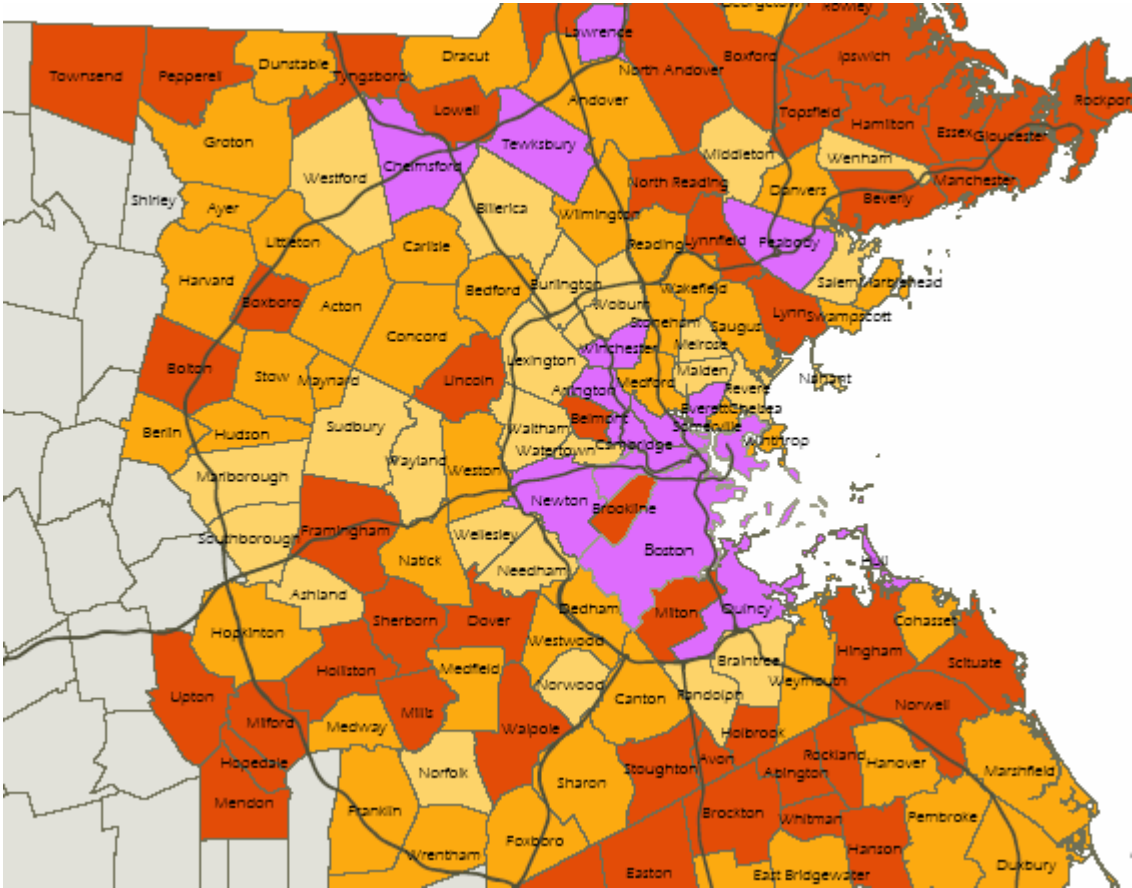


LARGE-LOT HOUSING CONSTRUCTION IN THE GREATER BOSTON METROPOLITAN AREA

New Boston area housing approaching an acre per home



**An analysis by the Massachusetts Housing Partnership
Housing Affordability Initiative at the MIT Center for Real Estate,
with support from The Warren Group**

BACKGROUND

The Massachusetts Housing Partnership (MHP) and the Housing Affordability Initiative at the MIT Center for Real Estate (MIT) have teamed up to quantify how much land is being consumed to develop new housing in the greater Boston metropolitan area. Using supplied by the Warren Group, along with data from county recorders of deeds and town assessors, MHP and MIT examined all new single family and multifamily housing built in the metropolitan area's 154 cities and towns during the five-year period from 1998 to 2002. MHP and MIT then compared the density of new construction to existing housing density in each city and town.

