

CHARLES RIVER WATERSHED STUDY

**SOCIAL AND ECONOMIC DATA
INTERIM MEMO #1**

*Charles River Population
and Urbanization*

Prepared by

New England Division, Corps of Engineers

424 Trapelo Road, Waltham, Mass.

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FOREWORD

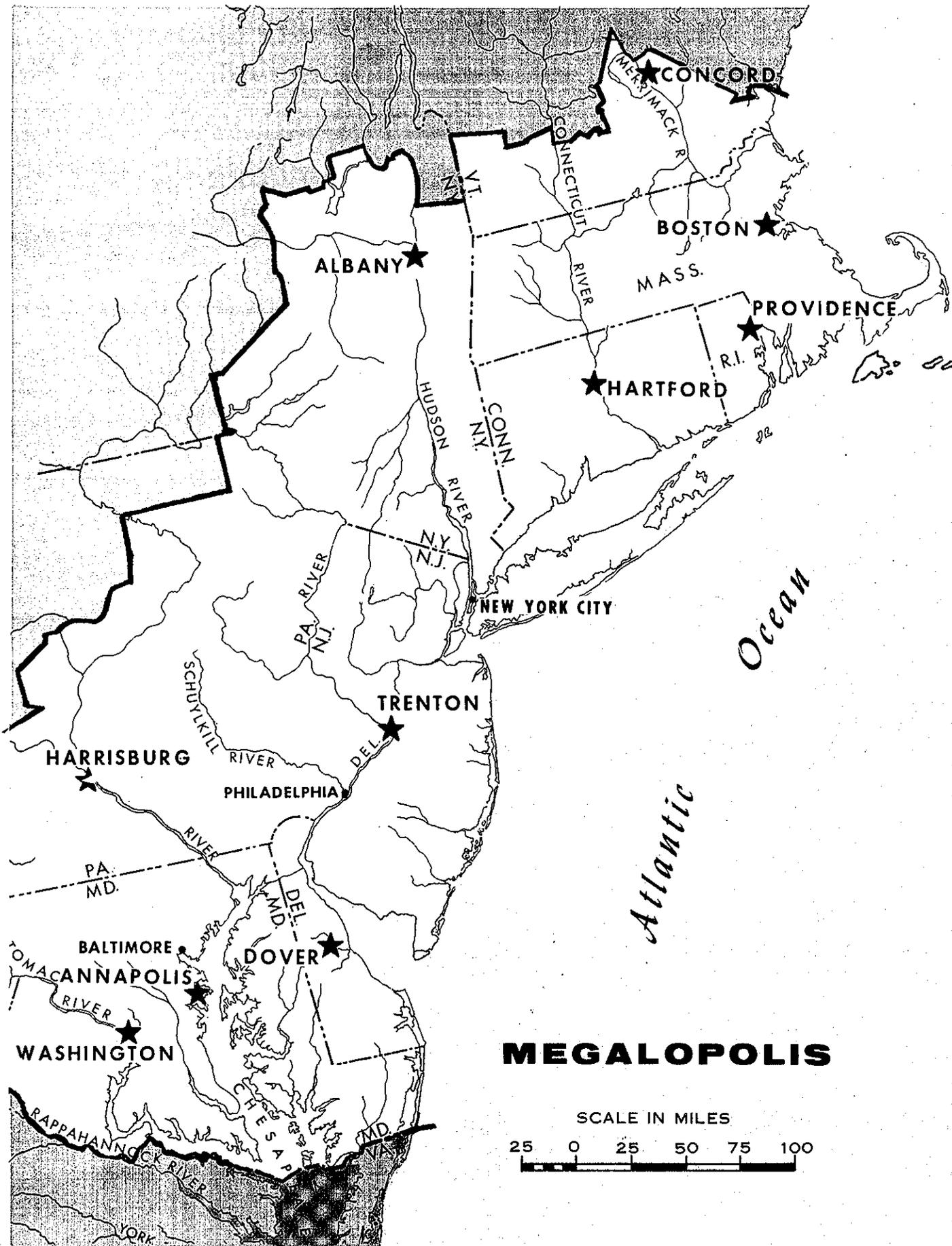
Population pressure on the lands and waters of the Charles River Valley underlies the Charles River Watershed studies by the U. S. Army, Corps of Engineers, Waltham, Massachusetts. Watershed population and urbanization are reported in this memorandum.

The study goal is a water-and-related-land-resource management plan to meet the water needs and water related environmental goals of Charles River Watershed present and future occupants and residents.

It is widely forecast that the United States national population, which in 1967 was some 200 million people, by the year 2000 will be some 300 million, nearly all of whom will live in urban areas. If so, the Charles River Watershed population could increase 50% in the fifty-year study goal time span. To provide a perspective for this growth prospect, the urbanization of the northeastern United States is discussed relative to the Charles River Watershed, 1765-1865-1965.

The tables and maps presented are:

- U. S. Northeastern Seaboard Map
- Charles River Watershed Populations, Table 1
- Watershed Areas of Charles Municipalities, Table 2
- Population Growth Comparisons, Table 3
- Watershed Population Distribution, Table 4
- Megalopolis Population Densities, Table 5
- Charles Watershed Population Densities, Table 6
- Watershed City and Town Densities, Table 7
- Watershed Municipal Incorporations, Table 8
- Watershed Early Colonial Towns Map



THE CHARLES RIVER WATERSHED AND THE NORTHEASTERN SEABOARD

Along some 500 miles of the northeastern seaboard of the United States of America is a belt of inter-related urban and suburban settlements forty to sixty miles wide, punctuated by woods, farms, rivers and coastal estuaries. This northeastern area encompasses the Charles River Watershed, and intervening city clusters between Boston and Washington, D. C. The aggregate population of this area was 42 million or more in 1965, about one-fifth of the nation.

Two characterizations of this northeast region are quoted below from the report "MEGALOPOLIS", by Professor Jean Gottman of the University of Paris, M. I. T. Press Edition, 3d printing, May 1966.

"The Northeastern seaboard of the United States is today the site of a remarkable development -- an almost continuous stretch of urban and suburban areas from southern New Hampshire to northern Virginia and from the Atlantic shore to the Appalachian foothills. The processes of urbanization, rooted deep in the American past, have worked steadily here, endowing the region with unique ways of life and of land use. No other section of the United States has such a large concentration of population, with such a high average density, spread over such a large area. And no other section has a comparable role within the nation or a comparable importance in the world. Here has been developed a kind of supremacy, in politics, in economics, and possibly even in cultural activities, seldom before attained by an area of this size." (op. cit., page 3)

From the Charles River Watershed end of the Atlantic urban region, there have come notable educational, financial, agricultural and urbanizing innovations. Dedham Town Meeting in 1639 voted to dig a canal between the Charles River and East Brook to make practical water power available in the Town. Dedham established in 1644 the first free, tax-supported public elementary school in the nation. In Lexington in 1839, Horace Mann established the first public normal school (teacher training school) in the nation. Boston (among many other firsts too numerous to list here) is the home of the Massachusetts Society for Promoting Agriculture, and is the home of the first chartered mutual life insurance company in the nation. On the Charles River at Moody Street, Waltham, there was established in 1813 the first integrated continuous power-facture all under one roof of cotton textiles in the United States, from raw cotton in the bale to greige goods, ready for finishing. Cambridge had the first printing press and general news publication in the nation. In Charles River environs are several universities of world stature in scholarship, research and educational excellence. From the Charles and Neponset area have come two early Presidents and a late great President of the United States, also many other important contributors to advances in knowledge and in social organization.

