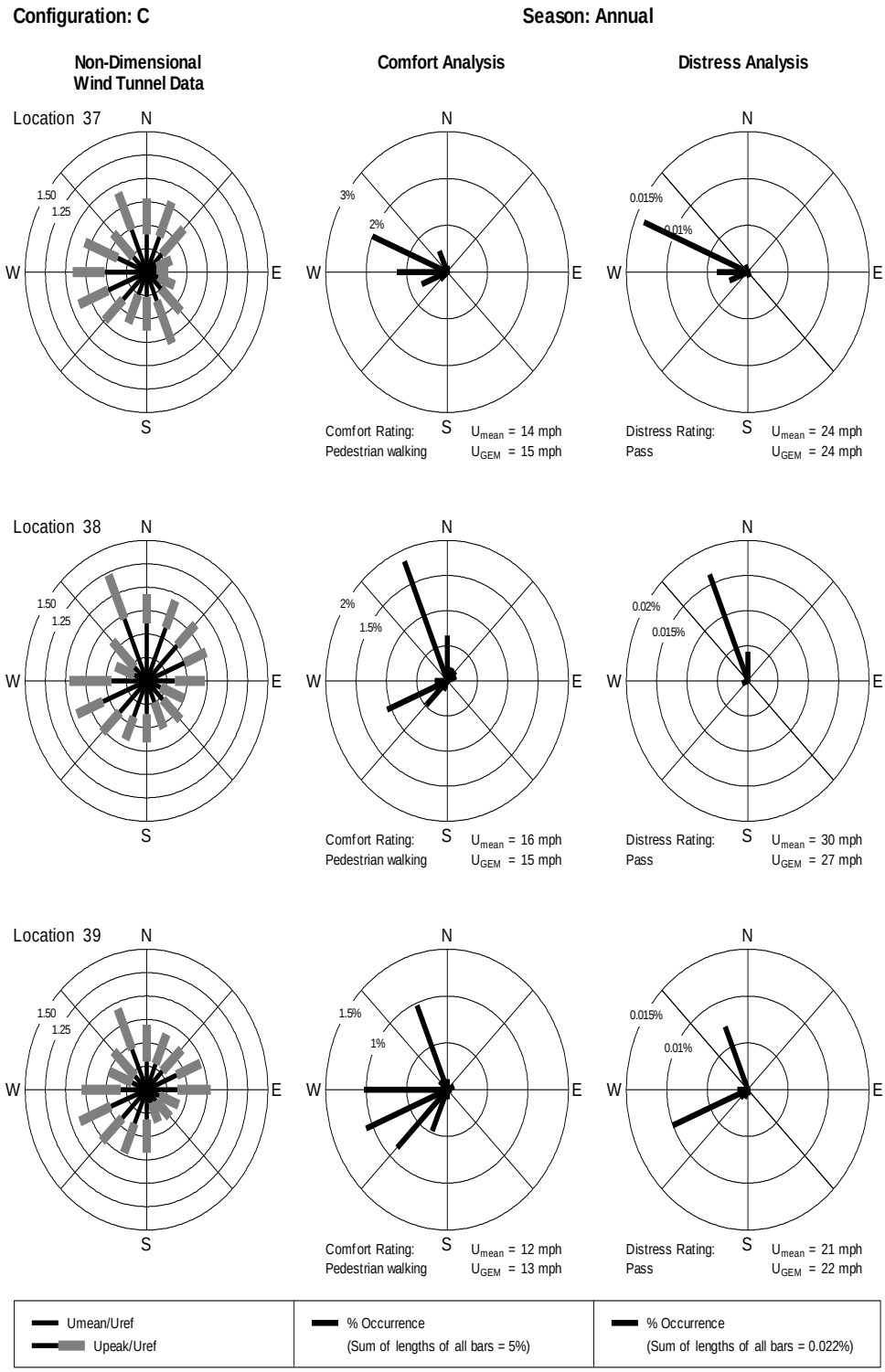


Figure B3m. Combination of wind tunnel data with general wind climate – Configuration C.

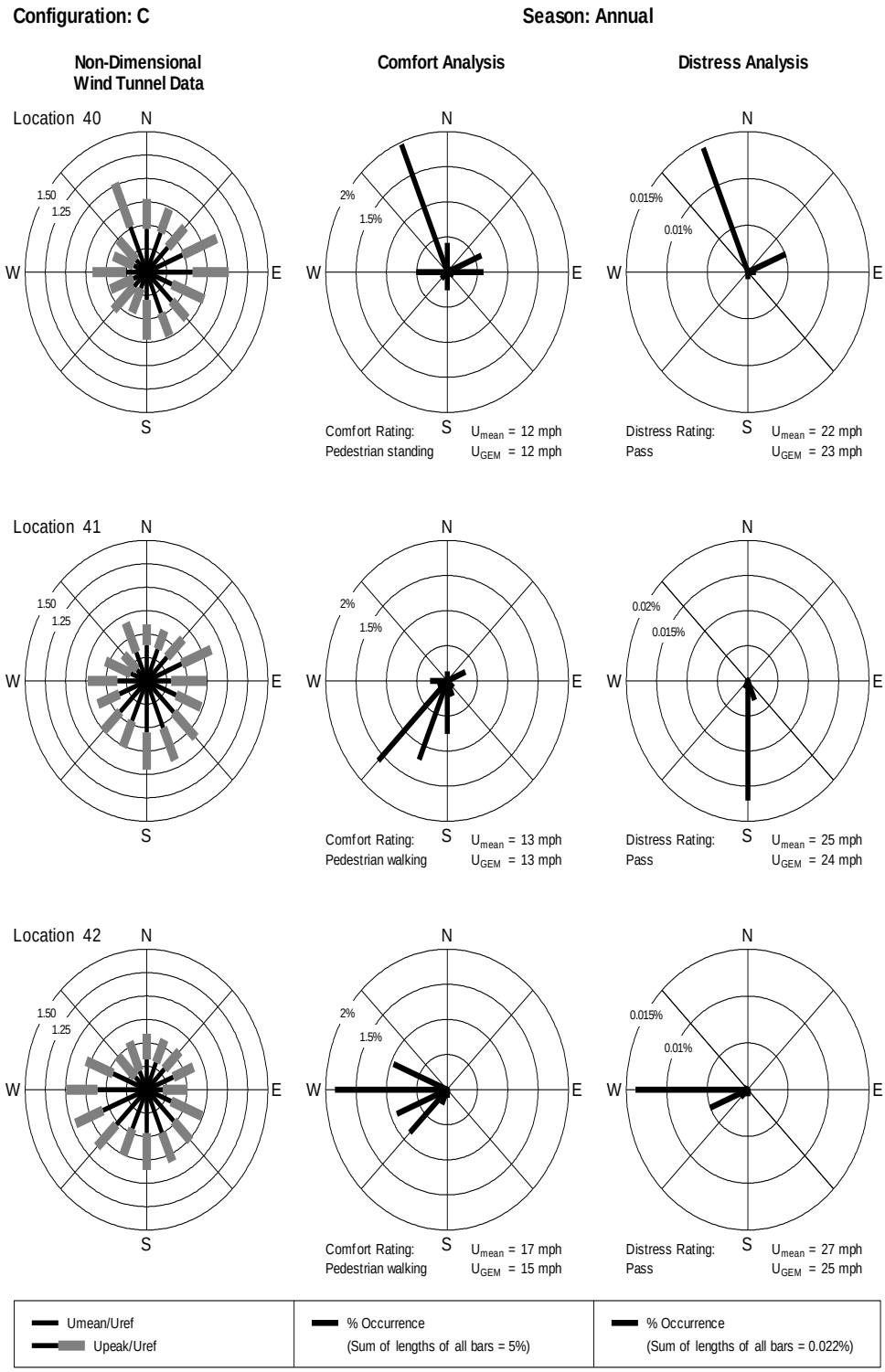


Figure B3n. Combination of wind tunnel data with general wind climate – Configuration C.

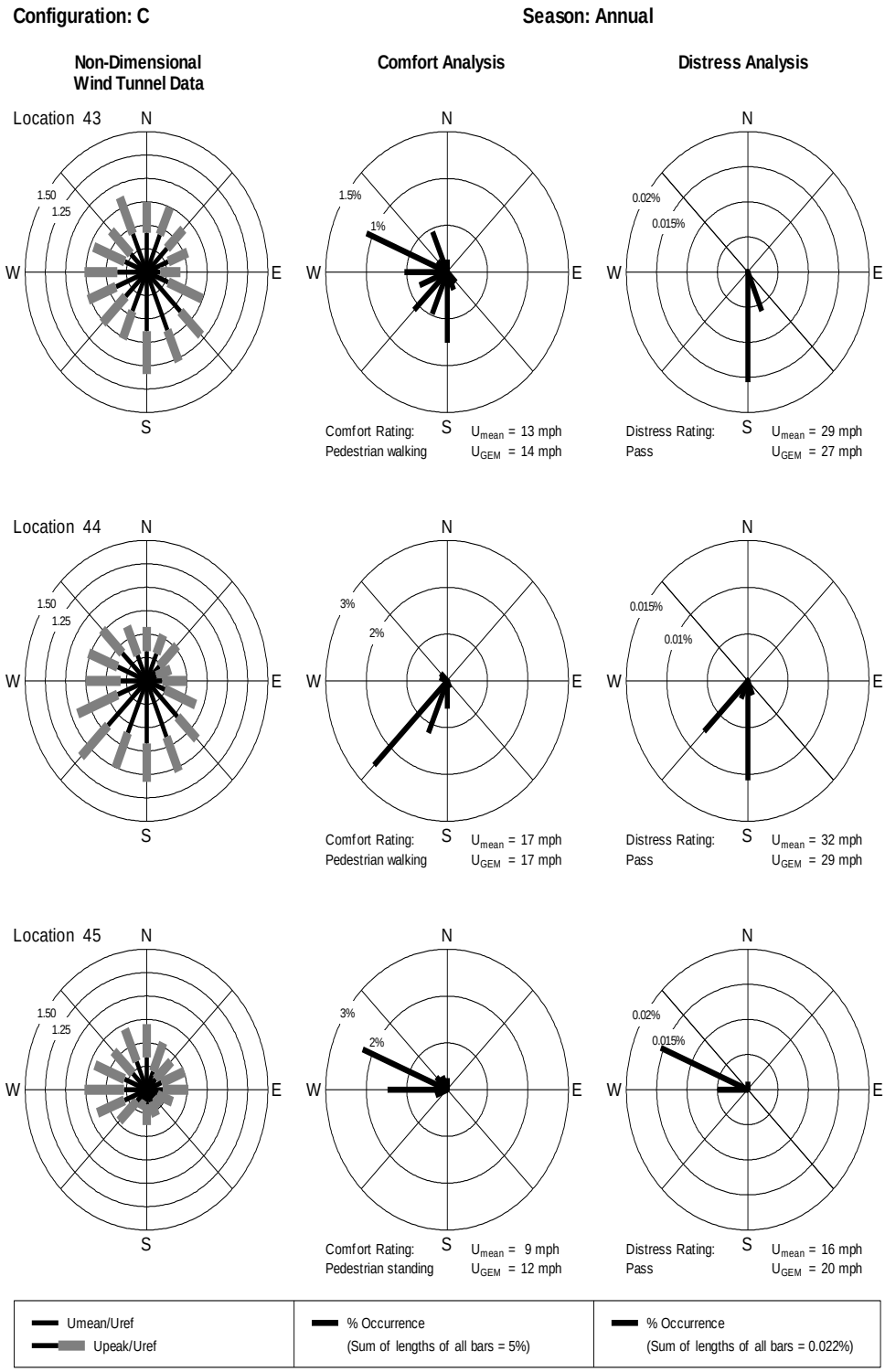


Figure B3o. Combination of wind tunnel data with general wind climate – Configuration C.

