

*Henry Miller*

PLANNING FOR GROTON

Report for  
GROTON TOWN PLANNING BOARD

Prepared by CHARLES W. ELIOT, Planning Consultant

January 1963

COMPREHENSIVE PLANNING FOR GROTON  
"THE MASTER PLAN"

- Part I Survey - Existing Conditions
- Part II Comprehensive General Plan



Prepared for the Massachusetts Department of Commerce and financed in part through an Urban Planning Grant from the U. S. Housing and Home Finance Agency under the provisions of Section 701 - Title VII, Housing Act of 1954 as Amended.

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# PLANNING FOR GROTON

Prepared by Charles W. Eliot, Planning Consultant

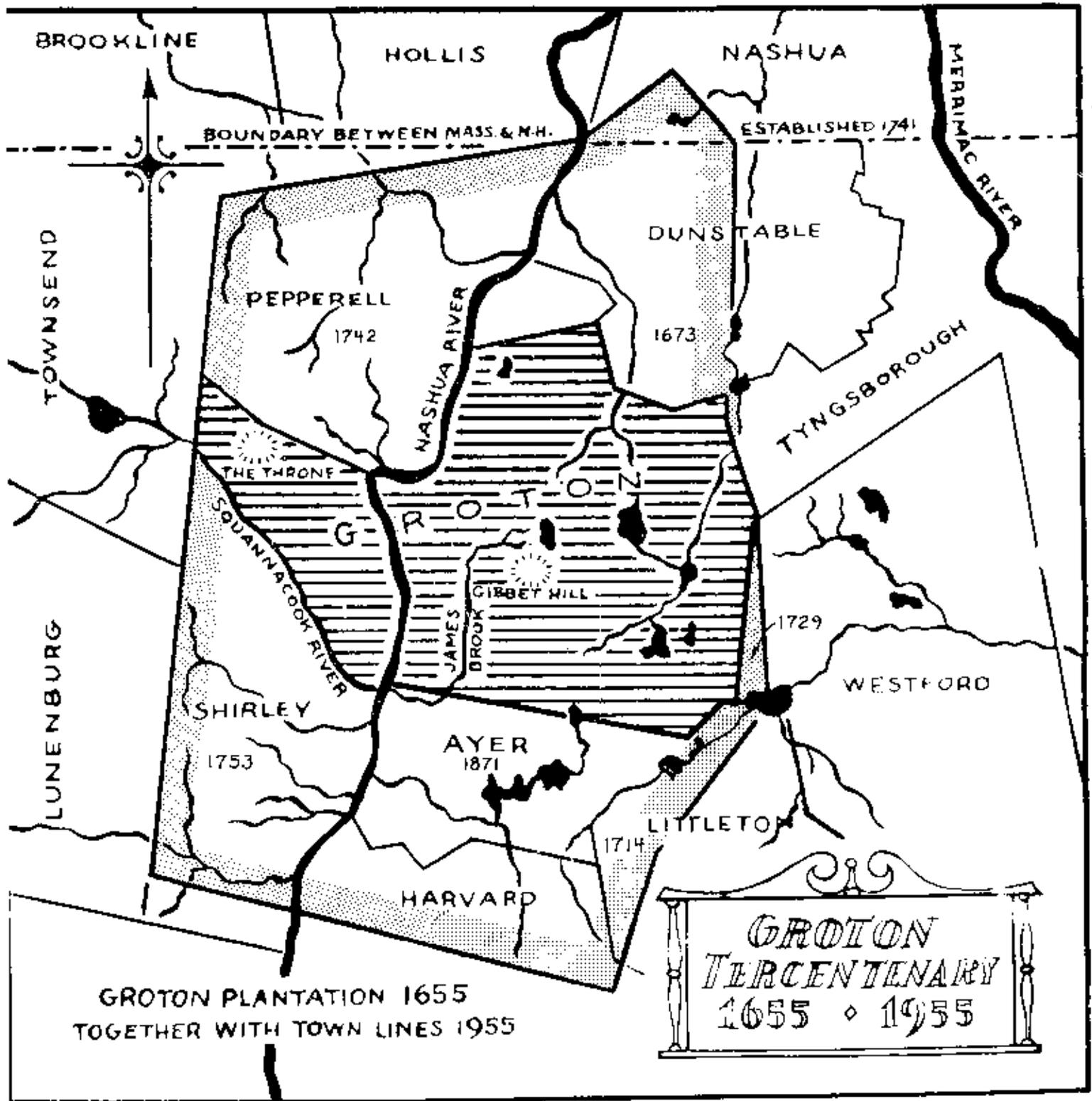
## PART I SURVEY - EXISTING CONDITIONS

January 1963

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# MASTER PLAN FOR GROTON

## General Introduction

A "Master Plan" is, in one sense, a picture of how the Town might look twenty or twenty-five years hence. For Groton, it is a huge picture, covering 33 square miles, and with an even larger background reflecting the influence of Metropolitan Boston and the Merrimack Valley cities. The colors in the picture represent the shapes and uses of land in forests, orchards, pastures, and swamps, and for different purposes of residence, business, industry, agriculture, recreation, conservation, etc. With the passage of time and inevitable change, all of these colors or land uses change. The design or structure in this picture reflects the economic functioning of the community and the forces of transportation and communication which play upon it.

" A Master Plan is not only a picture of objectives, but also a guide for actions, large and small, by private and public agencies, which cumulatively may either mar or ruin the picture or bring it to reality.

It follows, therefore, that in so far as possible the Master Plan in both these aspects should reflect the hopes and desires of the citizens of the Town for the future of the area. What kind of community, what kind of picture of Groton in 1980 or 1985 do the people of Groton want?

The materials on which the Master Plan is based have been assembled from many sources and are presented in Part I of this report. They provide a background and review of the forces which underlie any proposals for the future, and tell the story of trends and changes which have taken place or are taking place today.

Part I - "Survey" includes sections on .

- A. Physical Characteristics of Groton - topography and land forms, the rivers, streams and drainage areas, and the soils;
- B. Historical Background - settlement, Indian attacks, schools, roads, railroads, industry, and population growth;
- C. Regional Considerations - such as places of employment and business, transportation, and various regional services;

D. Analyses of Existing Land Uses, and

E. Previous Planning Proposals.

The discussion of these materials is illustrated by a series of maps and tables, including:

1. Town Base Maps - at 1 inch = 1000 feet from enlargement of the U.S.G.S. Maps, map by Mr. A. L. Hurd, and the Assessors' maps in two forms:
  - a. With contours at 10 foot intervals;
  - b. Without contours, but with boundaries of major properties.
2. Area Base Maps - at one inch = 400 feet from combinations of the Assessors' maps with added information for:
  - a. Groton Center
  - b. West Groton
  - c. Groton Ridges
  - d. Mountain Lakes.
3. Existing Land Use 1961, for the Town at 1000 scale, and for areas at 400 scale, in color, prepared from field inspection along every travelable road, and checked against:
  - a. Assessors' Maps, and
  - b. Land Cover Maps of Middlesex County - by University of Massachusetts 1959, and
  - c. Air pictures (1952), as well as
  - d. Information and corrections supplied by individual citizens.
4. Major Ownerships, in color on the base map, including public ways, public properties, larger institutions, classified forest land, etc.
5. Wet and Steep Areas, in color - at 1000 scale with contours, showing drainage divides, streams, ponds and swamps, as well as areas with 20 per cent slope or over.
6. Soils on the contoured base map in color, and interpreted from the "Soil Survey of Middlesex Co., Mass." U.S. Department of Agriculture 1924.

7. Historical - Town Boundaries, and Central Part of Groton  
1847 - 1962.
8. Population - Growth Chart - 1700-1960.
9. Regional Planning Area.
10. Regional Setting.
11. Regional Diagrams -
  - a. Drainage Basins
  - b. Employment
  - c. Highways
  - d. Airports
  - e. "Logical Areas"
12. Table of Comparative Population Growth - Neighboring Towns.

As the Survey developed, a study of Planning Areas was undertaken, and a Preliminary General Plan was prepared (in color on the Town Base Map) and presented by the Planning Board and Planning Consultant at a meeting which was held at the Town Hall on July 23rd, 1962. All officials of the Town were invited. More detailed plans for the several sections of the Town were then prepared and presented at "Area Meetings," with a mimeographed 35 page explanatory report:

For Groton Center at the Town Hall	on September 25
For West Groton at the Parish Hall	on September 27
For Mountain Lakes at the "Grotonwood" Assembly Hall	on September 30
For North Groton at the Town Hall	on October 1
For Groton Ridges at the Franco American Club	on October 3

The maps prepared for this stage of the work included

1. Planning Areas in color on the base map at 1000 Scale
2. Preliminary Plan in color on the base map at 1000 Scale
3. Area Plans in color on prints of Assessors' Maps at 400 Scale
  - a. Groton Center
  - b. "Squannacook" - West Groton
  - c. Groton Ridges and
  - d. Mountain Lakes

Following the series of meetings and at the invitation of the Library Trustees, the maps prepared in the Survey Stage and those cited above were exhibited in the Public Libraries at Groton Center and West Groton for over nine weeks.

With the helpful suggestions and criticisms obtained from these "Area Meetings," the General Plan has been revised and developed and the text of the explanatory statement accompanying it has been expanded into:

Part II Comprehensive General Plan —

- A. Conservation of Rural Characteristics — open spaces, country roads, and the special quality of Groton Center;
- B. Development and Growth Areas at Groton Center, West Groton, Groton Ridges and Mountain Lakes;
- C. Future Transportation Needs including street and highway plans, railroads and airport;
- D. Industrial and Commercial Development;
- E. Community Facilities —
  - 1. Recreation
  - 2. Schools
  - 3. Libraries
  - 4. Hospitals
  - 5. Electric Power
  - 6. Water Supply
  - 7. Sewerage
  - 8. Trash and Garbage Collection
  - 9. Other Municipal Facilities — Offices, Fire, Police, Dump, Yards, etc.

This part of the report is illustrated by

- 1. The General Plan at 1000 Scale in both black and white and in colors.
- 2. Development Plans at 400 Scale for
  - a. Groton Center
  - b. West Groton
  - c. Groton Ridges
  - d. Mountain Lakes
- 3. Electric Power Systems.
- 4. Water Supply Systems.

## PART I

## SURVEY - MASTER PLAN FOR GROTON

INTRODUCTION

Groton lies in the northwestern part of Middlesex County, Massachusetts, 35 miles by road from the center of Boston, 16 miles from Lowell, 14 from Fitchburg and 12 miles from Nashua, New Hampshire.

The Town was incorporated in 1655, yet Groton - in 1963 - is but a small part of the Town originally laid out in February of 1668. According to Caleb Butler's History of the Town of Groton - 1848, "No part of the boundary lines coincide with the original lines run by Jonathan Danforth, except on Townsend and Tyngsborough. Its shape is very irregular, and its boundary lines numerous, owing to the many changes made by setting off parcels to the adjacent towns." 710002

The shape of the present Groton is often described as a "teapot" with the snout at the west or Townsend Line, and set on the Ayer-Harvard base. The Town is said by different authorities to include an area varying among 33.90, 33.19, and 32.51 square miles.

For the preparation of a "Master Plan" to guide the growth and development of the Town, the first step was a Field Survey "Questionnaire" to find various facts and to request comments and suggestions as to what was right or wrong about the Town, and what aspects needed attention in the planning program. In November 1961, one hundred busy townspeople took time out to interview almost 1000 households. Some of the significant remarks and comments were reviewed in the Planning Board's 1961 Annual Report; the most often repeated comments showed concern about the tax rate and a desire to "keep the character of Groton." ← CONTINUES

The basic information and materials for the Master Plan have been assembled from the results of the Questionnaire, and from many other sources in an attempt to provide a background and review of the forces which underlie any proposals for the future. The materials thus brought together help to tell the story of trends and changes, as well as to explain existing conditions.

## A. PHYSICAL CHARACTERISTICS

### 1. Topography and Land Forms

The land forms--the hills, valleys, swamps, ponds, and streams, the rocks and ledges, and the soils of an area--provide the strongest influence and major element in the character of any community.

In Groton, the great geologic forces, which shaped the area over the ages, have left an infinite variety of forms. The basal rock formations were worn and weathered before the glaciers stripped off the weathered materials and reworked them. The ice which extended as far south as Nantucket was very thick over Middlesex County. As the glacier receded it left a mantle of glacial drift over the bedrock, ranging from over 100 feet thick to nothing where ledge outcrops of the basal rock are visible.

The glacial drift is of two general types in Groton:

1. The drumlins or elongated rounded hills with long axis in the general direction of the ice movement, were formed when the ice front was far to the south. The drumlin hills of Groton--Chestnut, Barralock, Gibbet, Prospect, the Indian Hills, etc.--range from 350 to 517 feet above sea level and are in a north-south belt midway between the Nashua River and the eastern town limits.

2. Outwash material from the glacier deposited in the old valleys or in glacial lakes that had been formed by damming the valleys by ice or moraines. In places, kames, eskers, and moraines were deposited along the valleys at the edge of the ice, under the ice, or by icebergs. As the climate changed and melting overcame the forward movement of the ice, the waterlaid deposits were dropped to the ground from their position upon or in stream channels under the ice.

Where a lake was formed the delta-like sand and gravel plains were laid down by streams flowing in. This is the way the well stratified sands were laid down to form the sand plains of Tobacco Pipe Plain (along Sandy Pond Road), Great Half Moon Swamp, and areas near Kemp Street in North Groton.

At the same time much of the irregular ill-assorted material--'ground moraine'--was probably spread in the rough rocky areas in a great variety of shapes with kettle holes, large boulders and other forms.

The eskers, which form "the Ridges" in the southeast corner of Groton, were deposited by rivers or brooks in and under the glaciers.

The topography of Groton, formed by these great geologic forces of rock formation and weathering, glacial action, work of water and wind in erosion and deposits of silt and rocks, was described in 1848 in the Butler History as follows:

"The most prominent feature in the landscape of Groton, viewed from an eminence, is a range of hills scattered through the middle from north to south, partly cultivated and partly covered with their natural growth of forest trees. These hills, with the exception of two or three at the southerly part of the town, are arable to their tops, and having a fertile soil, their mingled shades of green cultivated vegetables and patches of woodland afford a beautiful prospect. There is one peculiarity in the formation of these hills worthy of notice. They are almost invariably double or treble, vallies of greater or less depth running between their prominences uniformly from north to south. Such as are contained in the above exception afford abundance of granite suitable for masonry. Four or five of these hills (Chestnut, Gibbet, Brown Loaf and Indian) are from two hundred and fifty to two hundred and seventy-five feet above the waters of the Nashua. The descent from them to the west-erly, being from one to two miles, is undulating, gradual, and affording some of the richest and most productive land in the country. The descent easterly is composed of gravelly knolls and ridges, swamp, bogs, and ponds, much inferior in fertility to the western slope. On the west side of the Nashua, between Pepperell and Shirley, is a large swell rising to the same height (The Throne) as the highest hills aforementioned."

Many of the hills, -"scattered through the middle" of Groton, have steep hillsides of from 15 to 20 per cent slope. In all of the Town there are over 460 acres of these steep slopes--about two-thirds of which are concentrated in a belt one and one-half miles in width from between Chicopee Row and Horse Hill on the north and extending due south to the Ayer line.

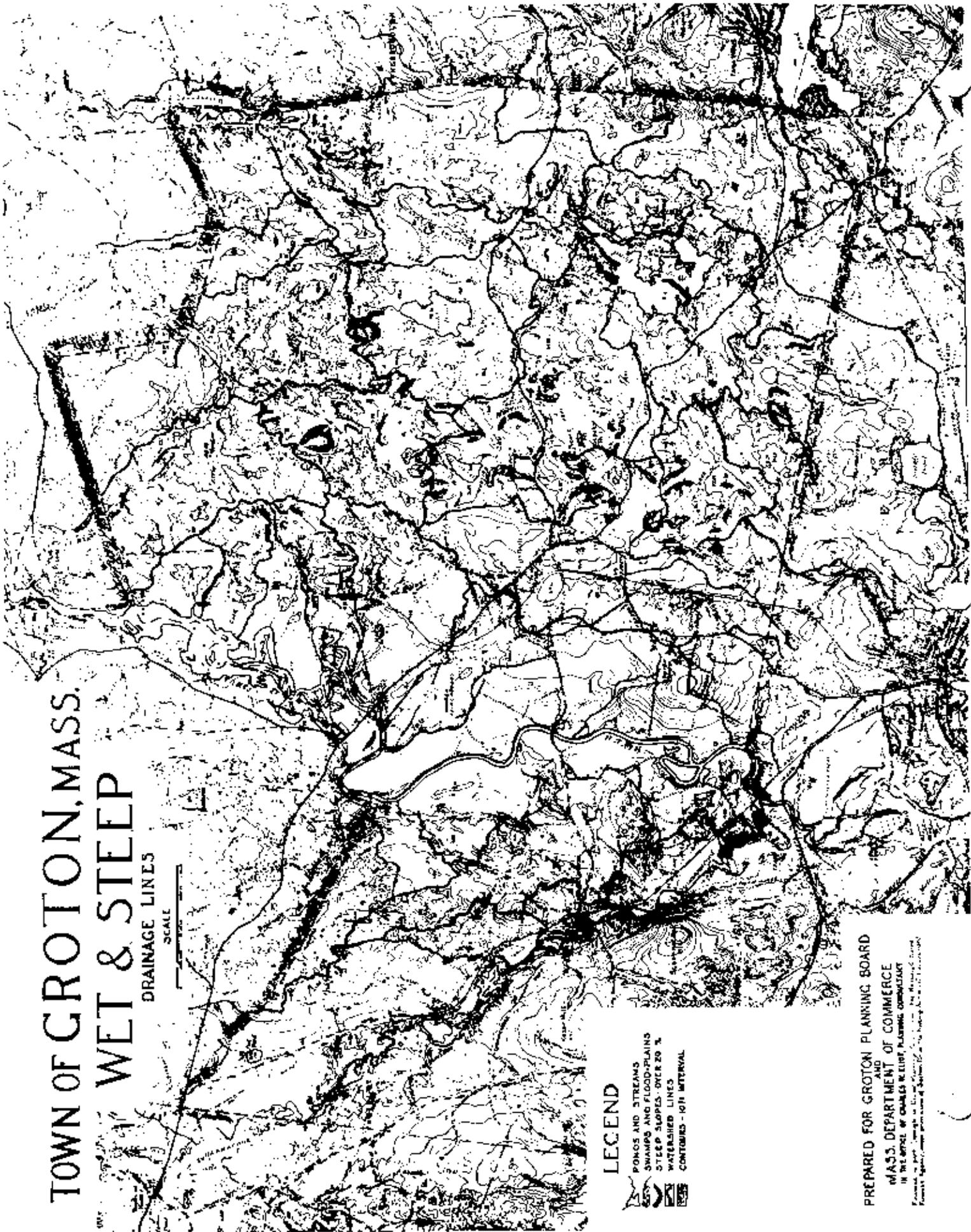
In contrast with these steep-sided hills, as Butler puts it:

"The lands bordering upon Nashua and Squannacook rivers, are narrow strips of intervale and more extensive sandy plains; the former being suitable for the cultivation of Indian corn, potatoes, and grass, the latter for rye . . . ."

# TOWN OF GROTON, MASS. WET & STEEP

DRAINAGE LINES

SCALE



## LEGEND

-  PONDS AND STREAMS
-  SWAMPS AND FLOOD-PLAINS
-  STEEP SLOPES - OVER 20 %
-  WATERSHED LINES
-  CONTOURS - 10 FT. INTERVAL

PREPARED FOR GROTON PLANNING BOARD  
AND  
MASS. DEPARTMENT OF COMMERCE  
IN THE OFFICE OF CHARLES W. ELIOT, PLANNING COMMISSIONER

Formed in part through the assistance of the Federal Government  
Federal Highway Administration, Boston, Massachusetts

Other relatively flat or gently rolling lands in Groton are the farm area in the extreme northern section (the handle of the Tea Pot) and "Tobacco Pipe Plain" on both sides of Sandy Pond Road at the southeast corner of the town.

According to the Green and Butler histories, the Indian name for Groton means "Swamps on a Hill,"--or in more scientific terms, much of the main portion of the town east of the Nashua River is wetland on the drainage divide between streams running to the Nashua River on the west and those draining easterly to Stony Brook or Salmon Brook. The "swamps on a hill" include such large areas as Reedy Meadow, swamps along Unkety Brook, around Martin's Pond, Great Half-Moon, Baddacook and Burnt Swamps, and Broad Meadow. Many of the swamps of Groton drain in more than one direction. In all, there are over 2,870 acres of ponds, swamps and wetlands in Groton.

## 2. Rivers, Streams and Drainage

The Drainage Basins--or direction of water flows--include:

1. The main valley of the Nashua River, from Wachusett Reservoir--the M. D. C. water supply above Clinton, and headwaters in Holden, Rutland and Princeton, as well as from the tributaries in the immediate vicinity of Groton such as Squannacook River, Unquetanesset Brook, and James Brook.
2. The east side of Groton is drained by a number of smaller streams which are considered to be part of the main Merrimack River Drainage Area. These streams include Snake Meadow and Reed Brooks feeding Stony Brook (through Forge Village and Graniteville) and Salmon Brook which drains Massapoag Pond and the extensive area in Groton drained by Cow Pond Brook, Martin's Pond Brook, Baddacook Brook, etc.

The Nashua River flows north, dividing Groton into two parts. The river is from 100 to mostly 200 feet wide in the stretches above Route 119 and below that point is ponded by the mill-dam at East Pepperell with many bays and islands. The dam is at elevation 190+ above sea level and the normal level of the river at the Groton-Ayer boundary (almost nine miles upstream) is 198 or only a few feet higher. Through much of this distance the river meanders through an intervale or flat lowland almost a mile wide. A broader area--widening from south to north--drains through a series of small streams and brooks directly into the main river.

### A. West Groton

On the west side of the Nashua River the drainage "divide" between the Nashua and the Squannacook Rivers is roughly parallel with the Nashua and 6000 feet from it. Beginning at the south, the side streams in West Groton are:

1. The Squannacook River, the boundary between West Groton and Shirley. It joins the Nashua River just below the Peterborough and Shirley Railroad and about 1000 feet north of the Route 2a Bridge in Ayer. The Squannacook is one of the principal tributaries of the Nashua and rises in Ashby some -- miles northwest of Groton. Townsend Harbor Pond--one mile west of the northwest corner of Groton--is at elevation 260 above sea level and in the six miles or more between that point and the confluence of the Squannacook and the Nashua, the Squannacook drops some 70 feet. Milldams at Vose and at West Groton have backed up the river in ponds--and mills have been operating at these sites for some 200 years.

The Peterborough and Shirley Branch of the Boston and Maine Railroad--to Greendale, N. H. --follows the valley, but otherwise, in this section, the areas along the Squannacook are in their "natural state." Over the years there have been several proposals to set aside a wide strip of land on both banks of the Squannacook River as a Wilderness Area, Canoe Park or State Forest from the Willard Brock and Townsend State Forests down to the Groton Town Forest at the Nashua River.

From the Groton side of the Squannacook River several brooks and small streams enter the river.

- a. Lower Squannacook side streams (below St. James Street) drain an area of 406.17 acres. This area includes two large swamps:

One at west edge of the Town Forest	- 16.07 acres
A second near the Milford Branch R. R.	- 12.63 acres

and the part of the Mill Pond of the Groton Leatherboard which lies in Groton	- 1.37 acres.
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A stream in the valley east of the Pepperell Road may be significant in the planning for the future of West Groton.

One-half the river --to the Shirley line--comes to - 9.2 acres.

- b. Middle Squannacook, between St. James Street and the Hollingsworth and Vose Dam, comprises an area of 238.7 acres drained by two major streams, near the headwaters of each of which are wetlands or small swamps:

one of	- 3.4 acres
and the other of	- 2.2 acres

- c. The remainder of the Squannacook drainage in West Groton--between Vose and the Townsend line--involves an area about 4000 feet from the river and including some 1170.7 acres.

- 1) Minor streams in the southern portion rise in double-ended wetlands east of "the Throne" and measure
- |     |              |
|-----|--------------|
|     | - 3.2 acres  |
| and | - 3.0 acres. |

- 2) An Unnamed Brook rises north of the "Throne," and flows southwest across the Townsend Road to a pond and swamp before entering the river; and

the unnamed pond covers	- 3.91 acres
and the swamp	- 10.33 acres.

Along the river in this section, the river and wetlands on the West Groton side of the town boundary includes:

Mill Pond at Vose	- 13.77 acres
Two Bays	- 3.2 acres
	- 5.75 and
a swamp of	- 2.3 acres;

as well as one-half the river itself, with an average width of 25 feet for 11,000 feet of distance	- 6.3 acres.
--	--------------

- 3) Flat Pond Brook rises in Pepperell and flows through a swamp and Flat Pond to the Squannacook.

The swamp measures	- 4.79 acres
Flat Pond	- 6.66 acres
and swamps near the river	- .68
	.2
	4.3
and	16.7 acres.

2. Below the Squannacook River's confluence with the Nashua, the next area draining into the Nashua River from the west includes several small streams between Squannacook River and Wrangling Brook. This area--much of it in the Town Forest--covers 441.5 acres including
- the Dead River of 17.91 acres and one large swamp along the R. R. - 12.85 acres
  - and sink-holes in the Town Forest totalling - 2.46 acres.
3. Wrangling Brook on the west side of the Nashua River drains 970.15 acres from way up near the Throne, and many swamps and wetlands--from north to south
- a. north of Kemp and Pepperell - 23.72 acres
  - b. east of Pepperell to Hill and West Groton Rd. - 10.78 acres
  - c. south of West Groton Road, - 52.85 acres
  - d. and at the outlet into Nashua River, - 12.39 acres
- to a total of - 99.74 acres.
4. "Hayes" Brook and smaller streams drain 395 acres below Wrangling Brook, including
- A swamp west of the Milford Branch R. W. - 9.41 acres
  - and swamps on the chief brook totalling - 3.29 acres.
5. Walnut Brook at Fitch's Bridge drains 202 acres including
- A Swamp of - 1.83 acres.
6. Robinson's Brook--with the main stream in Pepperell--flows parallel with the boundary to enter the Nashua River at the bend in the so-called Intervale. Robinson Brook drains 293 acres of Groton and a much larger area in Pepperell. In the same Groton portion there are many small swamps near the drainage divide ranging from less than an acre to four acres in size and
- Swamps totalling - 15.14 acres.

West Groton Summary

West of the Nashua River, there are, therefore,  
4117.22 acres of which

water area =	70.53 acres
swamps and wetlands =	219.76 acres

B. East of Nashua River

East of the Nashua River, most of South Groton is drained by James Brook which enters the river at the Ayer-Groton-Shirley boundary stone. James Brook is discussed in the next section of this description.

Smaller brooks and streams, north of James Brook, which flow into the Nashua River in Groton include:

1. "Groton School" Brook drains 330.0 acres, and rises on the Groton School property and flows north and then west to the river through a swamp of - 20.4 acres.
2. "Sabine" Brook, draining some 345.5 acres which flows through the artificial ponds on the Dumaine property of "the Groton Place" before entering the river just below the bridge on the West Groton Road
 

Ponds of	- 4.4 acres.
----------	--------------
3. The Intervale, including several small streams draining the lowlands south and west of the Fairgrounds Road, covers 484 acres.
4. Tuity Brook, which drains an area of 460 acres extending across Farmers Row and Main Street at the railroad, and flows northwesterly between the road to the Fairgrounds and Gratuity Road, before turning north into the Nashua River. A swamp west of Mill Street covers - 3.21 acres.

5. Nod Brook rises in the area between Chicopee Row and Longley Road and flows westerly through the "Soapstone" area south of Shipley Hill and across Nod Road just east of the present Town Dump. With the small streams on either side of North Main Street, this is an area of 780 acres.

Swamps in this drainage basin include:

a. Several East of Longley Road - total	- 7.30 acres
b. Several more between Longley to Common	- 4.20 acres
c. Below Common Street	- 4.13 acres
d. South of North Main Street	- <u>16.00</u> acres
	31.63 acres

6. "Sand Hill" Brook drains an area of 231.5 acres on the north side of Shipley Hill and enters the river at "The Oxbow." There are four swamps along its course with a total area of - 12.5 acres.

7. "Naumox" Brook, north of the ridge followed by Sandy Hill Road and rising east of Nashua Road, and a small stream between "Naumox" and "Sand Hill" Brook drain 344.8 acres. On that small stream there is

A swamp of - 4.13 acres

and along "Naumox" there are five totalling - 33.0 acres.

A swamp in a bay of the river adds - 2.0 acres.

8. Along the river between Route 119 and the Pepperell Line there are several islands with a total area of 30.9 acres, and in the same stretch the water area on the Groton side of the town boundary measures about 142.10 acres.

9. Cold Spring Brook rises in a small pond in the angle between Nashua Road and Reedy Meadow Road. The total area of this drainage basin is 275.5 acres of which 18.75 acres are in four swamps. - 18.75 acres.

10. An unnamed brook and one or two smaller streams provide drainage for the remaining area, 184.8 acres, to the Pepperell Line. The brook issues from an extensive swamp-- 30.29 acres-- between Longley Road and the railroad.

East of Nashua Summary

The area draining directly into the Nashua River in the course of that river's passage through Groton comprises some 3477 acres-- exclusive of the James Brook Drainage Basin discussed below. Of this area

water	- 146.5 acres
and swamps or wetlands	- 155.9 acres.

C. James Brook

James Brook, as noted above, drains most of South Groton, and flows into the Nashua at the Ayer-Groton-Shirley boundary stone. Beginning in the upper reaches the basin streams and wetlands may be described as follows:

1. Upper James Brook--above Peabody Street and Old Ayer Road--drains some 717.3 acres, of which

Half Moon Swamp northeast of Main Street	- 81.5 acres
Broadmeadow	- 29.6 acres
West of the Railroad	- 13.1 acres
East of the Railroad	- <u>19.2</u> acres
Wetlands	- 143.4 acres.

2. Cady Pond Brook drains 303.0 acres north of Indian Hills and between Old Ayer Road and Prospect Hill, of which

the Cady Ponds occupy	- 3.38 acres
and wetlands around it	- 12.9 acres.

3. James Brook--between Peabody Street and Indian Hills Road drains 85.6 acres.

4. "Railroad Brook" below Peabody Street and the "Swill Bridge" drains 362.06 acres of which

Groton School Pond occupies	- 5.97 acres
and	
two swamps above cover	- 4.13 and
	- 2.75 acres
respectively, and	
another small pond	- 1.14 acres.

5. Half Moon Brook--south of Indian Hills Road drains  
438.8 acres of which

Half Moon Pond covers - 1.38 acres  
and the swamp around it - 55.09 acres.

In the drainage above and west of Smoke Hill there  
are two more swamps

One of - 4.36 acres  
and the other - 23.2 acres.

6. James Brook below Indian Hill Road to the confluence  
with Railroad Brook drains 191.23 acres in  
Groton

and,

7. South of Groton School to the Ayer Line by various  
small streams 263.9 acres of which

A swamp east of Farmers Row at the  
Town Line occupies - 3.67 acres.

#### James Brook Summary

These figures indicate that James Brook drains  
2361.9 acres in Groton of which

Water covers - 11.87 acres  
and swamps or wetlands - 249.5 acres.

#### D. South East Groton

The southeast section of Groton drains in three directions:

1. West of Rocky Hill to Nonacoicus Brook in Ayer and so to the Nashua River in the Fort Devens Reservation,
2. East of Rocky Hill to Spectacle Pond, Forge Pond and Stony Brook--to the Merrimack River, and
3. North of Clay Pit Hill to Snake Meadow Brook.

1. West of Rocky Hill, two drainage basins are to be considered:a. West of Snake Hill--a portion of Groton comprising 289.7 acres including two large swamps

one of	- 36.95 acres
the other of	- 31.67 acres.

## b. Between Snake Hill and Rocky Hill with 296.1 acres in Groton including

Long Pond	- 4.77 acres.
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Two swamps at the north edge drain in more than one direction

one-third of the larger	- 2.0 acres
one-half the smaller	- 1.0 acres.

There are three small wetlands in the upper section of

2.07, 1.9 and 1.7 acres	- 5.67 acres
-------------------------	--------------

a large swamp of	- 20.66 acres
and a part of the wetlands around Long Pond	- 4.36 acres.