In "The Historian and the City," Editors Oscar Handlin, Harvard University, and John Burchard, M. I. T., state that the largest 21 cities of the world in 1800 contained $4\frac{1}{2}$ million population. In 1961 the same 21 contained 85 million population, nearly twenty times their 1800 population. A parallel indication by Professor Charles Abrams, Columbia University, New York City, was compiled from United Nations sources in "Man and His Struggle for Shelter" and showed that cities of 20,000 population each or more around the world increased in population some twenty-three times between 1800 and 1950.

In contrast to city populations increasing twenty times or more between 1800 and 1950, Professor Abrams reported world population in 1950 was only 2.6 times its 1800 population. For continental Europe, Professor William L. Langer, Harvard University, reported in 1963 that the population increased 2.9 times between 1750 and 1900, from about 140 million to 400 million.

The U. S. Census Bureau reports the continental United States population increased 29 times between 1800 (5,308,000) and 1950 (151,326,000). This was ten times the world and European rates of increase and reflected the emigrations from Europe, Asia and Africa into the U.S.A. during the nineteenth century, particularly into the Atlantic Coastal Megalopolis.

Of the natural resources and the continental relations of this region, Professor Gottman said:

"Just as a Main Street lives for and prospers because of the functions of the whole city, rather than because of any purely local advantages of its own, so is Megalopolis related to the whole United States and its rich resources. In general, Megalopolis itself was blessed only moderately by nature. It has no vast expanse of rich soils (there are some good soils but more poor ones), no special climatic advantages (its cyclonic climate is far from ideal), and no great mineral deposits (though there are some). In these respects it cannot compare with the generous natural potential of the Middle West or Texas or California. But it does excel in locational advantages -- deep harbors of a drowned shoreline, on which its principal cities were early established, and a connecting-link relationship between the rich heart of the continent and the rest of the world. By hard work man has made the most of these locational resources, the most outstanding ones in an otherwise average natural endowment. As a result, early in its history Megalopolis became a dynamic hub of international relations, and it has maintained and constantly expanded that role to the present day. It is now the most active crossroads on earth, for people, ideas, and goods, extending its influence far beyond the national borders." (op. cit., page 8)

The water needs of the future population and the future urbanization of the Charles River Watershed will be influenced, indeed controlled, by the dynamics of the dominating United States Atlantic coastal urban system.

This coastal section of the United States is of importance, and significant evolutionary influences are continuing at work within it. New modes of human living are evolving, appearing and spreading, and the geographic distribution of human habitat and of economic activities are changing.

POPULATION

In eastern Massachusetts, the Charles River Watershed is an important part of Megalopolis, and of the principal population cluster of New England.

Some 849,000 people lived in the Charles Watershed in 1965, Table 1. This is about one-third of the 2.5 million people resident in the 152 municipalities of the Federally-aided Eastern Massachusetts Regional Planning study. In the Charles River Watershed are all or parts of thirty-five of these municipalities, Table 2.

The Watershed population in 1965 was about 26 times that of two centuries earlier, 1765. This growth was substantially in range with the population growth of Eastern Massachusetts and of the state as a whole, over the same two centuries, Table 3.

Such growth of Charles River Watershed population was also substantially equivalent to western world urban growth, 1800 - 1950.

The watershed 1965 populations listed in Table 1 were estimated from state-reported 1965 populations, adjusted by voting precincts; by counts of houses shown in April 1965 aerial photographs; and by other local knowledge.

No adjustment was attempted for local institutional or college population elements. The Federal Census enumerates each person where he is found on the Census day regardless of whether he considers that municipality his permanent domicile or not. The Decennial Census of Massachusetts counts only those persons who claim a domicile in a particular Massachusetts community. Hence, persons living on military reservations, students in educational institutions, and the like, are not enumerated in the State Census unless they consider Massachusetts their permanent residence.

All of the population numbers in Table 1, 3, 4, and 5, are drawn from Commonwealth of Massachusetts data, published by the office of the Secretary of State. These basic data have been examined, averaged, adjusted or rounded as briefly noted at each table.

Population growth has been strikingly similar in the Charles River watershed, in four eastern counties of Massachusetts, and in the whole Commonwealth: Table 3. Each of these three geographic areas had 1965 population 22 to 24 times its 1765 population.

TABLE I

CHARLES RIVER WATERSHED POPULATIONS, 1765-1965

Year Incorp.		<u>Estimated Watershed Populations</u>			Whole Town 1965 <u>Population</u>
		<u>1765</u>	<u>1865</u>	<u>1965</u>	
1807	Arlington	--	150	3,000	52,482
1846	Ashland	--	100	310	8,698
1719	Bellingham	270	600	4,245	10,604
1859	Belmont	--	625	11,345	28,794
1630	Boston	18,600	117,390	323,430	616,326
1705	Brookline	340	5,260	53,610	53,608
1632	Cambridge	1,570	27,150	67,350	92,677
1636	Dedham	1,910	3,000	15,000	26,618
1784	Dover	--	600	3,310	3,512
1778	Foxboro	--	5	5	12,223
1778	Franklin	--	2,000	14,660	14,721
1724	Holliston	705	3,125	8,915	8,915
1886	Hopedale	--	--	520	4,303
1715	Hopkinton	125	200	740	5,512
1713	Lexington	450	750	4,595	31,388
1754	Lincoln	600	700	3,290	4,463
1651	Medfield	600	900	7,130	7,429
1713	Medway	785	3,220	6,870	6,869
1667	Mendon	1,220	50	85	2,310
1780	Milford	--	9,000	16,700	17,034
1885	Millis	--	--	5,260	5,262
1651	Natick	250	2,500	6,075	30,365
1711	Needham	945	2,795	29,305	29,303
1691	Newton	1,310	8,975	88,515	88,514
1870	Norfolk	--	--	3,985	3,985
1674	Sherborn	500	800	2,100	2,333
1842	Somerville	--	4,675	28,335	86,332
1724	Walpole	25	75	175	16,390
1738	Waltham	665	6,895	57,135	57,134
1630	Watertown	500	2,835	36,240	40,115
1780	Wayland	25	75	200	12,192
1881	Wellesley	--	--	26,295	26,297
1712	Weston	770	1,230	9,650	9,848
1897	Westwood	--	--	3,650	12,123
1673	Wrentham	1,500	2,000	6,760	7,517
		33,665	207,680	848,790	1,436,196