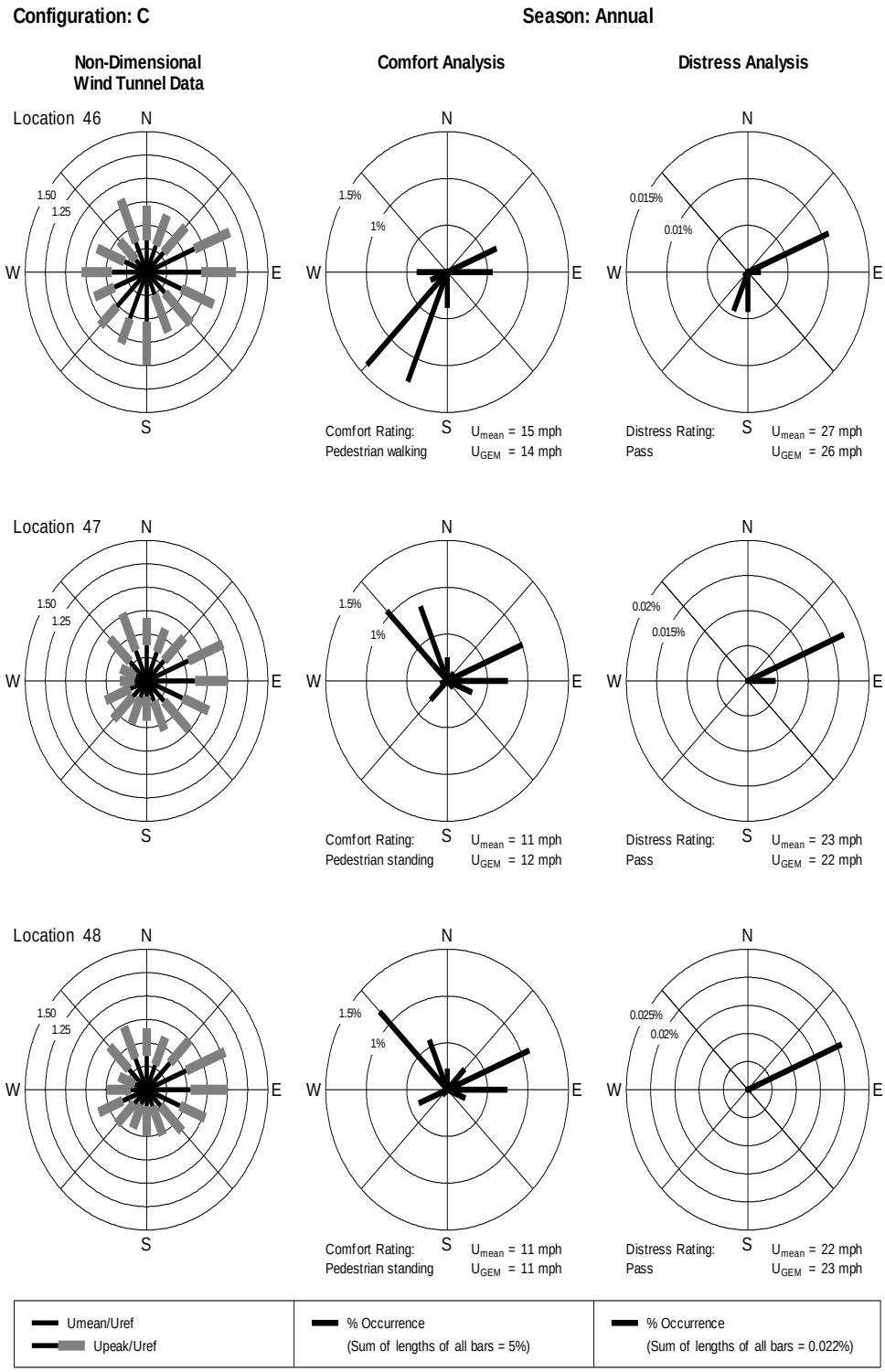


Figure B3p. Combination of wind tunnel data with general wind climate – Configuration C.

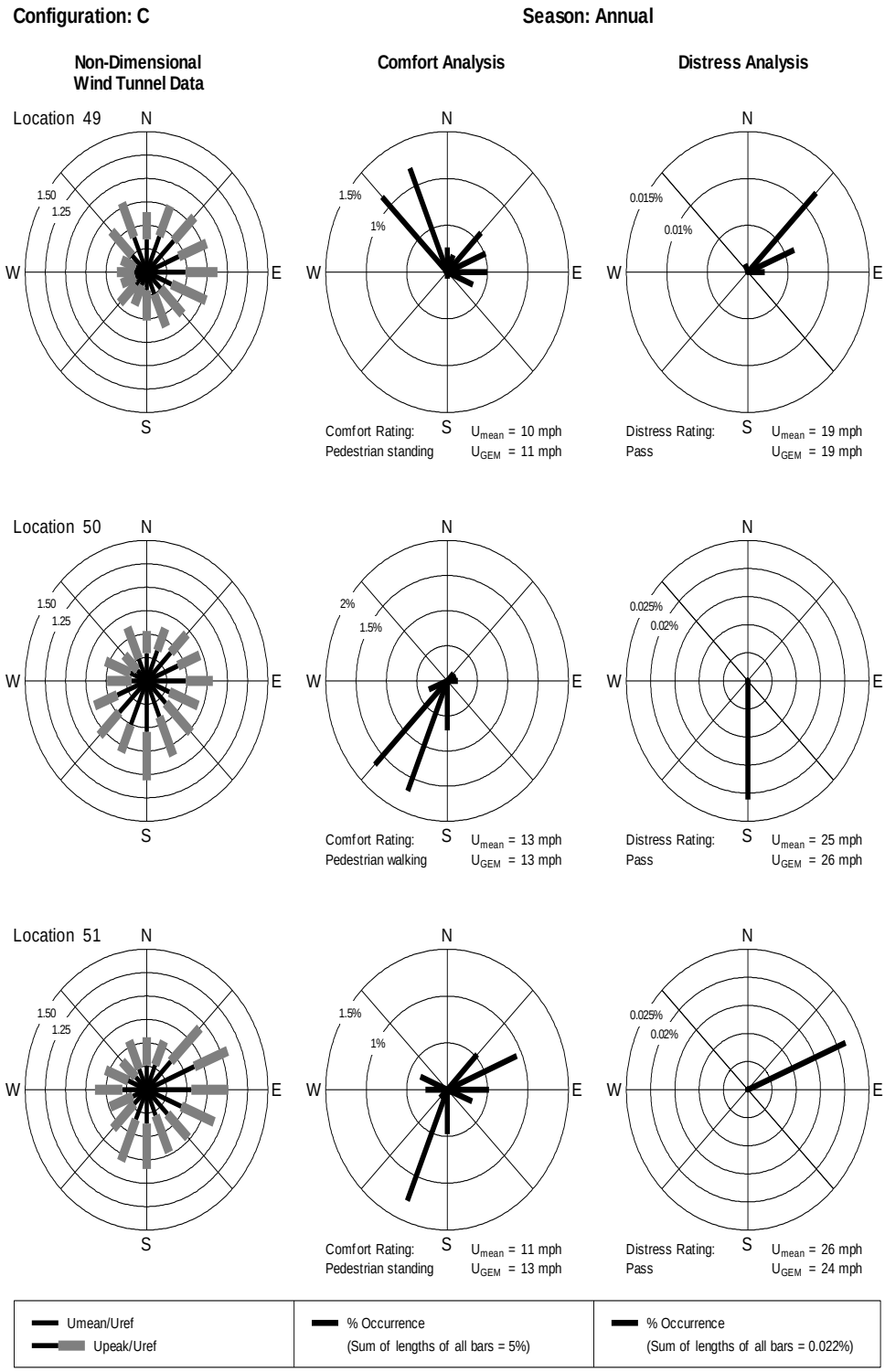


Figure B3q. Combination of wind tunnel data with general wind climate – Configuration C.

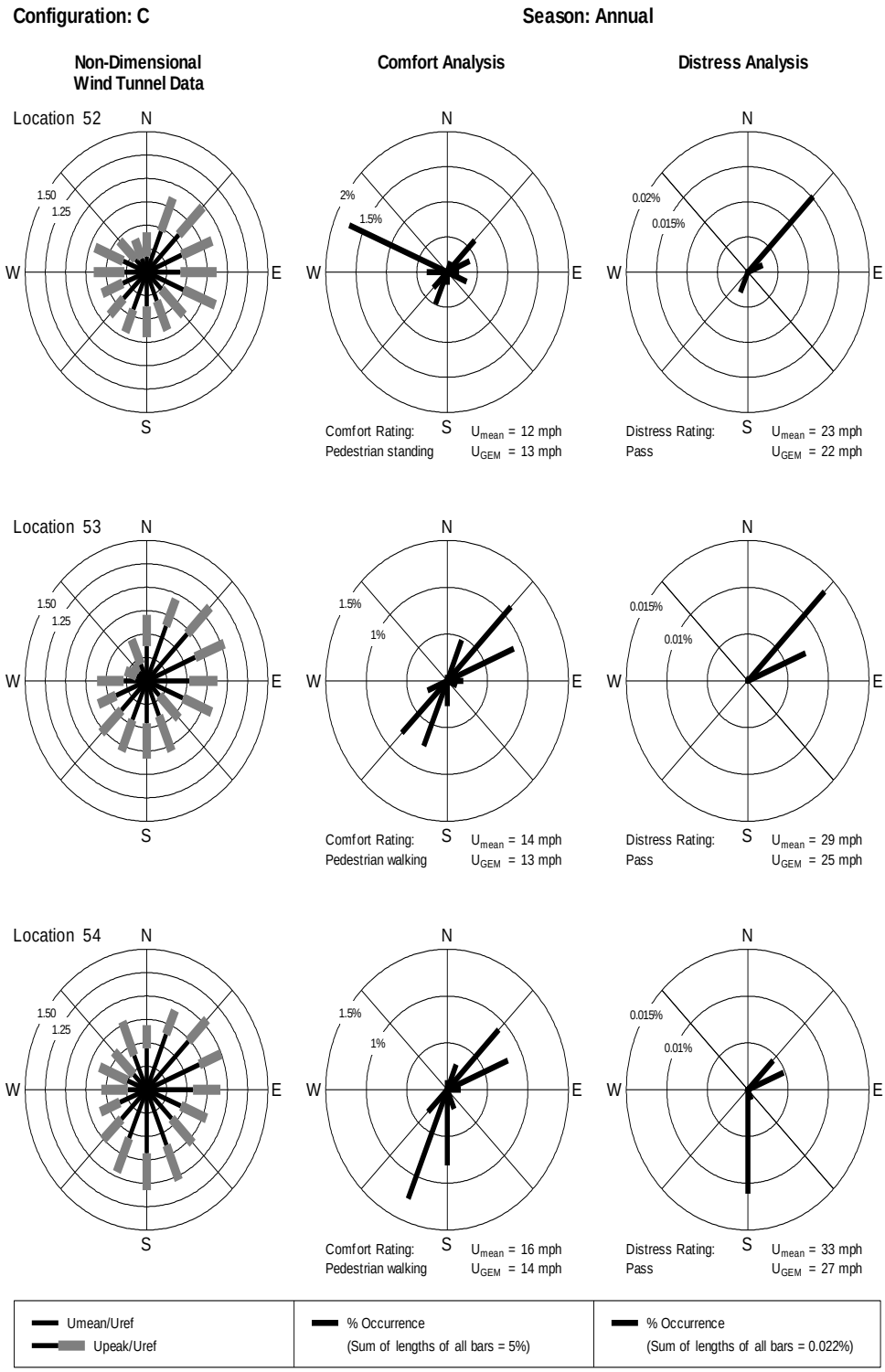


Figure B3r. Combination of wind tunnel data with general wind climate – Configuration C.

