

**HOLISTIC WATERSHED MANAGEMENT FOR EXISTING AND FUTURE LAND  
USE DEVELOPMENT ACTIVITIES: OPPORTUNITIES FOR ACTION FOR LOCAL  
DECISION MAKERS: PHASE 2 – FDC APPLICATION MODELING  
(FDC 2A PROJECT)**

**SUPPORT FOR SOUTHEAST NEW ENGLAND PROGRAM (SNEP)  
COMMUNICATIONS STRATEGY AND TECHNICAL ASSISTANCE**

**FINAL REPORT APPENDIX A  
EXISTING AND FUTURE IMPERVIOUS COVER AND HYDROLOGIC AND  
WATER QUALITY LOADING BY MUNICIPALITY WITHIN THE  
TAUNTON RIVER WATERSHED  
SEPTEMBER 30, 2022**

Prepared for:

**U.S. EPA Region 1**



Prepared by:

**Paradigm Environmental**



**Great Lakes Environmental Center**



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## Impervious Cover by Municipality within the Taunton River Watershed

Table 1. Summary of 2016 baseline impervious cover by the municipality in the Taunton River watershed

Municipality		2016 Baseline Impervious Cover (acre)						
ID	Name	TRANS	COM	IND	HDR	MDR	LDR	OPEN
1	ABINGTON	277.6	153.7	2.8	99.7	4.0	294.1	88.4
16	ATTLEBORO	117.0	10.8	51.4	13.0	0.0	142.2	20.3
18	AVON	185.1	109.2	161.8	15.4	0.4	90.8	40.9
27	BERKLEY	259.5	22.0	3.6	14.7	30.3	230.6	48.6
42	BRIDGEWATER	594.6	144.3	82.8	195.4	18.8	564.3	343.1
44	BROCKTON	1,427.7	788.8	227.9	550.9	16.1	1,113.1	662.4
52	CARVER	145.8	47.8	9.1	5.0	2.8	76.3	15.1
72	DARTMOUTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0
76	DIGHTON	227.0	77.7	50.1	26.6	16.8	213.2	106.2
83	EAST BRIDGEWATER	360.2	89.8	71.6	65.8	15.4	382.8	128.6
88	EASTON	564.4	179.6	94.6	113.6	2.2	620.8	272.6
95	FALL RIVER	350.8	120.0	231.9	170.6	9.6	142.3	137.0
99	FOXBOROUGH	512.8	220.8	51.1	85.7	10.6	333.1	144.1
102	FREETOWN	399.8	98.6	176.2	20.2	45.5	287.9	126.2
118	HALIFAX	186.2	72.1	16.1	55.5	19.5	241.9	55.5
123	HANSON	142.1	38.1	37.2	20.6	6.6	153.1	60.3
133	HOLBROOK	46.6	13.5	6.0	5.3	1.2	52.4	5.8
145	KINGSTON	41.3	0.0	0.0	0.2	0.0	19.1	25.1
146	LAKEVILLE	369.8	126.6	83.3	41.2	6.7	502.8	122.3
167	MANSFIELD	643.4	256.3	362.0	118.2	4.9	502.6	129.9
182	MIDDLEBOROUGH	830.7	287.4	85.6	108.1	160.3	565.0	206.3
201	NEW BEDFORD	44.4	7.7	0.0	5.3	0.7	37.4	8.0
208	NORFOLK	0.5	0.0	0.0	0.0	0.0	1.6	0.0
211	NORTH ATTLEBOROUGH	3.4	0.2	0.0	0.0	0.0	4.5	0.6
218	NORTON	471.6	133.2	140.0	154.4	28.1	404.0	145.6
231	PEMBROKE	34.3	2.7	1.4	4.2	1.0	46.7	7.8
238	PLAINVILLE	141.3	139.7	27.6	48.4	0.2	76.7	42.2
239	PLYMOUTH	18.1	59.4	0.0	18.2	0.0	4.5	0.6
240	PLYMPTON	100.8	65.8	13.6	8.0	13.3	97.1	23.8
245	RAYNHAM	534.9	355.5	81.9	87.6	11.8	368.5	156.0
247	REHOBOTH	23.1	3.7	0.0	3.4	0.3	28.3	2.5
250	ROCHESTER	27.2	0.0	0.0	2.6	1.4	19.3	6.6
251	ROCKLAND	3.4	3.6	0.0	1.0	0.0	2.7	0.0
266	SHARON	193.9	14.4	0.1	2.4	0.0	180.7	16.9
273	SOMERSET	314.1	88.6	34.9	43.9	2.8	408.8	91.5

Municipality		2016 Baseline Impervious Cover (acre)						
ID	Name	TRANS	COM	IND	HDR	MDR	LDR	OPEN
285	STOUGHTON	240.8	95.4	125.3	20.0	6.4	228.9	54.5
292	SWANSEA	36.8	0.6	0.0	2.9	0.3	45.6	9.1
293	TAUNTON	1,215.3	729.9	305.4	568.3	12.3	910.5	545.6
307	WALPOLE	1.8	0.0	0.0	0.0	0.0	2.3	0.0
322	WEST BRIDGEWATER	326.5	176.0	153.9	44.5	26.8	199.5	111.7
336	WEYMOUTH	3.6	0.0	0.0	0.4	0.0	3.9	0.1
338	WHITMAN	278.7	93.5	49.2	91.5	9.6	258.6	90.4
350	WRENTHAM	154.9	31.1	6.3	22.7	2.5	92.1	72.0
<b>Total</b>		<b>11,852</b>	<b>4,858</b>	<b>2,745</b>	<b>2,856</b>	<b>489</b>	<b>9,951</b>	<b>4,124</b>

