

**LAND USE – 2000**

**SOUTHEASTERN CONNECTICUT REGION**

**SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS**

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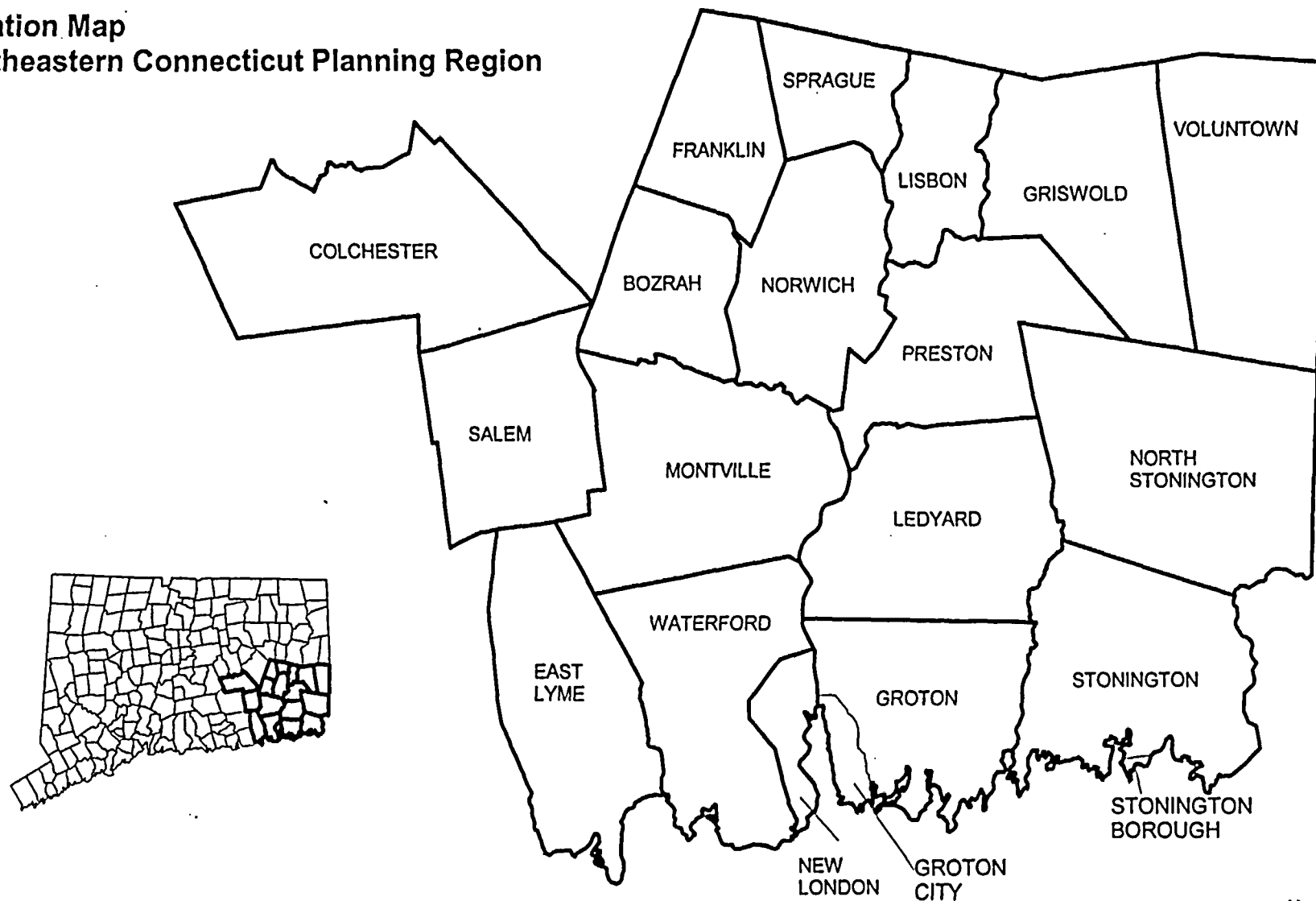
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# Location Map Southeastern Connecticut Planning Region



**SCCOG** Southeastern Connecticut Council of Governments  
Transportation Information System

Figure 1

2 0 2 4 Miles



# **THE LAND USE PATTERN**

## **INTRODUCTION**

Over the course of the past four decades, the Southeastern Connecticut Council of Governments (SCCOG) and its predecessor, the Southeastern Connecticut Regional Planning Agency (SCRPA) have been inventorying land use and land use changes in the southeastern Connecticut region. The purpose for conducting these comprehensive inventories is to create an analytic tool to better understand regional development needs as they relate to land use changes at the local level. The mechanical process of tabulating this data has evolved dramatically during this 40-year time period from the utilization of calculators, planimeters and area-graphs to the present use of a computerized geographic information system (GIS) operating ArcView software.

The information presented in this study represents, as closely as possible, land use conditions as they existed at the end of 2000. Information was gathered from field surveys, 2000 air photos, local officials such as assessors and town planners, data in SCCOG files, and map files of the Connecticut Department of Environmental Protection Natural Resource Center. The Town of Groton Planning Department was unique in this respect in that they provided land use data in a digitized format.

The area tabulations presented in this study (Table 1) continue to be developed without the benefit of property line information. Acreage data is based on the location of existing land uses relative to other surrounding land uses. Acreage figures used in this study, as in previous SCRPA/SCCOG land use studies, primarily depict relationships and distribution patterns of various types of land uses. For this reason, the data presented in Table 1 represent acreage estimates and are not intended to reflect actual ground coverage.

The following categories of land use provided the basis for this analysis.

Low Density Residential: less than one housing unit per acre.

Medium to High Density Residential: one or more housing units per acre.

Extractive Industrial: mining, sand and gravel operations.

Intensive Industrial: manufacturing, warehousing, storage areas.

Extensive Institutional: open areas connected with intensive institutional uses. (e.g. Camp Rowland)\*

Intensive Institutional: governmental and institutional buildings.\*

\* Institutional land use acreage was combined into one category for tabulation purposes even though governmental uses are mapped as separate categories.

Commercial: retail, wholesale, services, business and professional offices.

Transportation, Communications, Utilities: highways, public and semi-public facilities providing services such as transportation, communications, gas, electricity and water.

Open Space: cemeteries, state forests, public-private preserves, holdings of water utilities.

Active Recreation: Public and private parks, playgrounds, camping areas, golf courses, other outdoor facilities.

Agriculture Reserves: agricultural lands protected under the Connecticut development rights purchase program.

Agriculture: other agricultural lands such as cropland, orchards, vineyards, nurseries, pastures, open fields, and dairy, poultry, swine, beef and horse farms not included as part of the agricultural reserves category.

NATR: Native American Tribal Reservations.

Undeveloped: vacant and, mostly forests and wetlands.

This information is mapped at a scale of one-inch equals 3 miles (see Figure 10).

## REGIONAL OVERVIEW

Table 1 on the following page shows that the Southeastern Connecticut Planning Region comprises an area of 358,106 acres, or 559.5 square miles. For the purposes of this analysis, the region's 18 towns are divided into 3 density classifications: 1) Urban 2) Suburban 3) Rural. Urban towns include Groton, New London and Norwich; suburban towns include Colchester, East Lyme, Griswold, Ledyard, Lisbon, Montville, Preston, Sprague, Stonington and Waterford; while rural towns include Bozrah, Franklin, North Stonington, Salem and Voluntown.

Of the region's total area, the urban towns account for 11.3 percent, the suburban towns 59.7 percent, and the rural towns 29 percent. Figure 1 graphically depicts this distribution.

The southeastern Connecticut region remains largely undeveloped with approximately 55.5 percent of the regional land area in the Undeveloped Land Use category. Undeveloped land is estimated to be about 195,464 acres, or 305.4 square miles. Intensive land uses, shown in Table 1 as Total Developed Land, account for 25 percent of the region's land area representing 89,610 acres, or 140 square miles. The combined Open Space, Active Recreation and Agriculture/Agricultural Reserve categories account for the remaining 19.5 percent of the region's land area, estimated to be 69,882 acres, or

TABLE 1

LAND USE TOTALS IN ACRES BY TOWN, 2000

	MEDIUM & HIGH DENSITY RESIDENTIAL	LOW DENSITY RESIDENTIAL	EXTRACTIVE INDUSTRIAL	INTENSIVE INDUSTRIAL	COMMERCIAL	INSTITUTIONAL	* TCU	TOTAL DEVELOPED	OPEN SPACE	ACTIVE RECREATION	AGRICULTURE, AG. RESERVE	NATR	UNDEVELOPED	TOTAL ACRES
<b>URBAN TOWNS</b>														
Groton	6,031	739	0	525	618	1,247	2,010	11,170	3,647	817	32		3,278	18,944
New London	1,389	2	0	63	334	450	655	2,893	291	154	0		159	3,497
Norwich	4,103	442	15	352	437	545	1,840	7,734	1,170	447	617		8,031	17,999
<b>Urban Totals:</b>	<b>11,523</b>	<b>1,183</b>	<b>15</b>	<b>940</b>	<b>1,389</b>	<b>2,242</b>	<b>4,505</b>	<b>21,797</b>	<b>5,108</b>	<b>1,418</b>	<b>649</b>		<b>11,468</b>	<b>40,440</b>
<b>SUBURBAN TOWNS</b>														
Colchester	1,042	4,622	95	133	207	221	1,300	7,620	4,738	259	204	141	17,642	30,604
East Lyme	3,124	896	8	99	222	3,688	1,105	9,142	2,304	1,658	337		8,895	22,336
Griswold	1,050	2,174	124	41	119	114	899	4,521	3,500	648	1,057		12,674	22,400
Ledyard	2,590	1,369	10	119	94	409	1,125	5,716	2,792	646	637	2,328	12,969	25,088
Lisbon	248	1,208	50	58	64	40	599	2,267	99	155	135		8,032	10,688
Montville	2,226	2,087	180	177	155	352	1,994	7,171	2,954	455	282	486	16,300	27,648
Preston	737	1,201	0	78	182	699	666	3,563	583	28	2,643		12,963	19,780
Sprague	292	443	24	138	15	56	265	1,233	414	183	505		6,113	8,448
Stonington	2,906	2,076	16	95	451	165	1,376	7,085	1,800	814	547		14,906	25,152
Waterford	3,632	851	32	121	524	594	2,106	7,860	1,214	912	11		11,379	21,376
<b>Suburban Totals:</b>	<b>17,847</b>	<b>16,927</b>	<b>539</b>	<b>1,059</b>	<b>2,033</b>	<b>6,338</b>	<b>11,435</b>	<b>56,178</b>	<b>20,398</b>	<b>5,758</b>	<b>6,358</b>	<b>2,955</b>	<b>121,873</b>	<b>213,520</b>
<b>RURAL TOWNS</b>														
Bozrah	129	756	9	55	19	64	715	1,747	400	477	913		9,108	12,645
Franklin	345	672	10	51	128	36	369	1,611	392	156	2,141		7,743	12,543
No. Stonington	288	1,848	212	10	143	125	854	3,480	3,200	901	1,703	195	25,785	35,264
Salem	387	1,914	62	53	66	38	618	3,138	1,208	203	1,041		12,648	18,838
Voluntown	163	1,019	0	75	17	31	354	1,659	16,129	154	675		6,839	25,456
<b>Rural Totals:</b>	<b>1,312</b>	<b>6,209</b>	<b>293</b>	<b>244</b>	<b>373</b>	<b>294</b>	<b>2,910</b>	<b>11,635</b>	<b>21,829</b>	<b>1,891</b>	<b>6,473</b>	<b>195</b>	<b>62,123</b>	<b>104,146</b>
<b>REGIONAL TOTALS:</b>	<b>30,682</b>	<b>24,319</b>	<b>847</b>	<b>2,243</b>	<b>3,795</b>	<b>8,874</b>	<b>18,850</b>	<b>89,610</b>	<b>47,335</b>	<b>9,067</b>	<b>13,480</b>	<b>3,159</b>	<b>195,464</b>	<b>358,106</b>
<b>REGIONAL TOTALS (sq. mi):</b>	<b>47.8</b>	<b>37.9</b>	<b>1.3</b>	<b>3.5</b>	<b>5.8</b>	<b>13.8</b>	<b>29.4</b>	<b>139.5</b>	<b>74.0</b>	<b>14.2</b>	<b>21.0</b>	<b>4.9</b>	<b>305.4</b>	<b>559.5</b>

Source: SCCOG

\*Note: TCU denotes "Transportation, Communication, Utilities".