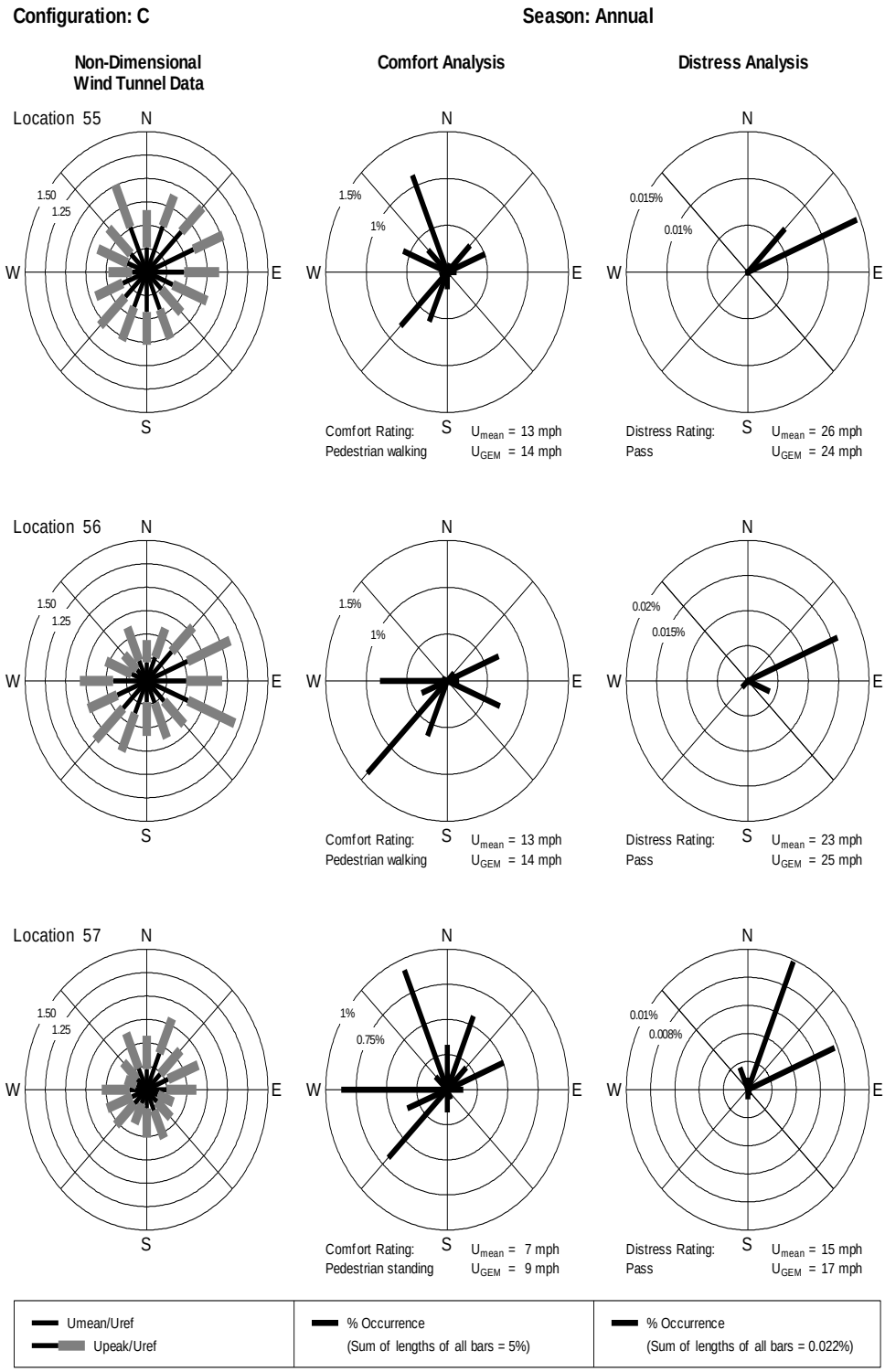


Figure B3s. Combination of wind tunnel data with general wind climate – Configuration C.

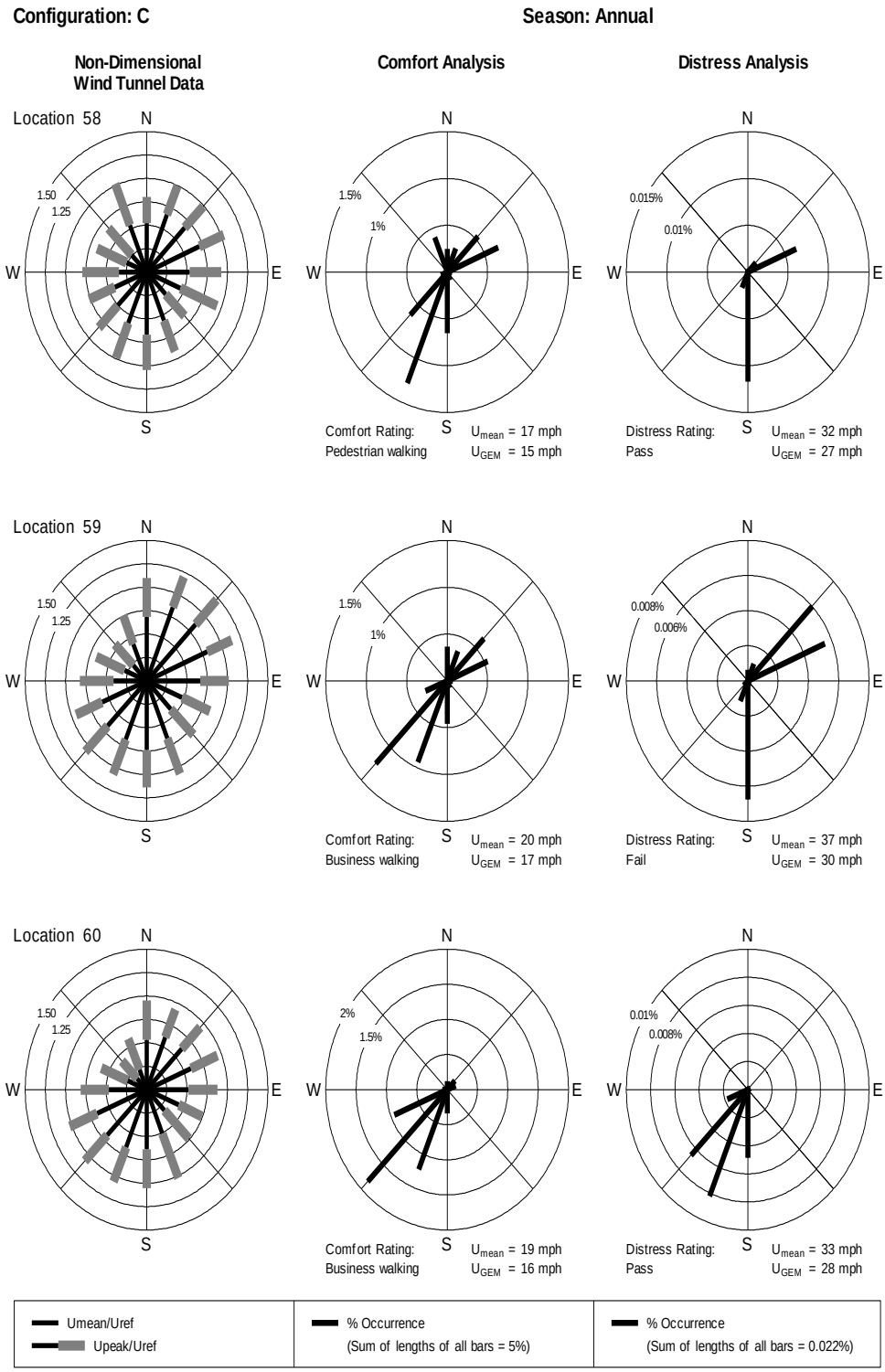


Figure B3t. Combination of wind tunnel data with general wind climate – Configuration C.

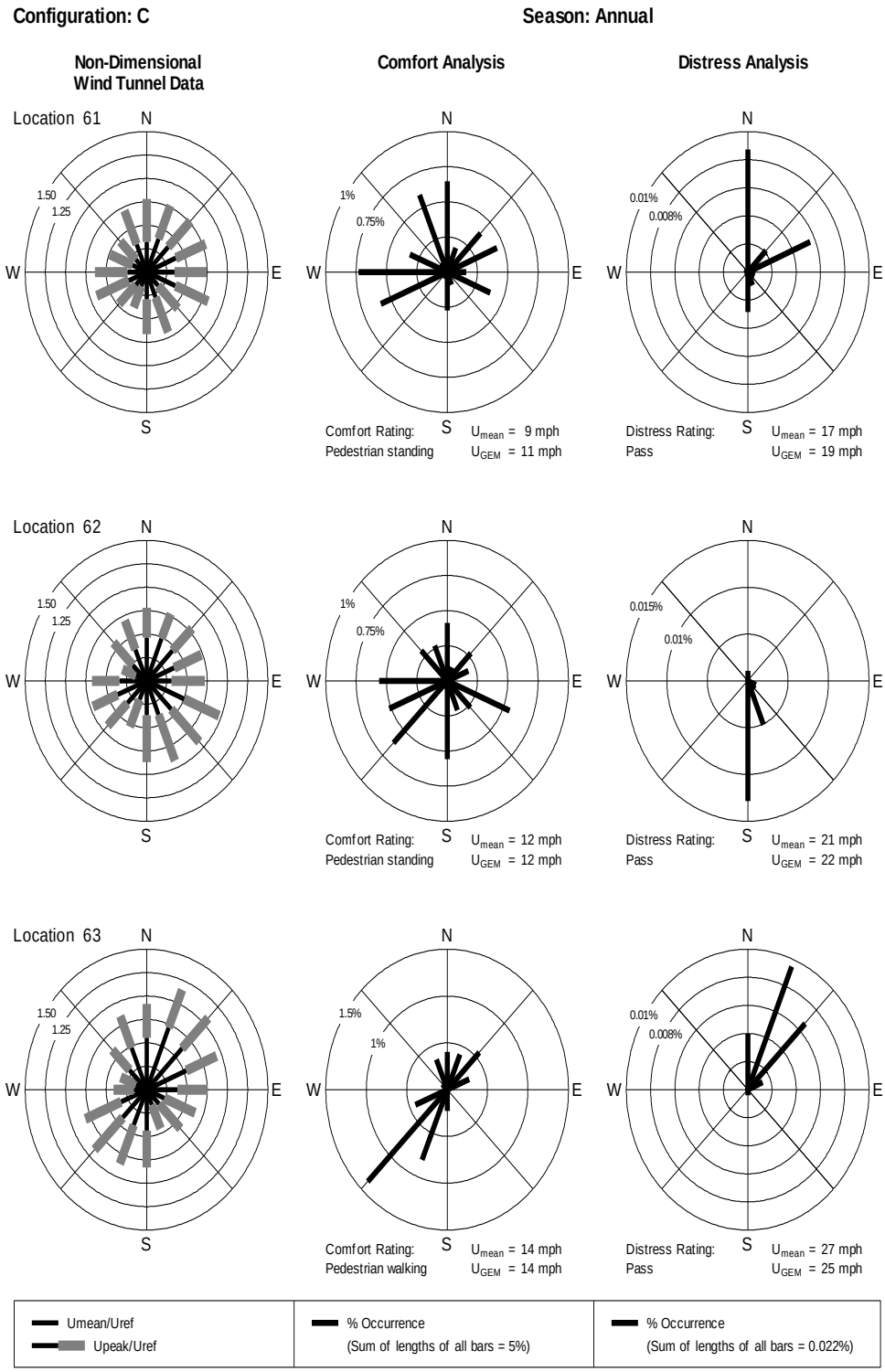


Figure B3u. Combination of wind tunnel data with general wind climate – Configuration C.

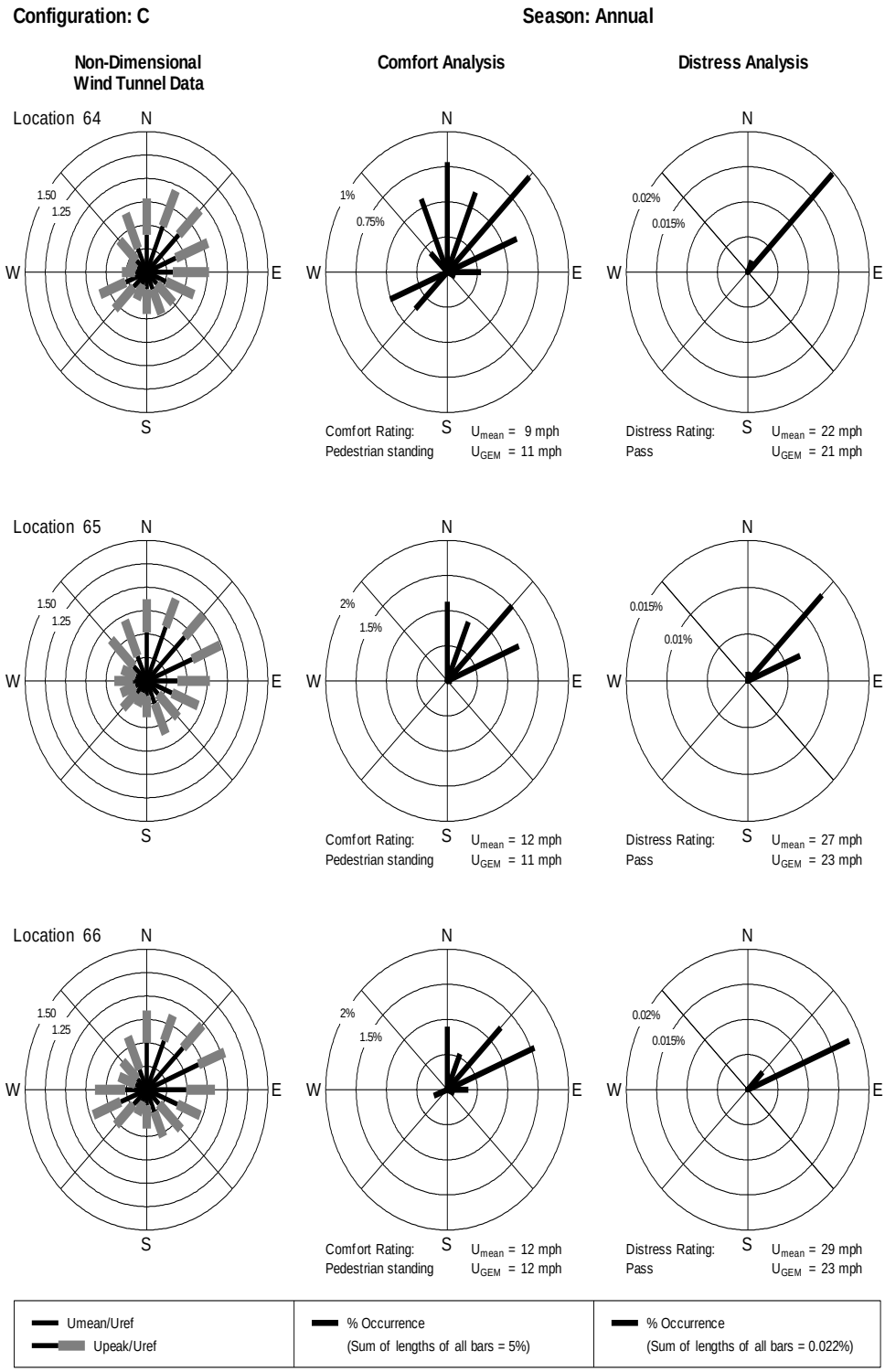


Figure B3v. Combination of wind tunnel data with general wind climate – Configuration C.

