

# **Build-Out Analysis for Fairhaven, Massachusetts, Using Existing Zoning**

**Prepared for the Fairhaven Board of Public Works**

**by**

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**Buzzards Bay**



*National Estuary  
Program*

## Introduction

The [Buzzards Bay National Estuary Program](#) (BBNEP), an advisory and planning unit of the Massachusetts Office of Coastal Zone Management, provides technical and planning assistance to communities in the Buzzards Bay watershed on issues relating to the protection of surface water quality and natural resources. In December 2009, the Town of Fairhaven Board of Public Works asked the BBNEP to perform a build-out analysis of their existing zoning for the purposes of establishing potential long term sewer capacity needs at the town waste water treatment facility.

## Methodology

The Town of Fairhaven, comprising of about 7918 acres, has five residential zoning districts. The amount of land in each residential zoning district is shown in “Table 1: Residential Zoning Districts.” The Town of Fairhaven Zoning map is shown in [Map 1](#).

Table 1: Residential Zoning Districts		
Zoning District	Minimum Lot Size (Sq. ft.)	Percent of Town
Single Residence, RA	15,000	32.3%
General Residence, RB	15,000	<0.1%
Apartment/Multifamily, RC	100,000	<0.1%
Rural Residence, RR	30,000	48.1%
Agricultural Residence, AG	50,000	7.6%
Wetland Resource Protection, WRD	100,000	1.6%

The build-out was performed using zoning data and recently updated (2009) Fairhaven GIS files and assessor’s records provided by the town. Starting with the parcel map, the BBNEP identified the types of land that would not be available for future residential development. Separate GIS layers were then constructed for each type of land ownership. All information regarding acreage is based on the town’s GIS data.

The data used in the analysis may contain some errors, but overall any errors relating to matching assessors data and GIS coverage appear to have been reduced compared to previous Fairhaven parcel coverages by the town’s recent efforts to update their parcel coverage. It is worth noting that this GIS parcel data is not survey accurate. The parcel coverage used for this analysis is shown in [Map 2](#).

Other GIS layers used in the analysis include:

**All Roads** ([Map 3](#))- includes all areas designated as roads on Fairhaven assessors’ maps (Total = 908 acres).

**Permanently Protected Open Space** ([Map 4](#)) - includes The US Army Corps of Engineers managed section of Fort Phoenix, Fort Phoenix, West Island, and the

Nasketucket Bay reservations managed by the Department of State Parks and Recreation, watershed protection property owned by the Bristol County Conservation District, land owned by the Fairhaven-Acushnet Land Preservation Trust, Massachusetts Audubon Society, and the Town of Fairhaven, pursuant to several statutes, (M.G.L. Ch. 40, s. 8C - for conservation land, M.G.L. Ch. 40, s. 3 - for parks and recreation, M.G.L. Ch. 45, s. 14 - for playgrounds, M.G.L. Ch. 40, s. 41 and M.G.L. Ch. 40, s. 3 - for water supplies), and conservation restrictions held by the Town of Fairhaven, and Coalition for Buzzards Bay, and an Agricultural Preservation Restriction held by the Department of Agricultural Resources (Total = 1,459 acres).

**Town Infrastructure Lots** ([Map 5](#)) - includes those parcels held by the town for water distribution, sewer infrastructure, transfer station, cemeteries, DPW barn, town hall, schools, and police and fire stations (Total = 196 acres).

**Utilities** ([Map 6](#)) - includes electric transmission lines (on lots held by Commonwealth Electric, now NStar), the telephone switching station, cable TV tower, and cable TV offices (Total = 31 acres).

After creating and stripping away the above areas protected from residential development, shown on [Map 7](#), the remaining land was investigated for development potential (shown in [Map 8](#)). The BBNEP examined the parcels available for future development and redevelopment to determine the build out potential of the lots. Factors considered to determine if the residential use of the lot could be intensified were:

1. the current use of the lot;
2. the size and location of the lot;
3. the applicable zoning district ([Map 1](#)); and
4. the amount of uplands based on the Department of Environmental Protection's [Wetland Conservancy Program mapping](#), shown on [Map 9](#)

The consideration of the existing zoning is important as this study is to determine the residential build out potential of the town. The Business, Industrial, and Park zoning districts do not allow residential uses. Therefore, these three zoning districts were not considered for further residential build out potential. These districts combined total of 536 acres is shown on [Map 10](#).

For determining interplay between the four items listed above, the BBNEP created eleven categories of land use to describe the different characteristics that would affect the build-out calculations. Each category has a different combination of factors that relate to residential build-out. The definitions below describe the categories.

### **Build-out Characteristic Category Definitions:**

**Category 1, Built on & Built out:** Includes lots where additional residential units are not allowed by the Zoning Code: Business (some of the motels, hotels, and odd land uses where the BBNEP had no information to assign a residential use numbers are in #9), Park (some

the Park Zoning District is owned by the town and placed in #10 with no build-out potential) and Industrial Districts (as with the Business District, some of the motels, hotels, and odd land uses where the BBNEP had no information to assign a residential use numbers are in #9), and lots with existing units that meet or exceed the number set by zoning in the residential districts. The determination of having reached maximum residential build-out was based on a combination of zoning lot size and the presence of wetlands combined with the current use of the lot.

**Category 2, Built on, not built out, not further subdividable:** Includes lots that contain fewer dwellings than that allowed by zoning, yet are not further subdividable due to a combination of lot size, or amount of uplands. Under existing zoning, each of these lots may have additional units in the future.

**Category 3, Built on, not built out, further subdividable:** Each of these lots may be subdivided to create more building lots. Most of these lots have only one unit, although a few have two units.

**Category 4, Not built on, not further subdividable:** These are empty lots that under existing zoning can have a house (perhaps more than one unit depending on the District), and are not further subdividable due to a combination of lot size and/or uplands. These lots are commonly referred to as “grandfathered lots” and are generally protected from zoning changes by state law and the Fairhaven Zoning Bylaw. Some of these lots may have no frontage, but have subdivision potential when combined with an adjacent parcel.

**Category 5, Not built on, further subdividable:** These are empty lots that can be further subdivided. Some of these lots may have no frontage, but have subdivision potential when combined with an adjacent parcel.

**Category 6, Apartment Buildings:** Includes lots that were approved by either special permits, variances, or created before zoning. These lots are not further subdividable due to lot size or the number of units on them already.

**Category 7, Commercial Buildings with Apts:** Includes existing commercial buildings with apartments.

**Category 8, Commercial Buildings without Apts.:** Includes lots that have existing commercial buildings without apartments. Under existing zoning, some of these lots have potential for further subdivision.

**Category 9, Olio:** Motels, hotels, boarding houses, nursing homes, assisted living facilities, marinas where live-aboards occur & day care facilities. This group is a mish mash of uses that can be considered residential in nature but are not necessarily easy to equate with a residential sewer load. Calculations on existing use expressed as a number of units is an estimate only. In many cases, zero was entered and final determination as to the most appropriate value must be left to the Town of Fairhaven.

**Category 10, Town-owned unprotected open space:** This is vacant land the town owns which has not been designated for a future use, or has been designated as open space and recreation but has not been legally designated as such.

**Category 11, Church lots, and other undevelopables:** Includes the churches, rectories, post office, and miscellaneous small undevelopable lots due to location (no possibility of subdivision road access) lot size or the presence of wetlands. Included were lots with less than 1000 square feet of upland, cemeteries, lots owned by the US Government, the Massachusetts Department of Transportation, commercial parking lots, Martha's Vineyard Steamship Authority, and Atlas Tack.

Many of the very small lots, (those less than 5,000 square feet and therefore not protected by zoning) were contiguous to a lot of the same owner. These lots were combined with the lot of the contiguous owner for this analysis. Where the lot was not contiguous to a lot of the same owner, the lots were placed in Category 11.

To determine subdivision potential, the BBNEP determined how much land was required to create a new lot in each zoning district that allowed residential use without a special permit. It was assumed that the existing lots did not have sufficient frontage beyond that required for a single lot, and any subdivision required the creation of road frontage for new lots. Therefore, to create an additional lot, the area containing the requisite number of square feet as required by the zoning district, as well as the area to construct a road to establish frontage was required. Since road construction can provide frontage for lots on both sides of the street, the area required for roads for each lot were:

Lot Frontage Required by Zoning (feet) X (layout width) X 0.5 + Stormwater requirements

Layout width varies with the number of lots in the subdivision. As the number of lots on a subdivision road increases, the existing Fairhaven Planning Board Rules and Regulations for the Subdivision of Land require a wider layout.

Stormwater controls are required in all subdivisions. To determine the amount of land dedicated to stormwater control, the BBNEP assumed soils in hydrologic class C, a pre-development condition of "good woods" and no storage available for rate or volume controls below a depth of three feet due to water table restrictions. Calculations regarding existing area requirements for frontage and stormwater controls were performed for the minimum lot size in each zoning district. The total land area for each lot is shown in the table below.