Land cover classes: TRANS – transportation, COM – commercial, IND – industrial, HDR – high-density residential, MDR – medium-density residential, LDR – low-density residential, OPEN – open land

**Table 2. Summary of 2060 future impervious cover by municipality in Taunton River watershed**

Municipality		2060 Future Impervious Cover (acre)						
ID	Name	TRANS	COM	IND	HDR	MDR	LDR	OPEN
1	ABINGTON	476.4	239.4	4.3	155.3	7.2	535.7	160.9
16	ATTLEBORO	242.4	14.8	70.8	18.0	0.0	340.1	48.7
18	AVON	280.4	139.1	206.1	19.6	0.8	185.0	83.3
27	BERKLEY	634.4	37.2	6.2	24.9	76.9	586.1	123.4
42	BRIDGEWATER	1,096.1	234.9	134.8	318.1	36.6	1,095.8	666.3
44	BROCKTON	1,933.9	1,007.0	290.9	703.3	23.0	1,583.7	942.4
52	CARVER	340.2	75.7	14.4	8.0	7.9	215.8	42.8
72	DARTMOUTH	0.2	0.0	0.0	0.0	0.0	0.3	0.2
76	DIGHTON	514.3	92.1	59.3	31.6	46.4	588.9	293.2
83	EAST BRIDGEWATER	769.6	171.6	136.9	125.9	34.4	855.1	287.1
88	EASTON	1,081.4	222.8	117.4	140.9	4.9	1,371.0	602.0
95	FALL RIVER	475.9	150.8	291.4	214.4	14.7	218.8	210.5
99	FOXBOROUGH	947.0	275.0	63.7	106.7	24.2	762.2	329.6
102	FREETOWN	838.7	129.4	231.3	26.5	118.2	749.0	328.3
118	HALIFAX	332.7	86.7	19.4	66.8	40.0	496.2	113.8
123	HANSON	272.9	49.3	48.2	26.7	14.4	335.9	132.4
133	HOLBROOK	107.4	39.6	17.6	15.6	2.4	106.8	11.8
145	KINGSTON	125.0	0.0	0.0	6.5	0.0	55.3	72.5
146	LAKEVILLE	756.4	163.3	107.5	53.2	15.8	1,179.3	287.0
167	MANSFIELD	1,109.9	381.8	539.2	176.0	9.9	1,003.6	259.4
182	MIDDLEBOROUGH	1,757.4	420.5	125.3	158.2	393.2	1,385.6	506.0
201	NEW BEDFORD	71.7	14.9	0.0	10.2	1.1	57.1	12.3
208	NORFOLK	1.3	0.3	0.2	0.2	0.0	3.5	0.0
211	NORTH ATTLEBOROUGH	9.7	0.8	0.0	0.0	0.0	12.5	1.6

Municipality		2060 Future Impervious Cover (acre)						
ID	Name	TRANS	COM	IND	HDR	MDR	LDR	OPEN
218	NORTON	988.8	192.8	202.5	223.5	72.3	1,041.2	375.2
231	PEMBROKE	63.7	4.2	2.2	6.4	2.0	88.9	14.8
238	PLAINVILLE	257.4	212.6	42.0	73.6	0.4	181.3	99.8
239	PLYMOUTH	22.5	67.8	0.0	20.7	0.0	12.5	1.6
240	PLYMPTON	224.0	76.3	15.7	9.3	38.6	283.1	69.4
245	RAYNHAM	1,038.7	560.2	129.1	138.1	27.2	847.7	358.7
247	REHOBOTH	60.5	4.8	0.0	4.4	0.7	82.7	7.4
250	ROCHESTER	58.4	0.0	0.0	4.3	3.1	42.3	14.4
251	ROCKLAND	5.3	4.1	0.0	1.2	0.0	6.0	0.0
266	SHARON	452.9	21.8	0.1	3.6	0.0	434.8	40.7
273	SOMERSET	458.4	139.2	54.9	68.9	4.0	581.5	130.1
285	STOUGHTON	470.6	184.7	242.5	38.7	12.6	450.8	107.4
292	SWANSEA	86.7	0.9	0.0	4.4	0.6	109.8	21.9
293	TAUNTON	2,053.5	1,052.2	440.3	819.1	24.2	1,785.2	1,069.9
307	WALPOLE	4.5	0.6	0.3	0.3	0.0	4.9	0.0
322	WEST BRIDGEWATER	536.4	230.3	201.5	58.2	53.9	401.5	225.0
336	WEYMOUTH	6.6	0.0	0.0	1.8	0.0	6.2	0.2
338	WHITMAN	426.1	126.2	66.4	123.6	15.7	425.5	148.8
350	WRENTHAM	318.3	47.0	9.6	34.3	5.7	207.5	162.2
<b>Total</b>		<b>21,709</b>	<b>6,873</b>	<b>3,892</b>	<b>4,041</b>	<b>1,133</b>	<b>20,717</b>	<b>8,363</b>

Land cover classes: TRANS – transportation, COM – commercial, IND – industrial, HDR – high-density residential, MDR – medium-density residential, LDR – low-density residential, OPEN – open land