2. East of Rocky Hill, three distinct areas are identifiable:a. Drainage into Spectacle Pond--487.5 in Groton, including numerous sink holes south of Boston Road

	- 5. ? acres
--	--------------

Part of a swamp on the Ayer line	- 8.72 acres
and a swamp north of the Boston Road	- 20.66 acres

## b. Drainage into Forge Pond of a narrow strip of 40.15 acres along the Littleton line and

## c. Carmichael Swamp area of 670.34 acres lying generally east of Whiley's Road, southwest of Clay Pit Hill and straddling Forge Village Road.

This area contains two small natural ponds

in the middle of Carmichael Swamp - 1.43 acres  
and northwest in Tax Title property - .92 acres

A swamp between Duck Pond and Clay  
Pit Hill covers - 5.28 acres

Carmichael (including the pond) - 75.76 acres

and two swamps east of Hayden Road--  
to the Westford line include - 14.7 and  
5.1 acres

3. Snake Meadow Brook in Westford drains some  
354.2 acres in Groton. A south branch rises west  
of Clay Pit Hill and flows north and east through  
wetlands of - 3.73 acres  
and - 9.41 acres  
besides a swamp on a tributary of - 1.37 acres.

Similarly there are three areas of wetlands on the  
north branch--on either side of Lowell Road

Two small ones .46 and 1.36 - 1.82 acres  
and on either side of the abandoned railroad - 8.10 acres.

#### South East Groton Summary

These three areas include a total of 2138.0 acres, of which

water covers - 7.12 acres  
and swamps - 261.96 acres.

#### E. "Lost Lake" and Martin's Pond Brook

"Lost Lake"--a flooding of Knops Pond, Springy Pond and an even  
larger swamp--is fed by several small streams, springs and Martin's  
Pond Brook.

1. "Lost Lake" Area--above the Dam is bounded for the purposes of this analysis by the drainage divides with Carmichael Swamp on the southeast,

Long Pond and Half Moon on the south, and  
Martin's Pond Brook on the west.

This is an area of 1353.6 acres, of which

Lost Lake or Mountain Lake covers (including Knops Pond 62 a. and Springy 6.3 a.)	- 226.38 acres
A kettle hole or sink S. W. of Springy and another south	- 2.68 acres - 3.7 acres
Duck Pond--with no apparent outlet	- 22.19 acres
A pond north of Duck of and five small ponds on the southwest of Lost Lake and between Lost Lake and Duck Pond to a total of	- 6.06 acres - 4.30 acres.
Northwest of Duck Pond is a large swamp of and a smaller one on the southeast	- 30.72 acres - 2.29 acres
South of the Boston Road other swamps appear to drain more than one way--with the portions allocated to this drainage	- 5.30 acres.
Finally northwest of the dam there is wetland of	- 2.70 acres.

2. Martin's Pond Brook is divided for this study into three parts:

a. <u>Above the Lowell Road</u> where it drains over 400.65 acres including Martin's Pond	- 20.20 acres
and swamps - West of Chestnut Hill	- 10.1 acres
- Around Martin's Pond	- 31.84 acres
- Along Martin's Pond Road	- 3.21 acres
- and along School House Road	- 11.23 acres
b. <u>Paugus Brook</u> --draining 342.4 acres from the Pond at Lawrence Academy	- 1 acre
and large swamps parallel with the Lowell Road of	- 16.98 and - 22.96 acres.

- c. A Lower Section of 711.6 acres south and east of Brown Loaf to Lost Lake, including a side brook from south of Prospect Hill along Ames Road and east of Brown Loaf, as well as the main stream below Lowell Road.

In this area there are two or three small kettle holes at the eastern end between Lost Lake Drive and the Brook--with a total area of perhaps - 1 acre.

East of Gay Road there are also more glacial "sinks," the largest of which is 2.52 acres--and added together they might total - 5.0 acres.

The side stream flows through two large swamps

between Ames and Gay Roads	- 20.66 acres
and east of Gay Road	- 8.26 acres.

#### "Lost Lake" Summary

Around "Lost Lake" and the area drained by Martin's Pond Brook comprise a total of 2808.25 acres of which

water covers	- 286.51 acres
and swamps or wetlands	- 185.34 acres.

#### F. Baddacock, Burnt Swamp and Cow Pond

North of the "Lost Lake"--Martin's Pond Brook--the next drainage basin, covers the area draining into Whitney or Cow Pond. This basin is considered in three parts.

1. Whitney or Cow Pond, south of Lowell Road--  
an area of 343.7 acres including:

Whitney or Cow Pond	- 37.29 acres
and surrounding swamps of	- 34.75 acres
and other small swamps of	- 1.20 acres.

2. Burnt Swamp--north of Lowell Road, comprising 321.3 acres including
- |  |                               |
|--|-------------------------------|
| Burnt Swamp Pond   | - 3.6 acres                   |
| and<br>(The U.S.G.S. shows a second pond to the south of | - 1.6 acres)                  |
| Burnt Swamp Meadow<br>and wetlands to the east of        | - 40.5 acres<br>- 7.12 acres. |
3. Baddacook Brook, above its confluence with the brook from Burnt Swamp, drains an area of 994.0 acres including
- |  |               |
|--|---------------|
| Baddacook Pond   | - 80.80 acres |
| (Again the U.S.G.S. shows another pond south of Lowell Road of | - 1.8 acres)  |
| and extensive wetlands draining to the Pond:                   |               |
| from the southwest   | - 51.20 acres |
| from the northwest,  | ( 22.9 acres  |
| in three parts           = 34.58 acres                         | ( 5.28 acres  |
|  | ( 6.4 acres   |
| from the north   | - 1.6 acres   |
| from the northeast   | - 48.8 acres  |
| as well as swamps on the outlet stream                         |               |
| north of Lowell Road   | - 41.8 acres  |
| south of Lowell Road   | - 4.59 acres  |
| and a smaller swamp near Lost Lake Drive                       | - 1.70 acres. |

#### Baddacook-Whitney Summary

With a total area of 1659.0 acres, of which

water covers	- 125.09 acres
and swamps or wetlands	- 267.84 acres.

#### G. Cow Pond Brook and Massapoag Pond

Whitney or Cow Pond--and the area described under F above-- is drained by Cow Pond Brook to Massapoag Pond and from that pond by

Salmon Brook to the Merrimack River at Nashua. The portion of this drainage area in Groton is discussed in three sections, as follows:

1. Cow Pond Brook, below Lowell Road to Upper Massapoag Pond, drains an area of 971.07 acres in Groton and additional areas in Westford and Tyngsborough.

Between Millstone Hill and the abandoned railroad line of the Nashua, Acton and Boston R. R. there are

Two swamps of	- 40.2 and
	- 3.0 acres

while along the course of the main streak there are large areas of wetlands

below Lowell Road	- 91.82 acres
midway	- 10.46 acres
above Bridge Street	- 19.28 acres

and straddling the Railroad	( 8.72 acres
totalling = 27.31 acres	( 7.11 acres
	( 11.48 acres

2. Upper Massapoag Pond is fed by Cow Pond Brook--as previously described and by an unnamed brook--which rises in a swamp east of the corner of Rocky Hill Road and Parker Road. The area drained by that brook and land in Groton around upper Massapoag Pond contains 282.3 acres, including:

Part of Upper Massapoag Pond in Groton	- 15.38 acres
and a sink-hole north of the Pond	- 1.80 acres
and three swamps near headwaters of Brook 4.36, 5.21 and 7.34	= 16.91 acres
and a swamp west of the Railroad	- 2.0 acres.

3. Main Massapoag and Western Tributary

Massapoag Pond lies partly in Groton (40 acres), partly in Tyngsborough (53 acres) and partly in Dunstable (51 acres). The part in Groton is fed by a stream from the west which flows from double-ended swamps. The area involved is 369.6 acres including:

Parts of Massapoag Pond in Groton	- 24.09 acres
-----------------------------------	---------------

and swamps on the entering brook:

Part in Groton east of Horse Hill	- 15.15 acres
One-half the double-ended swamp south of Horse Hill	- 11.31 acres
Midway to Massapoag	- 5.51 acres
On south tributary	- 2.98 acres.

#### Cow Pond Brook and Massapoag Pond Summary

The total area discussed under this heading is 1822.97 acres of which

water covers	- 41.27 acres
and swamps or wetlands	- 245.93 acres.

#### H. Unkety Brook

Unkety Brook flows generally north into Dunstable (at the corner in the boundary line on Chicopee Row) from around the Chestnut Hills and the north side of Barralock Hill. It is formed by a number of tributaries which are grouped under four headings in the discussion below.

1. An unnamed brook which drains an area bounded on the east by Horse Hill and on the west by a drainage divide close to the line of Dan Parker Road. In Groton this drainage basin covers 261.6 acres including:
 

One-half the double-ended swamp (mentioned under Main Massapoag)	- 11.31 acres
A swamp in a saddle of Horse Hill	- 1.80 acres
A swamp near the Dunstable line	- 5.50 acres
2. Central Unkety--an area of many, many swamps--and lying generally between Dan Parker Road on the northeast and Chicopee Row on the northwest. The total area is 807.59 acres. The wetlands in this section add up to a total of - 193.8 acres.
3. Upper Unkety--consisting of the valleys of Walnut, Gift and Hawtree Brooks--north of the Chestnut Hills with a total area of 736.2 acres, including:

- a. Along Walnut Brook--swamps
- |                            |               |
|----------------------------|---------------|
| At headwaters              | - 13.09 acres |
| in valley east of hills    | - 1.0 acres   |
| at confluence with Hawtree | - 18.36 acres |
- b. Drainage by Hawtree Brook
- |                            |              |
|----------------------------|--------------|
| Two small ponds--totalling | - 1.0 acre   |
| Headwater swamp            | - 5.28 acres |
| Southside                  | - 3.43 acres |
| Towards Chicopee Row       | - 2.90 acres |
| Along stream               | - 7.34 acres |
- c. Gift Brook Drainage
- |                      |              |
|----------------------|--------------|
| Five small ponds     | - 2.00 acres |
| Gift Meadow Swamp    | - 8.82 acres |
| Part of double ender | - 2.00 acres |
4. East of Reedy Meadow and north of Chicopee Row, there are a number of double-ended swamps which appear to drain through various channels to Unkety Brook. The area in question comprises 637.96 acres and includes:
- |  |               |
|--|---------------|
| A pond north of Chicopee Row of                                    | - 2.90 acres  |
| Parts of two large swamps on the Dunstable line of 26.24 + 13.77 = | - 40.01 acres |
| and a large swamp on the Reedy Meadow side of                      | - 73.3 acres. |

#### Unkety Brook Summary

The total area of the four sections discussed above is 2443.3 acres of which

water covers	- 5.90 acres
and swamps and wetlands	- 387.94 acres

#### I. Reedy Meadow

The very extensive swamp known as Reedy Meadow in North Groton is drained by Reedy Meadow Brook into Pepperell. Between that Brook and the divide with the streams which flow directly into the Nashua River

lies Wattles Pond which, some say, has no outlet. For the purposes of this study the Wattles Pond drainage is combined with Reedy Meadow for a total area of 890.36 acres including

Wattles Pond	- 9.69 acres
A swamp draining to the Pond from west of Nashua Road	- 10.0 acres
A smaller swamp on that stream of a still smaller area west of Longley Road	- 2.00 acres - 1.80 acres
Three swamps east of the Reedy Meadow, 2.9, 11.22, 6.9, totalling	- 21.02 acres
South of Reedy Meadow along the stream there are four small wet areas, 3.9, 1.6, 1.6, 3.9, totalling	- 11.00 acres
and Reedy Meadow itself of	- 145.54 acres.

#### Reedy Meadow Summary

Area discussed totals 890.36 acres of which

water covers	- 9.69 acres
and swamps and wetlands	- 191.46 acres.

TABLE I

## SUMMARY AREAS

	<u>Gross Area</u>	<u>Ponds</u>	<u>Swamps</u>
West Groton	4117.22	70.53	219.76
East of Nashua	3477.	146.5	155.9
James Brook	2361.9	11.87	249.5
South East	2138.	7.12	261.96
Lost Lake, etc.	2808.25	286.51	185.34
Baddacook, etc.	1659.	125.09	267.84
Massapoag	1822.97	41.27	245.93
Unkety Brook	2443.33	5.9	387.94
Reedy Meadow	890.36	9.69	191.46
	21,718.03	704.48	2165.63
			704.48
Total Wetlands			2870.11

A comparison of these figures with those of the Massachusetts Cooperative Wild Life Research Unit in its "Classification of Land Cover Types by Towns in Middlesex County" (1959) shows its calculation of Gross Area as 21,692 acres, and ponds and wetlands of only 1468 acres. The difference in the first case--total area--is insignificant, and in the case of the "wetlands" is probably due to classification of forested swamps according to the forest cover, instead of as wet. For example, on the "Cover Maps" all of Reedy Meadow Swamp and Burnt Swamp are shown by Forest Type.

TABLE II

## PONDS

<u>Great Ponds</u>	<u>U.S.G.S.</u> <u>1000 Sc</u>	<u>W.P.A.</u> <u>400 Sc</u>	<u>Green</u> <u>History</u>	<u>Mass.</u> <u>D.P.W.</u>	<u>Mass.</u> <u>Nat. Res.</u>	<u>Survey</u> <u>Numbers</u>
Baddacock	80.36	80.80	103	78	78	#47 (45' deep)
Cow - Whitney	37.1	37.29	71	11	38	#64
Lost Lake	218.09	226.38	including Knops and Springy.			
(Knops)			55	62		
Martins	21.80	20.20	16.6	23		
Duck	20.66	22.19	55*	52*	52*	#56 (4 - 6' deep)
Massapoag	39.47	47.11	56	40		+51 in Dunstable +53 in Tyngsborough
(Upper)	(15.38)	(18.92)			18.6	#66
(West)	(17.21)	(18.21)				#65
(Main)	(6.88)	(9.98)				#67
Long		4.77		15		+29 in Ayer
Forge				.1		(212.00 total 76 Littl. and 136 Westford)
	417.48	441.74 acres				

\* Difference possibly accounted for by inclusion of swamp to N.E. of 30.72 a.

<u>Natural Ponds</u>	<u>U.S.G.S.</u>	<u>W.P.A.</u>	<u>Artificial Ponds</u>	<u>U.S.G.S.</u>	<u>W.P.A.</u>
Wattles	9.18	9.69	Pepperell Mill Pond	142.1	
Flat	6.66	7.31	Vose Mill Pond	13.77	
No. of Duck	4.36	6.06	Leatherboard Pond	1.40	
Burnt Swamp	3.67	1.72	Groton Sch. West	5.97	6.61
So. of Springy	2.50	3.27	East	2.00	.15
W. of Springy	2.50	2.68	Upper Gady		1.54
Gady	1.60	1.84	Groton Pl. Lower	4.4	2.09
Half-Moon	1.38	.74	Upper		2.02
Carmichael		1.43			
W. of Carmichael	.92	.66			
	32.77	35.40			

## TABLE III

## STEEP AREAS

West Groton	17.91	
So. of Boston Road		About 2/3rds of which are
West of Pole Line	68.13	concentrated in a belt
East of Pole Line	33.11	
East of Lost Lake		one and one-half miles in
So. of Lowell Road	21.40	width from between Chicopee
Between Boston and Lowell	65.47	Row and Horse Hill on the
West of Chicopee Row	78.29	north, due south to the
Chicopee to Pole Line	109.16	Ayer Line.
Pole Line to East Bound	66.54	
	<hr/>	
	460.01	

3. Soils of Groton

The soils of Groton are shown on the accompanying map in color (not reproduced here). This map has been prepared from the "Soil Survey of Middlesex County, Mass." by Latimer and Lamphear, published by the U.S. Department of Agriculture in 1924. The data in that report and the County Map were "interpreted," simplified, and adapted to the much larger scale and greater exactitude of the Groton Base Map.

In the Soil Survey, "the soils of the county were classified in series--including 41 soil types and 10 phases, and in 5 miscellaneous classifications . . . ." On the map accompanying the report, some of these classifications appear in the Groton Area, and for the purposes of this planning study have been combined under the following headings:

Rough Stony Land - "too steep and stony for profitable farming operations . . . the drainage is well established . . . . This land should be left in forest. Much of it (in the County) is in state, town and private reservations and supports some good timber."

Gloucester Soils "are derived mainly from granite and gneiss material. They occur on well-drained uplands and carry a noticeable quantity of rounded and subangular stone."

Three classes of Gloucester soil were identified in Groton: 1) Stony Fine Sandy Loam at the Littleton line and in North-east Groton; 2) Stony Sandy Loam at Lost Lake, near Nutting Road, and at Millstone Hill; and 3) Stony Loamy Sand at Reedy Meadow.

In all three of these classes, "ledges and protrusions of bedrock occur in places . . . . Drainage is almost entirely internal and is well established . . . , and the soil is inclined to be droughty in dry seasons . . . . Only comparatively small areas of this land are cleared . . . and most of the cleared area is in pasture . . . . Even where the brush is kept down grazing is poor." The authors of the Soil Survey conclude: "This is not a strong soil, and in most places could be best utilized for forest." In view of its "extremely open structure" and drainage, Gloucester soil would seem to provide good locations for sewerage disposal fields, except, of course, where bedrock protrudes or is very close to the surface.

Bernardston Silt Loam occurs in West Groton in a large area, north of Kemp Street and West of Pepperell Street to the Pepperell line. "This soil contains a quantity of loose slabs of slate, phyllite and schist scattered on the surface . . . , and in places (The Throne) bedrock . . . comes to the surface . . . . Though well drained, the soil is not thoroughly aerated . . . . It is nearly all in forest."

Hinckley Soils "are derived from light-textured glacial drift material which occurs as kames, eskers and moraines." Again three classes were identified in Groton: 1) Gravelly Sandy Loam in West Groton--along Pepperell Road and in the Town Forest, along Dunstable Road, east of Chicopee Row, east of Baddacook Pond, along both sides of Cow Pond Brook and east of Knops Pond; 2) Loamy Sand between the Pepperell Road and the railroad and in several patches in West Groton; and 3) Stony Loam east and south of Cow or Whitney Pond, north of Martin Pond Brook and south of Littleton Road.

Again, as in the case of Gloucester Soils, all three of these classes of Hinckley Soils are described in similar terms:

"This soil . . . is composed mostly of granite, gneiss and other crystalline rock material. The gravel consists of rounded, waterworn quartz, granite and gneiss . . . . Drainage, which is almost entirely internal, is usually excessive . . . . Nearly all of this land is forested . . . . Between 60 and 70 per cent of the soil is forested . . . . The soil is best left in natural forest . . . ."

Merrimac Soils "are derived from water-laid glacial material" and occur "on fairly level terraces" or "on low, level terraces along present stream courses and filled-in lakes," or "as terraces along the streams which emerged from the edge of the glacier." In all cases the "drainage is internal and well established" although Merrimac Loam "retains moisture better than the other Merrimac soils" and in the Loamy Sand series drainage "is inclined to be excessive, as the porosity of the topsoil, subsoil and substratum permits free movement of water." The Gravelly Sandy Loam is "inclined to be droughty in dry seasons" but appears to be the most valuable of the Merrimac soils for farming.

Four classes of Merrimac soils are found in Groton:  
 1) Sandy Loam at "Paper Mill Village" on either side of Route 119, at the south end of Baddacook Pond, and northeast of Wrangling Brook at the West Groton Road; 2) Loam, along Boston Road southeast of Groton Center; 3) Loamy Sand in very extensive areas on terraces along the Nashua and Squannacook Rivers, between Millstone Hill and Cow Pond Brook, at the north ends of Chicopee Row and Dan Parker Road, and in spots in West Groton; and 4) Gravelly Sandy Loam, in North Groton at Kemp Road; along Schoolhouse Road, Whitman and Gay Roads and Boston Road; on Tobacco Pipe Plain at Sandy Pond Road and along Forge Village Road.

Paxton Soils "occur as drumlins or in drumloid forms . . . . having dome-shaped tops, smoothly sloping ends, and fairly steep sides. The hills are oval in shape, with their elongated axis north and south . . . the deposits are fairly deep containing few stones . . ." Drainage is well established although the soil has a fairly large moisture-holding capacity."

In Groton the Gravelly Loam series is found in the drumlin hills -- Barralock, Chestnut, Gibbet, Brown Loaf, Prospect, Indian Hills and on south in a belt across the middle section of the Town. This is doubtless the best agricultural land in Groton and is much used for orchards.

Ondawa fine sandy loam occurs as bottom or overflow land in extensive areas along the Nashua and Squannacook Rivers and Wrangling Brook--and lie slightly higher than the stream level--often inundated by spring freshets. These "areas are level and drainage is well established." Nearly all of them are cleared for crops or pasture.

Meadow, as mapped by the Soil Survey, "includes all the bottom land or overflow land, other than muck or peat, that occurs along streams and could not be classed with a definite soil series." Most of the "areas are level, and the drainage is poor." A century or more ago considerable areas of meadow were cleared and drained in Groton, but almost all of those clearings and ditches have long since been abandoned. Lands shown in purple on the accompanying map were shown on the Soil Survey Map of 1924 as "meadow" at that time.

Muck and Peat, shown in blue on the accompanying map, "is found in the stream bottoms" and "in filled-in lake beds." As in the case of "meadow" lands, some areas of muck and peat were formerly cleared and drained for farming, i. e., Broad Meadow, etc. This class of land is generally the same as the swamps or wetlands shown on the U. S. G. S. maps of Groton and vicinity.

Hollis Soil "is derived from schist and phyllite . . . . The glacial drift is comparatively shallow, as the partly disintegrated bedrock is found in many places within three feet from the surface."

"Hollis Loam occurs on smooth hilltops and ridges" west of Chicopee Row, on the southwest side of Gibbet Hill, and on the southeast slopes of the hill on which Groton School is located. These areas in Groton have been extensively used for orcharding.

Hollis Fine Sandy Loam occurs in a large area west of the Town Hall and Half Moon Swamp in Groton Center, including Shepley Hill on the north and west to Mill Street, along the western slope of the hill traversed by Farmers Row and across Farmers Row at Peabody Street to the Old Ayer Road. In West Groton, the hills between Townsend Road and Pepperell Road and between Pepperell Road and Maple Street are covered with this soil. Most of this land is cleared and has been used in the past for general farming. This class of Hollis soil appears to have "established drainage" and, except where it is "hummocky," to be valued for agricultural purposes.

Charlton Soils have a "heavy compact substrata" and are "derived from deeper glacial deposits" than Gloucester soils. The two classes found in Groton occur on "low, smooth, rounded, oblong or drumloid hills" or on "low hills and ridges, with smooth, gently sloping sides."

Charlton Loam is found at Groton School and Lawrence Academy, and

Charlton Fine Sandy Loam is found on the slopes of the Groton School Hill and on the high ground in the vicinity of Farmers Row and Broadmeadow. The fine sandy loam "is inclined to be ledgy," but in both classes "drainage is well established."

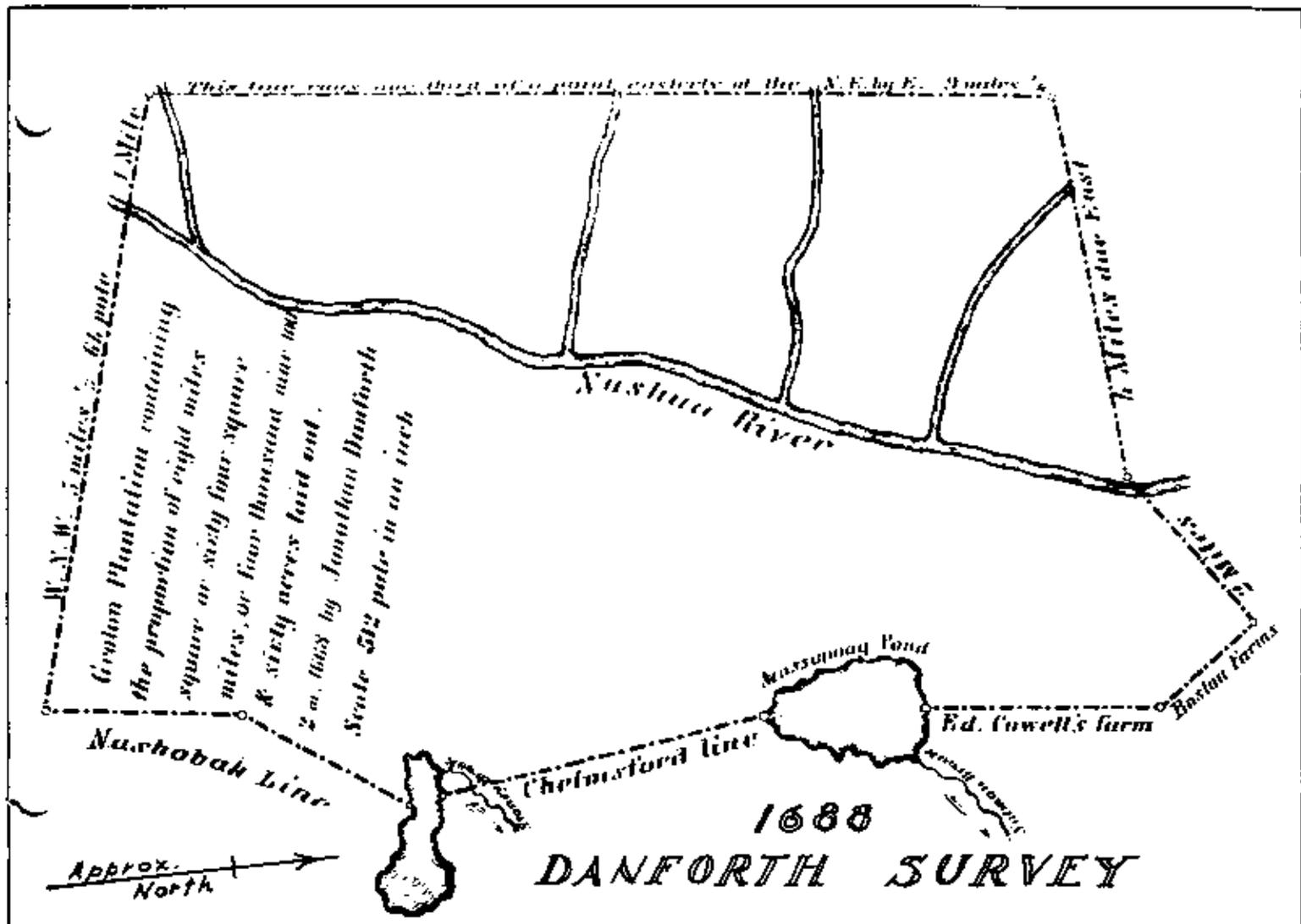
This brief summary of the Soils of Groton may have some bearing on the future use of various areas. It certainly explains why extensive areas have been left in woodlands (on Gloucester and Hinckley Soils or on "Rough Stony Land"), why crop farming is still profitable in the Intervale (Ondawa Soil), and why orcharding continues on Chestnut Hills, Indian Hills, etc. (Paxton Soil).

If arguments are needed for provisions to maintain open spaces of different types, the particular suitability of different soils for one or another use may provide the clinching argument. Similarly, if Groton expects to rely primarily on septic tanks and leaching fields for disposal of domestic sewerage, the drainage and permeability of soils will be a decisive factor in the density of development and size of lots. Soil conditions thus set the limits to residential developments on soils classified as Muck and Peat, Meadow and Ondawa, and where ledge or bedrock protrudes or is near the surface in areas with Gloucester or Hollis soils. On the other hand, forest and woodland use of areas with Gloucester, Bernardston and Hinckley soils is clearly indicated and probably desirable on Charlton Fine Sandy Loam.

## B. HISTORICAL BACKGROUND

The history of Groton--as told by Butler and Green in several volumes--is important to the planning for the future of the Town. We need to know how the area was settled and the roads were located, the effect of changes in transportation and industry, and how population has increased over the years.

1. Settlement: The story starts with the granting of a petition for the founding of "Groaten" by the Great and General Court on May 23, 1655; and, as previously noted, with a boundary survey by Jonathan Daniels completed in April 1668. The huge area of the original township was reduced over the years by "setting off" from the mother town of Dunstable 1673, part of Littleton 1714, Harvard 1732, part of Westford 1729, Pepperell 1742, Shirley 1753, and finally Ayer 1871. A part of the original area now lies in New Hampshire.



The original settlement in Groton appears to have been in the area now known as "Nod" -- between North Main Street, Common Street and the River, and the first road was naturally the way from Boston -- via what is now the State Route 225. A second early road was by Farmers Row to Lancaster.

What we would now consider to be a planning by-law was adopted "at a general meeting\*" held on March 5, 1665-66 (when) it was voted that 'there should be trees marked for shade for cattell in all common wayes' . . . . At another meeting held on January 13, 1673-74, it was voted that all trees of more than six inches in diameter at the butt, excepting walnut and pine growing by the way side, should be reserved for public works . . . ."

2. Indian Attacks: By 1676 when the famous Indian attack and massacre occurred, there were sixty families in Groton and five "garrison houses" -- Willard's near the High School, Parker's north of the Town Hall, Nutting's "on the other side of James Brook," a fourth between Nutting's and Willard's and a fifth "a mile distant." After the attack and burning, when 66 dwellings were destroyed, the town was abandoned, to be re-settled in 1678. Two years later there were forty families in the Town.

In a second Indian attack, in July 1694, the Longley family was murdered, and still further Indian encounters took place in June 1697, August 1704, October 1704, July 1706, and when Shattuck was killed at the Stony Fordway on May 8, 1709.

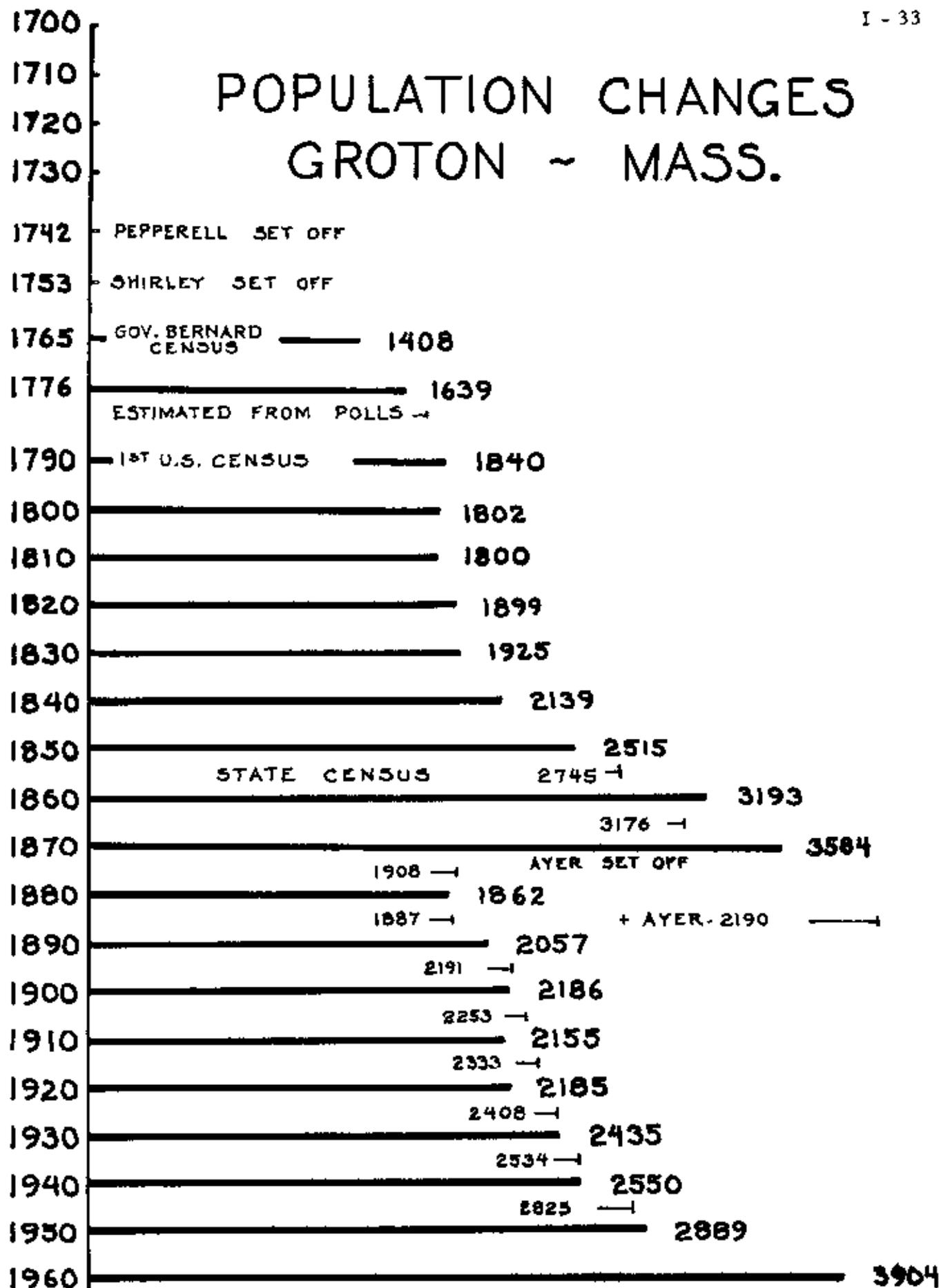
3. Schools: Groton is famous for two schools: Lawrence Academy, founded in 1793 and known as Groton Academy until 1845; and the Groton School which was established by Reverend Endicott Peabody in 1884. Both these schools continue to flourish.