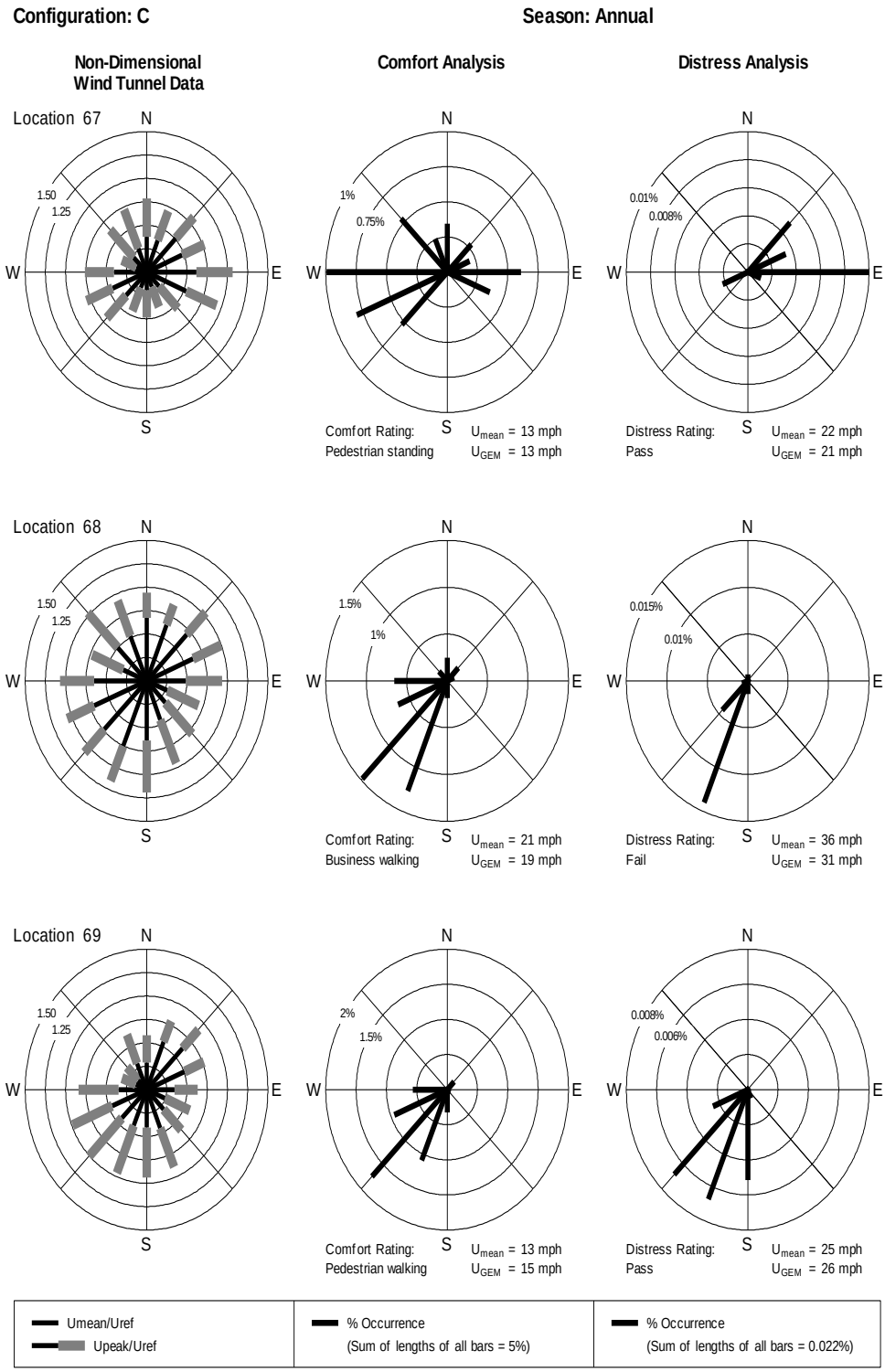


Figure B3w. Combination of wind tunnel data with general wind climate – Configuration C.

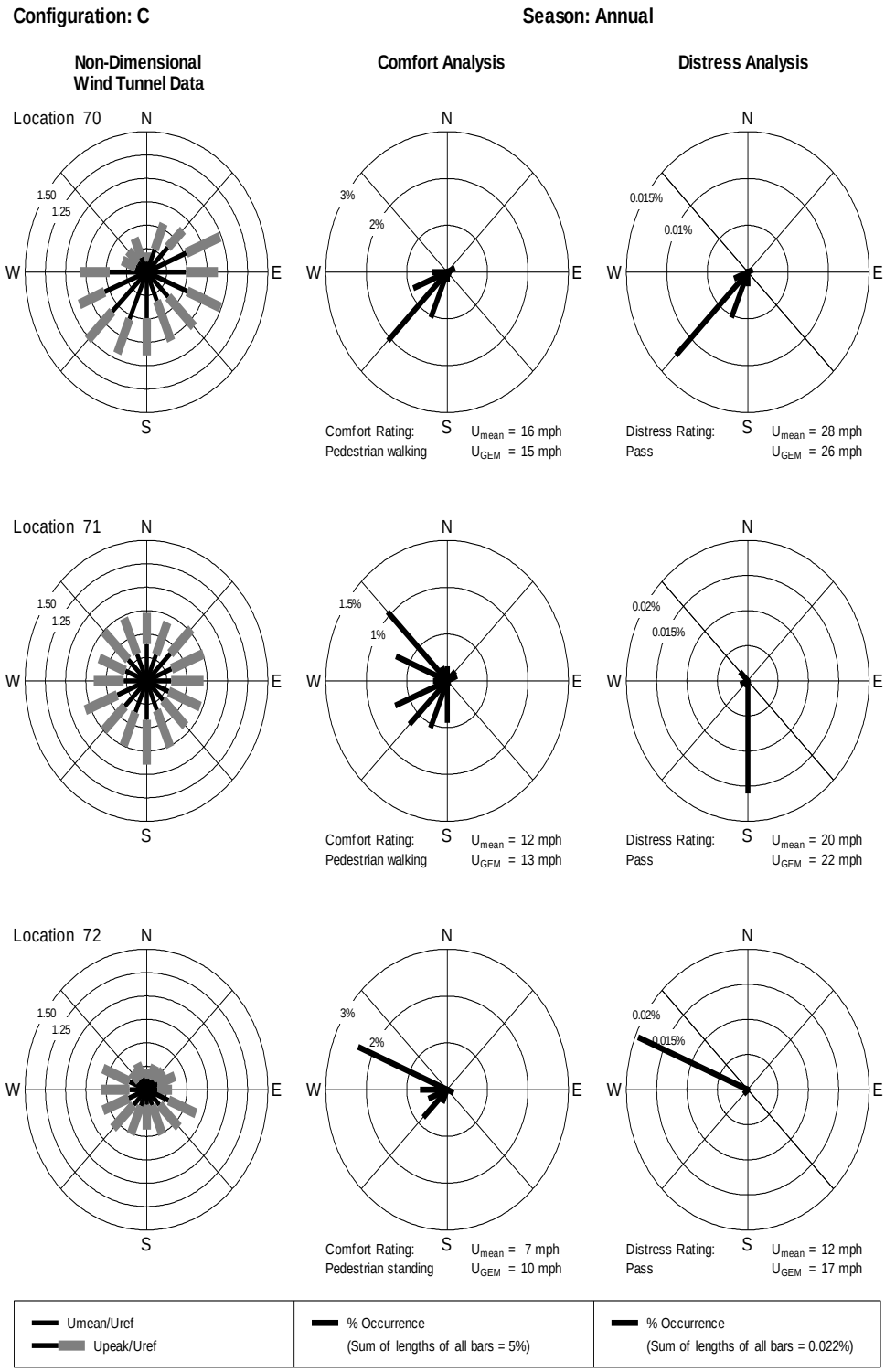


Figure B3x. Combination of wind tunnel data with general wind climate – Configuration C.

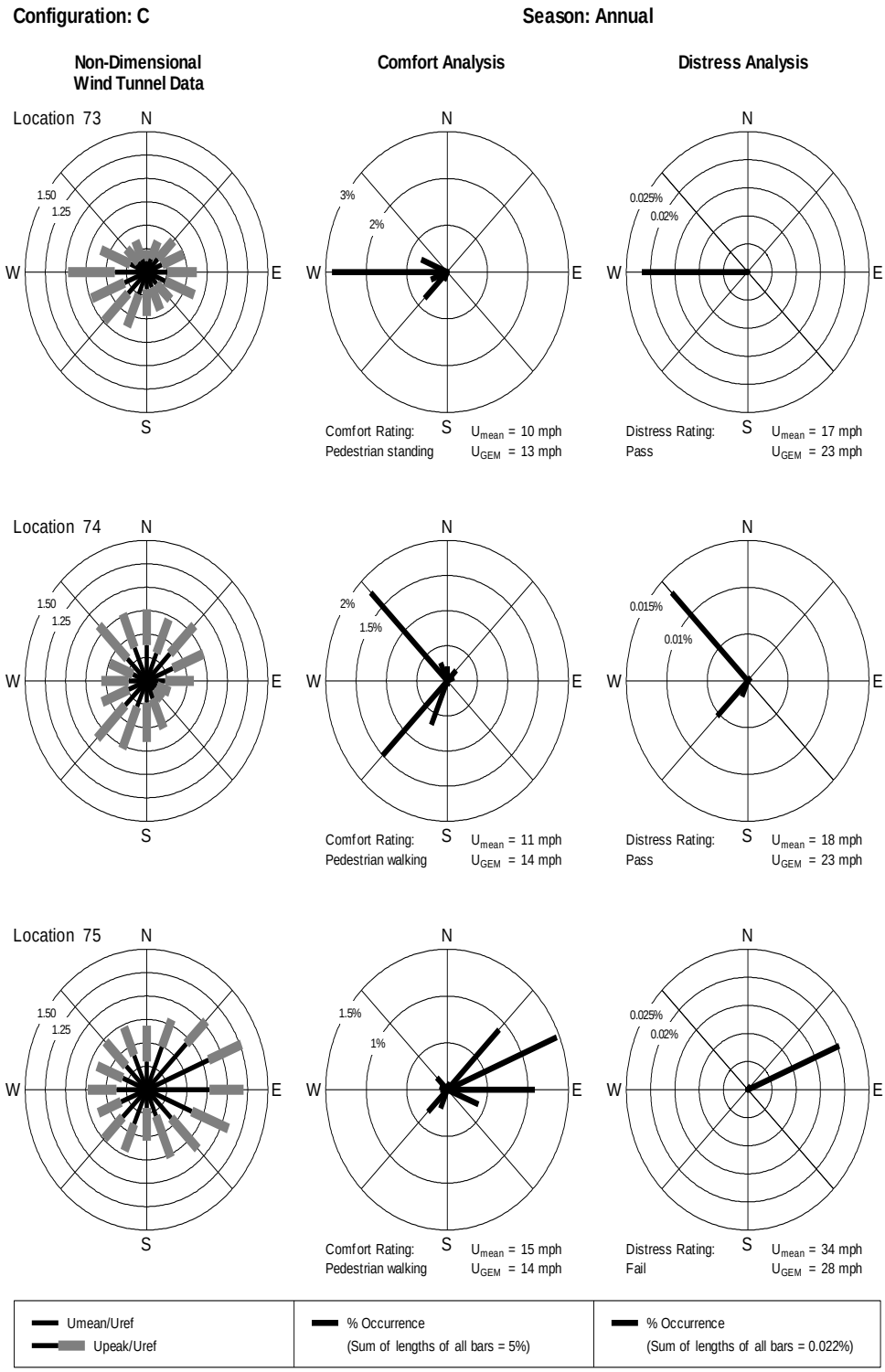


Figure B3y. Combination of wind tunnel data with general wind climate – Configuration C.