The MHP-MIT study fills a crucial gap by providing information not previously available. MHP and MIT intend to update this information annually to track land use trends in the region over time.

FINDINGS

- Half of the metropolitan area's 30,387 recent new single family homes were built on lots of 0.9 acres or larger.
- The average new single-family home built in eastern Massachusetts is consuming about twice as much land as an existing home in the same community.
- One hundred and eighteen out of 123 communities outside of Route 128 used more land per housing unit (single-family and multi-family) than they had prior to 1998.
- Sixty-two communities outside of Route 128 had land use per unit more than double historic density.
- New single family home development in the study region consumed 39,890 acres (62 square miles) of land, resulting in an average of 1.3 acres per lot. This is an amount of land equivalent to the size of Boston, Brookline, and Arlington combined.
- The median single-family lot size of 0.9 acres was over three and a half times the one-quarter acre median lot size in the Western part of the United States and three times the one-third of an acre lot size in the South.

The MHP-MIT study also took into account 13,896 new multifamily housing units (duplexes, apartments, attached townhouses, etc.). This data excludes Boston.

- The median lot size for multifamily units is just over an eighth of an acre per unit. Outside route 128, the amount of land used for multifamily construction was larger at one-fifth of an acre per unit
- Only one out of four communities outside Route 128 saw multifamily developments of five or more units.
- Condo developments account for considerably more land use per unit than do rental apartments.

METHODOLOGY

Researchers at the Center for Real Estate's Housing Affordability Initiative examined the Warren Group data for 44,749 land development transactions reported during the five-year study period. These data were checked against building permit data from the U.S. Census Bureau; the Warren Group data captures over 90% of the building permits reported by the U.S. Census.

For the 14,362 multifamily units (not including the City of Boston) where Warren Group transaction data does not include lot size information, the Housing Affordability Initiative collected the data directly from recorded deeds and city and town assessors. Boston was excluded from the calculations as there were a large number of rental units converted to condominiums over this time period. Condominium conversions were considered new construction in the Warren Group data and were indistinguishable from actual new construction of condominium units. Future updates of the dataset will seek to identify the condominium units that were actually newly constructed.