## Surface Runoff, Groundwater Recharge, Evapotranspiration, and Nutrient Loads by Municipality within the Taunton River Watershed

**Table 3. Summary of annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load for 2016 baseline condition by the municipality in Taunton River watershed**

Municipality		2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	920	2,726	1,546	3,243	18,195	2,542
16	ATTLEBORO	355	1,631	1,417	2,995	8,482	1,268
18	AVON	603	1,158	626	1,071	9,495	1,240
27	BERKLEY	609	3,799	3,587	6,791	20,446	3,218
42	BRIDGEWATER	1,943	7,372	5,522	11,025	48,960	7,333
44	BROCKTON	4,787	8,591	3,752	6,125	71,987	9,585
52	CARVER	302	1,238	1,623	2,446	9,849	1,522
72	DARTMOUTH	0	1	2	3	6	1
76	DIGHTON	718	4,455	3,470	7,474	25,278	3,991
83	EAST BRIDGEWATER	1,114	4,800	3,249	6,955	30,073	4,486
88	EASTON	1,848	7,227	5,891	12,015	40,785	6,031
95	FALL RIVER	1,162	2,714	1,545	2,867	21,233	3,006
99	FOXBOROUGH	1,358	3,934	3,894	6,261	24,670	3,537
102	FREETOWN	1,154	6,474	6,652	12,528	34,845	5,446
118	HALIFAX	647	3,730	3,130	6,700	26,500	4,183
123	HANSON	458	2,300	1,595	3,804	13,406	2,056
133	HOLBROOK	131	495	291	660	2,997	434
145	KINGSTON	86	284	654	811	1,499	223
146	LAKEVILLE	1,253	6,440	6,762	12,240	37,043	5,645
167	MANSFIELD	2,017	5,311	4,296	7,401	35,360	4,883
182	MIDDLEBOROUGH	2,244	12,026	11,076	22,048	72,474	11,413
201	NEW BEDFORD	104	237	142	259	1,667	222
208	NORFOLK	2	6	6	9	41	5
211	NORTH ATTLEBOROUGH	9	47	55	93	278	42
218	NORTON	1,477	6,269	6,376	11,759	33,113	4,972
231	PEMBROKE	98	261	324	435	2,296	334
238	PLAINVILLE	476	1,233	1,091	1,726	8,820	1,245
239	PLYMOUTH	101	154	126	123	1,464	191
240	PLYMPTON	322	2,513	2,155	4,778	15,786	2,570
245	RAYNHAM	1,596	5,287	4,360	8,256	32,710	4,717
247	REHOBOTH	61	412	379	779	2,257	363
250	ROCHESTER	57	402	639	1,071	1,701	279

Municipality		2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
251	ROCKLAND	11	26	15	30	188	25
266	SHARON	408	1,658	2,194	3,511	8,621	1,291
273	SOMERSET	985	2,163	993	1,676	17,565	2,259
285	STOUGHTON	771	2,345	1,744	3,205	15,386	2,142
292	SWANSEA	95	504	288	677	3,316	491
293	TAUNTON	4,287	12,032	10,605	18,125	78,324	11,208
307	WALPOLE	4	14	8	16	93	13
322	WEST BRIDGEWATER	1,039	4,491	2,484	6,522	29,716	4,499
336	WEYMOUTH	8	50	33	106	183	29
338	WHITMAN	871	2,523	875	2,524	17,449	2,439
350	WRENTHAM	382	1,416	1,571	2,504	7,869	1,201
<b>Total</b>		<b>36,874</b>	<b>130,750</b>	<b>107,047</b>	<b>203,647</b>	<b>832,428</b>	<b>122,579</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 4. Summary of annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load for 2060 future condition by municipality in Taunton River watershed**

Municipality		2060 Future Condition, Historic Climate					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	1,579	3,454	1,342	2,712	26,709	3,439
16	ATTLEBORO	735	2,100	1,264	2,674	13,348	1,775
18	AVON	914	1,524	496	832	13,451	1,677
27	BERKLEY	1,489	4,842	3,258	6,067	31,592	4,426
42	BRIDGEWATER	3,582	9,316	4,911	9,672	69,842	9,654
44	BROCKTON	6,484	10,559	3,056	4,836	93,426	12,065
52	CARVER	705	1,742	1,418	2,144	14,407	2,060
72	DARTMOUTH	1	2	1	3	15	2
76	DIGHTON	1,626	5,539	3,174	6,674	37,246	5,196
83	EAST BRIDGEWATER	2,381	6,204	2,858	5,927	45,588	6,047
88	EASTON	3,540	9,344	5,227	10,539	62,633	8,340
95	FALL RIVER	1,577	3,174	1,372	2,577	26,310	3,604
99	FOXBOROUGH	2,508	5,364	3,400	5,313	39,155	5,173
102	FREETOWN	2,421	8,037	6,107	11,495	50,541	7,171
118	HALIFAX	1,156	4,368	2,929	6,256	32,996	4,874
123	HANSON	880	2,800	1,459	3,435	19,116	2,649
133	HOLBROOK	301	674	238	533	5,138	660
145	KINGSTON	259	511	563	673	3,501	484
146	LAKEVILLE	2,562	8,098	6,242	11,084	54,582	7,511