TABLE 2

AREAS OF WATERSHED MUNICIPALITIES

<u>Municipality</u>	<u>Town Total (sq. mi.)</u>	<u>Watershed Portion (sq. mi.)</u>	<u>Percent in Watershed (% of total)</u>
<u>Less than 9% in Watershed</u>			
Foxboro	20.80	0.02	0.1
Mendon	17.94	0.29	1.6
Wayland	15.88	0.42	2.6
Ashland	12.96	0.56	4.3
Arlington	5.58	0.35	6.3
<u>From 9% to 50% in Watershed</u>			
Walpole	21.09	2.06	9.8
Hopkinton	27.92	2.86	10.2
Hopedale	5.27	0.99	18.8
Lexington	16.63	4.91	29.5
Westwood	11.24	3.82	34.3
SOMERVILLE	4.12	1.40	34.0
Belmont	4.66	1.87	40.2
Bellingham	18.86	7.93	42.1
Wrentham	22.68	9.83	43.3
<u>50% - 80% in Watershed</u>			
Natick	15.99	8.83	55.2
BOSTON	45.40	25.97	57.2
Lincoln	15.92	9.14	61.3
CAMBRIDGE	7.14	4.61	62.2
Dedham	10.79	7.21	66.9
Medfield	14.52	11.36	78.2
<u>80% - 100% in Watershed</u>			
Sherborn	15.39	12.84	83.5
Dover	15.31	13.11	85.6
Watertown	4.17	3.60	86.3
Milford	14.99	12.93	86.4
Franklin	27.00	24.50	90.7
Weston	17.36	15.80	91.0
Holliston	19.10	19.02	99.7
Norfolk	15.35	15.31	99.8
Brookline	6.82	6.82	100
Medway	11.66	11.66	100
Millis	12.26	12.26	100
Needham	12.75	12.75	100
NEWTON	18.33	18.33	100
WALTHAM	13.52	13.52	100
Wellesley	10.51	10.51	100

(City names all capital letters)

TABLE 3

POPULATION GROWTH COMPARISONS 1765-1965

	<u>1965</u>	<u>1865</u>	<u>1765</u>
Charles River Watershed	848,790	207,680	33,665
Massachusetts	5,295,280	1,267,030	240,430
Four Eastern Counties	3,155,585	715,935	112,080
Essex	609,000	171,035	43,525
Middlesex	1,280,235	220,385	34,895
Norfolk	560,135	116,305	17,680
Suffolk	<u>706,215</u>	<u>208,210</u>	<u>15,980</u>
	3,155,585	715,935	112,080

Throughout 200 years of record of Charles River population, some 80% to 90% of Watershed residents have dwelt downstream of South Natick dam, Table 4. It is impressive that the population division has continued so strongly constant despite ten-fold and twenty-fold increases in numbers of people, and despite great changes in local transportation methods, with huge increase of personal mobility over these 200 years.

TABLE 4

WATERSHED POPULATION DISTRIBUTION

<u>Year</u>	<u>Entire Watershed</u>	<u>Downstream of So. Natick</u>	
		<u>Number</u>	<u>Percent</u>
1765	33,665	27,825	82.5
1865	207,680	184,505	89.0
1965	848,790	767,150	90.5

POPULATION DENSITY

The Charles River Watershed axis nearly coincides with the Boston/New York/Philadelphia/Wilmington/Baltimore/Washington axis of the Megalopolis. The Charles Watershed 1965 average of 2,785 persons per gross square mile is higher than many county averages for the Megalopolis (Table 5), although not the New York and New Jersey peak densities, which are some of the highest in the world.

Within the Charles Watershed is a wide variation of population density among principal segments, Table 6. The highest density is below Watertown Dam, in lands surrounding and draining to the Charles River Basin. The next highest density is in the suburbs between South Natick Dam and Watertown Dam, only one-fifth the Basin density. And in the towns yet farther out, the 1965 density was only one-fifth that of the suburbs and one-twenty fifth that of the Basin. In the headwaters towns, the density was higher again, reflecting urban concentration in Milford and environs. There is further variation of population density among the watershed portions of the individual cities and towns, Table 7.

The 1965 numbers and averages in Tables 5, 6 and 7 reflect the cumulative results of personal preferences, personal incomes, personal mobility and availability of jobs over the last 100 years or more. Changes in these and other socio-economic factors need to be forecast.

TABLE 5

MEGALOPOLIS
1960 COUNTY AVERAGE PERSONS PER SQUARE MILE
 (U. S. Census Bureau Data)

Massachusetts

Essex	1,150
Middlesex	1,500
Norfolk	1,290
Suffolk	14,100

Rhode Island

Bristol	1,490
Providence	1,370

Connecticut

New Haven	1,090
Fairfield	1,040

Pennsylvania

Camden, N. J.	1,770
Delaware, Pa.	3,010
Montgomery	1,040
Philadelphia	15,500

Delaware

Newcastle	700
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New York

Bronx	34,700
Kings	37,600
Nassau	4,500
New York	73,900
Queens	16,750
Richmond	3,700
Westchester	1,820

New Jersey

Bergen	3,330
Essex	7,100
Hudson	13,000
Mercer	1,170
Middlesex	1,390
Morris	559
Passaic	2,100
Union	4,890

Maryland

Baltimore County	820
Baltimore City	12,500
(combined)	2,130

District of Columbia

The District	12,500
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TABLE 6

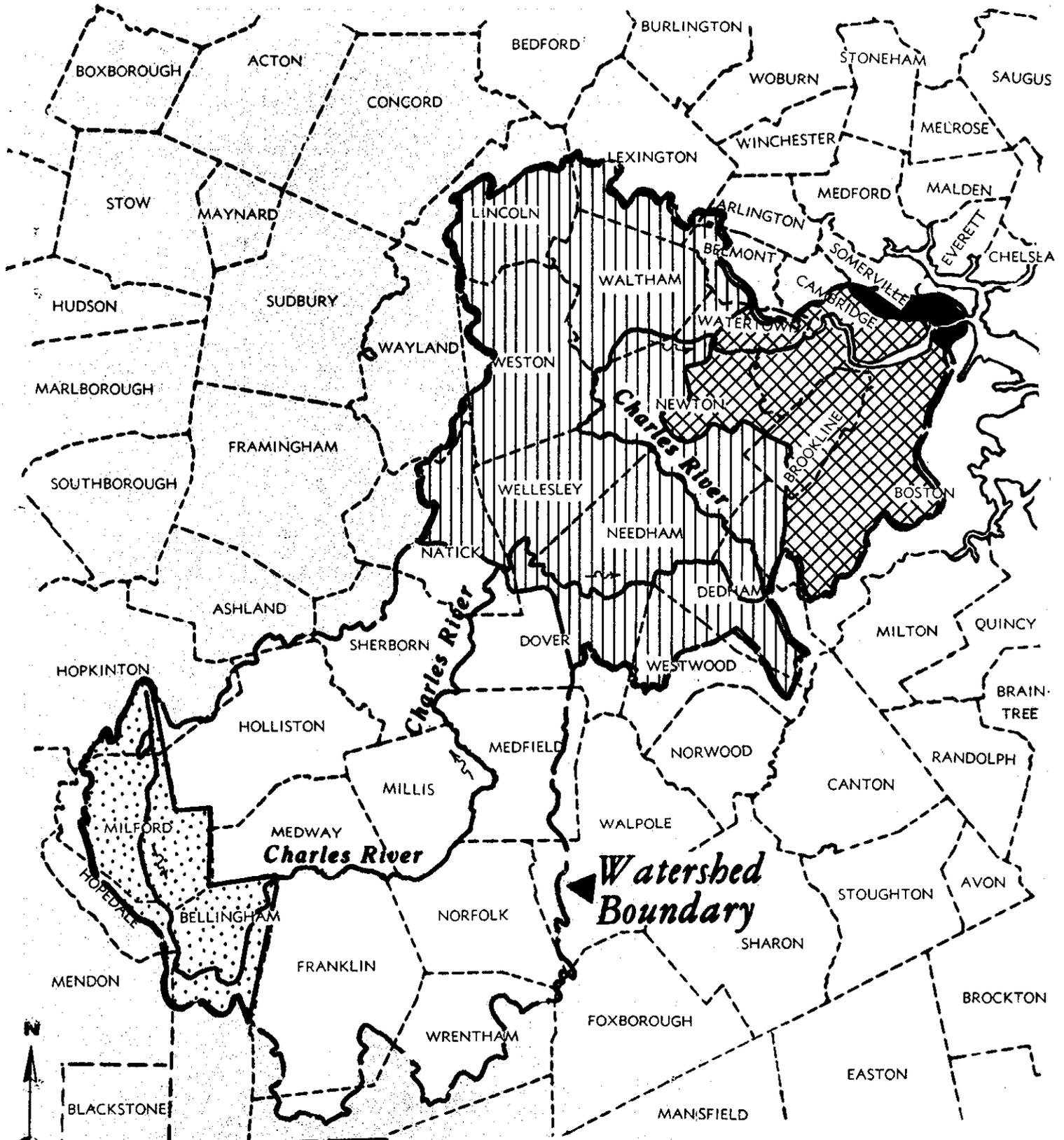
WATERSHED SEGMENT 1965 POPULATION DENSITIES