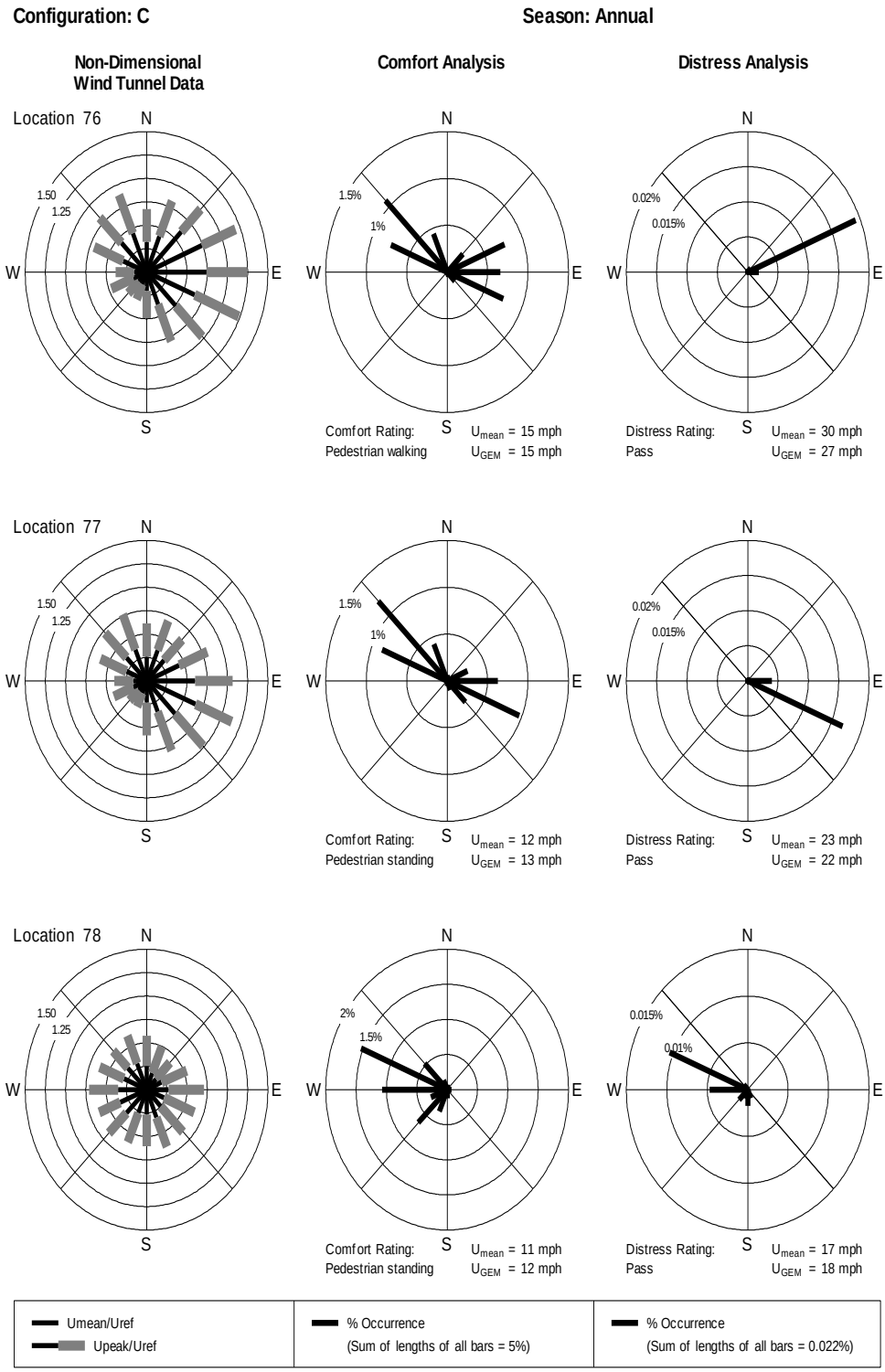


Figure B3z. Combination of wind tunnel data with general wind climate – Configuration C.

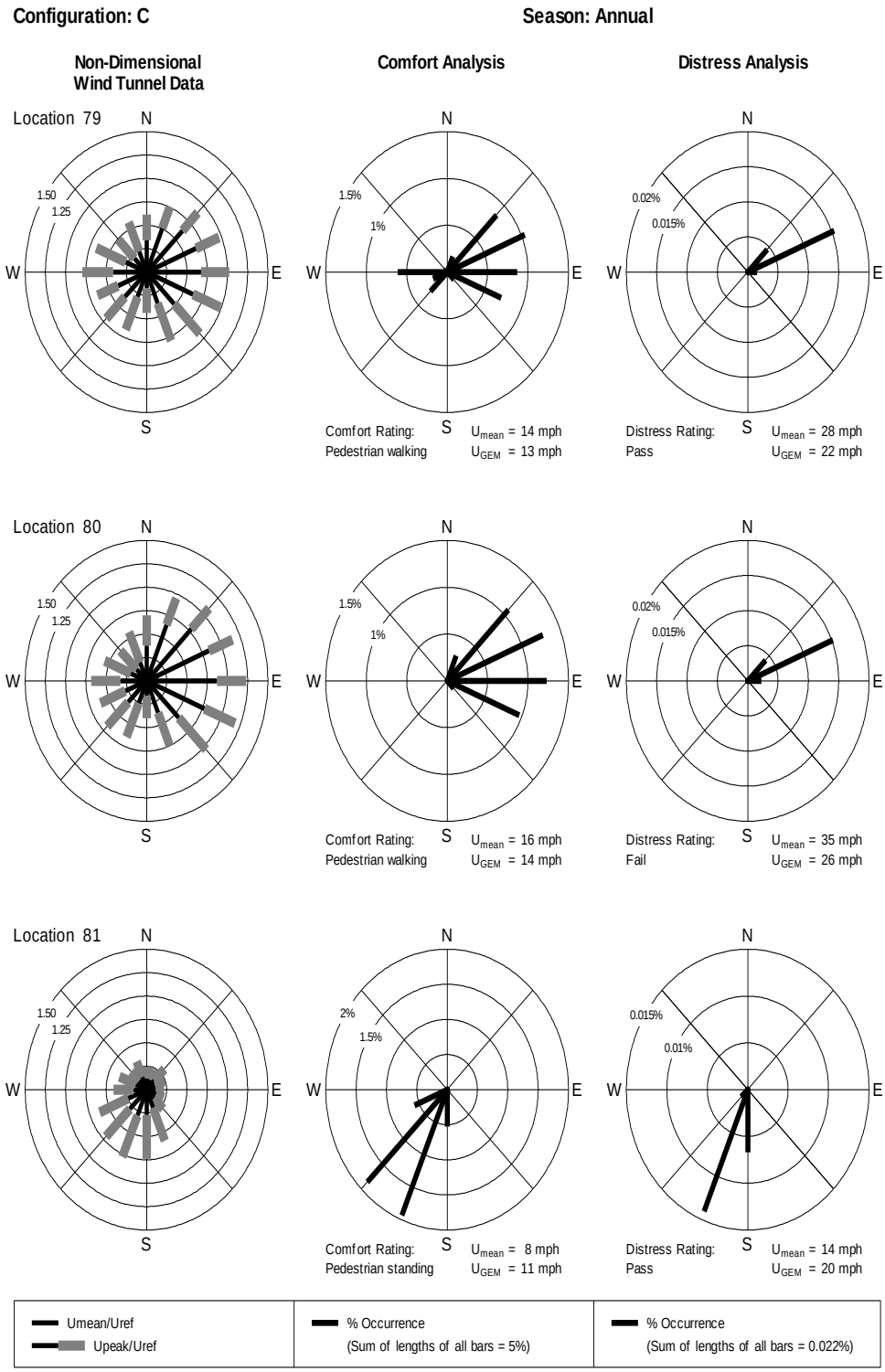


Figure B3aa. Combination of wind tunnel data with general wind climate – Configuration C.

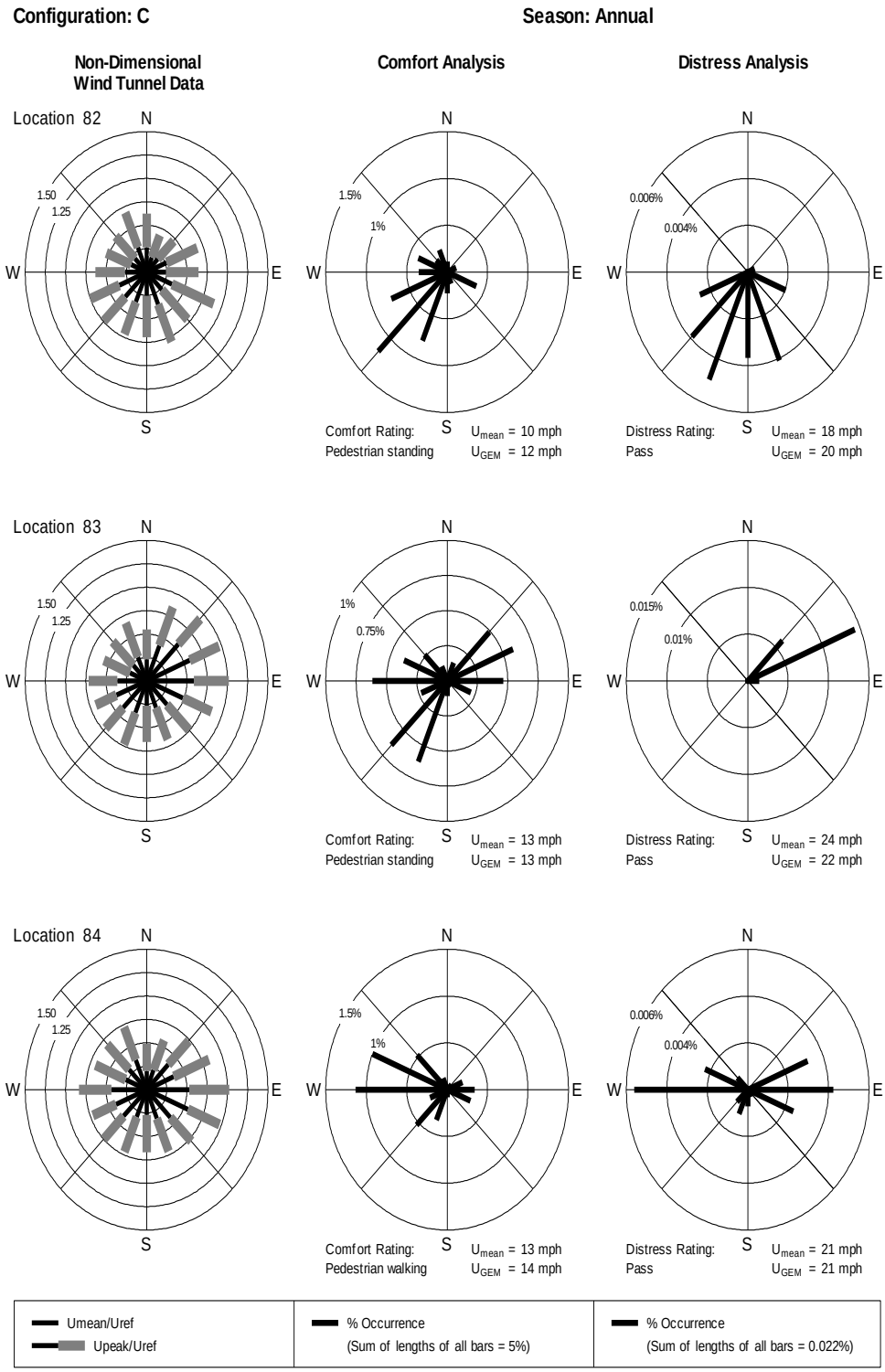


Figure B3ab. Combination of wind tunnel data with general wind climate – Configuration C.