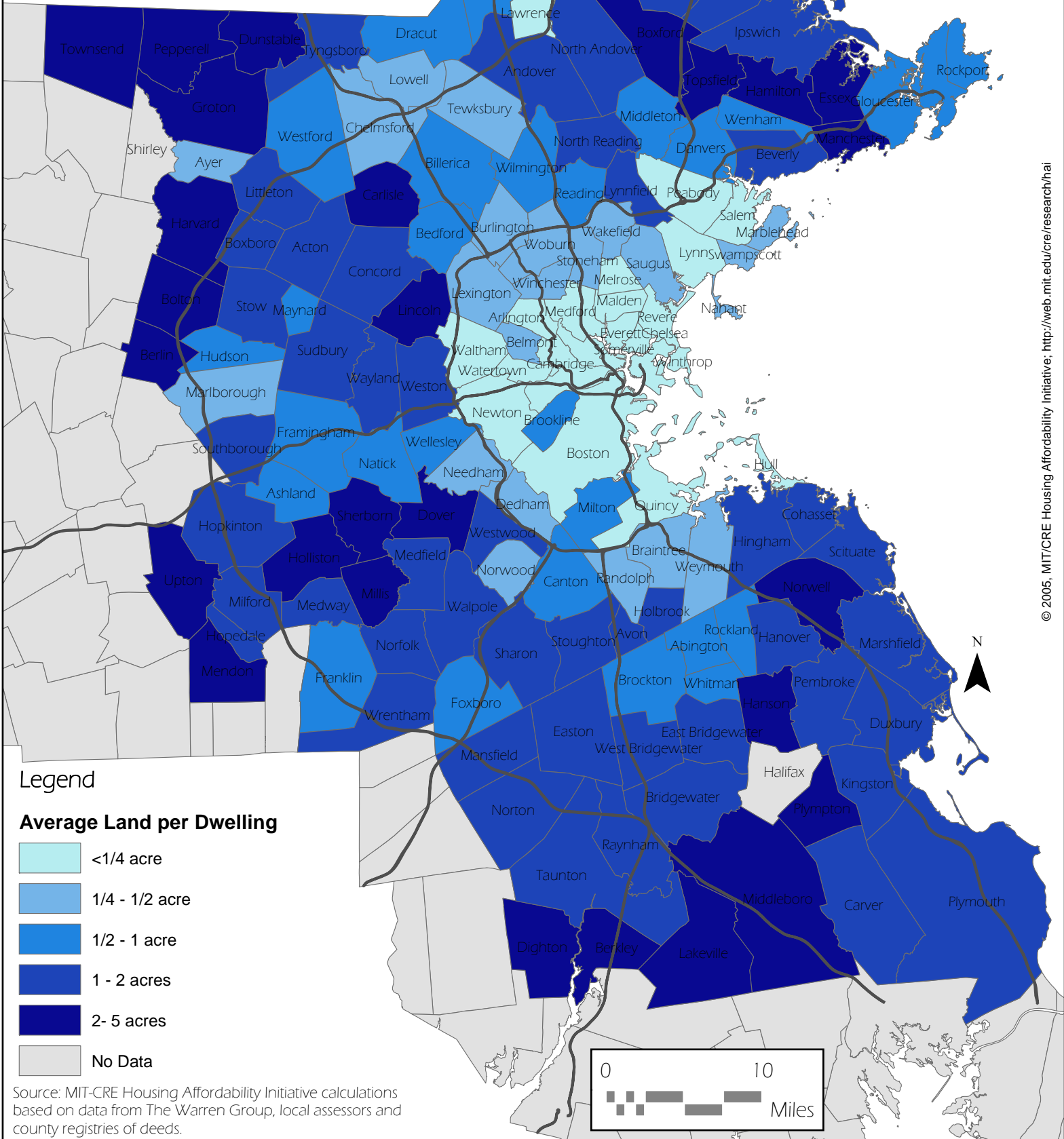
MAPS AND TABLES

On the following pages are maps and a table that document new construction and land use. In order of appearance, these maps show:

1. New housing density in metropolitan Boston, 1998-2002
2. Median single-family lot size for new construction, 1998-2002
3. Median multi-family lot size for new construction, 1998-2002
4. Average new construction densities relative to existing densities
5. Town-by-town chart showing new construction and density.