4. Industry: Important factors in the growth of Groton were the industrial activities and the railroads. The story in Groton is similar to that in other New England settlements where water power was invariably harnessed at an early period for grist mills and saw mills. The first such mills in Colonial Groton were at Forge Village (1669) -- now in Westford and in 1667 at South Groton, now Ayer. A very incomplete reading of the Green and Butler Histories caught references to various mills on the Squannacook at West Groton since 1765 and another near the Townsend Line. There was once a saw mill "between

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\* Green, An Historical Sketch of Groton, Mass. 1655-1890.

# POPULATION CHANGES GROTON ~ MASS.



PREPARED FOR GROTON PLANNING BOARD

FROM HISTORIES & U.S. and MASS. CENSUS BY CHARLES W. ELIOT - 1962

Cow Pond and Cow Pond Meadows" and "Lothrop's Mill" appears to have been located on Baddacook Brook south of the Lowell Road as well as "Woods Grist Mill" (which may be another name for the same operation). On James Brook there was a Tannery near Indian Hill Road and a "mill dam a mile below" (which would be about on the Ayer line).

Larger and more significant mill and water power operations were developed in Groton in the 1830's and 40's. On the Squannacook, a starch mill was established at Vose in 1832 which was converted to paper manufacture before it burned in 1846. Hollingsworth built a new mill there in 1852 and a new dam in 1880 before selling to Hollingsworth and Vose.

A saw mill and gristmill had been in operation at The Stony Ford Place (where Route 119 crosses the Nashua River) for over 100 years before Paper Mill Village was developed there by Oliver Howe in 1841. Manilla paper was manufactured at that mill. The mill was sold to Hollingsworth in 1846, who rebuilt it in brick in 1851, only to have it burn on June 5, 1852. It was burnt again in 1876 but rebuilt and sold to Tileston and Hollingsworth in 1881. Only the foundations of that mill are now visible at that site.

The three major operations now located in West Groton--Hollingsworth and Vose, A. H. Thompson Co., and Groton Leatherboard are the successors to these earlier industrial enterprises.

In more recent years new "industrial" activities have developed in Groton Center including the Webber Laboratories (now part of A. D. Little & Co.), Gro-Lex Inc. for sheet metal and machine bases, Insko Co. making electro mechanical instrument drives, and Conductorlab on North Main Street.

5. The railroads first came to Groton in the 1840's. First, the Fitchburg (1844) to what is now Ayer or what became Groton Junction when the Worcester, Nashua & Portland (1848) was built through Groton Center, the Peterborough and Shirley through West Groton and along the Squannacook River, and the Stony Brook or Worcester and Lowell Railroads all converged on that point. The "Milford Branch" ran from Squannacook Junction to East Pepperell. In addition, the Nashua, Acton and Boston was built just inside Groton along the Westford-Tyngsborough line. Of these railroads, within the Groton Town limits, only the line through Groton Center to Pepperell and Hollis, and the single track along the Squannacook to Townsend and Greenville remain in service.

The settlement of the Town, the development of agriculture, the location of mills and industrial activities, and the coming of the railroads are all reflected in the population figures over two centuries.

6. Population: In the history books there are occasional references to the growth of the Town in particular years, but it is difficult if not impossible to distinguish what part of the population so recorded lived in what is now Groton. Thus in 1707 there is a reference to "seventy six polls," in 1755 to "fourteen negro slaves," and a report on a census ordered by Governor Bernard that 1408 people inhabited "Groton" in 1765. Some of those counted lived in Ayer or parts of other towns which were later carved out of Groton.

During the Revolution Groton had a population of 1639 (in 1776), and boasted in 1784 that its 418 polls made it second only to Cambridge of all the Massachusetts towns outside of Boston.

The attached Population Chart shows these figures and the U. S. and Massachusetts Census Data since 1790.

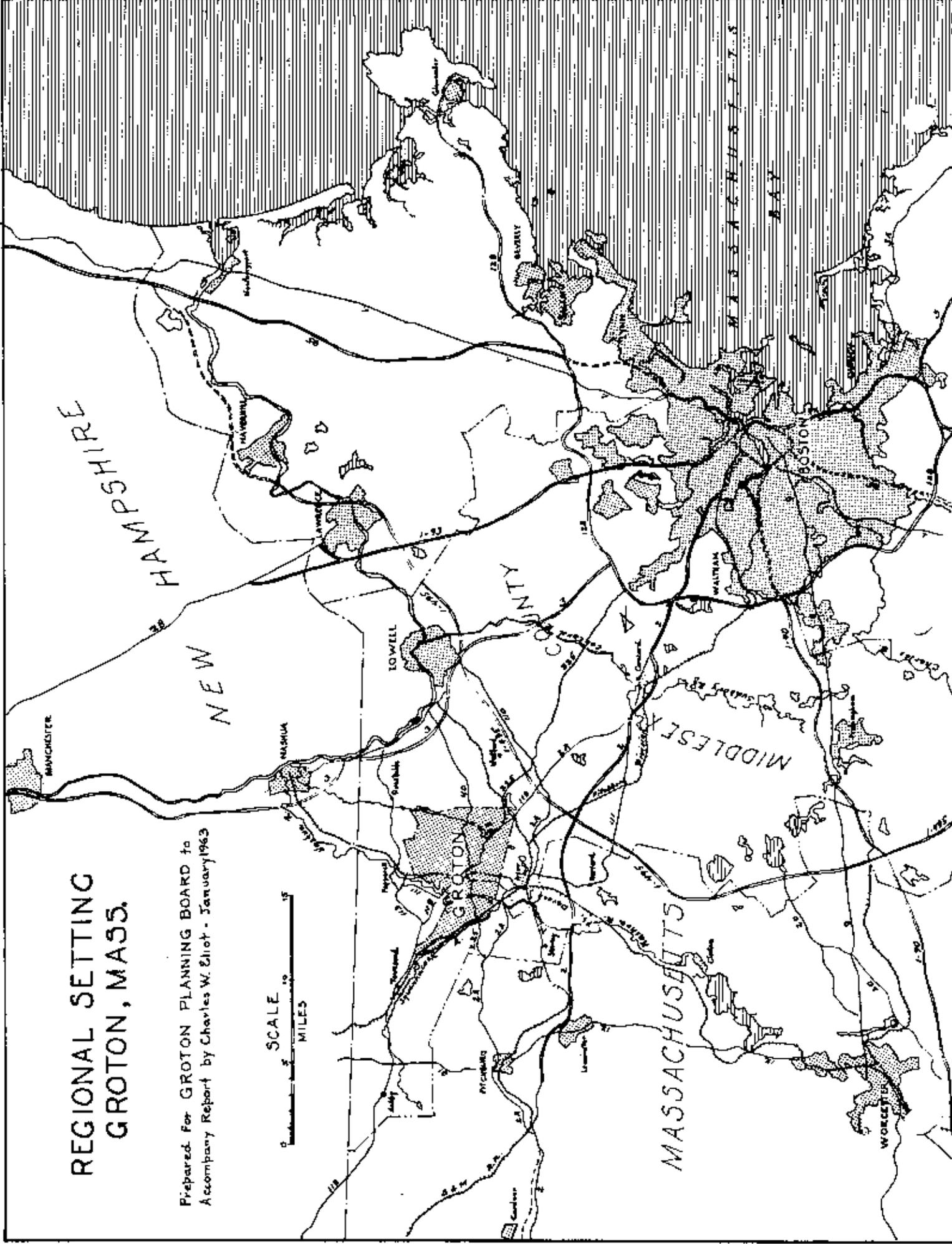
#### "The Past Is Prologue"

The importance of history in planning for the future is too often minimized, but part of the planning problem is "continuity." In Groton there are many values from the past which should be protected and continued, as, for example, the quality and character of Main Street in Groton Center. The establishment of an Historic District Study Committee by the Selectmen to investigate the ways and means for protection of Groton's historic sites is a constructive and hopeful step.

Two aspects of the Historical Background of Groton need further study--perhaps by the Groton Historical Society or the Historic District Study Committee. These aspects are the comparison of presently existing buildings with those shown on the 1847 Map of Groton Center, and the possible significance of place names which is briefly reviewed in Appendix A of this Part.

# REGIONAL SETTING GROTON, MASS.

Prepared for GROTON PLANNING BOARD to  
Accompany Report by Charles W. Eliot - January 1963



### C. REGIONAL CONSIDERATIONS

The future of Groton can be planned only in relation to its setting in a larger area or region. For different aspects of Groton's future, different regions or areas of influence are involved. Thus for problems related to the Nashua River, all of the area above Groton which is drained by that river is the natural region. Or for problems of commuting to work, the centers of employment--both close at hand in Pepperell, Forge Village, Fitchburg, Ayer or at Fort Devens, and as far away as Boston, Lowell, Fitchburg, Nashua and Worcester--are all part of the planning region for Groton.

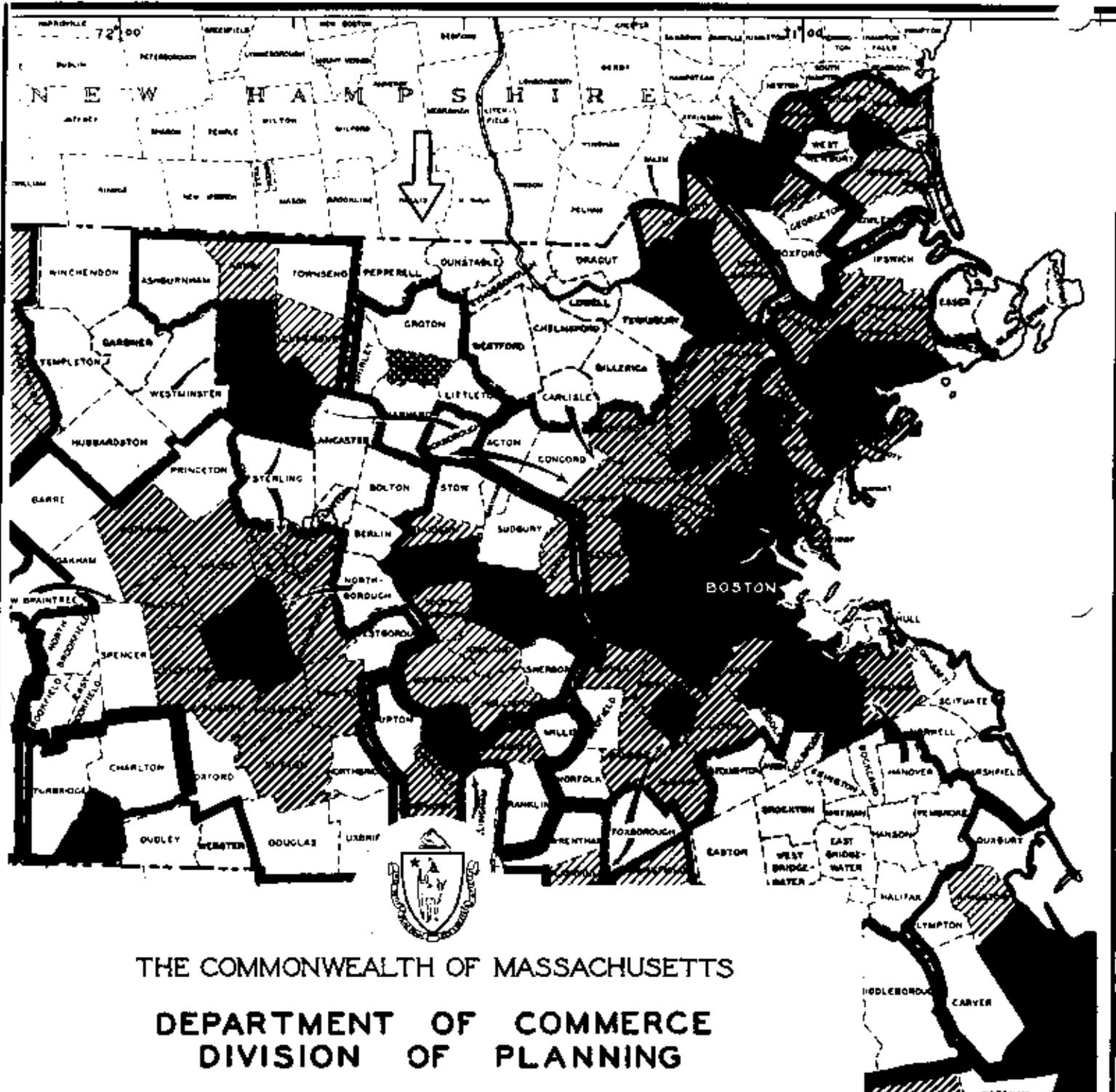
1. The Drainage Basins--described in the section on Physical Characteristics--which affect the planning for Groton--are shown on the accompanying map:

- a. The Nashua River Basin--draining an area extending to Gardiner, Princeton, and Rutland on the west; to Holden and Boylston on the south, and through Bolton and Harvard on the southeast. A principal tributary--the Squannacook--drains a considerable area in New Hampshire as well as parts of Ashby and Townsend.
- b. On the east, Groton is drained by a number of smaller streams which are considered to be part of the main Merrimack River Drainage Area. These streams flow to Salmon Brook on the north and to Stony Brook on the east.

The significance of drainage to planning is particularly important in relation to water supply--domestic, irrigation or industrial, to pollution and to water power.

The upper Nashua River--in Lake Wachusett--is part of the Boston Metropolitan Water Supply. Below the dam in Clinton and on several of the tributary streams the water is highly polluted. It is used for cooling, disposal of industrial and sanitary wastes, and for water power at a number of points.

The Massachusetts Department of Commerce in the report on "A Study of Areas for Regional Planning in Massachusetts" proposes a system of "Logical Areas for Regional Planning" based on points scored for so-called orientation criteria. Groton's position in relation to each of the applicable criteria is:



THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF COMMERCE  
DIVISION OF PLANNING

LOGICAL AREAS - REGIONAL PLANNING

2. Employment and Commuting are indicated by:

- a. Areas of Employment Security Office - Groton lies on the eastern edge of a district extending south to include Harvard and Boxborough and west to Ashby, Fitchburg and Leominster.

In this connection, the data collected in the Planning Board's "Questionnaire," circulated in November 1961 has been analyzed to provide information on some of the economic aspects of a Groton Region.

- b. Places of Employment have been tabulated from the questionnaires for all those sheets on which answers are provided to questions on that subject.

As might have been expected, out of the 951 returns showing places of employment, 415 are in Groton, and 136 of those are identified as being in West Groton. The next largest number, 147, work in Ayer or at Fort Devens, while 59 work in Littleton, 38 in Boston, 31 in Fitchburg and 28 in Lowell. If all those working in the immediate vicinity of Boston are considered as employed in "Metropolitan Boston," the figure for that area rises to 67. Another group of towns between Boston and Groton --including Concord, Wayland, Weston, Lincoln, Lexington, Bedford, etc. --are the places of employment for 67 other Groton residents. Twelve Groton residents apparently commute daily to Nashua, N. H. The questionnaire showed some hardy commuters who listed their places of work as far away as New York, Bourne and Weymouth, Peabody and Worcester.

- c. Commuting of Manufacturing Workers - According to the Department of Commerce Study, Groton, Pepperell, Shirley and Littleton are primarily related to Ayer, and Harvard is partially so related.

- 1) The Questionnaire last autumn shows that immediately around Groton, residents go to work in nearby towns as follows:

Ayer	146	Shirley	6
Littleton	59	Lunenburg	4
Westford	36	Hollis & Brookline, N.H.	3
Pepperell	18	Harvard	3
Acton	12	Bolton	1
Townsend	10	Dunstable	1
Chelmsford	9		

The 308 included in the above list, when added to the 415 employed in Groton itself, means that 723, or 76 per cent of those reporting, work within twelve miles of their homes.

- 2) A number of the larger employers of Groton have made available information as to the Residence of Employees. Figures were obtained by visits to the following employers:

In West Groton - Groton Leatherboard  
A. W. Thompson & Sons, Inc.  
Hollingsworth & Vose

In Groton - Insco  
Conductorlab  
A. D. Little & Co.  
Groton Inn  
Town Offices  
Grolex, Inc.

The employees of these establishments come to work in Groton from the following areas (as tabulated to April 7, 1962):

Groton	201	Lunenburg	6
Pepperell	65	Littleton	1
Shirley	24	Fitchburg	8
Ayer	40	Brookline, N. H.	11
Westford	8	Dunstable	5
Townsend	32	Miscellaneous	28

3. Shopping: Places to which residents of Groton go for shopping, to transact business or for medical or other services were also recorded on the Planning Questionnaire. The results have been tabulated for each of eleven districts or sections of Groton to record the towns where residents get food, clothing, appliances, repairs, medical help, banking and insurance services.

- a. Food. Of 813 Groton households reporting where they went for their principal supplies of food, 438 shopped in Groton, 179 in Ayer, 66 in Lowell, 45 in Fitchburg, 31 in Littleton, 19 in Pepperell, 13 in Townsend and 32 scattered among other neighboring towns. Those who shopped in Fitchburg were preponderantly from West Groton and the patrons of stores in Lowell came mostly from the eastern and southeastern sections of the town.

- b. Clothing. A similar distribution of preferences for larger centers nearest to their residences is reflected in the tabulation of places where Groton residents ordinarily go for clothing. Thus 191 returns show shopping for clothing in Fitchburg and an equal number in Lowell, while 132 go to Boston, 63 to Ayer, 53 to Nashua, and only 29 expect to get their clothes in Groton.
- c. Banking is a third indication of travel for business reasons. Since Groton has no bank (as frequently noted in the space for "Remarks" on the Questionnaire) all residents must go elsewhere for banking services. On the returns from the Questionnaire 365 reported banking in Ayer, 70 in Pepperell, 52 in Lowell, 42 in Fitchburg, 33 in Littleton, and 23 in Shirley. There were 48 who say they bank in Boston and some 18 more in Cambridge, Belmont, Concord, Bedford and other towns between Boston and Groton.

Although it is "statistically" wrong to combine "oranges and apples," it may help to give some impression of the area of "economic" interest for Groton to sum up some of these figures and put them on a map. The data on shopping for food and clothing, plus the figures on banking "adds" up as follows:

Groton	457	Pepperell	93
Ayer	596	Littleton	66
Lowell	337	Nashua	64
Fitchburg	279	Shirley	31
Boston	172	Concord	15

The communities close to Boston, including Cambridge, Belmont, Newton, Waltham, etc., add a total of 27 of which half is Cambridge; and scattered low numbers in Lunenburg, Chelmsford, Maynard, etc. make up the balance.

These figures outline an area or region very similar to but smaller than the region reflected from the figures on places of employment.

4. Service Areas of General Hospital - Groton and Pepperell each have their own. Shirley, Harvard and Littleton are centered on Ayer.

5. Extended Free Telephone Calls - Groton is one of four towns centered on Ayer, with Shirley, Harvard and Littleton.

6. Newspaper Circulation Pattern - Groton is, of course, in the Ayer circulation district, but also in the Lowell district. Shirley seems to be attached to Fitchburg and Harvard to Worcester.

7. Influence of Transportation by Highways, Railroads and Airports:

a. Highways. Two of the great radial highways from Boston go east and south of Groton:

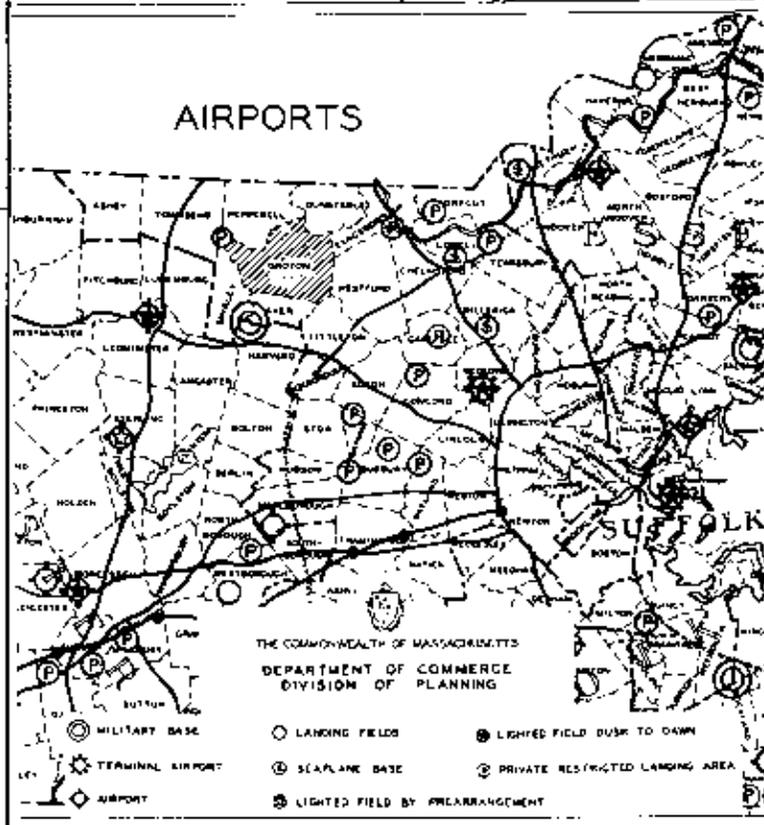
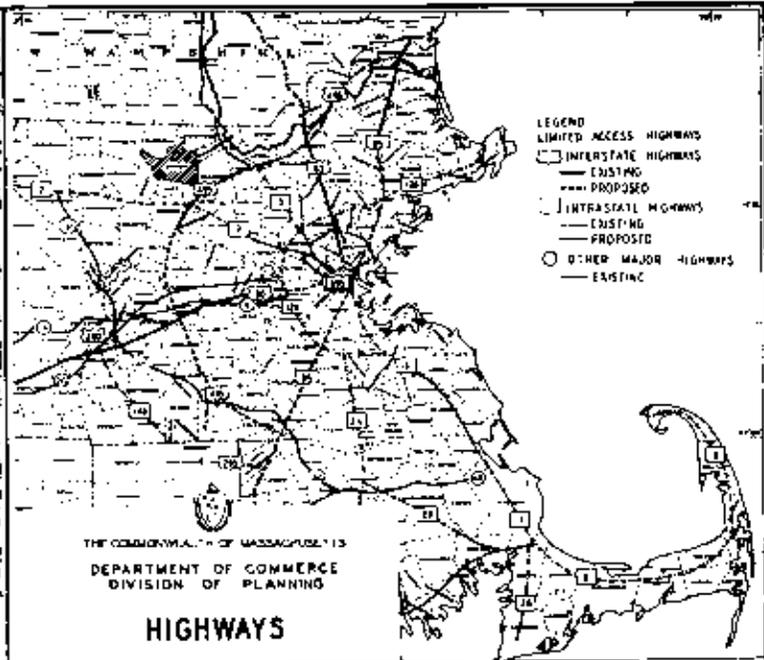
Route 3 - from Boston to New Hampshire by the Merrimack Valley passes eight miles east of Groton Center through Chelmsford and Tyngsboro to Nashua and Manchester, N. H.

Route 2 - from Boston to Troy, New York, and further west, runs through Concord to Fort Devens, six miles south of Groton Center, and then on through Leominster, Gardner, Greenfield and via the Mohawk Trail over the Berkshires to North Adams.

Bisecting the angle between these two primary routes, State Highway 119 branches off Route 2 at West Concord to run through West Acton, Littleton, Groton Center and on to Townsend Harbor, Townsend, Ashby and into New Hampshire to join Route 12 to Keene at Fitzwilliam. By Routes 2 and 119 Groton Center is 31 miles from Boston. In Groton Route 119 is known as Boston Road between the Littleton Line and Groton Center and then as Main Street.

Another radial--Route 2a or Massachusetts Avenue--is combined with Route 119 from West Concord to Littleton and then runs roughly half way between Route 119 and Route 2 westerly to Ayer and Shirley, passing just south of the Groton Town Line, to Lunenburg and Fitchburg, to recombine with Route 2 west of Westminster.

A third radial--Route 225--leaves Route 2 in Arlington to run through Lexington, Bedford, Carlisle and Westford to join Route 119 at the Ridges in the southeast corner of Groton. It then runs with Route 119 to Groton Center, where it again diverts to the west through West Groton to join Route 2a at the Shirley-Lunenburg line, and so to Lunenburg and Fitchburg. East of the Nashua River in Groton, Route 225 is called the West Groton Road, while west of the river it is known as plain Groton Road and Main Street.



# REGIONAL CONSIDERATIONS PLANNING FOR GROTON

To Accompany Report by Charles W. Eliot - For  
GROTON PLANNING BOARD  
GROTON, MASS.  
January 1963

Prepared for the Massachusetts Department of Commerce and financed in part through an Urban Planning Grant from the U.S. Housing and Home Finance Agency under the provisions of Section 701 - Title VII, Housing Act of 1954, as Amended.

There is no continuous radial route northeast of Groton between Route 119 and Route 3. Some day one may be needed, not to serve as a "radial" from Boston, but to cut off the angle between Route 495 and Route 3, for travellers from New York to New Hampshire.

For circumferential traffic around Metropolitan Boston, the new Interstate 495 is expected to carry a large part of the through traffic from New York, Hartford and Worcester towards Maine by way of the cities in the lower Merrimack Valley. Interchanges have been constructed along the new highway at Route 2, Route 110, and with Route 119 miles east of the Groton-Littleton boundary.

The importance of old Route 110 between Lowell and Worcester has been greatly diminished, now that the new Interstate 495 is being completed in this northwestern and western segment of the circle around Boston. Route 110 is closely parallel with Interstate 495 from Lowell to Littleton, and then wanders towards Ayer with Route 2a before turning south with Route 111 to Harvard. From Harvard, Route 110 runs via Clinton and West Boylston to Worcester.

East-west segments of circumferential routes include:

Route 40, but only for the segment between Route 3 at North Chelmsford and Route 119 at Groton Center. This is the Lowell Road in Groton.

Route 113 lies just beyond Groton on the north and runs from Tyngsboro on Route 3 through Dunstable, East Pepperell, and Pepperell to join Route 119 one mile east of the northwest corner of Groton.

A part of Route 225--Forge Village Road from Westford to the Ridges in Groton, and Sandy Pond Road from the Ridges to the junction of Routes 111, 110 and 2a in Ayer--might be considered to be another east-west circumferential segment.

North-South Routes of significance to planning for Groton include:

Route 13 from Worcester to Manchester, New Hampshire, which goes through Leominster, west of Lunenburg, Townsend and north to Brookline and Milford in New Hampshire.

Route 111--a wandering route--which in Massachusetts leaves Route 2 in Acton to go west to Harvard, then north with Route 110 to Ayer, west with Route 2a before turning north again by Farmers Row in Groton to Groton Center. From Groton Center Route 111 combines

with Route 119 northwesterly to beyond the Nashua River and then diverts ~~northerly~~ to just west of East Pepperell, and so to Hollis and Nashua. Beyond Nashua in New Hampshire Route 111 follows a northeasterly course roughly parallel with the Massachusetts line.

Between Routes 13 and 111, local roads provide another north-south line from Townsend Harbor south through Shirley, Lancaster and Clinton to Shrewsbury; or from East Pepperell by the Shirley and Pepperell Roads through West Groton to Shirley.

Still another local road combination connects Route 111 at Groton Center with East Pepperell by Hollis Street and Longley Road, or with Dunstable by Chicopee Row.

East of Groton a north-south route--composed entirely of local roads--connects Tyngsboro and Westford.

This network of highways through or near Groton is significant to planning for the future in that, except for traffic on Route 119, most of the through traffic in the area is well provided with direct routes outside the Town. Regional Traffic in the future will doubtless be concentrated on the great modern highways--Routes 2, 3 and 495.

As noted above, there may be pressure in the future for a major highway to cut off the angle between Route 495 in the vicinity of Route 2, and Route 3 southwest of Nashua. A straight line--along the abandoned railroad bed of the Nashua, Acton and Boston Railroad--from Interchange 2 on the F. E. Everett Highway to the Route 119 Interchange of Route 495 in Littleton would be about 14 miles as contrasted with 23 miles around the other two sides of the triangle. Plans for Groton should certainly take this possibility into consideration.

The future importance of Route 119 as a regional route across Groton is difficult to estimate. Counts of average daily flow taken by the Massachusetts Department of Public Works on Route 119 just east of the Nashua River show:

1956	-	2900
1957	-	3300
1958	-	3100
1959	-	2990
1960	-	2760

--an actual decrease from the figure five years ago. In view, however, of the great increases in population and in the number of automobiles which are predicted for the foreseeable future, it must be assumed that

traffic on Route 119 will increase--with demands for straightening and widening in the interest of safety. These improvements will in turn increase the traffic so that points of congestion and intersections with other roads will require attention.

- b. Railroads. All railroad passenger service in Groton has been suspended, and travelers must go to Ayer or Lowell to board trains. Freight service of minimal character continues on the branch lines along Stony Brook (Forge Village), through Groton Center to Pepperell and on the Peterboro Branch along the Squannacook River in West Groton.

On the Stony Brook Branch there is a local out of Worcester once a day; to Pepperell and Hollis there is one round trip, up and back, six days a week; and on the Peterborough and Shirley Branch, service to West Groton and Vose is usually on Tuesdays and Fridays, and "as required" to Greenville.

- c. Airports. Groton has a rudimentary air facility in the "airport" between the Townsend Road and the Peterborough and Shirley Branch Railroad in the northwest corner of the Town. This field is a "Private Restricted Landing Area" but could be developed for private aviation. In fact, the Federal Aviation Agency in its report to Congress (Boston Traveler, June 11, 1962) recommends the "expansion and improvement."

The large airport at Fort Devens in Ayer is restricted to military use.

The nearest "lighted" field is the Fitchburg Airport in Leominster, close to the Fitchburg line, which is 15 road miles from Groton Center.

8. Inter-Town Cooperation has been established for several governmental activities:

- a. Health Services are provided to a number of Towns--including Groton--by the "Nashoba Associated Boards of Health." The members of this group are Ashby, Ayer, Berlin, Dunstable, Groton, Harvard, Lancaster, Littleton, Shirley, Townsend, Tyngsboro and Westford. That covers all the towns around Groton except Pepperell.

- b. A Fire, Police and Civil Defense radio network is operated from Groton for the Towns of Ayer, Shirley, Townsend and Pepperell, with appropriate arrangements for support and back-up in emergencies among the several towns.

9. Comparative Population Growth Figures for the Towns in the general Groton Region are shown on Table IV. below.

10. Planning Activities in the area around Groton include Master Plan Studies in Shirley, Littleton and Tyngsboro, and one was authorized by Ayer in March 1962 but not yet begun. Some of the towns to the east of Groton are interested in a Regional Planning Program centered on Lowell.

The conclusion from these studies by the Department of Commerce is that a Logical Area for Regional Planning is centered in Ayer as a "Core Community" and includes Groton, Shirley, Harvard and Littleton. Boxborough, Dunstable and Pepperell--and occasionally Townsend--might also be in this Ayer Region for certain purposes.

A careful review of the statistics and reasoning behind the proposal for an "Ayer Region" suggests that for planning in Groton, the State's proposal should be adopted, but that all the towns touching on Groton's external boundary should be included. That would add Tyngsboro--west of the Merrimack River--and Westford to the towns previously listed, and for certain purposes Lunenburg.