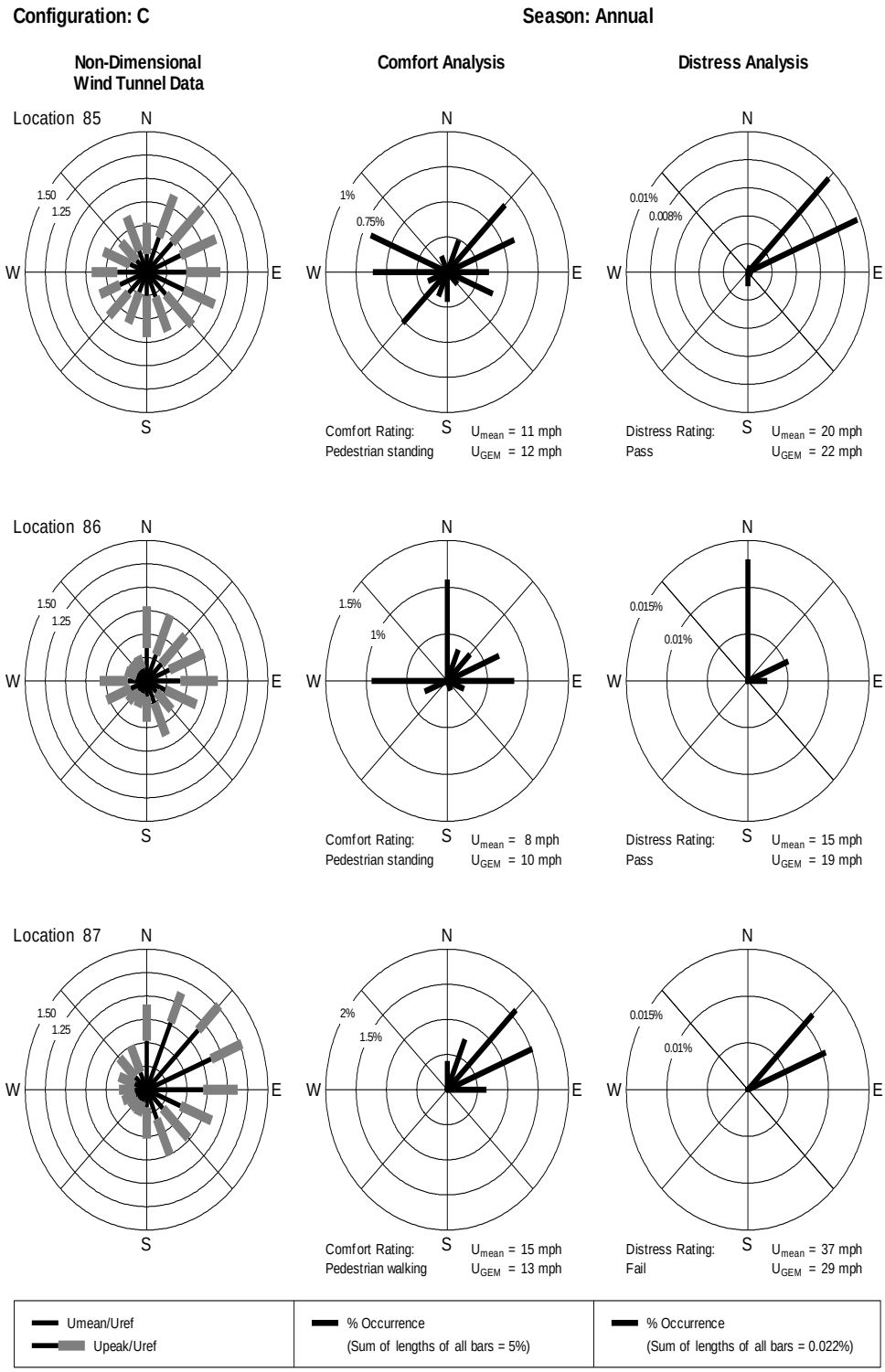


Figure B3ac. Combination of wind tunnel data with general wind climate – Configuration C.

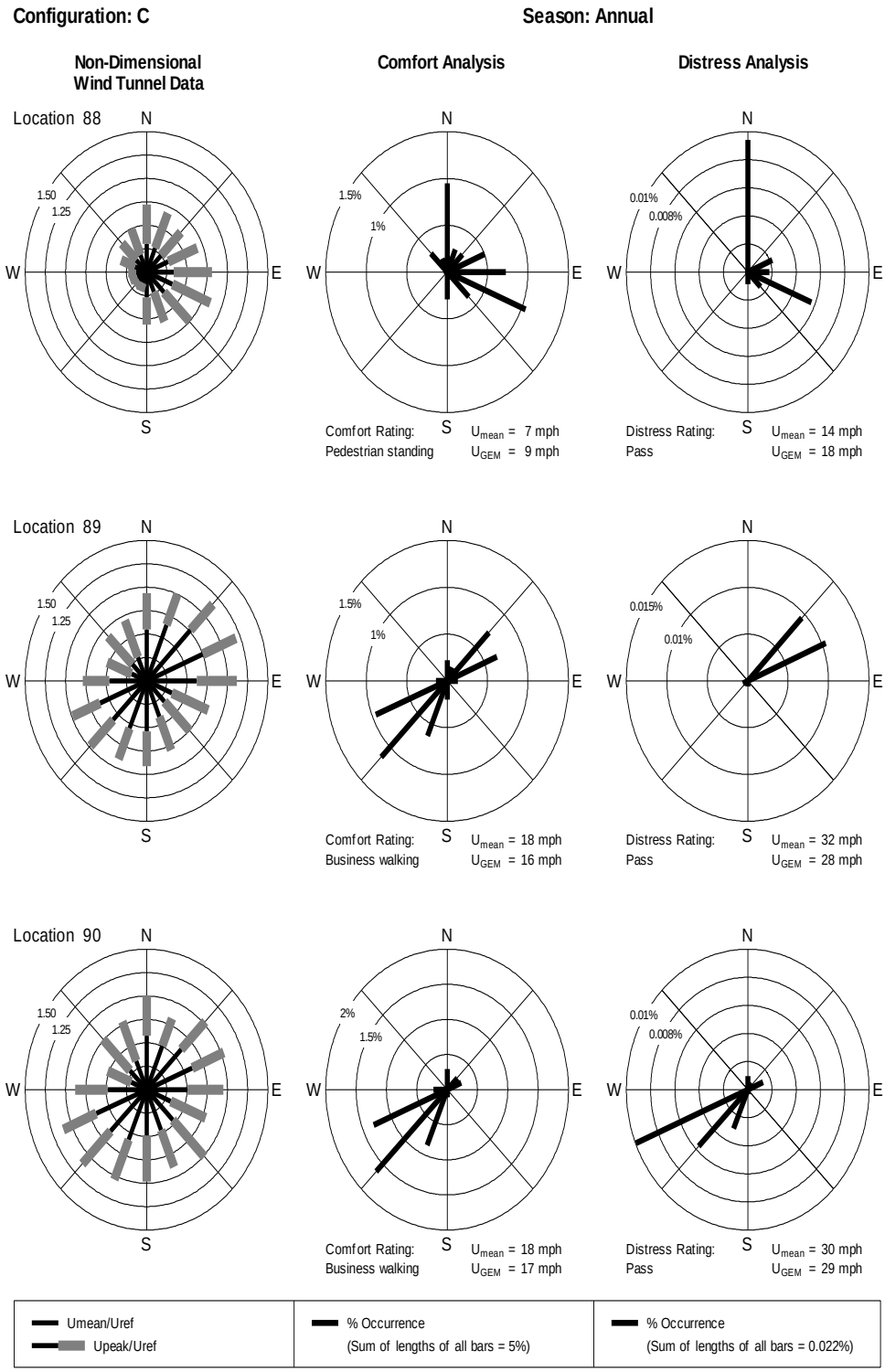


Figure B3ad. Combination of wind tunnel data with general wind climate – Configuration C.

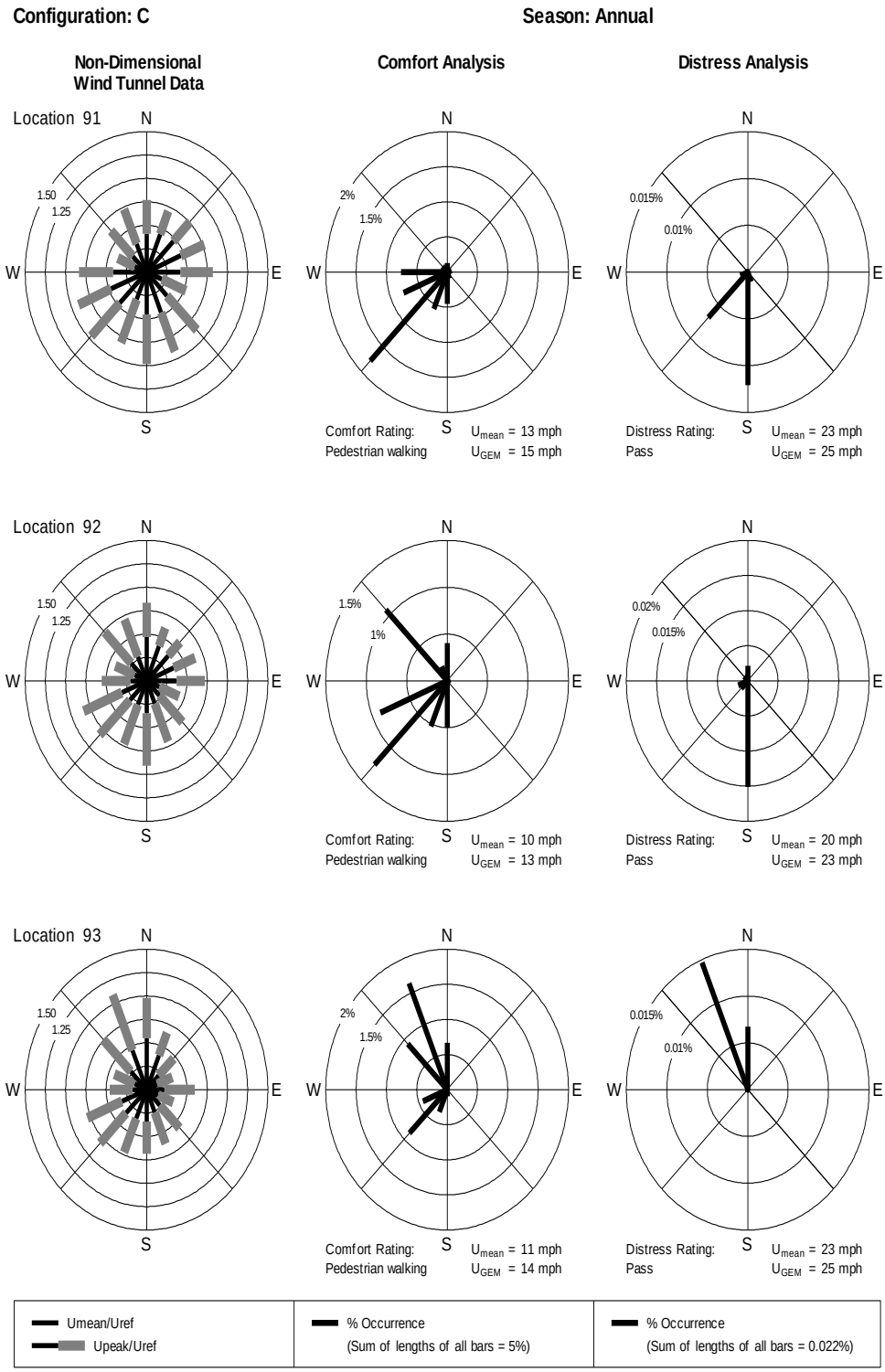


Figure B3ae. Combination of wind tunnel data with general wind climate – Configuration C.