Municipality		2060 Future Condition, Historic Climate					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
167	MANSFIELD	3,480	7,051	3,657	6,286	54,354	7,066
182	MIDDLEBOROUGH	4,746	15,034	10,146	19,941	107,423	15,483
201	NEW BEDFORD	167	312	114	212	2,460	316
208	NORFOLK	5	10	5	6	89	10
211	NORTH ATTLEBOROUGH	25	67	48	81	463	60
218	NORTON	3,096	8,265	5,705	10,415	53,583	7,265
231	PEMBROKE	182	371	284	364	3,314	450
238	PLAINVILLE	867	1,691	916	1,439	13,670	1,797
239	PLYMOUTH	125	184	112	107	1,798	232
240	PLYMPTON	716	2,991	2,027	4,422	21,571	3,201
245	RAYNHAM	3,100	7,068	3,746	7,073	51,933	6,881
247	REHOBOTH	161	531	341	697	3,401	473
250	ROCHESTER	123	484	611	1,017	2,555	383
251	ROCKLAND	17	33	13	25	263	33
266	SHARON	954	2,353	1,935	3,069	15,329	2,061
273	SOMERSET	1,437	2,683	815	1,330	23,430	2,885
285	STOUGHTON	1,507	3,175	1,458	2,655	24,833	3,177
292	SWANSEA	224	648	252	567	4,924	640
293	TAUNTON	7,244	15,600	9,323	15,809	116,482	15,689
307	WALPOLE	11	21	6	11	178	21
322	WEST BRIDGEWATER	1,707	5,219	2,283	5,987	38,203	5,383
336	WEYMOUTH	15	58	30	101	268	40
338	WHITMAN	1,332	2,981	785	2,150	23,301	3,004
350	WRENTHAM	784	1,911	1,398	2,178	12,774	1,770
<b>Total</b>		<b>66,727</b>	<b>166,393</b>	<b>95,326</b>	<b>179,388</b>	<b>1,216,193</b>	<b>165,124</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 5. Summary of annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load for the 2060 future condition and the Ecodeficit 8.5 Dry climate scenario by municipality in Taunton River watershed**

Municipality		2060 Future Condition, Ecodeficit 8.5 Dry					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	1,579	3,193	1,221	3,068	24,600	3,076
16	ATTLEBORO	735	1,877	1,106	3,040	12,184	1,567
18	AVON	914	1,459	458	930	12,560	1,515
27	BERKLEY	1,489	4,289	2,908	6,920	28,520	3,885
42	BRIDGEWATER	3,582	8,432	4,419	10,970	63,586	8,544

Municipality		2060 Future Condition, Ecodeficit 8.5 Dry					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
44	BROCKTON	6,484	10,156	2,883	5,376	87,262	10,922
52	CARVER	705	1,582	1,282	2,429	13,104	1,822
72	DARTMOUTH	1	2	1	3	13	2
76	DIGHTON	1,626	4,892	2,815	7,618	33,500	4,548
83	EAST BRIDGEWATER	2,381	5,626	2,583	6,725	41,552	5,357
88	EASTON	3,540	8,431	4,640	11,971	57,398	7,404
95	FALL RIVER	1,577	2,954	1,228	2,922	24,233	3,220
99	FOXBOROUGH	2,508	4,950	3,065	6,031	36,197	4,629
102	FREETOWN	2,421	7,081	5,366	13,127	45,640	6,282
118	HALIFAX	1,156	3,823	2,573	7,113	29,431	4,245
123	HANSON	880	2,487	1,276	3,904	17,251	2,322
133	HOLBROOK	301	621	214	604	4,714	587
145	KINGSTON	259	474	508	765	3,274	437
146	LAKEVILLE	2,562	7,177	5,554	12,625	49,453	6,602
167	MANSFIELD	3,480	6,557	3,299	7,106	50,446	6,342
182	MIDDLEBOROUGH	4,746	13,335	8,958	22,696	96,812	13,594
201	NEW BEDFORD	167	294	104	238	2,284	284
208	NORFOLK	5	10	4	7	83	9
211	NORTH ATTLEBOROUGH	25	60	43	92	424	54
218	NORTON	3,096	7,438	5,060	11,837	49,139	6,450
231	PEMBROKE	182	345	261	412	3,039	400
238	PLAINVILLE	867	1,580	831	1,628	12,688	1,615
239	PLYMOUTH	125	179	105	119	1,695	211
240	PLYMPTON	716	2,601	1,773	5,034	19,171	2,779
245	RAYNHAM	3,100	6,481	3,357	8,008	47,793	6,133
247	REHOBOTH	161	469	301	794	3,075	415
250	ROCHESTER	123	418	531	1,161	2,301	334
251	ROCKLAND	17	31	12	28	244	29
266	SHARON	954	2,130	1,722	3,493	14,112	1,832
273	SOMERSET	1,437	2,533	786	1,489	21,682	2,597
285	STOUGHTON	1,507	2,942	1,318	3,008	22,918	2,838
292	SWANSEA	224	583	232	644	4,448	564
293	TAUNTON	7,244	14,388	8,373	17,894	107,753	14,051
307	WALPOLE	11	20	6	12	163	19
322	WEST BRIDGEWATER	1,707	4,656	1,985	6,798	34,421	4,719
336	WEYMOUTH	15	51	24	114	243	34
338	WHITMAN	1,332	2,755	711	2,427	21,354	2,677