<u>Watershed Segment</u>	<u>Area (sq. mi.)</u>	<u>Est. 1965 Pop.</u>	<u>Average Persons per sq. mi.</u>
Headwaters:			
Echo Lake to Caryville Dam	25	22,290	890
Charles River Farms:			
Caryville Dam to South Natick Dam	131	58,675	450
Rte. 128 Suburbs:			
South Natick Dam to Watertown Dam	103	259,440	2,380
Charles River Basin:			
Watertown Dam to Charles River Dam	39½	463,805	11,750
Charlestown - North End			
Charles River Dam to Mouth	3	44,580	14,860
	<u>307</u>	<u>848,790</u>	<u>2,765</u>

Tables 5, 6 and 7 show average residential densities. They don't show the tides of commutation, and they don't show the high peaks of water demand concentration in office buildings and institutions and commerce.

Cambridge and Boston densities are particularly affected by extensive non-residential watershed areas that are nevertheless densely built-up and occupied by universities, hospitals, office buildings, laboratories and manufacturing, motor trucking, and other commercial or warehouse buildings.

The map following illustrates the generalized watershed segment densities stated in Table 6, above.



CHARLES RIVER WATERSHED

1965 AVERAGED RESIDENTIAL DENSITIES

- 15,000
- ▩ 10,000
- ▮ 2,500
- 500
- ◻ 1,000

(Approx. persons per gross square mile)

TABLE 7

WATERSHED 1965 CITY & TOWN AREAS,
POPULATIONS AND DENSITIES

<u>City or Town</u>	<u>Watershed Portion Sq. Mi.</u>	<u>Watershed 1965 Est. Pop.</u>	<u>Average Resi- dents per Sq. Mi. of Watershed</u>
Arlington	0.35	3,000	8,570
Ashland	0.56	310	550
Bellingham	7.93	4,245	535
Belmont	1.87	11,345	6,070
Boston	25.97	323,430	12,400
Brookline	6.82	53,610	7,860
Cambridge	4.40	67,350	15,310
Dedham	7.21	15,000	2,080
Dover	13.11	3,310	250
Franklin	24.50	14,660	600
Holliston	19.02	8,915	470
Hopedale	0.99	520	520
Hopkinton	2.86	740	260
Lexington	4.91	4,595	935
Lincoln	9.14	3,290	360
Medfield	11.36	7,130	630
Medway	11.66	6,870	590
Milford	12.93	16,700	1,290
Millis	12.26	5,260	430
Natick	8.83	6,075	690
Needham	12.75	29,305	2,300
Newton	18.33	88,515	4,830
Norfolk	15.31	3,985	260
Sherborn	12.84	2,100	160
Somerville	1.40	28,335	20,240
Walpole	2.06	175	85
Waltham	13.52	57,135	4,230
Watertown	3.60	36,240	10,070
Wellesley	10.51	26,295	2,500
Weston	15.80	9,650	610
Westwood	3.82	3,650	950
Wrentham	9.83	6,760	690

The variations in average residential population density shown in the right-hand column of Table 7 require the following five comments:

1. In order to represent watershed conditions, the Table 7 numbers of residents per square mile are the watershed portion of the population divided by the watershed square miles of the municipality, which may differ from a similar figure for the whole population of the whole municipality.

2. Boston average building density per square mile is as high or higher than that of any other watershed municipality. Boston average resident population density also is the highest in the watershed, when predominantly residential land use areas in the watershed portions of Boston, Brookline, Cambridge and Somerville are compared. The density is 20,590 in Roxbury and Jamaica Plain, in the 2.65 square miles between Roxbury Crossing, the Harvard Medical School and the Jamaicaway and Arborway (Wards 10, 11, and the upper part of 19). The density is 18,400 in 3.07 square miles in Brighton, between but excluding Chestnut Hill Reservoir, Boston University Field and Harvard Stadium (Soldiers Field), Wards 21 and 22, with exclusions noted.

3. Boston watershed average residential population density is affected by four unusually large clusters of open spaces:

a) Boston Common, Public Garden and the Boston portion of the 1800 acre MDC Charles River Reservations;

b) Franklin Park, Franklin Field, Forest Hills Cemetery, Mt. Hope Cemetery, St. Michael's Cemetery, Calvary and New Calvary Cemeteries, and Boston State Hospital Grounds -- together about 1200 acres between Seaver Street and Cummins Highway;

c) MDC Stony Brook Reservation plus Wright Golf Course, in West Roxbury Washington Street southeast of Mt. Bellevue, about 780 acres;

d) The great cluster of cemeteries and Boston city dump in West Roxbury between VFW Parkway and the Boston/Newton boundary, about 770 acres.

The above four Boston open space clusters aggregate some 5.7 square miles, which is more than $12\frac{1}{2}\%$ of the gross total 45.40 square mile land and water area within Boston municipal boundaries.

4. The Boston West End Renewal Project Area looks out onto the Charles River Dam and Science Museum. The actual residential project density may be between 75,000 and 100,000 persons per square mile for the 47 acres gross project area or the 38 acres after subtracting $8\frac{2}{3}$ non-residential project acres.

In the 47 gross acre project area, there will be a total of 2,400 - 2,500 apartment and town-house dwellings on completion. The 1967 occupancy of the 1,500 units so far constructed appears to range 2.5 to 2.2 persons per dwelling unit. 2.2 persons per unit, at 53 units per gross acre equals 75,000 persons per square mile.

After deducting 8.67 non-residential acres, the project density in the remaining 38 acres rises to 66 units/acre or 93,000 persons per square mile, a density ranking with the highest density ranges in any of the great cities of the western world.