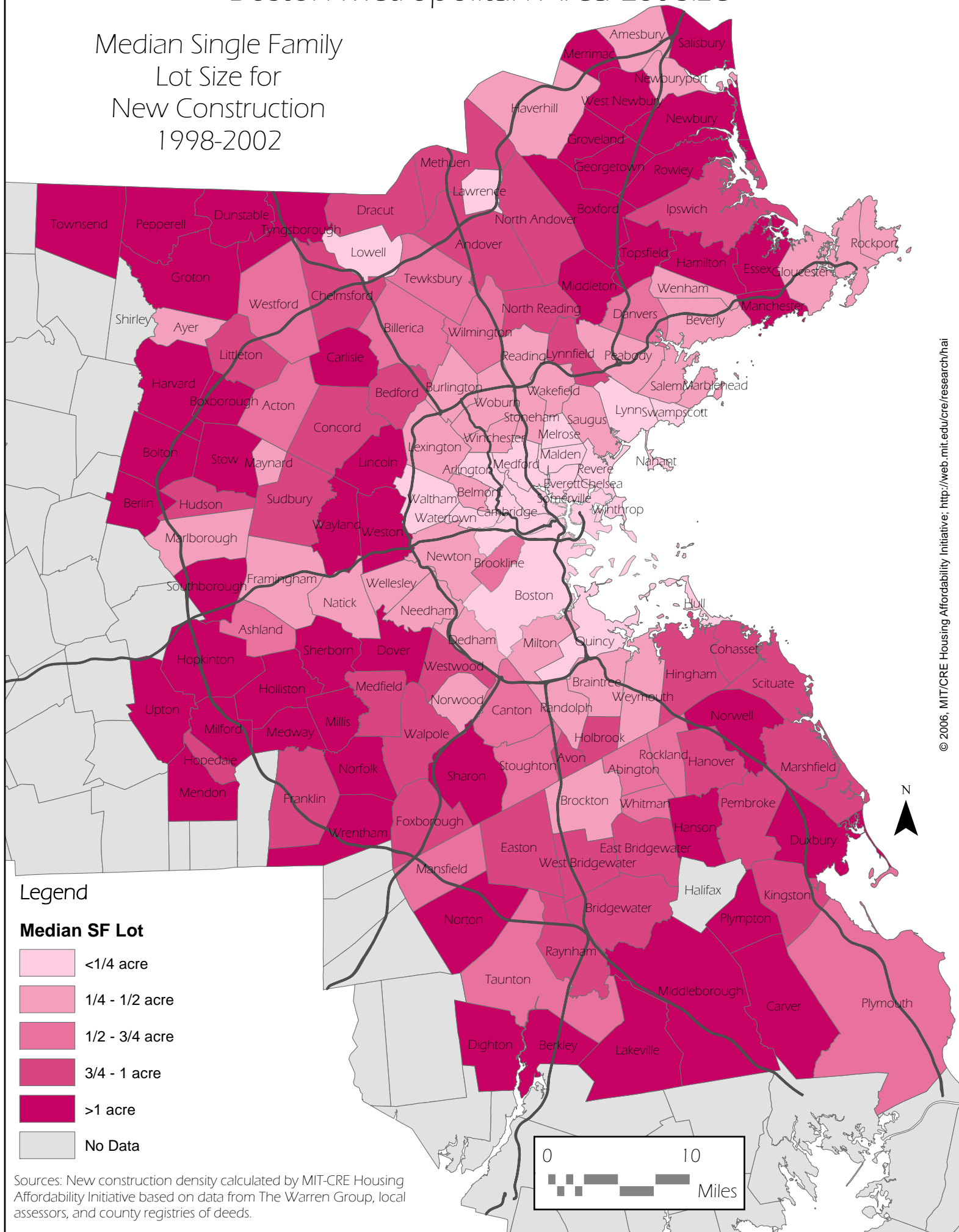
Boston Metropolitan Area New Housing Density

Density of New Residential Construction
 Built 1998–2002
 Includes Apartments and Condominiums