<b>Table 2: Lot Size Determination</b>			
<b>District</b>	<b>Number of Lots</b>	<b>Area Required (square feet)</b>	<b># Units per lot</b>
Rural Residence (RR)	1-3	34,575	1
Rural Residence (RR)	4-9	33,287	1
Rural Residence (RR)	≥ 10	34,575	1
Residence A (RA)	1-3	17,183	1
Residence A (RA)	4-9	17,593	1
Residence A (RA)	≥ 10	18,105	1
Residence B (RB1)	1-3	17,183	1
Residence B (RB1)	4-9	17,593	1
Residence B (RB1)	≥ 10	18,105	1
Residence B (RB2)	1-3	25,070	2
Residence B (RB2)	4-9	25,482	2
Residence B (RB2)	≥ 10	25,997	2
Residence C (RC)	n/a	111,169	15
Mixed Use (M)	n/a	18,391	2
Agricultural Residence (AG)	1-3	54,697	1
Agricultural Residence (AG)	4-9	55,512	1
Agricultural Residence (AG)	≥ 10	56,532	1
Wetland Protection (WRD)	1-3	103,461	2
Wetland Protection (WRD)	4-9	104,028	2
Wetland Protection (WRD)	≥ 10	104,736	2

Notes Concerning Table 2:

- The allowance for a second residential unit in Residence B District requires a 50% increase in the lot size stated in the Intensity of Use Schedule (See Section 198-18)
- Multifamily dwellings in the Residence C District require 5,000 square feet per unit plus 500 square feet per bedroom. The BBNEP added 250 square feet of parking to a three bedroom unit for 6,750 square feet per unit before stormwater controls.
- Both the Mixed Use District and Wetland Protection District allow a two-family unit as a matter of right.

The division of land into the eleven categories listed above was done to make a draft listing of the land that could not be further subdivided based on lot size, existing land use, and the applicable zoning district. Lots that are not further subdividable are fixed as to their build-out potential. Because of the protections in the Zoning Act, zoning cannot reduce the build-out number of Land Use Categories 1, 2, 4 and 6 as described above. These areas are shown on [Map 11](#), Lots Not Further Subdividable, and constitute 2,834 acres.

When analyzing build-out numbers, there is always debate as to whether to include the town owned unprotected open space parcels. These parcels could be parks, wetlands, or transitional tax title properties. To reflect the uncertainty of the status of these lots, and to let the Town of Fairhaven decide their status as it relates to build-out, a separate analysis was done in this report by grouping these lots in Land Use Category 10, Town Owned, Unprotected Open Space, and are shown on [Map 12](#). These town-owned lots total 281 acres.

The many small lots and slots that are not likely to be developed as described in Land Use Category 11 are shown on [Map 13](#), Church Lots and Misc. Undevelopables. These lots add up to 383 acres.

When the layers above were created and removed from the parcels available for future development or redevelopment, there were 2,562 acres remaining, or 32% of the town. The area shown on [Map 14](#), Areas Responsive to Zoning Changes, represents the parcels that would be responsive to zoning changes relative to their effect on the residential build-out.

To determine the residential development potential of these parcels, which include both empty land and partially developed parcels, the effect of wetlands on the lots must be considered. Core wetlands are mapped by the Department of Environmental Protection Wetland Conservancy Program (DEP-WCP). The wetlands throughout the town are depicted in [Map 9](#), Core Wetlands Mapped by DEP. While wetlands may be included as a contribution for part of the minimum lot size requirements, the combination of the wetland exclusion requirements for residential properties and the mapping procedures of the Wetland Conservancy Program make it possible to exclude the DEP-WCP wetland area for the computation of lot size in the residential districts. The core wetlands in the residential district of the 2,562 acres account for 658 acres, leaving 1,904 acres, or 24% of the town, for further development. A table showing the distribution of the 1,904 acres by zoning district is on the following page.

<b>Table 3: Areas Responsive to Zoning Changes for Reducing Built-Out</b>	
<b>Zoning District</b>	<b>Acres</b>
Rural Residence	12
Residence A	29
Residence B	230
Residence C	1554
Agricultural Residence	61
Wetland Protection	5
Mixed Use	13

### Results

Based on the analysis of wetlands, the BBNEP then conducted calculations of the number of existing dwelling units in each land use category and the corresponding build-out potential. The final number of units at build-out is given below for each zoning district.

<b>Table 4: Build-Out Results by Zoning District</b>		
<b>Zoning District</b>	<b>Total # Potential Units</b>	<b>Projected Growth (Units)</b>
RR	3,591	2,061
RA	5,956	1,179
RB	246	61
RC	261	46
P	0	0
B	383	0
I	12	0
AG	291	220
WRD	80	70
MU	416	147
<b>TOTALS</b>	<b>11,236</b>	<b>3,784</b>

More detailed information is available in several tables prepared for this report. In each table, information is given by the land use category (Each lot assigned a Land Use Category as depicted on [Map 15](#)) and by zoning district.

Table 5: Existing Conditions indicates what the existing conditions are for residential land use in each land use category and zoning district. Based on the information available to the BBNEP, the existing number of dwellings units is 7,452. Town officials should review existing unit values for Category 9.

<b>Table 5: Existing Units</b>	<b>Zoning District</b>										
<b>Land Use Category</b>	<b>AG</b>	<b>B</b>	<b>I</b>	<b>MU</b>	<b>P</b>	<b>RA</b>	<b>RB</b>	<b>RC</b>	<b>RR</b>	<b>WRD</b>	<b>Grand Total</b>
1. Built on/out	64	366	12	107	0	4,227	132	16	1416	4	<b>6,344</b>
2. Built on, not/out, can't sub.				57			49	7			<b>119</b>
3. Built on, not/out, can sub.	7					129			109		<b>245</b>
4. Not built can't sub.											<b>0</b>
5. Not built, can sub.											<b>0</b>
6. Apts.				83		327	4	190	5		<b>609</b>
7. Comm. w/o apts.				16		3		2			<b>21</b>
8. Comm. w/ apts.											<b>0</b>
9. Olio		17		6		91					<b>114</b>
10. Town											<b>0</b>
11. Church											<b>0</b>
<b>Grand Total</b>	<b>71</b>	<b>383</b>	<b>12</b>	<b>269</b>	<b>0</b>	<b>4,777</b>	<b>185</b>	<b>215</b>	<b>1530</b>	<b>10</b>	<b>7,452</b>

Table 6: Final Build-Out provides information by land use category and zoning district for the build-out using the existing zoning provisions.

<b>Table 6: Final Build-Out</b>	<b>Zoning District</b>										
<b>Land Use Category</b>	<b>AG</b>	<b>B</b>	<b>I</b>	<b>MU</b>	<b>P</b>	<b>RA</b>	<b>RB</b>	<b>RC</b>	<b>RR</b>	<b>WRD</b>	<b>Grand Total</b>
1. Built on/out	64	366	12	107		4,227	132	16	1416	4	6,344
2. Built on not/out, can't sub.				114			98	25		12	249
3. Built on not/out, can sub.	72					485			845		1,402
4. Not built, can't sub.	28			16		199	10		350	18	621
5. Not built, can sub.	110					284		20	827		1,241
6. Apts.				83		327	4	190	5		609
7. Comm..w/o apts.				22		6		5			33
8. Comm. w/ apts.				56		30	2			4	92
9. Olio		17		6		91					114
10. Town	17			12		307		5	148	42	531
11. Church											0
<b>Grand Total</b>	<b>291</b>	<b>383</b>	<b>12</b>	<b>416</b>	<b>0</b>	<b>5,956</b>	<b>246</b>	<b>261</b>	<b>3,591</b>	<b>80</b>	<b>11,236</b>

Table 7: Growth by District again provides information by land use category and zoning district to show where growth may occur.