TABLE IV

COMPARATIVE POPULATION GROWTH  
GROTON AND VICINITY

<u>Years</u>	<u>Groton</u>	<u>Ayer</u>	<u>Shirley</u>	<u>Townsend</u>	<u>Pepperell</u>	<u>Dunstable</u>	<u>Tyngsboro</u>	<u>Westford</u>	<u>Littleton</u>	<u>Lunenburg</u>
1910	2155	2797	2139	1761	2953	408	829	2851	1229	1393
1920	2185	3052	2260	1575	2468	353	1044	3170	1277	1634
1930	2434	3060	2427	1572	2922	384	1358	3600	1447	1923
1940	2550	3572	2608	2065	3114	447	1634	3830	1651	2195
1945	2835	3967	2459	2298	3119	440	1495	3815	1673	2657
1950	2889	5740	4271	2817	3460	522	2059	4262	2349	3906
1955	3497	3479	2832	3365	3437	704	2868	4923	3079	5282
1960	3904	14927	5202	3650	4336	824	3302	6261	5109	6334

#### D. EXISTING LAND USES

To compile a record of Existing Land Uses, a field inspection was made from every travelable road (and some not so travelable) in Groton with notes on a print of the base map. The information so obtained was checked with the "Land Cover Maps of Middlesex County" (University of Massachusetts 1959), air pictures taken in 1952 and the Assessors' Maps and records. The data was further compared with the answers to the Questionnaire conducted in November 1961, and filled out with information from numerous private citizens.

The resulting map--in color on the Base Map--shows the wooded areas, orchards and farms; the ponds, streams and wetlands; the residential uses by symbols differentiating one, two, and multi-family; business; industry; and public and semi-public or institutional uses of lands.

The same information has been included in the several "Area Maps" developed from combinations of the 400 scale Assessors' Maps. Groton is most fortunate in having those original maps, prepared during the Great Depression as a W.P.A. Project, and to have so effectively kept them up to date.

Most of the description of the Existing Land Uses and their planning significance is set forth in Part II of this Report "Comprehensive General Plan," in order to juxtapose statements of existing conditions with proposals for their improvement.

Two more detailed studies of existing land use were undertaken in connection with the preparation of the Preliminary Plans for the several Planning Areas and in connection with the zoning proposals. The first was a record of houses, dwelling units, business and industrial activities in each area, and the second was a study of "Undeveloped Non-Conforming Separate Lots in Separate Ownership." The more significant points developed in these studies are also included in the discussion of the several "Growth Areas" in Part II of this Report. (The data and work sheets to be filed with the Planning Board.)

## E. PREVIOUS PLANNING PROPOSALS AND ACTIONS

Planning for Groton was undertaken as a town activity by vote of the Town Meeting on February 4, 1946. On that date the Town accepted the State Enabling Act to take effect at the election in 1947. The election of February 3, 1947 set up a Town Planning Board consisting of Harvey Lawrence, Harlan P. Fitch, Robert M. May and Clifford P. Pinkham, and a special Town Meeting in June of that year appropriated \$500 for their work.

The new Planning Board employed Mr. Flavel Shurtleff to advise them on the preparation of a Zoning By-Law which was printed with a Zoning Map in 1948. This proposal, submitted in this manner, would have established "Use" Districts separating

Single Family with 20,000 min. lot, 100 ft. front and 20 ft. setback  
 Single Family  
 and Farming " 40,000 " " 150 " " " " " "  
 Business with 40 ft. setback from center line and  
 Industrial for any legal use except a list of prohibited uses.

Copies were "mailed to each 'family group' of registered voters" in September 1949 with a return postcard. Replies, "representing 558 voters (33 per cent of those registered) were returned" showing 35.1 per cent in favor, 31.2 per cent undecided, and 33.7 per cent opposed. The Town Report for 1949 included a population growth chart for the period 1855-1945 to emphasize the recommendation of the Planning Board for guidance of the Town's expansion.

In 1951, the Planning Board reported efforts "toward establishing a long range or Master Plan for the Town" with "much thought . . . to our existing roads, to maintain their present beauty." As a step in that direction the Board adopted the "Subdivision Regulations" in February 1951 which are still in full force and effect (1962). A Conservation Land Use Plan was begun by the Massachusetts Forest and Park Association with the cost nearly covered by contributions. That Plan, issued in an attractive pamphlet in October 1952, dealt with the Town Forest--and its enlargement, Private Woodlands--and the need for management, Forest Protection--with recommendations for authority to close forests, for special fire alarm, construction of water holes and reconditioning of access roads. There were also recommendations for shade trees, for acquisition of public reservations on Baddacook Pond and along the Squannacook River, and for development of the Fair Grounds for recreation.

The 1952 Report of the Planning Board states that Preliminary Plans for sewerage systems in Groton and West Groton, were being prepared by Engineer Howard Bailey, who died before making his report.

At the Town Meeting in 1953, the Town rejected a proposed Zoning By-Law--114 to 281--submitted by the Planning Board.

During that year "the Selectmen suggested that the Planning Board take some action in regard to a traffic by-pass for the village of Groton. . . ." and as a result of requests to Commissioner Volpe and Engineer H. Gordon Gray "an extensive traffic survey. . . of all Groton streets" was made. According to the Planning Board's 1954 Report the traffic at the center was greater than anticipated and the need for a by-pass recognized.

In 1955 the Planning Board renewed its efforts towards Zoning, but "cognizant of the fact that an all-inclusive Zoning By-Law was rejected by the voters in February 1953, the Board . . . divided the subject of zoning into its most logical parts:

- 1) Minimum lot area, frontage, set-backs, yards and administration.
- 2) Division of the town into zones according to land use.
- 3) Zones for larger minimum lot area and frontage. "

At the Town Meeting on February 20, 1956, the Town adopted--230 to 87--a Protective By-Law recommended by the Planning Board for minimum lots of 20,000 square feet and frontage of 125 feet, together with provisions for setbacks, yards and administration. The Planning Board continued to press for a larger minimum lot size and because of "an attempt to locate a dynamite storage depot in the Town" proposed an amendment to the Protective By-Law to prohibit certain uses of land within the Town. This amendment was voted at the 1957 Town Meeting--prohibiting "manufacture, processing, or bulk storage of explosive and radio active materials, trailer camps, motels, tourist cabins and drive-in theatres." At the same time, the administration of the Protective By-Law was strengthened by a requirement of a location plan before new buildings or alterations are undertaken.

In its 1957 annual report, the Planning Board urged:

- "1. Use of a capital budget with a planned program to provide for buildings, recreational areas, improved roads.

2. A road improvement program designed for several years in advance to rebuild major roads in order of need and a yearly program to straighten and widen minor roads, and acquisition of additional land along roads of inadequate width.
3. Establishment of business zones with setbacks, and off street parking to avoid some of the congestion so typical of present day business areas.
4. Residential areas of larger minimum lot sizes particularly where soil types require larger sanitary installations and wells are used for water.
5. A shade tree planting and replacement program."

The following year, 1958, the Planning Board pointed out the need to encourage "non-residential--business and industrial--construction" and that "adequate zoning for business and industrial districts is one means of attracting business and industry to Groton. For the 1959 Annual Town Meeting, the Board proposed an amendment to the Protective By-Law to increase the minimum lot size to 40,000 square feet and frontage to 175 feet. This amendment was voted on February 16, 1959.

In 1959, a problem arose concerning subdivision of land which required the Planning Board "to ask a developer to stop work and submit street plans." The Board again called attention to the need of more public land for municipal purposes and recreation.

At the Annual Town Meeting in March 1960, the Town was again asked to consider amendments to the Protective By-Law to establish the whole Town as an "Agricultural and Residential District" with regulation of uses. The amendment was "not voted." Another amendment, initiated by citizens' petition, to prohibit piggeries was adopted. The 1960 report of the Planning Board notes three special problems which required its attention:

The private streets in the Lost Lake Area,  
The opening of a new gravel pit, and  
Construction and conversion for multi-family dwellings.

During the spring and summer of 1960, the Planning Board explored procedures for preparation of a Master Plan with the assistance of a Federal Grant through the Massachusetts Department of Commerce. With funds contributed by private individuals, a report was prepared by Charles W. Eliot, Planning Consultant, which was used as a basis for authorization of a Master Plan Study by the 1961 Town Meeting.

## APPENDIX A

PLACE NAMES

Browsing on the histories Groton has also suggested the possible significance of place names. It has been difficult to identify many of the places referred to because the authors describe a locality by saying it is near so and so's house or across a named brook which is not indicated on any available map. Then also names have been changed or shortened, as for example--Whitney Pond or Cow Pond; Knops Pond and Springy Pond flooded into Lost Lake or Mountain Lake; or Unquetanessett or Uncutenorset reduced to Unquity or Unkety, and Nashaue, Nashawake and Nashaway rewritten Nashua. The Nashua River is also referred to in the history books as the Penacook, Groaten or Lancaster River.

There are numerous very picturesque names on the maps of Groton --Baddacook, Barralock, Massapoag, Brown Loaf, Gibbet, The Ridges, etc.; and the histories contain many more. Among those which have been placed and recorded are:

- Hawtree Brook--east and roughly parallel with Chicopee Row.  
 Gift Brook from Gift Meadow across Chicopee Row to  
 Hawtree Brook.
- Walnut Brook from south and southeast of Chestnut Hills flowing  
 north to join Hawtree and form Unkety Brook.
- Paugus Brook--south of and parallel with Lowell Road to  
 Martins Pond Brook.
- Tuity Brook--between Gratuity Road and the Fair grounds.
- Cold Spring Brook from northeast of Nashua and Reedy Meadow  
 Roads westerly to the Nashua River.
- Quasoponagon--the swamp on Wrangling Brook east of Hill  
 Street to the Nashua River.
- Intervale--the lowlands on the bend of the Nashua River at  
 Fitch's Road.
- Red Bridge--over the Nashua near where Route 225 now crosses.
- Great Half Moon Meadow--northeast of Main Street at Groton  
 Center.
- Lily Moat at "Groton Place."
- Nod--corner of Common and Nod Road.
- Paper Mill Village--at Nod Road and North Main Street.

Little Springy Pond--east part of Knops Pond.  
 Half-Moon Pond and Swamp--south of "Hillside Road"--  
 now Indian Hills Road.  
 Tobacco Pipe Plain--both sides of Sandy Pond Road near  
 Ayer line.  
 Squash Path--between Longley Road and Nashua Road at  
 Reedy Meadow.  
 Clay Pit Hill--west of Longley Road and south of Nod Brook.

But still not clearly identifiable are:

Hick's Hole--said to be north of Reedy Meadow.  
 Sledges--said to be northeast of Reedy Meadow.  
 Hazen Swamp--said to be on Cold Spring Brook west of  
 Longley Road.  
 Libby-Lobby Moat--said to be where Cold Spring Brook  
 enters the River or also south of Route 119 in  
 Pepperell.  
 Sedge Brook--said to flow from "Sedge" meadow to  
 Reedy Meadow.  
 Punch Bowl--somewhere near Brown Loaf.  
 Sodom--a "neighborhood" said to be near the Townsend line.  
 Skull Meadow--said to be along Hawtree Brook or the swamp  
 just south of the Dunstable line and east of the  
 southwest Dunstable Bound.  
 Naumox--said to be a "neighborhood" near Longley Monument  
 and Shepley Hill.  
 Trap Swamp Brook--said to be at or north of Vose.  
 Hog Swamp--said to be west of Martins Pond.

## APPENDIX B

## TAX EXEMPT PROPERTIES

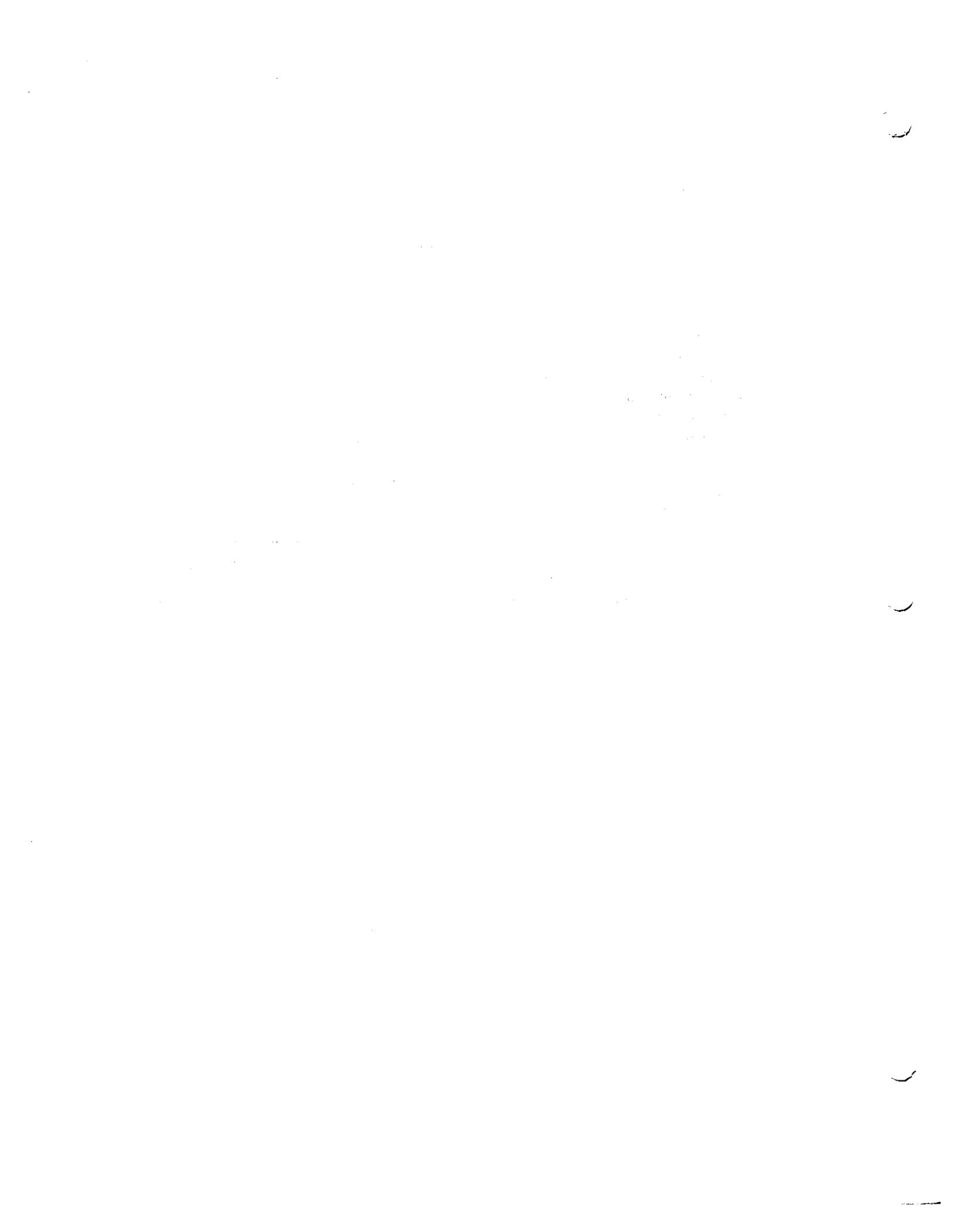
These tax-exempt properties in Groton are listed by the Assessors in groups according to the nature of the agency holding them. Churches, Public and Private including Schools, are the headings used, as follows:

<u>Churches</u>				
<u>Name</u>	<u>Lots</u>	<u>Acreage</u>		
Baptist	046	.5		
Catholic	07, 08, 030	.7		
Catholic, W. Groton	M21, M48	2.17		
Christian Union, W. Groton	M107, 108A	.28		
First Parish	0249, 0250	6.00		
Union Congreg.	0111, 0166	.83		
Holy Union Sac. Hearts	0265	16.67		
		<u>27.15</u>	27.15	
Mass. Baptist Convention--hold 305 a of which			<u>181.00</u>	tax exempt
			208.15	208.15
<u>Public</u>				
Chaplin Sch.	060	1.00		
Chicopee Row Sch.	K15	.12		
High School	J44a	14.84		
School	J46a, 47a-b, 48a	17.66		
High School	0158, 0160D	2.80		
Tarbell School	M50	1.33		
			37.75	
Elec. Light Dept.	0122, 0144, P26a	.94		
Town Hall	0143	.5		
Fire Station	0141, 0142a	.078		
Library		1.00		
Squannacook Hall	M106	.5		
Town Yard	087, M132a	2.343		
Old Groton Cem.	061	3.0		
Mill St. Corner	N14B	.056		
Mayfield Road	0185	1.14		
Longley Mon.	J19	.001		
			9.558	
Town Dump	1-67, 1-68	18.00		
W. Groton Water	H48, 59-62	30.40		
Lawrence Field	0160D	14.40		
Fairgrounds	I-40, 41, 42	14.00		
Potter Estate	D-30	14.00		
			90.80	
Town Forest	S1-2, N27, 154, etc.	420.01	420.01	
Com. of Mass.	Fire Tower	.50	.50	
			<u>558.62</u>	558.62

## APPENDIX B

Tax-Exempt Properties (continued)

	<u>Private</u>			
<u>Name</u>	<u>Lots</u>	<u>Acreage</u>		
Boy Scouts	U18, 19	17.00		
Cambridge Y. M. C. A.	F, 19-20	18.00		
Groton Cemetery		51.67		
Groton Com. Hosp.	02-1, H. D. C.	4.52		
Farmers & Mechanics		19.50		
Historical Society	0187	.7		
Groton Place	N34B	<u>54.00</u>		
			165.39	
Groton School		274.52		
Lawrence Academy		<u>65.61</u>		
			<u>340.13</u>	
			505.52	
				<u>505.52</u>
To a Total of Plus Tax Titles				1,272.288



# PLANNING FOR GROTON

Prepared by Charles W. Eliot, Planning Consultant

## PART II COMPREHENSIVE GENERAL PLAN

January 1963

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Prepared for the Groton Planning Board and Massachusetts Department of Commerce and financed in part through an Urban Planning Assistance Grant from the U.S. Housing and Home Finance Agency, under the provisions of Section 701 of the Housing Act of 1954 as Amended.

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## PLANNING FOR GROTON

By Charles W. Eliot, Planning Consultant

## PART II PROPOSED COMPREHENSIVE GENERAL PLAN

INTRODUCTION

All planning is concerned with the inter-relation of forces acting on or within a given area or function. In every case there are many of these "forces," hopes, ambitions, needs to be taken into account--and often they conflict.

All communities, like individual human beings, are two-sided--with mixed values. We have right and left arms--controlled by the left and right sides of our brains. We speak of the political right and left to distinguish between "conservatives" and "liberals." In every community--as in every individual--there are both yearnings for the past and hopes for the future;--the desire for security and continuity, and at the same time, the eagerness for opportunity, improvement and growth. We want both to preserve the proven values of the past and to provide better education, larger opportunities and improvements for the next generation.

All our motives are not so admirable. We talk freely about our ambitions for our children and our concern for the general welfare, but we are all subject to fears or desires for power, money or "status" which bring out such ugly motives as greed and selfishness. Our communities--like individuals--have the same mixed values and the same needs for restraints, temperance, and forbearance. We need to "emphasize the positive" but not neglect control of negative influences.

In this positive sense, we might characterize two of the most important forces or motives influencing planning as Conservation and Development; and for a given community, such as Groton, we could list some of the objectives of our planning under those headings. The discussions in meetings of the Planning Board and the results of the Planning Questionnaire suggest some of the items for such a listing:

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<u>Conservation</u>	<u>Development</u>
"Rural Character"	More local job opportunities
Historic Districts, Buildings and Sites	Increased business and business "service"
Special Character of Groton Center	Better schools and Adult Education
Low taxes	More services--water, sewer, trash, road maintenance, etc.
Community atmosphere of small town	Recreation opportunities

Inconsistencies are immediately apparent, and more will appear as any program or project is evolved to move one or more of these objectives towards action. On the other hand, some of these apparent conflicts can be partially resolved through planning in a larger context.

All planning is based on the assumption that growth and change are inevitable--that the only absolute certainty in life is change, and that through planning we can influence change. It is always difficult for people to adjust to the forces of change. Our first reactions are always to resist.

Some will ask, for instance, why Groton must grow or why do we need to ever widen roads or provide a by-pass? But the world-wide "population explosion" is bound to affect Groton--all those new families have got to have housing somewhere! The automobile manufacturers are producing more and still more cars, and the "automobile industry"--including steel, road building, oil and gas, etc.--appears to some people to be the dominant force not only of the American economy, but of our very lives. Combine these two forces and it seems inevitable that every community within reasonable commuting distance of a great metropolitan center will grow and change.

The nature of that growth and the kinds of changes in store for Groton can be guided to some degree if we take thought for the morrow and utilize the tools of planning. At the least, we can state some hopes and objectives on how Groton might appear say twenty years hence. That is the first objective of the General Plan or "Master Plan."

This part of the Master Plan Report proposes several objectives, which are discussed in the following sections under these headings:

A. To Keep and Continue "Rural Character"

1. Conserving the "open spaces" with the cooperation of the Conservation Commission, through a variety of procedures applicable to different areas.
2. Maintaining the intimacy of "country roads" by creating parallel routes and by-passes for through traffic; and
3. Preservation of the "typical New England Village" character of Main Street in Groton Center through establishment of an Historic District and by-pass of through traffic.

B. To Guide Development And Inevitable Change

1. Concentrating growth and development in four areas in the southern part of the Town for greatest efficiency and economy; and deliberately encouraging continued forest, woodland and farming uses in other areas.
2. The four Development Areas are:
  - a. Groton Center - primarily in the portion drained by James Brook, where a sewerage system may be necessary;
  - b. West Groton - in the area served by the West Groton Water Supply District;
  - c. Groton Ridges and area near Littleton line.

For each of these areas a balanced development of residence, business and light industry is proposed.

- d. Mountain Lakes, including Lost Lake, Knops, Duck, and Whitney Ponds, with special problems of sanitation, water supply, roads and recreation.

C. To Provide for Future Transportation Needs

1. Developing a highway system with primary, secondary and local routes, with new locations, parallel routes and by-passes, and future widenings of existing roads.
2. Attention to the future of the railroads serving the area, and
3. The future of the Groton Airport.

D. To Provide Needed Community Facilities  
As the Town Grows, Including:

- |                   |   |
|-------------------|---|
| 1. Recreation     | 6. Water Supply   |
| 2. Schools        | 7. Sewerage   |
| 3. Libraries      | 8. Trash and Garbage Collection<br>and Dump                           |
| 4. Hospitals      | 9. Other Municipal Facilities--<br>Offices, Fire, Police, Yards, etc. |
| 5. Electric Power |   |

E. To Provide for a Future Balanced Development  
of Land Uses Through Zoning, Land Acquisition,  
Public and Private Projects, Public Services and  
Facilities

This part of the Report is illustrated by:

1. The General Plan at 1000 Scale in both black and white and in color.
2. Development Plans at 400 Scale for:
  - a. Groton Center
  - b. West Groton
  - c. Groton Ridges
  - d. Mountain Lakes
3. Electric Power System.
4. Water Supply Systems.

## I. CONSERVATION OF "RURAL CHARACTER"

Many citizens of Groton are anxious to preserve the "rural character" of the Town, even if the Town must grow. It is difficult to describe and identify the particular qualities that give Groton its "rural character." A major element is certainly the large area of woodland, orchards and fields --or what might be called "open space," --land which is not yet subdivided or developed. In this field, the Planning Board is working in close cooperation with the new Conservation Commission. A second characteristic of Groton is the "intimacy" of the narrow winding roads; and a third is the "country-village" quality in Groton Center and West Groton. Let us look at each of these in turn.

### A. "OPEN SPACES"

1. Characteristics. The "Open Spaces" of Groton may be described according to their ownership, primary uses or physical characteristics:

#### a. Publicly-owned Reservations.

- 1) Federal. The largest single public area near Groton is the huge military reservation of
  - a) Fort Devens in Ayer, Harvard, and Shirley. The part nearest Groton--4 to 5 miles--is occupied by the main "encampment" or permanent headquarters near Ayer Junction, and by the Airport.
  - b) A second military reservation overlaps the Groton-Tyngsboro-Westford line at Millstone Hill, where 964 acres are owned or leased for use by the Massachusetts Institute of Technology. Of this acreage 220 acres lie in Groton.
- 2) State.
  - a) Three State Forest properties lie in the Groton Influence Area, but all outside the Town:
    - (1) The Townsend State Forest in four separate parcels on the headwaters of the Squannacook

River--one of which lies along some 3000 feet of the main river between Townsend and Townsend Harbor. The total acreage of this State Forest is now 2714 acres; and

- (2) The Ayer State Game Farm in two parcels immediately south of the Groton line at the Nashua River. These parcels include 91 acres for propagation of game birds.
  - (3) The Shirley State Forest--also of 91 acres --lies close to Fort Devens about half way between the villages of Shirley and Ayer.
- b) Adjoining Fort Devens on the west and overlapping the Shirley-Lancaster line, the Shirley State Industrial School occupies additional acres on Shaker Hill. Most of this property is open space.
- c) "Great Ponds" are natural ponds over ten acres in extent, and are owned by the Commonwealth. Near Groton are the following Great Ponds:

Forge Pond in Westford and Littleton . . . . .	212 acres
Spectacle Pond in Littleton and Ayer . . . . .	64 acres
Long Pond in Ayer, 29 acres, and 4 per cent or 15 acres in Groton, to a total of . . . . .	44 acres
Sandy Pond in Ayer . . . . .	68 acres
Flannagan Pond, also in Ayer . . . . .	85 acres

and in Groton the Great Ponds are:

Massapoag with a total of . . . . .	144 acres
Dunstable . . . . .	51
Tyngsboro . . . . .	53
Groton either 40 or 47 acres	
Baddacook--variously given as 103, 78 and . . . . .	80.8 acres
Duck--variously given as 52, 55 and . . . . .	22.19 acres

Cow or Whitney--variously given as 71, 11, and . . . . .	37.29 acres
Martins--variously given as 16, 23, and . . . . .	21.8 acres
Knops Pond (now part of Lost Lake) . . . . .	62.0 acres

( Compare with Table II of Part I)

- 3) The Town of Groton owns 420 acres in a Town Forest at the southwestern edge of the Town, along the Nashua River and the Boston and Maine R. R.

The Fair Grounds on Fairgrounds Road near the Nashua River is another Town property of 14 acres, which adjoins the Farmers and Mechanics Property (held for "charitable" purposes) of 19.5 acres.

The "Lawrence Playground" (14.4 acres) at Broadmeadow and the Railroad and the School Grounds (32.5 acres) north of Champney Street constitute two other "open spaces" in Town ownership.

Other large open areas held by the Town include:

The Town Dump off Nod Road to the river	18.0 acres
West Groton Water Properties . . . . .	30.4 acres
Potter Estate on Nashua Road . . . . .	14.0 acres

- b. Privately-held Open Spaces include:

1) Tax Exempt Properties

Farmers and Mechanics, as noted above	19.50 acres
Groton Place on West Groton Road . . .	54.00 acres
Groton Cemetery . . . . .	51.67 acres
Mass. Baptist Convention on and near Lost Lake and east of Gay Road holds 305 acres, of which . . . . .	181.00 acres
Boy Scouts, south of Nutting Road . . .	17.00 acres
Cambridge YMCA on Massapoag Pond in Groton . . . . .	18.00 acres
and considerable portions of the properties of Groton School . . . . .	274.52 acres
and Lawrence Academy . . . . .	65.61 acres

(Compare Appendix B, Part I - Tax Exempt Properties)

2) Classified Forest Land is another category of Open Space. These are properties registered for growing of timber or as "wild land," and given a special status as far as taxes are concerned. In Groton, six property owners, with a total of 1081 acres, have so classified their holdings, including:

Harry Rich, along lower Nashua River . . .	372 acres
William P. Wharton, north and east of Baddacook Pond . . . . .	290 acres
James Fitch, east of Longley Road . . . .	140 acres
Robert Gamlen, northeast . . . . .	133 acres
Kenneth Steere, northeast . . . . .	114 acres
Fessenden Co., northwest corner . . . .	31 acres

3) Other Private Properties in the "Open Space" category include:

a) The Groton Water Co. lands east of Brown Loaf . . . . .	40.61 acres
and at Baddacook Pond . . . . .	4.23 acres
b) Artificial Ponds or flooded areas behind the dams:	
At West Groton - Groton Leatherboard	1.4 acres
On the Squannacook (at Vose-- Hollings- worth and Vose) . . . . .	13.77 acres
On the Nashua-- at East Pepperell . .	142.1 acres
On Cow Pond Brook to form "Lost Lake" by raising the level of Knops Pond and Springy and flooding private property to a total of . . . . .	218 acres
On "Railroad" brook for Groton School Pond (s) . . . . .	7.9 acres
At "Groton Place" . . . . .	4.4 acres
And Upper Cady Pond . . . . .	1.5 acres

- c) Natural Ponds--smaller than the 10 acres to qualify as a Great Pond--include:

Wattles Pond	9.69 acres
Flat Pond	7.31 acres
North of Duck	6.06 acres
South of Springy	3.27 acres
Burnt Swamp Pond	3.67 acres

and numerous smaller ponds (under three acres in extent) in sink holes or parts of swamp areas.

- d) Swamps and Wetlands occupy over 2165 acres or 10 per cent of the total area of Groton. Some of these swamps are in the Town Forest and other categories previously discussed. In the era of intensive agricultural development in Groton, many of the swamps were drained and were called "meadows"--as for example, Broadmeadow--but with the decline of farming they have gone back to alders and swamp.
- e) Very Steep Hillsides--with over 15 per cent slope--have been plotted on the map showing Wet and Steep Areas because these steep hillsides are expensive and difficult to subdivide and develop. Some 460 acres of these steep hillsides have been measured from this map (again overlapping in publicly-owned open spaces). Well over one-half of these steep areas are concentrated in a strip only a mile and one-half wide running north and south, halfway between the Nashua River and the eastern boundary of the Town.
- f) Orchards. The 1952 Air Pictures of the U. S. Department of Agriculture, as analyzed in the "Classification of Land Cover Types by Towns" (1959), shows 800 acres of active orchard land and 28 acres of abandoned orchard. Since those pictures were taken more orchards have been abandoned and some new ones planted, so that the same total of 828 acres is probably reasonably accurate.

- g) Woodlands, according to the same Classification, occupy 14,768 acres in Groton. This figure includes extensive areas of wooded swamps, and is significant in that it shows over 2/3 of the total area of the town is forested.
- h) Open Fields, Croplands and abandoned farms still relatively "open" in 1952, were measured for the report on "Classification" as comprising 3888 acres.
- i) The Spacing or Setting of Houses on private property is still another factor in the "rural character" of Groton. Widely separated and inconspicuous residences contrast with the usual urban or suburban conditions. The minimum lot size and frontage requirements of the Protective By-Law contribute to this effect.

2. Policies on Open Space Preservation. The "strategy" of the Master Plan for Groton is aimed at a balance between conservation and development, between holding onto the values of "rural character" and, at the same time, providing for inevitable growth and change. Two general policies for the preservation of rural character are proposed:

The first is to encourage concentration of urban or suburban types of development in the southern portions of the Town and particularly around Groton Center, West Groton and Groton Ridges (as proposed in the following section on Development), and to deliberately discourage or hold back such urban development from the northern portions of the Town. There is plenty of room for the growth of the Town over the next ten to twenty years in the southern portion where community services can be most efficiently provided.

The northern portions of Groton are less accessible, much rougher in contour and contain most of the larger swamps. At the same time, they are now used for forestry, farming, camping, etc., and are generally held in large units. All of the Classified Forest Land (1081 acres) are in these northern portions of the Town. At the area meeting for "North Groton" several owners suggested that extra-large lot sizes --from five to twenty acres--would be appropriate.

A second general policy for continuance of open space or rural character is to include in the plans for the areas where development is to be encouraged provisions for open space reservations--Town Commons, Parkways, Wetlands, etc., and for spacing and location of buildings.

3. Methods and Procedures. To maintain the rural character of Groton and for the Preservation of Open Spaces--both private and public--a variety of methods and some novel procedures are proposed. The economics of open space preservation and the effect of various methods on the tax rate are the primary considerations. The "Master Plan" indicates a priority among the existing open spaces for preservation against "development." To establish that priority the Planning Board has sought the cooperation and assistance of the Town Conservation Commission, and urged the early preparation of the "Inventory" of natural resources which that Commission is authorized to prepare.

To preserve "open spaces" in and around Groton, many public and private agencies will have to work together. Existing and previously proposed open spaces fall within the jurisdiction of Federal, State, Town and Private organizations. Tools for further action also are available to different agencies and groups.

Methods of preserving open space which should be considered for continuance of the "Rural Character" of Groton include:

- a. Ownership of woods, swamps, fields, etc., by a public agency or "Trust." Where public use of the area is desirable for recreation, conservation, scientific research or defense, etc., outright ownership is appropriate. In the past large areas in Groton have been proposed for these purposes.