Boston Metropolitan Area Lot Size

Median Single Family
Lot Size for
New Construction
1998-2002



Legend

Median SF Lot

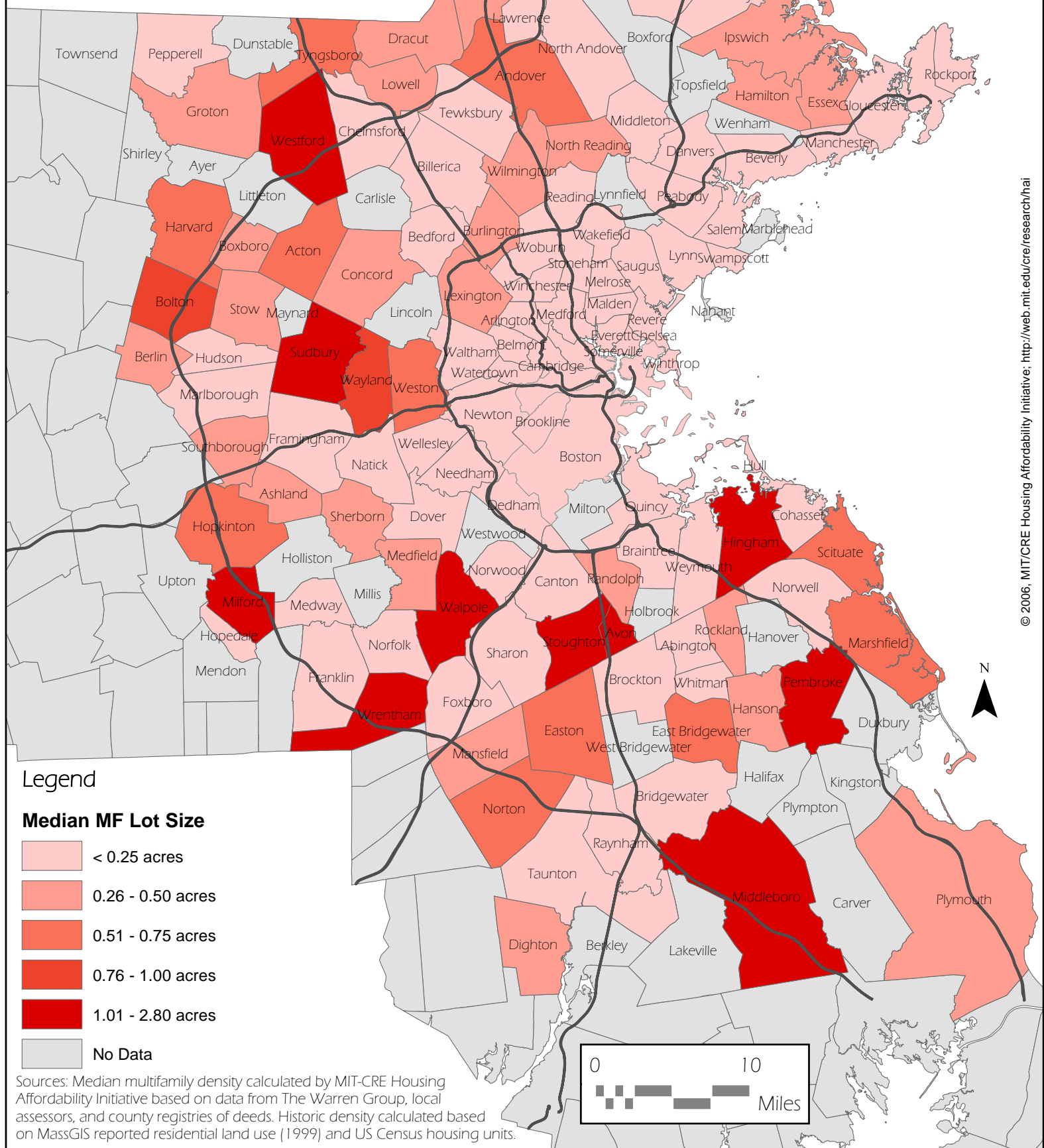
- <1/4 acre
- 1/4 - 1/2 acre
- 1/2 - 3/4 acre
- 3/4 - 1 acre
- >1 acre
- No Data



Sources: New construction density calculated by MIT-CRE Housing Affordability Initiative based on data from The Warren Group, local assessors, and county registries of deeds.