Table 7: Growth by District	Zoning District										
	AG	B	I	MU	P	RA	RB	RC	RR	WRD	Grand Total
1. Built on/out											0
2. Built on not/out, can't sub.				57			49	18		6	130
3. Built on not/out, can sub.	65					356			736		1,157
4. Not built, can't sub.	28			16		199	10		350	18	621
5. Not built, can sub.	110					284		20	827		1,241
6. Apts.											0
7. Comm. w/o apts.				6		3		3			12
8. Comm. w/ apts.				56		30	2			4	92
9. Olio											0
10. Town	17			12		307		5	148	42	531
11. Church											0
<b>Grand Total</b>	<b>220</b>	<b>0</b>	<b>0</b>	<b>147</b>	<b>0</b>	<b>1,179</b>	<b>61</b>	<b>46</b>	<b>2,061</b>	<b>70</b>	<b>3,784</b>

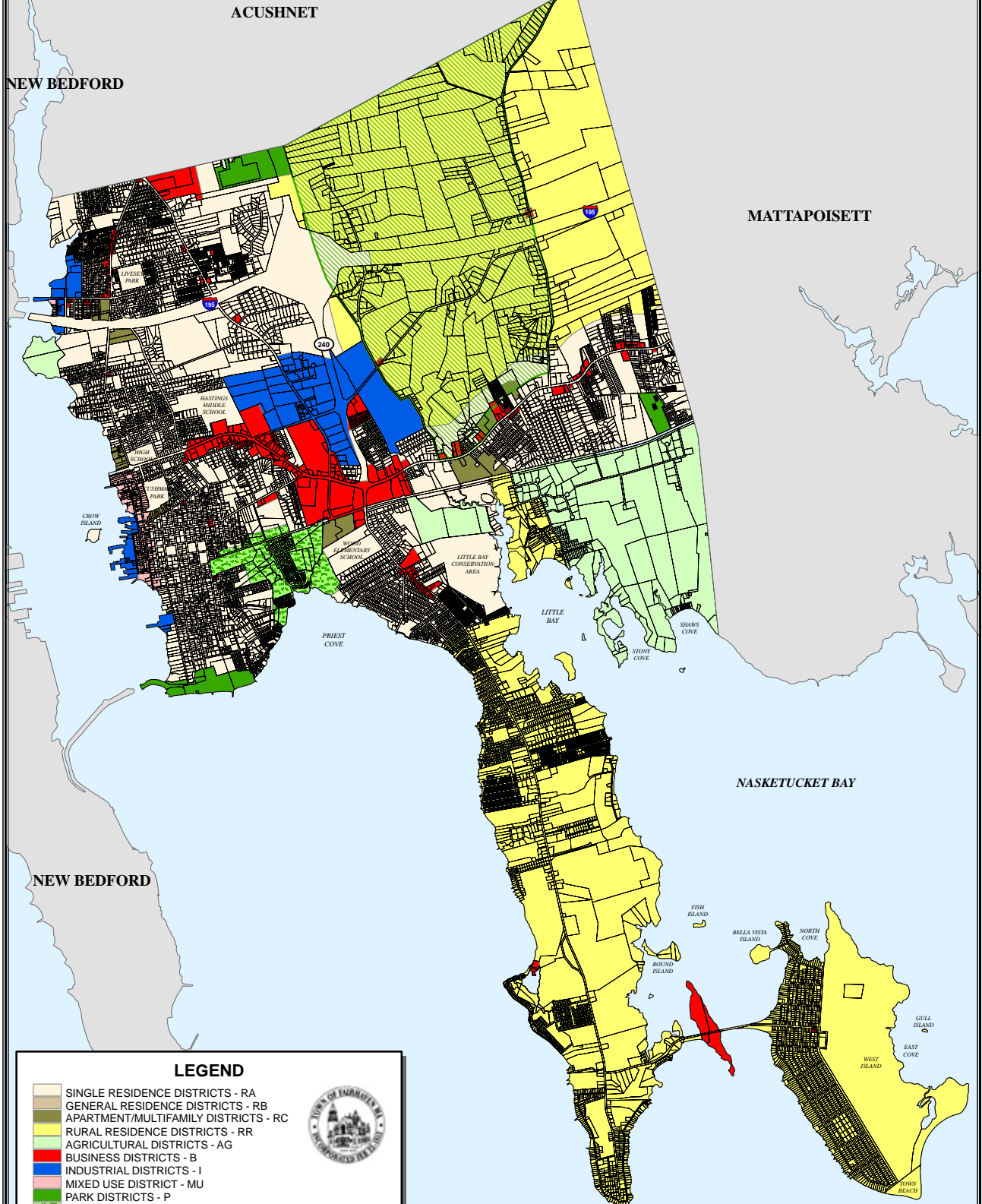
For further questions regarding these figures, please contact [John Rockwell](#) at the Buzzards Bay National Estuary Program office, #508-291-3625, x14.

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**Notes on Sources and Accuracy:**

The analysis was performed using a Geographical Information System (GIS). Known errors have been noted below. Overall, errors in data of  $\pm 2\%$  should not be unexpected. Errors in the data can occur in three ways:

1. Land use characterizations were based on Town of Fairhaven Assessors' data. Occupancy information and the [Massachusetts Department of Revenue Land Use codes](#) sometimes conflicted. Discrepancies were resolved as best as possible using aerial photographs from MassGIS.
2. No GIS assessor mapping is survey accurate.
3. There may be restrictions on the subdivision and/or development of parcels not reflected in the [Land Use Codes](#) assigned by the Board of Assessors.

**TOWN OF FAIRHAVEN  
ZONING MAP**



**LEGEND**

- SINGLE RESIDENCE DISTRICTS - RA
- GENERAL RESIDENCE DISTRICTS - RB
- APARTMENT/MULTIFAMILY DISTRICTS - RC
- RURAL RESIDENCE DISTRICTS - RR
- AGRICULTURAL DISTRICTS - AG
- BUSINESS DISTRICTS - B
- INDUSTRIAL DISTRICTS - I
- MIXED USE DISTRICT - MU
- PARK DISTRICTS - P
- WETLAND RESOURCE PROTECTION DISTRICT - WRP
- WATER
- NASKETUCKET OVERLAY DISTRICT - NRB