5. A Brookline overall density of only 7,860 is shown in Table 7. However, 48,630 of Brookline population (53,610) in 1965 lived in the eastern 3.8 square miles of the 6.82 square mile township, exclusive of the Country Club and the major estate section of Brookline. Thus, a residential density average of 12,800 per square mile is more representative of the land use conditions prevailing in eastern Brookline and the lower Muddy River watershed in 1967.

Future Land Use and Water Demand

The Charles River Park buildings in Boston, close to the Charles River, also the Boston University, Prudential Center, and water side of Beacon Street new buildings, demonstrate the very great increase in population and in water and sewer demands and in water-related land spaces that is coming about in parts of watershed Boston and Cambridge.

URBANIZATION

West European settlement in the Charles River Watershed began nearly 350 years ago. There were similar beginnings, about the same time in many other American Atlantic coastal locations between Florida and Labrador. Early settlements in the Charles River Watershed were part of a broad pattern of movement from the old world to the newly opening American Atlantic coast, from the St. Lawrence to the Savannah. Boston, New York, Philadelphia, Baltimore (and more recently, Washington) have been inter-related from their colonial beginnings.

A 1614 voyage by Capt. John Smith, and his resulting map and report to Prince Charles (for whom Smith named the River) drew attention to Massachusetts Bay and environs.

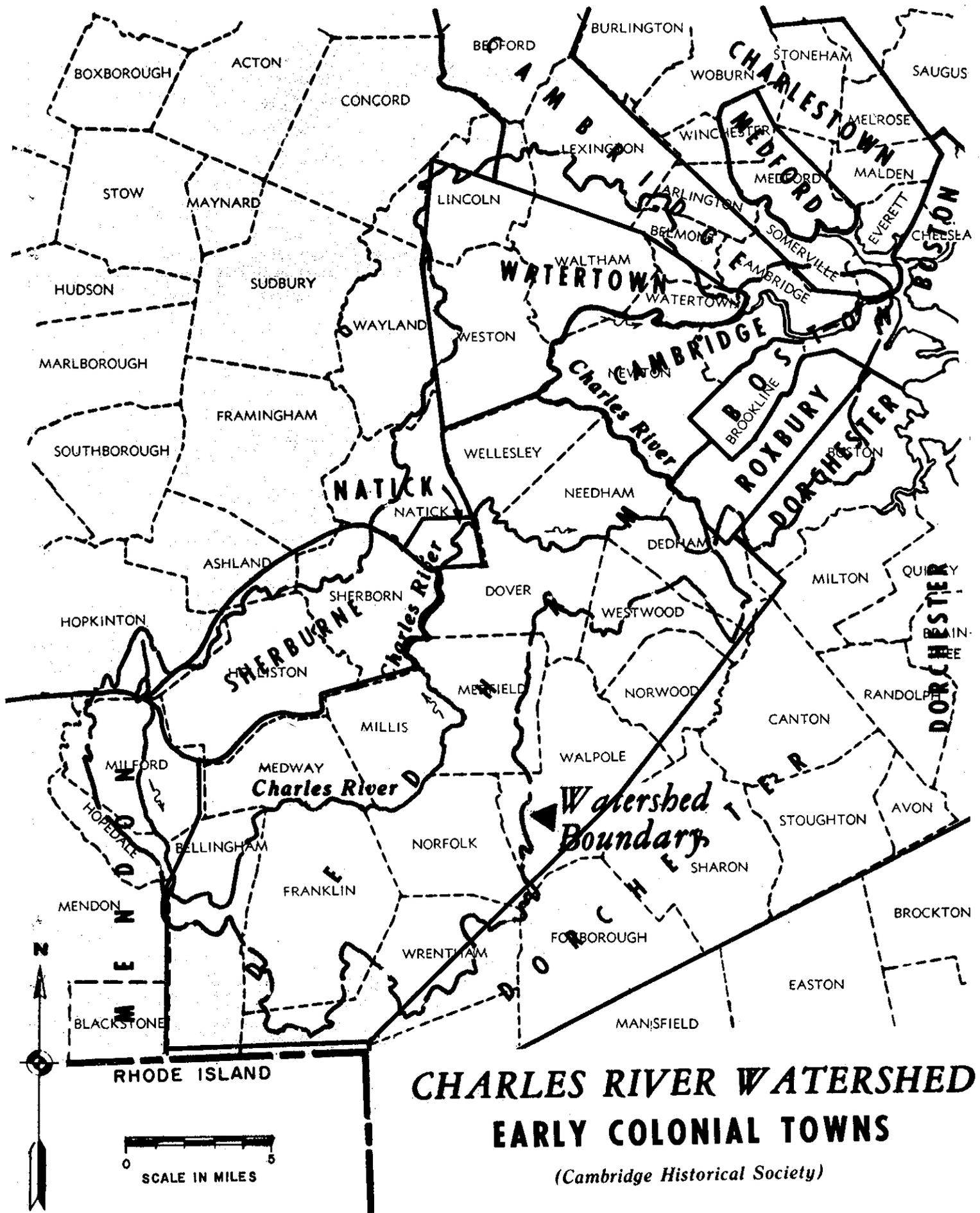
In 1626, wintering-over facilities at Salem, Massachusetts are said to have been started by Roger Conant for British and European fishing vessels and crews. The Massachusetts Bay Company was chartered in England in 1628, and in 1629 brought over from England about one thousand people. After stops in Salem and in Charlestown, they settled in

Boston and farther up the Charles River. And in the ten years 1630-1640, some 20,000 additional persons are said to have arrived in Massachusetts Bay, many of whom located in Boston and along the Charles River.

Twelve settlements appropriated some 75 river miles of the 80 mile total length of the Charles, during the first 45 years, 1629-1674. Settlements in the first seven years spread along the first 25 river miles from the mouth. These were Charlestown, Boston, Roxbury, Cambridge, Watertown, and Dedham. Early Dorchester was partly in the Charles Watershed but mainly in the Neponset Valley, see accompanying map. The next five of these early settlements, all in the upstream half of the River, were Natick, Sherborn, Medfield, Wrentham, and Mendon.

Thus the first twelve European settlements spread over the lower, the middle and the far upper reaches of the Charles River Watershed in the first half century of colonization, and established multiple nuclei for subsequent population growth and urbanization.

A chronology of the municipal incorporations in the watershed follows, as Table 8. The data for this table are from "Historical Data Relating to Counties, Cities and Towns in Massachusetts," published 1966 by the Secretary of the Commonwealth.