Boston Metropolitan Area Multifamily Construction

Median Multifamily Lot Size for New Construction 1998-2002



Legend

Median MF Lot Size

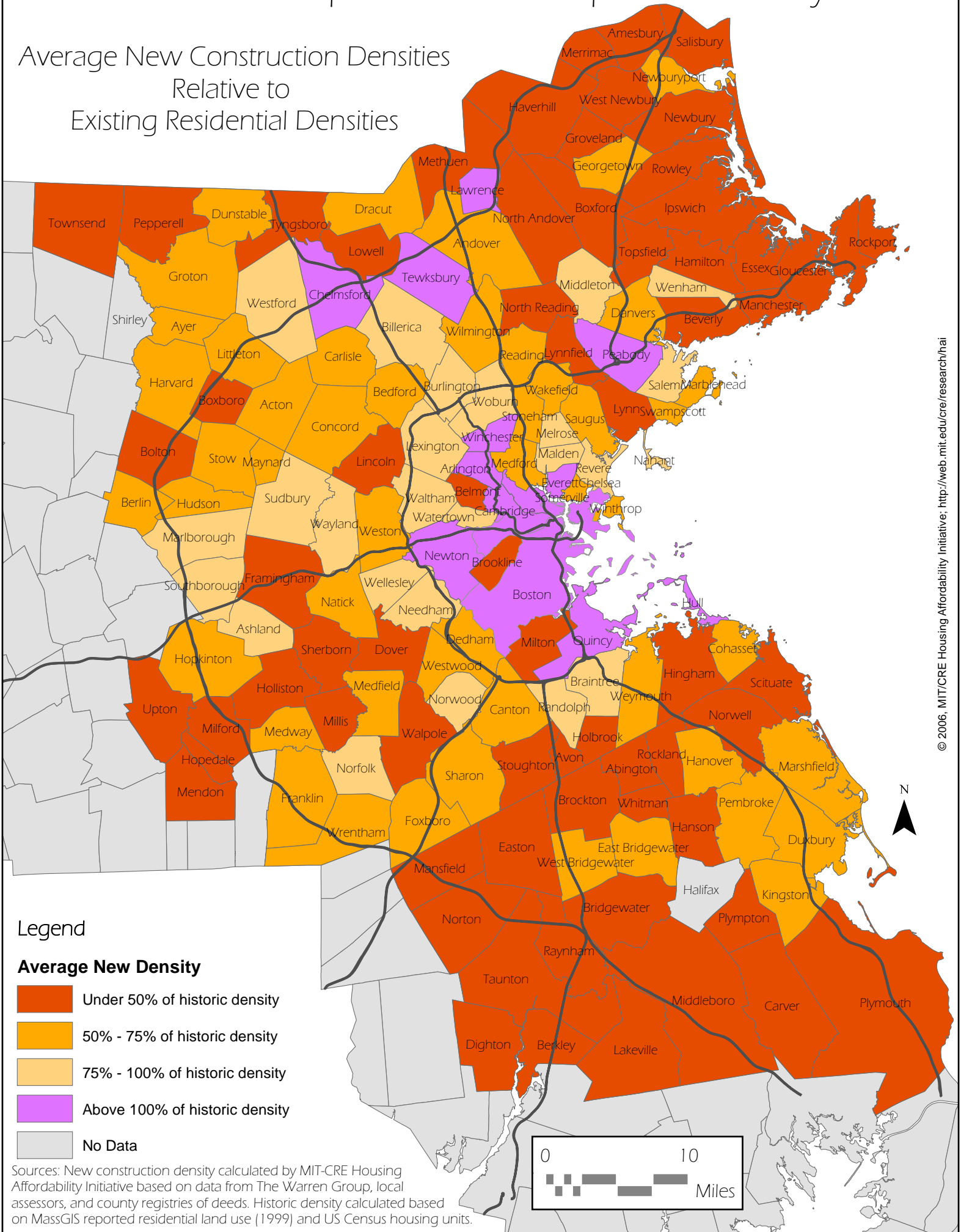
- < 0.25 acres
- 0.26 - 0.50 acres
- 0.51 - 0.75 acres
- 0.76 - 1.00 acres
- 1.01 - 2.80 acres
- No Data

Sources: Median multifamily density calculated by MIT-CRE Housing Affordability Initiative based on data from The Warren Group, local assessors, and county registries of deeds. Historic density calculated based on MassGIS reported residential land use (1999) and US Census housing units.



Boston Metropolitan Area Comparative Density

Average New Construction Densities
Relative to
Existing Residential Densities



Legend

Average New Density

- Under 50% of historic density
- 50% - 75% of historic density
- 75% - 100% of historic density
- Above 100% of historic density
- No Data

Sources: New construction density calculated by MIT-CRE Housing Affordability Initiative based on data from The Warren Group, local assessors, and county registries of deeds. Historic density calculated based on MassGIS reported residential land use (1999) and US Census housing units.