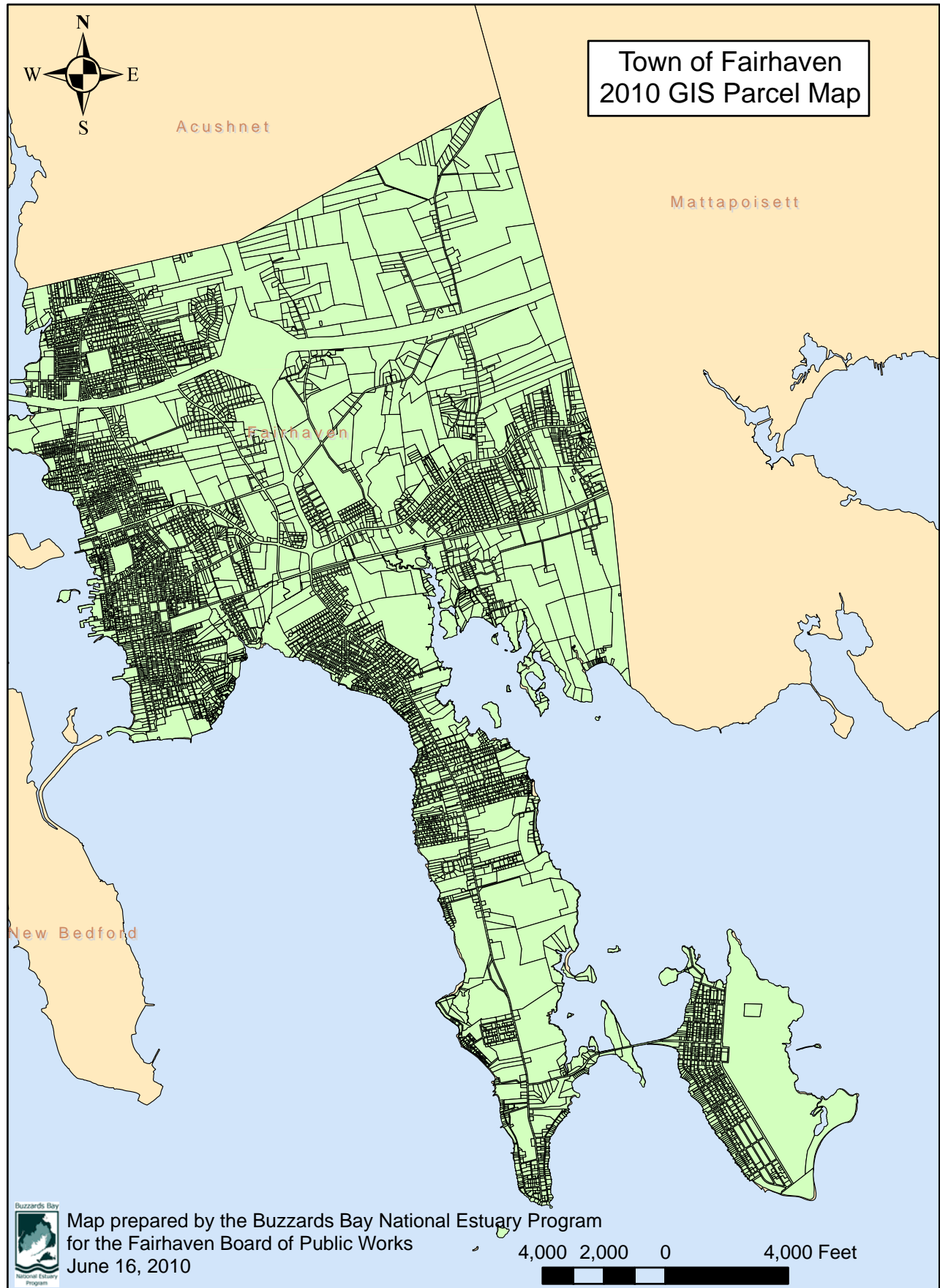
As amended through May 3, 2008

Data Source: Office of Geographic and Environmental Information (MassGIS)  
Commonwealth of Massachusetts Executive Office of Environmental Affairs  
and Town of Fairhaven  
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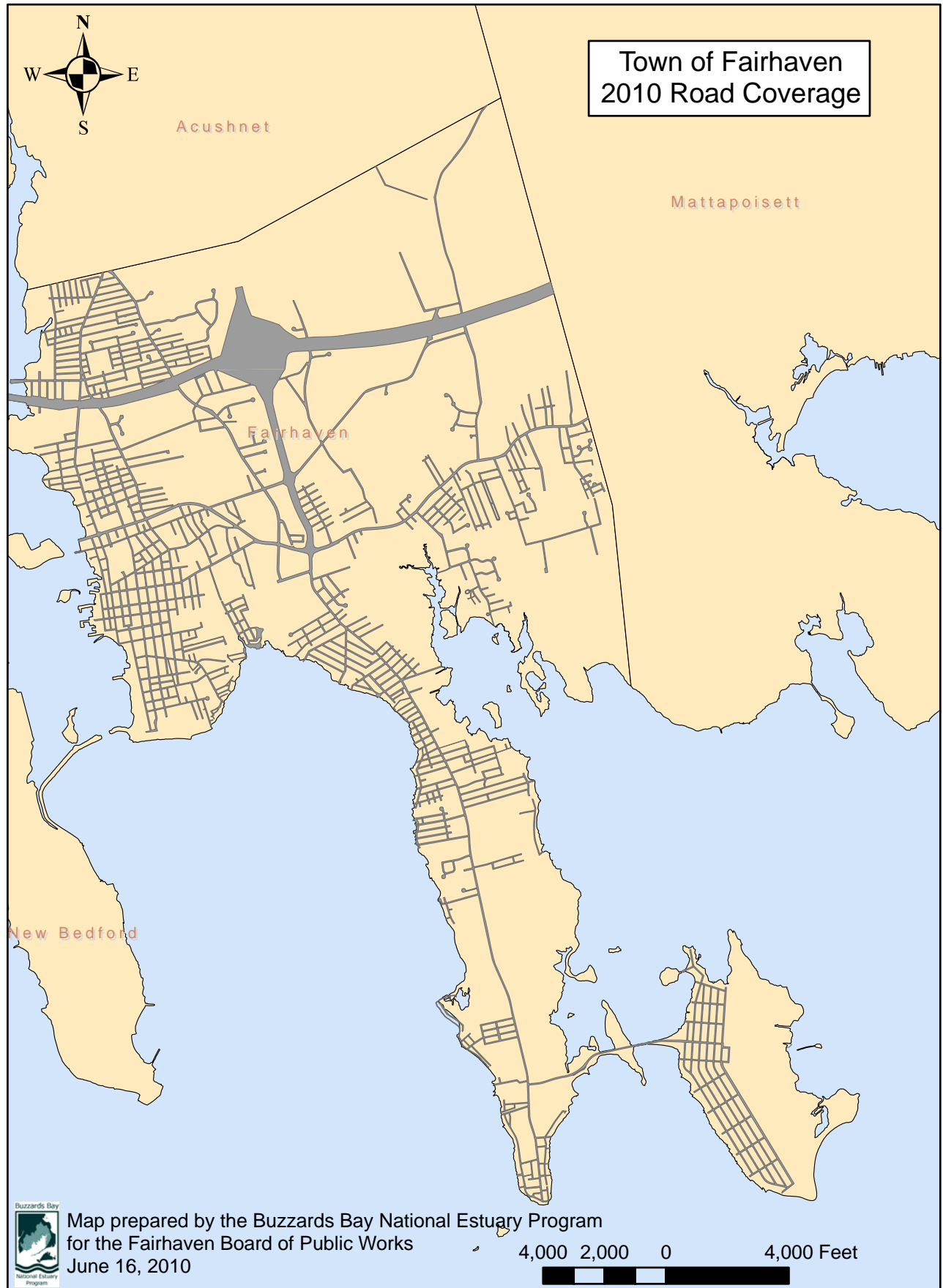


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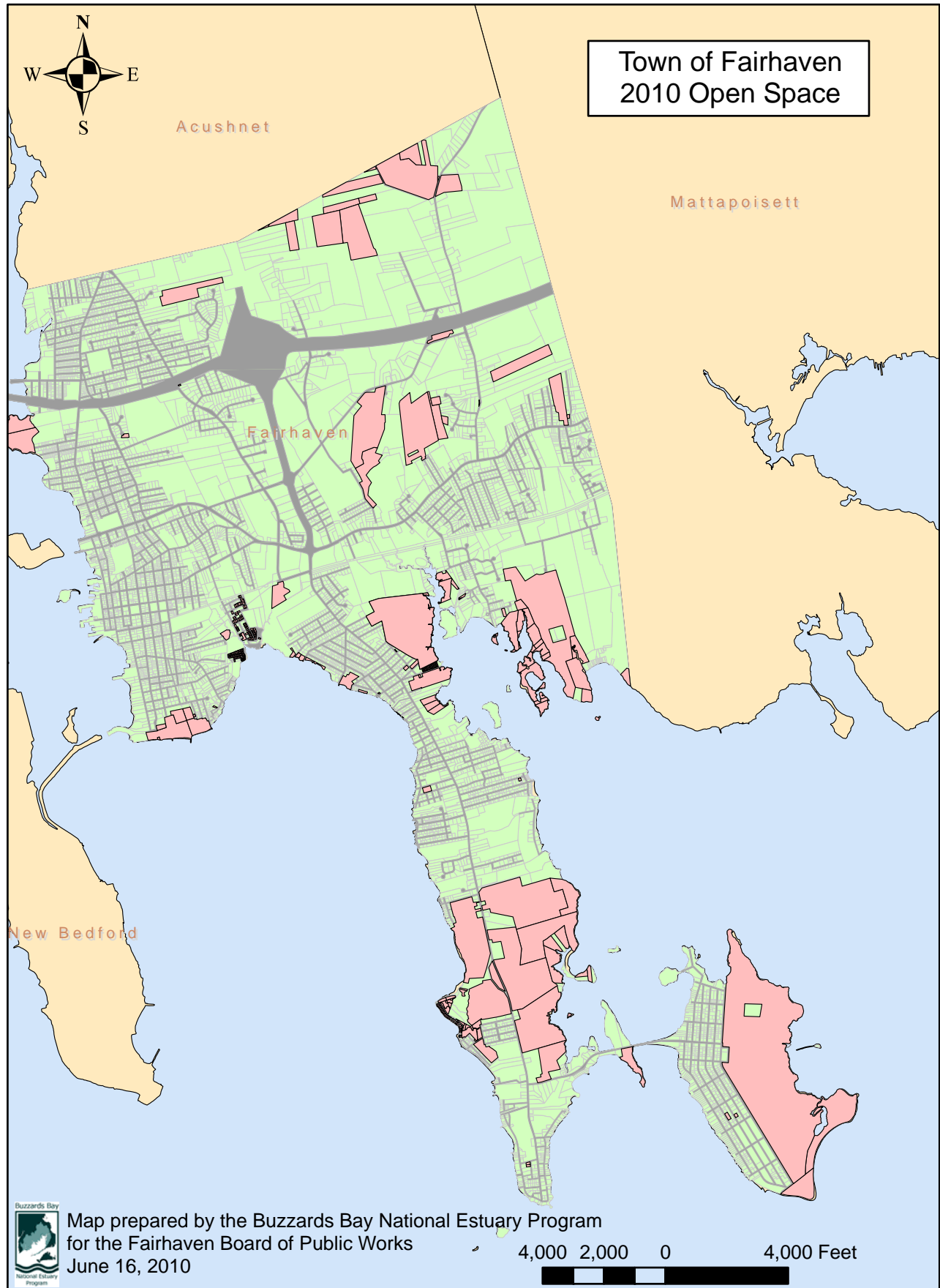
Map 2