Municipality		2060 Future Condition, Ecodeficit 8.5 Dry					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
350	WRENTHAM	784	1,736	1,256	2,481	11,729	1,572
<b>Total</b>		<b>66,727</b>	<b>151,099</b>	<b>85,151</b>	<b>203,665</b>	<b>1,112,485</b>	<b>146,521</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 6. Summary of annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load for the 2060 future condition and the Ecodeficit 8.5 Median climate scenario by municipality in Taunton River watershed**

Municipality		2060 Future Condition, Ecodeficit 8.5 Median					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	1,579	3,293	1,272	2,962	25,361	3,186
16	ATTLEBORO	735	1,964	1,162	2,931	12,567	1,624
18	AVON	914	1,487	476	903	12,942	1,569
27	BERKLEY	1,489	4,494	3,043	6,659	29,410	4,024
42	BRIDGEWATER	3,582	8,770	4,610	10,582	65,605	8,855
44	BROCKTON	6,484	10,336	2,977	5,231	89,915	11,310
52	CARVER	705	1,642	1,338	2,344	13,494	1,884
72	DARTMOUTH	1	2	1	3	14	2
76	DIGHTON	1,626	5,133	2,949	7,329	34,626	4,722
83	EAST BRIDGEWATER	2,381	5,845	2,692	6,486	42,861	5,551
88	EASTON	3,540	8,782	4,863	11,543	59,181	7,671
95	FALL RIVER	1,577	3,043	1,286	2,820	25,028	3,342
99	FOXBOROUGH	2,508	5,107	3,207	5,816	37,288	4,792
102	FREETOWN	2,421	7,440	5,646	12,629	47,145	6,520
118	HALIFAX	1,156	4,032	2,698	6,855	30,413	4,402
123	HANSON	880	2,608	1,340	3,763	17,811	2,409
133	HOLBROOK	301	642	224	583	4,863	609
145	KINGSTON	259	487	533	738	3,362	451
146	LAKEVILLE	2,562	7,519	5,821	12,157	50,984	6,836
167	MANSFIELD	3,480	6,756	3,445	6,866	51,968	6,566
182	MIDDLEBOROUGH	4,746	13,980	9,399	21,863	99,943	14,090
201	NEW BEDFORD	167	301	108	230	2,353	294
208	NORFOLK	5	10	5	7	85	10
211	NORTH ATTLEBOROUGH	25	62	45	88	438	56
218	NORTON	3,096	7,754	5,309	11,412	50,603	6,675
231	PEMBROKE	182	355	271	398	3,130	414
238	PLAINVILLE	867	1,624	868	1,572	13,072	1,672
239	PLYMOUTH	125	182	109	116	1,743	218

Municipality		2060 Future Condition, Ecodeficit 8.5 Median					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
240	PLYMPTON	716	2,750	1,862	4,849	19,805	2,881
245	RAYNHAM	3,100	6,713	3,508	7,732	49,250	6,351
247	REHOBOTH	161	493	315	765	3,172	430
250	ROCHESTER	123	442	562	1,117	2,366	345
251	ROCKLAND	17	32	13	27	251	30
266	SHARON	954	2,215	1,807	3,365	14,532	1,896
273	SOMERSET	1,437	2,590	807	1,443	22,346	2,689
285	STOUGHTON	1,507	3,033	1,377	2,904	23,628	2,941
292	SWANSEA	224	607	240	621	4,593	585
293	TAUNTON	7,244	14,866	8,754	17,280	110,968	14,541
307	WALPOLE	11	20	6	12	168	20
322	WEST BRIDGEWATER	1,707	4,877	2,084	6,556	35,559	4,896
336	WEYMOUTH	15	54	25	110	251	36
338	WHITMAN	1,332	2,844	740	2,346	22,025	2,774
350	WRENTHAM	784	1,801	1,315	2,389	12,084	1,628
<b>Total</b>		<b>66,727</b>	<b>156,984</b>	<b>89,113</b>	<b>196,401</b>	<b>1,147,202</b>	<b>151,795</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 7. Summary of annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load for the 2060 future condition and the Ecodeficit 8.5 Wet climate scenario by municipality in Taunton River watershed**

Municipality		2060 Future Condition, Ecodeficit 8.5 Wet					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	1,579	3,649	1,422	2,900	27,024	3,400
16	ATTLEBORO	735	2,234	1,308	2,874	13,509	1,761
18	AVON	914	1,620	531	883	13,680	1,655
27	BERKLEY	1,489	5,105	3,398	6,538	31,701	4,374
42	BRIDGEWATER	3,582	9,855	5,160	10,363	70,447	9,557
44	BROCKTON	6,484	11,217	3,302	5,098	95,009	11,925
52	CARVER	705	1,845	1,495	2,298	14,529	2,036
72	DARTMOUTH	1	2	1	3	15	2
76	DIGHTON	1,626	5,840	3,297	7,193	37,291	5,127
83	EAST BRIDGEWATER	2,381	6,551	3,010	6,351	46,003	5,988
88	EASTON	3,540	9,903	5,458	11,319	63,306	8,256
95	FALL RIVER	1,577	3,369	1,434	2,767	26,530	3,548
99	FOXBOROUGH	2,508	5,675	3,576	5,713	39,641	5,106
102	FREETOWN	2,421	8,511	6,322	12,416	50,774	7,085
118	HALIFAX	1,156	4,639	3,036	6,718	33,163	4,841