**CHARLES RIVER WATERSHED
EARLY COLONIAL TOWNS**
(Cambridge Historical Society)

TABLE 8

WATERSHED MUNICIPAL INCORPORATIONSFirst Eight Years

- 1629 Charlestown (a city 1847) (annexed to Boston 1874)
- 1630 Boston (1635, bounds established between Boston and Charles Town)
- 1630 Roxbury (a city 1846) (annexed to Boston 1868)
- 1630 Dorchester (annexed to Boston 1874)
- 1630 Watertown
- 1636 Cambridge (Newe Towne of 1632, now called Cambridge)
- 1636 Dedham ("the plantation above the falls of the Charles River")

17th Century, Second Half

- 1651 Natick granted 2,000 ac in Dedham; 1762 a district; 1881 a town.
- 1651 Medfield (formerly Dedham Village)
- 1667 Mendon (formerly Qunshapage (incl. Milford, Hopedale, Uxbridge, etc.))
- 1673 Wrentham (formerly Wollonopaug; by agreement with Dedham)
- 1674 Sherborn (granted to "petr's & prop'rs of land near Boggestow")
- 1691 Newton (set off from Cambridge)

18th Century

- 1705 Brookline (formerly Muddy River village in Boston)
- 1711 Needham (set off from Dedham)
- 1712 Weston (set off from Watertown)
- 1713 Medway (set off from Medfield)
- 1712 Lexington (set off from Cambridge) (North Parish 1691)
- 1715 Hopkinton (former Indian Lands and Province Lands)
- 1719 Bellingham (from parts of Dedham, Wrentham, Mendon)
- 1724 Holliston (set off from "Sherburne") (finally called Sherborn)
- 1724 Walpole (set off from Dedham)
- 1738 Waltham (set off from Watertown)
- 1754 Lincoln (from parts of Concord, Lexington, Weston)
- 1778 Franklin (set off from Wrentham)
- 1778 Foxboro (parts of Wrentham, Walpole, Stoughton, Sharon)
- 1780 Milford (set off from Mendon: was east precinct)
- 1780 Wayland (as East Sudbury, 1780-1835; called Wayland 1835)
- 1784 Dover, a district, set off from Dedham (a town, 1836)

19th Century

- 1807 West Cambridge (West Parish, Cambridge) (became Arlington, 1867)
- 1807 Brighton (South Parish, Cambridge) (annexed to Boston 1874)
- 1842 Somerville (set off from Charlestown)
- 1846 Ashland (set off from Framingham, Holliston, Hopkinton)
- 1851 West Roxbury (set off from Roxbury) (annexed to Boston 1874)
- 1859 Belmont (from parts of West Cambridge, Watertown, Waltham)
- 1868 Hyde Park (from parts Dedham, Dorchester, Milton) (to Boston, 1912)
- 1870 Norfolk (from parts of Walpole, Wrentham, Franklin, Medway)
- 1881 Wellesley (set off from Needham)
- 1885 Millis (set off from Medway)
- 1886 Hopedale (set off from Milford)
- 1897 Westwood (set off from Dedham)

The seven towns of the first seven years became thirteen communities in the first seventy years. In the next century, the 18th century, the number increased to twenty-nine municipalities. In the 19th century, with Hyde Park, the number increased to forty-one, then shrank back in 1912 to the thirty-five Charles River Watershed municipalities of this study, by six annexations to Boston. (Table 8.).

All the Charles River Watershed towns and cities subsequent to 1636 became incorporated by splitting off Province lands or lands of the first seven towns into newer, smaller townships as population-increase raised practical desires for local political independence.

The Charles River Watershed population has been mainly urban, not rural, since 1765, at least. Some 21,370 persons lived in the early Watershed portions of Charlestown, Cambridge, Boston, Roxbury, Brookline, Dorchester, Newton, and Watertown. The whole watershed 1765 population appears to have been only 33,665 persons. Most of the down-river residents are presumed to have been living in urban, not rural, circumstances.

The essentially urban and mercantile and manufacturing evolution of social and economic life on the Charles as all along the Atlantic coastal belt was characterized by Professor Gottman as follows:

"The errand into the wilderness -- the holy experiment -- was not conceived just as a mission to settle people in an empty wilderness or to develop an underdeveloped territory. The 'new order of the ages' (Motto on the Great Seal of the

United States) was aimed at a new and better order of human living and working together. The target was a better society, a commonwealth so improved as to be accepted as an exemplary pattern by others elsewhere. . . . So the Promethean impulses were unleashed on this northeastern seaboard. There was almost limitless territory to tame, in the background. . . . The striking concentration of economic activities on which Megalopolis was founded arose through the stubborn endeavours of the inhabitants to make the holy experiment succeed as a result of their virtues and wits. . . . The interpenetration of land and sea favored the multiplicity of settled sites from the early stages of colonization on(ward). . . . it favored those settlers who wished to develop an economy based on trade, commercial exchange, and fishing. In the coastal plain, the relatively open or gently rolling topography of the hinterland enabled tidewater to extend far inland along the major rivers, and these water routes were linked with overland routes carrying traders and explorers westward or northward. . . . A still more important factor was the position on the Atlantic facing Europe, from which the immigrants came, and which contained the major markets for profitable commerce. . . . the area (was) . . . close to the usual sea lanes linking western Europe to the West Indies. . . . But Boston and New York traded also with more distant places, such as the African coasts, China, and Chile." (op. cit. pp 78, 79, 80, 82)

The urban population growth of Megalopolis was summarized by

Professor Gottman as follows:

"By 1700 three towns in the colonies -- Boston, New York, and Philadelphia -- had more than 4,000 inhabitants each, and these assumed early leadership."

"By 1750 each of these three cities counted more than 12,000 people, and four other ports in New England had more than 5,000 (each). . . ."

"By 1800 the United States had four cities with populations of 25,000 or more, all in this region, (Boston, New York, Philadelphia, Baltimore) and a half dozen (additional) towns in the same area had more than 4,000 people."

"By 1850 New York and Philadelphia each had more than 300,000 people, and of the four American cities ... ranging between 100,000 and 200,000, two (Baltimore and Boston) were in Megalopolis, while the two others ... were far to the west. Of the fifty-five cities then having 10,000 to 100,000 people, twenty-five (i. e. 44%) were in Megalopolis ..."

"... In terms of ... crowding, Boston and Philadelphia followed New York, far outdistancing the Western cities.

"By (1900) ... although midwestern cities scored the most rapid advances..., the principal grouping of large cities remained along the Northeastern seaboard. Here were to be found four of the six cities of the United States with populations above the half-million mark (New York, Philadelphia, Boston, and Baltimore), and fifty other cities of more than 20,000 inhabitants, a record at the time in a ribbon of land 500 miles long." (op. cit., pp. 18-19).

The end of this memo on existing population and urbanization is its beginning -- the importantly urban character of the Charles River Watershed: urban for two river miles at its upper end; solidly urban for twelve river miles at its lower end; and, in between, thirty river miles of recently built suburbs, plus another thirty-three miles of less populous but essentially urban-oriented, growing communities. The Watershed is framed in new Interstate 90% Federally-aided expressways; the newest two (I-495, I-695) cross the top and the bottom of the watershed, and will accelerate its urbanization.

This is the framework in which, in other memos, Charles River Watershed future population and water-related environmental requirements will be forecast.

