

# Sea Level Rise Scenarios Affecting Roads

City of Bristol

Map Created: 8/10/2016

## Map Legend

### NOTES:

The Sea Level Rise (SLR) Inundation modified bathtub model does not take into consideration future erosion or storm surge.

Includes Hillshade from USGS 2011 LiDAR

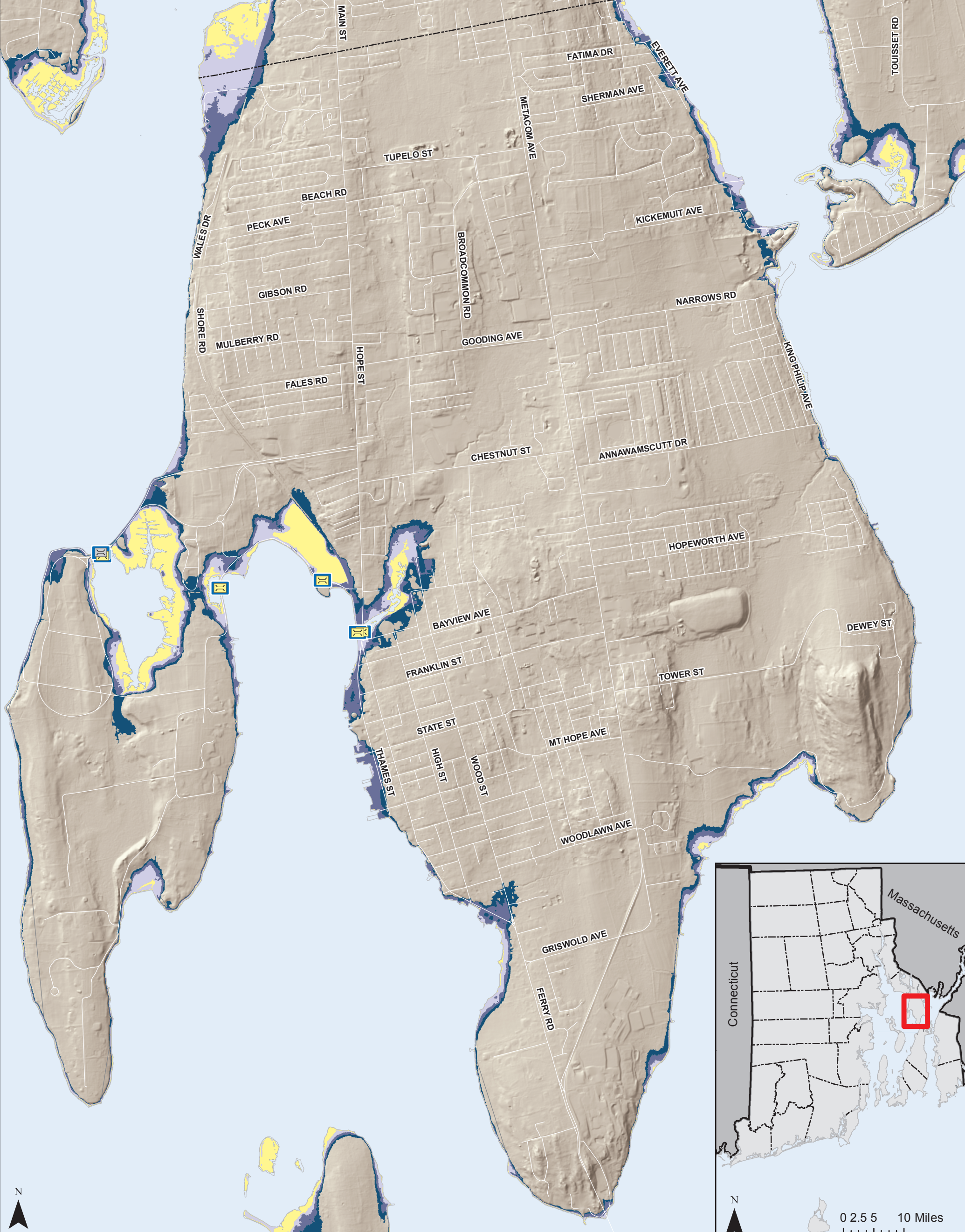
- Current Mean Higher High Water
- 1Ft Sea Level Rise
- 3Ft Sea Level Rise
- 5Ft Sea Level Rise
- 7Ft Sea Level Rise
- City and Town Boundaries
- Potentially Affected Roads
- Roads

0 0.125 0.25 0.5 Miles



Map Disclaimer: This map is not the product of a Professional Land Survey. It was created by RI Statewide Planning Program for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. RI Statewide Planning Program makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.