Town	Single Family Units	Median Single Family Lot Size	Multi-family Units	Median Multi-family Lot Size	New Construction Average Lot Size
Abington	169	0.71	9	0.15	0.86
Acton	174	0.63	284	0.70	1.12
Amesbury	210	0.48	2	0.56	0.71
Andover	242	0.91	39	0.69	1.07
Arlington	41	0.16	195	0.03	0.06
Ashby	110	2.39	0	n/a	6.20
Ashland	384	0.69	299	0.26	0.53
Avon	17	0.92	6	1.16	1.00
Ayer	86	0.40	0	n/a	0.48
Bedford	111	0.92	2	0.25	0.99
Bellingham	276	0.93	266	0.20	0.90
Belmont	12	0.46	17	0.11	0.41
Berkley	206	1.50	0	n/a	2.30
Berlin	61	3.06	62	0.48	2.18
Beverly	108	0.49	10	0.08	1.10
Billerica	412	0.69	182	0.22	0.63
Blackstone	110	1.18	14	0.97	2.41
Bolton	194	2.16	2	0.94	2.99
Boxborough	107	1.41	8	0.36	1.59
Boxford	179	2.60	0	n/a	4.28
Boylston	81	2.02	6	0.89	3.75
Braintree	114	0.41	262	0.13	0.35
Bridgewater	498	1.00	26	0.21	1.34
Brockton	267	0.31	11	0.17	0.54
Brookline	45	0.70	3	0.05	0.95
Burlington	108	0.46	57	0.35	0.49
Cambridge	8	0.10	941	0.00	0.01
Canton	169	0.69	145	0.11	0.69
Carlisle	98	2.20	0	n/a	3.08
Carver	208	1.40	0	n/a	1.96
Chelmsford	157	0.93	298	0.12	0.48
Chelsea	4	0.10	60	0.02	0.08
Clinton	162	0.43	16	0.28	0.57
Cohasset	80	0.87	18	0.23	1.16
Concord	104	0.98	30	0.42	1.30
Danvers	108	0.69	116	0.19	0.52
Dedham	74	0.31	27	0.11	0.48
Dighton	195	1.22	4	0.40	3.23
Dover	96	2.36	2	0.23	3.58
Dracut	315	0.93	101	0.37	0.90
Dunstable	145	2.02	0	n/a	2.64
Duxbury	159	1.04	0	0.00	1.44
East Bridgewater	265	0.91	160	0.60	1.20
Easton	373	0.96	10	0.56	1.34
Essex	44	1.71	7	0.30	3.69
Everett	24	0.10	109	0.01	0.04
Foxborough	196	0.92	30	0.05	0.99

Framingham	267	0.46	30	0.13	0.80
Franklin	553	0.92	183	0.08	0.83
Georgetown	164	1.01	16	0.19	1.31
Gloucester	303	0.49	134	0.13	0.76
Grafton	463	0.66	2	0.19	1.08
Groton	338	1.84	28	0.27	2.15
Groveland	102	1.33	40	0.02	1.64
Hamilton	66	1.11	2	0.33	2.67
Hanover	254	0.89	0	0.00	1.58
Hanson	190	1.04	4	0.28	2.03
Harvard	80	3.06	32	0.69	2.61
Haverhill	692	0.48	368	0.18	0.64
Hingham	139	0.92	142	2.80	1.89
Holbrook	133	0.92	0	n/a	1.05
Holliston	189	1.11	0	n/a	2.08
Hopedale	128	0.95	2	0.16	1.28
Hopkinton	585	1.08	4	0.63	1.32
Hudson	226	0.94	189	0.22	0.67
Hull	86	0.23	231	0.07	0.15
Ipswich	224	0.93	59	0.26	1.45
Kingston	260	0.97	0	n/a	1.27
Lakeville	378	1.64	0	n/a	2.70
Lancaster	175	1.56	5	0.99	2.03
Lawrence	44	0.15	454	0.07	0.07
Lexington	293	0.39	73	0.34	0.46
Lincoln	58	2.10	0	n/a	2.73
Littleton	262	0.94	0	n/a	1.35
Lowell	267	0.23	43	0.29	0.27
Lynn	206	0.23	122	0.07	0.22
Lynnfield	74	0.76	0	n/a	1.36
Malden	111	0.14	121	0.01	0.09
Manchester	41	1.58	7	0.08	2.69
Mansfield	319	0.69	4	0.47	1.03
Marblehead	107	0.26	0	0.00	0.43
Marlborough	274	0.45	477	0.21	0.36
Marshfield	363	1.00	35	0.65	1.07
Maynard	84	0.46	0	n/a	0.55
Medfield	153	0.94	2	0.29	1.44
Medford	31	0.16	12	0.07	0.14
Medway	317	1.01	60	0.24	1.14
Melrose	26	0.21	11	0.05	0.21
Mendon	241	1.68	0	n/a	3.28
Merrimac	124	1.84	2	0.26	2.04
Methuen	563	0.92	240	0.26	0.72
Middleborough	477	1.84	51	1.51	2.07
Middleton	243	1.03	258	0.04	0.81
Milford	335	1.03	105	1.09	1.03
Millis	109	1.39	0	n/a	2.31
Millville	74	1.21	2	0.75	2.01
Milton	93	0.46	0	n/a	0.86
Nahant	18	0.24	0	n/a	0.25
Natick	522	0.43	123	0.17	0.53