Municipality		2060 Future Condition, Ecodeficit 8.5 Wet					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
123	HANSON	880	2,972	1,510	3,688	19,292	2,632
133	HOLBROOK	301	713	250	571	5,203	654
145	KINGSTON	259	540	594	727	3,549	476
146	LAKEVILLE	2,562	8,559	6,515	11,938	54,965	7,428
167	MANSFIELD	3,480	7,491	3,849	6,729	55,230	6,993
182	MIDDLEBOROUGH	4,746	15,936	10,544	21,452	108,057	15,358
201	NEW BEDFORD	167	331	121	225	2,490	311
208	NORFOLK	5	11	5	7	90	10
211	NORTH ATTLEBOROUGH	25	70	50	87	462	59
218	NORTON	3,096	8,770	5,953	11,202	54,310	7,216
231	PEMBROKE	182	392	302	390	3,351	444
238	PLAINVILLE	867	1,793	968	1,542	13,858	1,773
239	PLYMOUTH	125	196	121	113	1,838	229
240	PLYMPTON	716	3,175	2,095	4,754	21,656	3,180
245	RAYNHAM	3,100	7,506	3,930	7,576	52,619	6,815
247	REHOBOTH	161	563	354	751	3,434	470
250	ROCHESTER	123	515	632	1,100	2,577	379
251	ROCKLAND	17	35	14	27	267	32
266	SHARON	954	2,495	2,021	3,309	15,508	2,033
273	SOMERSET	1,437	2,822	893	1,407	23,542	2,829
285	STOUGHTON	1,507	3,362	1,535	2,847	25,145	3,138
292	SWANSEA	224	679	268	608	4,912	629
293	TAUNTON	7,244	16,572	9,793	16,943	118,229	15,538
307	WALPOLE	11	22	7	12	179	21
322	WEST BRIDGEWATER	1,707	5,550	2,353	6,417	38,585	5,355
336	WEYMOUTH	15	63	30	108	276	40
338	WHITMAN	1,332	3,156	831	2,291	23,575	2,976
350	WRENTHAM	784	2,018	1,465	2,348	12,931	1,749
<b>Total</b>		<b>66,727</b>	<b>176,326</b>	<b>99,752</b>	<b>192,601</b>	<b>1,228,749</b>	<b>163,429</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 8. Summary of net increase between the 2060 Future Condition and 2016 Baseline Condition in annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load by municipality in Taunton River watershed**

Municipality		2060 Future Condition - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	659	728	-205	-531	8,514	897

Municipality		2060 Future Condition - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
16	ATTLEBORO	380	469	-153	-321	4,866	507
18	AVON	311	365	-130	-238	3,956	436
27	BERKLEY	880	1,043	-329	-724	11,146	1,208
42	BRIDGEWATER	1,639	1,944	-611	-1,352	20,881	2,321
44	BROCKTON	1,697	1,968	-696	-1,289	21,439	2,480
52	CARVER	403	504	-205	-303	4,558	538
72	DARTMOUTH	1	1	0	-1	9	1
76	DIGHTON	908	1,083	-296	-800	11,968	1,205
83	EAST BRIDGEWATER	1,267	1,404	-391	-1,028	15,515	1,561
88	EASTON	1,693	2,118	-664	-1,476	21,848	2,309
95	FALL RIVER	414	460	-173	-290	5,077	598
99	FOXBOROUGH	1,150	1,429	-494	-948	14,485	1,637
102	FREETOWN	1,267	1,563	-544	-1,033	15,696	1,725
118	HALIFAX	509	639	-201	-444	6,496	691
123	HANSON	422	499	-136	-369	5,709	593
133	HOLBROOK	171	179	-54	-127	2,141	227
145	KINGSTON	174	227	-91	-138	2,002	261
146	LAKEVILLE	1,310	1,658	-520	-1,156	17,539	1,866
167	MANSFIELD	1,462	1,740	-639	-1,115	18,995	2,183
182	MIDDLEBOROUGH	2,503	3,007	-930	-2,107	34,949	4,070
201	NEW BEDFORD	64	75	-29	-47	793	94
208	NORFOLK	3	4	-1	-3	48	5
211	NORTH ATTLEBOROUGH	16	20	-7	-13	185	18
218	NORTON	1,619	1,996	-671	-1,344	20,470	2,293
231	PEMBROKE	84	110	-41	-71	1,018	115
238	PLAINVILLE	391	458	-175	-287	4,851	552
239	PLYMOUTH	24	30	-14	-16	334	41
240	PLYMPTON	394	478	-128	-356	5,785	631
245	RAYNHAM	1,504	1,781	-614	-1,183	19,223	2,164
247	REHOBOTH	99	119	-38	-82	1,145	111
250	ROCHESTER	65	81	-28	-54	854	104
251	ROCKLAND	6	7	-2	-5	75	8
266	SHARON	546	696	-259	-442	6,709	769
273	SOMERSET	452	520	-178	-346	5,865	626
285	STOUGHTON	736	829	-286	-550	9,446	1,034
292	SWANSEA	129	144	-36	-110	1,608	149
293	TAUNTON	2,957	3,568	-1,282	-2,316	38,158	4,481

Municipality		2060 Future Condition - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
307	WALPOLE	6	7	-2	-5	84	9
322	WEST BRIDGEWATER	668	728	-200	-535	8,487	884
336	WEYMOUTH	7	8	-3	-5	85	11
338	WHITMAN	461	458	-90	-374	5,852	565
350	WRENTHAM	403	495	-173	-326	4,905	569
<b>Total</b>		<b>29,854</b>	<b>35,642</b>	<b>-11,720</b>	<b>-24,259</b>	<b>383,765</b>	<b>42,545</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 9. Summary of net increase between the 2060 Future Condition, Ecodeficit 8.5 Dry and 2016 Baseline Condition in annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load by the municipality in Taunton River watershed**