Previous Proposals: In various reports over the years there have been numerous proposals for the reservation of open spaces in the general vicinity of Groton. The "Governor's Committee on Needs and Uses of Open Spaces" 1925-1939, the "Landscape Survey" by the A. S. L. A. and Trustees of Reservations in 1933-34, a report on Groton by the Mass. Forest and Park Association in 1952, and the report on Public Outdoor Recreation by Edwards, Kelsey and Beck for the Mass. Department of Natural Resources in 1957--all deal with these problems and possibilities.

- 1) A recurring project would set aside the banks of the Squannacook River for conservation, recreation and forestry, and would enlarge the public holdings at the headwaters of the river in the Willard Brook and Townsend State Forests. In the immediate Groton Area, the Outdoor Recreation Report proposed that a reservation for canoeing, wild life and fishing include

strips "1000 feet in depth on both sides of the river" from Townsend center to Trap Swamp Brook (north-west of Vose) and south of West Groton to the Nashua River. Obviously, the boundaries for any such reservation would not go beyond the nearest existing highway or the railroad. The "Conservation Land Use Plan" for Groton, prepared by the Mass. Forest and Park Association, also recommends a Squanna-cook River Park and Wild Life Refuge for approximately the same area on the Groton side of the river.

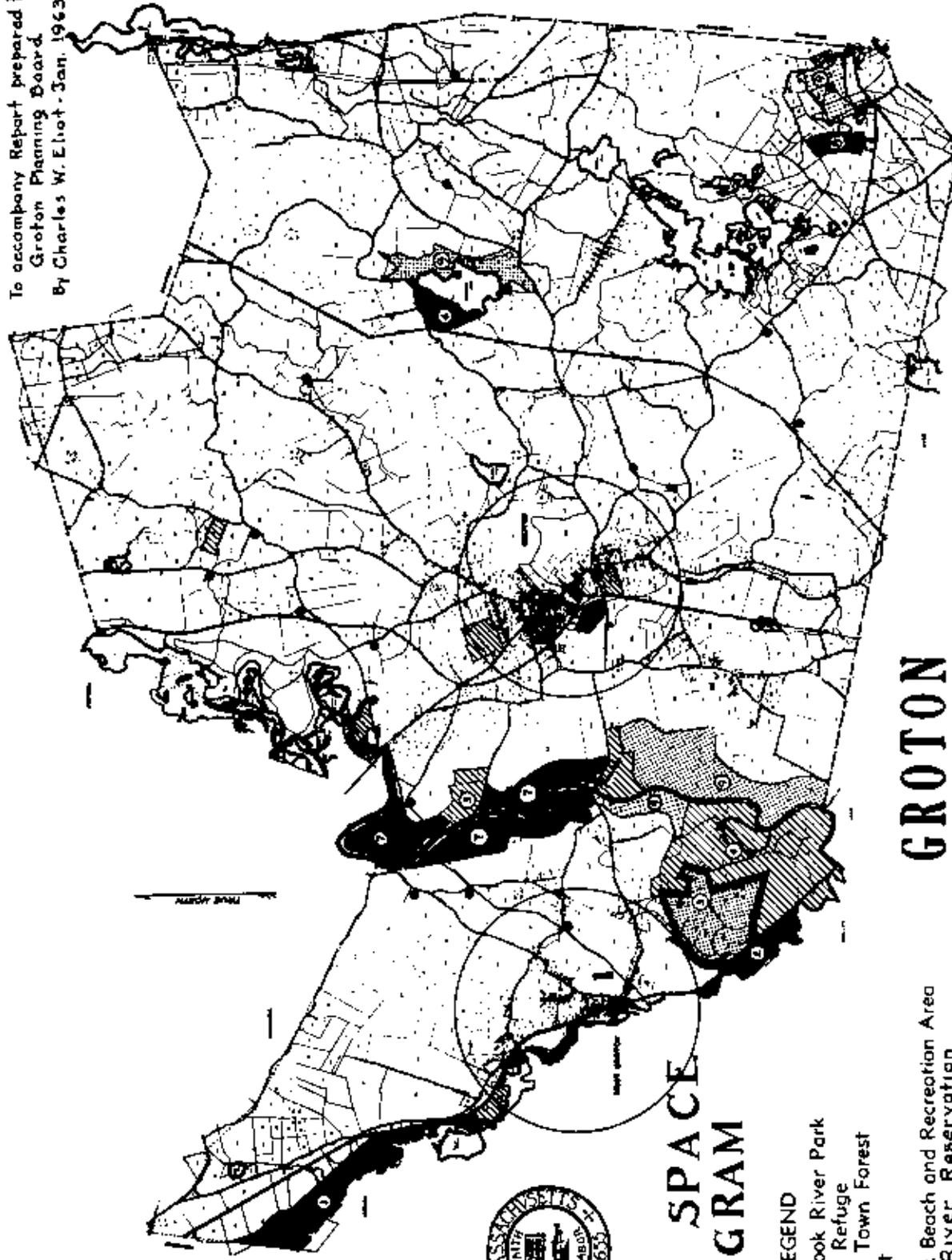
- 2) The Nashua River has also been proposed as an open space reservation. The 1957 Outdoor Recreation Report includes a project for "acquisition along the banks of the river . . . for its scenic and recreation potentials . . . with development . . . for canoeing and picnicking. A parcel 1000 feet deep on each side of the river should be acquired . . ." This proposal applied to the section above, or south of, the crossing of the river by Routes 119 and 111, and would include the areas now in the Groton Town Forest, in "The Groton Place," and in the Fairgrounds and Farmers and Mechanics property.
- 3) Other proposed reservations in the vicinity of Groton were included in that same 1957 Outdoor Recreation Report:
  - a) To the north in Pepperell--
    - (1) Heald Pond, "in a picturesque setting with the rugged hills rising from the west shore," with 1065 acres; and
    - (2) Nissitissit River with a "500 foot strip on each side of the river, . . . from one-half mile north of Pepperell to the New Hampshire line."
  - b) To the southeast of Groton, an expansion to the east of the water reservation around Nagog Pond was also suggested "for day-use recreation if this source of (water) supply should be abandoned."

- 4) Within the Town limits of Groton, the 1952 "Conservation Land Use Plan" proposed:
  - a) Additions to the Town Forest to include the area west of the present holdings to the abandoned railroad line; and
  - b) A Public Beach on the west shore of Baddacook Pond.

Proposed "Open Spaces" shown on the General Plan for ownership include:

- |  |   |   |
|--|---|---|
| a.<br><br>With<br>State<br><br>Co-<br>operation        | } | 1) Reservation of the banks of the <u>Squannacook River</u> --except at the industrial sites in <u>West Groton</u> --as proposed by the State and discussed above;  |
|  |   | 2) Reservation of the banks of the <u>Nashua River</u> , through public ownership of fee title or conservation easements, between Fort Devens and Nod Brook; and provision for landings and access below Nod Brook with protection of the river banks in that section by conservation easements.        |
| b.<br><br>By<br>the<br>Town<br>or<br>Private<br>Trust. |   | 3) Extension of the <u>Town Forest</u> --westerly to the <u>Squannacook River</u> and abandoned Milford Branch Railroad, and possibly also, north along more of Wrangling Brook and the Nashua River.   |
|  |   | 4) <u>Beaches or Landings</u> on <ul style="list-style-type: none"> <li>a) Baddacook Pond, with conservation easements to protect wooded shores in other parts of the pond.</li> <li>b) Lost Lake.</li> <li>c) Knops Pond.</li> <li>d) Massapoag Pond, and on</li> <li>e) Lower Nashua River</li> </ul> |
|  |   | 5) For future <u>Town Commons and Recreation</u> : <ul style="list-style-type: none"> <li>a) In Groton Center --the Broadmeadow.</li> <li>b) In West Groton --north of Main Street and east of Pepperell.</li> <li>c) At Groton Ridges --west corner of Route 119 and Sandy Pond Road.</li> </ul>       |

To accompany Report prepared for  
Groton Planning Board  
By Charles W. Eliot - Jan. 1963



Developed from Conservation Land Use Plan of 1952

# GROTON

## OPEN SPACE DIAGRAM



### LEGEND

1. Proposed Squannacook River Park
2. Proposed Wild Life Refuge
3. Proposed Extension Town Forest
4. Present Town Forest
5. Present Fairground
6. Proposed Baddacook Beach and Recreation Area
7. Proposed Nashua River Reservation
8. Proposed Groton Ridges Park & School
9. Proposed Conservation Easement

- 6) Parkways and Open Strips Along Streams -- particularly:
- a) Along James Brook and Old Ayer Road.
  - b) Along Nod Brook.
  - c) Part of Hawtree Brook and possibly
  - d) Along Martins Pond Brook at Lost Lake Sub-division, and
  - e) Along Wrangling Brook, etc.
- 7) Conservation Areas, including wetlands and areas of special interest because of their ecology, wild life, botanical specimens, geologic outcrops, scenery or distant views, etc. In this category are included:
- a) Some of the larger swamps like Carmichael, Great Half-Moon, Reedy Meadow, etc.
  - b) The top of one or more hills commanding distant views such as
- 8) Water Protection Areas on the watersheds providing sources of public water supply.

These open spaces might be acquired and held by the State (for the projects along the Squannacook and Nashua Rivers), by the Town, or by one or more Private Trusts. The Town has authority to acquire properties for a variety of "public purposes," such as parks, parkways, playgrounds, and play fields, town forest, dumps, water supply protection and conservation areas.

Of course, if the public enjoys the use of these areas, the Town is deprived of the taxes from these properties. If the areas acquired for public purposes are mostly wetlands or subject to flooding or so steep as to be expensive to develop, the assessed values may be so low that the loss of taxes is not significant. Whatever the cost, the acquisition and maintenance of appropriate public open spaces would definitely contribute to continuance of the "rural" character of Groton.

- b. Ownership of Easements or Restrictions to preserve some particular characteristics or qualities--but leaving the privacy and responsibility for maintenance in the private owner of the fee title. Chapter 259 of the Acts of 1961 gives to Conservation Commissions the authority to acquire such easements and restrictions. Thus the Conservation Commission might acquire by gift or purchase an easement against buildings or to prevent tree cutting or to preserve a view across a property--but not the right of the general public to enter and use the land for other purposes.

Little is known now as to the cost of such easements or "rights-in-land," but it is believed that many owners of undeveloped land may be willing to donate particular rights, easements or restrictions because the purpose coincides with their own interest and intent for the future of their holdings.

Little is also known now as to the effect of such donations of rights-in-land or "less than fee title" on assessments. In some cases the existence of the restriction or easement might actually increase the "fair market value" of the property because of assurance that a distant view or fine grove of trees will remain. In other cases a "speculative" value for future development will be foregone and may reduce the appropriate assessment, and therefore, the Tax Return. Again, if rights in land are largely confined to swamps and steep hillsides, which have little or no speculative development values, the loss of taxes would be insignificant.

Rights-in-land, easements or restrictions would be appropriate for continuance of the "rural" character of Groton in many areas and in many ways. The device of transferring to a public or semi-public agency of a single right from the bundle of rights which make up fee title can be adapted to a great variety of situations. For example, if the owner or owners of an extensive swamp should give to the Conservation Commission their "right" to fill or drain the swamp or to build any structure in the swamp, that would save the value of the wetland for conservation purposes without interfering with the owner's privacy. Or, if a public reservation is established at the top of a hill with a fine view, the permanence of that view might be assured by an easement over the hillside to limit the height of buildings to below the view-line and to permit the public agency responsible for the reservation to cut or top trees which grew up to interfere with the view.

In many of the areas proposed above for ownership by the public or by a private trust, control through a Conservation Easement or Restriction may be an appropriate procedure--either

permanently or as a means of keeping open the possibility of public acquisition with the natural features preserved in the meantime. Where there is no immediate need for public access to the area--as along the polluted Nashua River or over some inaccessible wetlands--conservation easements would be particularly appropriate.

- c. Private Contractual Agreements and Restrictions provide a third method of continuing "rural" character. Neighbors can agree among themselves and bind themselves and their successors in title (for a period of years) to specified limitations on their use of properties. These limitations can be of the same kind as Scenic Easements or Rights-in-land, and are often as effective. There is, however, a problem of enforcement because neighbors hesitate to make enemies of signers of an agreement who do not abide by their contract. Once the terms are abrogated, the whole setup collapses. It is often very difficult to get everyone to sign up in the beginning unless there is a serious threat to be countered and met.

Private agreements are, of course, beyond the jurisdiction of the Planning Board or the Town Meeting and so may or may not be in accordance with a long-range or Master Plan.

- d. Encouragement of further use of Classified Forest Land (or Classified Open Land if approved by the General Court) to relieve the pressure of annual taxes for the premature sale and development of land--particularly for areas in the northern portions of the Town.
- e. Zoning Regulations--of several kinds--under the "police power" for "the health, safety and general welfare" and without payment of compensation. Zoning provisions might include (as further amplified in Part III Zoning of this Master Plan Report):
- 1) Conservancy or Flood Plain Districts applicable to wetlands, swamps, and areas subject to periodic flooding. Such zoning would protect sources of water supply and the safety of the public against the dangers of floods by restrictions against building or filling of wetlands or flood plains. Concord, Dover, Lincoln and Boxford have established Conservancy Districts. Groton might well include the flood plains of the Nashua and Squannacook Rivers and major swamps like the Half-Moon, Reedy Meadow, Carmichael Swamp, Broadmeadow and other wetlands in a Conservancy Zone.

- 2) Large Lot Requirements --ranging possibly from the existing requirement of 40,000 square feet to as many as five acres in different parts of the Town according to the uses of the land and the character of the neighborhood.
- 3) "Cluster Zoning" to maintain the same over-all density of housing development in a large area, but allow the grouping of buildings to fit the topography and save the areas left open in larger pieces for use in common. The open spaces must be permanently protected and provision made for their maintenance. This type of zoning would encourage the creation of new "villages" with large open areas or a Common around them, and thus continue the "rural" character of Groton as established by earlier settlements.
- 4) Agricultural Zoning has been tried in some states (notably California) to limit certain areas of rich farm land to farm use --and against residential or other development. Similarly,
- 5) Forest and Recreation Zoning has been in effect in Wisconsin for over twenty-five years. Under that kind of zoning, areas in the "Cut-over Region," where soil is very poor, have been restricted against year-round residence and set aside for forest and recreational uses. This limitation was established during the "Great Depression" because of the prevalence of welfare and relief cases and the extra costs of road maintenance, snow plowing and school buses to serve widely scattered and isolated dwellings. If it is determined that forest and recreational uses are the "highest and best use" of the northern parts of Groton, the Planning Board and the Town should consider some adaptation of the Wisconsin Zoning to those areas.
- 6) Direct Open Space Zoning for general open space uses, an "O" Zone, has been proposed repeatedly by your Consultant and, although tried for a short period in California, not yet tested in the Courts. There are several areas of Groton where a variety of open uses of land would be appropriate -- with "development" or building subject to special procedures and requirements and where some such form of zoning might be initiated.

Open Space Zoning might also apply to areas shown on the Master Plan or General Plan as proposed for acquisition by the State or Town for open space use or already held in a tax exempt status.

- i. Combinations of all these methods are often desirable to maintain open spaces as a major element in the "rural" character of Groton--and in a variety of forms. One method may lead to another or be backed up by another. By using different methods or combinations, it is conceivable that much of the open--unbuilt--lands of Groton might be continued in farms, forests, recreational uses and large lots for many years to come.

Each method has its strengths and weaknesses, its advantages and drawbacks.

## B. COUNTRY ROADS

Country Roads are characteristic features of Groton, with narrow or non-existent paving, alignment closely adjusted to the topography with consequent curves to avoid swampy ground or ledge outcrops, and an "intimate" quality dependent on the trees, bushes and wild flowers growing close to the roadway. The low stone walls and avoidance of high fences provide a kind of unity between the roads and the countryside, rather than separation.

As population increases and the number of automobiles per family continues to climb, the pressure for wider and straighter roads will jeopardize the continuance of these characteristics of the existing country roads of Groton. Standards established by the State and County for maintenance and Chapter 90 assistance will put on additional pressure for "modernizing" the highways. To preserve something of the quality of the country roads it may be desirable to open new highways, built on modern standards, to carry the main volume of traffic and relieve the existing roads of all but the service of the homes and activities along their ways. Part of the costs of such new streets might be borne by the subdividers of properties through which they pass, but the costs to the taxpayers must be weighed against the value of continuing the country roads with their present character.

1. Parallel Routes. Some of the existing "Country Roads" of Groton might be continued with much of their present character if parallel routes can be developed on modern lines to carry the increasing traffic. A number of these routes have been studied, including:

- a. Parallel to Main Street--to by-pass Groton Center.  
A route south of Groton Center, from the Littleton or Boston Road opposite Cady Pond and the Golf Course to the Old Ayer Road in the vicinity of Peabody Street, and

then either along the west edge of the Broadmeadow or via Peabody Street, Higley Street, and Farmers Row to the junction of Farmers Row and Pleasant Street. From that point the by-pass might either use Mill Street to North Main or a new right of way straight across the angle in Mill Street. If the Boston and Maine Railroad abandons the Worcester-Nashua Branch, the railroad right of way north of James Brook to North Main Street would be a logical route for this by-pass.

- b. Parallel with Boston Road or Littleton Road. From the corner of Gay Road, behind the houses on the Boston Road, to rejoin the main road near Ames Road.
- c. Parallel with Farmers Row by
  - 1) Developing Old Ayer Road as a kind of parkway with a straighter and more direct connection into the center of Ayer by Pleasant Street in Ayer and/or
  - 2) Creating a Nashua River Road from Shirley Road at the Ayer Boundary (again with a direct route from the center of Ayer) along the landward edge of a possible River Reservation to Farmers Row at Pleasant Street or north to the Fitch Bridge.
  - 3) If the Boston and Maine Railroad abandons the rail line through Groton Center, a highway on the right of way between Ayer and North Main Street would provide a third alternative.

Such a system of parallel routes might make any major alteration or widening of either Farmers Row or Old Ayer Road unnecessary for many years to come.

- d. Parallel with West Groton Road, east of the Nashua River, from West Street to the "Red Bridge" over the Nashua River.
- e. Parallel with Main Street and Shirley Road in West Groton and Shirley to by-pass West Groton center and provide a new bridge over the Squannacook River.
- f. Parallel with Pepperell Street in West Groton by utilizing the abandoned "Milford Branch" Railroad right of way from Fitch's Bridge south to Main Street (and the by-pass e. above) at Wrangling Brook.

- g. The best parallel route to Longley Road would probably be via River Road in Pepperell or by the use of more of the same abandoned Milford Branch railroad parallel with River Road on the west side of the Nashua River to East Pepperell.

The reason for exploring these possible routes is that as projects for road improvements or new subdivisions come up, it may be possible to fit together pieces of a parallel route or at least to compare costs and benefits of one course of action against another. It is not proposed to open any of these routes in the immediate future with the possible exception of a by-pass of Groton Center--and that only if the State assumes a major part of the costs.

2. Double-tracking has been suggested for roads in other towns where widening or increased capacity is considered necessary. This means construction of a tandem road beyond the stone wall or row of trees on one or the other side of the present road so that the old and new roadways serve for one way traffic. This method of increasing capacity can only be utilized where one or the other side is still "unimproved" with houses close to the existing roadway. Among the few places in Groton where such a treatment might be worth considering are the West Groton Road--east of the Nashua River, and the portion of the Boston Road at the Groton Country Club.

3. The Roadsides require special care of both the town officials and owners of abutting private properties to restore stone walls, to care for banks and raw cuts and fills, and to restore vegetation and "street trees."

Fifty or more years ago, it was the accepted practice for farmers who took pride in their holdings and in the Town to set out and maintain rows of trees along the roads. A revival of that practice is much to be desired in towns like Groton, and particularly where the Dutch Elm Disease has killed or is killing the trees planted by earlier inhabitants. The plantings of new trees should, of course, be "cleared" with the Town Forester for kind and location before they are installed. Policies should be agreed upon as to the distance of new trees from the center of the roadway for different roads and as to the degree of uniformity desired for spacing and kinds of trees. Possibly also, a "nursery" for street trees might be developed at the Town Forest.

Here is an opportunity for citizen action to maintain and improve the appearance of the Town.

### C. GROTON CENTER

The Special Character of Groton Center must first be analyzed to identify its distinctive qualities. The broad street, lined with great elms; the periods of architectural history represented by the churches, Town Hall, older houses, etc.; the "Country Store" atmosphere; these features are composed in a satisfying, reposeful atmosphere. A "Typical New England Village Street" it has been called. To preserve or conserve that "atmosphere" and quality, several policies and actions may be needed:

1. Control of the Architectural Appearance of new buildings or alterations in old ones, and possibly also control over demolition of key structures. Such controls can be established through the procedures for an Historic District Study Committee and adoption of a by-law to set up an Historic District. That would require a "finding" that the external appearance of any new or changed building is not "incongruous" before a building permit is issued.

In advance of the required report by an Historic District Study Committee, it is impossible to say just how much of the Main Street would qualify for inclusion in an Historic District, but the study should certainly include both sides of Main Street from Lawrence Academy to at least the triangle intersection of Main and Pleasant Streets.

Short of the full controls provided in the Historic Districts Act, the Town might try inclusion of some sort of review of architectural appearance in this locality in the Zoning By-Law. It is not yet clear how far zoning can properly be used for this purpose in Massachusetts, although other States have authorized similar controls of appearance-- both to prevent uniformity and to promote harmonious developments. The Zoning By-Law recently adopted in Boxford includes both of these controls.

2. By-pass through Traffic. A possible route for a by-pass of the traffic on Main Street (Routes 119 and 225) through Groton Center was suggested in the discussion of Parallel Routes in the previous section. This, of course, is not a new proposal (1953), and it may be important to see what might result from such a project.

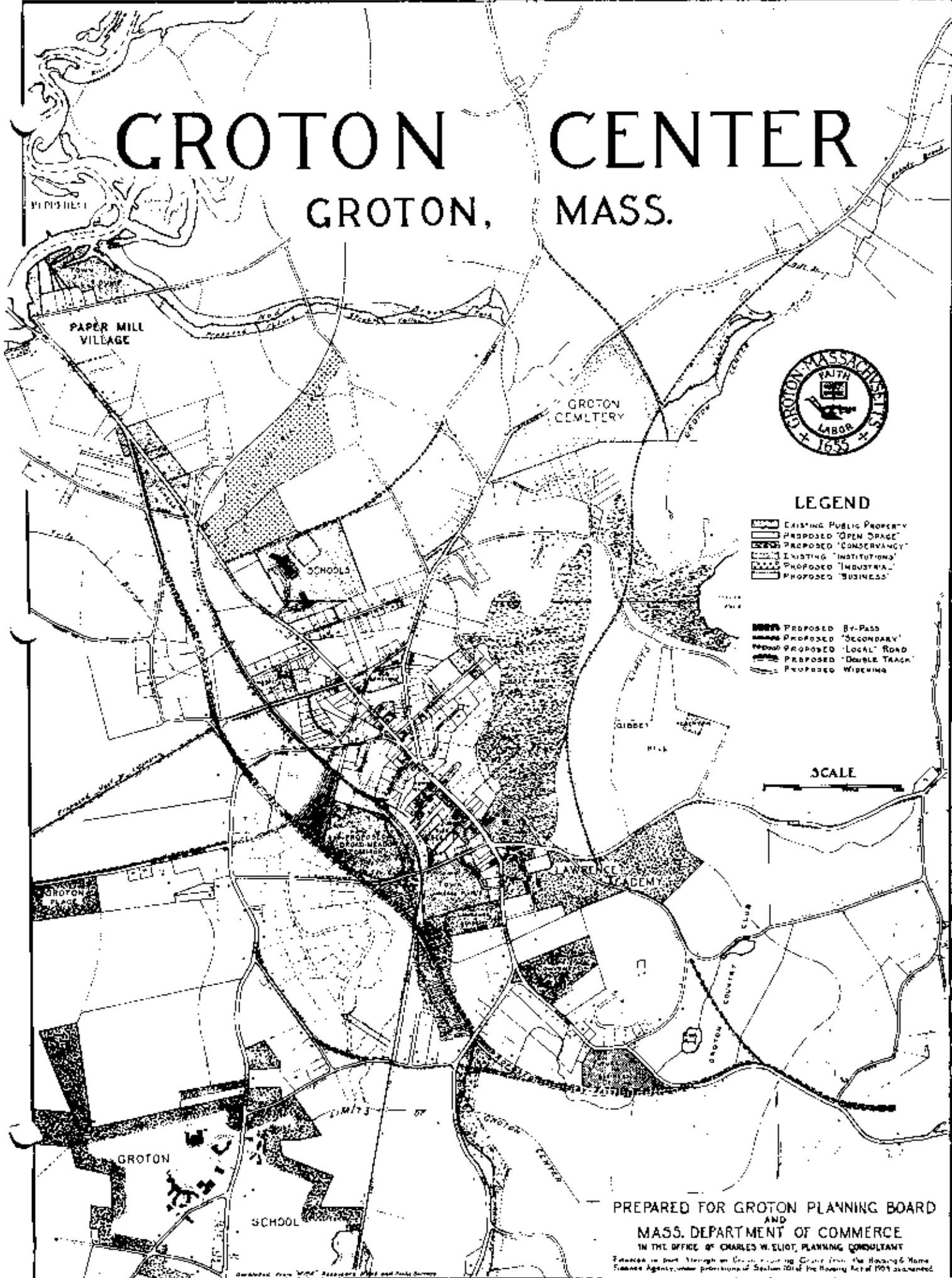
- a. A by-pass would divert through traffic from Main Street, but because of the constant increase in people and cars would probably not materially reduce the number of automobiles now passing through Groton Center. It would increase the accessibility and attractiveness of

existing commercial and public activities for local residents, but might divert some of the "highway business" to the vicinity of the by-pass. Most of the new by-pass should be with "limited access" for both its efficiency and to avoid competition with established business on Main Street.

- b. As population increases in Groton, the demand for additional business areas might be satisfied by a new shopping area associated with the by-pass instead of by expansion of business sites on Main Street at the expense of older buildings and the "special character" of Groton Center. The most likely sites for such a new shopping area in relation to the south by-pass are either between the Broadmeadow and Pleasant Street or east of Old Ayer Road. It has often been suggested that the merchants now doing business on Main Street might want to establish branches in a new shopping area or move directly into it.
- c. A by-pass south of the present center might stimulate growth of the Town in that direction around a Town Common on the site of the Broadmeadow. Since the existing settlement is concentrated on the northeast side of James Brook and may have to be provided with sewerage further growth of the Town in the same drainage basin, or in the area most economically served by a single sewerage system, should be encouraged.

# CROTON CENTER

## GROTON, MASS.



## II. DEVELOPMENT AND GROWTH AREAS

While "conserving" the existing assets of Groton, the Master Plan also provides for "development," growth and improvement.

The Planning Board believes that the inevitable growth of Groton might best be accommodated in the southern part of the Town and around four "nuclei" at Groton Center, West Groton, at the "Ridges" and at "Lost Lake." Concentration around these "nuclei" or centers might be advantageous to make full use of the investments previously made in their development and to provide efficient services.

Groton Center and West Groton are already provided with water, schools, fire stations and public roads. If and when added services are needed--like trash and garbage collection, sewerage, etc.--they can be most economically provided to a reasonably compact area. The "Ridges" lie closest to Boston and Interstate 495 and have already been chosen as the sites for numerous new dwellings. Because of its location, this section of Groton seems certain to grow more rapidly than other parts of the town, particularly if water can be supplied by extension of water mains from Ayer or from Forge Village in Westford.

Around each of these three centers new development might be encouraged in character with what is there now and with opportunities for new residences, additional business and new industrial sites. These possibilities are discussed in greater detail below.

"Mountain Lakes" area is a different kind of problem because of the small lots, unimproved streets, and the large number of camps and summer residences. That problem is also further discussed below.

### A. GROTON CENTER

The area in which Groton Center might conceivably grow in the future is bounded roughly on the north and east by a number of hills--beginning at Nod Brook below Shepley Hill on the north and turning east by the Groton Cemetery and Chestnut Hill, then south by Gibbet Hill and east again to Prospect Hill, and so around Cady Pond and the Golf Course to the Indian Hills on the southeast. On the south and west this same area extends to the Groton School and somewhat west of Farmers Row, Mill Street and North Main Street to the Nashua River at the Stony Ford Place (Route 119).

This is almost exactly the area now served by the Groton Water Company. Within it there are now approximately 435 residential buildings containing some 470 dwelling units (not counting the Groton Inn, Hospital, Lawrence Academy, or the Convent) or about 1650 people, or 42 per cent of the total population of the whole Town. It is, of course, the governmental, business and church center of the Town with the Town Hall and the oldest churches.

The total area we are discussing includes some 2100 acres, including a number of properties either already withdrawn from, or unsuitable for, "development," as follows:

Public and Institutional

The new High School and Elementary School Site	32.50 acres
Groton Cemetery	51.67 acres
The Old Cemetery	3.00 acres
Old Common and other "Parks"	3.70 acres
Lawrence Playground	14.40 acres
Lawrence Academy	65.61 acres
Convent Grounds -- Holy Union Sacred Heart	16.67 acres
Churches, Library, Town Hall, Town Yard, etc.	14. + acres
Old High School	2.80 acres
Groton Hospital	<u>4.52 acres</u>

"Withdrawn"

208.87 acres

Swamps and Wetlands

South of North Main and West of Mill	16.00 acres
Great Half-Moon Meadow	81.47 acres
Broadmeadow and Southeast	48.78 acres
Cady Ponds and Swamp	14.46 acres

Steep Hillsides

West side of Lovers Lane on the east side of the hill	9.64 acres
West slope of Chestnut Hill	<u>5.73 acres</u>

"Unsuitable"

176.08 acres

TOTAL

384.95 acres

If the sum of these "withdrawn" or "unsuitable" areas is subtracted from the total area, there are 1715 acres left as potential development area.

We should note that in this "potential development area" as much as 450 acres have been taken up already. In this previously developed portion there are, of course, many vacant lots or large lots which might be divided, and properties which might be more intensively used--for apartments or business. Through zoning provisions it is possible to guide the location of business and the conversion or construction of apartments, but it is difficult if not impossible to prevent residential construction on existing lots or on new lots conforming with the area requirements of a zoning or protective by-law. Within the developed portion of Groton Center, there are between 16 and 44 separate lots in separate ownership without improvements, and they are sites which do not require the opening of any new streets.

Outside the previously developed portion there would then still be some 1265 acres of so-called "buildable" land. Subtracting say 15 per cent for roads and inefficiently used space, we have over 1000 acres for lots. At an average of one acre per single family house, that area would accommodate 1000 houses or about 3500 people.

These calculations are purely hypothetical, but they indicate that even with a one acre minimum size for new lots there is plenty of room in the immediate vicinity of Groton Center for more than double the present population of that area.

Over half of the total area around Groton Center is drained by James Brook and all but a small part of the remainder by Tuity Brook and Nod Brook. These are important considerations in planning for the future of Groton Center, because if sewers are needed at some time in the future, they can be most economically provided in a single drainage basin with natural drainage instead of pumping over a drainage divide.

Whether or not sewerage is anticipated or can be avoided may be a decisive factor in planning the density of future development. If septic tanks and fields are relied upon, a much larger lot is needed than if sewers are available. The fact that serious trouble has not appeared on small lots before now is no argument for permitting new construction on additional small lots, because the leaching fields from septic tanks wear out and new areas must be found for disposal of the effluent. To care for existing residences and businesses on small lots in the middle of Groton Center, it may be necessary to build a sewerage system anyway.

It may be possible to postpone the day when a sewerage system must be constructed by discouraging further development in the middle of Groton Center, between Old Ayer Road on the east and School and Pleasant Streets on the west, or by lowering the water table in that area. But change cannot be prevented indefinitely. Although the timing of the major investment in a sewerage system may be some time in the future, it would be foolhardy to base a long-range plan on the assumption that a sewerage system will not eventually be installed. Accordingly, the General Plan shows the long-range possibilities for development and expansion of Groton Center assuming the construction of a sewerage system in the upper James Brook Basin. It may be desirable to attempt short-range measures which would postpone the effectuation of such a long-range plan.