Needham	254	0.29	58	0.10	0.44
Newbury	131	1.12	0	n/a	1.87
Newburyport	238	0.29	171	0.13	0.32
Newton	177	0.29	333	0.10	0.20
Norfolk	162	1.07	2	0.22	1.27
North Andover	413	0.99	24	0.22	1.08
North Attleborough	488	0.54	22	0.10	0.79
North Reading	217	0.94	0	n/a	1.33
Northborough	206	0.64	35	0.24	1.14
Northbridge	292	0.92	6	0.13	1.49
Norton	363	1.09	91	0.51	1.90
Norwell	156	1.57	85	0.13	2.19
Norwood	93	0.34	44	0.17	0.29
Peabody	137	0.34	183	0.13	0.21
Pembroke	269	0.97	45	1.35	1.39
Pepperell	236	2.06	6	0.13	2.99
Plainville	174	0.49	83	0.17	0.90
Plymouth	1,390	0.72	361	0.39	1.02
Plympton	59	2.43	0	n/a	4.39
Quincy	115	0.18	831	0.05	0.09
Randolph	149	0.30	6	0.26	0.36
Raynham	344	0.96	16	0.22	1.63
Reading	101	0.47	20	0.08	0.56
Revere	66	0.12	228	0.07	0.09
Rockland	199	0.51	49	0.30	0.72
Rockport	84	0.46	14	0.17	0.71
Rowley	169	1.24	10	0.05	1.95
Salem	108	0.35	650	0.06	0.11
Salisbury	125	1.01	42	0.03	1.25
Saugus	258	0.35	8	0.09	0.41
Scituate	179	0.92	50	0.59	1.12
Sharon	157	1.59	2	0.15	1.52
Sherborn	37	4.10	17	0.35	3.40
Shrewsbury	1,044	0.51	233	0.35	0.61
Somerville	1	0.06	342	0.03	0.04
Southborough	243	1.07	230	0.43	1.09
Stoneham	95	0.29	18	0.06	0.35
Stoughton	255	0.70	4	1.76	1.02
Stow	142	1.50	76	0.31	1.57
Sudbury	280	0.96	26	1.81	1.32
Swampscott	54	0.18	4	0.09	0.28
Taunton	705	0.67	89	0.17	1.06
Tewksbury	283	0.73	448	0.17	0.42
Topsfield	69	1.68	0	n/a	2.08
Townsend	101	3.10	0	n/a	4.74
Tyngsborough	289	1.53	8	0.53	1.84
Upton	233	1.91	0	n/a	2.43
Wakefield	164	0.31	202	0.09	0.34
Walpole	365	0.92	90	1.62	1.16
Waltham	168	0.16	576	0.18	0.15
Wareham	393	0.69	18	0.29	0.93
Watertown	5	0.10	36	0.09	0.09

Wayland	118	1.03	130	0.85	1.00
Wellesley	174	0.46	25	0.15	0.52
Wenham	74	0.48	0	n/a	0.91
West Bridgewater	126	0.75	0	n/a	1.22
West Newbury	68	1.98	8	2.00	3.21
Westborough	215	0.65	484	0.21	0.60
Westford	602	0.67	121	1.30	0.96
Weston	187	1.43	20	0.60	1.71
Westwood	142	0.89	0	n/a	1.17
Weymouth	194	0.45	578	0.11	0.43
Whitman	208	0.52	71	0.21	0.73
Wilmington	312	0.57	2	0.34	0.73
Winchester	131	0.30	27	0.12	0.31
Winthrop	6	0.22	2	0.08	0.18
Woburn	266	0.29	209	0.06	0.26
Wrentham	262	1.03	10	1.78	1.57