Municipality		2060 Future Condition, Ecodeficit 8.5 Dry - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	659	467	-326	-175	6,404	534
16	ATTLEBORO	380	246	-311	45	3,702	298
18	AVON	311	300	-168	-140	3,065	275
27	BERKLEY	880	490	-679	129	8,075	667
42	BRIDGEWATER	1,639	1,060	-1,103	-54	14,626	1,211
44	BROCKTON	1,697	1,564	-869	-749	15,274	1,337
52	CARVER	403	345	-342	-17	3,255	300
72	DARTMOUTH	1	1	0	0	7	1
76	DIGHTON	908	437	-656	144	8,222	557
83	EAST BRIDGEWATER	1,267	826	-666	-230	11,479	871
88	EASTON	1,693	1,204	-1,251	-43	16,613	1,373
95	FALL RIVER	414	240	-317	56	3,000	214
99	FOXBOROUGH	1,150	1,016	-828	-229	11,527	1,092
102	FREETOWN	1,267	606	-1,285	599	10,795	836
118	HALIFAX	509	93	-557	414	2,931	62
123	HANSON	422	187	-318	101	3,844	267
133	HOLBROOK	171	127	-77	-56	1,717	154
145	KINGSTON	174	190	-146	-46	1,775	215
146	LAKEVILLE	1,310	737	-1,208	385	12,410	957
167	MANSFIELD	1,462	1,246	-997	-295	15,086	1,459
182	MIDDLEBOROUGH	2,503	1,308	-2,118	648	24,338	2,182
201	NEW BEDFORD	64	57	-38	-21	617	62
208	NORFOLK	3	4	-2	-2	42	4
211	NORTH ATTLEBOROUGH	16	13	-12	-1	146	12
218	NORTON	1,619	1,169	-1,316	78	16,026	1,478

Municipality		2060 Future Condition, Ecodeficit 8.5 Dry - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
231	PEMBROKE	84	84	-63	-23	743	66
238	PLAINVILLE	391	347	-260	-99	3,869	371
239	PLYMOUTH	24	25	-21	-4	231	20
240	PLYMPTON	394	89	-382	257	3,384	209
245	RAYNHAM	1,504	1,194	-1,003	-248	15,083	1,416
247	REHOBOTH	99	58	-79	15	818	52
250	ROCHESTER	65	15	-108	90	601	55
251	ROCKLAND	6	5	-3	-2	56	4
266	SHARON	546	473	-472	-18	5,491	541
273	SOMERSET	452	370	-207	-187	4,117	337
285	STOUGHTON	736	597	-426	-197	7,531	696
292	SWANSEA	129	80	-56	-33	1,132	73
293	TAUNTON	2,957	2,357	-2,231	-231	29,429	2,843
307	WALPOLE	6	6	-2	-4	70	6
322	WEST BRIDGEWATER	668	165	-498	276	4,705	220
336	WEYMOUTH	7	1	-9	8	60	6
338	WHITMAN	461	232	-164	-97	3,905	238
350	WRENTHAM	403	320	-315	-23	3,859	371
<b>Total</b>		<b>29,854</b>	<b>20,349</b>	<b>-21,895</b>	<b>18</b>	<b>280,057</b>	<b>23,943</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 10. Summary of net increase between the 2060 Future Condition, Ecodeficit 8.5 Median and 2016 Baseline Condition in annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load by the municipality in Taunton River watershed**

Municipality		2060 Future Condition, Ecodeficit 8.5 Median - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	659	567	-274	-281	7,165	644
16	ATTLEBORO	380	333	-255	-64	4,085	356
18	AVON	311	329	-150	-167	3,448	329
27	BERKLEY	880	694	-544	-132	8,964	806
42	BRIDGEWATER	1,639	1,397	-912	-443	16,645	1,522
44	BROCKTON	1,697	1,744	-776	-893	17,928	1,725
52	CARVER	403	405	-286	-103	3,645	361
72	DARTMOUTH	1	1	0	0	8	1
76	DIGHTON	908	677	-521	-145	9,348	732
83	EAST BRIDGEWATER	1,267	1,045	-557	-469	12,788	1,065
88	EASTON	1,693	1,555	-1,028	-472	18,396	1,640
95	FALL RIVER	414	329	-259	-47	3,795	336