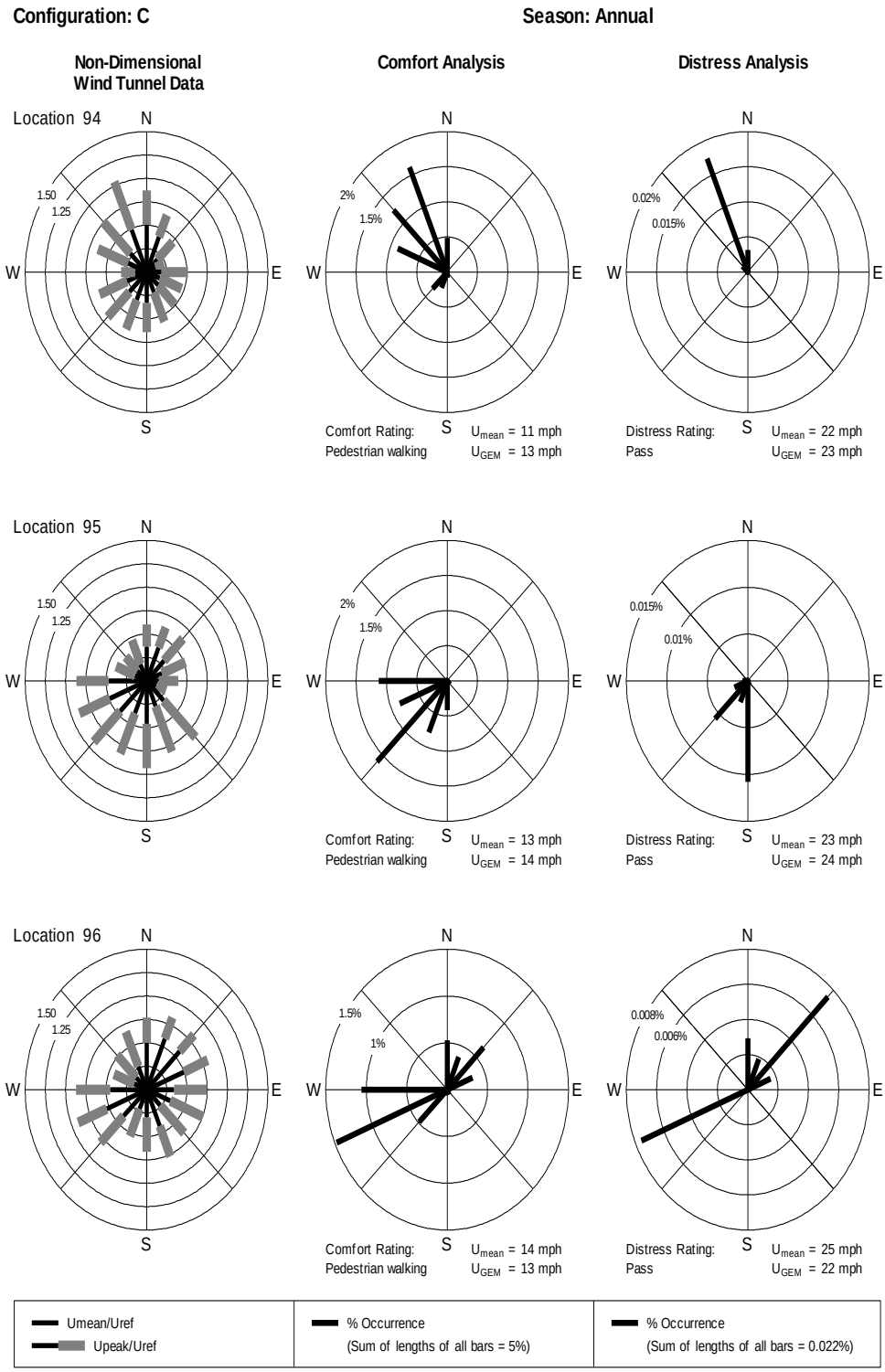


Figure B3af. Combination of wind tunnel data with general wind climate – Configuration C.

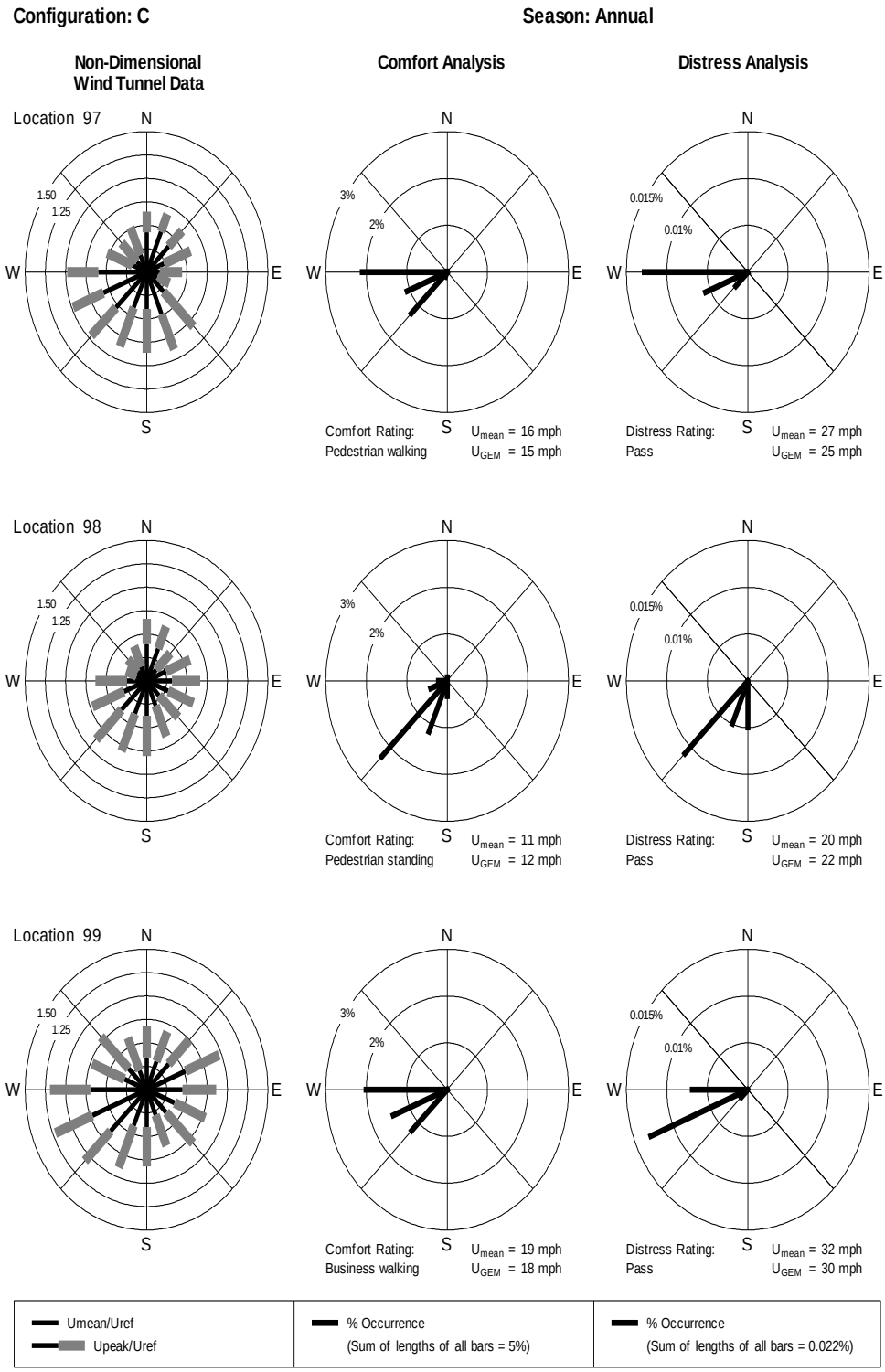


Figure B3ag. Combination of wind tunnel data with general wind climate – Configuration C.

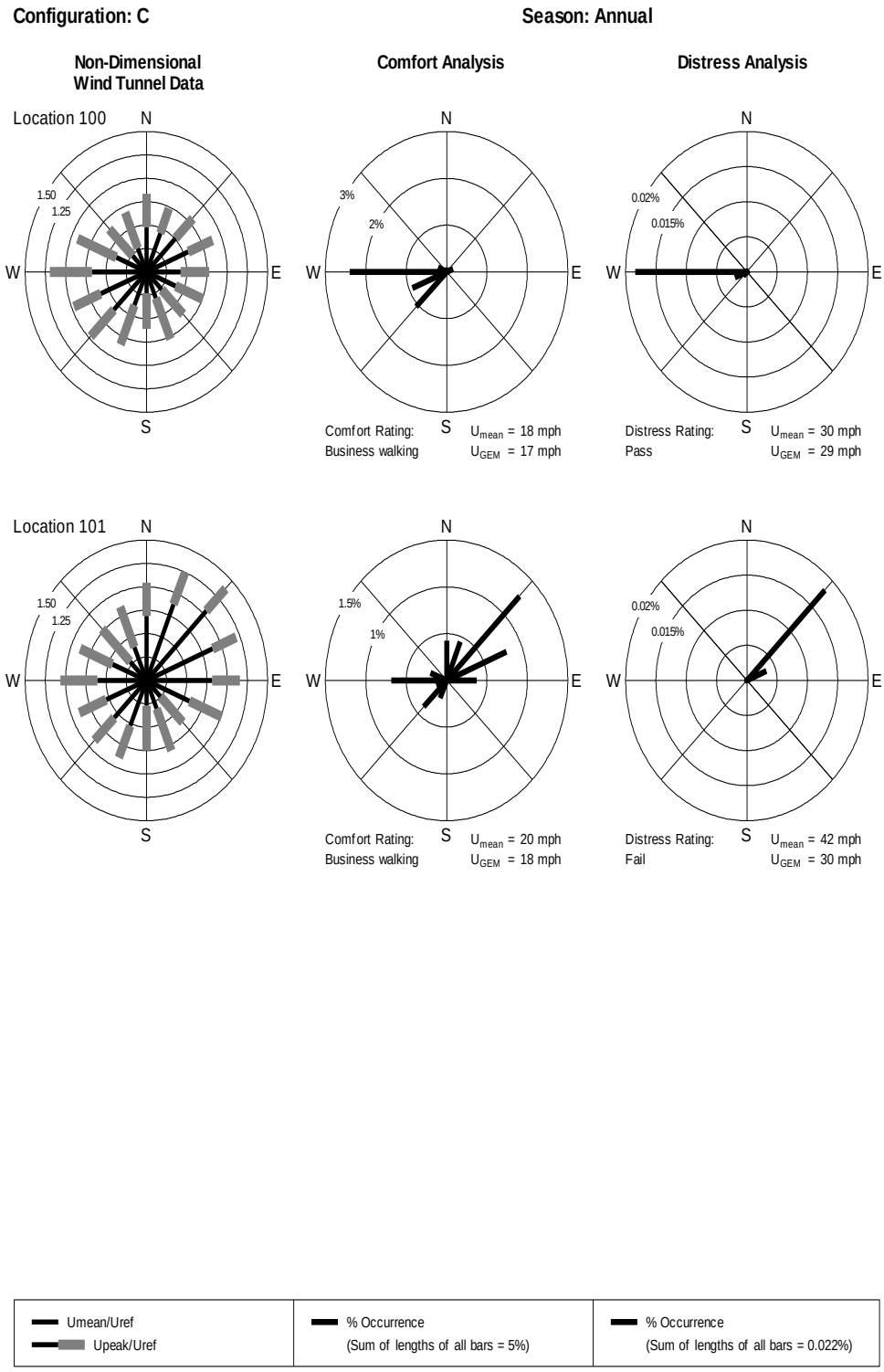


Figure B3ah. Combination of wind tunnel data with general wind climate – Configuration C.

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at http://www.cityofboston.gov/climate

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
2. USGCRP 2009 (http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/)
3. Army Corps of Engineers guidance on sea level rise (http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr*, Kara S. Doran and Peter A. Howd, 2012 (http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf)
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 (http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf)

Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

Please Note: When initiating a new project, please visit the BRA web site for the most current Climate Change Preparedness & Resiliency Checklist.

A.1 - Project Information

Project Name:	**150 Seaport Boulevard**
Project Address Primary:	**150 Seaport Boulevard, Boston MA**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**Rob Halter/ Senior Associate / Elkus Manfredi Architects / rhalter@elkus-manfredi.com / 617-368-3445**

A.2 - Team Description

Owner / Developer:	**Jon Cronin**
Architect:	**Elkus Manfredi Architects**
Engineer (building systems):	**WSP | Parsons Brinckerhoff**
Sustainability / LEED:	**TBD**
Permitting:	**Hill International**
Construction Management:	**John Moriarty and Associates**
Climate Change Expert:	**Simpson Gumpertz and Heger (sea level rise and flood zone analysis)**

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

PNF / Expanded PNF Submission	Draft / Final Project Impact Report Submission	BRA Board Approved	Notice of Project Change
Planned Development Area	BRA Final Design Approved	Under Construction	Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:	Restaurant and Residential Condos
List the First Floor Uses:	*Restaurant, Electrical Transformer, Residential Entry, Loading Dock, and Parking Elevator*

What is the principal Construction Type – select most appropriate type?

Concrete	Wood Frame	Masonry	Steel Frame	**Concrete**

Describe the building?