Relative Road Vulnerability to Sea Level Rise													
Bristol			Linear Feet of Road Inundated At:										
Muni Rank	State Rank	Road Name	1 Foot of SLR	3 Feet of SLR	5 Feet of SLR	7 Feet of SLR	Total Linear Feet	Hazard Score	Evacuation Route	Intermodal Facility	Functional Classification	System Score	Vulnerability Score
1	1	HOPE ST		315	1,762	440	2,517	4.20	Yes	Yes	Principal Art.	4.40	8.60
2	68	WALK WAY		43	3,290	66	3,399	4.89	No	No	Local	0.60	5.49
3	80	THAMES ST		265	1,948	714	2,926	4.01	No	No	Major Coll.	1.20	5.21
4	131	CLUBHOUSE LN		1,015	741	169	1,925	4.12	No	No	Local	0.60	4.72
5	154	COLT DR	5	7	1,824	1,737	3,572	2.27	Yes	No	Local	2.14	4.40
6	186	FERRY RD	15	23	83	22	144	1.71	No	No	Principal Art.	2.40	4.11
7	208	HARRISON ST		392	765	420	1,577	2.75	Yes	No	Local	1.32	4.06
8	222	POPPASQUASH RD		2,763	1,582	1,202	5,547	2.78	No	Yes	Minor Coll.	1.22	4.00
9	276	WASHINGTON ST		136	129	342	608	1.95	Yes	No	Minor Coll.	1.77	3.72
10	279	CHURCH ST			30	41	71	1.50	Yes	No	Major Coll.	2.20	3.70
11	297	OLD FERRY RD		80	534	86	700	3.02	No	No	Local	0.60	3.62
12	304	SMITH ST	46	329	80	56	511	2.97	No	No	Local	0.60	3.57
13	321	COLT STATE PARK			114	1,011	1,125	1.50	Yes	Yes	Local	2.02	3.52
14	339	ASYLUM RD			783	406	1,188	2.82	No	No	Local	0.60	3.42
15	351	HIGH ST			56	209	265	1.50	No	No	Major Coll.	1.85	3.35
16	368	SHERMAN AVE			14	84	98	1.50	Yes	No	Minor Coll.	1.78	3.28
17	370	STATE ST		1	79	85	165	1.50	Yes	No	Minor Coll.	1.77	3.27
18	409	BUTTERWORTH AVE				66	66	1.50	Yes	No	Local	1.60	3.10
19	410	NARROWS RD				5	5	1.50	Yes	No	Local	1.60	3.10
20	485	FATIMA DR				14	14	1.50	No	No	Major Coll.	1.20	2.70
21	486	FRANKLIN ST			73	47	121	1.50	No	No	Major Coll.	1.20	2.70
22	513	KICKEMUIT AVE		7	134	113	254	1.50	Yes	No	Local	1.15	2.65
23	522	WOOD ST			415	1,460	1,875	1.50	No	No	Minor Coll.	1.10	2.60
24	526	EVERETT AVE			428	786	1,214	1.50	No	No	Major Coll.	1.06	2.56
25	656	AZALEA DR		14	223	90	328	1.50	No	No	Local	0.60	2.10
26	657	BEACH RD				11	11	1.50	No	No	Local	0.60	2.10
27	658	CREEK LN				58	58	1.50	No	No	Local	0.60	2.10
28	659	FALES RD				44	44	1.50	No	No	Local	0.60	2.10
29	660	FRANCA DR				6	6	1.50	No	No	Local	0.60	2.10
30	661	HARKER AVE				241	241	1.50	No	No	Local	0.60	2.10
31	662	JOHN ST			58	41	99	1.50	No	No	Local	0.60	2.10
32	663	JONES AVE				147	147	1.50	No	No	Local	0.60	2.10
33	664	MONROE AVE			243	228	471	1.50	No	No	Local	0.60	2.10
34	665	NORTH ST			15	40	55	1.50	No	No	Local	0.60	2.10
35	666	PERRY ST			61	364	425	1.50	No	No	Local	0.60	2.10
36	667	PLANT AVE				170	170	1.50	No	No	Local	0.60	2.10
37	668	RIVERVIEW AVE			219	353	572	1.50	No	No	Local	0.60	2.10
38	669	SAN MIGUEL DR		1	121	47	168	1.50	No	No	Local	0.60	2.10
39	670	SLOCUM ST			383	79	462	1.50	No	No	Local	0.60	2.10
40	671	SPRUCE LN		60	112	84	255	1.50	No	No	Local	0.60	2.10
41	672	TREEPASS GREEN RD				381	381	1.50	No	No	Local	0.60	2.10
42	673	WALLEY ST				4	4	1.50	No	No	Local	0.60	2.10
43	674	WILCOX LN			130	307	437	1.50	No	No	Local	0.60	2.10
44	1331	CONSTITUTION ST			76	85	161	1.50	No	No	Local	0.60	2.10
45	1332	MOUNT HOPE FARM DRIVEWAY			35	264	299	1.50	No	No	Local	0.60	2.10
46	1333	OLIVER ST			56	54	110	1.50	No	No	Local	0.60	2.10
TOTAL LINEAR FEET			66	5,451	16,595	12,679	34,791						