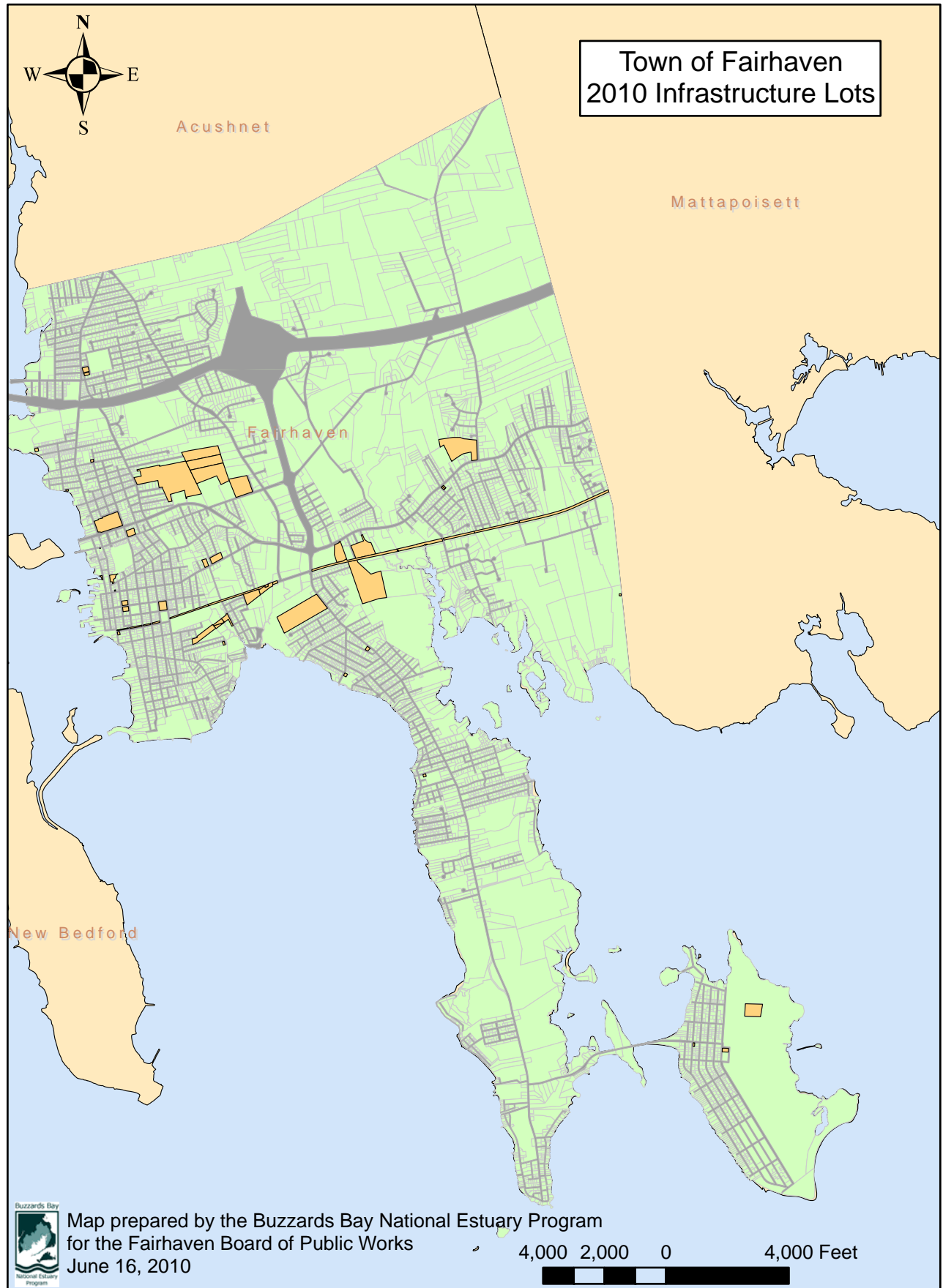
Map 3



Map 4



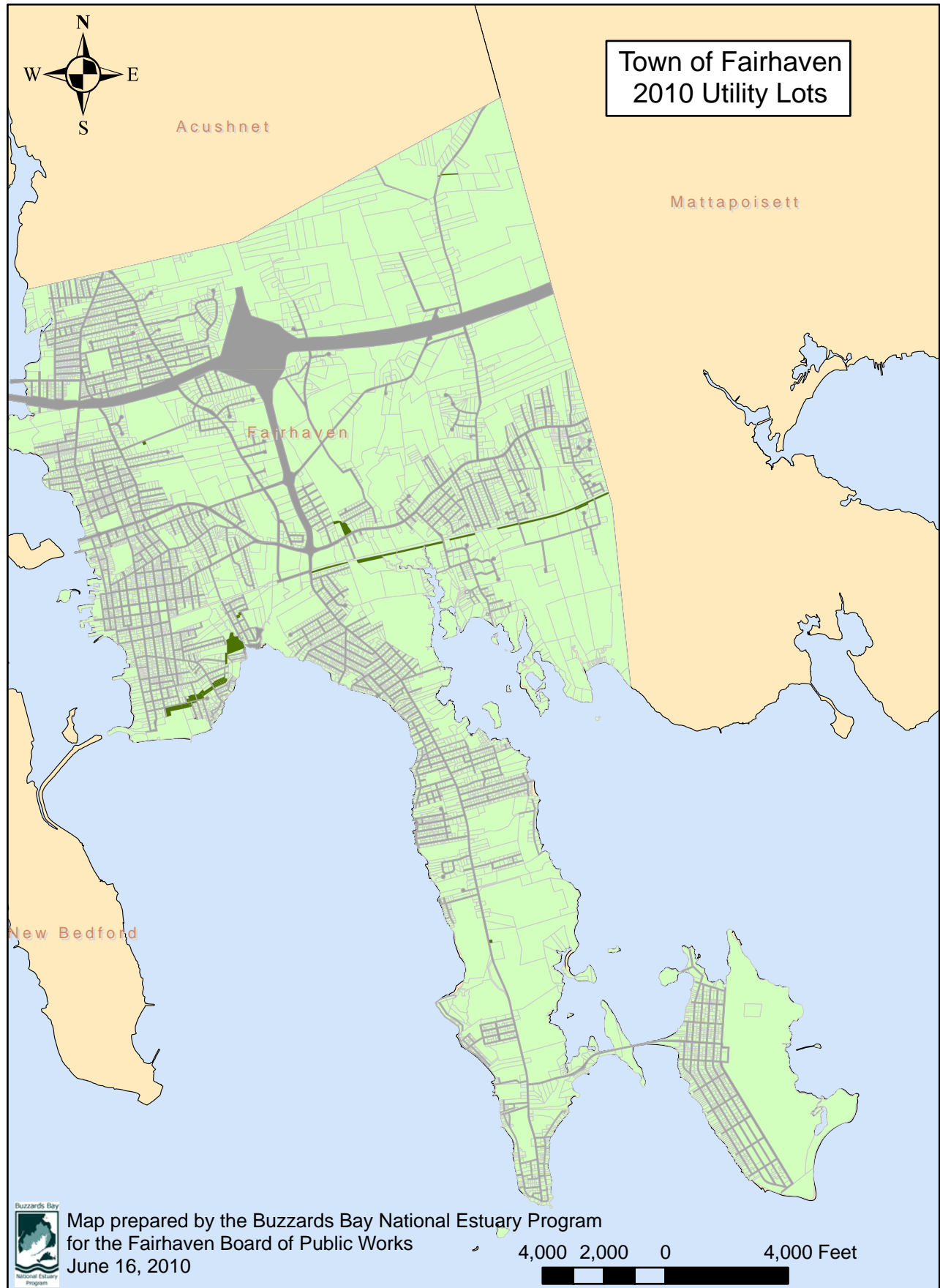
Map 5



Map prepared by the Buzzards Bay National Estuary Program  
for the Fairhaven Board of Public Works  
June 16, 2010