TABLE 12. — POPULATION OF BOSTON BY

CENSUS YEARS.	Census taken by —	Boston, including Annexations.	Boston Proper; settled, 1630; made a City, 1822. ¹	Annexed Territory.	ANNEXATIONS.	
					East Boston Proper (excluding the Islands) (1637).	The Islands. ²
1790	U. S.	18,320	18,036	282	—	282
1800	U. S.	24,937	24,655	282	—	282 ³
1810	U. S.	33,757	32,596	891	18	519
1820	U. S.	43,298	—	—	—	—
1825	City	58,277	56,003	2,274	24	264
1830	U. S.	61,392	—	—	—	—
1835	City	78,603	72,057	6,546	607	344
1840	U. S.	93,383 ⁴	85,475	7,908	1,455	277
1845	City	114,366	99,036	15,330	5,018	292
1850	U. S.	136,861	113,721	23,160	9,526	325
1855	State	160,490	126,296	34,194	15,433	530 ⁵
1860	U. S.	177,840	133,563	44,277	18,356	1,000 ⁶
1865	State	192,318	141,083	51,235	20,572	1,300 ⁶
1870	U. S.	250,526	138,781	111,745	23,816	1,700 ⁶
1875	State	341,919	140,669	201,250	27,420	1,927
1880	U. S.	362,839	147,075	215,764	28,381 ⁷	1,545 ⁸
1885	State	390,393	147,138	243,255	29,280 ⁸	2,139 ⁸
1890	U. S.	448,477	161,330	287,147	36,930 ⁹	— ⁸
1895	State	496,920	160,349	336,571	39,889 ⁹	2,706 ⁹
1900	U. S.	560,892	167,257	393,635	43,478 ⁹	2,278 ⁹
1905	State	595,380	172,473	422,907	48,229 ⁹	3,105 ⁹
1910	U. S.	670,535	193,274	477,311	55,085 ⁹	3,403 ⁹
1915	State	745,439	196,300	549,139	62,377 ⁹	3,303 ⁹
1920	U. S.	748,060	181,193	566,867	60,778 ⁹	2,273 ⁹
1925	State	779,620	172,101	607,519	64,069 ⁹	2,465 ⁹
1930	U. S.	781,188	151,818	629,370	59,242 ⁹	2,212 ⁹
1935	State	817,713	152,003	665,710	61,642 ⁹	2,663 ⁹
1940	U. S.	770,810	— ¹⁰	— ¹⁰	— ¹⁰	— ¹⁰
1945	State	766,386	128,389	637,997	53,901 ⁹	1,211 ⁹
1950	U. S.	801,444	— ¹⁰	— ¹⁰	— ¹⁰	— ¹⁰
1955	State	724,702	132,689	592,013	47,062	1,751 ⁹

¹ By Boston Proper is meant the territory of Boston, independent of all annexations.

² For the separate islands, as follows: 1880 — Breed's, 152; Deer, 351; Gallop's, 5; Rainsford, 187; Long, 49; Lovell's, 5; Spectacle, 53; Thompson's, 106; Fort Independence, 13; Fort Warren, 112; Fort Winthrop, 12. 1885 — Breed's, 348; Deer, 1,145; Gallop's, 6; Rainsford, 204; Long, 81; Lovell's, 7; Spectacle, 61; Thompson's, 122; Fort Independence, 11; Fort Warren, 129; Fort Winthrop, 25. 1895 — Breed's (included in East Boston); Deer, 1,620; Gallop's, 6; Rainsford, 83; Long, 612; Lovell's, 3; Spectacle, 94; Thompson's, 119; Fort Independence, 2; Fort Warren, 104; Fort Winthrop, 3. 1900 — Breed's (included in East Boston); Deer, 1,081; Rainsford, 132; Long, 707; Spectacle, 78; Thompson's, 117; Fort Warren, 152; forts not specified, 11. 1905 — Apple, 9; Breed's (included in East Boston); Castle, 4; Corinthian Rocks, 4; Deer, 1,487; Gallop's, 4; George's, 231; Long, 949; Lovell's, 8; Rainsford, 190; Spectacle, 97; Thompson's, 122. 1910 — Figures for the separate islands not available. 1915 — Breed's (included in East Boston); Castle, 5; Deer, 934; Gallop's, 4; George's, 256; Governor's, 8; Long, 1,676; Lovell's, 30; Rainsford, 152; Spectacle, 114; Thompson's, 124. 1920 — Figures for the separate islands not available. 1925 — Breed's (included in East Boston); Castle, 5; Deer, 655; Gallop's, 11; George's, 194; Long, 1,336; Lovell's, 19; Spectacle, 119; Thompson's, 126. 1930 — Breed's (included in East Boston); Deer, 790; Gallop's, 18; George's, 6; Long, 1,280; Thompson's, 128. 1935 — Breed's (included in East Boston); Deer, 1,000; Gallop's, 00; George's, 10; Long, 1,484; Lovell's, 15; Spectacle, 35; Thompson's, 121. 1940 — Figures for the separate islands not available. 1945 — Breed's (included in East Boston); Deer, 425; Long, 747; Spectacle, 11; Thompson's, 28. 1950 — Figures for the separate islands not available. 1955 — Breed's (included in East Boston); Deer, 580; Long, 1,141; Spectacle, 3; Thompson's, 27.

³ Estimated.

⁴ By the Census of May, 1840, the population of Boston was 84,401. Mr. Lemuel Shattuck, in his report on the Census of Boston for 1845, shows clearly that the United States Census of 1840 was incorrect.

⁵ Included also in the population of Dorchester in this year. After 1855 Washington Village is included in South Boston.

⁶ The population of East Boston (i.e., the present Ward 1), as usually given in census tables, includes that of the islands in the harbor, but is here given separately, so that it should be understood that the total ward population, popularly referred to as "East Boston," includes the figure for both these columns.

GEOGRAPHICAL SUBDIVISIONS, 1790-1955.

CENSUS YEARS.	Census taken by —	Boston, including Annexations.	Boston Proper; settled, 1630; made a City, 1822. ¹	Annexed Territory.	ANNEXATIONS.							
					South Boston (1804).	Washington Village (1855).	Roxbury (1867).	Dorchester (1869).	West Roxbury (1873).	Brighton (1873).	Charlestown (1873).	Hyde Park (1912).
1790	U. S.	18,320	18,036	282	—	—	—	—	—	—	—	—
1800	U. S.	24,937	24,655	282	—	—	—	—	—	—	—	—
1810	U. S.	33,757	32,596	891	18	—	—	—	—	—	—	—
1820	U. S.	43,298	—	—	—	—	—	—	—	—	—	—
1825	City	58,277	56,003	2,274	24	—	—	—	—	—	—	—
1830	U. S.	61,392	—	—	—	—	—	—	—	—	—	—
1835	City	78,603	72,057	6,546	607	—	—	—	—	—	—	—
1840	U. S.	93,383 ⁴	85,475	7,908	1,455	—	—	—	—	—	—	—
1845	City	114,366	99,036	15,330	5,018	—	—	—	—	—	—	—
1850	U. S.	136,861	113,721	23,160	9,526	—	—	—	—	—	—	—
1855	State	160,490	126,296	34,194	15,433	—	—	—	—	—	—	—
1860	U. S.	177,840	133,563	44,277	18,356	—	—	—	—	—	—	—
1865	State	192,318	141,083	51,235	20,572	—	—	—	—	—	—	—
1870	U. S.	250,526	138,781	111,745	23,816	—	—	—	—	—	—	—
1875	State	341,919	140,669	201,250	27,420	—	—	—	—	—	—	—
1880	U. S.	362,839	147,075	215,764	28,381 ⁷	—	—	—	—	—	—	—
1885	State	390,393	147,138	243,255	29,280 ⁸	—	—	—	—	—	—	—
1890	U. S.	448,477	161,330	287,147	36,930 ⁹	—	—	—	—	—	—	—
1895	State	496,920	160,349	336,571	39,889 ⁹	—	—	—	—	—	—	—
1900	U. S.	560,892	167,257	393,635	43,478 ⁹	—	—	—	—	—	—	—
1905	State	595,380	172,473	422,907	48,229 ⁹	—	—	—	—	—	—	—
1910	U. S.	670,535	193,274	477,311	55,085 ⁹	—	—	—	—	—	—	—
1915	State	745,439	196,300	549,139	62,377 ⁹	—	—	—	—	—	—	—
1920	U. S.	748,060	181,193	566,867	60,778 ⁹	—	—	—	—	—	—	—
1925	State	779,620	172,101	607,519	64,069 ⁹	—	—	—	—	—	—	—
1930	U. S.	781,188	151,818	629,370	59,242 ⁹	—	—	—	—	—	—	—
1935	State	817,713	152,003	665,710	61,642 ⁹	—	—	—	—	—	—	—
1940	U. S.	770,810	— ¹⁰	— ¹⁰	— ¹⁰	—	—	—	—	—	—	—
1945	State	766,386	128,389	637,997	53,901 ⁹	—	—	—	—	—	—	—
1950	U. S.	801,444	— ¹⁰	— ¹⁰	— ¹⁰	—	—	—	—	—	—	—
1955	State	724,702	132,689	592,013	47,062	—	—	—	—	—	—	—

⁷ The territory of Roxbury and Dorchester was not kept intact by ward boundaries in the ward division of 1875. It is difficult, therefore, to give the exact population of each district by the Census of 1880. The figures given are the result of very careful study of the population by census enumeration districts, of which there were 208 in Boston for the United States Census of 1880.

⁸ Population of the islands included in that of East Boston.

⁹ The figures presented for South Boston, Dorchester, Roxbury and West Roxbury are carefully made up to cover the geographical area originally belonging to each subdivision. The lines enabling this to be done were not exactly observed in the Censuses of 1875, 1880, 1885, 1890, or 1895. In each of these years, therefore, the population of the subdivisions, as stated in the table, is approximate only, inasmuch as the area considered under each head was approximate. But while it is a mechanical impossibility to so lay out the enumeration districts as to enable a presentation to be made of the exact population of these subdivisions following their original boundary lines, in view of the greater obligation to present the population by wards whose boundaries do not conform to the original boundaries of the subdivisions in question, the tabulations for these subdivisions are presented with much greater accuracy for the Censuses of 1900, 1905, 1910, 1915, 1920, 1925, 1930, 1935, 1945 and 1955 than for preceding censuses. Comparisons of the figures between 1875 and 1955 are somewhat affected, therefore, by this fact. As these several subdivisions, moreover, have no political significance, not being represented as such in the frame of government, and have what may be termed an artificial existence only, the tabulation as given above for each census may be accepted for all practical purposes as representing as approximately accurate a presentation as it is possible to give.

¹⁰ 1940 and 1950 — Figures for Subdivisions not available.

CENSUS OF MASSACHUSETTS — 1965.

TABLE 1. — POPULATION OF MASSACHUSETTS FOR 200 YEARS, AS DETERMINED BY CENSUS ENUMERATIONS, 1765-1965.

[The Commonwealth of Massachusetts covers part of the territory originally granted to the Plymouth Company of England. It grew out of the consolidation of the colonies of Plymouth and Massachusetts Bay. The settlement at Plymouth began with the landing of the Pilgrims, December 22, 1620. The colony of Massachusetts Bay originated with the settlement under John Endecott at Salem, in 1628. In 1643, a confederacy was formed consisting of the colonies of Massachusetts Bay, Plymouth, Connecticut and New Haven. In 1692, under a new charter given by William III, the colonies of Massachusetts Bay and Plymouth were consolidated as a royal province, including also Maine. In 1780, after the Revolution, the present State Constitution was adopted. In February, 1788, the Constitution of the United States was ratified by Massachusetts. The colonists in New Hampshire, in 1641, as a measure of protection and defence against the Indians, allied themselves with the colony of Massachusetts Bay and remained part of said colony until 1679, when New Hampshire was made a separate royal province, Massachusetts thereby losing part of its territory, January 1, 1680. The territory now comprising the State of Maine was set off from Massachusetts by an act passed March 3, 1820, taking effect March 15, 1820. By the Province Charter of 1692, certain islands now comprising the county of Dukes County and Nantucket County were ceded to Massachusetts from New York (see county of Dukes County). Certain common lands in Berkshire County, known as the District of Boston Corner, were ceded to the State of New York May 14, 1853. By a settlement of a boundary controversy between Massachusetts and Rhode Island, certain exchanges of territory were made between these States April 10, 1861.]

YEARS.	Population.	Authority.	Census Day.
1765 ¹	240,433	Provincial	On or before May 25.
1776 ²	299,841	Provincial	March 29.
1784	357,510	State	September 1.
1790	378,787	United States	August 1.
1800	422,845	United States	August 1.
1810	472,040	United States	August 1.
1820	523,287	United States	August 1.
1830	610,408	United States	June 1.
1837	701,331	State	May 1.
1840 ³	737,699	United States	June 1.
1840 ⁴	719,364	State	May 1.
1850 ³	994,514	United States	June 1.
1850 ⁴	973,654	State	May 1.
1855	1,132,369	State	May 1.
1860	1,231,066	United States	June 1.
1865	1,267,031	State	May 1.
1870	1,457,351	United States	June 1.
1875	1,651,912	State	May 1.
1880	1,783,085	United States	June 1.
1885	1,942,141	State	May 1.
1890	2,238,943	United States	June 1.
1895	2,500,183	State	May 1.
1900	2,805,346	United States	June 1.
1905	3,003,680	State	May 1.
1910	3,366,416	United States	April 15.
1915	3,693,310	State	April 1.
1920	3,852,356	United States	January 1.
1925	4,144,205	State	March 31.
1930	4,249,614	United States	April 1.
1935	4,350,910	State	January 1.
1940	4,316,721	United States	April 1.
1945	4,493,281	State	January 1.
1950	4,690,514	United States	April 1.
1955	4,837,645	State	January 1.
1960	5,148,578	United States	April 1.
1965	5,295,281	State	January 1.

¹ Includes 1,569 Indians distributed by counties as follows: Barnstable, 515 (of which 230 were in Mashpee); Berkshire, 221 (in Stockbridge); Bristol, 167 (principally in Dartmouth and Freetown); Dukes-313 (of which 188 were in Chatham); Middlesex, 37 (in Natick); Nantucket, 93; Plymouth, 223.

² Includes 4,761 colored population, distributed by counties as follows: Barnstable, 171; Berkshire, 216; Bristol, 585; Dukes, 59; Essex, 1,049; Franklin, Hampden, and Hampshire (aggregate), 245; Middlesex, 702; Nantucket, 133; Plymouth, 487; Norfolk and Suffolk (aggregate), 682; Worcester, 432.

³ The discrepancy which may be noted between the State and the United States Census figures for 1840 and 1850 is, partly at least, due to the exclusion from the State enumeration in those years of "paupers and convicts in the State Prison."