# Sea Level Rise Scenarios Affecting Bridges

City of Bristol

Map Created: 8/10/2016

**Map Legend**

NOTES:  
 The Sea Level Rise (SLR) Inundation modified bathtub model does not take into consideration future erosion or storm surge.

Includes Hillshade from USGS 2011 LiDAR

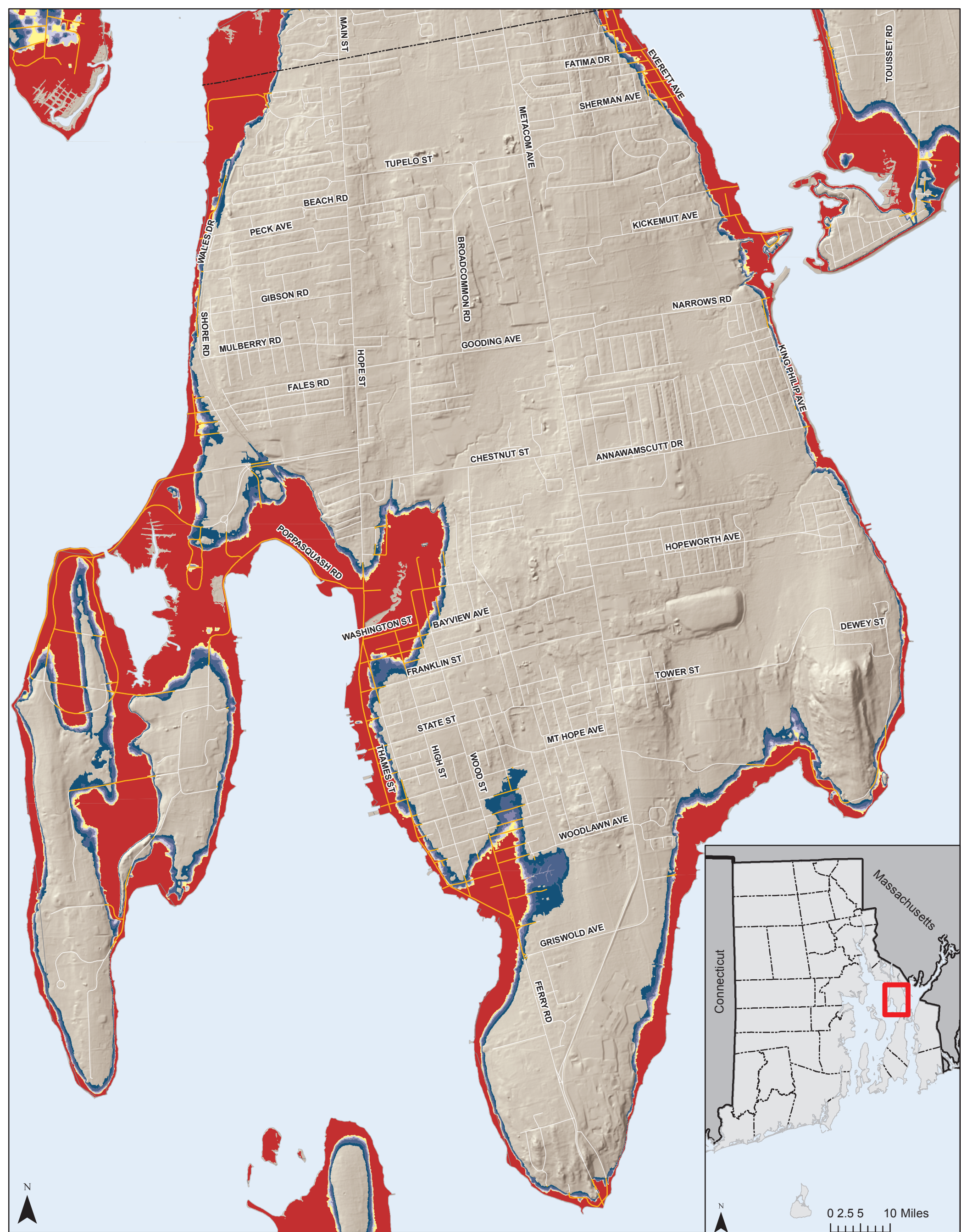
- Freeboard Potentially Affected by SLR
- Freeboard Unlikely to be Affected by SLR
- Not Exposed to SLR
- Bridge Accessible
- Possible Bridge Access Problem
- Current Mean Higher High Water
- 1Ft Sea Level Rise
- 3Ft Sea Level Rise
- 5Ft Sea Level Rise
- 7Ft Sea Level Rise
- City and Town Boundaries
- Roads

0 0.125 0.25 0.5 Miles

Map Disclaimer: This map is not the product of a Professional Land Survey. It was created by RI Statewide Planning Program for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. RI Statewide Planning Program makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.

Bridges Possibly Affected by Sea Level Rise in the Town of Bristol

Mun. Rank	State Rank	Bridge Name	Facility Carried	Feature Intersected	Inches of Freeboard Relative to 7FtSLR	Terrain Crossed	Landing Access	Hazard Score	Intermodal Facility	Evac. Route	AADT	System Score	Vuln. Score
1	1	Silver Creek	RI 114 HOPE ST	TIDAL INLET	-20	Water	Problem	4.50	Yes	Yes	18,200	5.00	9.50
2	24	Poppasquash Road	POPPASQUASH RD	TIDAL INLET	-24	Water	Problem	4.50	Yes	No	1,313	2.50	7.00
3	40	Mill Gut	COLT DRIVE	MILL GUT TIDAL INLET	18	MHHW	Problem	3.80	No	Yes	2,700	2.50	6.30
4	43	Mount Hope	RI 114	MT HP BY,N SEC RR,114 LP	-84	MHHW	Access	3.00	Yes	No	13,000	3.10	6.10
5	49	Mill Gut Bike Path	COLT STATE PARK BP	MILL GUT TIDAL INLET	-84	MHHW	Problem	5.00	Yes	No	1	1.00	6.00
6	50	Poppasquash Culvert 2	POPPASQUASH ROAD	TIDAL INLET	-8	Water	Problem	4.50	No	No	1,700	1.50	6.00
7	63	Silver Creek Clvt EBBF	E BAY BICYCLE FAC	SILVER CREEK	-31	Water	Problem	4.50	Yes	No	1	1.00	5.50



# 100 Year Storm Surge Event Plus Sea Level Rise Scenarios Affecting Roads

City of Bristol











Map Created: 8/10/2016

## Map Legend

### NOTES:

The Sea Level Rise (SLR) Inundation modified bathtub model does not take into consideration future erosion or storm surge.

Includes Hillshade from USGS 2011 LiDAR

- |   |  |   |                            |
|---|--|---|----------------------------|
|  | Current Ponds & Mean Higher High Water |  | City and Town Boundaries   |
|  | 100-Year Storm Event                   |  | Potentially Affected Roads |
|  | 100-Year Plus 1 ft. of SLR             |  | Roads                      |
|  | 100-Year Plus 2 ft. of SLR             |   |                            |
|  | 100-Year Plus 3 ft. of SLR             |   |                            |
|  | 100-Year Plus 5 ft. of SLR             |   |                            |
|  | 100-Year Plus 7 ft. of SLR             |   |                            |

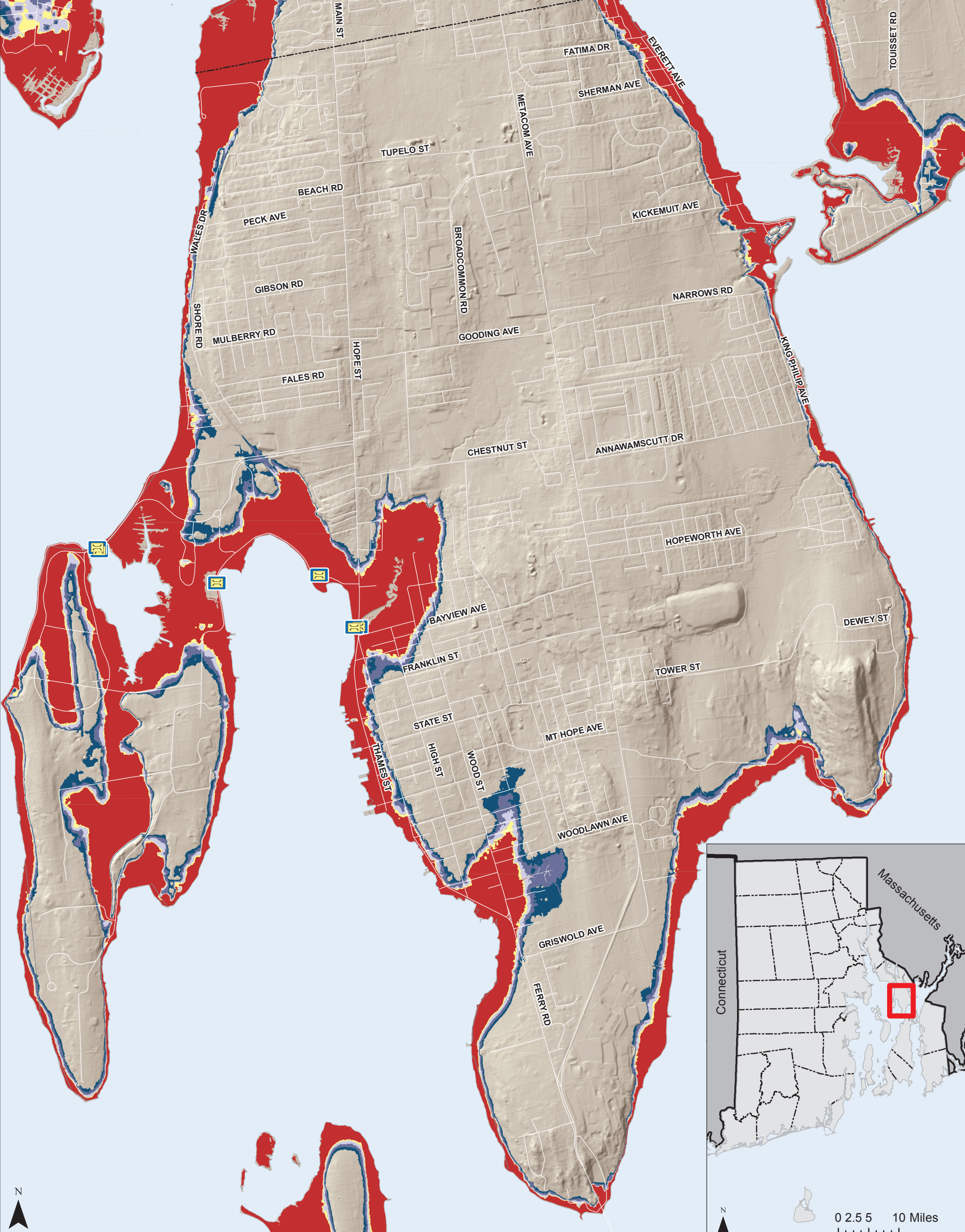
0 0.125 0.25 0.5 Miles



Map Disclaimer: This map is not the product of a Professional Land Survey. It was created by RI Statewide Planning Program for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. RI Statewide Planning Program makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.