Municipality		2060 Future Condition, Ecodeficit 8.5 Median - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
99	FOXBOROUGH	1,150	1,173	-687	-445	12,618	1,255
102	FREETOWN	1,267	965	-1,005	101	12,299	1,074
118	HALIFAX	509	302	-432	155	3,913	220
123	HANSON	422	307	-254	-40	4,405	353
133	HOLBROOK	171	147	-68	-77	1,866	175
145	KINGSTON	174	203	-121	-74	1,863	228
146	LAKEVILLE	1,310	1,079	-941	-83	13,941	1,191
167	MANSFIELD	1,462	1,445	-851	-535	16,608	1,682
182	MIDDLEBOROUGH	2,503	1,954	-1,678	-184	27,469	2,677
201	NEW BEDFORD	64	65	-34	-29	687	72
208	NORFOLK	3	4	-2	-2	44	4
211	NORTH ATTLEBOROUGH	16	15	-10	-5	159	14
218	NORTON	1,619	1,485	-1,067	-348	17,489	1,703
231	PEMBROKE	84	94	-53	-37	834	79
238	PLAINVILLE	391	391	-223	-154	4,253	427
239	PLYMOUTH	24	27	-17	-7	279	27
240	PLYMPTON	394	237	-293	71	4,018	311
245	RAYNHAM	1,504	1,426	-851	-524	16,541	1,634
247	REHOBOTH	99	81	-64	-14	915	67
250	ROCHESTER	65	40	-78	46	665	66
251	ROCKLAND	6	6	-3	-3	63	5
266	SHARON	546	557	-387	-146	5,911	604
273	SOMERSET	452	427	-186	-233	4,781	430
285	STOUGHTON	736	687	-368	-302	8,242	798
292	SWANSEA	129	103	-48	-56	1,277	94
293	TAUNTON	2,957	2,835	-1,851	-845	32,644	3,333
307	WALPOLE	6	6	-2	-4	75	7
322	WEST BRIDGEWATER	668	386	-400	34	5,843	397
336	WEYMOUTH	7	4	-8	5	68	7
338	WHITMAN	461	321	-135	-178	4,577	336
350	WRENTHAM	403	385	-256	-115	4,214	427
<b>Total</b>		<b>29,854</b>	<b>26,233</b>	<b>-17,933</b>	<b>-7,245</b>	<b>314,774</b>	<b>29,216</b>

Units: MG – million gallons, lb – pounds, yr – year

**Table 11. Summary of net increase between the 2060 Future Condition, Ecodeficit 8.5 Wet and 2016 Baseline Condition in annual average runoff volume, groundwater (GW) recharge, evapotranspiration (ET), total nitrogen (TN) load, and total phosphorus (TP) load by the municipality in Taunton River watershed**

Municipality		2060 Future Condition, Ecodeficit 8.5 Wet - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
1	ABINGTON	659	923	-125	-343	8,829	858
16	ATTLEBORO	380	603	-109	-120	5,027	493
18	AVON	311	462	-96	-188	4,185	415
27	BERKLEY	880	1,306	-189	-253	11,255	1,156
42	BRIDGEWATER	1,639	2,483	-362	-661	21,487	2,225
44	BROCKTON	1,697	2,626	-451	-1,027	23,022	2,340
52	CARVER	403	607	-129	-148	4,680	514
72	DARTMOUTH	1	1	0	0	9	1
76	DIGHTON	908	1,384	-173	-281	12,013	1,136
83	EAST BRIDGEWATER	1,267	1,751	-239	-605	15,930	1,502
88	EASTON	1,693	2,676	-433	-696	22,521	2,225
95	FALL RIVER	414	655	-111	-100	5,297	542
99	FOXBOROUGH	1,150	1,740	-318	-548	14,971	1,569
102	FREETOWN	1,267	2,037	-330	-112	15,928	1,639
118	HALIFAX	509	910	-94	18	6,663	658
123	HANSON	422	671	-84	-116	5,886	576
133	HOLBROOK	171	219	-42	-89	2,206	220
145	KINGSTON	174	255	-60	-84	2,050	253
146	LAKEVILLE	1,310	2,120	-247	-302	17,921	1,784
167	MANSFIELD	1,462	2,180	-446	-672	19,870	2,110
182	MIDDLEBOROUGH	2,503	3,910	-533	-595	35,583	3,945
201	NEW BEDFORD	64	95	-21	-34	824	89
208	NORFOLK	3	5	-1	-3	49	5
211	NORTH ATTLEBOROUGH	16	23	-5	-6	184	17
218	NORTON	1,619	2,501	-423	-557	21,197	2,244
231	PEMBROKE	84	131	-23	-45	1,054	110
238	PLAINVILLE	391	560	-123	-184	5,038	528
239	PLYMOUTH	24	41	-5	-9	373	38
240	PLYMPTON	394	662	-60	-23	5,869	610
245	RAYNHAM	1,504	2,219	-430	-680	19,909	2,098
247	REHOBOTH	99	151	-26	-29	1,177	107
250	ROCHESTER	65	113	-7	29	876	101
251	ROCKLAND	6	9	-1	-3	79	7
266	SHARON	546	838	-174	-202	6,887	741



Municipality		2060 Future Condition, Ecodeficit 8.5 Wet - 2016 Baseline Condition					
ID	Name	IC (acre)	Runoff (MG/yr)	GW (MG/yr)	ET (MG/yr)	TN (lb/yr)	TP (lb/yr)
273	SOMERSET	452	659	-101	-270	5,977	570
285	STOUGHTON	736	1,016	-209	-359	9,759	996
292	SWANSEA	129	176	-20	-69	1,596	138
293	TAUNTON	2,957	4,541	-811	-1,182	39,905	4,330
307	WALPOLE	6	8	-1	-4	86	8
322	WEST BRIDGEWATER	668	1,059	-130	-105	8,868	856
336	WEYMOUTH	7	13	-4	2	92	11
338	WHITMAN	461	634	-44	-232	6,126	537
350	WRENTHAM	403	602	-107	-156	5,061	549
<b>Total</b>		<b>29,854</b>	<b>45,576</b>	<b>-7,295</b>	<b>-11,046</b>	<b>396,321</b>	<b>40,850</b>

Units: MG – million gallons, lb – pounds, yr – year