The elements of the General Plan for Groton Center are:

1. Preservation of the character of Main Street--at least between Old Ayer Road and the triangle at Pleasant Street--by establishment of an Historic District or other procedures for review of all projects to change the external appearances of structures; and by replacement of elms, etc.
2. Preservation of "open spaces" at Broadmeadow and Great Half Moon Meadow or Swamp in public ownership, and retention as long as possible of the Golf Course at Cady Pond and Propsect Hill.
3. Protection of future rights of way for a by-pass of Main Street on the south and southwest (as previously described) from the Boston Road at Cady Pond Brook to Mill Street at Farmers Row, and skirting a new Town Common on the Broadmeadow. Such a by-pass might be a "limited access" highway with intersections only at Old Ayer Road, Broadmeadow Road and Farmers Row, and with access or driveways limited to only the entrance and exit to a possible future shopping center--either between the Boston Road and Old Ayer Road, or west of the proposed Broadmeadow Common. The construction of a By-Pass for Route 119 around Groton Center is proposed as primarily a State Project.

The possibility of a northern by-pass has also been studied on the north and northeast of Main Street, across the Golf Course from Route 119 to Lovers Lane at Whitman Road (only if the Golf Course is subdivided) and by a widened Lovers Lane to Lowell Road; and, primarily, from Lowell Road (Route 40) and Lovers Lane approximately one block north of and parallel with Main Street and Mayfield Road, through the Town Property Yard to opposite Common Street at Woods Lane and the old Common. Such a by-pass might be connected from Common Street (at the Franzek property) to Route 119 at the Nashua River Bridge.

Such a northern by-pass would be much longer, more circuitous and more costly than the proposed southern by-pass. It is shown on the General Plan so that the right of way or roads serving the same purpose can be included when, as, and if properties along the route are subdivided.

4. Reservation of rights of way for other future major routes (as described under the highway proposals below) including:

- a. The road parallel with and north of Main Street just mentioned, particularly for the section between Lowell Road and Hollis Street.
- b. A northeast by-pass of the Center--Lovers Lane to Chicopee Row and Longley Road.
- c. Longley Road extended south to Main Street along west side of the new High School property; and
- d. Old Ayer Road, developed as a parkway.

5. Business Development, with off-street parking, in presently developed or committed areas:

- |                                 |   |
|---------------------------------|---|
| At each end of<br>"Main Street" | a. At the east end, between Boston Road and the proposed By-Pass;   |
| and                             | b. At the north-west end at North Main, Gratuity Road and Mill Street;                                    |
| Along Main Street               | c. North side east of Champney Street;  |
|                                 | d. Both sides--west of Pleasant Street;   |
|                                 | e. Corners of Court Street; and   |
|                                 | f. Both sides for a section including the Groton Inn, Post Office, and existing stores on the south side. |

When the By-Pass is provided a "shopping center" may be appropriate at the northwest end of the Broadmeadow, between the By-Pass and the railroad.

6. Industrial Development--also with off-street parking, screening, etc.--for "clean" industries, research laboratories, etc. between North Main Street and Common Street, east of the railroad.

The "service" industries along the railroad must also be provided for.

7. Residential Development, primarily in the James Brook Watershed where it can be most economically serviced with future sewers; and with a variety of housing types. "Garden Apartments" on large lots have been suggested on the west side of North Main Street near the High School.

If and when the Town decides that a sewerage system should be provided for Groton Center, it would then be appropriate to permit a greater concentration of dwelling units in the area so serviced. That concentration might be in the form of more multi-family structures or conversions, or in the form of smaller lot requirements.

On the other hand, along Farmers Row and in the Indian Hills section, there are indications that property owners might prefer a minimum lot size of two acres instead of the one acre now required.

8. Facilities. As discussed in the later section on Facilities in this Report, there are special problems in Groton Center including:

- a. Future addition to and rearrangement of the Town Hall in order to provide a new safe and more adequate quarters for the Police Department.
- b. The Sewerage Problem, as discussed above, may be postponed by various measures restricting development or by lowering the water table. These measures and their relationship to a long-range sewerage plan need early and intensive investigation.
- c. The Water Supply provided by the Groton Water Company is said to be deficient in quality for some purposes and "to have about reached the limits of its ability to supply customers" (Board of Health, August 6, 1962). If Groton Center is to grow, the Town should anticipate some studies and surveys of possible new or expanded sources.

## B. WEST GROTON

For the purposes of this discussion, West Groton consists of the triangular area bounded on the west by the Squannacook River, on the north by the north line of the West Groton Water District extended easterly, parallel with Kemp and Hill Streets, to the site of the "Red

Bridge" where the West Groton Road (Route 225) crosses the Nashua River, and on the southeast by a line from that bridge to the former "junction" of the Peterborough and Shirley RR with the abandoned Milford Branch.

This is approximately the West Groton Water District, and includes the villages of West Groton and Vose, as well as the three principal industries of Groton Leatherboard, A. H. Thompson & Co., and Hollingsworth & Vose on the Squannacook. The General Plan allows for the expansion or replacement of these industrial activities and for the location of new ones, particularly in the triangular area between the railroad and the former Milford Branch.

In the West Groton Water District there are now some 206 houses, 2 churches, 6 commercial buildings, and a school and fire station, besides the industries mentioned above. At 3.5 people per dwelling unit, that means a population of about 725. The study of non-conforming lots identified twelve separate lots, as yet unimproved, which are believed to be held in separate ownerships. There may be as many as six more such lots or a total of eighteen.

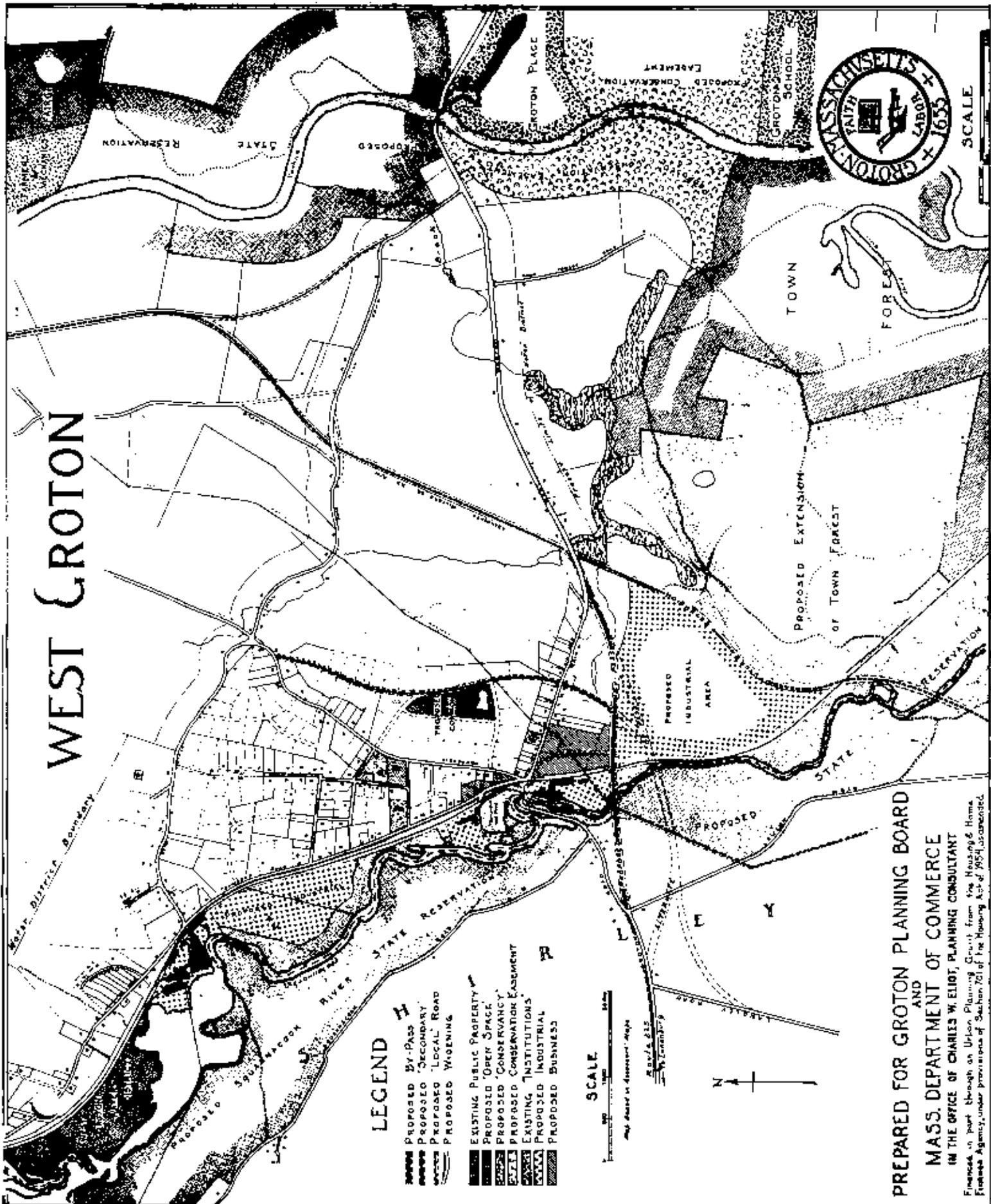
The growth of West Groton is not expected to be anything like the amount anticipated around Groton Center or at the Ridges, but should nevertheless be planned.

The General Plan proposes the concentration of future growth in the western portion of the larger area and largely outside the drainage basin of upper Wrangling Brook. With lots of one acre, this western portion could easily accommodate another 100 houses. This concentration is desirable because, as in the case of Groton Center, it may be necessary in the future to provide a sewerage system for the western part of the West Groton Area. The rock ledge on Windmill Hill and the many existing small lots present problems for the handling of sanitary wastes. If a sewerage system is constructed, it might be possible, again as in Groton Center, to reduce the minimum size lot for the area so serviced.

The most significant change foreseen for West Groton is the construction of a new bridge over the Squannacook River for Route 225. The present bridge is narrow and the approaches are circuitous and inconvenient, not to say dangerous.

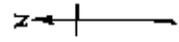
When, as, and if the State and the Town of Shirley decide to "improve" the situation at the crossing of the Squannacook River by Route 225, the General Plan shows a new bridge at a new location south of the Groton Leatherboard works either (a) about where the electric pole line now crosses the river or (b) about 500 feet further south of that point. To approach such a new bridge from the east, a new road might

# WEST GROTON



- LEGEND**
- PROPOSED BY-PASS
  - PROPOSED SECONDARY
  - PROPOSED LOCAL ROAD
  - PROPOSED WIDENING
  - EXISTING PUBLIC PROPERTY
  - PROPOSED OPEN SPACE
  - PROPOSED CONSERVANCY
  - PROPOSED CONSERVATION EASEMENT
  - EXISTING INSTITUTIONS
  - PROPOSED INDUSTRIAL
  - PROPOSED BUSINESS

**SCALE**  
 1" = 100'



PREPARED FOR GROTON PLANNING BOARD  
 AND  
 MASS. DEPARTMENT OF COMMERCE  
 IN THE OFFICE OF CHARLES W. ELIOT, PLANNING CONSULTANT  
 Financed in part through an Urban Planning Grant from the Housing & Home  
 Finance Agency, under provisions of Section 701 of the Housing Act of 1954, as amended.

leave the "Groton Road" or "Main Street" at the curve west of the abandoned Milford Branch RR and follow up the valley and across the existing Railroad to either site of the proposed bridge.

The future opening of such a road would make it unnecessary to widen the existing "Main Street" and to sacrifice the street trees along it.

As in the case of the possible by-passes of Groton Center, the inclusion of this proposed future bridge in the plans for West Groton is not to urge any immediate action for its construction, but rather to protect the necessary rights of way against conflicting developments and to adjust other features of the plan to this expected future change in the location of the bridge. Thus, if and when the Blood property is subdivided, a road on this approximate alignment would be sought for the bridge approach.

As noted earlier (under Parallel Roads) a future connection to this new bridge from Pepperell should be provided by use of the abandoned right of way of the Milford Branch--south of Maple Street, or all the way from Fitch's Bridge.

Pepperell Street should also be tied in by a new road down the valley east of Pepperell Street to cross "Main Street" near the Hale Rest Home or somewhat further east.

A connection with the future by-pass should also be provided from Main Street near Townsend Road for access to the new bridge.

If the Boston and Main Railroad ever abandons the Peterborough and Shirley RR, a highway should be built on the right of way from Route 2A in Ayer at least as far as West Groton Center.

These road changes and additions would open up possible commercial and industrial sites south of "Main Street," and home sites east of Pepperell Street. In the lower end of the valley east of Pepperell Street the Plan shows a new West Groton Common at the heart of an expanded village with sites for an additional church and other public or semi-public buildings facing the proposed Common. Among the public buildings which should be anticipated for West Groton is a new Electric Substation.

Besides the proposed Town Common, future "Open Spaces" for West Groton include:

Reservation of the strip between the Townsend Road and the Railroad;

Expansion of the Town Forest westerly to the former Milford Branch Railroad and southwest to the Squannacook River (as proposed in the "Conservation Land Use Plan" of 1952);

Reservation of the Banks of the Squannacook and Nashua Rivers (as proposed in the State Report of 1957);

An open space along Wrangling Brook, and

"Conservancy Districts" applied to the wetlands and swamps to protect them against building or filling.

In addition to these open spaces reserved in varying degrees of control, the Town may wish to apply a low density Forst-Agricultural District type of zoning--with very large lots, to the area north of the present Water District and including "The Throne."

At the northwest corner of Groton, the General Plan shows the existing Airport continued and developed for "private" flying or "executive" flying--as discussed in other sections of this Report.

### C. GROTON RIDGES

The southeast corner of Groton, known as Groton Ridges (because of the eskars left by the glaciers), lies nearest to Metropolitan Boston of any part of the Town. The earliest road or path from the seat of the Bay Colony to Groton came by Forge Village and what is now Route 225. The present main highway, Boston Road (Route 119), intersects that older road and Sandy Pond Road to Ayer at the crossroads where a former Tavern and now a bar have long been known as "Groton Ridges."

To define an area for discussion in this corner of Groton, we could start by noting that the boundary lines of the Town against Westford on the east and against Ayer on the south are at almost right angles, but with the angle cut off by the Littleton line. If we strike an arc from the non-existent intersection of the Westford and Ayer lines with a radius of 9000 feet, the line would fall about 600 feet west of Sandy Pond Road,

include the gravel pit south of the Boston Road, cross the watergap between Knops and Springy Ponds, and the southern tip of Duck Pond to the top of Clay Pit Hill at the Westford line. Between this arc and the Littleton line lies the area under discussion--The Ridges--comprising 1225 acres.

According to the Land Use Survey this area includes 84 dwelling units--over 40 of which have been constructed in the last few years. Additional houses are under construction (January 1963) on some of the lots which were listed in the study of non-conforming lots as available for development. Although that study found twenty-eight lots which might fall in the category of "unimproved" separate lots, a large number of them are either occupied by camps, the sites of buildings under construction or so poorly drained as to be unsuitable for residential use. The existing houses are along or near the Boston Road, Forge Village Road and Hayden Road.

Some business activity has also developed in the area: the aforementioned Bar--Groton Ridges, a Gas Station on Boston Road halfway between the crossroads and the Littleton line, Lacombe's Package Store at the corner of Gilson Road and Forge Village Road, Potted Plants, Social Printing, Boat Storage, Wicknit Hosiery, and Sign Painting, but those who live here probably get their food, clothing, drugs and other goods for ordinary living in Forge Village or at Littleton Common.

Forge Village is only a half-mile beyond the Town Line, with not only stores but also long existing industrial activity associated with the water power from Stony Brook and Forge Pond, and with the Stony Brook Branch of the Boston and Maine Railroad from Worcester to Lowell. The railroad nicks the corner of Groton as it swings around Forge Pond.

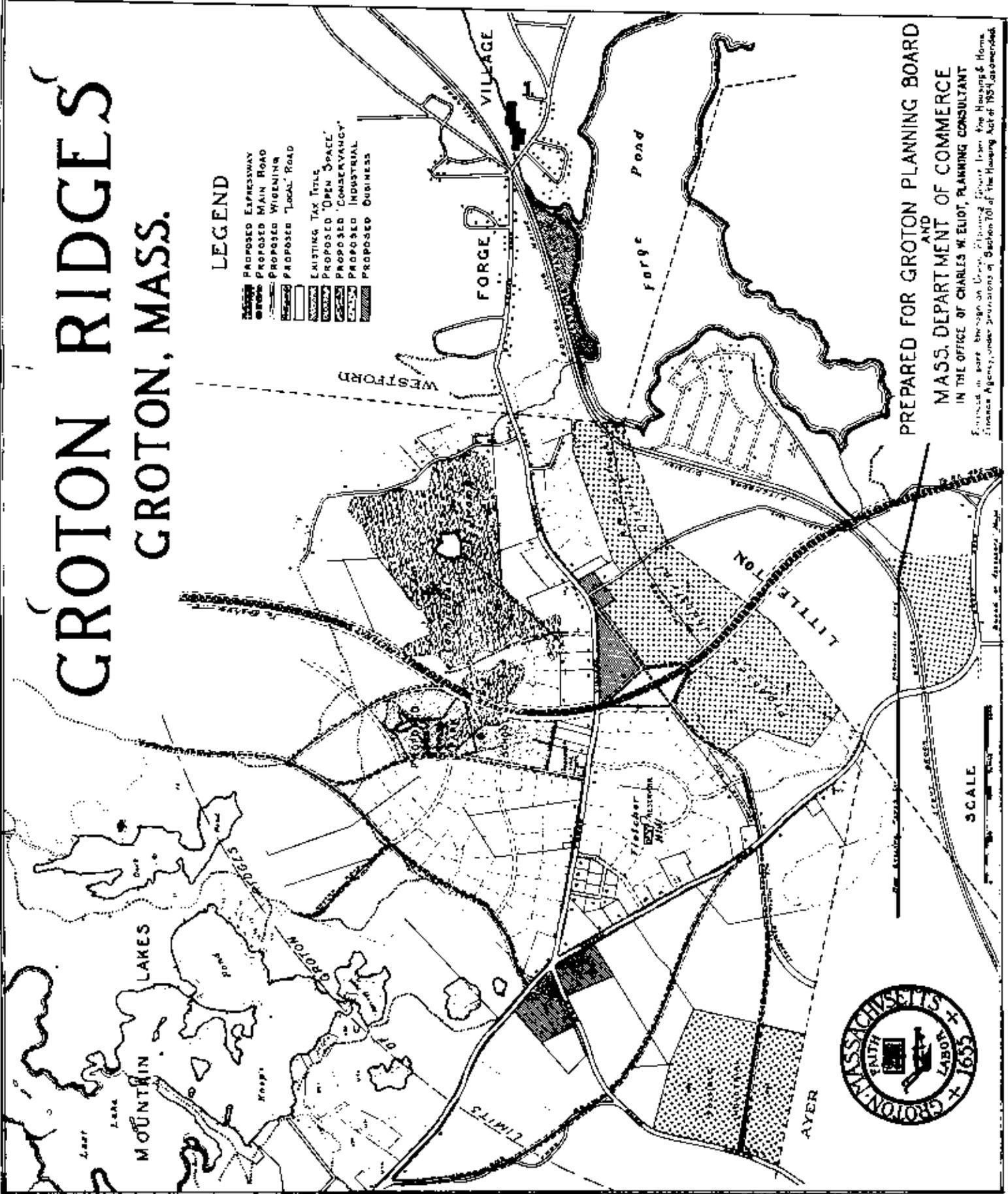
The physiographic features of "The Ridges" area are as varied here as in other parts of Groton. Along Forge Village Road and in much of the area near the Littleton line, the land is relatively flat, at or near elevation 250, and with wetlands in the southern portion between the abandoned trolley line and the Town boundary. Fletcher Hill--350 ft. elevation--lies in the center of the triangle between the Boston Road, Forge Village Road and the abandoned trolley line. Southwest of Boston Road there is the typical variety of glacial till with kames, eskars, sink holes, etc., which give the district its name. The sand and gravel of this glacial deposit has been excavated extensively west of Sandy Pond Road. To the south of the strip of varied glacial till lies Tobacco Pipe Plain to the Ayer line--a large area of level land divided by Sandy Pond Road and held in large parcels by a few owners.

North of Forge Village Road--and again beyond the Plain previously mentioned--the topography is again varied by glacial deposits, with the

# GROTON RIDGES GROTON, MASS.

## LEGEND

-  PROPOSED EXPRESSWAY
-  PROPOSED MAIN ROAD
-  PROPOSED WIDENING
-  PROPOSED LOCAL ROAD
-  EXISTING TAX TITLE
-  PROPOSED 'OPEN SPACE'
-  PROPOSED 'CONSERVANCY'
-  PROPOSED INDUSTRIAL
-  PROPOSED BUSINESS



PREPARED FOR GROTON PLANNING BOARD  
AND  
MASS. DEPARTMENT OF COMMERCE  
IN THE OFFICE OF CHARLES W. ELIOT, PLANNING CONSULTANT

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ponds--Knops, Spring and Duck--on the northwest, and the extensive Carmichael Swamp on the east. Hayden Road crosses part of these wetlands before turning west through a cleared, flatter area to join "Whiley's Road."

There is no public water supply in "The Ridges" area today, but water lines extend to within a few hundred feet of the Town line from Westford, and in the Sandy Pond or Westford Road from Ayer to the Groton line.

An important consideration in the planning for "The Ridges" is the possibility of a future major highway cutting off the angle between Interstate Route 495 and 3. As noted under "Regional Considerations," a north-south highway on the right of way of the abandoned Nashua, Acton and Boston RR might run to the Littleton Interchange on Interstate 495 and cut off some nine miles for those coming from the Everett Highway in New Hampshire and heading for the southwest. Possible lines for such a highway have been explored as they might affect "The Ridges"; e. g., to utilize Gilson Road or to build a new road somewhat west of Gilson Road.

The opening of a major highway across "The Ridges" would obviously increase the possibilities for industrial development in the area-- particularly when combined with possible rail service by a spur from the Stony Brook Branch of the Boston and Maine Railroad. As previously noted, this area is the closest in Groton to Boston and Interstate 495.

To make the most of these possibilities, the General Plan proposes that the area lying generally east of the abandoned trolley line should be reserved for light industrial development under strict "performance standards" to avoid objectionable noise, smoke, vibration, etc. Of course, the residences on Boston Road and on or near Forge Village Road should be supplied with an ample buffer strip between them and any industrial activity.

A second opportunity for Industrial Development is shown on the General Plan at Sandy Pond Road and the Ayer line on Tobacco Pipe Plain.

Other road projects may also have an important bearing on the future of "The Ridges" area:

1. The use of the abandoned trolley line for a road or highway with a portion of Sunset Road, and either swinging west across the Sandy Hills Plain, wholly within Groton, to Sandy Pond Road, and/or extended into Ayer, with the cooperation of that town.

2. In the discussion of "Parallel Roads" in a previous section of this report, a route parallel with Boston Road was suggested to take some

of the load from Route 119. Examination of conditions along Route 119 in this area indicates that a widening of the Boston Road in this section will not sacrifice significant "rural" aspects, and that, if building lines are established for widening and straightening in this section, no buildings will be involved. The General Plan, therefore, shows both a widening and straightening of the Boston Road.

3. Forge Village Road will also have to be widened and straightened some day; and here also a Building Line is proposed to keep buildings out of the way of such an improvement.

4. Development of a straightened Long Pond Road--extended easterly to Route 119 near the abandoned trolley line. In this way, a parallel route could be provided as a by-pass of the four corners where Forge Village Road and Sandy Pond Road cross the Boston Road.

5. The existing private road (Whiley's Road), running north from just west of the four corners to the Lowell Road is narrow, circuitous and only partially improved. Over the long run, it will have to be improved as a major access route to the Mountain Lakes Area. The southern end now makes a dangerous intersection with the Boston Road, which might be improved by moving the intersection to the west and extending the road across the Boston Road to Sandy Pond Road. This extension would then serve as a cut-off for traffic from Boston Road into Sandy Pond Road.

Three possible locations for business development are indicated on the General Plan.

1. In the angle west of the intersection of Forge Village Road and the proposed road on the abandoned trolley line, and including the corners of Gilson Road.
2. South of the intersection of Boston Road and Forge Village Road where "The Ridges" Bar is now located; and
3. West of the same intersection, possibly using some of the former gravel pit.

Open spaces for this area were suggested in the previous discussion of that subject and should include:

1. Tax Title land and adjoining property for park, playfields, possible water supply and school use, north of Forge Village Road and West of Carmichael Swamp.

2. Carmichael Swamp as Conservancy District.
3. A "Common" west of intersection of Sandy Pond Road and Boston Road.

If the expected residential growth and the hoped for Industrial Development takes place in this area there will be need for added Community Facilities:

1. A new elementary school.
2. A water supply system --by connection with Westford or Ayer or by a new supply from wells in the area, or both.
3. A Fire Station.
4. Improved Electric Power Service with a Sub-Station for the area, and
5. Possibly a sewerage system to serve industrial projects.

In summary, what is proposed for "The Ridges" area is a balanced community, with industry, business and a variety of residential developments. There is still time to plan and control the growth of this area if the general lines of development can be agreed upon.

#### D. MOUNTAIN LAKES

The area known as Mountain Lakes contains Lost Lake, Knops Pond, Springy and Duck Ponds, and Whitney or Cow Pond; and in general all of the land, between Gay Road and the Westford Line, which lies north of Groton Ridges to the Lowell Road.

The central feature of this area is "Lost Lake" which was created by damming the stream below Knops Pond to flood swamps, Knops Pond and Springy Pond to a total of some 218 acres. Around this lake, a great many camps, cabins and, more recently, year-round residences have been constructed.

1. Common Problems. The area has a number of common problems --mostly related to the Lake, but including access and public

services or the lack thereof.

a. The "problems" directly associated with the Lake are:

- 1) Water Levels which are controlled by washboards at the Dam. They are operated by the "Groton Ridges Water Association" - Sen. Dan Ryder, President, Mr. Rufus Bond, Treasurer, and Dr. Loyal Wiemer, Executive. This is a shareholders organization (50 shares - Capital \$15,000) of which the Baptist Convention holds 57 per cent of the shares. It was originally organized to buy out the water rights of the International Paper Co. Lake levels are ordinarily maintained within inches of the same height during the summer, and with a two foot let-down from October 12 to the second week in April for cleaning and construction along shores. In an effort to control algae and other growths the level of the water was varied three summers ago and experiments were conducted for "poisoning out." These efforts met with some success, but discoloration and growths have again developed.
- 2) Boating is now regulated by a Town By-Law with attention from the Town Police, but there is no public access or landing. Since Knops Pond is a "Great Pond," regulations for safety and against pollution involve the State as well as the Town.
- 3) Access for Boating, Fishing and Swimming is available to local residents, who are members of the Mountain Lakes Club, Inc., at a Beach property on a point near the lower end of the Lake. That property lies at the end of Beach Drive--a fifteen foot private road.

The Squannacook Gun Club, at the end of Pine Trail, owns a site at the head of the long cove on the east side of the Lake, and allows visitors to put in their boats--under private arrangements.

Provision should be made for a public landing and launching area on Lost Lake, and perhaps also for a public swimming area for the Town's people of Groton.

- 4) The Pollution Problem has been termed "explosive" by a member of the Board of Health, because, of course, there is neither a public water supply nor a sewerage system in the area.

b. Problems associated with the use of land around the Lake include:

- 1) Access to the area in general, which is now provided by:
  - a) Prospect Street to "Grotonwood" and the Baptist Conventions' holdings on the west side of the Lake. (The Grotonwood management would like a better approach to Prospect Street for visitors coming out Route 119 from the east.)
  - b) Two private roads --to Groton Ridge Heights and by Shelter Road to Knops Pond from the Littleton Road.
  - c) Lost Lake Drive--a 40 foot public way--as far as the Dam at the outlet of the Lake. This road is paved but narrow--particularly in the vicinity of Tavern Road just east of the new Fire House.
  - d) "Whiley's Road"--a private way from Groton Ridges northerly to the Lost Lake Subdivision.

The General Plan includes proposals for

Extension of Lost Lake Drive to the Lowell Road at or near Flavell Road, and

Opening of a new road along the general alignment of Whiley's Road and east of Duck Pond to connect with the Lost Lake Drive Extension.

- 2) Access to individual properties is discussed in the more detailed review of the several parts of the area which follows. Basically, the problem is that the streets and ways in the area are private ways which are not acceptable by the Town under the standards for width and improvements now in effect.
  - a) To improve a sub-standard private street, the usual procedure is for abutters to petition the Town to accept and improve a road or roads; and to request assessment of "betterments" to cover costs of the improvements. To make private streets nearer standard width (40 feet) abutters should dedicate additional strips or, when the existing private right of way is 25 feet or more, they might establish



"Building Lines" or Restriction Lines at appropriate distances from the center line. This second alternative might be appropriate on the basis that 25 feet is enough for the paved portion of a strictly local road.

In the Lost Lake Subdivision there are many private streets which are not practical because of the topography or unnecessary if acre lots are required for new dwellings.

- 3) Services such as snow plow, trash and garbage collection, and street lights, etc. are normally provided in neighboring towns only on streets which have been accepted as public ways. The need for such services in the Mountain Lakes Area has been forcefully called to the attention of the Planning Board.
  - a) Electric Power Service would be helped by the improvements in "phase balance" on primary distribution circuits now under consideration by the Electric Light Department, and by a possible new Sub-Station in the Groton Ridges Area.
  - b) Trash and Garbage Collection. As more streets are improved to standards qualifying them for acceptance, service will presumably be extended to them.
  
- 4) Water Supply and Sewerage Problems require much more study before recommendations can be made. Since rock is near the surface in much of the area, the costs of well-digging for "Rock Wells" -- (mistakenly called Artesian Wells) is high, and once a property owner has made that investment, he may hesitate to sign up for a connection and service from a public utility water supply.

The same rock conditions, combined with the very rough topography and the closeness of developments to the Lake, create difficulties in the provision of adequate leaching areas for the effluent from septic tanks. This problem becomes acute when the lots or holdings are as small as those in the Lost Lake Subdivision.

2. Sections. For convenience of discussion the problems and proposals for the Mountain Lakes Area are presented for each of the several sections which have their own identity.

a. "Grotonwood"

The western part of the Mountain Lake Area is largely owned by the Massachusetts Baptist Convention for its Camp Grounds known as "Grotonwood." The Convention has recently acquired the Nutting Property connecting their two previous pieces and three acres southeast of the parking lot. Their holdings now include 305 acres and 27 buildings, including 8 cabins and 3 year-round residences -- on some of which they continue to pay taxes. Last year the Convention paid for gravel and tar for improvement of Prospect Street.

The policy of the management is to allow one acre per camper and the intent is to keep the whole area under highest conservation standards of management and use.

A subdivision of 13 lots -- six of them small -- is completely land-locked by the Baptist Property. There are 3 buildings on these lots which front on private streets.

In the area along Martin's Pond Brook -- at the northeast edge of Grotonwood -- the Baptist Convention owns several hundreds of lots in the Lost Lake Subdivision, including all but nine of the lots on the southwest side of the Brook. The private streets in this section are owned by Mr. John F. Taplin. The Grotonwood management would like to discourage through traffic on Prospect Street and Loomis Road and seeks the closing of Loomis Road in this section.

It should not be too difficult to work out an agreement among the property owners to wipe out or abandon this part of the Lost Lake Subdivision, and to further a project for the reservation or restriction on the properties immediately along Martin's Pond Brook in order to maintain the stream banks as an open space.

Since the Baptist Convention holds such a large and significant part of the "Mountain Lakes" Area, the future development and uses of "Grotonwood" will be very important to the Town. The location of roads, cabins, houses and other buildings will open or close possibilities for future uses and development -- when, as, and if the excellent present uses and policies are changed.

The Town should, therefore, have some opportunity to review plans for development of roads, cabins, houses, etc., on the property as suggested in the provisions for an Institutional District in the proposed Zoning By-Law.

b. Lost Lake Subdivision

- 1) The Present Situation. During the 20's a huge real estate operation laid out and marketed thousands of small lots in the area around the north and northeast sides of "Lost Lake." After Lost Lake was created, a Club House was erected on Lost Lake Drive and a large number of camps were built on side streets off each side of that Drive and on the lower lake shore.

Most of the streets in the project were laid out with a right of way of thirty feet. The widest are Lost Lake Drive, Groton and Lowell Roads at 40 feet, and there are several roads 20 and even 10 feet wide. The "standard lot" was 20 feet by 100 feet. The camps and cabins built in this area usually occupy two or more lots, but with an average of under three lots per dwelling unit, or about 5000 sq. ft. While some attention was paid to the very rugged topography, some of the streets were impractical and their construction was not even attempted. Since there are no monuments to mark boundaries, many of the roads wander from the street lines shown on the Subdivision Plats. Only Lost Lake Drive has been accepted by the Town as a public way and so provides the only year-round access to the area.