Site Area:	***23,780*** *SF*	Building Area:	***323,431*** *SF*
Building Height:	***250*** *Ft.*	Number of Stories:	***22*** *Flrs.*
First Floor Elevation (reference Boston City Base):	***18.5'*** *Elev.*	Are there below grade spaces/levels, if yes how many:	***170 spaces on 3 levels***

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	**New Construction**	Core & Shell	Healthcare	Schools
	Retail	Homes Midrise	Homes	Other
Select LEED Outcome:	**Certified**	Silver	Gold	Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	**Yes** / *No*	Certified:	***Yes*** / *No*

What are the base and peak operating energy loads for the building?

Electric:	***477.85 (kW)***	Heating:	***2.037(MMBtu/hr)***
What is the planned building Energy Use Intensity:	***34.0 (kbut/SF or kWh/SF)***	Cooling:	***234 (Tons/hr)***

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	***600 (kW)***	Heating:	***N/A****(MMBtu/hr)*
		Cooling:	***N/A****(Tons/hr)*

What is nature and source of your back-up / emergency generators?

Electrical Generation:	*600 (kW)*		Fuel Source:	*Diesel*
System Type and Number of Units:	**Combustion Engine**	Gas Turbine	Combine Heat and Power	*(Units)*

B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

B.1 – Analysis

What is the full expected life of the project?

Select most appropriate:	10 Years	25 Years	**50 Years**	75 Years

What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	10 Years	**25 Years**	50 Years	75 Years

What time span of future Climate Conditions was considered?

Select most appropriate:	10 Years	25 Years	50 Years	**75 Years**

Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

7 / 88 *Deg.*

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

94 *Deg.*	***15*** *Days*	***1*** *Events / yr.*

What Drought characteristics will be used for project planning – Duration and Frequency?

30 *Days*	***1*** *Events / yr.*

What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

13 *Inches / yr.*	***2*** *Inches*	***1*** *Events / yr.*

What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

TBD *Peak Wind*	***TBD*** *Hours*	***TBD*** *Events / yr.*

B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code:	***13.6 %***
How is performance determined:	**Baseline – ASHRAE 90.1-2013 Appendix G**

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	**High performance building envelop**	**High performance lighting & controls**	Building day lighting	**EnergyStar equip. / appliances**
	High performance HVAC equipment	**Energy recovery ventilation**	No active cooling	No active heating
Describe any added measures:				

What are the insulation (R) values for building envelop elements?

Roof:	*R* = ***20***	Walls / Curtain Wall Assembly:	*R* = ***13 between studs + R=7.5 continuous***
Foundation:	*R* = ***N/A***	Basement / Slab:	*R* =**N/A**
Windows:	*R* = ***N/A*** / *U* =***0.45***	Doors:	*R* = ***N/A*** / *U* =

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

	On-site clean energy / CHP system(s)	Building-wide power dimming	Thermal energy storage systems	Ground source heat pump
	On-site Solar PV	On-site Solar Thermal	Wind power	**None**
Describe any added measures:				

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:	**Connected to local distributed electrical**	Building will be Smart Grid ready	Connected to distributed steam, hot, chilled water	Distributed thermal energy ready

Will the building remain operable without utility power for an extended period?

	Yes / **No**	If yes, for how long:	*Days*
If Yes, is building "Islandable?			
If Yes, describe strategies:			

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:	Solar oriented – longer south walls	Prevailing winds oriented	External shading devices	Tuned glazing,
	Building cool zones	**Operable windows**	Natural ventilation	Building shading
	Potable water for drinking / food preparation	Potable water for sinks / sanitary systems	Waste water storage capacity	**High Performance Building Envelop**
Describe any added measures:				

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:	**High reflective paving materials**	**Shade trees & shrubs**	**High reflective roof materials**	Vegetated roofs
Describe other strategies:				

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:	On-site retention systems & ponds	Infiltration galleries & areas	vegetated water capture systems	Vegetated roofs
Describe other strategies:				

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	Hardened building structure & elements	**Buried utilities & hardened infrastructure**	Hazard removal & protective landscapes	Soft & permeable surfaces (water infiltration)
Describe other strategies:				

C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

Yes / *No*

Describe site conditions?

Site Elevation – Low/High Points:	*Boston City Base* ***Elev. 16 Ft.***
Building Proximity to Water:	***0 Ft.***

Is the site or building located in any of the following?

Coastal Zone:	***Yes*** / *No*	Velocity Zone:	*Yes* / ***No***
Flood Zone:	***Yes*** / *No*	Area Prone to Flooding:	***Yes*** / *No*

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	*Yes* / ***No***	Future floodplain delineation updates:	*Yes* / ***No***

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

0 Ft.

If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

C.2 – Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:	***N/A*** *Ft.*	Frequency of storms:	***N/A*** *per year*

C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:	*Boston City Base* ***18.5*** *Elev.(Ft.)*	First Floor Elevation:	*Boston City Base* ***18.5*** *Elev. (Ft.)*

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

	Yes / *No*	If Yes, to what elevation	*Boston City Base* ***18.5*** *Elev. (Ft.)*
If Yes, describe:			

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located above 1st Floor.	**Water tight utility conduits**	**Waste water back flow prevention**	**Storm water back flow prevention**

Were the differing effects of fresh water and salt water flooding considered:

Yes / **No**

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

Yes / ***No***

If yes, to what height above 100 Year Floodplain: *Boston City Base Elev. (Ft.)*

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

Yes / *No*

If Yes, describe: **The project bulkhead will be designed to withstand wave impacts of 1.5 '**

Will the building remain occupiable without utility power during an extended period of inundation:

Yes / ***No***

If Yes, for how long: *days*

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:				
	Yes / *No*	**Hardened / Resilient Ground Floor Construction**	**Temporary shutters and or barricades**	**Resilient site design, materials and construction**

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:				
	Yes / *No*	**Surrounding site elevation can be raised**	**Building ground floor can be raised**	Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:				
	Yes / ***No***	Solar PV	Solar Thermal	Clean Energy / CHP System(s)
		Potable water storage	Wastewater storage	Back up energy systems & fuel
Describe any specific or additional				

strategies:

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: John.Dalzell.BRA@cityofboston.gov

150Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
    a. http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
    a. http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Boston Complete Street Guidelines
    a. http://bostoncompletestreets.org/
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
    a. http://www.cityofboston.gov/Disability
5. City of Boston – Public Works Sidewalk Reconstruction Policy
    a. http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc
7. MBTA Fixed Route Accessible Transit Stations

Article 80 | ACCESSIBILTY CHECKLIST

a. http://www.mbta.com/about_the_mbta/accessibility/

Project Information

Project Name:	**150 Seaport Boulevard**
Project Address Primary:	**150 Seaport Boulevard, Boston MA**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**Rob Halter/ Senior Associate/ Elkus Manfredi Architects/ rhalter@elkus-manfredi.com / 617-368-3445**

Team Description

Owner / Developer:	**Cronin Group LLC**
Architect:	**Elkus Manfredi Architects**
Engineer (building systems):	**WSP**
Sustainability / LEED:	
Permitting:	**Hill International**
Construction Management:	**John Moriarty and Associates**

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

	Residential – One to Three Unit	**Residential - Multi-unit, Four +**	Institutional	Education
	Commercial	Office	**Retail**	Assembly
	Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other
First Floor Uses (List)	*Residential entry and services, loading dock, mechanical, car elevator, trash, restaurant*			

What is the Construction Type – select most appropriate type?

	Wood Frame	Masonry	Steel Frame	**Concrete**

Describe the building?

Site Area:	*23,780 SF*	Building Area:	*323,431 SF*
Building Height:	*250 Ft.*	Number of Stories:	*22 Flrs.*
First Floor Elevation:	*18.5' Elev.*	Are there below grade spaces:	**Yes** / *No*

Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.	The project is located at 150 Seaport Boulevard at the intersection of B Street. The adjacent Harborwalk will be extended to wrap around the north and east edges of the site to complete the connection from Pier 4 to Commonwealth Pier. The new 22-story retail and residential tower will replace the existing Whiskey Priest and Atlantic

	Beer Garden building and will include enhanced public space and an active urban environment.
List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	**Commuter Rail:** South Station (0.8 mile) **Subway:** SL1 and SL2 at Silver Line Way (0.3 mile) **Bus:** # 459 : B Street at Seaport Boulevard (0.1 mile) #4 : Seaport Blvd World Trade Center Opposite Seaport Hotel (0.1 mile) # 449 : Seaport Boulevard at Seaport Hotel (0.2 mile) # 448 : Seaport Boulevard at Seaport Hotel (0.2 mile)
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	Institute of Contemporary Art Boston Boston Children's Museum Boston Tea Party Museum
Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.	John Joseph Moakley United States Courthouse District Hall Massachusetts Convention Center Authority

Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?	Yes.

If yes above, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.	The existing sidewalk is in fair condition. It is a concrete sidewalk with a granite curb. The apron and loading areas are composed of asphalt and are in poor condition, with uneven surfaces and potholes.
Are the sidewalks and pedestrian ramps existing-to-remain? **If yes,** have the sidewalks and pedestrian ramps been verified as compliant? **If yes,** please provide surveyors report.	No.
Is the development site within a historic district? **If yes,** please identify.	No.

Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	Yes.
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	150 Seaport Boulevard is considered a neighborhood connector street.
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	The proposed sidewalk will be 240; long running along the front of the building and will vary in width from 20'-40'. A constant pedestrian only zone will be established at a minimum of 10 feet for the length of the site. A separate valet drop-off zone will also occur along 100' of the site and will be approximately 10' wide.
List the proposed materials for each Zone. Will the proposed materials be on private property or will the	The sidewalk, which is within the City of Boston's right-of-way, will consist of concrete pavers and cast-in-place walking surfaces. This will also be the primary materials for the valet drop off in front of the residential entry to create a seamless

proposed materials be on the City of Boston pedestrian right-of-way?	transition. A new curb will be established which will be granite with integrated curb cuts for pedestrian crosswalks and vehicular traffic access.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the City of Boston Public Improvement Commission?	No, the pedestrian right-of-way is not on private property.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?	Café/restaurant seating will be provided outside of the pedestrian right-of-way.
If yes above, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?	N/A

Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?	170 spaces
What is the total number of accessible spaces provided at the development site?	The parking garage is valet-only. All parking spaces will be accessed by a valet attendant only, who will receive and deliver vehicles to and from the designated drop off zone in front of the building. This drop off area is accessible.
Will any on street accessible parking spaces be required? **If yes,** has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?	On street parking will be provided in accordance with the BTD guidelines. The proponent will continue discussions with both the Commission for Persons with Disabilities and the BTD regarding this need.
Where is accessible visitor parking	With the new garage being valet only, all occupants and visitors will have their

located?	vehicles parked by a valet attendant. Additional parking may be provided off site as needed which will also be valet only.
Has a drop-off area been identified? **If yes,** will it be accessible?	Yes. Yes. The drop off area will be directly adjacent to the residential entry and will have a flush sidewalk condition with bollards spaced appropriately for accessible use.
Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	See attached diagram.

Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability* of neighbors.

**Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.	See attached diagram.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	The entries into the restaurant will be at grade with the Harborwalk. The Harborwalk is ramped to allow for a seamless transition along the water's edge and the sidewalk. The main entry to the condo will have an integrated ramp and stair adjacent to one another at the front of the buildings, directly adjacent to the accessible drop off area.
Are the accessible entrance and the standard entrance integrated?	Yes. The entries are directly adjacent to one another and are designed to incorporate a water feature element.
If no above, what is the reason?	N/A
Will there be a roof deck or outdoor courtyard space? **If yes,** include	No.

diagram of the accessible route.	
Has an accessible routes way-finding and signage package been developed? **If yes,** please describe.	No. The proponent will develop the way-finding and signage package at a later date.

Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?	124 condominium units.
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	All units are condominiums and will be for sale. Affordable units will be located off-site.
How many accessible units are being proposed?	Based on the 521 CMR guidelines, all units will meet Group 1, as well as all of the public and common areas.
Please provide plan and diagram of the accessible units.	Layouts of accessible units will be provided for review with the Mayor's Commission for Persons with Disabilities Advisory Board once they have been completed.
How many accessible units will also be affordable? If none, please describe reason.	All affordable units will be provided at a separate location.
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. **If yes,** please provide reason.	No.
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities	No. However, it is the Proponent's intent to present the plan to the Commission once the project has been more fully developed.

Advisory Board?	
Did the Advisory Board vote to support this project? **If no,** what recommendations did the Advisory Board give to make this project more accessible?	At this time, the Proponent has not met with the Advisory Board to discuss the project.

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities