Exhibit 18

PLAN

OF

DEVELOPMENT

MONTVILLE, CONNECTICUT

1985
REVISED 1996

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I. INTRODUCTION

The first plan of development for Montville was completed in 1964 after study of the various physical, social, and economic factors influencing the Town's growth and development.[1] Since 1964, a lot has happened to Montville in terms of growth and development. During the 1960's the Town grew at a rate faster than any other community in Connecticut. New houses, apartment buildings, and commercial establishments sprang up throughout the Town. New roads and streets were built or improved, power lines multiplied, and in recent years public sewers were installed to serve the growing and sprawling community. This growth, and subsequent growth in Montville through the 1970's has changed the nature and needs of the community.

During this period of growth there evolved an increasing awareness of, and concern for, maintaining the environmental quality as more and more of the natural landscape was altered to support various land uses. At the same time local, regional, state, and federal agencies were learning more about the natural and man-made environment and producing information which can be used to help in maintaining environmental quality as growth continues.

The purpose of this report is to provide comprehensive policy direction for the most appropriate use of land in Montville, and to guide future development of the municipality. Some of the material from the 1964 plan and SCRPA's 1979 recommended plan is repeated and some refined to reflect new information. Guidelines for types and intensities of uses in the various parts of the community are intended to serve as a guide for subsequent changes in the Town's zoning regulations.

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[1] Samuel Spielvogel and Associates, A Community Development Study for the Town of Montville, Connecticut. (1964

II. THE NATURAL SETTING

Like most other towns in Southeastern Connecticut, Montville's natural landscape is very complex, presenting obstacles to the construction of roads and buildings. But the problems presented by the land surface also mark the natural beauty and character of the Town. One measure of good land use regulations is how successfully they accommodate development while maintaining the functional and visual qualities of the natural setting. An important aim of zoning and subdivision regulations should be to ensure that proposed land uses are fitted to and compatible with the natural landscape rather than changing land forms to suit intended uses.

A series of maps have been prepared to show the limitations that physical characteristics impose on development in Montville. The first of these is titled Topography (Figure 1), and it shows the natural configuration of the land surface and the system of town roads and state highways that have been built on it.

Wooded hills, peppered with ledge rock outcroppings and boulders, are separated by narrow valleys containing small streams and long, often inter-connected, wetlands. Steep slopes and poorly drained soils compound the natural obstacles facing development. Elevations range from about 600 feet near the western border of the Town to sea level adjacent to the Thames River, which borders the Town on the eastern side.

Two significant obstructions to development are wetlands and steep slopes, as shown in Figures 2 and 3. Wetlands are defined as moving or impounded bodies of water and soils identified by the USDA Soil Conservation Service as being poorly drained or floodplains. Steep slopes are more arbitrarily defined, depending on how prevalent they are in a particular area. Since sloping land is more the rule than the exception in this area, only the steeper slopes are considered real obstructions for most developed uses. Figure 3 shows those areas of Montville with slopes 20% or greater, or two feet of vertical change in ten linear feet.

Less obvious to the untrained observer, yet of great importance as a development limitation, are soil conditions. Soils in this area present varying limitations for building foundations, on-lot sewage disposal systems, roads, landscaping and other activities associated with man-made uses. Soil types and the relative severity of their limitations for development have been presented for Montville in mapped and tabular form by the Soil Conservation Service.[2] For the most part, soil conditions that make development difficult can be overcome by using various construction techniques. However, conditions can be severe enough to make corrective costs prohibitive.

The soil map is an invaluable tool for agencies concerned with regulating the use of land. It does not answer all the questions that might arise concerning the physical complexities of a particular property, but it provides the land use decision maker with considerable information on the soils likely to be found on the property. When the soil map information is used in conjunction with the County Soil Survey Report, the implications of the soils on alternative developed uses can be analyzed.

The soils mapping for Montville has been revised by the Soil Conservation Service. The new maps should become a standard reference for all local land use control agencies.

The irregular and complicated physical characteristics suggest the need for land use regulations that permit flexibility and encourage innovation. A large part of Montville should not be built

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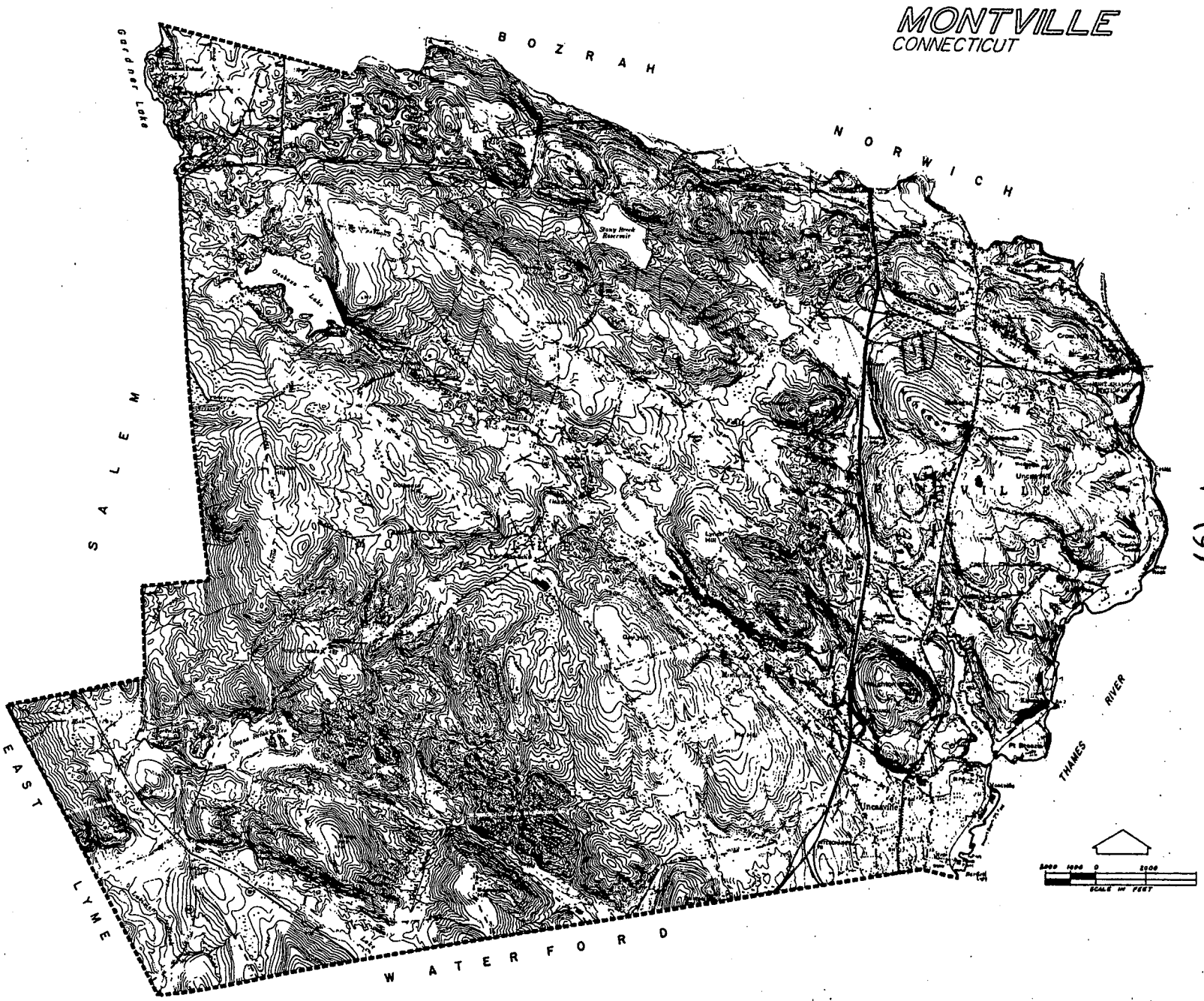
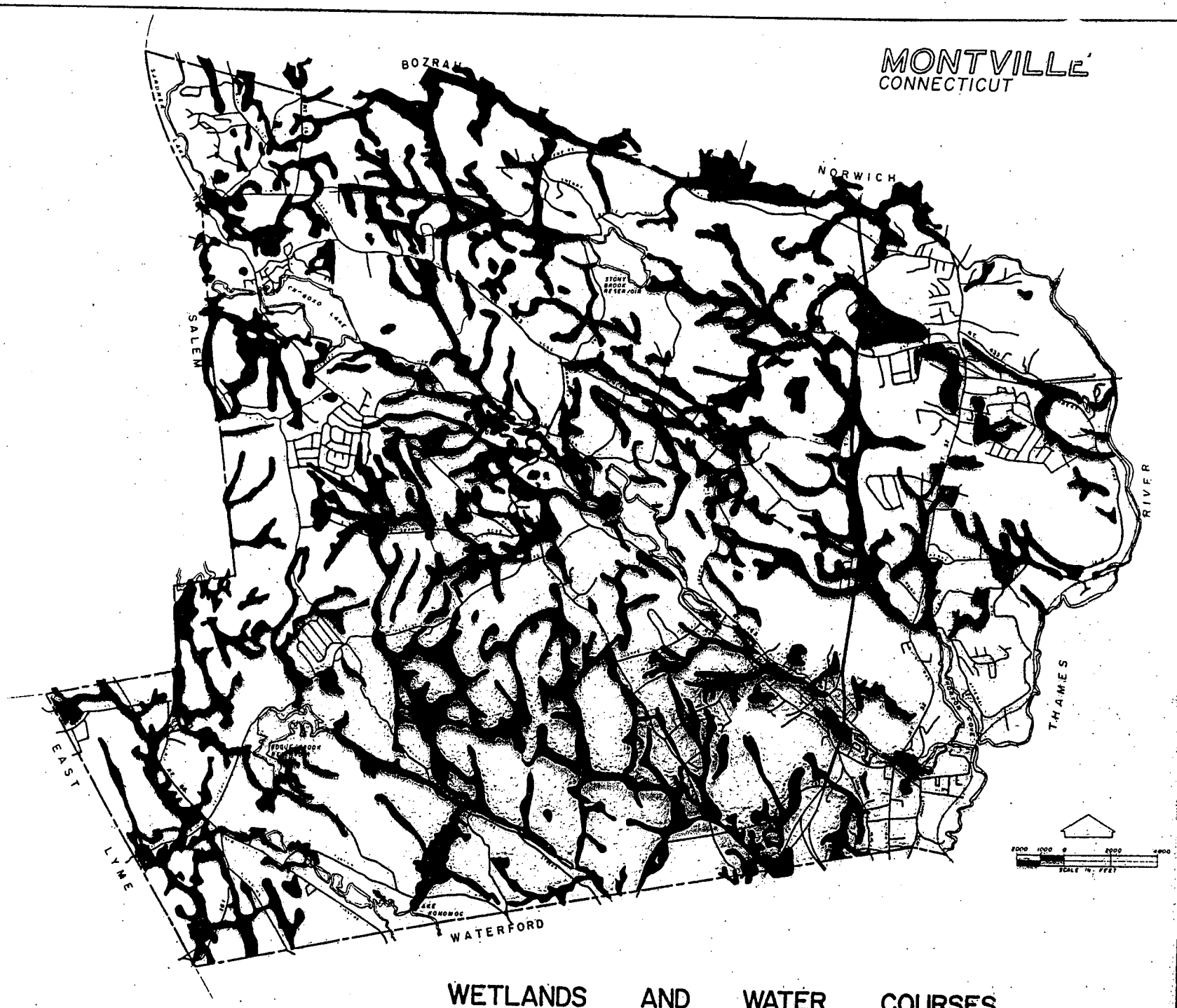
[2] For details see USDA Soil Conservation Service, Connecticut Agricultural Experiment Station and Storrs Agricultural Experiment Station, Soil Survey of New London County, Connecticut, (1983)



TOPOGRAPHY

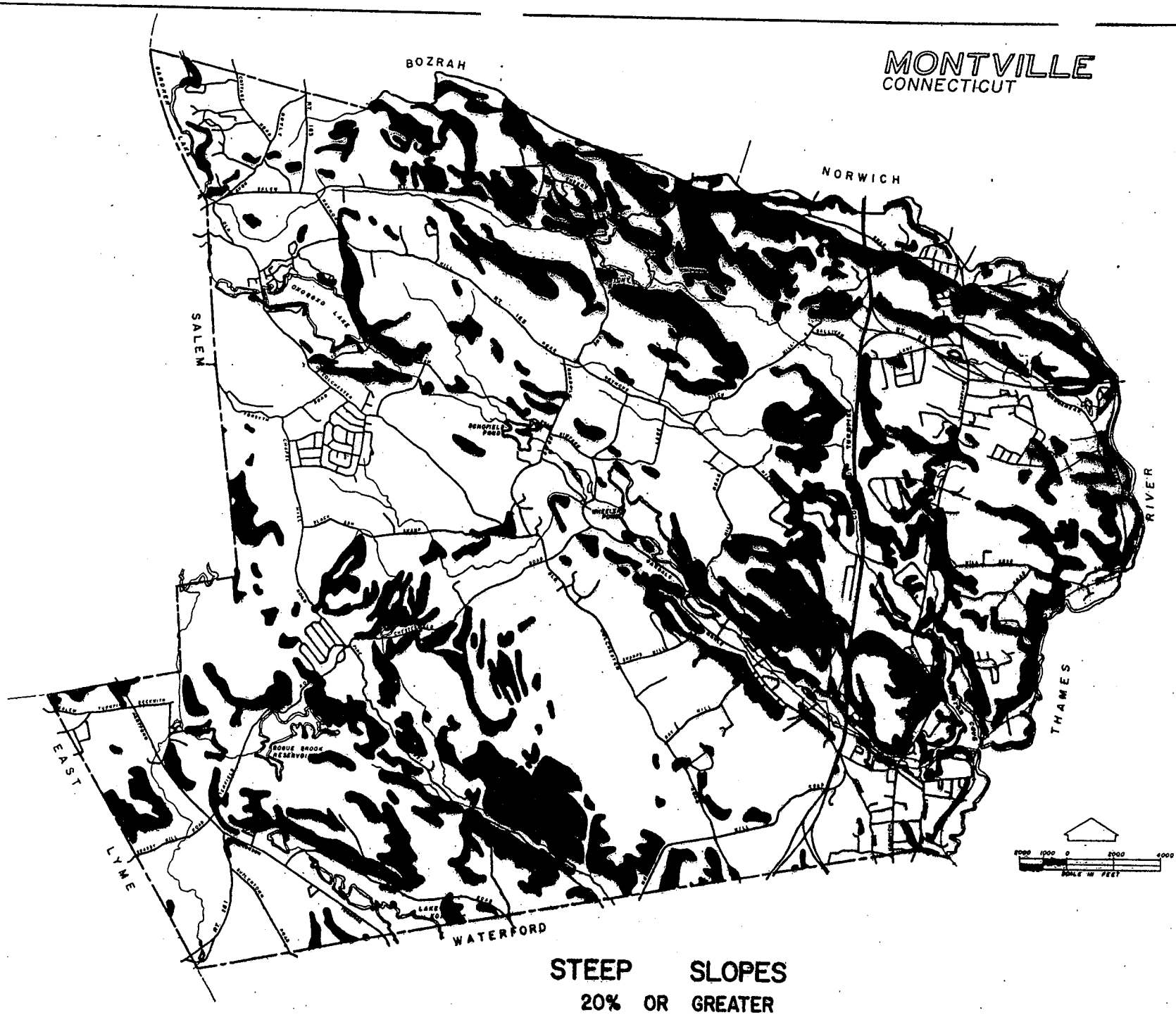
FIGURE 1



WETLANDS AND WATER COURSES

SCRPA-1976

FIGURE 2



STEEP SLOPES
20% OR GREATER

SCRPA-1978

FIGURE 3

upon. Other parts may be used with care, and on a limited portion development poses no severe threat. If growth is to occur - and it surely will - it should be encouraged to locate on the better building land and discouraged where severe physical conditions exist. In this manner sensitive natural features are preserved, and nature is used to add beauty and distinctiveness to development. By concentrating development in areas that have fewer problems, roads, power, water, sewers, and other services may be supplied more efficiently and cheaply.

III. THE PRESENT USE OF LAND

RESIDENTIAL:

Figure 4 shows the way Montville's land surface has developed. Of the 3450 acres of land that is developed now, over 74% or 2559 acres are residential properties. This is a substantial increase over the 1528 acres used for residential purposes in 1962. It is also a much higher proportion of residential to total developed land than exists for the region as a whole. Residential land uses generally represent about one half of the total developed land in a community.

COMMERCIAL:

All of the non-residential categories of developed land have also gained significantly during the last decade and a half, but the amount of land involved in each is minor compared with the residential acreage. About 103 acres of commercial land has been added to the town, most of which is in scattered parcels, with no major concentration, except that the bulk of these uses have been located along Route 32 which extends for about five miles through the town.

INDUSTRIAL:

Some 183 acres have been classified as industrial. This includes manufacturing and warehousing activities, the Connecticut Light & Power Company generating station, junk yards, and the town landfill area. The most significant growth in this category in recent years has been the expansion of the United Nuclear Plant near Trading Cove. There have been several changes in use of existing industrial buildings, but entirely new industries have been few and small. No specific area of the town has evolved as an industrial growth area over the last planning period.

RESOURCE EXTRACTION:

Land used for natural resource extraction (sand, gravel, and rock excavations) has increased greatly since 1961, reflecting the growing demand and suitability of land in Montville for such activity. Such uses present frequent land use conflicts. Major stream valleys often contain large deposits of sand and gravel. These deposits usually form good building sites, but they also have value as a construction material. At the same time they are the soil strata which stores vast supplies of water for man's daily needs. Consequently, the greater the demand for these soils as building sites or as construction materials, the greater the threat to the quality and quantity of the groundwater.

INSTITUTIONAL/GOVERNMENTAL:

Institutional and governmental acreage has increased about 60% since 1962, reflecting primarily the expansion and addition of educational facilities.

OPEN SPACE/RECREATION:

Open space and recreation increases, amounting to more than 440 acres since 1962, include Camp Oakdale and the large natural area along the northern border of the town. Other major open space in town includes Fort Shantok State Park, Boy Scout property surrounding Cochegan Rock, Nature Conservancy properties on Route 82 and near Raymond Hill Road at Lynch Hill Road, property owned by Norwich around Stoney Brook Reservoir, and New London land around Lake Konomoc, Bogue Brook and Barnes Reservoirs, the town's conservation area on Chesterfield Road, and brings the total area at the present time to about 2370 acres.

User-oriented recreation facilities consist of Camp Oakdale, the "Town" park consisting of about 80 acres at roughly the geographic center of the municipality. Neighborhood recreation facilities are centered upon existing school playground equipment and sports facilities.

AGRICULTURAL LAND LOSSES TO DEVELOPMENT:

According to measurements taken in 1962 and 1982, land used at least occasionally for agricultural purposes has declined, but not substantially. Records show 1,145 acres in this use in 1962 and 1013 acres in 1982, a decline of 13%. Only 3.7% of Montville's land area is presently used for agriculture. The decline is slight, considering the significant growth the town has had during the same period, indicating that non-agricultural land has accommodated just about all of the new growth.

EXISTING LAND USE - January 1983

MONTVILLE, CONNECTICUT

USE CATEGORY	ACRES	PERCENT OF DEVELOPED LAND*	PERCENT OF TOTAL LAND
Low Density Residential	958	27.8	3.4
Medium Density Residential	1543	44.7	5.5
High Density Residential	58	1.7	.2
Commercial	159	4.6	.5
Industrial	183	5.3	.6
Institutional & Governmental	139	4.0	.5
Excavations	410	11.9	1.4
Open Space/Recreation	2370	-	8.5
Agricultural	1013	-	3.6
Undeveloped	21,027	-	75.8
Total Land	27,648		

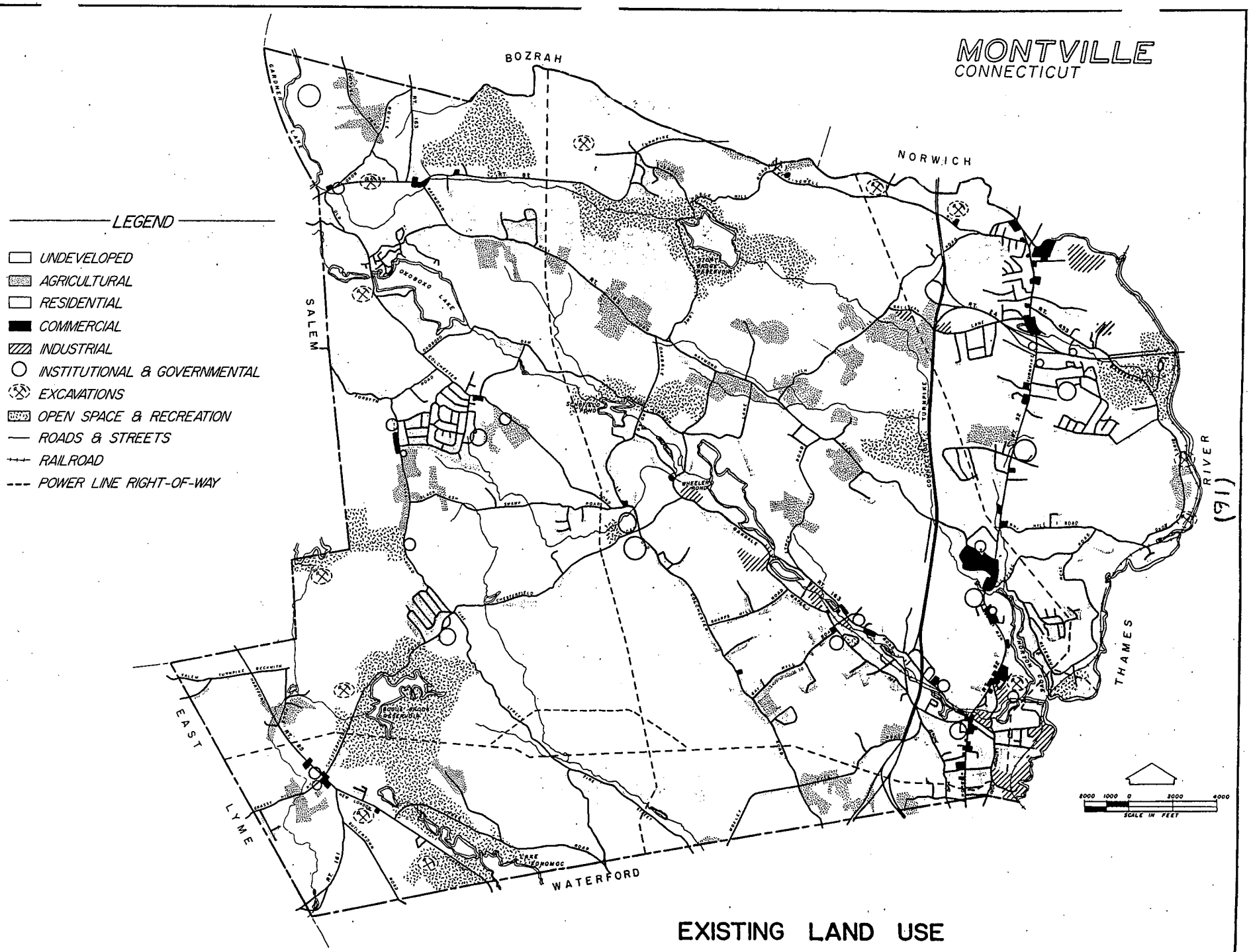
* All use categories except "open space and recreation", "agricultural", and "undeveloped".

The most apparent aspect of Montville's land use pattern is its scattered distribution. Whereas Uncasville and the Oxoboxo Valley were the focus of growth prior to the 1960's, relatively little has occurred in these areas since then. The growth of the 1960's and the 1970's, which has been predominately residential, has been located, for the most part, east of the Connecticut Turnpike and to the north of Horton Cove. Two notable exceptions are concentrations of about 400 dwellings in Montville Manor and 200 in Oakdale Heights, two major developments near the western border of the town. Other residential development has been small in comparison or scattered, and almost all of it has occurred north and east of Old Colchester Road.

A more detailed analysis reveals that low density development has increased by over 2% since the SCRPA inventory in 1978 to represent almost 28% of developed land while the share of medium density development as a percentage of developed land has decreased by almost 2% to nearly 45%. This condition implies that Montville is continuing to scatter its land use pattern, thereby increasing population and need for services in areas which are not within planned areas for possible utility service and in which response times for emergency serves are lengthened due to distance and road conditions.

A review of recent subdivision and residential building activity trends underpins this apparent desire to generate residential activity in the outer-lying "fringe" areas outside existing and planned utility service areas. This ultimately indicates that the municipal sewers in places have yet to significantly attract development. Mechanisms should be developed to promote compact urban form.

Commercial and industrial growth has been less pronounced, with no clear cut trends apparent in terms of growth rates. But it should be noted that the percentage of commercial and industrial land as a percentage of "developed" land has decreased since 1978, while residential land development has continued to increase its share in the same context. In the long term this can have profound implications on residential property tax rates.



EXISTING LAND USE

FIGURE 4

IV. POPULATION PROJECTIONS

REGIONAL SETTING

With the recent publication of demographic reports by SCRPA which were based largely on the 1980 Census, it became evident that population projections should be re-examined. The region had not grown as fast as indicated by regional and state population projections. The 1980 population was actually 27,000 persons less (about 11%) than the projections shown in the 1976 Regional Development Plan. These projections in the 1976 Plan were much lower than earlier projections completed in the 1960's and early 1970's. Each projection completed over this ten-fifteen year time period showed a lower and lower 1980 projected total.

The region's growth of 5,264 persons to a 1980 total of 225,666 persons represented a 2.4% increase from 1970. This was the slowest rate of growth since the decade of 1800 to 1810 and the smallest numerical increase since the decade of 1880 to 1890. The region experienced a net out-migration for the decade. Natural increase, which is the excess of births over deaths, was 16,158 persons for the 1970-80 decade which means that out-migration was 10,894 persons. A variety of factors most likely came into play during the 1970's which influenced this slow growth. Among these factors are a lower birth rate (49% decrease from 1960 to 1980), job and business opportunities expanding in the southern and southwestern states, the expensive cost of borrowing capital - especially mortgage money, and the adoption by state and local governments of more stringent environmental and land use controls.

MONTVILLE SETTING

Montville's growth of 793 persons between 1970 and 1980 was a 5.1% increase. This represents a 95% decrease from the 1960 to 1970 growth rate of 102%. Montville's growth was the slowest rate since 1930 to 1940 and the smallest numerical increase since the decade of 1940 to 1950.

Montville also experienced a net out-migration for the decade. The excess of births over deaths for the 1970-80 decade was 1,714 which means that net out-migration had to be 921 to result in a 793 person growth. This is a complete reversal from 1960 to 1970 when the Town experienced a net in-migration of 5,595 persons. Most likely the regional factors referred to previously also applied in Montville. For instance, the birth rate in Montville declined from 146.3 births per 1,000 women of the child-bearing ages in 1960 to 63.7 births per 1,000 women in 1980, a decrease of 56%.

This kind of environment makes population projections even more difficult than usual. Projecting is an art that attempts to provide reasonable assessments about the future based on assumptions concerning fertility, mortality, and migration. Projections are simply a future possibility and should not be regarded as the final certainty. This should be clearly understood by users such as public and private decision makers. Projections should be continually reviewed to reflect new data, trends, and methodologies, always keeping in mind that "....the stubbornly uncertain future resists precise prediction."[1]

PROJECTIONS

Because no one method of population projection is entirely reliable, different approaches are used to provide a range of possible estimates within which, it is hoped, the actual population will occur. All approaches assume that the 1978-83 trend will be fairly representative of the next five

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[1] Morrison, Peter, Overview of Population Forecasting for Small Areas, (June, 1975). p. 18

years and that there will be no major changes in existing conditions. If a major change occurs which results in major new residential construction in Montville, then these population estimates should be adjusted based on the new information.

Method 1

The first approach uses the average yearly population increase from 1980 to 1983 with no separate computations for natural increase and migration. Beginning with the current population estimate in Montville, this average yearly percentage increase is applied to the Town on a yearly basis to determine the 1990 projected total. Population data for this approach are based on estimates of the Connecticut Department of Health Services. yearly totals prior to 1980 were not used for two reasons. First of all, the yearly state estimates prior to the 1980 Census totals were higher than the Census figures. Use of these estimates would result in a negative growth rate for Montville from 1978 to 1980.

The Health Services yearly estimates actually exceeded the 1980 Census totals for Montville in 1973. Secondly the pre-1980 state estimates excluded institutional and group populations and post 1980 estimates included these populations. Since 1981, the Department of Health Services has included housing data in determining its annual population figures so the estimates should be more reliable than they have been in the past. This approach results in a projected population of 17,091 persons in 1990. This represents a 3.9% growth rate or slightly less than that from 1970 to 1980.

Method 2

The second approach uses separate computations for natural increase and migration. Natural increase is based on birth and death data from 1978 to 1982. Migration is based on the migration rate of persons under eighteen years of age for which accurate data is available for the years 1978-1982. The total migration component for Montville is assumed to be in the same proportion as that shown for persons under eighteen. This information is applied to the Town on a yearly basis to compute the 1990 total. This approach results in a loss of 7.1% to a 1990 total of 15,293 persons. This approach clearly reflects the smaller number of young persons in Town. This method is not as reliable as it used to be because young persons have declined from over 36% of Montville's population in 1970 to about 24% in 1980. In 1971-72, Montville had 4,509 pupils (average daily membership) and in 1981-82, this had decreased to 3,206 pupils, a 29% decrease. This data is also reflected in the composition of Montville's households. Forty-three percent of Montville's 5,337 occupied housing units in 1980 were of one or two person size. Of these, 5,337 occupied units, only 50% had persons under eighteen present in 1980. Thus, using young persons to predict migration for the Town total population is less valid than it once was.

Method 3

The use of housing data presents a third approach for projections. This approach assumes that the 1980 ratio of dwelling units to population will be proportional for the years 1983 to 1990. Based on 1978 to 1982 residential building activity, an average number of new residential units per year through 1990 was added to Montville's 1982 base figure so that the ratio could be computed for 1990. This approach results in a 1990 population of 18,120, or a 10.1% gain over the 1980 population.

Method 4

The fourth method employs average persons per dwelling unit, projected building activity as discussed under the third approach above, and natural increase as discussed under approach two above, to determine future population. The yearly average number of new residential units is multiplied by average unit size and this total, along with the natural increase total, is added to

the Montville 1983 base population on a yearly basis to arrive at the 1990 total of 18,855 a 14.6% gain above the 1980 totals.

If approach two is eliminated because young persons are no longer the overall key to Montville migration patterns, then the projected average of the remaining three approaches is 18,022 persons for 1990, a 9.5% gain. This figure is quite close to the June 1983 projection by the Connecticut Office of Policy and Management of 17,960 for Montville in 1990.

POPULATION PROJECTIONS

YEAR	METHOD	PROJECTION
1990	1	17,091
1990	2	15.203
1990	3	18,120
1990	4	18,855
	AVERAGE PROJECTION EXCLUDING METHOD 2	
1990		18,022

Source: SCRPA, Montville Population Projections, 24, January 1984

SCHOOL ENROLLMENTS

Data supplied to the Planning Office by the Superintendent of Schools indicates total enrollment figures in the Montville Public School System have dropped steadily since 1972.

The 1984 estimate for total enrollments through the 1989-90 school year continues this trend toward reduced enrollments. However, current estimates indicate that if the current trends continue, an upturn in total enrollment in the school system is expected by the 1992-93 school year. The basis for this projection lies in the general increase expected in high school (9th - 12th grade) age children. Increases in this category should be relatively substantial.

Determinations resulting from analysis of this data point to lack of increases in enrollments of school children in the K - 8th grades in conjunction with a general decrease in birth rates. The short term (10 year) implications appear to point to no need for additional elementary, junior, or high school facilities to accommodate students. In addition it appears unlikely that capacity problems will result between now and the turn of the century. However, these projections should continue to be monitored, and this element of the plan updated at minimum, every five (5) years to be sure.

V. HOUSING

TRENDS

Montville's greatest growth occurred during the 1960's when it led all Connecticut towns in rate of growth. Several major subdivisions were constructed during those years, including Montville Manor, Oakdale Heights and the Lathrop Development. Growth continues, although at a slackened pace.

As of the 1980 Census, Montville had 5551 housing units (including all types). Occupied housing units totaled to 5337. Mobile homes number 319 and constitute 6.7% of occupied housing units.

Although no new multifamily developments have been constructed in Montville, the installation and extension of the municipal sewer service into western Montville in conjunction with soaring building and land costs has generated a potential market for this type of development. SCRPA projects that multifamily development will maintain its current share of 15% of the housing market in town. This could change with revisions to the zoning regulations in the future.

Single family home development should remain constant as well, according to SCRPA's projections.

NEEDS

SCRPA's analysis points to a projected need for low-and moderate-income housing in Southeastern Connecticut in the future. This category includes elderly and non-elderly units. Based on income data for families contained in the publication, a need for these types of housing construction appears evident in Montville.

VI. COMPREHENSIVE DEVELOPMENT GOALS

INTRODUCTION

This brief element of this plan is intended to provide a list of those broad goals the town wishes to accomplish. These goals are further refined in the individual plan elements discussed later in this document.

GOALS

1.) Provide for residential development at densities and in areas compatible with economic, social, transportation, and environmental objectives of the plan.

2.) Achieve a land use design which adds to the economic viability of the town by way of efficient use of public and municipal utilities, provision of sufficient amounts of land for commercial, industrial, and residential development, and sound environmental planning.

3.) Achieve a more balanced residential population density distribution in developing areas, and in areas serviced or to be serviced by public and municipal utilities.

4.) Enhance the quality of the environment and its natural resources.

5.) Preserve those areas of historic and cultural significance.

6.) Strategically locate the individual land use sectors in a manner that serves the growing needs of the town and all its residents in accordance with the transportation system's capabilities.

7.) Establish an efficient and coordinated transportation system to serve the needs of the Town of Montville.

8.) Enhance prospects for open space and recreation in the Town of Montville.

VII. LAND USE

INTRODUCTION

The land use element of the Plan represents the graphic and policy coordination of those other sections of this report dealing with environmental constraints, trends, tow-wide goals and objectives, the transportation system, and public utilities. In order to attain this system design, current conditions must be inventoried and problems analyzed. Goals and objectives, and alternate land use designs must also be developed and compared respectively. Ultimately, the future land use pattern and policies which are developed should represent the guidance system upon which future development proposals are weighed.

PROBLEMS AND NEEDS ANALYSIS

Section III of the Plan outlined broad implications of past land use and zoning policies in the Town of Montville. Residential development appears abnormally high as a percent of developed land and is of the scattered-sprawl type. This development is also taking place away from established public and municipal water and sewer services, necessitating installation of individual wells and septic systems rather than hook up to existing utilities. This particular trait ultimately can add to, and promote inefficient delivery of, services and unnecessarily increase the needs for additional municipal expenditures. This process also tends to reduce the prospect of protecting sensitive natural resources.

Commercial and industrial development has not increased at any pronounced rate due to lack of strong public policy in these areas, and commercial development in particular has decreased as a percentage of developed land in recent years.

Other significant land use problems which must be addressed involve better coordination between land use and transportation planning, alleviation of land use conflicts and traffic congestion in the Route 32 corridor, provisions for adequate and suitably located housing, increased protection of natural resources and the rustic nature of the town, and development of a focal point in Town for business and government activities.

GOALS AND OBJECTIVES

1.) Goal:

Achieve quality and controlled commercial and industrial development to serve the community and its various living areas.

Objectives:

Broaden tax base; reduce petroleum based energy consumption; promote water dependent industry in harmony with coastal resources; improve access and traffic conditions in Route 32 corridor area and in Town generally; provide for development of economically viable local shopping facilities to serve areas designated for higher densities.

2.) Goal:

Locate major development concentrations in areas that will be most conveniently served by existing, planned, or programmed utility and transportation facilities.

Objectives:

Reduce response time for emergency services; reduce potential for groundwater pollution from individual septic systems; preserve rural and environmentally sensitive areas; reduce maintenance costs and overall use of inadequate roads; reduce infrastructure costs and maintenance.

3.) Goal:

Establish a street system that affords safe and convenient travel by vehicle or on foot through Town.

Objectives:

Enhance safety of motorists, bikers, pedestrians, joggers, etc.; reduce energy consumption; reduce through traffic within low density residential areas and local streets; develop coordinated sidewalk system along collector and arterial streets to link living areas to areas of substantial pedestrian traffic such as schools and shopping centers.

4.) Goal:

Achieve a variety of housing opportunities within the town.

Objectives:

Make home ownership available to persons of various income levels; improve housing conditions and availability of same for Montville's residents; promote energy efficiency and reduce costs for and consumption of energy.

5.) Goal

Protect present and potential future water supply sources from pollution and premature development.

Objectives:

Ensure safe and clean drinking water supplies for all Montville residents.

6.) Goal:

Avoid development of areas identified as being sensitive soils, wetlands, flood plains, watersheds, or having steep slopes.

Objectives:

Reduce prospects of water pollution; protect environment and wildlife for all Montville residents; reduce threats to public health and welfare from flooding; establish open space system which defines corridor development and provides buffers between individual villages where possible.

7.) Goal:

Preserve rural character of the town.

Objectives:

Maintain rustic character of Montville; direct development to areas suitable for more intensive development, while preserving lower densities in other areas; maintain unique character of individual villages within the town.

8.) Goal:

Preserve areas of unusual beauty which lend character and identity to Montville.

Objectives:

Maintain scenic quality of areas when road improvements are made; maintain low intensity uses in identified scenic areas, and assure that development is consistent with preservation of scenic resources; promote cluster development.

9.) Goal:

Achieve adequate open space and recreation area for all Montville residents.

Objectives:

Protect strategic environmental resources; discourage sprawl patterns of residential development; undertake detailed study of recreation needs and ensure provision of necessary user-oriented facilities.

10.) Goal:

Achieve a development pattern that reduces the dependence on the automobile for personal mobility.

Objectives:

Reduce petroleum based energy consumption; increase SEAT transit ridership; establish sidewalks to influence pedestrian travel.

11.) Goal:

Establish a focal point for economic, governmental, and cultural activities in Town most conveniently accessible to a majority of residents.

Objectives:

Develop "Town Center" concept in Uncasville village area.

PLANNING PRINCIPLES AND STANDARDS

<u>Principal Use Space Needs</u>

Commercial:

Land use in this category represents 4.6% of developed land in Town. Although this total appears somewhat consistent with general percentages found in the average town or small city, this space is disproportionately confined to the Route 32 corridor area.

To provide for adequate community-neighborhood shopping facilities in the future, an evaluation of existing population distribution is needed. The population in 1980 in the area west of I-395 totaled 9,336 (57% of population), while the population east of I-395 totaled 7,119 (43% of population). Utilizing the highest population projection listed, and assuming that these population distributions remain constant, space in this use should exceed eight (8) acres in the western tract and five (5) acres in the eastern tract. If the population projection actually anticipated is used (18,022), these requirements do not significantly change. These broad areas have been utilized to determine space needs due to lack of defined planning districts. A standard of .8 acre of shopping space per 1,000 population for communities of roughly 2,500 persons is utilized.[1]

Based on the above analyses, and an evaluation of existing commercial space in actual community-neighborhood shopping use, provisions should be made to assure locations and space for this use in proper locations in the Future Land Use Plan in both sectors, and primarily in the area west of I-395.

In terms of general space needs for all business to serve the needs of the town, an analysis of approximate existing commercial floor space in the Route 32 corridor (primary trade area) and projected population of the area were made; the need for commercial space on a townwide basis. To date, roughly 150 acres of land are devoted to this activity in the corridor area, including actual floor space and other developed area. If parking is factored out, floor space should theoretically total to roughly 75 acres. Utilizing the highest possible population projection, and assuming an increase in population of 13.9% in the corridor area over the 1980 total, provisions should be made to assure that at least 31 additional acres are procured for town serving business use by 1990. If the population projection actually anticipated is used (18,022) and growth of 8.8% is anticipated, necessary provisions are markedly reduced to about 20 acres.

It should be noted that the higher population projection utilized above is close to recent projections by the Connecticut Office of Policy and Management for the year 2000.

Commercial zoning now exceeds 450 acres throughout Town, with almost all of it in the Route 32 corridor area.[2] It appears evident that the current zoning scheme far exceeds the town's needs; this is particularly evident in the Route 32 corridor area. This imbalance should be adjusted in accordance with the general goals of the plan.

Industrial

Current employment densities are critical to projecting future space needs in this category. When numbers of employees are analyzed in relation to land areas devoted to industrial use, a net employee density in the vicinity of nine (9) employees per acre (peak shift) results; however, employee density at certain plants in Town range as high as the 20's. Trends appear to forecast lower overall employment densities, due to increased automation and general desire to take advantage of cheaper suburban and rural based industrial land. A standard of 10 employees per gross industrially used acres appears appropriate for planning purposes.

Based on a current survey of major employers and industrial employment data indicated in the Updated Facilities Plan, 1977, this type of employment has increased 2.3% since 1977. The total forecast for manufacturing employment in the state assumes a 3.3% increase between 1983 and 1987.[3] If this standard is applied to the primary industrial employment in Town, the

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[1] Chapin, F. Stuart and Kaiser,Edward J. Urban land Use Planning, Third Edition, (Urbana, Chicago, London: University of Illinois Press, 1979) p.462

[2] Edward J. Kant and Associates, Town of Montville, Connecticut, Phase II Sewerage Program, Updated Facilities Plan, (May 1977), and Town Planner's Survey.

[3] For a more detailed discussion see con Labor Department-Employment Security Division, Annual Planning Information, Fiscal Year 1983.

town could expect more than 2229 industrial jobs by 1987, 71 more than the surveyed 2158,[4] and 2275 by 1990 if that growth rate holds constant. If the density standard of 10 employees per acre is applied, necessary industrial acreage could total 228 acres by 1990. With only 183 acres in use, provisions should be made to assure that sufficient land is set aside for potential industrial use.

Industrial zoning in Town now exceeds 2000 acres, well in excess of that area remotely necessary for industrial development. This figure should be slightly adjusted in conformance with other goals of plan. However, due to the terrain and general lack of adequate industrial land in Town, strategic sites ideal for future industrial development should be reserved to protect the long term interests of the town.

Due to the limited data available concerning employment projections, this element of the plan should be updated at least every five years.

Residential

Land area devoted to actual residential use totals 2559 acres in Town. Land area necessary to accommodate future residential development on a town wide basis should be able to hold a total of as many as 6115 dwelling units if the highest population projection for 1990 (18,855) is used along with a constant dwelling unit size of 3.083 persons as a worst case scenario, and 5846 dwelling units if the average projection of 18,022 persons is utilized under the same formula; these represent dwelling unit increases of 778 and 508 respectively over 1980 totals. However, increases in multifamily type development is expected in the future which could conceivably distort this possible forecast and land area necessary for development due to smaller dwelling unit sizes and innovative designs normally associated with this development. SCRPA assumes that multifamily development will retain its current share of 15% of all housing units though 1990.

Although a review of available vacant land within these areas anticipated to develop in the future reveals that the population totals cited above could easily be absorbed in the future, (even at a density of one (1) acre per dwelling unit) the Future Land Use Plan should make provisions to assure adequate space in this category, taking into consideration ultimate density standards preferred in the land use design.

Alternative Land Use Designs

Basic alternatives to providing for future growth on a town wide basis appear to be as follows:

1.) Continue existing zoning and density patterns.

2.) Concentrate growth to the I-395 and Route 32 corridor area.

3.) Concentrate growth along established and planned transportation and utility corridors to establish a more balanced residential population density distribution (Oxoboxo corridor and Route 32 corridor).

The above scenarios represent three (3) basic possibilities of Montville's future. Evaluation of these conditions in terms of addressing the determined problems and needs of the town indicates that alternative #3 best serves the long term interests of Montville. This alternative takes into consideration and is responsive to the following:

1.) Established traffic and general transportation oriented problems affecting Route 32.

[4] Survey by Town Planner's Office, Summer, 1983.

2.) The existence of major transportation arteries and municipal utilities to serve the Route 163, Maple Avenue, and Old Colchester Road (Oxoboxo) corridor, as well as the Route 32 corridor.

3.) The need for viable satellite commercial centers in the Oxoboxo corridor to serve anticipated population increases west of I-395 and at the same time alleviate some traffic congestion in the Route 32 corridor.

4.) The existence of a variety of housing types and lot sizes, including properties in the moderate price range in the Oxoboxo and Route 32 corridors.

5.) The existence of sufficient amounts of suitable and vacant land area in the Oxoboxo and Route 32 corridors outside strategic environmental resources such as flood plains, major ground water sources, and established watersheds with direct or feasible access to municipal and public utilities.

6.) The need to discourage development in those particular "wedge" areas between corridors which should be designated for conservation.

7.) The need to direct development to those areas most easily accessible to public services, commercial facilities, and town government.

8.) The need to direct development in an orderly manner to corridor areas in order to discourage development of rural fringe areas.

9.) The need to maintain and reduce response times of emergency vehicles.

10.) The need to alter land use policies and controls which direct virtually all medium and higher density residential development, as well as commercial development to the Route 32 corridor.

Alternative #1, if allowed to continue, would maintain the status quo. This would mean continuation of strip commercial development and zoning in the Route 32 corridor area, and lack of sufficient commercial space west of I-395 to serve those residents. In addition, as demonstrated in discussion under Table 1, the trend toward scattered, sprawl type of residential development with individual wells and septic systems would continue. This alternative also maintains zoning policy in direct conflict with established infrastructure improvements and density patterns, and goals 1, 2, 4, 10, and 11 of this element.

Alternative #2 is somewhat similar in scope to #1; however, this scenario goes further and assumes resistance to medium and high density residential development in the Oxoboxo corridor, as well as commercial and industrial zoning west of I-395 in general. In turn, all medium and higher density residential development and commercial and industrial development would be directed to the Route 32 corridor. This alternative would appear to intensify congestion of Route 32, would represent a dramatic departure from existing zoning and land use patterns, and would conflict with goals 1, 2, 3, 4, 10, and 11 of this element.

Location Considerations

Commercial

In identifying areas where commercial development should be encouraged, an attempt was made to focus on areas already used for commercial purposes and to provide opportunities for commercial establishments to locate and expand in each section of the town.

There are basically three types of commercial areas proposed for Montville. First, the larger area recommended for Uncasville is proposed as the major center of non-residential business and commercial development, but professional, governmental, and cultural facilities as well. The area has been in transition in recent years and much of it is already devoted to non-residential use. A street system presently exists in this area which offers alternative access routes to many of the properties fronting on Route 32. This permits site designs that take advantage of Route 32 exposure but don't depend on the busy road for access to buildings and parking.

The desirable type of development in Uncasville will occur only if it is based on an acceptable design. A detailed plan for this area should be prepared, reflecting desirable standards and integrating existing streets and non-residential land uses to the extent possible. The economic success of this area depends on an overall design that reverses the current trend of uncoordinated commercial growth.

The second type of Commercial area on the Plan involves the four smaller areas on Route 32. A large percentage of establishments already located in these areas cater to the motoring public on Route 32. Although opportunities for such uses are needed, they have been responsible for the congested conditions on this important route. As noted in Section XI of this report, the continued development of Route 32 frontage property for unlimited commercial use must be checked if the road is to avoid increased congestion. Therefore, it is proposed that Route 32 commercial development be contained within the four areas shown and that measures be taken, as proposed in Section XI, to make these areas safer for both vehicular as well as pedestrian traffic. This type would most appropriately include general as well as highway oriented commercial facilities designed to serve the motoring public as well as the residential population.

The third type of commercial area can best be described as the neighborhood commercial center. As Figure 5 shows, these are proposed strategically throughout the town. These are intended primarily to accommodate stores selling convenience goods and services. Such a center might also be geared to include an automobile service station, one or more professional offices, and other convenience and service establishments geared to providing for the needs of growing residential areas.

These commercial areas cited above have been noted with symbols establishing strategic locations. Standards set out in the space needs section of this element should be utilized in conjunction with other acceptable planning standards to implement the goals of the plan at the zoning stage.

Industrial

In the process of identifying areas that would be suitable and attractive for industrial uses, several factors were considered. These included:

1. Convenient highway access for heavy traffic,
2. Proximity to water, rail, or expressway transportation facilities,
3. Present use of the site,
4. Compatibility with surrounding uses,
5. Availability of public utilities,
6. Physical suitability for construction, and
7. Impact on natural resources.

The locations for industry shown on this Future Land Use Plan vary little from those proposed by the 1964 Plan. Four areas presently contain industrial uses. One of these is on Trading Cove and is the site of the United Nuclear Corporation. Another is in Uncasville and includes the Stone Connecticut Paperboard Corporation. The third is part of the Oxoboxo Valley below Wheeler Pond, which has several existing and abandoned industrial complexes. Those

companies present operating include: Yale Auto Salvage, Tech-Air, and Robertson Paper Box. Further down the valley in Uncasville is the Faria Corporation and Thames Permacrete. The fourth area lies along the turnpike in the vicinity of Gallivan Lane. Mandar Corporation and the Pepsi-Cola Bottling Company are located in this area.

With the exception of the Gallivan area and the Oxoboxo Valley area, all of the industrial areas noted above are served by rail transportation, and the CL&P uses the river for fuel deliveries. Town sewers are available in the Oxoboxo Valley and will serve the Trading Cove and Uncasville industrial sites. Public water service from Norwich supplies the United Nuclear plant on Trading Cove, but all other sites in the town depend on individual wells, outside of Faria and Thames Permacrete which are to be serviced by the recently instituted Montville Water System.

The Chesterfield industrial site takes advantage of good access, which would be further enhanced by the completion of Route 11 at some point in the future. This site is large, undeveloped, and contains few physical limitations, but is located partially within designated watersheds. Similarly, the Gallivan Lane site is adjacent to Stoney Brook, which flows through the area of Johnson's Pond Aquifer. In addition, the Route 82 site is currently zoned for industry and has convenient access thereto.

Extreme care should be taken when reviewing applications for uses in these sensitive areas. Applications for zoning permits should be accompanied by data and analysis on the exact nature of the activity, water usage, wastes generated, effects on stream and groundwater flows, and any non-point source pollution. The applicant should also provide an erosion and sedimentation control plan that includes provisions for a storm drainage system with an impervious catch basin system to provide for recovery of normal and accidental industrial spills. Only after a favorable review of this information by the State Departments of Environmental Protection and Health should a zoning permit be considered by the Zoning and Planning Commission.

A Comparison of the Future Land Use Plan (Figure 5) and the Existing Lane Use map (Figure 4) shows that several of the industrial sites already contain considerable development. There is little room for additional industrial use of the Uncasville site which is almost completely filled by facilities related to CL&P and Stone Connecticut Paperboard Corp. The Trading Cove and Oxoboxo sites are also heavily used, but much of the non-industrial use could be replaced with industrial uses if the opportunities arise. Considerable undeveloped area is available; however, at the Gallivan Lane and Chesterfield sites, and, because of the nature of the earth materials at the Horton Cover site, the undeveloped part of this site could be improved for industrial use.

In spite of Montville's location on the Thames River and the presence of the Central Vermont Railroad along the eastern edge of the town, industrial development is not recommended for more area fronting on the river. The railroad is built on a narrow shelf by the river for most of its distance through the town. In most areas the land rises sharply immediately west of the railroad. In the two areas where some undeveloped land exists between the railroad and the river (Point Breeze and Massapeag), poor road access and nearby residential development make the undeveloped land unattractive for major industrial use. Montville's riverfront land north of Uncasville is unsurpassed in the region for its scenic quality, and every effort should be made to preserve this natural beauty for the future residents of the area. For these reasons it does not seem appropriate to designate additional areas along the river for industrial use. This is further borne out in the Coastal Management element of this plan.

High Density Residential

This term applies to residential densities of more than four families per acre. The most common dwelling type in this category would be apartments, although closely spaced single and two-family homes or townhouses could be included. It is assumed that public water and sewerage would be available to serve areas of high-density residential development.

The only areas recommended for this use are limited to the southeastern corner of the town, in and adjacent to the village of Uncasville. There are several reasons for selecting these areas: a) Each area is within or adjacent to existing or programmed sewer service areas, b) the town water supply system proposed for Montville encompasses these areas, c) access to commercial and governmental facilities and services would be more convenient to these proposed areas, d) existing roads for access to high-density residential complexes, and e) the areas could be conveniently served by local and inter-town bus services.

More area between I-395 the Turnpike) and the Thames River is not recommended for High Density Residential because of the lack of major roads to serve the area. Route 32 is the only north/south road in this part of Montville and it is already congested. It not only serves through traffic, but abutting homes and businesses as well. In addition, it collects virtually all of the north/south traffic generated by the numerous residential developments in the area between the turnpike and the river. Since a second major paralleling north/south road in this corridor is unlikely in the future, land use density restrictions must be used to keep traffic on Route 32 within tolerable limits.

Medium Density Residential

Densities in this category range from one to four families per acre. Within this density range lie most of the existing major subdivisions in Montville. Because of the complex nature of the landscape in this region, large developments at this density usually will require public water and sewerage sooner or later.

The Plan proposes medium density residential development in those areas of Montville generally serviceable by the existing and planned sewers. This includes a large part of the town east of the Connecticut Turnpike and most of the area between Old Colchester Road and the Oxoboxo River, extending from Montville Manor to Uncasville. These areas are not uniform throughout, but are interspersed with wetlands, watercourses, and other physical problems. They are, however, generally better than other parts of the town and are more conveniently located with respect to existing and possible future public utilities.

These would be the areas where most of Montville's residential growth should occur during the remainder of this century. The predominant housing type would probably continue to be single-family detached homes in conventional subdivisions. However, cluster developments, townhouses, garden apartments and other residential development techniques could be appropriate provided the overall zoning density is not exceeded and uses are compatible in scale with neighboring development.

Low Density Residential

Areas of Montville in this category contain large amounts of reasonably good building land, but they are not conveniently located with respect to existing and planned utility service areas. Therefore it is recommended that the density of development in these areas be low enough to permit dependence on individual wells and septic systems far into the future. Residential types would be limited to single-family detached dwellings. Lot sizes should range between one and three acres per dwelling.

Low density development is recommended for the Chesterfield and Gardner Lake areas of Montville, as well as for the land sloping southwesterly away from Old Colchester Road. A smaller area between Route 32 and the Thames River is also proposed for this density because of the disproportionately high costs that would be involved to serve it with public sewers.

Conservation

The areas recommended for conservation have both a functional and an aesthetic purpose. They serve to protect natural resources; but they also enhance the appearance of the town. Included in this category are physically sensitive areas which have severe limitations for development, reserved open space and recreation areas, potential groundwater sources, existing and potential surface reservoirs and their watersheds, and land along the Thames River which contributes to the unique scenic quality of the estuary.

These areas should be restricted to low intensity uses. Where residences are permitted, lot sizes should be larger than three acres per dwelling.

Future Land Use Design

The coordinated design representing the intent of those goals and objectives, and planning principles and standards set out herein follows on Figure 5.

Industrial land shown is in the range of 1500 acres. Although this would represent a reduction of currently zoned industrial land (2000+ acres), areas intended to be eliminated from this potential use were removed due to conflicts with specific goals and/or locational principles set out in the plan. Projected need for industrial land required through 1990 should not exceed 228 acres.

locations to be devoted to commercial use have been shown strategically; however, those areas designated are assumed to be specifically delineated at the zoning stage. There is sufficient land area at these locations to meet the future commercial needs of the town.

Land areas devoted to residential development (excluding conservation) exceeds 12,000 acres. Actual residential use is limited to 2559 acres. Sufficient land is available for future residential development.

VIII. UTILITIES

INTRODUCTION

Most of Montville's development is serviced by private on-lot water supply and sewage disposal systems. However, there are significant areas that are served by community and municipal water systems, and municipal sewerage. These are shown on Figure 6 and described in this section.

WATER SUPPLY[1]

Significant Community and Municipal water systems include the following:

1.) Country Estates, Inc., located on Old Colchester Road near the Montville High School, serves about 35 single-family homes, although the system was originally designed to serve more than 100 homes.

2.) Deer Run Supply, located on Route 85 near its intersection with Route 161, serves about 18 homes and a three-unit apartment building.

3.) The G & J Water Company serves the development known as "The Lathrop Development", located between Route 32 and the Thames River, just south of Mohegan-Pequot Bridge approach. There are more than 375 single-family homes in this development, and most of them are served by the public system.

4.) Kitemaug Orchard Association includes about 118 single-family homes. It is located between Horton Cove and the Thames River.

5.) The Oakdale Heights Homeowner's Association consists of residents in a subdivision which includes 212 single-family homes in the southwestern part of the town. The association operates the system which provides water to all of the homes in the development.

6.) The Montville Manor Division of the Southeastern Connecticut Water Authority serves almost 400 customers in the western part of the town. Most of these are single-family homes, although several apartments and the elementary school are served by the system too. This is Montville's largest water system.

7.) United Nuclear Corporation and about 75 single-family residences in the Holly Hill Homes development in the northeast corner of the town are served by the Norwich Water System.

8.) Town of Montville Municipal Water System (Phase I) serves 49 homes in the Uncasville Village section. The system is an extension of the New London-Waterford system.

With the exception of the Deer Run and Holly Hill developments, as well as the municipal water system for Montville, all the above systems use will supplies. Deer Run is served by water from

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[1] Information contained in items 1-6 is based on up-dated statistics originally presented in Southeastern Connecticut Water Authority and Southeastern Conn. Regional Planning Agency, Water Supply Plan for the Southeastern Connecticut Region, Volume I, Inventory, (1969)

New London's Bogue Brook and Barnes Reservoirs. Holly Hill's water is supplied by the Norwich Department of Public Utilities, while the Montville Municipal system is served by the City of New London's surface water supplies.

The Uncasville area is the most intensely developed area of Town and contains a mix of industrial, commercial institutional and residential uses. A majority of homes are served by on-site utilities. A survey as early as 1960 by Department of Health in the Uncasville area indicated that almost one out of three wells were probably or definitely unsafe for drinking purposes. Most others had some objectionable characteristic such as color, turbidity, hardness or contained iron, manganese, or sodium chloride but were safe for drinking. The development of this specific area of the Town of Montville particularly demonstrates the problems which result from lack of coordinated land use and environmental planning. The potential for problems increases with maintenance of individual wells and septic systems in intensely developed areas;

Furthermore, in 1982 toxic chemicals appeared at dangerous levels in the Uncasville area in the vicinity of the Faria manufacturing plant. This problem created the need for a public water system to alleviate health hazards. Phase I of the system is now in operation. A second phase is now programmed.

The water system plan incorporated into Figure 6 has been designed to coordinate short term needs of residents suffering from specific well pollution and long term objectives for the Uncasville area. The tow phase program will provide for higher residential densities and increased commercialization of the Town Center in this developing area. These are both consistent with the development goals of the Plan.

The density of growth in the Oxoboxo Valley, Uncasville, and some of the developments of Route 32 introduces a variety of pollutants into the ground. An additional threat to the Uncasville area and other developed areas adjacent to the Thames is salt water intrusion which penetrates water bearing strata adjacent to the river, imbalances occur in pressure between fresh and salt water, and the salt water penetrates further inland, contaminating wells in the process.

Long Term Supply Needs

The primary area of growth over the long term will continue to be directed to Uncasville, the entire Route 32 corridor, and westward along the existing municipal sewer service area. In order to meet the required demand for water by the year 2000, necessitated by population increases, additional public water supplies will be needed to insure safe drinking water and sound environmental planning.

The town should protect present and future water supply sources to assure availability of supplies for development of necessary public water systems to accommodate future population increases and other development.

Development of a comprehensive solution to provision of safe drinking water for the areas of Town planned for more intense development in the future should also be implemented. This may be accomplished by way of a coordinated regional or inter-town approach, or through an eventual Town oriented system utilizing ground water resources approved by the Selectmen.[2] Currently, a second phase of Montville's municipal water system is programmed and outlined in Figure 6. Development of this system as well as the existence of Phase I present the possibility of serving those areas planned for increased growth and densities in the land use plan in the future. Specifically, system extensions should be primarily directed to those areas designed for densities of 1 to 4 dwelling units and more per acre in the Route 32 corridor and Oxoboxo Valley areas.

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[2] For a detailed design and discussion see Moffitt and Duffy, Consulting Engineers, Water Supply Plan for the Montville Water Utility, (1984)

SEWERS

With the completion of the Phase I Sewerage Program, two of the town's more severe sewage disposal problem areas were relieved. These were Montville Manor and Oakdale Heights. But other significant problem areas remain, particularly in the part of Town to the east of the Turnpike. This is the area of need being addressed by Phase II of the program.

The Updated Facilities Plan prepared in connection with the Phase II Sewerage Program presents the findings of a survey undertaken to identify areas that were experiencing surface and/or groundwater pollution from failing septic systems. The survey was confined to the area of the town east of the Connecticut Turnpike. A total of 103 septic systems were found to have failed, and another 93 systems were listed as "possibly failing or questionable."[3] The report stresses the fact that small lot sizes and complex soil conditions preclude on-site solutions for many of these problems.

The expansion of the area served by sewers will increase proportionately to the pressures for more intensive development east of the turnpike. Because of the special attraction for growth of this area of Town, a separate section of this report has been devoted to a discussion f its particular problems.

The Phase II Facilities Plan presents in great detail the physical and development conditions that have contributed to the waste disposal problems. It also describes the existing waste disposal methods and proposes an extension of the municipal sewer system into the area of the town generally east of the Connecticut Turnpike. Several alternatives were analyzed, such as community wide on-site disposal and extension of the Norwich system among others, but were found to be less cost effective.

Certainly, development will increase in the areas served by public sewers. However, both sewer mains and treatment facilities have capacity limits which in turn limit the amount of development that can be served by them. Currently, the sewage treatment plant has a design capacity of 1.4 million gallons per day (gpd). Phase I usage appears to be stabilized at roughly .350 million (350,000) gpd.[4] Inclusion of Phase II would introduce an additional 750,000 gpd of sewage into the treatment plant. It is essential not only to determine the most appropriate locations for future land uses but also to control densities consistent with the capacities of public facilities.

Population projections for the Phase I and II areas, contained in the Facilities Plan report, indicate that the sewage treatment plant has been designed to accommodate future population increases through the end of the century, including planned contributions from industrial and commercial development. Additional measures may be easily instituted to increase capacity of the plant when necessary.

Protection of surface and ground water supplies is ultimately tied to an adequate sewage disposal system for any and all residents. The planned sewer extension in Phase II is consistent with the recommendations for increased residential densities outlined in the Future Land Use Plan.

The town should also continue to consider new technological methods which may come about in order to meet the over-all needs of the town in its quest for orderly development.

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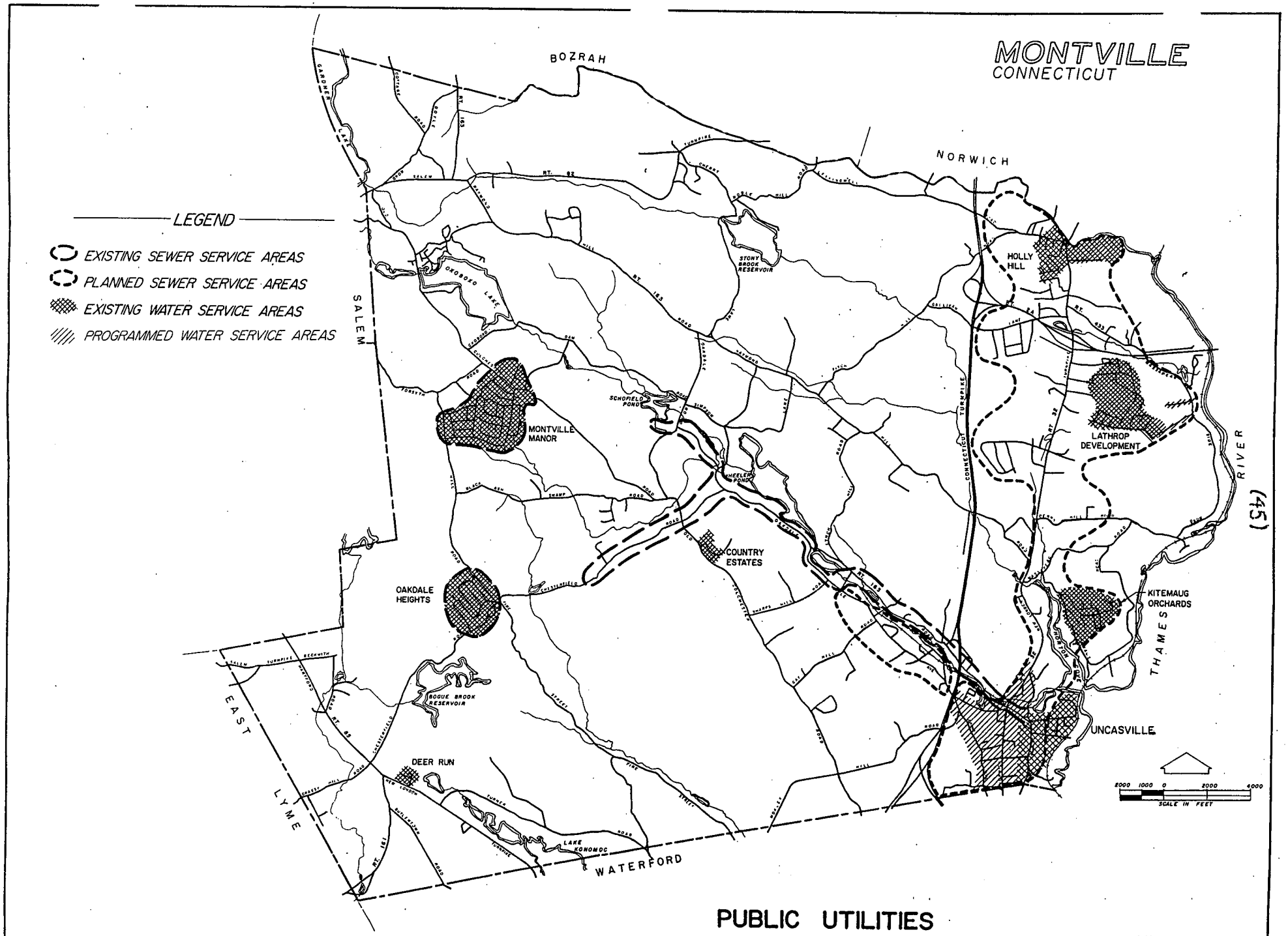
[3] Edward J. Kant and Associates, Town of Montville, Connecticut, Phase II Sewerage Program, Updated Facilities Plan, (1977)

[4] Discussion held on June 10, 1983, with Carol Sutera, Sewer Department Administrator



PUBLIC UTILITIES

FIGURE 6

SCRPA - 1983

IX. COASTAL MANAGEMENT

INTRODUCTION

The largest type of future land use proposed for in the 1964 land use plan, within which is now the designated coastal area, is residential. Two categories of residential use were recommended: Residence A, intended for 40,000 square foot lots where public water and sewer services are not available; and Residence B, at a density of 17,500 square feet per lot, provided its adequacy for water and sewer facilities. Large areas along Massapeag Side Road and Kitemaug Road were recommended for Residence A, while a few small areas of Uncasville in the coastal boundary, south of Horton Cove, were recommended for Residence B.

Despite the 1964 plan's lack of attention to coastal issues, land use in the coastal area of Montville has not changed that drastically in the ensuing 20 years. This is unusual in that Montville led all towns in Connecticut in rate of growth during the 1960's and in 1977 led all other Southeastern Connecticut communities in building permits issued. But most of this growth has occurred outside of the coastal area. In 1962, the major industrial uses of Connecticut Light and Power, United Nuclear, the facility which is currently the location of Stone Connecticut Paperboard, and the large excavation adjacent to Horton Cove, were all present in the coastal area. So too were the newly constructed residential subdivisions known as Kitemaug Orchards and the Lathrop Development (which is partially in, the rest lying adjacent to, the coastal area). The main building of the Midway Shopping Center (Then the Beit Brothers Shopping Center) had been constructed, and Route 32 was the focus of commercial activity in town. The majority of land use changes in the coastal area since 1962 has been an infilling of commercial development along Route 32, an intensification of existing uses such as the shopping center and drive-in theater, the expansion of industrial uses, as well as the tow above-named subdivisions, the construction of the sewage treatment plant, and the construction of the Mohegan-Pequot Bridge. The residential population of the coastal area, now estimated to be 998,[1] has certainly not grown at the same high rate as the rest of the town.

The significance of the preceding historical perspective is that in spite of no special recognition being given to coastal issues and resources in past planning endeavors, the coastal area has not been radically altered for the worse. This presents a distinct opportunity to preserve and maintain the unique character of this area though the coastal planning effort.

PROBLEMS AND NEEDS ANALYSIS

Coastal management is a relatively new policy in land use planning. The Connecticut Coastal Management (CAM) Act adopted by the legislature in 1979, states that a municipal coastal plan shall include an identification of a municipality's major coastal related issues and problems. In the Preliminary Coastal Area Management Program for the Town of Montville, completed in 1981 by Samuel Spielvogel and Associates, a number of coastal issues were identified. These issues constitute the primary needs and problems related to the coastal area which are of concern to the Town. An expanded analysis of each of these issues is presented below,

1.) Scenic protection of the shoreline area including visual access.

Due to the fact that a large part of the coastal area is undeveloped, there exist many fine scenic and visual resources along Montville's 10.6 mile coastline. The natural landscape along the banks of the Thames River, consisting of a combination of densely vegetated flatlands and steeply sloping rises, provides an attractive panorama. In addition, there are many good viewpoints in Montville's coastal area from which the river can be observed. These include the following locations:

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[1] Derived from the 1980 Census of Population

(A) Fort Shantok Road Extension. There is a good view from the unpaved section of this road just north of Route 2A. This road has a higher elevation than the State highway at this point. The view to the south is over trees and Fort Shantok to the river, and to the north there is an expansive view of the upstream portion of the Thames. This undeveloped area is State property.

(B) South end of Fort Shantok Park. At this end of the Park, there is a view up and down the river from a bluff, and also from the river bank. The Mohegan-Pequot Bridge lies to the north, but is far enough away not to be an intrusion. Periodic selective tree cutting may enhance the opportunity for this view.

(C) Massapeag Side Road. There are several attractive views up and down the river from this town road which is high above the river bank. Residential development in this area is sparse on this side of the river, as well as on the east bank. Three of the viewpoints are especially good because of their unobstructed view of the river; two look out over sand and gravel excavations, and one over a vacant field. However, without property acquisition, the opportunity for roadside pulloffs is limited at these locations due to the width of the road.

(D) Kitemaug Road. There are at least two locations providing a good view of the water from this Town road. The first is on the very hilly and winding section of Kitemaug Road just south of Massapeag Road, where some selective tree cutting would provide an even better view of the river. The second scenic viewpoint is found at the northern end of Horton Cove looking down the cove, just south of where Kitemaug Road intersects with Massapeag Road.

(E) Dock Road. An excellent view up and down the Thames River is located at the end of Dock Road on land owned by Stone Connecticut Paperboard Corp. this site is presently used as a boat launch by the public . To the south, a view exists all the way to the Gold Star Bridge between New London and Groton, to the north lies Dow Chemical in Ledyard at a bend in the bank of the Thames, and across the river on the east bank can be seen the Harvard and Yale boathouses in Gales Ferry.

2.) The construction of a public boat launching site by the State within the coastal area to satisfy public need.

Presently there are no formally established locations in the Montville Coastal area where the general public can launch their boats. A few private sites are scattered along the coast, and an informal arrangement with Stone Connecticut Paperboard Corp. is deficient in terms of the informality of the agreement, due to questions of liability and permanency of the arrangement. Other sites in Montville are limited by their private ownership, and/or landlocked by the presence of the railroad along the shoreline.

The one good site which has been considered a potential boat launch site since the State purchased it in 1972 is an approximately 4 acre parcel at Point Breeze. it is estimated that this site, if developed, could accommodate 35 cars and trailers. In 1979, a letter from the Deputy Commissioner of the Department of Environmental Protection to First Selectman Beetham indicated that the boat launch would be opened by 1981. However, the launch has not yet been established, and it has been reported by DEP that their priorities have shifted due to a lack of funding.[2] The cost of providing access to the site was found to be prohibitive,

[2] Telephone conversation with Dean Kraska and Les Whitham, Parks and Recreation Division, Connecticut Department of Environmental Protection, 28 July 1982.

and DEP has instead concentrated on upgrading and developing other boat launches in the Region, for which they feel there is a higher public demand.

3.) Eventual conversion of a limited number of residences within the coastal area to year round use.

There is a small clustering of 13 summer cottages located on Point Breeze in the Montville Coastal area. These are primarily one-story dwellings, most of which are located on lot sizes of less than one-half acre.[3] These cottages were built over a span of years from 1915 to 1970, with most of them being owned by people who reside outside of Montville during the remainder of the year. Only a small number of vacant building lots remain in the Point Breeze area.

At this time, there does not appear to be any pressure to convert these dwellings to year round use.[4] Any future demand for conversion is limited by: the existing septic systems, many of which are antiquated and are not up to code; the size of the lots; the proximity to the river; and the slope of the land toward the river. The Town Building Inspector and Sanitarian has emphasized that a heavy burden of proof to meet the requirements of the state Public Health Code would be placed upon any applicant for conversion of a residence in the Point Breeze area due to these limitations.

A related issue is the use of houseboats and "live-aboards" for permanent residences. Although not currently of concern in Montville, these types of vessels can cause problems related to the disposal of effluent, public access to the water, and encroachment on the existing river channel.

4.) Reduction of groundwater pollution from domestic and industrial septic disposal by careful site planning.

In March, 1977, a sewer needs study was conducted in Montville to determine the nee for sewers in the Phase II sewerage program planning area.[5] This study combined information from the following sources: a sanitary survey by the Connecticut Department of Environmental Protection; existing Town Sanitarian records; and a State Health Department well water study. In the Montville Coastal area, subsurface sewerage disposal problems were identified in the following locations:

- A recorded septic system failure or repair on the easterly side of Route 32 just south of the Norwich Town Line.

- Several recorded septic system failures or repairs on the westerly side of Massapeag Side Road.

- Off of Kitemaug Road adjacent to Horton Cove a large number (50 or more) of failing septic systems, possible failing systems, and recorded septic system failure or repairs, with the largest concentration of problems in the Kitemaug Orchard area.

- Two recorded septic system failures or repairs on Dock Road.

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[3] The lot sizes range from .1 to 16.1 acres. Source: Montville Assessor's Office

[4] Telephone conversation with Raymond Dawson, Town Building Inspector, 26 July 1982

[5] Edward J. Kant and Associates, Town of Montville Connecticut Phase II Sewerage Program, Updated Facilities Plan (1977)

Other more recent failures have been reported in the Driscoll Drive area of the Lathrop Development.

Since the above study was completed, a number of the failures have been repaired.[6] In most cases, the leaching system has been renovated, with the existing tank determined to be sound. It has been estimated that many more of the failures could be corrected in similar fashion at the cost of approximately $1,200 to $2,500 to the property owner.[7]

5.) Protection of tidal and inland wetlands from encroachment.

There are several tidal and inland wetlands in the Montville coastal area which are currently in zoning districts or are designed in the formed Plan of Development in a category not conducive to their protection. Specifically, there are two inland wetlands in the vicinity of Trading Cove near the United Nuclear Corporation plant, a series of small tidal wetlands on the west bank of Horton Cove, and a portion of an inland wetland at the head of Horton Cove which is part of a larger wetland lying outside the coastal boundary for exact locations, see Map No. 5 Coastal Resources, page 13 of Preliminary Coastal Area Management Program). The inland wetlands adjacent to Trading Cove, which have both been disturbed to varying degrees, are located in a Coastal Industrial (CI) district on the Zoning Map. The tidal wetlands and inland wetlands along Horton Cove are located on properties presently zoned for commercial (C) use, and are depicted in the Future Land Use Plan as Conservation. Most of the other tidal and inland wetlands in the coastal area are located on land zoned residentially and on the Future Land Use Plan shown for the categories of low density residential or conservation.

6.) Institution of effective measures to prevent unnecessary soil erosion within the coastal area.

Sediment from erosion is a problem in that it depletes a land resource (soil) at its point of origin, reduces the quality of the water resource it enters, and may deposit unneeded material on productive croplands or other useful land. Several such erosion sources have been identified in the Montville coastal area. [8] Three of these sources are relatively small in size and consist of:

- A gravel road at the end of Fort Shantok Road Extension located just north of Route 2A, which slopes down to the river. The road is approximately 13 feet wide by 3800 feet long, and it is estimated that six tons of soil are lost here annually.

- Cultivated cropland consisting of a 9 acre cornfield in the Point Breeze area. This source of sediment lies within 400 feet of the Thames River. An estimated nine tons of soil loss originates at the site per year.

- An unpaved drive on a fairly steep slope located off of Kitemaug Road just south of the intersection with Massapeag Road. This 12 foot by 200 foot drive results in an estimated annual soil loss of two tons.

Soil erosion at a fourth location involves a larger surface area and results in the highest rate of soil loss in the Montville coastal area.

- An 18 acre surface mine immediately adjacent to Horton Cove. It is estimated that 761 tons of soil per year are lost from this site.

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[6] Telephone conversation with Raymond Dawson, Town Sanitarian, 26 July, 1982.
[7] Telephone conversation with Raymond Dawson, Town Sanitarian, 26 July, 1982.
[8] SCRPA, Erosion and Sedimentation Sources, Southeastern Connecticut Region, (August, 1978)

Since such a large area and most of the Town drains into the two drainage basins which contain the majority of Montville's coastal area (Horton Cove Drainage Basin, 14,284 acres, and the Upper Reach Thames River Drainage Basin, 16,790 acres) the need to control sediment and erosion throughout the Town is important and related to this coastal issue.

7.) The possible expansion of energy facilities within the coastal area.
The Preliminary Coastal Program identified two plants located in the Montville coastal area, both associated with energy products, as being facilities of national importance. These two facilities are the United Nuclear Corporation (UNC) plant, which is located on Sandy Desert Road just south of the Norwich Town Line, and the generating station of the Connecticut Light and Power (CL & P) Company in Uncasville just north of the Waterford Town Line. The CL&P generating station, a producer of energy, will be discussed here as an energy facility while the UNC plant, where energy products are manufactured, will be discussed in the following issue as an industrial use.