4,000 2,000 0 4,000 Feet

Map 6



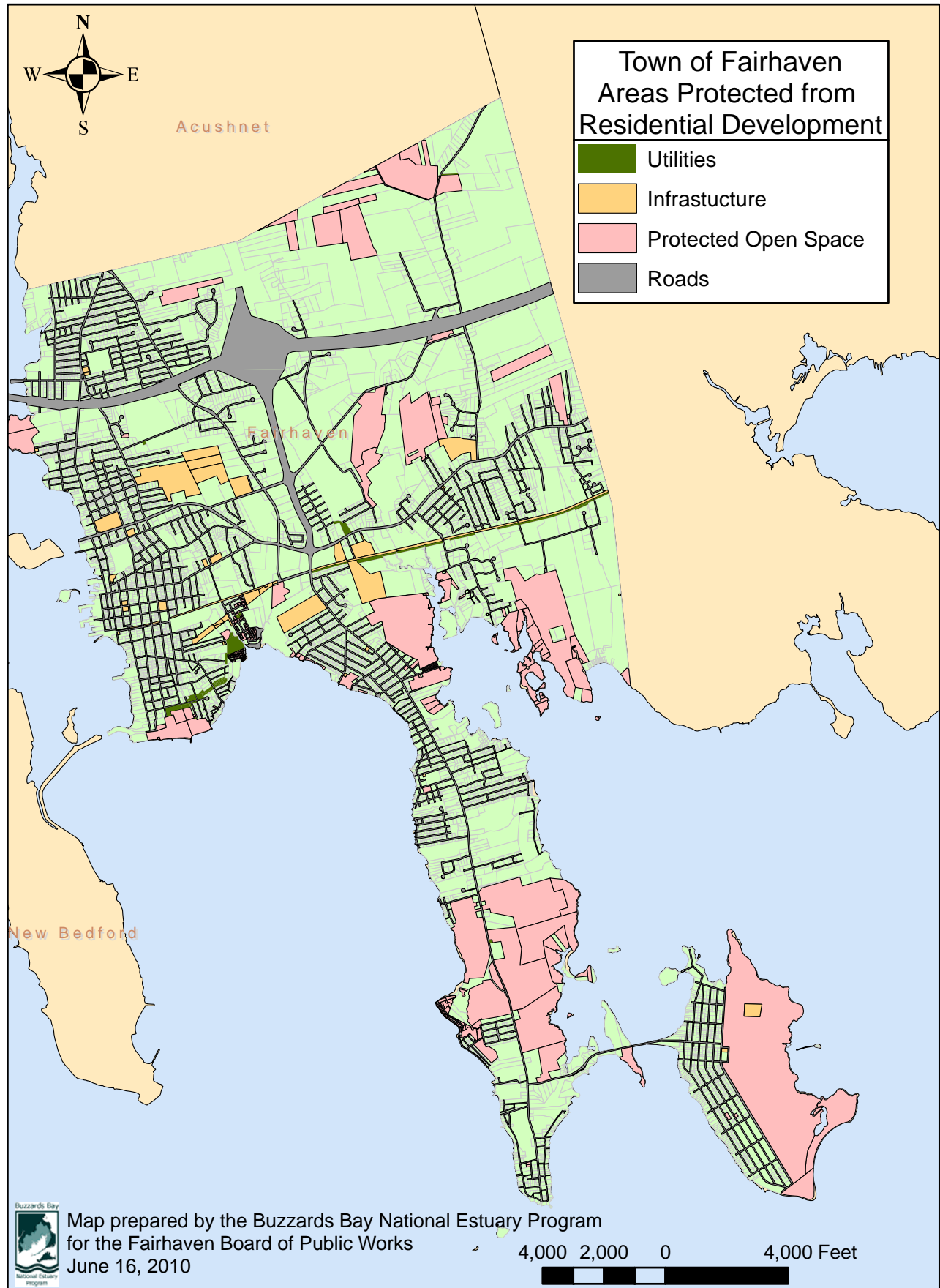
Town of Fairhaven  
2010 Utility Lots



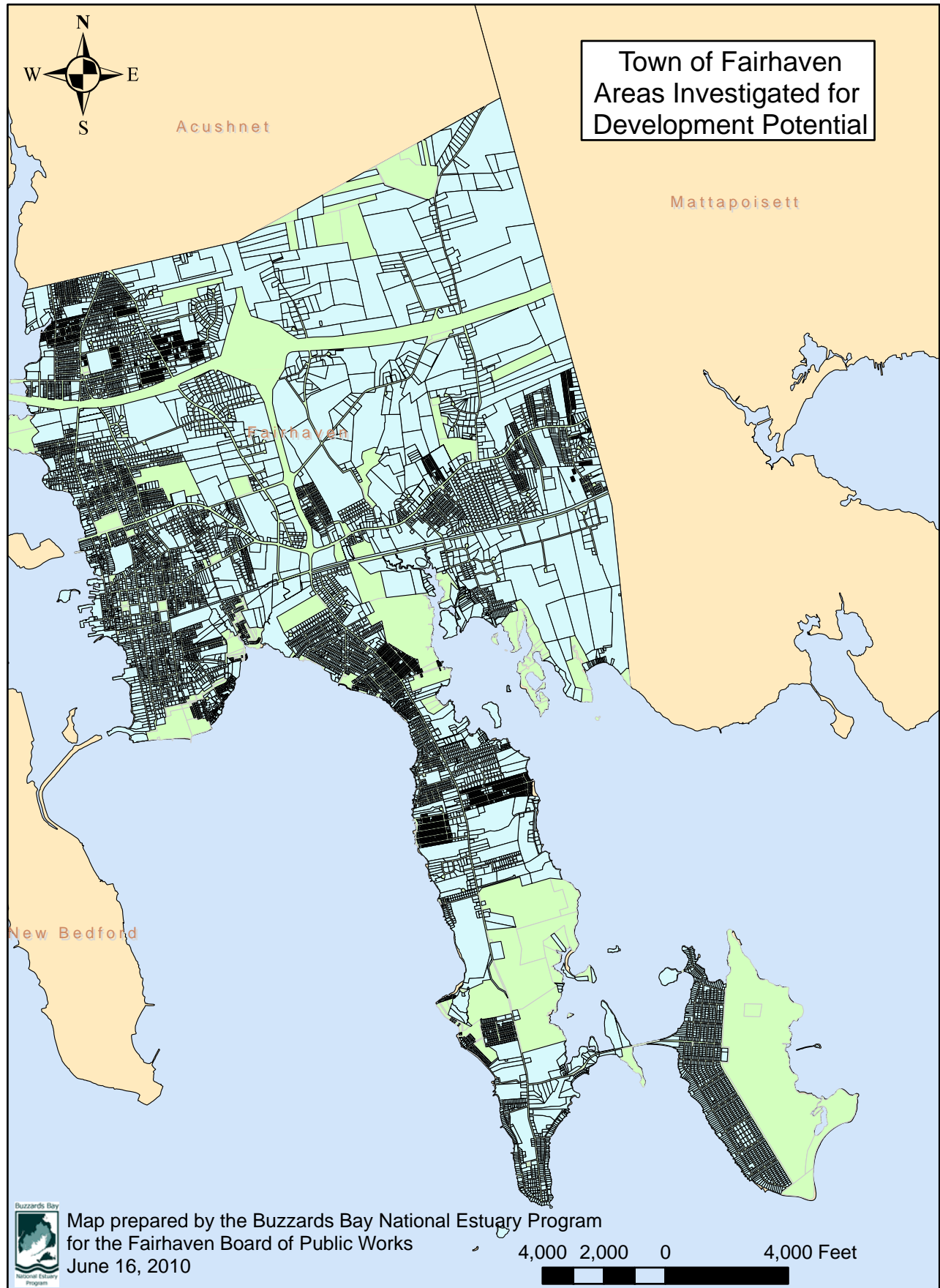
Map prepared by the Buzzards Bay National Estuary Program  
for the Fairhaven Board of Public Works  
June 16, 2010

4,000 2,000 0 4,000 Feet

Map 7



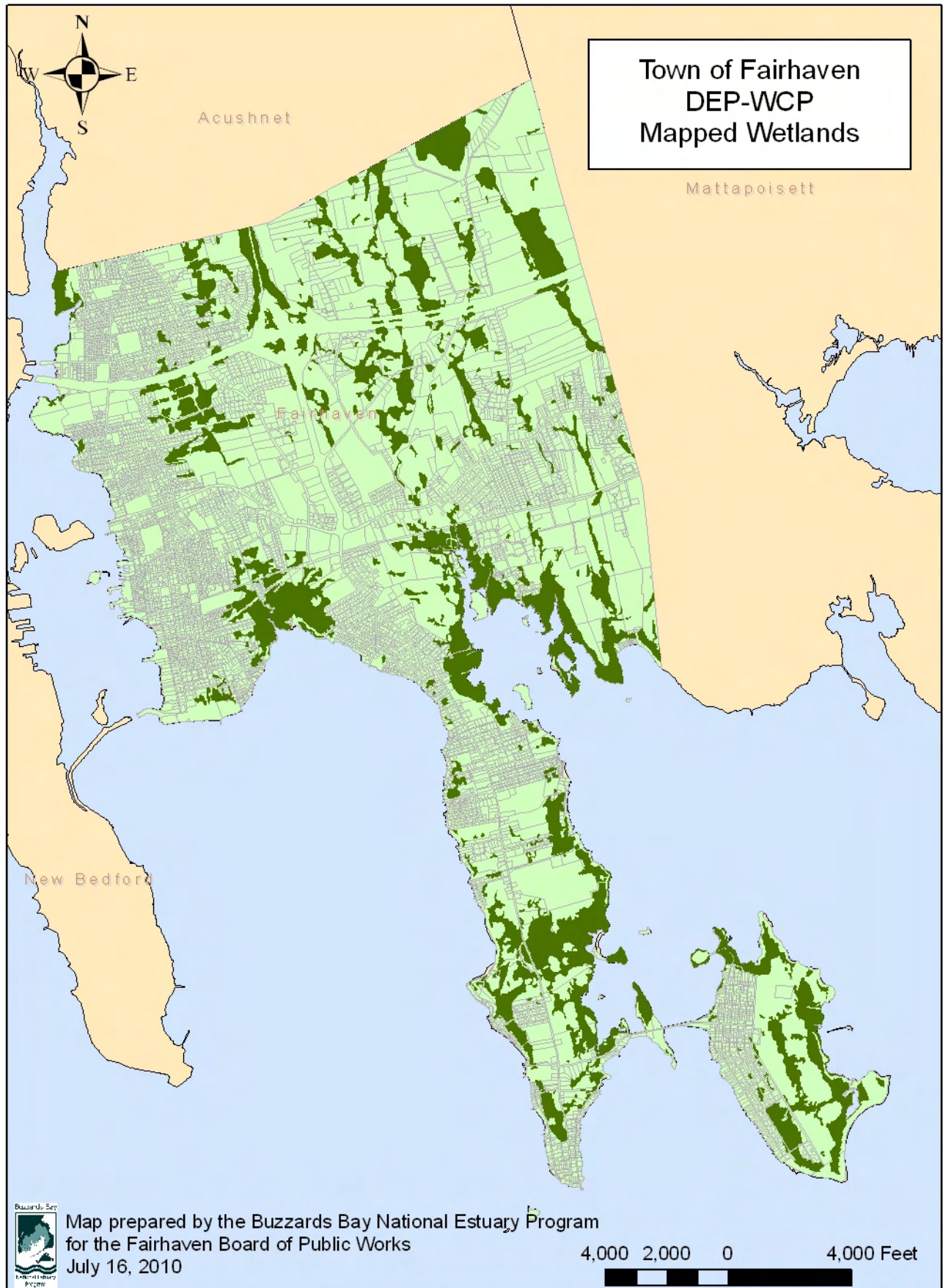
Map 8



Map prepared by the Buzzards Bay National Estuary Program  
for the Fairhaven Board of Public Works  
June 16, 2010

4,000 2,000 0 4,000 Feet

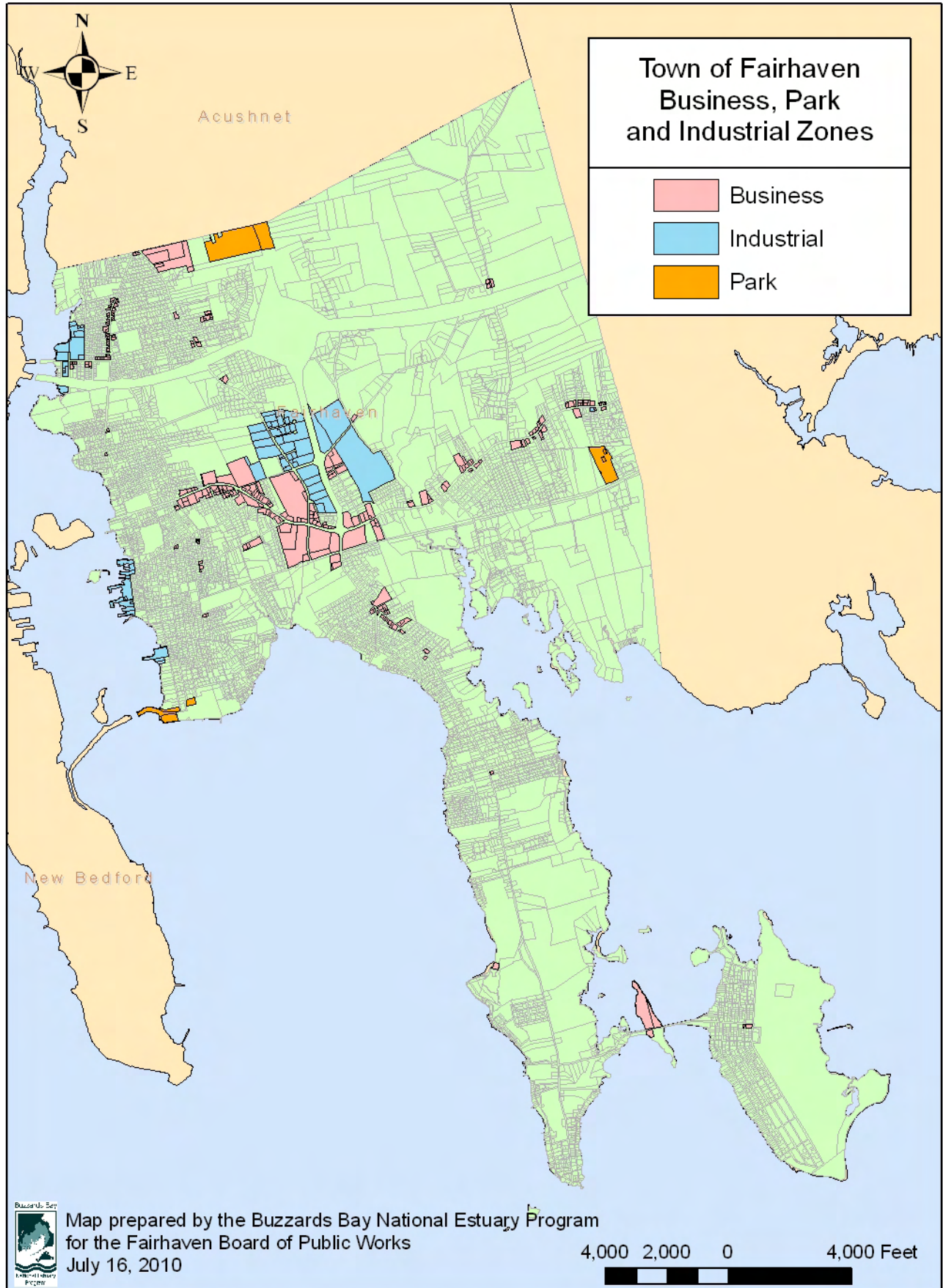
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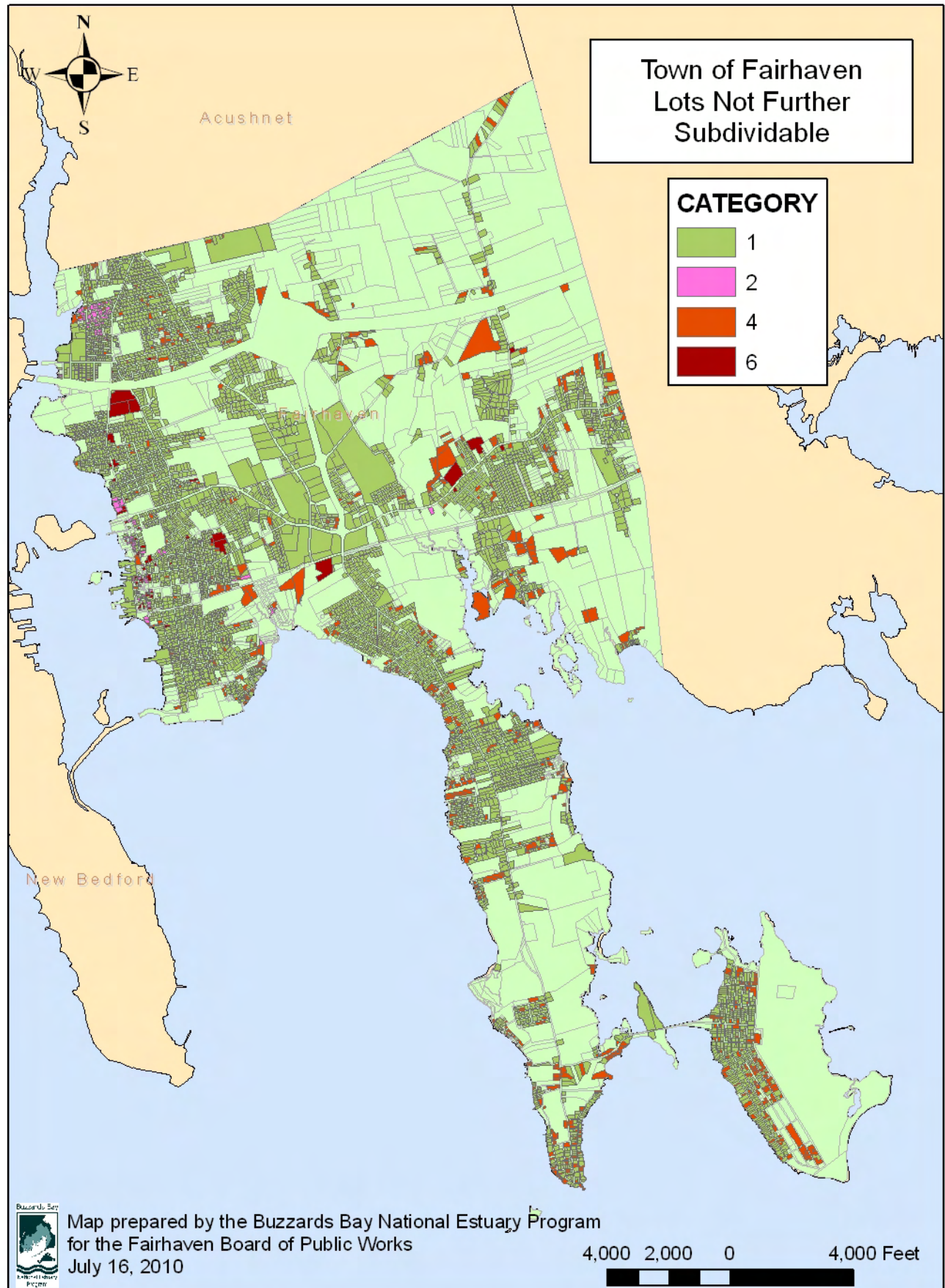
Map prepared by the Buzzards Bay National Estuary Program  
for the Fairhaven Board of Public Works  
July 16, 2010