When the Lost Lake--or Mountain Lake--area was subdivided there were no Town regulations to control the layout, nor were there sanitary or building regulations to protect the community's health and safety. There is, therefore, an overhanging threat of pollution of Lost Lake and the danger of an epidemic among the residents of the area.

In recent years a number of the summer camps and cabins have been converted for year-round occupancy and several new year-round houses have been constructed bordering on the Lake or on Lost Lake Drive.

- 2) The Lost Lake real estate project may be considered in five parts--west and east of the outlet stream. For these five parts the Land Use Survey recorded buildings and uses which were checked with Mr. Harlan Fitch's findings and records of the Board of Assessors:

- a) Map #1 - 2A and 2B--covering the area on both sides of Lost Lake Drive and northeast of Martin's Pond Brook and the Baptist Convention property to the bridge over the outlet stream--includes a total of 2263 lots and
  - 14 year-round houses close to Lost Lake Drive
  - 156 summer camps or cabins (of which 2 appear either not kept up or abandoned)
  - 1 trailer, 3 stores and 1 "Clubhouse" (closed), and 1 Fire Station
- b) Map #2 - 1A and 1B--for the area north and east of Lost Lake Drive to Whitney or Cow Pond, with a total of 955 lots, including 27 camps and one foundation.
- c) Map #2 - the rest of 1A and 1B and all of 2A and 2B, including the area east of the outlet stream and east shore to Juniper Point. There appears to be a concentration of development around the bay of the Lake just east of the outlet stream and scattered houses and camps elsewhere in the subdivision towards Duck Pond. In this area there are 1227 lots and 53 cabins and camps.
- d) Map #2 - 3A and 3B on the east side of the Lake, and the Island in Knops Pond, with a total of 992 lots, including:
  - 1 year-round residence and
  - 39 camps or cabins
- e) Still another Section of the original Lost Lake Sub-division (Map 3), lying east of those just reviewed was never recorded and is now invalid. No improvements or buildings have been constructed in that area, which is now subject to the acre-lot requirements of the Protective By-Law and the Town's Subdivision Regulations.

In summary, then:

	<u>Lots</u>	<u>Year-R'd</u>	<u>Seasonal</u>	<u>Others</u>
Lost Lake Drive	2263	14	156	5
Whitney Pond	955		27	1
East Side	1227		53	
Knops Pond	<u>992</u>	<u>1</u>	<u>39</u>	<u>—</u>
	5437	15	275	6

At the area meeting, residents claimed there are now over 50 year-round residents in the area, but a check of the Assessors' records showed 29 year-round, 255 camps, 2 trailers and 3 stores in the Lost Lake Subdivision. (If the holdings on the south and southeast sides of Knops Pond--with 19 houses and 25 camps--are added, the totals come to 48 year-round and 280 seasonal houses for the general area.)

- 3) Uses and Ownerships. Besides the residential uses of land in the Lost Lake Subdivision the Land Use Survey identified:

Three stores on Lost Lake Drive--only one of which is open this winter--

The new Fire Station on Lost Lake Drive,

The Squannacook Fish and Gun Club at the end of Pine Trail, and

"Mountain Lakes Club, Inc."--originally organized by Lost Lake Subdivision promoters to operate Club House. Now a membership organization open to property owners in Lost Lake Section (\$5.00 Annual Dues) with monthly meeting on second Sundays of summer months. The Club operates the Beach property donated by Ralph Bowmar for members and their guests. The former Club House was sold when the original company went bankrupt. It is understood the Club pays taxes on the Beach property and on the land which it owns north of Lost Lake Drive and east of the Fire Station.

As noted in the previous section there are a great many small holdings within the subdivided area. The lots unsold at the time of the reorganization of the original company were acquired by Mr. John F. Taplin together with all of the beds of the private streets. Most of Mr. Taplin's holdings are in fairly large blocks. The second largest owner of subdivided lots is the Mass. Baptist Convention (as noted above) and the third is Mr. Woodle. For many isolated lots and some blocks of lots, the Town has Tax Title. In the whole project there are not over ten holdings which would qualify as a minimum sized lot of 40,000 square feet in single ownership.

The Zoning Enabling Act of Massachusetts (Chapter 40A of the General Laws) authorizes cities and towns to

regulate "the size and width of lots" but exempts from this control any single lot shown on an approved subdivision plan (or plan not requiring approval) which is held in either separate ownership or in "common ownership with that of adjoining land," and has an "area of five thousand square feet or more and a frontage of fifty feet or more." The law also exempts lots which are below the required size, but which were shown on a subdivision plan which was approved within five years previous to the adoption of the lot size requirement.

The wording of the statute is so involved (because of several amendments) that it is not clear whether or not three lots (6000 sq. ft.) in a single ownership in the Lost Lake Subdivision qualify for exemption from the present 40,000 minimum lot size required in Groton. In view of the health problem and the difficulties on these small holdings of providing sufficient separation between well and septic tank or between septic tank and the Lake, the Groton Board of Health has agreed (July 16, 1962) "that a one-acre lot for a single family dwelling is the minimum size if there is no Town water." The question of "exemption" would therefore appear to be "academic."

- 4) Courses of Action. In this difficult situation, several causes of action are open to the property owners and to the Town:
- a) It is recommended that the Town retain all Tax-titles in the area pending decisions on other courses of action.

Some of the Tax Delinquent Lots--particularly along or near Martin's Pond Brook--would be suitable for transfer to the Conservation Commission.

- b) Voluntary re-subdivision of portions of the area with pooling of properties and sharing of costs of re-located roads and other improvements. The owners of some of the larger holdings might be looked to for initiation of such projects to develop salable lots in conformance with the requirements of the Protective By-Law. The Town might help in this procedure by contributing to the costs of road construction.

Areas where "re-subdivision" would be appropriate include:

- (1) Southeast of Martin's Pond Brook (as noted in discussion of Greenwood) to wipe out the subdivision;
  - (2) Between Lost Lake Drive and Martin's Pond Brook--south of "developed" properties;
  - (3) East and northeast of Lost Lake Drive between Whitney Pond and Duck Pond; and
  - (4) Between Groton Road and the Lake.
- c) If voluntary action is not forth coming, it may be necessary to consider establishment by the Town of all or part of the Lost Lake Subdivision as an Urban Renewal Area--for resubdivision and rehabilitation through the several processes of Urban Renewal with Federal Assistance Grants.
- d) Tightening of provisions in the Protective By-Law as to building on a lot not conforming with the area and frontage requirements, and strict enforcement of building and health regulations.
- e) Voluntary petition for street improvements with the selection of certain existing roadways and private streets for improvement by the Town through takings or dedications for widenings, turn arounds and loop connections, with costs of land, grading, drainage and paving, etc. assessed back on those benefited.

This "benefit assessment" method might be combined with other Town action to "lay out" new roads--possibly with County help--for connection of Lost Lake Drive to the Boston Road and to the Lowell Road, for a relocated Harding Road along Martin's Pond Brook, or for access to a public landing or surrounding area.

- f) Invalidate the Lost Lake Subdivision Maps on the basis that actual roads do not conform with street lines on those maps, and that there are "metes and bounds," bearings and distances on the maps in adequately identify lots and blocks.

c. Knops and Springy Ponds. The rest of the Mountain Lakes Area divides itself among these sections:

- 1) At the southwest corner of Lost Lake and east of the stream entering Lost Lake from north of Nutting Road, there is a subdivision called Groton Ridge Heights. The road entering the subdivision from Boston Road is variously known as Knops Pond Road, Lakeside Drive and Ridgewood Drive. There are 18 mail boxes at that entrance and the Land Use Survey found:

29 buildings on the western part of the waterfront, and 29 buildings on the road to and on the peninsula between Lost Lake and Knops Pond.

The Assessors list only 19 year-round residences and 25 camps, and at the Area Meeting, the local people said there are now 14 all year dwellings of which eleven are occupied.

- 2) Between Boston Road and Lost Lake, Knops Pond and Springy Pond--along or near the Boston Road in this section--the Land Use Survey records:

3 dwellings, 3 camps and a trailer; other camps and 2 dwellings south of Boston Road, and a gas station on the north side of Boston Road.

- 3) On the shores of Knops and Springy Ponds

- a) on the south shore of Knops Pond there are 8 more buildings, and
- b) east of Knops Pond is another group of camps and residences with 8 or 9 more buildings and a trailer.

For this section there is another local organization--the Knops Pond Improvement Association--which would seem to be the logical group to lead in working out policies and programs for improvement of existing conditions and guidance of future development. Many of the problems discussed in the preceding section on the Lost Lake Subdivision need attention and some of the same remedies may be applicable.

3. In Summary, the principal development features of the General Plan for the Mountain Lakes Area are:

- a. Road Improvements, including:
  - 1) The possible North-South Expressway near the Westford line;
  - 2) New Outlets for Lost Lake Drive --improved and extended --including:
    - a) Improvement of existing road, and
    - b) Two extensions --to Lowell Road at or near Flavell Road and
    - c) To Rte 119 --east of Duck Pond and via the general alignment of "Whiley's Road."
  - 3) Widening and straightening Boston Road with establishment of Building Lines.
  - 4) Future improvement of Lowell Road as Chapter 90 Project.
  - 5) A program over a period of years for opening selected "streets" in the Lost Lake Subdivision to appropriate width, alignment, grading and surfacing, with assessment of costs as betterments on improvement districts.
- b. Business needs of the Community would be served under the Plan by stores at Groton Ridges and by zoning two areas on Lost Lake Drive for business with off-street parking facilities.
- c. Further residential development --both seasonal and year-round, involves serious problems of water supply and pollution. Many of the very small lots and small holdings in the Lost Lake Subdivision do not meet the minimum standards of the Board of Health. Extensive re-subdivision appears to offer the most practical remedy, but failing the cooperation of land owners the Town may find it desirable to utilize "Urban Renewal" procedures with Federal financial assistance.
- d. The Town should seek access for the public to the Lake at Public Landings and Swimming Areas, and reserve the stream valleys and wetlands for conservation.

### III. POPULATION

Estimates of future population for a town like Groton can be little more than "educated guesses." This is because the controlling factor is in-migration, rather than predictions from fertility rates, age-sex structure, or past experience. The total involved is too small and the outside forces are too important for Groton to be considered typical or average in the larger context of figures for Middlesex County or for "Greater Boston."

The difficulty is clearly shown in the two reports of the Greater Boston Economic Study Committee--before and after the figures for the 1960 Census became available. In the first of those reports on "the population of the cities and towns of Greater Boston projected to 1970," the sector "along Route 2" was shown to have the greatest expected percentage change of all areas around Boston--(88.7%); with growth from 57,000 in 1950 to 108,500 in 1970. But after the 1960 Census, the prediction for 1970 was raised to 133,000 population.

For Groton, the G. B. E. S. C. had figures:

First Report	1950 - 2900	Est	1959 - 4000	Proj. 1970 - 4500
Second Report	1950 - 2889	Census 1960 -	3904	Proj. 1970 - 5000

Between the first and second reports--on the evidence of the 1950 Census figures for 1970 in surrounding towns changed:

<u>Town</u>	<u>First Report</u>	<u>Second Report</u>
Ayer	7100	14900
Harvard	4500	2600
Littleton	4900	8000
Westford	6200	8500

One measure of population trends which is sometimes significant is the number of new dwellings listed year by year by the Assessors. For Groton, the number of dwellings shows increases:

<u>1955-56</u>	<u>1956-57</u>	<u>1957-58</u>	<u>1958-59</u>	<u>1959-60</u>	<u>1960-61</u>
8	11	10	18	4	20

or an average of just under 12 per year, or 120 in ten years. If each dwelling has an average of 3.5 people, these new dwellings would account for an

increase of 420 over the ten years to 1970. That would bring the 1970 population to 4324 instead of to the 5000 predicted by G. B. E. S. C.

There is, of course, no doubt that Groton will continue to grow; but how fast and how far depends largely on outside forces. If the "attractiveness" of the Town is continued--as is intended in all the planning work for Groton--the town will receive its share of the world-wide expansion in numbers of people. If the Industrial Development Commission is able to influence new industrial enterprise to locate in or close to Groton, that would increase the momentum. But the more significant factors are the convenience and time involved in commuting, the possible growth of industry along Route 495 or the future of Fort Devens.

For purposes of this report, it does not seem unreasonable to expect that Groton may have the population of 5000 predicted by G. B. E. S. C. for 1970, and that by 1980, the total may have reached 6500.

#### IV. TRANSPORTATION

The Transportation aspects of the General Plan or Master Plan have all been discussed in connection with the "Development Areas" in the previous sections of this report.

##### A. STREET AND HIGHWAY PLANS

The framework of every "Development" Plan is provided by the road system. It is, therefore, appropriate to include here a discussion of the principal routes--existing and proposed--which are included in the Master Plan. By agreement long in advance of any opening of a projected road or street, it should be possible to adjust development in the neighborhood and to make each subdivision along the way contribute its part of the through route.

A system of roads and highways to serve both the through traffic across the Town and local traffic for access to properties has already been developed for Groton. Growth of the region and of the Town will require extensive improvements along the existing routes and provision of many new roads.

It should be emphasized that showing of a proposed Major Street on the Master Plan is not a proposal for its immediate opening and construction, but rather a reservation of the possibility for opening at some future undetermined date against conflicting uses of the land in question.

1. Categories. The future roads and highways of the Town are shown on the General Plan in several categories:

- a. The existing main lines of travel, many of which will have to be widened and straightened in the future. The solid lines on the Plan indicate these roads, with the width of the line reflecting the relative importance of the route.
- b. Future new roads and connections, with proposals for their general location, as a guide for property owners and public officials in developing and reviewing plans and projects. Again the width of the lines indicate the relative importance of the several routes. In all cases the exact location for these roads is subject to adjustment and revision when more complete data on property lines.

topography and important natural features are available, but the ends or connecting points of new roads with existing roads and the directness or avoidance of sharp curves in the alignment between those ends are important aspects of the Plan. These future roads and highways are shown on the General Plan by dashed lines. The Planning Board will require these routes to be provided when the properties through which they pass are subdivided; and

- c. For future widening and straightening of major routes, building lines can be established to keep any new structures out of the path of a widened or re-aligned road. On the General Plan, dotted lines on one or both sides of the road, indicate places where building lines would be appropriate-- particularly on:
- 1) Route 119 - Boston Road--between the Littleton line and Gay Road and between Ames Road and Cady Pond Brook;
  - 2) Route 225 - Forge Village Road from the Westford line to Boston Road, and
  - 3) Route 40 - Lowell Road.

Chapter 82 section 37 of the General Laws provides that Building Lines--"not more than forty feet distant from the exterior line of a highway or town be established in the manner provided for laying our ways . . . ."

- d. Widths of right of way for major routes are proposed as follows:

- 1) For Primary Routes - For the Main Street--Boston Road--Route 119--a right of way of at least 80 feet is recommended. For the projected north-south highway near the east boundary a controlled access right of way of 150 - 200 feet will be needed. It is assumed that the State will play a major role in the development of these two routes.
- 2) For Secondary Routes. A right of way of 60 feet should be required of subdividers, although initial roadways installed by the developer might be the same width as for local streets.

- 3) For Border Roads on reservations, forests, etc., where the developer will gain the advantage of lots on only one side of the road, the Town might well adopt a policy of requiring dedication of the full right of way, but assuming itself one-half the costs of the road improvements.
  - 4) For Local Roads, the Subdivision Regulations now in force, require dedication and improvement of a forty (40) foot right of way. It is recommended that the required right of way be increased to fifty (50) feet with provision for reasonable flexibility.
- e. The Names of Streets and Roads should follow the recommendations of the Street Name Committee.

2. Existing Framework. The existing roads of Groton provide a framework for a future pattern of Primary and Secondary Routes. In the discussion of "Regional Considerations" in Part I of this Report, the problems of through traffic were outlined with description of the more important routes.

- a. Numbered State Routes. The framework of future principal roads in Groton is already established by the State numbered routes:
  - 1) Route 119 from southeast to northwest. Groton lies in an angle of major highways --Route 3 on the east, and Route 2 on the south. Route 119 bisects the angle between these radials coming out of Boston on Routes 2 and 3 to pass across Groton and through Groton Center. A by-pass of Groton Center has been proposed southwest of the Center. "The Gap" at the Center is proposed for re-paving. East of the Center the road should be widened and straightened.
  - 2) Route 225 from Forge Village to West Groton--for which a by-pass of West Groton is proposed with a new bridge over the Squannacook River, as well as a parallel route east of the Nashua River to West Street.
  - 3) Route 40 - the Lowell Road has many sharp curves, both horizontal and vertical, which need attention for increased safety in its use.

- 4) Route 111 - Farmers Row and North Main Street, which would utilize a part of the Groton Center Bypass to Mill Street, if that by-pass is constructed. In the earlier discussion of "Parallel Routes" it was also noted that some of the traffic on Farmers Row (through Groton School) might be diverted to the Old Ayer Road--with a new connection into the center of Ayer--or to a "River Road" from Shirley Road to Fitch's Bridge.

b. Routes Radiating from Groton Center. In Groton, as in most towns, the existing Town Roads run radially from the Center:

- 1) Lowell Road to the east--Route 40 to Lowell, which needs improvement;
- 2) Main Street - Boston Road - Littleton Road, to the southeast, constituting part of Route 119 as discussed above;
- 3) Farmers Row to Ayer and the south, also discussed above as Route 111;
- 4) West Groton Road to the west--Route 225;
- 5) North Main Street to the northwest--again part of Route 119;
- 6) Hollis Street and Longley Road to the north and East Pepperell. This route forks two miles from Groton Center with a branch--Nashua Road--leading to Kemp Road in North Groton. To avoid the curve on Longley Road at Breakneck Road, a new connection is proposed from Chicopee Row to Longley Road at Nod Brook. From that same corner of Longley and Breakneck Roads, a future road is also proposed to follow the west side of the High School property to North Main Street. Longley Road will have to be widened and straightened some day--presumably as a Chapter 90 project.
- 7) Hollis Street - Chicopee Row to the northeast and Dunstable.

Someday it may be desirable to by-pass traffic east or northeast of Groton Center between Route 119--Boston Road--and Chicopee Row and Longley Road. Two lines for such a by-pass should be kept open:

- a. Gay Road, connected to Gale (or School House) Road and extended due north to Chicopee Row just south of the Moen House, and/or
- b. Across the golf course between Cady Pond and Prospect Hill to Lovers Lane, and then north between Great Half Moon Swamp and Gibbet Hill across Martin's Pond Road to skirt the west side of Chestnut Hill and across the southwest corner of the Cemetery extension. From there one branch might go to Chicopee Row at Gift Brook and another turn northwest to Longley Road at the Longley Monument.
- c. West Groton. In the discussion of West Groton as a "Development Area," major streets and highway changes were proposed:
  - 1) On Route 225 to by-pass "Main Street" to a new bridge over the Squannacook River.
  - 2) To utilize the abandoned right of way of the "Milford Branch" for a road from Route 225 to Maple Street or to the Pepperell line. If the railroad along the Squannacook River is ever abandoned, this proposed road on the Milford Branch right of way should be continued south and all the way into Ayer and Route 2, so as to constitute an alternate Route 111.
  - 3) To open a new southern end of Pepperell Road--south of Kemp and Hill Streets down the valley east of the present location to connect with the proposed Squannacook Bridge.

In addition to these new roads, the following existing roads are, of course, major routes in any future highway plan:

- 4) Townsend Road (Mill Street) parallel with the railroad to the Townsend line. As noted earlier, if the railroad is ever abandoned, much of the roadbed would be valuable for highway purposes--particularly in the section between Ayer and West Groton; and
- 5) Kemp Road - Hill Street from the Red Bridge to Vose.

- d. In the Eastern Portion of Groton. Around and near Groton Ridges as a future center of growth and activity, several highway proposals were enumerated in the discussion under "Growth Areas." These routes included:
- 1) A possible State Highway cutting over the angle between Interstate 495 and Route 3, parallel with the east boundary of Groton and using a long section of the abandoned right of way of the Nashua, Acton and Boston Railroad. South of Lowell Road, this road is shown on the General Plan passing west of Clay Pit Hill and Carmichael Swamp and crossing into Littleton about half way between the Ayer and Westford boundary lines. An alternative location might use Gilson Road.
  - 2) A by-pass of the intersection at "The Ridges" for Route 119 to connect with a widened and straightened Long Pond Road;
  - 3) An eastern bypass using the abandoned trolley line and Sunset Road from Forge Village Road at Gilson Road to Sandy Pond Road; and utilizing the existing roads radiating from "The Ridges" intersection;
  - 4) Boston Road or Littleton Road--Route 119--to the south-east with widening and straightening;
  - 5) Sandy Pond Road to the southwest (Westford Road in Ayer);
  - 6) Whiley's Road to the north--with new sections east of Duck Pond to make a through route to Lowell Road--Route 40. At "The Ridges" a revised outlet is also proposed to Route 119, somewhat to the west of the present location and extended across Route 119 to Sandy Pond Road.
  - 7) Forge Village Road (Route 225), again with widening, from the Ridges to Forge Village and Westford.
- e. Two other through routes are shown on the General Plan for the Lost Lakes Area:
- 1) Lost Lake Drive extended east and northeast to the Lowell Road (Route 40) and

- 2) Lost Lake Drive connected with Whiley's Road for an outlet to the southeast.

These studies for future roads and for improvement of existing roads have been discussed with officials of the Massachusetts Department of Public Works who have been attentive and considerate. They are neither for nor against any of the proposals made by the Planning Consultant.

Chief of Police Eliot Clark has also been helpful from his knowledge of accident locations and with suggestions of possible improvements.

3. In Summary, the road and highway proposals of the General Plan involve the gradual development of a system of primary and secondary routes, many of which have been mentioned in connection with the development areas in which they are proposed. The numbers and letters used below for designation of these routes are the same as those shown on the General Plan.

A. Primary Routes --all with substantial State Aid:

- 1) State Highway 119 - Boston Road - Main Street.
  - a) Widen and straighten (establish building lines).
    - (1) Littleton line to Gay Road.
    - (2) Vicinity to Ames Road to Cady Pond Brook--north side.
    - (3) Mill Street to Nashua River.
  - b) New location--Gay Road to Ames Road.
  - c) Repave "The Gap" at Groton Center.
- 2) By-pass of Groton Ridges including relocated Long Pond Road.
- 3) By-pass of Groton Center.
  - a) New Location--Cady Pond Brook to Farmers Row (alternate to Peabody Street).
  - b) Widen Mill Street to West Street on east side.

- c) New Location for part of Mill Street.
  - d) Widen Mill Street and Route 119 to Nashua River.
- 4) Route 225.
    - a) Widen Forge Village Road and establish building lines.
    - b) Widen West Street and extend to "Red Bridge."
  - 5) By-pass of Groton Ridges by old trolley R/W and Sunset Road to Sandy Pond Road.
  - 6) Route 40 Lowell Road--widen, straighten and ease vertical curves.
  - 7) By-pass of West Groton, with new Squannacook Bridge.
  - 8) East Side Highway--Gilson Road--west of Carmichael Swamp to Nashua Acton & Boston R/W--as a Federal-State Project.

B. Secondary Routes

- 1) Whiley's Road from Sandy Pond Road to East of Duck Pond and to both Lost Lake Drive and Lowell Road.
- 2) Gay-Gale (Schoolhouse) Roads extended to Chicopee Row.
- 3) From Route 119 across Golf Course to Lovers Lane and west edge of Gibbet and Chestnut Hills to Chicopee Row and Longley Road.
- 4) Old Ayer Road, as parkway along James Brook and extended to Pleasant Street in Ayer.
- 5) Chicopee Row--Hollis Street.
- 6) Longley Road--extended south of Breakneck to Main Street north of new High School.

- 7) Route 111--Farmers Row, Pleasant and Elm Streets.
  - 8) New road on abandoned Milford Branch R. R. right of way from Route 119 to Route 225.
  - 9) Pepperell Road (West Groton)--widened and extended on new location south of Kemp Street to West Groton By-pass A-7 above.
  - 10) Townsend Road and Main Street (West Groton).
  - 11) Lost Lake Drive extended east to Lowell Road and Route B1 above.
- c. Local Roads, which may be important in the future and are therefore shown on the General Plan include:
- 1) A road parallel with Main Street and Hollis from the Lowell Road to Common Street; and
  - 2) A connection of the Townsend Road to the West Groton By-pass south of Main Street (West Groton).

#### B. AIR AND RAIL TRANSPORTATION

Other Transportation Proposals of the General Plan include:

1. The continuance and future development of the Groton Airport;
2. The hope of continued railroad service, with possible additional business for the railroad from industrial activities in the areas indicated for industry in West Groton, Groton Center and Groton Ridges. If the rail service is abandoned parts of the rights of way should be used for highways--particularly from Ayer to West Groton, and at Groton Center as an alternative location for the proposed By-pass.

## V. INDUSTRIAL DEVELOPMENT

As noted in the Annual Report (1961) of the Planning Board, the questionnaire circulated among the townspeople in November 1961 elicited numerous remarks on the problem of rising taxes, and particularly in favor of:

"Attraction of new or expanded industry; usually qualified as 'clean' or small, but sometimes just any industry which might provide tax income for the Town and jobs for the local residents."

While there should be "a place for everything and everything in its place," those places are not necessarily in Groton. In its study of this problem, the Planning Board has been concerned with "Standards of Performance" for Industrial activities in the wording of a zoning amendment to the Protective By-law, and with possible areas where industrial development of different types may be appropriate. Of course existing uses of any kind, which are not a health nuisance, can be continued wherever they are now located.

The Performance Standards adopted in Lincoln are indicative of the kinds of requirements which should be considered for Groton. The members of the new Industrial Development Commission can be of great assistance to the Planning Board on the kinds of industries and "performance standards" which may be appropriate in Groton. The Industrial Development Commission can advise, for instance, as to the requirements for the continuance and healthy growth of existing industrial enterprises in Groton (and on objectionable aspects, if any, of those same enterprises); and as to the kinds of new industrial activities which might grow up in Groton or be attracted to locate in Groton. Whatever "Performance Standards" are approved by the Town Meeting will, of course, establish the criteria for new industrial activity or growth and give direction to the promotional work of the Industrial Development Commission within those limits.

Industrial enterprises of this character are desired in every city and town of the Commonwealth and Nation and the competition to attract them is keen. Groton has little to offer in this competition and probably must rely--as in the past--on the "home-grown" variety of industrial enterprise (the man who makes "the better mousetrap") rather than on its "locational advantages." Groton does have rail freight service and is not far from the new Route 495, but other towns have better rail facilities and are closer to Route 495. The Town's other assets for industrial location are similarly matched or exceeded in neighboring communities.

The Planning Board hopes to encourage the "home grown" industrial activity in Groton by appropriate provisions in a revised Protective By-Law (zoning) for "Home Occupations" which will permit research and experimentation which is not harmful to the residential or other uses of neighboring properties.

The General Plan shows three areas where Industrial Development with so-called "clean" industries might be encouraged:

1. In West Groton for expansion of existing plants along or near the Squannacook River and the Peterboro-Greenville Branch Railroad, and southerly of the proposed Route 225 By-pass on the east side of the railroad;
2. At Groton Ridges, along the Littleton line with a spur track from the Sandy Pond Branch Railroad and water from Westford. Another possible area lies along the Ayer line at Sandy Pond Road on Tobacco Pipe Plain which could be served with water from Ayer.
3. In Groton Center, the development of Insco and Conductorlab in the area north of North Main Street, and between the Railroad and the new High School, suggests a possible future expansion to the north--possibly to near Common Street.

To assure the availability of any of these areas where industrial development might be encouraged by their designation on a Zoning Map, the Industrial Development Commission can again be helpful. Experience has shown the desirability of what is called "Exclusive Industrial Districts" -- for industrial uses only and prohibiting residence which might otherwise occupy the best potential industrial sites. Such a limitation on the use of land may impose considerable hardship on the owners if no industrial development is forthcoming over a period of years. On the other hand, those same owners would be given a kind of "monopoly" control over a valuable commodity--industrial land. The efforts of an Industrial Development Commission to attract industry may be set at naught if the price of the land jumps when a prospective purchaser appears.

To meet these problems, close collaboration by the Industrial Development Commission with the Planning Board is essential on both the location and timing of Industrial Zones. The Commission may find it advisable to organize a non-profit holding company to acquire and hold a site or to negotiate options at a firm price--as has been done in some other New England towns. Operations of that kind or for "promotion" are obviously inappropriate or beyond the legal powers of a Planning Board and clearly within the role of an Industrial Development Commission.

## VI. COMMERCIAL DEVELOPMENT AND PARKING

### A. BUSINESS ACTIVITY

Retail stores, gas stations and other commercial buildings now serve Groton from scattered locations along Main Street at Groton Center, on the Littleton Road, at West Groton and at Lost Lake. As residential growth continues there is certain to be need for expansion of these existing facilities and for additional services.

The habits of the present population--as shown in the Survey Questionnaire--are clearly to do most of their shopping in Ayer, Pepperell, Lowell and Fitchburg--according to which part of Groton they live in. Other towns, like Lincoln or Boxford, in which there are very limited shopping facilities, similarly depend on shops and offices in neighboring communities. While new facilities are anticipated in both those towns, the Town Plans are based on continuance of the established habits of "out-of-town" shopping. Should Groton plan on that assumption, too?

In the case of Groton Center, there is a special situation because of the desire to preserve its present character as a "typical New England Village Street." Will conversion of existing residences or new business buildings be conducive to continuation of that characteristic?

Still another consideration or problem is what to do about the prosperity and expansion of established enterprises, as contrasted with provision of opportunities for new businesses and services? Too tight a control or too limited an area for new business may produce monopolistic situations instead of competitive enterprise. On the other hand, businessmen with long term investments in their present locations might have difficulties in moving into a modern shopping center on a new site.

The General Plan proposes the future development of areas for commercial or business activities in excess of anticipated needs in order to avoid monopolistic control of sites. On the other hand it continues most of the present business with provisions for expansion.

In West Groton, for instance, the General Plan shows a consolidation of the area now occupied by a garage, store and post office at the lower end of Townsend Road (Mill Street) and Pepperell Road, together with a new location between Main Street and the proposed By-Pass, east of the railroad, for a future shopping center.

At Groton Ridges, provision is made for continuance and expansion of the business at the corner of Gilson Road and Forge Village Road and for the Groton Ridges Bar at Route 119 and Sandy Pond Road. Other future sites for business are proposed west of a new Town Common at the intersection of Sandy Pond, Whiley's Road and Boston Road, and in the triangle between Forge Village Road, the abandoned trolley line and the proposed future East Side Expressway.

At Mountain Lakes, similar provision is made for existing business and new business on Lost Lake Drive.

For Groton Center, the General Plan shows continuation of most of the existing business along Main Street, with expansion in the immediate vicinity. (The projected site for shops east of Champney Street is included on the basis that permission has already been granted for that development.) These expanded existing sites include from Groton Inn to the Post Office, from the stores opposite the Inn to the Town Hall, the corners of Court Street, sites on the east side of Willowdale, on both sides of Main Street west of Pleasant Street (to include the old hospital building), and east of Champney Street as noted above.

Three larger scale possibilities are also shown on the General Plan, --all associated with the proposed By-Pass of Groton Center. They are located at each end of the By-Pass;--at Cady Brook and Boston Road on the east and at Mill and North Main Street on the west, and in the more distant future at a possible site west of the proposed Broadmeadow Common.

In addition to these business locations shown on the General Plan, all other existing commercial enterprises can, of course, continue operations at their present locations and with their existing facilities.

For all new business building, the proposed amendments to the Protective (Zoning) By-Law would require a review of the architectural appearance of proposed structures before permits are granted. If an Historic District is established, any change in the external appearance of structures in that district would be subject to further review to assure against "incongruous" development. The proposed zoning for Groton would also require submission of a site plan for new business developments so as to assure appropriate access and provision of off-street parking and loading spaces.

## B. AUTOMOBILE PARKING

Automobile parking is not now a problem in Groton. The present Protective By-Law does not even contain the word. When the zoning by-law is revised, provisions should be included to require off-street parking spaces in appropriate numbers according to the use of the property for residence, business or industry. These requirements should apply to schools and other public uses as well as to private developments.

If the zoning by-law is revised to require all new uses and buildings to provide adequate off-street parking there should be no need for any Public Parking Lots provided at Town expense. Regulation of on-street parking may become necessary in some few places in town.