The generating station of the Connecticut Light and Power Company, a division of Northeast Utilities, is comprised of one 8-megawatt generating unit and one 400-megawatt generating unit. A spokesman in Northeast Utilities Capacity Planning Section reported that there are no plans to change the Montville station for the immediate future.[9] Neither of their two units, which have expected lives of 40 years, are candidates for retirement until some time in the 1990's. The spokesman said that even, retirement plans are speculative, because by that time technology may have changed, enabling these plants to be repowered. The only identified coastal resources in the immediate vicinity of the generating station are the coastal flood hazard area in which the plant is located, and the developed shorefront along the banks of the Thames River.

8.) The desire to retain and expand industrial uses within the coastal area to broaden the tax base of the Town.

Presently, there are only three locations in the Montville coastal area which are planned for or zoned for industry. These are the United Nuclear Corporation's property at the northern edge of the coastal area, the area situated just north of the Waterford Town Line where the Connecticut Light and Power generating station and Stone Connecticut Paperboard Corp. are located, and a smaller area west of Horton Cove which was rezoned in March 1982 to reflect its current use as an excavation and production facility for the manufacture of concrete blocks. There is very little vacant land available in any of these areas which could be used for the location of additional industrial uses in the coastal area.

The United Nuclear Corporation's Montville plant is located on a 265 acre tract of land, and is used for the manufacture of enriched uranium nuclear reactor cores. In recent years, coastal site plan reviews have been approved for two minor expansions at the UNC plant: The construction of a small steam generating and distilling facility; and the expansion of a warehouse for the storage of records and a fire truck. Presently UNC reports they have no significant expansion plans, but do anticipate some minor expansions which may add up to 30,000 square feet of plant space over the next few years.[10] It should be noted that in 1980, UNC sought a zone change request from two residential district classifications to manufacturing for property immediately adjacent to their existing plant, in order to expand their operational base. This zone change was subsequently approved by the Zoning and Planning Commission, with the land recently rezoned by the Commission in compliance with

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[9] Telephone conversation with Brian Curry, Capacity Planning Section of Northeast Utilities, 28 July 1982.

[10] Personal correspondence from Glenn O. Amy, President and General Manager, UNC Naval Products, 5 August 1982

the CAM act to the Coastal Industrial classification. Based on discussions with UNC officials this office assumes development of this area in the future.

Coastal resources on the UNC property include shorelands, the coastal flood hazard area, and a designated freshwater wetland, which has been substantially altered over the years and now consists of a ballfield and two cooling ponds.

Other areas within the coastal boundary have not been planned for or zoned industrially because of a number of limiting factors, including: natural resource limitations such as slope, wetlands, and flood hazard; poor access; the existing transportation network; lack of water and sewer service; and the commitment of some areas to open space use.

9.) Limited improvements of public roads which would eliminate road hazards but preserve the scenic quality of the coastal area.

Scenic viewpoints have been identified in Issue #1. The possibility of establishing new visual access points in conjunction with road improvements is limited in the coastal area. The only road improvement in the coastal area scheduled in the 1982-1983 Capital Improvement Program was the reconstruction of Kitemaug and Massapeag Roads. This project, however, was recently dropped from the Regional Transportation Improvement Program due to a lack of Urban Systems funding. Nevertheless, any future improvement to this road should be made with the scenic quality of this part of Montville kept in mind. Selective cutting of trees, although mostly on private land, could enhance the view of the river from the roads in the coastal area.

LAND USE IN THE COASTAL AREA

MONTVILLE, CONNECTICUT

Land Use	Acres	% of Total
Residential - Low Density	65	5.6
Residential - Medium Density	110	9.5
Residential - High Density	10	.9
Commercial	30	3.4
Industrial	98	8.4
Resource Extraction	54	54
Institutional and Governmental	9	.8
Utility	24	2.1
Agricultural	29	2.5
Open Space and Recreation	130	11.2
Undeveloped	594	51.0
TOTAL:	1,163	100

SOURCE: SCRPA survey.

LAND USE IN THE COASTAL AREA AS A PERCENTAGE OF THE TOTAL TOWN
MONTVILLE, CONNECTICUT

Land Use	Coastal Area, Acres	Town Acres	Land Use in Coastal Area as % of Land Use in Town
Residential - Low Density	65	958	6.7
Residential - Medium Density	110	1543	7.1
Residential - High Density	10	58	17.2
Commercial	40	159	25.1
Industrial	98	183	53.6
Resource Extraction	54	410	13.1
Institutional and Governmental	9	139	6.4
Utility	24	NA*	NA*
Agricultural	29	1013	2.9
Open Space and Recreation	130	2370	5.4
Undeveloped	594	21,027	2.8
TOTAL	1,163	27,648	4.2

SOURCE: SCRPA, Town Planner Surveys

* NA - Not Available

COASTAL GOALS AND OBJECTIVES

1.) Goal:

Preserve as much as possible the rural character of the coastal area.

According to table 4 (Land Use in the Coastal Area), 818 acres, or 70.3% of the coastal area, are classified as being land used for open space and recreation, agriculture, low density residential purposes, or is undeveloped. On a Town-wide basis this figure is even higher as 25,368 acres, or 91.7% are included in one of these four land use categories. Despite the development booms of the 1960's and 1979's the Town has retained its rural character which attracted many of the residents in the first place. As has been previously discussed, the coastal area has not changed that much in the past 20 years. In the coastal area, as well as in other areas of town, this rustic character can be preserved while at the same time accommodating well-planned, phase development of the shoreline so that scenic areas are protected, coastal resources are not encroached upon, and road improvements do not destroy the scenic quality of an area, all coastal issues identified previously.

Objectives:

This goal is consistent with the CAM goals of insuring that development of land in the coastal area proceeds in a manner consistent with the land to support development [Section 22a-92(a)(1) of the Coastal Management Act as included in Chapter 444 of the Connecticut General Statutes], and to locate and phase utilities so as to encourage concentrated development in areas which are suitable for development [Section 22a-92(b)(1)(B)].

2.) Goal:

Protect present and possible future water supply sources within the coastal area by encouraging the type of development which will cause the least threat of pollution.

As was indicated in Issue #4, groundwater pollution from domestic septic and industrial waste disposal has been a problem in the coastal area. Careful siting of future septic systems, and the locating of new development on land having the capacity to handle the septage that will be generated, is needed to prevent further groundwater pollution. This can be most effectively done through the site plan review process, early in the stages of a development application.

Objectives:

This is consistent with the CAM goal of insuring that the use of land and water resources of the coastal area proceeds in a manner consistent with the capability of the resources to support that use without disrupting the natural environment [Section 22a-92(a)(1)], and to regulate the shoreland use and development in a manner which minimized adverse impacts upon adjacent coastal systems and resources [Section 22a-92(b)(2)(1)].

3.) Goal:

Protect inland and tidal wetlands from development and/or pollution.

The discussion in Issue #5 described the fact that there are a number of inland and tidal wetlands in zoning districts or areas on the former land use map which might be subject to intensive development. Both of these resources can best be protected through existing regulations. Tidal wetlands are regulated under the State Tidal Wetlands and Watercourses

Act, Sections 22a-28 through 22a-35. They are defined by statute as being "those areas which border on or lie beneath tidal waters, such as, but not limited to, banks, bogs, salt marsh, swamps, meadows, flats, or other low lands subject to tidal action..." (CGS Section 22a-29). The CAM Program has summarized the natural functions of tidal wetlands as being: areas of high nutrient and biological productivity; contribute to the base of the food chain; provide habitat and refuge areas for shorebirds; and serve as a nursery ground for various estuarine organisms. Tidal wetlands also serve to improve water quality by trapping sediments; buffer the shorelands from storm-caused high waters; have the potential to provide recreational and educational opportunities; and their vegetation stabilizes the shoreline and buffers erosion. Due to their fragile nature, the CAM Act categorizes the protection of tidal wetlands as being in the national interest [Section 22a-9 (14)(A)]. Many of the State's tidal wetlands have been lost through filling and due to poorly sited development. In Montville, it is fortunate that most of the existing tidal wetlands have not yet been unduly encroached upon. Permits are required from the Connecticut Department of Environmental Protection, Wetlands Management Section, for most activities in tidal wetlands.

The CAM Act defines freshwater wetlands as including: inland wetlands which consist of any soil type designated as poorly drained, very poorly drained, alluvial, or floodplain under the State Inland Wetland and Watercourses Act, Sections 22a-36 through 22a-45; and tidal wetlands not regulated under the Tidal Wetlands Act, but which consist of poorly and very poorly drained tidal soils of the Pawcatuck and Westbrook series. They consist of banks, bogs, swamps, meadows, and submerged lands. Freshwater wetlands serve many of the same natural functions as tidal wetlands. They act to slow and store stormwater; are areas of high biological productivity; serve as a wildlife habitat for a large variety of wildlife; and trap sediments and filter impurities. In addition, inland wetlands can provide many recreational opportunities such as fishing, hunting, and wildlife observation. Inland wetlands in the coastal area are currently regulated by the Town of Montville Inland Wetlands Commission. Permits must be obtained from this agency for regulated activities that would develop or alter an inland wetland.

Objectives:

This goal is consistent with the CAM policies of preserving and enhancing coastal resources [Section 22a-92(a)(2)], of requiring that structures in tidal wetlands be designed, constructed, and maintained to minimize adverse impacts on coastal resources [Section 22a-92(b)(1)(D)], to preserve tidal wetlands to prevent their despoilation and destruction in order to maintain their natural functions [22a-92(b)(2)(E)], and to disallow the filling and dredging of tidal wetlands except where the impact on coastal resources are minimal and where no feasible alternatives exist [Section 22a-92(c)(a)(B) and (E)].

4.) Goal

Reserve areas which because of their scenic qualities contribute to the amenity of the coastal area.

This goal addresses the concerns of Issue #1, scenic protection of the shoreline area, and Issue #9, the preservation of the scenic quality of the area when road improvements are made. The adopted 1964 Community Development Study recommended land along the Thames River for reserve or conservation areas due to its natural functions and because of its unique natural beauty. In terms of zoning, there areas should be restricted to low intensity uses. Where future development of these designated areas is proposed, the preservation of their scenic views and vistas should be important considerations in the site plan review process. Techniques such as clustering could be considered in order to preserve large areas of open space, but only where soil conditions are conducive to sewage disposal. In addition to the preservation and maintenance of scenic views, public access to the waterfront, especially where a non-water dependent use is locating or expanding, should be provided.

Objectives:

This goal is consistent with the CAM goals of regulating shoreland use and development in a manner which minimizes adverse impacts upon adjacent coastal systems and resources [Section 22a-92(b)(2)(I)] and increasing access to coastal waters [Section 22a-92(a)(6)].

5.) Goal:

Protect sensitive coastal resources in accordance with the goals and policies of the Coastal Area Management (Coastal Area Management) Act.

In addition to the inland and tidal wetlands discussed in #3 above, other coastal resources found in the Montville coastal area, and identified and defined on Map Number 5 (page 13) of the Preliminary Coastal Area Management Program include: the coastal flood hazard area which stretches the entire length of the coastline; the developed shorefront in the vicinity of Montville Station; four small water bodies; estuarine embayments consisting of the Thames River, and Trading, Horton, and Bartlett Coves; and shorelands, which are those upland areas exclusive of the coastal hazard areas. These coastal resources serve many natural functions and contribute to the inherent beauty of the coastal area, and as such their location and value should be carefully considered during the planning for any future development within the coastal boundary.

Objectives:

This goal is consistent with a number of CAM goals and policies including: to preserve and enhance coastal resources [Section 22a-92(a)(2)].

6.) Goal:

Reduce erosion and sedimentation within the coastal area with the aid of adequate control measures.

Four specific sites were cited in Issue #6 as being sources of soil erosion in the coastal area. It was also noted that a large portion of the town drains into the coastal area, further increasing the amount of sediment which is deposited within the coastal boundary. The control of unnecessary soil erosion and sediment can best be accomplished by implementing preventative measures on this site. Such measures can be required of developers by local regulations. Presently, Montville has such erosion and sediment controls.

Objectives:

This is consistent with the CAM goals of managing uses in the coastal boundary through existing municipal planning, zoning, and other local regulatory authorities [Section 22a-92(b)(1)(A)] and to maintain the natural relationship between eroding and depositional coastal landforms, and to minimize the adverse impacts of erosion and sedimentation on coastal land uses through the promotion of non-structural mitigation measures [Section 22a-92(b)(2)(J)].

7. Goal:

Formally establish a public boat launching site within the Montville coastal area.

As mentioned in Issue #2, the only site which the Montville public can use for boat launching is the Stone Connecticut Paperboard property, but this is only made available though an informal agreement. A potential boat launch site on state-owned land at Point Breeze,

purchased for that purpose, has not yet been established. One stumbling block appears to be the cost of upgrading access to the site. The Town should officially contact the Parks and Recreation Division of the Connecticut Department of Environmental Protection in order to determine if negotiations concerning the cost of site access could be established, and whether this is both feasible and desirable. If establishment of this boat launch in the near future is deemed unlikely, the Town should take steps to formalize any agreement which exists with Stone Connecticut Paperboard, such as by the establishment of an easement over that company's property. Questions concerning liability and length of the agreement could be addressed contractually. In return for such an easement, the Town might agree to upgrade and maintain the parking area and ramp at the site.

Objectives:

This goal is consistent with the CAM policy of encouraging public access to the waters of Long Island Sound by the development and effective utilization of state-owned recreational facilities within the coastal area [Section 22a-92(a)(6)], to encourage increased recreational boating use of coastal waters [Section 22a-92(b)(1)(G)], and to expand coastal recreational opportunities including the development of existing state-owned facilities [Section 22a-92(c)(a)(J)].

8.) Goal:

Monitor closely the pressures for conversion of seasonal residences, including the use of houseboats, to year-round dwelling units within the coastal area.

As was pointed out in Issue #3, this has not yet become a problem in the Montville coastal area. However, as housing becomes increasingly scarce and the cost of owning a home continues to soar, alternatives to purchase of conventional year-round dwellings will be sought. The State Public Health Code and the Town Zoning Regulations will be the limiting factor concerning the conversion of summer cottages; presently there are no local ordinances or regulations which address the issue of houseboats in Montville. This type of living arrangement can potentially cause problems previously outlined, and as such, should be the subject of further study.

Objectives:

This goal is consistent with the CAM goal of managing uses in the coastal area through existing municipal planning, zoning, and other regulatory authorities [Section 22a-92(b)(1)(A)], and to conduct research in coastal matters to improve the data base upon which coastal land and water decisions are made [Section 22a-92(a)(7)].

9.) Goal:

Encourage the continued location of existing industrial uses within the coastal area, and the location of new water-dependent uses in areas deemed appropriate.

The four major industrial uses currently located in the three industrially zoned areas within the coastal boundary all use large volumes of cooling or process water. However, only one of these, Connecticut Light and Power Company, which relies on waterborne transportation and uses river water for cooling its generators, can be classified as water-dependent as defined in the CAM Act. United Nuclear, Stone Connecticut Paperboard and Thames Permacrete all draw their cooling/processing water from their own wells. A fifth and smaller industrial use, a marine repair facility, located between Stone Connecticut Paperboard and Connecticut Light and Power, is certainly water-dependent in that it requires direct access to the River. Two of these large coastally-located industries, UNC and CL&P, have been identified in the Preliminary Coastal Area Management Program as being facilities of

national importance according to criteria in the CAM Act. It is important to the Town that the above-named industrial uses continue to locate in the coastal area. New industrial uses will be limited by the lack of suitable land in the coastal area, but may be accommodated by some land within existing industrial zones.

Objectives:

This goal is consistent with the CAM goals of giving high priority and preference to uses and facilities which are dependent upon proximity to the water [Section 22a-92(a)(3)], resolving conflicts between competing uses on the shorelands by giving preference to uses that minimize adverse impacts on coastal resources while providing long-term and stable economic benefits [Section 22a-92(a)(4)], and to insure that coastal municipalities provide adequate planning for facilities and resources which are in the national interest [Section 22a-92(a)(10)].

10.) Goal:

Explore the need for establishing a local waterfront commission to guide waterfront improvement within the coastal area.

Under the Connecticut General Statutes [Section 7-148(a)(13)], a municipality may by ordinance establish a board or commission to provide for improvements to its waterfront. The establishment of such a commission in Montville may become desirable if the present rate of development adjacent to the waterfront escalates, but may not now be necessary due to the undeveloped nature of this area.

Objectives:

This goal is consistent with the CAM policy of coordinating planning and regulatory activities of public agencies to insure maximum protection of coastal resources while minimizing disruption of economic development [Section 22a-92(a)(9)].

Montville
COASTAL AREA

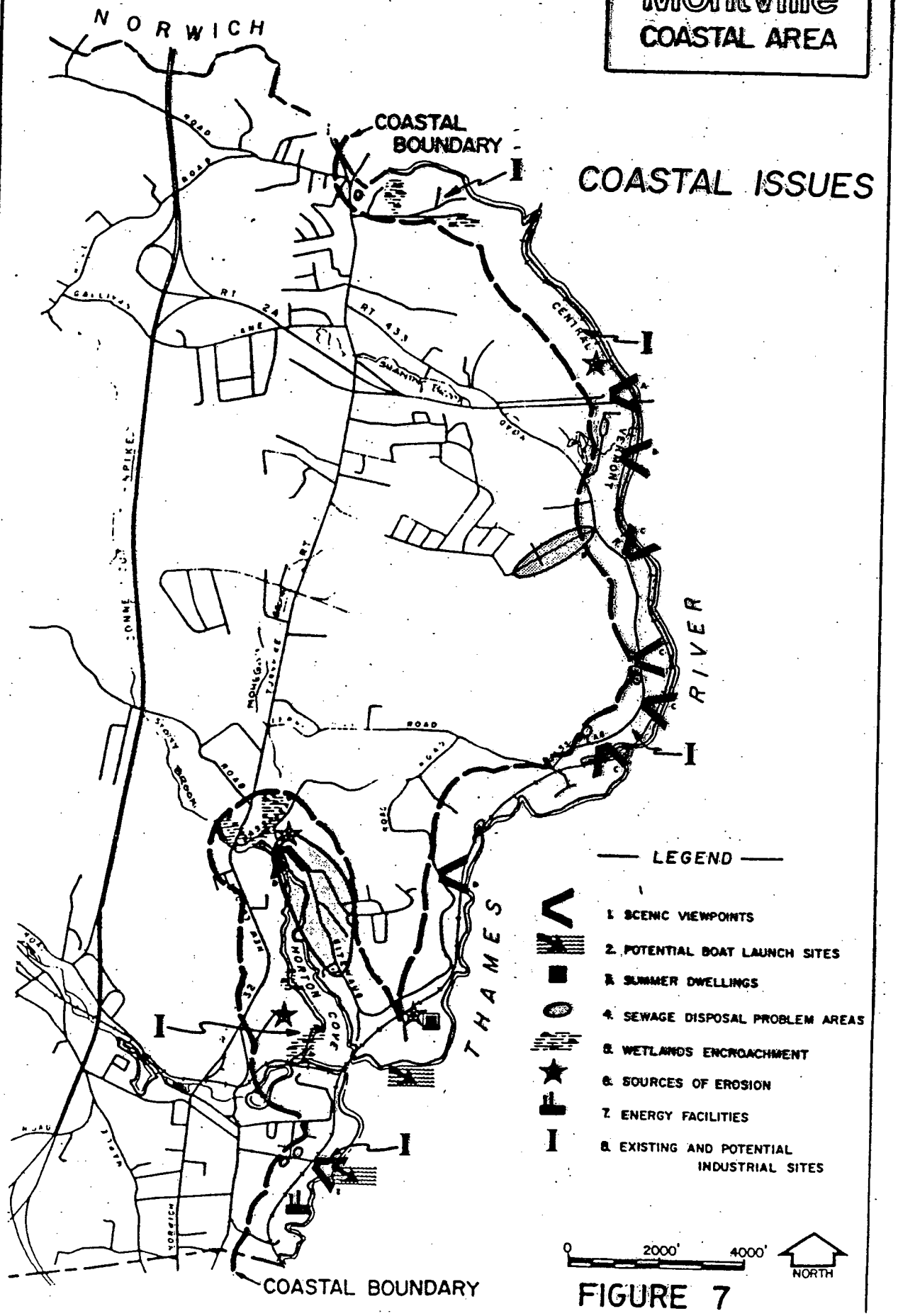

FIGURE 7

X. TRANSPORTATION

INTRODUCTION

Historically, transportation has played a major role in the Development of Montville. The difficulty or ease with which an individual could travel from one place to another was a prime determinant in the location of homes, stores, and industry. For example, the location of some of Montville's oldest homes and earliest retail establishments were along Route 32, the major route between Norwich and New London. Similarly, the location of industry in Montville was influenced by the rail system, and today by the highway network.

The location and condition of transportation facilities still play a significant role in shaping land uses and living patterns. An illustration is the importance that the recent completion of the Connecticut Turnpike and Route 2A had in considerably improving access between Montville and major employment and shopping centers in the region.

This transportation element will examine all of Montville's transportation systems, their existing and projected conditions, and will set forth any pending or proposed improvements. Transportation modes to be considered are vehicular circulation on streets and roads, mass transportation including rail and marine, and finally pedestrian and bicycle systems.

STREETS AND ROADS

Today, the automobile is the principal mode of travel in Montville. To accommodate this travel, the Town maintains 105 miles of roads, while the State maintains an additional 31 miles. These roads serve two functions: they provide access to the property, and they move vehicles between places. Many of the roads provide both functions, which often results in a conflicting and congested situation. Route 32 is a case in point. In the discussion that follows, roads are classified according to the character of service they are intended to provide. Since the basic criterion for road design is the purpose for which the road is intended, this hierarchy of roads is accompanied by respective standards. These standards are intended to insure that future construction and improvements will contribute to a safe and orderly flow of traffic, and compliment the land use design.

Functional Classification

The 1964 Community Development Study listed five categories of roads: inter-state route, principal state route, major local street, secondary local street, and minor local street.[1] In order to better reflect the function of the roads and express the nature of recent road construction, the classification system should be renamed and shortened to four categories. The new system will classify Montville's roads as expressways, arterials, collector streets, and local streets. The classification assigned here indicates the function that the road should serve. In some cases, the road presently functions in this capacity and meets the appropriate design standards. In others, it is projected that the road's function will change over time, and improvements should be made accordingly.

Expressways:

Expressways are limited access highways which carry high-speed through traffic between communities, regions, and states. They are designed to move large amounts of through traffic

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[1] Samuel Spielvogel and Associates, A Community Development Study for the Town of Montville, Connecticut (1964) POD. 56

on a road which has grade separated interchanges and does not provide access to adjoining properties. Montville's only expressways are the Connecticut Turnpike and Route 2A.

Arterials:

An arterial roadway's main function is to carry large volumes of traffic between towns and between important points within the community. Arterials often represent a middle stage in reaching a destination. All arterials in Montville except Old Colchester Road, are state-numbered highways. In addition to serving through traffic, they also provide direct property access; however, this is not the arterial's primary function. The following roads are classified as arterials:

Bozrah Road to Raymond Hill Road to Oakdale Road to Palmertown Road (Route 163)
Flanders Road (Route 161)
Fort Shantok Road (Route 433)
Hartford-New London Turnpike (Route 85)
Norwich-New London Turnpike (Route 32
Norwich-Salem Turnpike (Route 82)
Old Colchester Road

Collector Streets:

Collector streets also carry traffic between points in the community, but do not carry the same volumes of traffic that arterials do. They connect areas served by local streets with one another and with other properties and roads in the roadway system. The following streets in Montville are classified as collectors:

Chapel Hill Road
Chesterfield Road
Fire Street
Fitch Hill Road
Forsyth Road
Gallivan Lane
Jerome Road
Kitemaug Road
Lathrop Road
Massapeag Road
Moxley Hill Road
Pink Row
Raymond Hill Road
Maple Avenue

Local Streets:

The primary function of local streets is to provide access to abutting properties. They are not designed to serve major through traffic, nor are they intended for high speed use. The remaining streets in Montville are classified as local.

Design Standards

Proposed standards for the design of each of the road classifications are suggested as follows:

	Expressways	Arterials	Collector Streets	Local Streets
Right of way	100-300'	60-100	60	50
Travel lane width	12'	11-12'	10-11'	9-10'
Shoulder width	10'	8'	6'	4'
Curvature (maximum)	3	6	8	12
Gradient (maximum)	3%	5%	7%	10%
Stopping sight distance	800'	400'	350'	300'

Existing Traffic Patterns and Conditions

Analysis of the town's road system reveals a significant point with regard to townwide circulation. Due to topographic constraints, the majority of major roads in Montville have a northwest-southeast orientation. The exceptions to this are Route 395 and Route 32, two of the principal highways in the region which carry north-south traffic. Route 32 is vital to internal circulation, because it is the only continuous road allowing north-south travel, having unlimited access. The importance of this arterial in Montville's circulation system is reflected by the fact that it carries the largest volumes of daily traffic in the town. Route 395 is a toll road and provides access at only two locations in the town, carries the second highest amounts of daily traffic, and is an important link with employment centers to the north and south.

Route 2A provides an important connection across the Thames River and also carries significant amounts of daily traffic. Heavily utilized northwest-southeast roads in the town are Route 85, which moves traffic between the New London area and Hartford; Route 163, which diagonally splits the center of Town and serves the industrial concerns in the Oxoboxo Valley; and the Old Colchester Road, which, together with Route 354 in Salem, offers an alternative to Route 85 for travel to Colchester and serves the large residential area of Montville Manor. Northeast-southwest travel is not continuous, necessitating a rather circuitous route of travel from the southwestern corners of Montville towards Norwich. Chesterfield Road and Fitch Hill Road have this orientation, but they are not linked directly together.

It is important that the road system can adequately serve the town's existing traffic generators as well as any new generators which may emerge. The most notable traffic generators existing today are the industrial concerns off of Route 32, the commercial establishments on Route 32, and the large subdivisions in Town (e.g. Oakdale Heights, Montville Manor, Lathrop Development, Holly Hill area, Woodland Drive area and Kitemaug Orchards). In summer, Camp Oakdale and Fort Shantok State Park attract large volumes of recreation-oriented traffic. It is anticipated that these areas will remain the key traffic generators in the town.

The existing conditions of roads in Montville vary greatly. Roads range from the four-lane expressway of Connecticut Turnpike to short, narrow residential streets. The existing right of way widths of town roads are diverse and often not consistent for an entire stretch of road; nor do they always reflect the function of that road within the classification system. Right of way widths are important as they ultimately limit vehicular capacity. Pavement widths are also extremely important in this respect. Except for Routes 395 and portions of Route 32, all other roads in Montville have restrictive pavement widths and allow only one moving lane of traffic in each direction.

Also affecting road capacity is the number, type, and location of intersections, shoulder width, turning movements, amount and type of traffic control methods, road width, adjacent land uses,

and number and location of access points. Conditions vary greatly within different areas of Town, and specifically Route 32.

In determining traffic congestion, traffic volume must be considered along with road capacity. Traffic volume is expressed in average daily traffic (ADT), which is a count of the average number of vehicles which pass a given point in both directions during a twenty-four hour period. Comprehensive traffic counts do not exist for local roads in Montville.

CONNDOT has, however, reported capacity deficiencies on the following state roads in Montville:

Route 32
Portion of Route 85
Route 161

Accidents are indications of conditions on the transportation network. CONNDOT has also identified high frequency accident locations on Route 32 for the years 1978-80. These five locations are centered in the Uncasville section of Town and all within a short distance. The area covers a distance along Route 32 from the Town Hall area north to Ice House Curve, near the Massapeag Road intersection including:

Town Hall, Maple Avenue, Route 163 intersection area
Beit Brothers Shopping Center area
Haughton Park - Massapeag Road area
Commercial area adjacent to Haughton Mt.

Future Travel Patterns and Conditions

In addition to the traffic generators mentioned earlier, it is projected that new large residential subdivisions will be the principal generators of traffic in the future. Much of the traffic will probably funnel onto Routes 32 and 395. This is due to the location of buildable land in the Route 32 Corridor and planned sewer service for this general area. New and expanded commercial development must also be expected. Directing future development in an adequate manner will ease further impacts to an already congested condition, primarily associated with Route 32.

Street and Road Improvement Recommendations

Certain improvements should be made if the road system is going to serve the long-range needs of the town. The underlying consideration in making improvement recommendations is to achieve a more efficient use of existing facilities by improving them, rather than constructing entirely new facilities. This approach is perhaps best exemplified by the improvements that have been continuing on Old Colchester Road during the past several years. Minor widening, realignment, and drainage improvements have increased substantially the safety and capacity of this important road.

An assessment of minor local road improvement needs was conducted in 1972 for the Montville Community Development Action Plan Agency.[2]

Twelve highway locations were recommended for corrective action. These included widening, realignment, and drainage at various locations on Old Colchester Road, Raymond Hill Road, Chapel Hill Road, Oakdale-Chesterfield Road, Fitch Hill Road and Gallivan Lane. To date, some of the recommended improvements have been undertaken at each of the twelve locations. A

[2] Connecticut Department of Community Affairs, Highway Needs Study for Minor Road Improvements, Town of Montville (1972)

continuing effort should be made to complete all of the improvements recommended in the 1972 Study.

The ongoing transportation planning program of the Southeastern Conn. Regional Planning Agency includes an annual review of state and local highway improvement needs. This is done as part of the annual updating of the Regional Transportation Plan for Southeastern Connecticut. Improvements recommended for Montville roads are shown on Table 5. These include improvements previously cited by SCRPA and the Town Planner.

The major new town highway facility proposed for Montville is the construction of an eventual link between the western end of Fitch Hill Road and the eastern end of Chesterfield Road; the town lacks a convenient route of travel in a northeast/southwesterly direction. However, other long-term objectives of the town are shown graphically in the land use element of the plan and involve potential local road locations.

Table 1

MONTVILLE ROAD IMPROVEMENT NEEDS

ROUTE/.ROAD	DESCRIPTION OF IMPROVEMENT
11	Continue expressway through Town.
32	Realign and make traffic operations improvement between Maple Avenue and Raymond Hill Road
	Traffic operations improvement between Route 2A and Fort Shantok Road
395	Construct off ramp for northbound traffic at interchange Route 693
	Remove Toll and pursue interchange to serve industrial site at I-395 and Gallivan Lane
163	Realign from Route 395
	Realign from Lynch Hill Road to north of Maple Avenue
	Modify bridge over Oxoboxo to improve capacity for flood waters
Old Colchester Road	Realign from Chesterfield Road to Black Ash Swamp Road
	Realign and widen from Laurel Point Drive to Salem Town Line
Chesterfield Road	Realign from Chapel Hill Road to Route 85
Moxley Hill Rd.	Realign and widen from Route 395 to Old Colchester Road
Kitemaug/Massapeag Rds.	Realign and widen from Peachvale Road to Route 32
Lynch Hill Rd.	Realign and widen, Route 163 to Raymond Hill Road
Cherry Lane	Continue through to provide link to Route 82
Fitch Hill Rd. and Chesterfield Road	Construct link between western end of Fitch Hill Road and eastern end of Chesterfield Road.

SOURCES: SCRPA, Recommended Regional Transportation Plan Fiscal Year 1983, Recommended Plan of Development for Montville, Connecticut (1979) p. 28, Town Planner

ALTERNATE TRANSPORTATION MODES AND FACILITIES

Bus Transit

Public transportation is available to Montville through SEAT's "corridor service" and "commuter service" lines. This level of service has remained constant since SEAT's operation of this transportation mode in Montville in 1978.

Montville's service consists of a bus running on Route 32 between New London and Norwich from 6:00 a.m. until 6:00 p.m. at intervals of 90 minutes, and a commuter bus from the vicinity of Montville High School to Electric Boat in Groton leaving at 6:15 a.m. and returning at the end of the working day.

Although future expansion of bus transit is somewhat doubtful due to the existing moratorium on service expansion imposed by CONNDOT, the town should pursue reasonable and economical policies toward economical policies toward appropriate service expansion as demand for this transit mode increases. This could encompass an approach to integrate service to link population centers to Town recreational facilities and Route 32 commercial centers.

Rail

The only rail service in Montville is freight service provided by Central Vermont Railroad, which now operates on a single track running generally along the edge of the Thames River. The line has sidings in Uncasville and at Point Breeze. The spur line serves the United Nuclear Corporation on Trading Cove.

It is vital to the economic interests of Montville that rail service facilities be continued and that there be no decrease or elimination of such facilities. Recently an additional spur extending from Uncasville to Robertson Paper Box Co. in the Oxoboxo Valley has been abandoned by the Central Vermont Railway Company. This mode should be encouraged by the town to aid the industrial revitalization of the Oxoboxo Valley Industrial Corridor.

Marine

Marine transportation serving Montville is confined to the Thames River. A channel in the river has a project depth of 25 feet and a 200-foot width, but has not been maintained to these dimensions in recent years. Nevertheless, barge traffic still negotiates the river as far north as Norwich and the CL&P power plant in Uncasville is supplied with oil by barges. Docking facilities also exist at Stone Connecticut Paperboard in Uncasville, but are not presently used.

Although Montville's overall potential for a significant increase in the use of the coastline is limited due to topography, lack of proper access, and the need to protect and enhance coastal resources, the prospect of increased utilization of this mode of transportation should be encouraged. This prospect could be enhanced with the encouragement of quality commercial and industrial water-dependent uses in suitable areas. This is a specific objective of the plan.

Pedestrian and Bicycle

Facilities for pedestrians are virtually non-existent in Montville. Consequently, walkers and runners share the town's roads with the driving and riding public, a condition that is bound to become increasingly hazardous as the town grows. The days when roads are viewed as the exclusive province of the automobile are gone. Roads should be looked upon as transportation corridors, serving a variety of modes. New roads and the reconstruction of existing roads should reflect this view when possible, and should be built or improved with the safety of those on foot in mind.

Sidewalks

In order to achieve a unified transportation network which addresses the need for safe pedestrian movement, sidewalks should, at a minimum, be installed on all collector and arterial roads in the vicinity of schools, shopping centers, and other uses that generate a lot of pedestrian traffic.

A large scale retroactive program to address the lack of sidewalks would be costly. However, as particular new subdivision development takes place, subdividers should be required to install sidewalks. Utilizing subdivision exactions as indicated above and possibly limited Town financed construction of sidewalks through a long-term capital improvements program, a fundamental town-wide system of walks can be achieved.

Another alternative could be reasonable assessment by the town of costs to citizens for installation of sidewalks where citizens freely desire installation of this transportation mode.

Bike Ways

To date bicycle facilities are virtually non-existent as well in Montville. Transportation for bicycles should be planned with an eye toward efficient movement of people for both economic and recreational reasons. Bikeways should avoid steep terrain, promote public safety, and link centers of residential, employment, shopping, and recreational activity.

Generally, there are three types of bikeways: Class I Bikeways are reserved exclusively for bikes and are constructed separately from roadways or sidewalks. Class II Bikeways share space with either pedestrians or motor vehicles. They may consist of a marked lane along the edge of a road reserved for bikes or they may be paths shared with pedestrians. Class III Bikeways are those with no lane markings. They are simply roads, streets, or walkways, designated by signs as bikeways to caution vehicle and pedestrian traffic about the possible presence of bikes on the route.

Exactly where and what class of bikeways should be established in Montville is beyond the scope of this report. Special study of this subject is needed to analyze public values on that important study of this subject, and a phased plan should be prepared. Implementation will take many years, but a plan should be available to guide public and private actions as soon as possible.

TRANSPORTATION GOALS

1.) Facilitate and make more efficient local travel of a northeast-southwest nature.

2.) Develop necessary land use controls to increase degree of safety throughout Town transportation system, and facilitate movement of various vehicles and pedestrians.

3.) Make necessary street and road improvements.

4.) Promote completion of Route 11 in such a manner that long term economic and environmental goals of Montville are assured.

5.) Increase ability of individuals to move about without an automobile, and encourage alternate modes of transportation.

XI. ROUTE 32 CORRIDOR

INTRODUCTION

Chapter 126, Section 8-23 of the Connecticut General Statutes mandates that the Planning Commission review and update the Plan of Development every ten years. The Commission has decided to review the section of the plan which addresses the Route 32 Corridor first, due to extraordinary land use changes which are occurring in the Uncasville and Mohegan Sections of the community.

Section 8-23 of the Statutes states that "Such Plan shall show the Commission's recommendation for the most desirable use of land within the municipality for residential, recreational, commercial, industrial and other purposes and for the most desirable density of population" "Such plan may also show the Commission's recommendations for a system of principal thoroughfares, parkways, bridges, streets and other public ways; for airports, parks, playgrounds and other public grounds; for general location, relocation and improvement of public buildings; for the general location and extent of public utilities and terminals, whether publicly or privately owned, for water, sewerage, light, power, transit and other purposes; and for the extent and location of public housing projects. Such other recommendations may be made by the Commission and included in the Plan as well, in its judgment, be beneficial to the municipality. The Plan of Development shall be a statement of policies, goals and standards for the physical and economic development of the municipality, and may include all necessary and related maps explanatory material, photographs, charts, or other pertinent data and information relative to the past, present and future trends of the municipality, and may include recommended programs for the implementation of the plan, including a schedule and budget for public capital projects". The Planning Commission has sole authority for approving the plan.

INFORMATION SOURCES

Several planning documents, studies, and original research were utilized in the formation of this section. Among the sources were the Town of Montville 1985 Plan of Development, Route 32 (Montville) Land Use and Traffic Study, Southeastern Conn. Regional Planning Agency, 1987, Land Use and Traffic Southeastern Connecticut Region, Southeastern Conn. Regional Planning Agency, July 1991, Town of Montville Local Road and Route 32 Access Study, Montville Planning Department 1994, Traffic Volume Counts provided by the Staff of Southeastern Connecticut Council of Governments, 1994, Accident Data Provided by CONNDOT and the Montville Police Department, Traffic Impact Report, Mohegan Destination Resort, Close, Jensen and Miller, P.C., 1994, Working Papers 1, 2, 3 Route 2/2A/32 Transportation Study, CONNDOT, Vanasse Hangen Brustlin, Inc. through August 1996, Flexible Parking Requirements, Smith, PAS Report #377, Traffic Calming, Hoyle, PAS Report #456, Traffic Impact Analysis PAS Report #418, The Transportation Land Use Connection, Moore, Torsnes, PAS Report 448/449, Trip Generation, Fifth Edition, Institute of Transportation Engineers, and Congestion Control and Demand Management, OECD, 1994.

DEFINITION OF THE ROUTE 32 CORRIDOR AREA

The Route 32 Corridor is defined by Trading Cove Brook and the Mohegan Nation Reservation to the north, the Thames River to the east, the Waterford Town Line to the south and Interstate 395 to the west.

CORRIDOR HISTORY

The Norwich-New London Turnpike (Route 32) was the first turnpike in Connecticut based on authorization of the General Assembly in May of 1792. For many years it was the principal north-south arterial through Montville, a distinction it now shares with Interstate 395 (I-395).

Historically Route 32 has always been the focus of commercial activity in Montville. The fact that Route 32 was the connector between the population centers of Norwich and New London resulted in this road having the greatest amount of highway frontage development in the town. The location of Route 32 and I-395 has continued to have a strong influence upon development in Town. The construction of the Mohegan Sun Resort east of Route 32 and north of Route 2A is expected to be a dominant influence upon traffic generation and land development for the next decade.