Relative Road Vulnerability to 100-Year Storm Surge Event Plus Sea Level Rise														
Bristol			Linear Feet Inundated During 100 Year Surge Event Plus:											
Muni. Rank	State Rank	NAME	No SLR	1 Foot of SLR	3 Feet of SLR	5 Feet of SLR	7 Feet of SLR	Total Linear Feet	Haz. Score	Evac. Route	Intermodal Facility	Functional Classification	Sys. Score	Vulnerability Score
1	5	HOPE ST	5,350	241	562	432	737	7,321	4.33	Yes	Yes	Principal Art.	4.40	8.73
2	55	FERRY RD	588	126	207	178	142	1,242	3.36	Yes	Yes	Principal Art.	4.00	7.36
3	118	BAYVIEW AVE	415	38	92	78	54	677	3.76	Yes	No	Minor Art.	2.80	6.56
4	122	WASHINGTON ST	1,233					1,233	5.00	Yes	No	Minor Coll.	1.53	6.53
5	141	THAMES ST	3,824					3,824	5.00	No	No	Major Coll.	1.34	6.34
6	173	SHERMAN AVE	339	23	47	37	37	482	4.06	Yes	No	Major Coll.	2.12	6.17
7	179	COLT DR	8,670	380	1,074	528	489	11,141	4.49	Yes	No	Local	1.60	6.09
8	183	STATE ST	297	17	41	34	38	426	4.02	Yes	No	Minor Coll.	2.04	6.05
9	197	KICKEMUIT AVE	340	10	20	20	24	414	4.38	Yes	No	Minor Coll.	1.56	5.94
10	199	EVERETT AVE	1,685					1,685	5.00	No	No	Minor Coll.	0.93	5.93
11	211	WOODLAWN AVE	412	51	75	75	103	717	3.66	Yes	No	Major Coll.	2.20	5.86
12	214	CHURCH ST	209	27	41	42	48	366	3.64	Yes	No	Major Coll.	2.20	5.84
13	215	WOOD ST	3,589	83	167	130	146	4,114	4.59	No	No	Minor Coll.	1.25	5.84
14	228	POPPASQUASH RD	6,581	187	321	412	388	7,888	4.52	No	No	Minor Coll.	1.25	5.77
15	236	HARRISON ST	1,821	23	52	74	186	2,157	4.48	Yes	No	Local	1.24	5.72
16	238	BUTTERWORTH AVE	242	13	27	20	23	325	4.10	Yes	No	Local	1.60	5.70
17	436	AZALEA DR	328					328	5.00	No	No	Local	0.60	5.60
18	437	BAY ST	508					508	5.00	No	No	Local	0.60	5.60
19	438	BROOKWOOD RD	652					652	5.00	No	No	Local	0.60	5.60
20	439	CLUBHOUSE LN	2,054					2,054	5.00	No	No	Local	0.60	5.60
21	440	CREEK LN	361					361	5.00	No	No	Local	0.60	5.60
22	441	HARKER AVE	290					290	5.00	No	No	Local	0.60	5.60
23	442	JONES AVE	406					406	5.00	No	No	Local	0.60	5.60
24	443	NORTH ST	198					198	5.00	No	No	Local	0.60	5.60
25	444	PAWTUCKET AVE	491					491	5.00	No	No	Local	0.60	5.60
26	445	RIVERVIEW AVE	572					572	5.00	No	No	Local	0.60	5.60
27	446	SLOCUM ST	462					462	5.00	No	No	Local	0.60	5.60
28	447	SPRUCE LN	377					377	5.00	No	No	Local	0.60	5.60
29	448	WILCOX LN	494					494	5.00	No	No	Local	0.60	5.60
30	1,068	WALK WAY	3,566	16	35	37	41	3,695	4.89	No	No	Local	0.63	5.52
31	1,161	COLT STATE PARK	3,313	197	338	205	710	4,762	4.16	No	No	Local	1.18	5.35
32	1,213	PAULL ST	654	49	145			848	4.65	No	No	Local	0.60	5.25
33	1,220	SMITH ST	609	17	20	20	23	690	4.64	No	No	Local	0.60	5.24
34	1,273	WALLEY ST	778	48	109	355		1,289	3.68	Yes	No	Local	1.47	5.16
35	1,285	RELIANCE DR	516	13	26	20	20	595	4.54	No	No	Local	0.60	5.14
36	1,332	HIGH ST	896	68	164	191	195	1,515	3.66	No	No	Major Coll.	1.37	5.03
37	1,335	MOUNT HOPE FARM DRIVEWAY	2,811	305	673	501	252	4,543	4.42	No	No	Local	0.60	5.02
38	1,342	PERRY ST	655	20	40	50	37	801	4.41	No	No	Local	0.60	5.01
39	1,346	OLIVER ST	860	166	262	67	60	1,416	4.41	No	No	Local	0.60	5.01
40	1,373	OLD FERRY RD	1,106	102	164	53	53	1,479	4.36	No	No	Local	0.60	4.96
41	1,498	NARROWS RD	84	14	27	27	24	176	3.17	Yes	No	Local	1.62	4.79
42	1,505	FRANKLIN ST	250	27	71	88	115	552	3.18	No	No	Major Coll.	1.59	4.78
43	1,535	TREEPASS GREEN RD	605	30	62	66	66	828	4.13	No	No	Local	0.60	4.73
44	1,595	NORTH LN	201	7	20	20	30	277	4.04	No	No	Local	0.60	4.64
45	1,604	BEACH RD	160	23	23	17	17	241	4.03	No	No	Local	0.60	4.63
46	1,610	MONROE AVE	850	43	138	98	88	1,218	4.01	No	No	Local	0.60	4.61
47	1,616	GARFIELD AVE	496	25	70	55	68	715	4.00	No	No	Local	0.60	4.60
48	1,623	CONSTITUTION ST	347	27	59	76	106	615	3.56	No	No	Minor Coll.	1.03	4.60
49	1,633	ASYLUM RD	1,527	23	47	262	643	2,501	3.66	No	No	Local	0.93	4.58
50	1,677	FATIMA DR	216	33	73	79	56	458	3.30	No	No	Major Coll.	1.20	4.50
51	1,686	SAN MIGUEL DR	332	23	67	43	40	506	3.89	No	No	Local	0.60	4.49
52	1,735	ANAWAN AVE	571	99	119	79	81	949	3.81	No	No	Local	0.60	4.41
53	1,761	JOHN ST	206	10	38	31	31	316	3.78	No	No	Local	0.60	4.38
54	1,777	FALES RD	235	30	53	69	93	480	3.34	No	No	Minor Coll.	1.01	4.35
55	1,780	VALLY RD	680	76	126	129	119	1,130	3.74	No	No	Local	0.60	4.34
56	1,827	LOVELAND ST	91	10	16	16	13	147	3.67	No	No	Local	0.60	4.27
57	1,921	CLAM SHELL RD	740	73	89	543	457	1,902	3.51	No	No	Local	0.60	4.11
58	1,986	HILLSIDE RD	157	16	36	33	56	298	3.45	No	No	Local	0.60	4.05
59	1,998	SUMMER ST	106	10	24	27	24	192	3.44	No	No	Local	0.60	4.04
60	2,023	FENMORE ST	518	104	213	165	271	1,272	3.41	No	No	Local	0.60	4.01
61	2,036	BRADFORD ST	138	34	41	44	34	291	3.39	No	No	Local	0.60	3.99
62	2,042	SURF DR	663	65	194	363	164	1,449	3.37	No	No	Local	0.60	3.97
63	2,052	NORTH FARM DR	115	25	38	34	33	244	3.35	No	No	Local	0.60	3.95
64	2,089	FRANCA DR	141	20	46	50	43	300	3.28	No	No	Local	0.60	3.88
65	2,146	PLANT AVE	408	27	58	87	298	879	3.19	No	No	Local	0.60	3.79
66	2,178	ANNAWAMSCUTT DR	38	13	25	22	27	125	2.11	Yes	No	Local	1.60	3.71
67	2,197	COLLINS ST		272	233	194	76	774	3.07	No	No	Local	0.60	3.67
68	2,211	THAYER ST	122	50	82	49	40	344	3.03	No	No	Local	0.60	3.63
69	2,283	BURNSIDE ST	100	25	51	58	62	296	2.85	No	No	Local	0.60	3.45
70	2,320	SHORE RD			547	438	139	1,125	2.47	No	No	Minor Coll.	0.86	3.33

Muni. Rank	State Rank	NAME	No SLR	1 Foot of SLR	3 Feet of SLR	5 Feet of SLR	7 Feet of SLR	Total Linear Feet	Haz. Score	Evac. Route	Intermodal Facility	Functional Classification	Sys. Score	Vulnerability Score
71	2,335	HAWTHORNE AVE	147	33	77	103	123	483	2.70	No	No	Local	0.60	3.30
72	2,369	COLE ST			346	135	119	600	2.65	No	No	Local	0.60	3.25
73	2,391	CHURCH COVE RD	53	20	43	40	47	203	2.61	No	No	Local	0.60	3.21
74	2,411	FAIRVIEW DR	114	37	96	98	106	451	2.55	No	No	Local	0.60	3.15
75	2,469	CURTIS RD	53	17	56	33	83	243	2.41	No	No	Local	0.60	3.01
76	2,516	BOGGS ST	46	17	32	32	41	168	2.25	No	No	Local	0.60	2.85
77	2,525	SUNRISE DR	28	7	13	17	13	78	2.22	No	No	Local	0.60	2.82
78	2,562	GIBSON RD					8	8	1.50	No	No	Major Coll.	1.20	2.70
79	2,563	GRISWOLD AVE				18	100	118	1.50	No	No	Major Coll.	1.20	2.70
80	2,564	KING PHILIP AVE				5	679	684	1.50	No	No	Major Coll.	1.20	2.70
81	2,618	BURTON ST	45	17	51	42	83	239	2.02	No	No	Local	0.60	2.62
82	2,621	DORAN AVE	35	70	97	124	84	410	2.01	No	No	Local	0.60	2.61
83	2,679	SHEFFIELD AVE	23	26	66	66	73	254	1.89	No	No	Local	0.60	2.49
84	2,687	HARBOR VIEW AVE	67	33	122	356	276	854	1.85	No	No	Local	0.60	2.45
85	2,715	PLEASANT ST	7	15	34	37	34	127	1.74	No	No	Local	0.60	2.34
86	2,791	BAKER ST			26	86	198	310	1.50	No	No	Local	0.60	2.10
87	2,792	BRISTOL POINT RD					2	2	1.50	No	No	Local	0.60	2.10
88	2,793	BYFIELD ST					16	16	1.50	No	No	Local	0.60	2.10
89	2,794	CATHERINE ST					20	20	1.50	No	No	Local	0.60	2.10
90	2,795	CHARLES ST				494	244	738	1.50	No	No	Local	0.60	2.10
91	2,796	DIVISION ST					1	1	1.50	No	No	Local	0.60	2.10
92	2,797	GORHAM PL					252	252	1.50	No	No	Local	0.60	2.10
93	2,798	MARSHALL CT					67	67	1.50	No	No	Local	0.60	2.10
94	2,799	MASTERSON ST				5	46	51	1.50	No	No	Local	0.60	2.10
95	2,800	PORTSIDE RD					7	7	1.50	No	No	Local	0.60	2.10
96	2,801	PROSPECT ST					314	314	1.50	No	No	Local	0.60	2.10
97	2,802	RICHMOND ST					565	565	1.50	No	No	Local	0.60	2.10
98	2,803	WEST HARBOR RD					47	47	1.50	No	No	Local	0.60	2.10
99	3,255	AARON AVE				13	20	33	1.50	No	No	Local	0.60	2.10
100	3,256	HOWE ST			9	41	61	111	1.50	No	No	Local	0.60	2.10
101	3,257	LINCOLN AVE			155	113	72	340	1.50	No	No	Local	0.60	2.10
102	3,258	PECK ROCK RD		11	20	17	20	67	1.50	No	No	Local	0.60	2.10
103	3,259	RESOLUTE LN			28	102		130	1.50	No	No	Local	0.60	2.10
		Total Linear Feet	69,268	3,765	8,661	8,800	10,937	101,430						



# 100 Year Storm Surge Event Plus Sea Level Rise Scenarios Affecting Bridges

City of Bristol

Map Created: 8/10/2016

**Map Legend**

NOTES:  
 The Sea Level Rise (SLR) Inundation modified bathtub model does not take into consideration future erosion or storm surge.  
 Includes Hillshade from USGS 2011 LiDAR

	Freeboard Potentially Affected by Surge		100-Year Storm Event		City and Town Boundaries
	Freeboard Unlikely to be Affected by Surge		100-Year Plus 1 ft. of SLR		Roads
	Not Exposed to Surge		100-Year Plus 3 ft. of SLR		
	Bridge Accessible		100-Year Plus 5 ft. of SLR		
	Possible Bridge Access Problem		100-Year Plus 7 ft. of SLR		

0 0.125 0.25 0.5 Miles

Map Disclaimer: This map is not the product of a Professional Land Survey. It was created by RI Statewide Planning Program for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. RI Statewide Planning Program makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.



Relative Bridge Vulnerability to 100-Year Storm Surge Event Plus Sea Level Rise in the City of Bristol

Mun. Rank	State Rank	Bridge Name	Facility Carried	Feature Intersected	Inches of Freeboard Relative to 7FtSLR	Terrain Crossed	Landing Access	Haz. Score	Intermodal Facility	Evac. Route	AADT	Sys. Score	Vuln. Score
1	3	Silver Creek	RI 114 HOPE ST	TIDAL INLET	-185	Water	Problem	4.50	Yes	Yes	18,200	5.00	9.50
2	51	Mill Gut	COLT DRIVE	MILL GUT TIDAL INLET	-150	MHHW	Problem	5.00	No	Yes	2,700	1.60	6.60
3	64	Poppasquash Road	POPPASQUASH RD	TIDAL INLET	-189	Water	Problem	4.50	Yes	No	1,313	1.60	6.10
4	74	Mill Gut Bike Path	COLT STATE PARK BP	MILL GUT TIDAL INLET	-228	MHHW	Problem	5.00	Yes	No		1.00	6.00
5	84	Mount Hope	RI 114	MT HP BY,N SEC RR,114 LP	-228	MHHW	Access	3.00	Yes	No	13,000	2.80	5.80
6	100	Silver Creek Clvt EBBF	E BAY BICYCLE FAC	SILVER CREEK	-196	Water	Problem	4.50	Yes	No		1.00	5.50
7	107	Poppasquash Culvert 2	POPPASQUASH ROAD	TIDAL INLET	-173	Water	Problem	4.50	No	No	1,700	0.60	5.10