Congestion and some danger has been noted by the Chief of Police at certain times on Main Street at Groton Center, due to automobile parking on narrow portions of the street or due to backing out from diagonal parking spaces. As traffic increases on Main Street--and until the proposed by-pass is constructed--it may be necessary to require parallel instead of diagonal parking and to restrict parking to one side of Main Street in the narrow section between Pleasant and Champney Streets during periods of heavy traffic on Route 119.

## VII. COMMUNITY FACILITIES

Whether or not community facilities and services are available has a marked influence on the timing and character of "development" in different areas. When and what facilities or services might be provided involves both "development" and finance.

The term "Community Facilities" might cover a great variety of subjects --from major investments in schools, public buildings, water supply, electric power, and sewerage, to parking lots, telephone service and other services which may be supplied by private enterprise.

For the purposes of this report on a Master Plan for Groton, these subjects are covered in several sections:

- A. Recreation
- B. Schools
- C. Libraries
- D. Hospitals
- E. Electric Power
- F. Water Supply
- G. Sewerage
- H. Trash and Garbage Collection and Disposal
- I. Other Municipal Facilities, including Offices,  
Fire, Police, Civil Defense (Radio),  
Yards and Storage

Other related subjects are treated in other parts of this report, as, for example, Parking with Commercial Development in the previous section, and, of course, in Part III on Zoning.

It should be noted that the Planning Consultant's contract with the Town and the Massachusetts Department of Commerce makes no mention of any studies or report on Electric Power, Water Supply, Sewerage or the variety of "other municipal facilities" listed above.

### A. RECREATION

The word "Recreation" has come to have many meanings. One hundred years ago--at the beginning of the Park Movement and when Central Park was under construction in New York--Frederick Law Olmsted wrote of "receptive" and "active" recreation, and justified the creation of parks for their re-creative qualities.

1. "Receptive" recreation is the enjoyment of scenery and natural conditions--in contrast to the urban surroundings and tensions of city-dwellers. The modern American pursues this kind of recreation in an automobile on landscaped parkways, or on "Country Roads;" or seated on a grassy bank beside a stream--possibly with a fishing pole as an excuse for relaxation, or looking out a picture window from his house, or picnicking on a hilltop.

Many kinds of open space provide this kind of recreation--particularly when water is an element in the scene or a distant view is obtainable. The size of an open space for "receptive" recreation may vary from a back-yard to a park triangle at a street intersection, to a Town Common, or a large park or reservation.

For these elements, the General Plan proposes the protection and maintenance of ponds and streams and swamps against development, and the reservation of selected hilltops, and sufficient hillsides to control the distant views. As outlined in an earlier part of this report, action might range from voluntary restrictions and gifts of Conservation Easements, through Conservancy and Open Space Zoning, to outright public acquisition and management of properties.

Among the proposals shown on the General Plan which would contribute to passive recreation are:

- a. Town Commons--at Broadmeadow for Groton Center, on new Pepperell Road in West Groton, and west of the intersection of Boston Road and Sandy Pond Road at Groton Ridges.
- b. Reservations along the banks of Rivers and Streams
  - Squannacook River,
  - Nashua River,
  - James Brook--Old Ayer Parkway
  - Nod Brook
  - Hawtree Brook.

2. "Active" Recreation--in varying degrees of activity--will be provided for in the same areas where "receptive" recreation is enjoyed, for walking, bird-watching, nature study, fishing and boating; or more actively for hiking, horseback riding, skiing, skating, swimming, etc. There is a place in the larger open spaces, like the State Forests, for camping; and also in the Camps already operating at "Grotonwood."

"Organized" Recreation has almost taken over the whole meaning of the old word in recent years. The Playground Movement, started in Boston seventy years ago, has grown into a national recreation program, pushed by the National Recreation Association.

Because "organized" recreation requires many special facilities and equipment, areas for play can be most efficiently provided in relation to schools and community centers. The same conditions for a good site apply.

Recreation Facilities are usually considered in several categories:

1. The Tot-lot--for pre-school children
2. The Playground for elementary school grades
3. The Playfield for Junior and Senior High--and for community use.
4. The Special Purpose Facility--like boat landings, liveries, ski-tows, skating rinks, bridle paths, swimming areas, etc.

"Organized" recreation involves not only facilities but leadership and direction. The annual costs of a well-directed recreation program with employment of directors, leaders, etc. may easily exceed the amortization of costs of capital improvements in land and facilities.

In a community like Groton with large lots, there is no demand for publicly-owned tot-lots. Playgrounds should ordinarily be associated with elementary schools to take maximum advantage of the investment in buildings and grounds. For example, the proposed site of a future elementary school in the Groton Ridges Area, includes extensive play areas and park areas.

Playfields can be provided on the new High School grounds for not only the High School's physical education and sport activities but also for general citizen use when not occupied by students. There have been repeated proposals in the past for the more effective use of the Fair-grounds (possibly in combination with all or parts of the Farmers and Mechanics property) as a playfield for general recreational use. Institution grounds already provide playfields--of course primarily for the people in those institutions--as at Groton School, Lawrence Academy and Grotonwood (Mass. Baptist Convention).

Special recreation activities should also be provided--particularly for swimming and boating in and on the Great Ponds of the Town. The

General Plan proposes public acquisition of the shores of Baddacook Pond for these purposes, and public access to such Great Ponds as Whitney Pond and Lost Lake, and to rivers for public landings.

The Questionnaire Survey in the autumn of 1961 brought out many suggestions for a Teen-Age Recreation Center, at some unspecified location and undetermined character. This kind of activity is sponsored by public agencies in many western states and operated in school buildings, town halls or other "community" buildings. When schools are used for non-school activities in Long Beach, California, or Washington, D. C., the problems of janitorial service, insurance, etc. are handled by a joint board of school and recreation agencies, so as to make maximum use of the school facilities out of school hours. Groton may wish to explore the possibilities of some arrangement of this sort.

In and around Groton there is a great deal of horseback riding--both in connection with the Groton Hunt Club and by owners of saddle horses--a form of active recreation which would be encouraged by assurance of rights of way along wood roads and paths across and through private properties. (The Forest and Trails Association of Weston has developed a system of such bridle paths or trails in that town.)

## B. SCHOOLS

Besides accessibility by road, perhaps the second most important factor in choice of areas by newcomers for place of residence is the existence of school and recreation facilities.

Groton has greatly expanded and improved its school plant in recent years with a four room addition to the Groton Elementary School in 1959 and a new High School in 1962. The present school facilities consist of:

Tarbell Elementary School on a 1.33 acre site on Pepperell Road in West Groton. Now used for Grades I - IV.

Groton Elementary School - 16 rooms on a 17.66 acre site north of North Main Street and west of the houses on Champney Street in Groton Center. This school is used by Grades I - V.

Old Groton High School - now a Junior High School - on 2.80 acres on Main Street in the Center. This school houses Grades VI, VII and VIII for the whole town.

New Groton High School on 14.84 acres adjoining the Groton Elementary School for the usual four grades - IX, X, XI and XII.

As in every other community on the fringes of Metropolitan Areas, the public school enrollment in Groton has been steadily climbing:

<u>1957</u>	<u>1959</u>	<u>1961</u>
703	742	828

and seems certain to continue to do so.

The proportion of students enrolled in private schools as contrasted to those in the public schools has varied in recent years from 16 to 19 per cent. There is no apparent trend of change in spite of the fact that Groton is the location of Groton School and Lawrence Academy, and that Parochial Schools are available and patronized.

The Superintendent of Schools has indicated his opinion that another elementary school will be needed within five years, an addition to the High School in seven years and an addition to the Junior High School in ten years. He wants an auditorium at the Senior High School--for both school and community use--"yesterday."

For the future location of additional school rooms, two alternative policies would lead to different conclusions and programs:

- 1) To continue to concentrate school facilities at the present site of the Groton Elementary School and the new High School, and transport students between that site and their homes; or
- 2) To build the next elementary school or school for the first three or four grades as near as possible to the area with greatest population growth--probably Groton Ridges.

This is a policy, rather than a planning decision for the Town to decide with the advice of the School Committee and whatever School Planning Committee the Town may establish.

The General Plan should and does allow for either policy, with proposals for acquisition of land which can be used as play space or as sites for school buildings.

The sites of the Groton Elementary and New High Schools are ample to provide for further expansion and for provision of playfields, etc. as they are needed. The old High School is on a sub-standard site--more of which can still be improved--but is not far from the Lawrence Playground of 14.4 acres east of Broadmeadow Road. Consideration should be given to the acquisition of the rear of deep lots on both sides of the present site and to a more direct access to Lawrence Playground across Broadmeadow Road.

The site of the Tarbell School--only 1.33 acres--is also far below the State Standards to qualify for School Building Assistance. It could be more than doubled in size by acquisition of two lots on the north, so as to put the whole block bounded by St. James Avenue, Pepperell Road, Bixby Road and Shepley Road in public ownership.

Reservation of a future school site is proposed on the General Plan in the Groton Ridges area in expectation that the eastern part of the Town is likely to grow faster in years to come. The suggested site lies north of Forge Village Road and west of Carmichael Swamp, and would include Tax Title properties in that area to provide a combined school and recreation facility.

#### C. LIBRARIES

The Trustees of the Public Library have been operating in Groton for one hundred and seven years. The Main Library is on Main Street opposite the Common and running back to the Lawrence Playground. A Branch Library is operated in West Groton. At both locations increased and renovated facilities are desired by the Trustees.

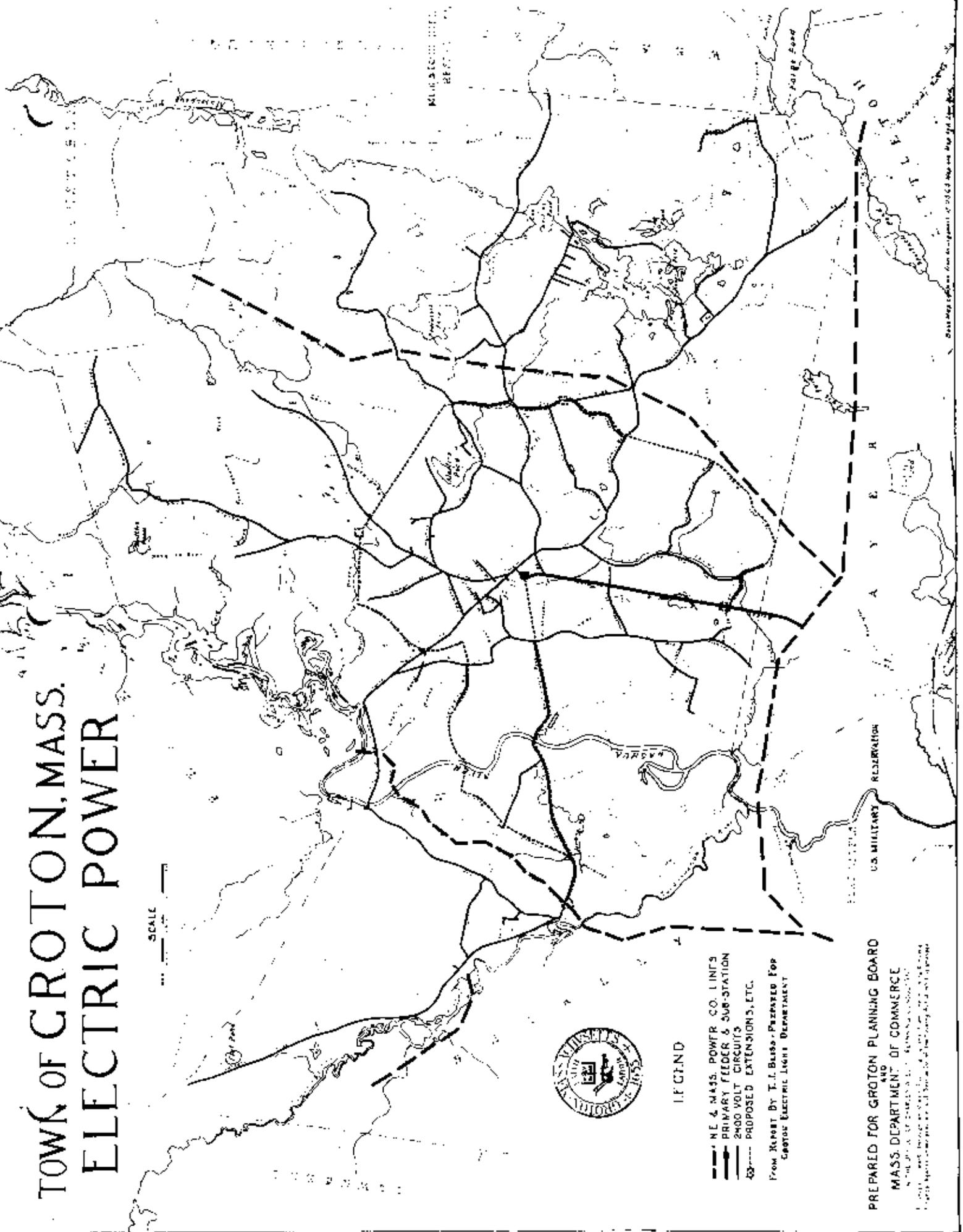
Since School Children are nowadays encouraged to make greater use of public libraries some communities have sought to establish branch libraries in or adjoining the schools. If further expansion of library facilities is contemplated in Groton, a branch might be located at the High School site.

#### D. HOSPITAL

The service areas set up under the "State Plan for the Construction of Hospital and Medical Facilities" shows the Groton Community Hospital serving Groton and Pepperell and facilities in Ayer serving Ayer, Shirley, Harvard and Littleton.

# TOWN OF GROTON, MASS. ELECTRIC POWER

SCALE  
1" = 1 MILE



## LEGEND

- NE & MASS. POWER CO. LINES
- PRIMARY FEEDER & SUB-STATION
- 2400 VOLT CIRCUITS
- PROPOSED EXTENSIONS, ETC.

From Report By T. J. Bliss - Prepared For  
Groton Electric Light Department

PREPARED FOR GROTON PLANNING BOARD  
AND  
MASS. DEPARTMENT OF COMMERCE

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Data Map taken from Department of State Map No. 100, 1914

The Groton Community Hospital controls four and one-half acres at Fairview and Hillside Avenue, north of West Street and to the railroad. This is little enough, if future expansion and off street parking are to be adequately provided.

#### E. ELECTRIC POWER

Electric Power is supplied through the Groton Electric Light Department.\* Power is purchased from the Massachusetts Power Company in Ayer and delivered over a 13.8 K.V. Feeder line along the railroad to a Sub-Station on Station Avenue in Groton Center. There the voltage is reduced to a nominal level of 2400 volts.

The distribution system is of two types:

A primary system with eight circuits (three wire-- 2400 volts) extending over 62.85 miles of line, and shown on the accompanying map; and

A secondary system including a total of 454 distribution transformers.

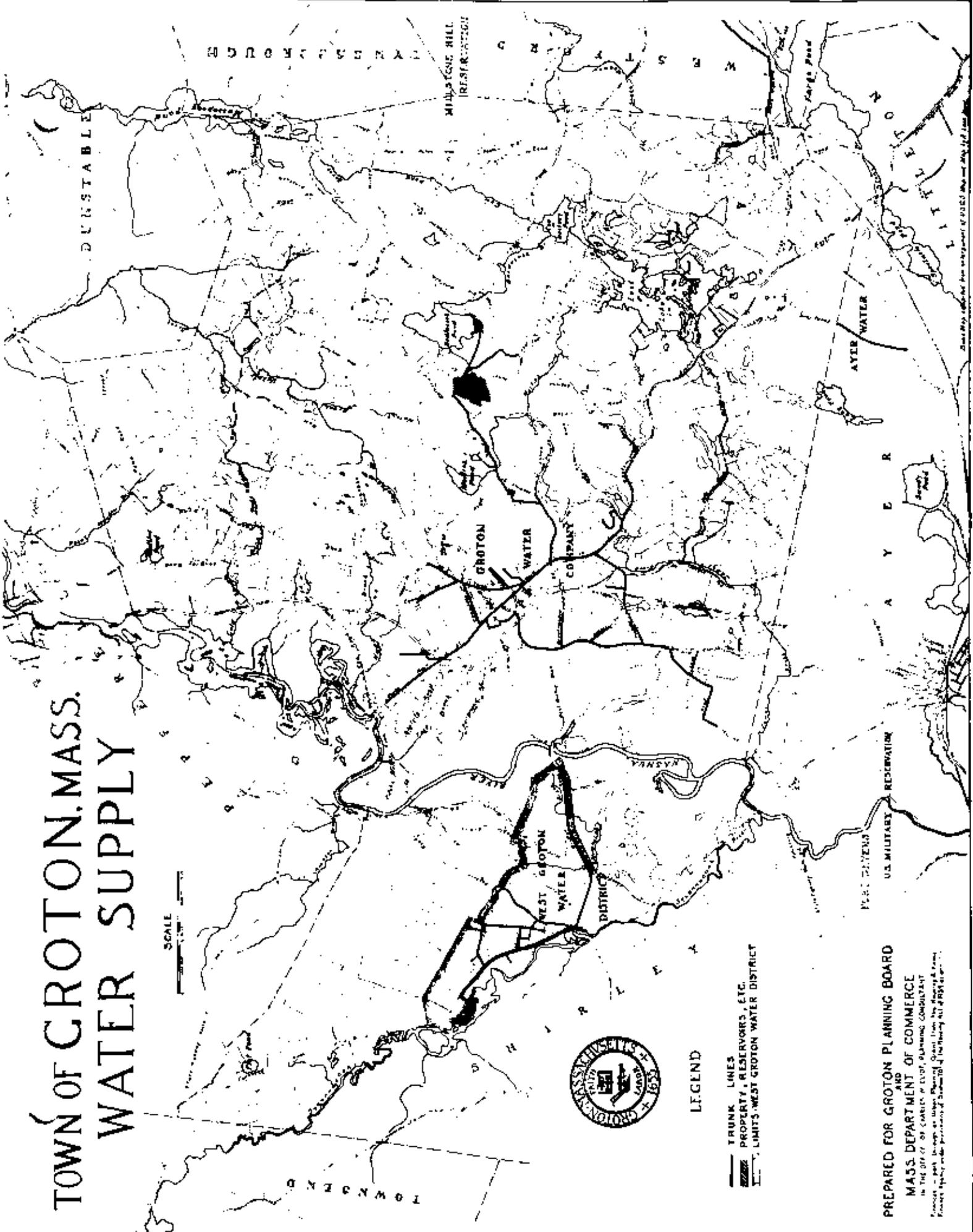
A "System Planning Study" has been prepared (August 1962) for the Electric Light Department by T. J. Bliss, Consulting Electrical Engineer, of Warner, New Hampshire. That report recommends "Phase Balance" improvements on each of the eight primary distribution circuits and an "ultimate plan" for future expansion. The "ultimate plan," envisaged by Mr. Bliss, would provide a loop feeder around the central part of Groton with additional substations in West Groton, on the east and on the north.

Steps towards the "ultimate plan," as proposed by Mr. Bliss, would start with increased service for "the area served by the Old Boston Road and Lowell Road circuits (which) is presently developing faster than other areas in Groton." Mr. Bliss proposed a new sub-station "somewhere between the two" and suggests that "a convenient location on Gay Road would appear quite suitable."

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\* An excellent summary history of the Department from its inception in 1909 is contained in the 1959 Annual Town Reports.

# TOWN OF GROTON, MASS. WATER SUPPLY



SCALE  
1" = 1 MILE



## LEGEND

- TRUNK LINES
- PROPERTY, RESERVOIRS, ETC.
- LIMITS WEST GROTON WATER DISTRICT

PREPARED FOR GROTON PLANNING BOARD  
AND  
MASS. DEPARTMENT OF COMMERCE  
IN THE OFFICE OF CHARLES W. CLIFF, PLANNING CONSULTANT  
Groton, Mass. 01445, as shown on Water Planning Sheet from the District's  
Planning Study under provisions of Subchapter J of the Internal Revenue Code.

If a major increase is required to serve a new industry in the Groton Ridges near the Littleton line, it may be desirable to locate this proposed sub-station somewhat further to the east. Alternatively, it may be possible to tap a Massachusetts Electric Company line for a separate sub-station in the Groton Ridges Area.

The second step in Mr. Bliss's program would be a new sub-station in West Groton on the existing Power Company line--perhaps at the present fire station and "Squannacook Hall."

## F. WATER SUPPLY

Within Groton today there are two water supply systems serving limited areas in West Groton and Groton Center respectively. All of the rest of the Town is dependent on individual wells.

1. The Groton Water Company--a private utility--obtains its water from wells just south of Baddacook Pond. For the protection of this supply the Company owns 4.23 acres at the wells including some 1300 feet of frontage on the Pond, and 40.61 acres of swamp land on a tributary to the west of the Pond and east of Brown Loaf.

From the wells, water is pumped to a reservoir on the top of Gibbet Hill above Shattuck Street, and distributed from that reservoir by gravity.

The longest main runs down Farmers Row and Shirley Road, and other mains run west on North Main Street to near the Nashua River, east on the Boston Road to Lovers Lane, south to Peabody Street and north to Hollis and Longley Road.

Both the quantity and quality of the water have been questioned for adequacy, and the Company has indicated that to further expand service very considerable new investments in facilities will be required.

2. The West Groton Water District is a public agency serving an area bounded by a line behind the frontage on the north sides of Kemp and Hill Streets, on the south side of Groton Road, and by the abandoned Milford Branch R.R. to the Squannacook River.

Water is pumped from wells on a thirty acre tract between the Boston and Maine Railroad and the River above Vose to a reservoir north of Kemp Street. A ten inch main takes water to the intersection of Main Street and

the Townsend Road, and the rest of the area is served through mains varying in size from 8 inches to 5 inches in diameter.

3. Groton Ridges lies in the southeast corner of Groton adjoining Ayer, Littleton and Westford. The Water Supply Systems of Ayer and Westford extend almost to the Groton line on Sandy Pond Road from Ayer and on Forge Village Road from Westford. Both Groton and Westford may be willing to extend their service into Groton--but, of course, at a price and contingent on legal authority from the State.

A local supply may also be available from the flowing springs on the Batten Property west of Carmichael Swamp. To protect that possible source, the General Plan shows a proposed acquisition by the Town of several acres and retention of tax-title lands for public purposes--including a future elementary school and recreation area.

This source might be developed by the Town--with a second special Water District like that now serving West Groton, or by the Groton Water Company as an additional supply in extension of their service.

#### 4. Other Areas.

For the areas not served by the two existing Groton Water Supply Systems, there are problems of cost to individuals for wells and pumps, adequacy of amounts of water for domestic use and fire protection, and dangers of pollution.

In many parts of Groton--and particularly in the Mountain Lakes Area --rock is not far below the surface so that well-drilling is particularly expensive. The so-called "Artesian" wells (rock-wells, not flowing wells) which have been drilled represent a substantial investment which the owners would not like to repeat in order to get water service from a water company, a district or from the Town.

To preserve the future supply of water, the General Plan includes proposals for protection of existing swamps, ponds and wet lands through "Conservancy Zoning," Conservation Easements and public acquisition. The wetlands are the natural reservoirs for storage of flood waters and to maintain ground water levels.

The development and maintenance of "water holes," ponds or reservoirs, with appropriate access, has been stressed in previous planning studies (Conservation Land Use Plan) for fire protection--not only of woodlands, but for houses and camps as well.

The danger of pollution of water supplies is always present and often acute when a well and sewerage disposal system are located on a small lot. The Groton Board of Health has stated (July 16, 1962) "that a one-acre lot for a single family dwelling is the minimum size if there is no Town Water."

#### 5. General.

Your Consultant is not qualified as a Sanitary Engineer to advise on possible sources of water for future water supply systems -- whether from an existing pond or from driven wells (nor is such advice included in the contract for Planning Services as part of this "Master Plan").

### G. SEWERAGE AND POLLUTION

Groton has been able to avoid installation of sewers up to now. There are pollution problems in the waters of the Squannacook and Nashua Rivers, and there has been concern over disposal of sanitary wastes in the middle of Groton Center, at West Groton and at Lost Lake.

The river waters are polluted before they reach Groton to an extent which makes swimming dangerous, and the Groton Leather Works buys water for processing rather than use the polluted river water. The problem is much larger than Groton, and can be solved only with inter-municipal cooperation and State and Federal Aid.

The Lost Lake problem is currently more one of color, turbidity and taste rather than of danger to health; although, as noted earlier, the situation has been termed "explosive" by a member of the Board of Health. The excessive growth of aquatic weeds and algae may be due in part to seepage of sanitary wastes and detergents from septic tanks and leaching beds.

At Groton Center and West Groton concentration of population on relatively small lots will, if continued, necessitate the construction of sewerage systems. Even though water is supplied to these lots from the Groton Water Company or the West Groton Water District and pollution of a well on the same property as the septic tank is not the cause, the limited area for leaching fields and the character of the soil affect the pollution problem. Leaching fields wear out after twenty years or so and septic tanks overflow if too great a burden is placed upon them. Where rock is close to the surface as at Windmill Hill, or the level of ground water is high as along Main Street between Broadmeadow and Great Half Moon Meadow, seepage spreads far beyond lot lines.

The time when a sewerage system must be provided may be postponed by procedures to prevent further conversions and concentrations in critical areas, but any long-range plan should certainly include the possibility--or probability that sewers will be required.

Since sewerage systems are so expensive, Groton would be wise in attempting to guide development so that the area to be served falls in a single drainage basin or closely related basins. That way, the costs of pumping over a drainage divide can be avoided. The General Plan and Area Development Plans for Groton Center and West Groton have been prepared with that in mind; with developments in the Groton Center Area primarily in the James Brook Basin and close to the divide between that basin and the valley of Tuity Brook; and for West Groton avoiding, so far as possible, too dense a development in the Wrangling Brook Drainage Basin.

Substantial Federal Aids and Advances for Planning are now available for the design and construction of sewerage systems. Recent projects in Ipswich and Billerica have utilized those aids, and a preliminary investigation of their costs and procedures indicates that their experience would be helpful to the Board of Health, Planning Board or other group which may further pursue this problem.

#### H. TRASH AND GARBAGE COLLECTION AND DISPOSAL

Trash and Garbage Collection is now confined to a limited area--roughly coterminous with that served by the Groton Water Company. There are insistent demands for extended service in Groton Ridges and Lost Lake. It is understood that the Board of Health is developing proposals for greater coverage by this service.

The Dump on Nod Road at the Nashua River has the usual problems of fire, rats, smells and scattering of trash which accompany all such operations. Since the area along the river has a future recreational potential it is to be hoped that a "soil cover" operation will leave the area eventually in a state suitable for that use.

In the not distant future an additional or more than one new site will be needed for use as a dump or dumps.

## I. MUNICIPAL BUILDINGS

The several buildings for Town services now include:

1. The Town Hall on Main Street in Groton Center with the Town Offices, Meeting Rooms and Police Station. The vault is inadequate and a new one is needed, and the Police Station is cramped even with the Radio Net-work operated from the Fire Station. There is room behind the building for expansion. It would be wise to acquire the lot between the Town Hall and the Fire Station whenever it is for sale.

2. Fire Stations now serve the Central Area from Station Avenue, the West Groton Area from Squannacook Hall on Main Street, and Lost Lake from the new station on Lost Lake Drive. The General Plan calls for an additional station at Groton Ridges.

3. Property Yards and Offices have been developed for the Highway Department on Willowdale Avenue and for the Electric Light Department on Station Avenue.

The West Groton Water District has sufficient property for storage, etc. at its holdings on the Squannacook River where it has its wells and pumps.

At all of these property yards there will have to be further investment in offices, sheds, garages, or equipment over a period of time.

## IMPLEMENTATION

In the preparation of the General Plan, the Planning Board and its Consultant have made great efforts to obtain the thoughts, suggestions, and reactions of interested citizens.

The Planning Board is responsible under State law for the development and adoption of the General Plan or "Master Plan." As repeatedly stated, this Master Plan is a statement of objectives and a guide for public and private action, with no force or compulsion behind it except the force of public opinion. The General Plan will always be open for revision and improvement as conditions change or new and useful ideas are developed.

To implement the Master Plan, the Planning Board will present to the Town from time to time a series of recommended actions--hopefully with the support of other Town officers and Boards--for approval by the Town Meeting or by other appropriate agencies.

To carry out a General Plan, the Town has a variety of powers which can be used selectively or in combination. For example, the Town can acquire properties for public purposes by gift, purchase or condemnation; or it can regulate the use of land under the police power through zoning or a "protective by-law;" or the Town can provide or withhold services in one or another part of its area.

1. For Acquisition of Properties or Rights in Land, the Commonwealth (and the Federal Government through the State) can act directly or in cooperation with the Town, or, in certain circumstances, contribute to the costs. For example, Route 119 is a State Highway, so that the State should be asked to provide the proposed by-pass of Groton Center. The Town, on the other hand, should establish Building Lines for future widening and straightening of Boston Road.

The State has expressed an interest in the preservation of open spaces along the Squannacook and Nashua Rivers as a State project. It has also offered to reimburse towns one-half the cost of acquisition of Conservation Areas approved by the Natural Resources Department. The Conservation Commission can accept gifts or purchase Conservation Easements or Rights in Land.

If Groton decides to undertake an Urban Renewal Project in the Lost Lake Subdivision, substantial grants for planning, acquisition, rehabilitation, etc., are available from the Federal Government.

2. Zoning proposals for Groton have been developed in

Part III Zoning for Groton of the Planning Consultant's Report on the Master Plan. This part of the report was transmitted in fifty mimeographed copies on November 29, 1962 following discussions of a preliminary draft. It reviews the general arguments for zoning and the progress to date under the existing Protective By-Law, before presenting Draft Materials for a comprehensive Zoning amendment. These materials are accompanied by Explanatory Notes and offer several alternative forms. For example, the Draft Materials include sections to establish a Forest-Agricultural, a Single Residential, or a Residential-Agricultural District, for Cluster Residential Zoning, for an Institutional or two forms of an "O" Zone or Open Space District. Alternatives were also provided concerning an Historic District and control of external appearance.

These materials and alternatives have been reviewed in detail by the Planning Board, and from that review and after consultation with the Town Counsel, a proposed Amendment to the Protective By-Law is being developed for action at the Annual Town Meeting in March 1963. The required Public Hearing has been arranged for January 28, 1963.

3. Subdivision Regulations under the Planning Enabling Act were adopted by the Planning Board in 1951. They are intended to maintain standards and conformity with the zoning requirements and to assure adequacy of access. By requirements for the width, alignment and improvement of proposed new streets it is hoped to prevent haphazard developments or expense to the Town for strictly local improvements.

Suggested revisions of the existing Subdivision Regulations have been submitted by the Planning Consultant (December 18) for review and discussion. When a form is agreed upon, the resulting draft will constitute -

Part IV Subdivision Regulations of the Consultant's Report and will be advertised for the Public Hearing which is required before such regulations are adopted.

4. Community Facilities and Services provide another major tool for the implementation of the General Plan. When and where new facilities or services are provided, both a planning problem and a financial problem are involved.

To carry out a Town Plan it is necessary not only to guide private actions through zoning and subdivision regulations, but also to construct,

operate and maintain public works, facilities and services. The decisions made by the Town Meeting and Town Officers on priorities among works and facilities and on the amount or quality of services are reflected in the Tax Rate.

More and more cities and towns are finding it helpful to separate current operating and maintenance charges from capital expenditures, although, of course, new facilities involve new operating and maintenance costs; and to set up a separate "Capital Budget" parallel with an Operating Budget.

A Capital Budget Program is partly the responsibility of the Planning Board because the projects to be reviewed and scheduled ordinarily are shown on the General or Master Plan, and the Planning Board is in a position to have some judgment on the priority among projects. At least, this aspect of the Program should be developed with the advice and participation of the Planning Board.

After the Town acts on the Proposed Budget for 1963 at the March Town Meeting, the Planning Board expects to develop a Preliminary Capital Program for a Six Year Period. This program will constitute Part V - Economic Analyses and Capital Program of the Planning Consultant's Report.



□ BROOKLINE    ○ HOLLIS    □ NASHUA  
 New Hampshire



## GROTON REGIONAL PLANNING AREA

THE COMMONWEALTH OF MASSACHUSETTS  
 DEPARTMENT OF COMMERCE  
 DIVISION OF PLANNING  
 MIDDLESEX COUNTY



MIDDLESEX COUNTY



Prepared for Groton Planning Board and  
 Mass. Dept. of Commerce - April 1962  
 in office of Charles W. Eliot, Planning Consultant.