TRAFFIC

Route 32 is classified as an arterial highway. Arterial highways are second only to expressways in the hierarchy of road networks. Arterials are usually heavily traveled, two lane or four lane thoroughfares whose primary function is the movement of vehicles through an area. By their nature, arterials offer the most direct route of travel between urban centers. Major shopping centers and strip developments are often found along the frontages of these roadways. Route 32 is lined with small commercial lots with minimum frontage. This development pattern encourages numerous conflicting vehicle turning movements, weaving movements, and rapid acceleration and deceleration. The traffic flow pattern reduces the capacity of Route 32 as an arterial and negates the ability to move local through traffic.

Capacity is a term that relates to the ability of a roadway to accommodate given volumes of traffic. Capacity is usually expressed in terms of vehicles per hour or day and applied to the total number of vehicles which can pass a given point for each lane of the roadway. Capacity of a road can be affected by the geometry, abutting land uses, types of vehicles using the road and weather conditions.

Levels of service (LOS) are defined as those operational conditoins within the traffic stream as perceived by the driver, speed, delay and density have a direct bearing on the drivers comfort level. The level of service is ranked within six levels - 'A' through 'F'. A LOS of 'A' represents free flow, with individual vehicles being unaffected by the presence of other vehicles. A LOS of 'E' means operating conditions are at capacity and LOS 'F' defines breakdown conditions.

Vehicle trip generation refers to the number of vehicles generated by a land use. A trip is the one way movement from origin to destination. Trip generation is always given for a specific period of time which is generally a single hour, normally peak hour, or a full day, which is called average daily traffic (ADT).

Average daily traffic on Route 32 is currently 18,900 vehicles per day north of Route 2A and 15,000 vehicles per day south of Route 2A. The vehicle capacity of Route 32 is 18,000 vehicles per day.

ROUTE 32 LAND USE PATTERNS

Constraints such as grades, width, alignment, conflicting traffic movements and an insufficient number of climbing lanes all serve to reduce the capacity of Route 32. Residential and institutional uses adjacent to Route 32 contribute to peak hour traffic congestion. The land uses which contribute most to traffic conflicts and lower levels of service are the small commercial activities with individual driveway access points. While the net effect of commercial traffic generation is not intensive and concentrated at one particular spot, such as a regional shopping mall, it has become extensive and generalized over a longer (linear) area along the highway with an increasing number of commercial access points to each property. Lack of sufficient off street parking combined with existing parallel and angular parking within the Route 32 right of way presents a serious public safety hazard. Unless this pattern of land use and parking can be altered and reversed, the capacity of Route 32 will continue to diminish and the level of service will continue to drop.

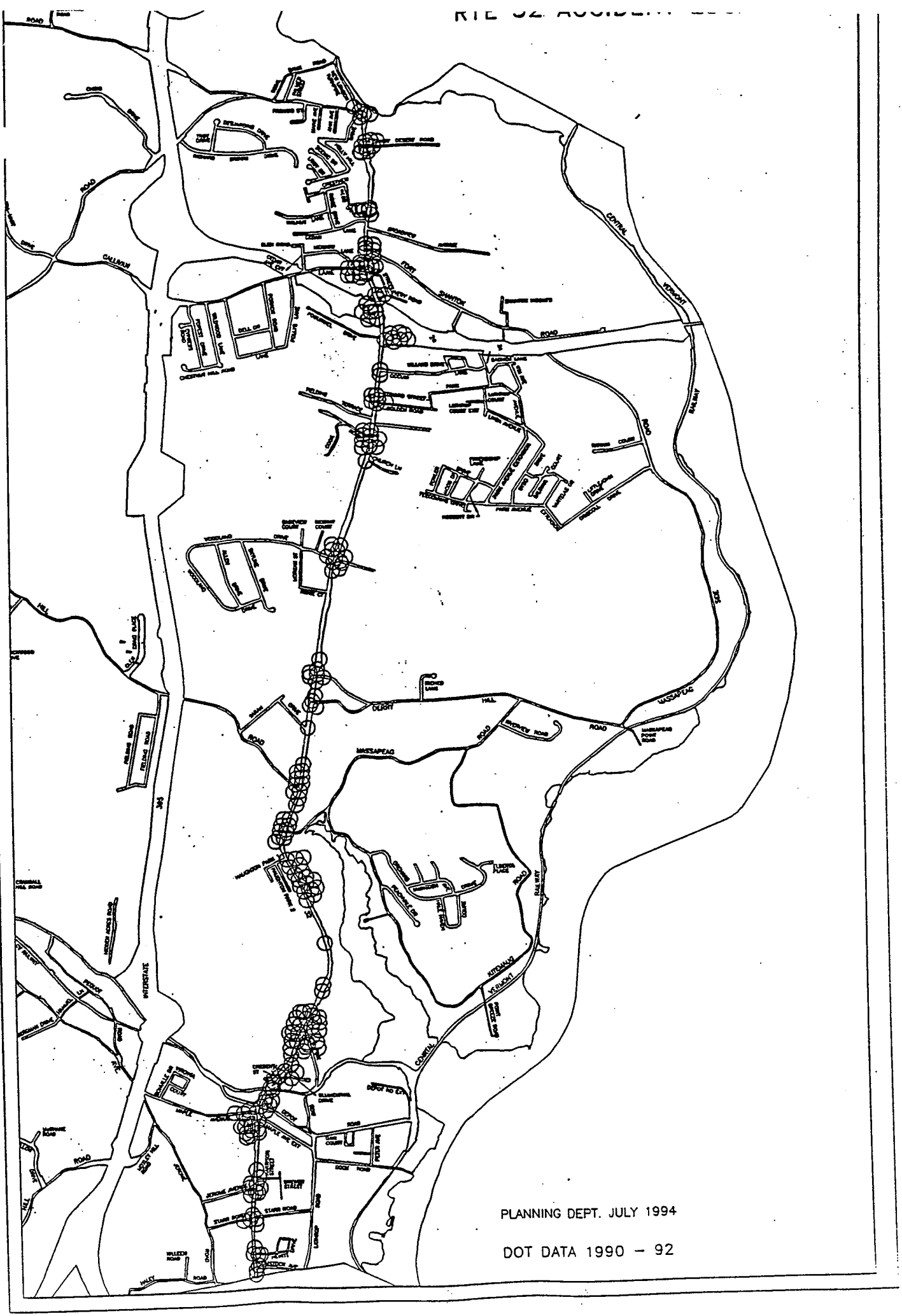
ACCIDENTS

Peak residential traffic demand, the geometry of Route 32 and the commercial land use and parking patterns described above all contribute to the accident patterns on Route 32.

FUTURE LAND USE

The Mohegan Tribe of Indians of Connecticut is scheduled to open the Mohegan Sun Resort in October 1966. The 240 acre site is located north of Route 2A, east of I-395 and west of the Thames River. The initial facility will be a 600,000 square foot complex, with approximately 150,000 square feet of gaming area. The facility will also contain a multi-purpose bingo hall, numerous restaurants and entertainment facilities. The Mohegan Sun Resort is expected to employ 5,000 workers initially. It is anticipated that a hotel will be built on site in the near future. Approximately 10,000 parking spaces will be provided on and off the site.

The Mohegan Sun Resort will be the economic engine which spurs future commercial growth within the Route 32 Corridor. The Planning and Zoning Commission has recently approved a six story hotel within the Corridor, this trend can be expected to continue.


PLANNING DEPT. JULY 1994
DOT DATA 1990 – 92

Vanasse Hangen Brustlin, Inc.

Figure 7

1989-1991 Accident Trends

Route 2/2A/32 Transportation Study

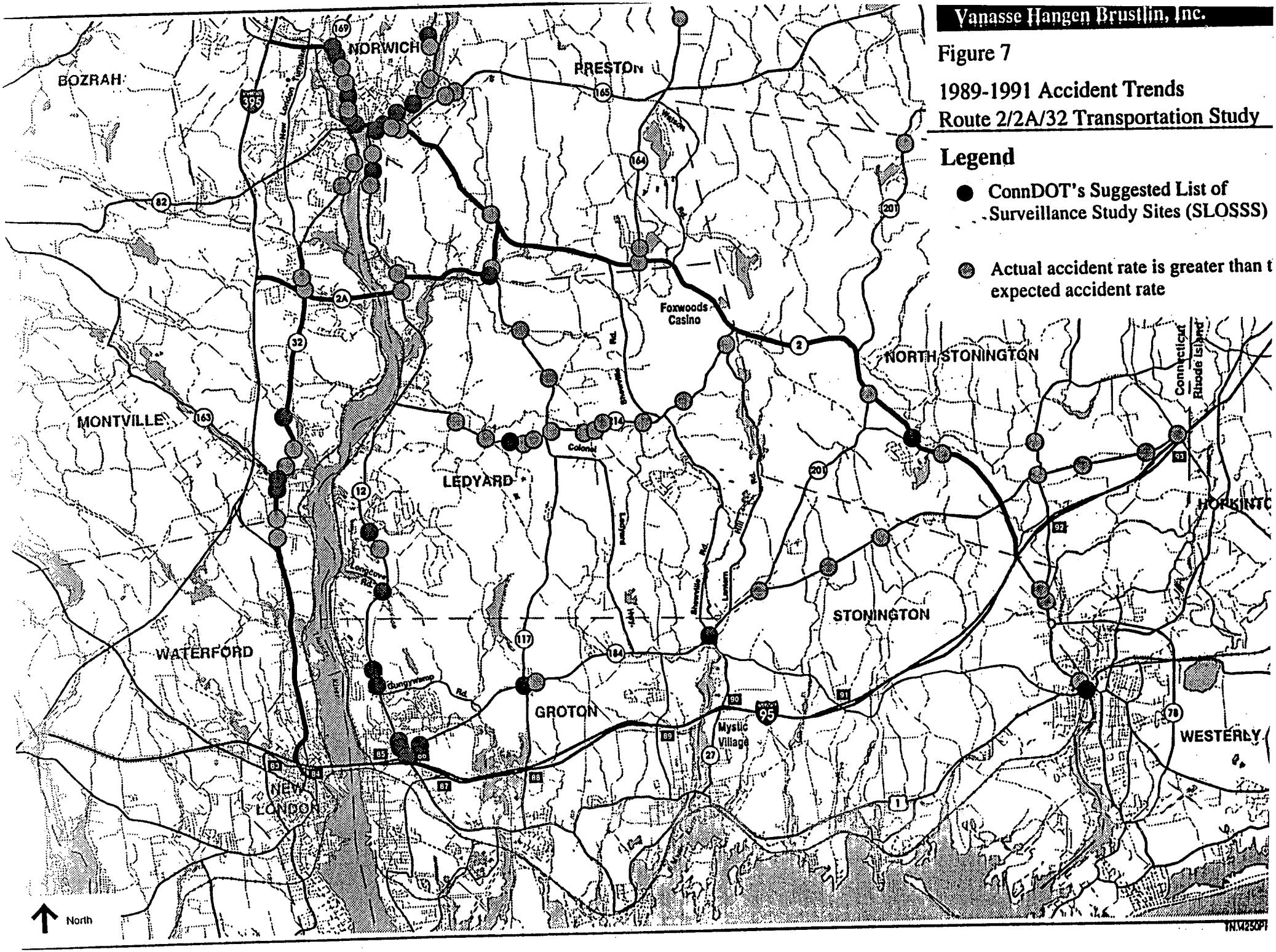
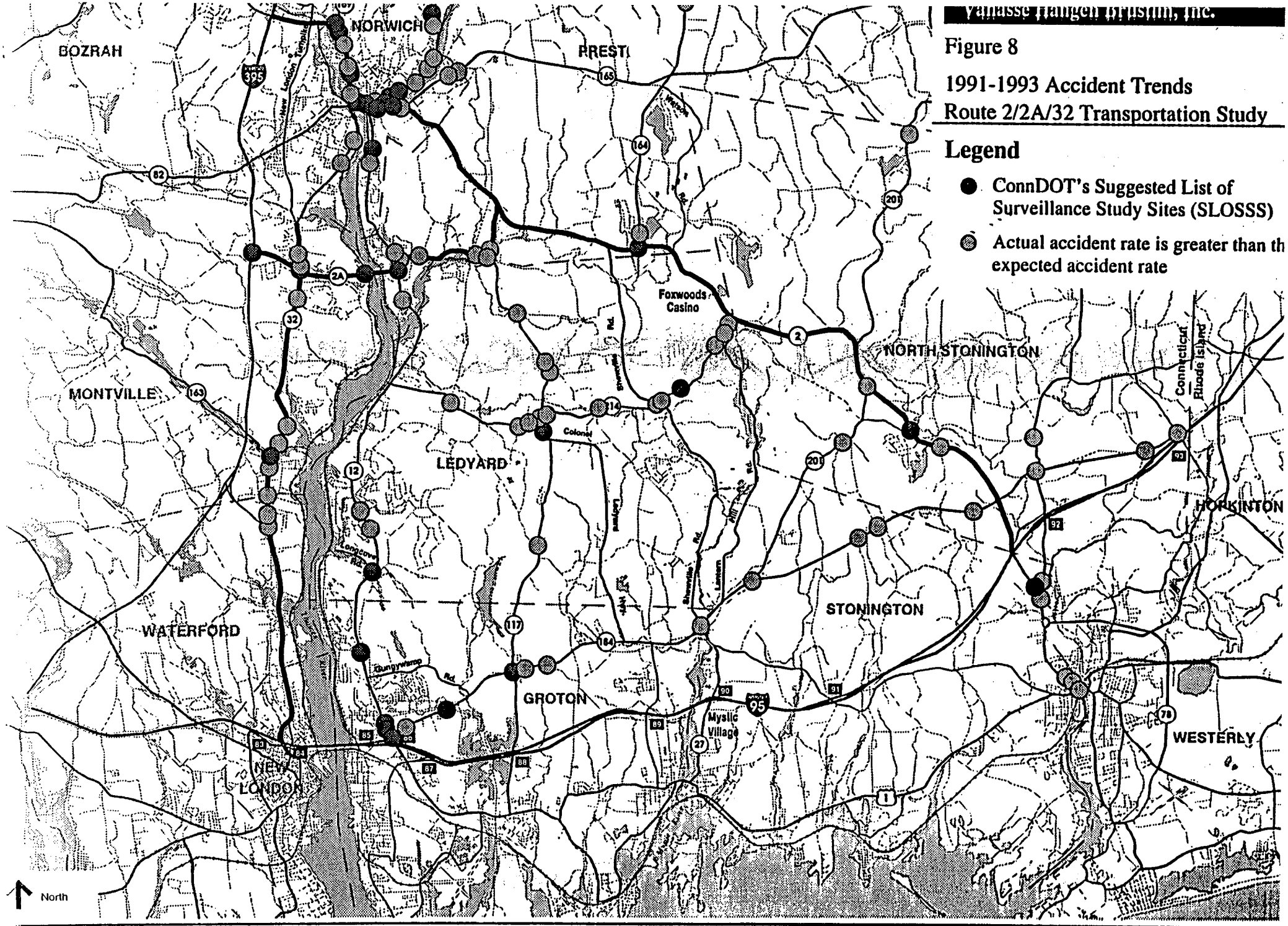


Figure 8

1991-1993 Accident Trends
Route 2/2A/32 Transportation Study



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The Regional Planning Agency has calculated that approximately 1,500 acres of buildable land exists within the corridor, excluding potential street development, roughly 1,275 acres could be used for residential development. This could permit an additional 1388 dwelling units to be constructed with an average of 40,000 square feet of land per unit. If lot sizes were lowered to an average of 12,000 square feet through cluster development and in conjunction with the availability of water and sewer, an additional 4000 units could be constructed.

FUTURE TRAFFIC GENERATION

The Mohegan Sun Resort is projected to attract 34,000 to 40,000 vehicle trips per day on peak days. The Mohegan Tribe has constructed a new interchange which intersects Route 2A near Fort Shantok Park, the associated ramps lead to Mohegan Sun Boulevard which bisects the site and connects with Sandy Desert Road. Route 2A has been widened to four lanes between I-395 and the new interchange. The interchange construction should lessen the traffic impact to Route 32, however, additional trips are anticipated. The actual number will not be known until the resort complex opens. The segment of Route 32 north of Route 2A is expected to exceed capacity immediately, south of 2A is projected to exceed capacity by the year 2015 (VHB Rte.2/2A/32 Transportation Study, 1995). The Planning staff believes that the section of Route 32 south of 2A will exceed its current capacity of 18,000 vehicles per day by the year 1999, if not sooner.

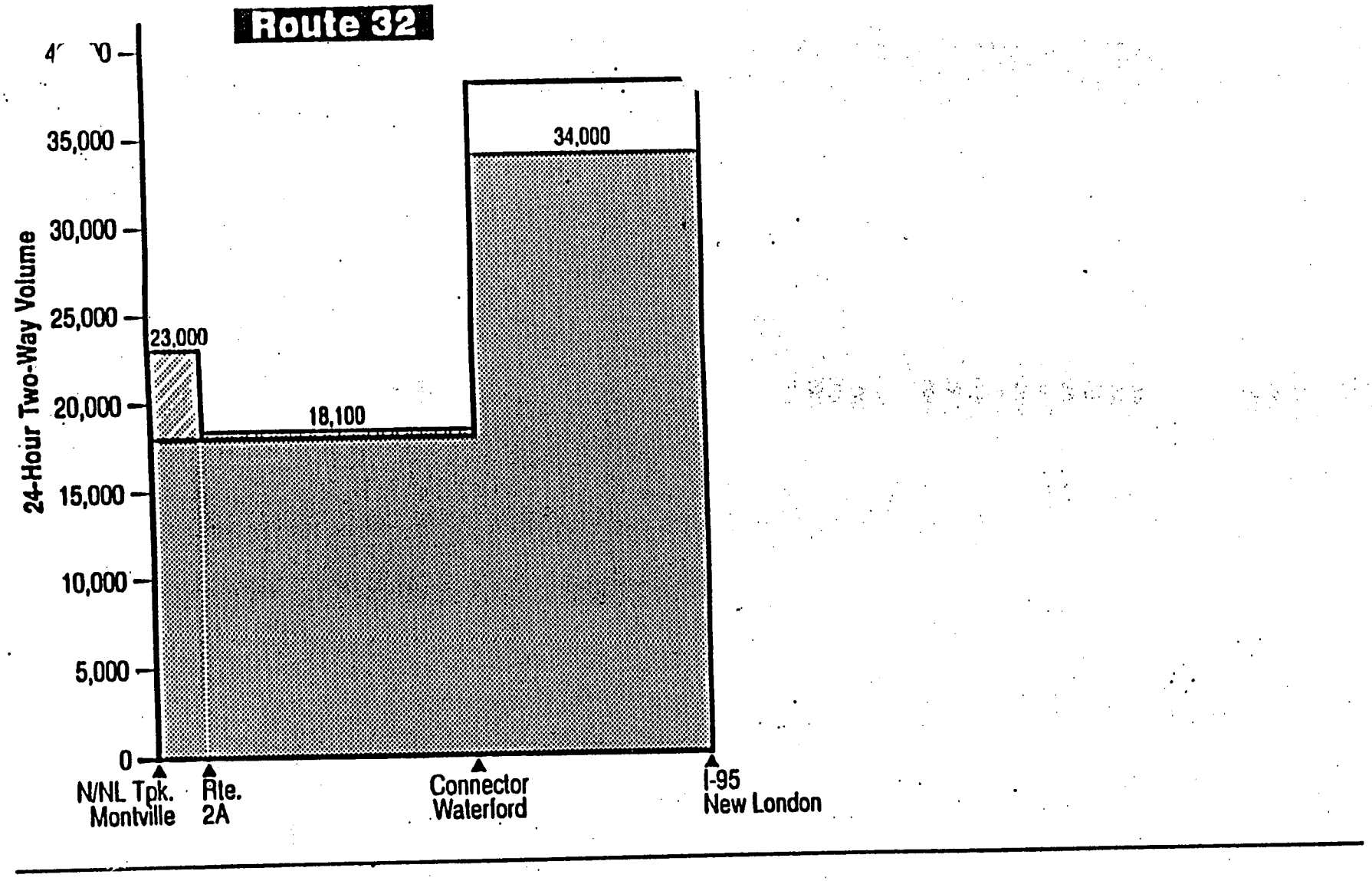
A single family detached house generates 9.55 vehicle trips per day (Trip Generation 5th Ed.ITE.). Based on the above residential built out scenarios generated by the Regional Planning Agency 1,388 residential units on 40,000 square foot lots would generate an additional 12,779 trips per day. Based on a lot size of 12,000 square feet and 4000 housing units an additional 38,200 trips per day could be generated. For comparison purposes only, a hotel with 200 rooms would generate 1740 trips per day without shuttle bus service.