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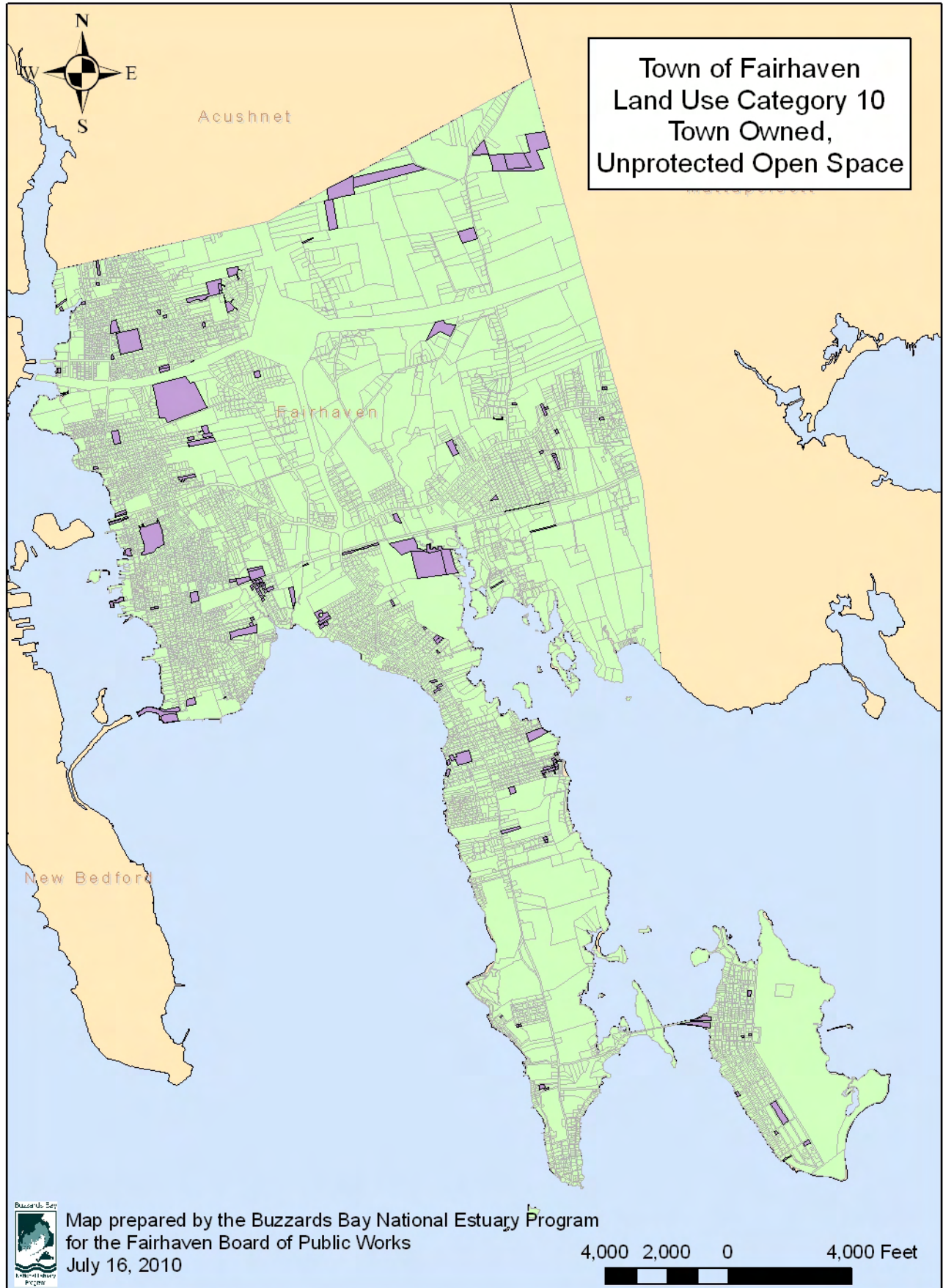
Map 10



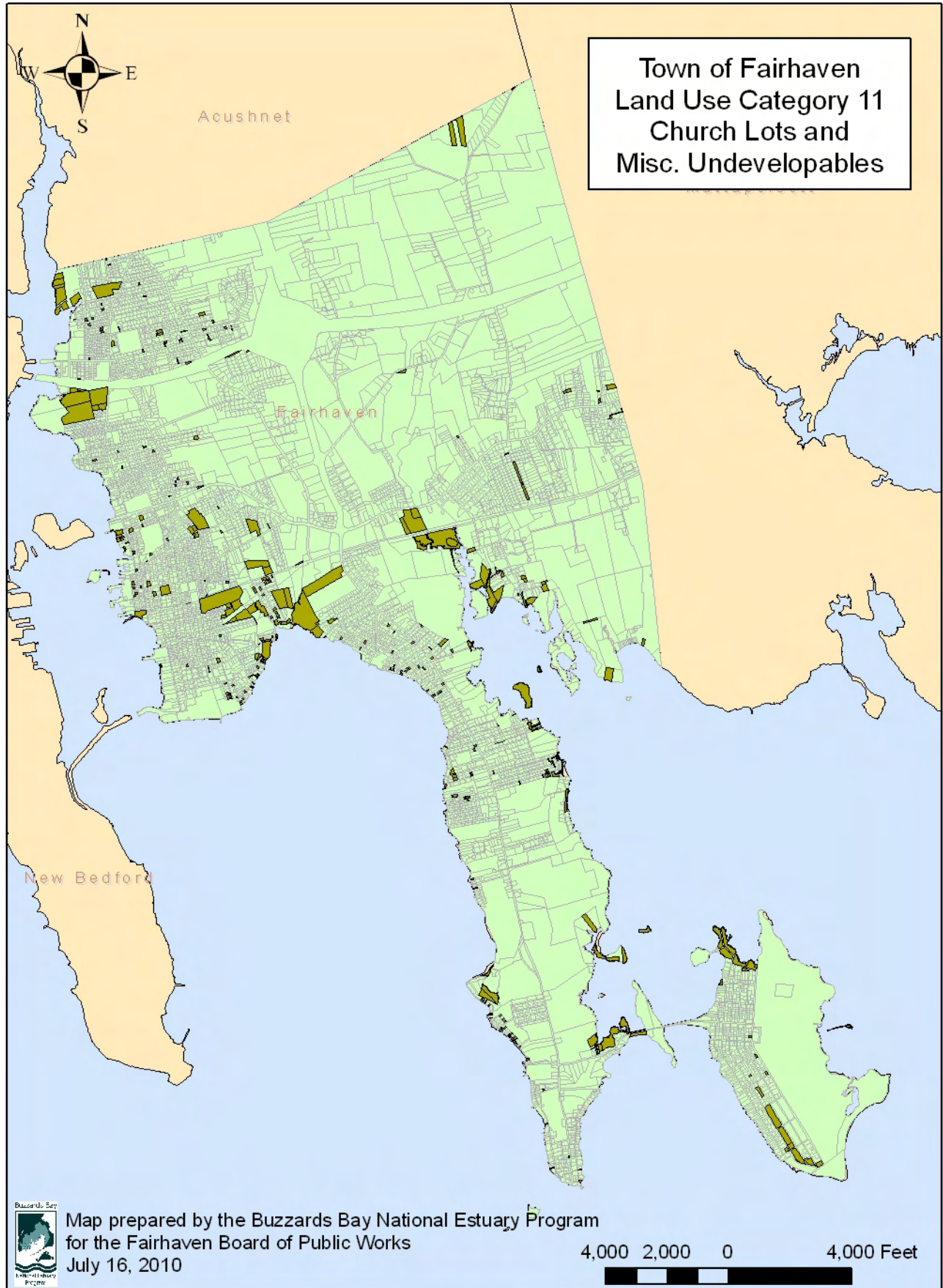
Map 11



Map 12



Map 13



Map 14