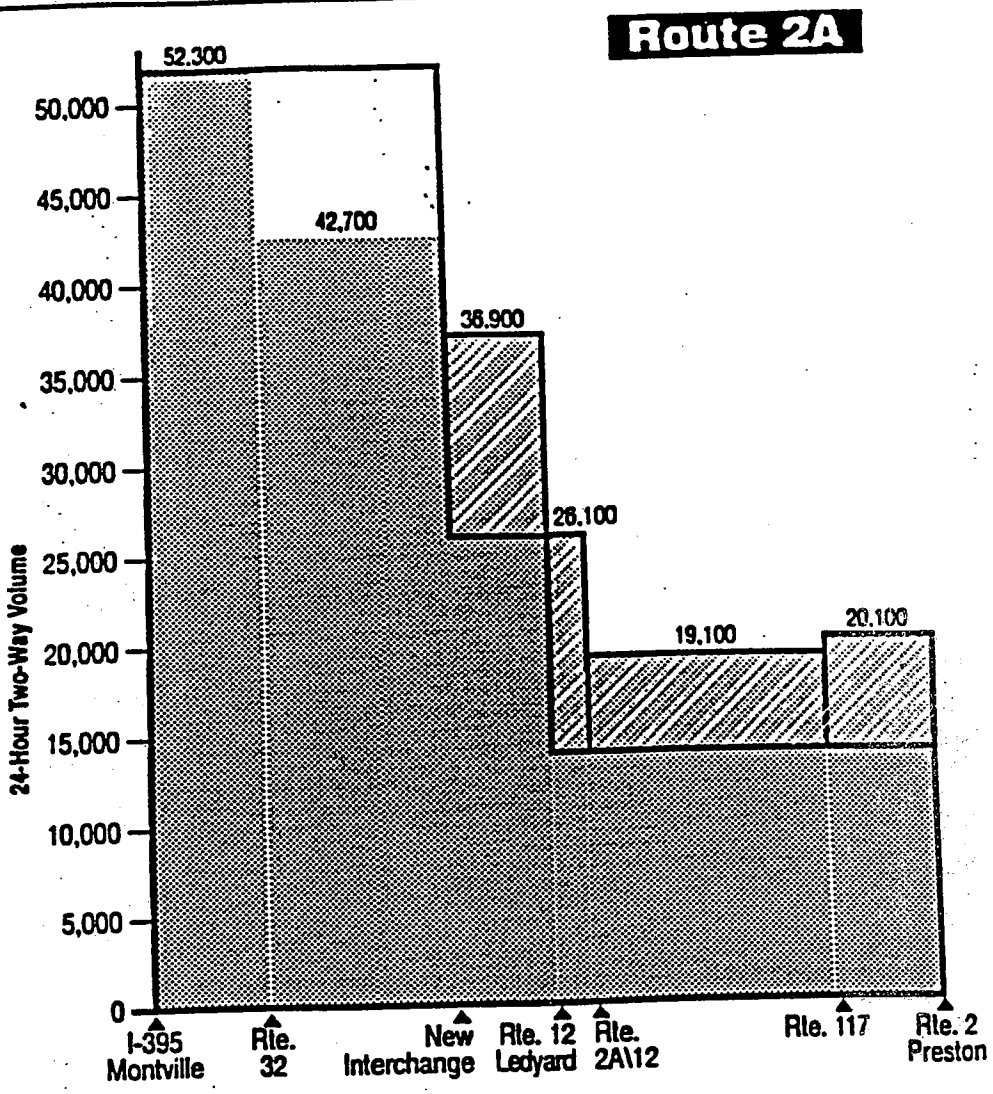
RECOMMENDED ROAD AND TRANSPORTATION IMPROVEMENTS

1. The State Traffic Commission permit issued to the Mohegan Tribe of Indians requires the Tribe to reevaluate the traffic impact of the Mohegan Sun Resort six months after the opening date. Currently, neither the Tribe nor the Town can know what impact the resort traffic will have on Route 32 and the local roads which egress to it. This section of the Plan of Development should be continually evaluated and updated.

   The Town and the Mohegan Tribe have worked cooperatively to site the new Rte. 2A ramps, the extension of Mohegan Sun Boulevard and the connection of Mohegan Sun Boulevard to Sandy Desert Road. The Planning and Zoning Commission has revised its regulations to allow for the siting of parking lots adjacent to trust lands.

   The Mohegan Tribe is installing a pre-emption traffic control device adjacent to the Mohegan Fire Company to allow emergency vehicles to safely egress from the fire house. Additional traffic control devices may be required at intersections within the Corridor. This item should be reevaluated after the Mohegan Sun Resort has been operating for six months.


Route 32
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
24-Hour Two-Way Volume
23,000
18,100
34,000
N/NL Tpk.
Montville
Rte.
2A
Connector
Waterford
I-95
New London



Future capacity

Volume exceeds capacity

xx,xxx Projected 2015 traffic volume

2. The Town's Administration, Boards, Commissions and Departments should continue to work cooperatively, whenever possible, with the Mohegan Tribe and private developers to address transportation issues.

3. The number of curb cuts on Route 32 should be minimized. Existing curb cuts should be combined whenever physically possible. A portion of the $500,000 which will be received annually from the Mohegan Tribe for capital improvements should be placed in a capital account to reconstruct curb cuts in the Route 32 Corridor.

4. The Town should aggressively pursue state funding for realignment of Ice House Curve.

5. Perpendicular and parallel parking should be eliminated wherever possible. The Town should consider the construction of small, strategically placed municipal parking to facilitate off-street parking.

6. The Town Council should pass an ordinance which clarifies the maintenance and ownership of sidewalks. The Planning and Zoning Commission has requested this ordinance for at least the past twelve years. If and when the Town Council passes the ordinance the Planning and Zoning Commission should amend the Zoning Regulations to require the installation of sidewalks for new commercial development which abuts Route 32. A sidewalk construction program should be included in the capital plan and budget. Pedestrians should be able to safely access contiguous commercial development. Construction of sidewalks will also minimize the need to drive from one establishment to another. This project should be funded from the Mohegan Tribes contribution to the capital improvement fund.

7. Sandy Desert Road should be relocated to the north - opposite Fitch Hill Road. The intersections of Fitch Hill Road, New London Turnpike, Holly Hill Drive, Sandy Desert Road and Route 32 should be horizontally and vertically realigned. This project should be funded by the Mohegan Tribe.

8. The Planning Department will work with the Southeastern Connecticut Council of Governments and its consultants to complete an access management study for Route 32. This project is expected to be started in 1997. Access management is a critical factor in maintaining the capacity of this arterial road. When completed, the access management plan should be adopted as part of the Plan of Development and incorporated in the Zoning Regulations.

9. The Town should support the Southeast Area Transit (SEAT) District and actively participate in the reevaluation of the role SEAT can play in providing mass transit.

10. The Town should continue to participate in the process established by the Multi-Modal Advisory Committee (MAC). As a result of the MAC process, a major investment study was completed in May 1996. The study identified a series of multi-modal alternatives that address traffic impacts in a nine town area defined by the Route 2 Corridor from Stonington to Norwich and the Route 32 Corridor from Norwich to N. "Over the course of the next two years as the environmental impact statement for the projects in the Routes 2 and 32 Corridors addresses the feasibility of alternatives advanced, the outcome is expected to have a profound effect on the future direction of transportation infrastructure development for the region's core for the foreseeable future." (SCOG Draft TIP, FY 1997)

FUTURE LAND USE RECOMMENDATIONS

1. Revise the Future Land Use Plan of Development Map to eliminate shallow, linear commercial areas within the Route 32 Corridor. Allow for Commercial growth areas which

will facilitate a shift in the tax base from residential to commercial uses. Revise the Zoning Map and Zoning Regulations to reflect the changes in the Plan of Development.

2. Increase the depth of commercial zones to allow for large scale projects and the clustering of commercial activities. Permit the minimum number of curb cuts necessary to allow for safe access and egress to and from these sites.

3. Reduce the amount of land available within the corridor available for residential development. The construction of large scale subdivisions or apartment units would adversely impact traffic flow, emergency services and the school system.

4. Revise the Future Land Use Plan of Development Map, Zoning Map and Zoning Regulations to eliminate industrial uses such as earth processing facilities which are not compatible with adjacent commercial uses.

5. Allow coastal water dependent uses in Commercial Zones where appropriate.

XII. RECREATION

The characteristics of areas devoted to this particular function were outlined in Section III of the Plan. The general approach taken in the past to provision of this service to the residents of Montville has primarily been to construct a major "town wide" facility and utilize existing playground facilities at local schools. This policy may have been justified based on the low population density characteristics of the town and lack of major, coordinated development concentrations.

The Future Land Use Plan calls for linking developed living areas in a manner which defines basic service areas. In order to provide for the recreation needs of future residents of these areas interested in physical fitness and outdoor activity, while making recreation areas more convenient to areas anticipated and projected for development in accordance with the future land use design, a detailed study of recreation needs should be pursued by the Zoning and Planning Commission to supplement this element of the Plan.

In a broad policy sense, the Land Use and Coastal Management elements of this plan identify areas which should be conserved and/or reserved for the long term benefit of the public. The Future Land Use Plan (Figure 5) and the Coastal Issues Map (Figure 7) include these areas based on public needs cited in the text of those elements. Among these locations are the following strategic areas which have some potential for recreational development:

Oxoboxo Brook extending north of Palmertown
Point Breeze on the Thames River
Scenic view points along the Thames River

In accordance with the results of a detailed study of the town's recreation needs as called for in paragraph 2, strategic locations could then be earmarked in the Future Land Use Plan as possible recreation sites. Among other possible types of recreational uses, the potential for public access to the Oxoboxo Brook for fishing, installation of a public boat launch at Point Breeze, actual development of scenic vistas overlooking the Thames River, and the possibility of development of neighborhood oriented parks to serve projected residential areas, should be considered in the full development of this element.

XIII. IMPLEMENTATION

LAND USE CONTROLS

Upon adoption of the Plan of Development, the Zoning Regulations and Subdivision Regulations should be comprehensively updated to ensure implementation of goals and objectives contained in this document, and provide the force of law necessary to protect the public interest.

A coordinated effort on the part of the Zoning and Planning Commission, the Public Works Department, and the Board of Selectmen should be made to develop a comprehensive sidewalk/driveway ordinance, consistent with the objectives of this plan and future revisions of the Zoning and Subdivision Regulations.

DEVELOPMENT POLICIES

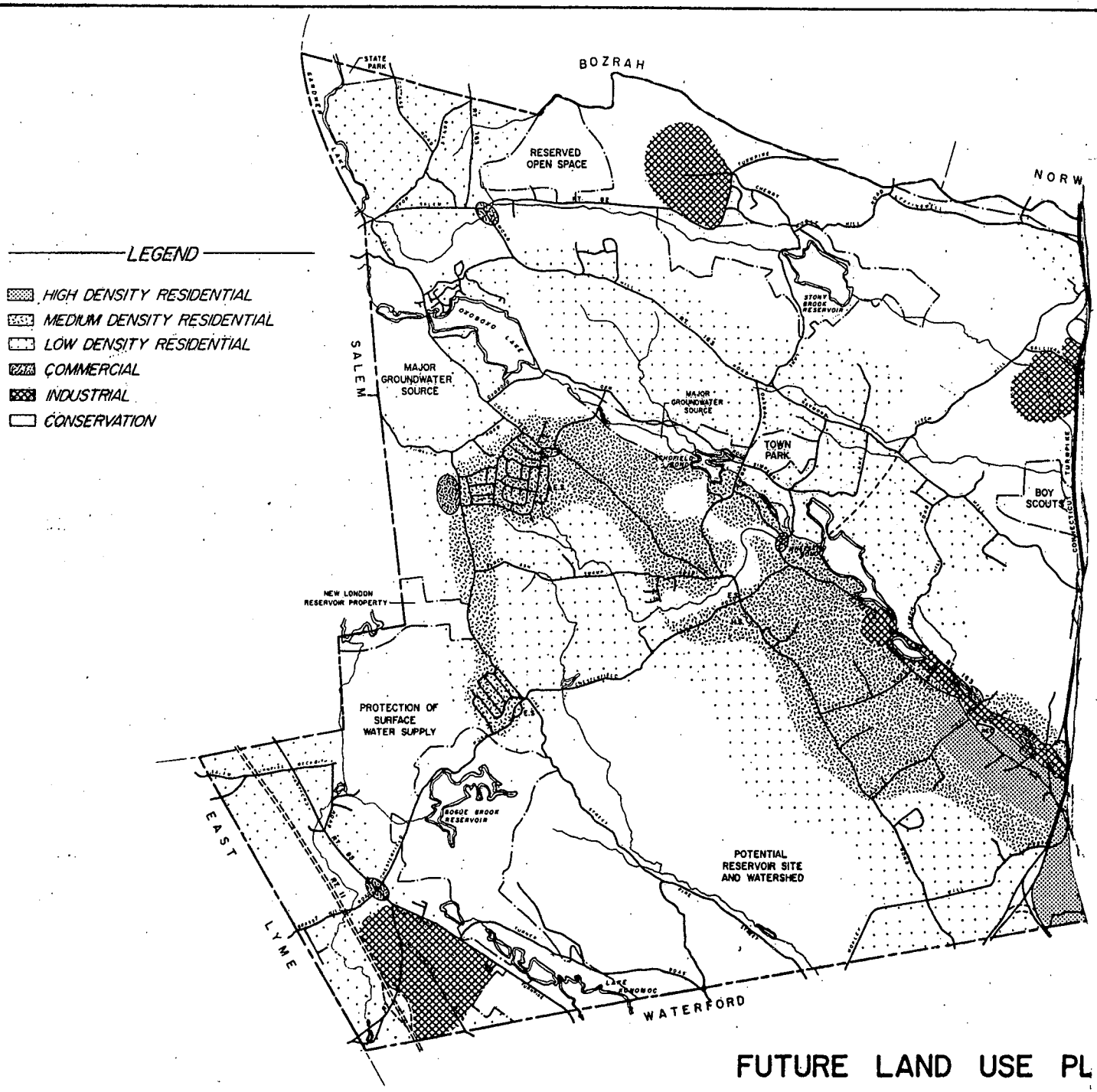
1) Extensions of municipal water and sewer lines shall be consistent with providing service to those areas designated for medium and high density residential development in the Future Land Use Plan.

2) All new subdivision development shall be consistent with ensuring the goals and objectives of this plan regarding environmental protection and transportation concerns.

3) Municipal improvements shall be consistent with the intent, goals and objectives, and development policies of the Plan of Development.

4) Areas designed for potential road locations in the Future Land Use Plan shall be reserved for such use by the Commission.

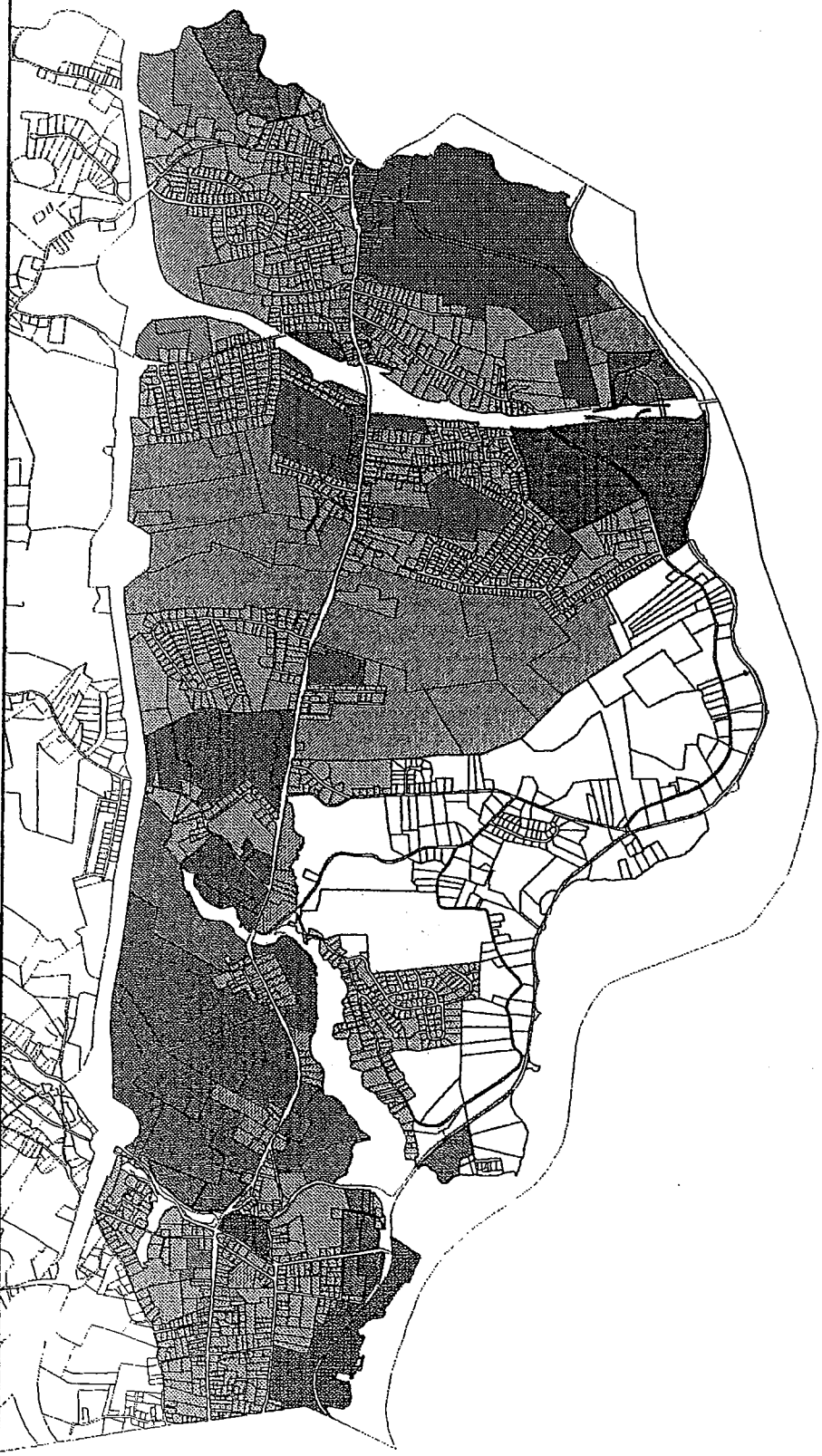
MONTVILLE
CONNECTICUT



FUTURE LAND USE PL

SCRPA-1983

TOWN OF MONTVILLE
PLAN OF DEVELOPMENT 1996
FUTURE LAND USE MAP - RTE 32 CORRIDOR



N
W E
S

Layers

- MOHEGAN NATION
- Regions
- GOVERNMENT
- Regions
- Lines
- GENCOMM
- LIGHT INDUSTRIAL
- RESIDENTIAL HIGH DENSITY
- COMMERCIAL NEIGHBORHOOD
- IINDUSTRIAL
- COMMERCIAL PARK
- OPEN SPACE
- RESIDENTIAL LOW DENSITY