109.2 square miles. It should be noted that the terms “open space” and “undeveloped land” are often confused. Open space is a special term used to describe land that can

**SOUTHEASTERN CONNECTICUT REGION  
LAND DISTRIBUTION BY MUNICIPAL  
CLASSIFICATION**

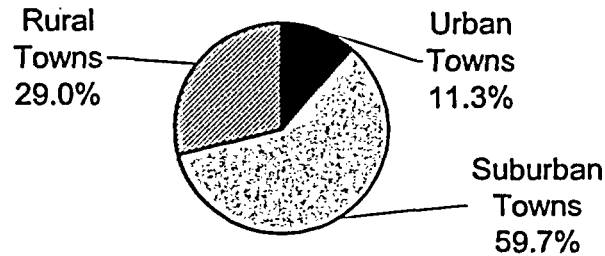


Figure 2

be publicly or privately owned but whose use is permanently protected and in the public interest. Undeveloped land has no special protection. It is simply land that has not yet been developed.

The breakdown of the above development categories varies widely by municipal classification. In urban towns, intensive uses account for 53.9 percent of the land area.

**LAND USE BY MUNICIPAL CLASSIFICATION, 2000  
Southeastern Connecticut Planning Region**

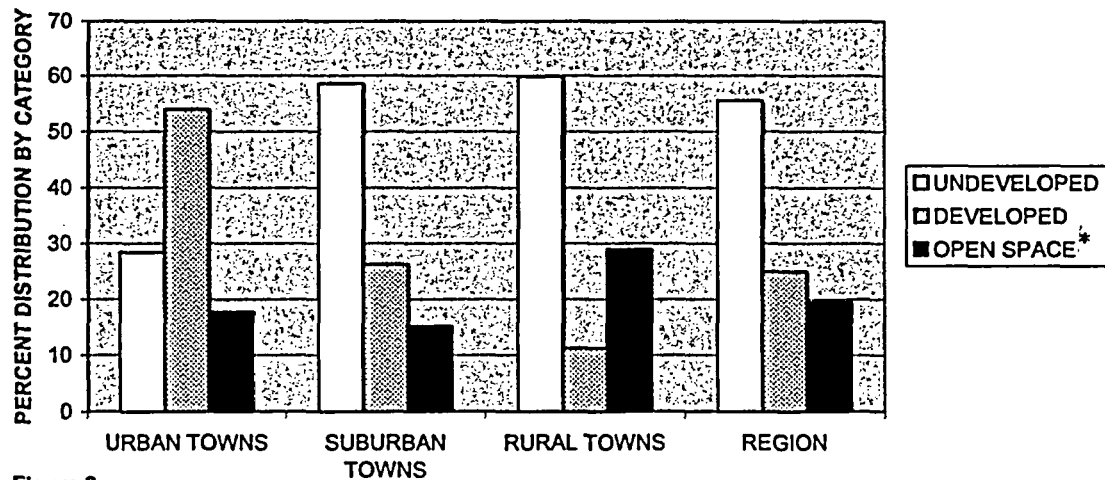


Figure 3

\*This classification includes the categories of open space, active recreation, agriculture and agricultural reserves listed on Table 1.



In suburban towns, intensive uses represent 26.3 percent while in rural towns, this percentage drops to 11.2 percent. The following graph depicts this categorical breakdown for the region by municipal classification.

## DEVELOPED LAND USES

The following land use categories are further detailed in Table 1, by town and municipal classification. The charts shown as Figures 5 through 8 on the following pages also depict the breakdown of developed uses in 2000 by municipal classification.

### RESIDENTIAL

Residential uses continue to dominate all other land use categories in southeastern Connecticut. At the regional level, residential uses account for 61.3 percent of the total developed land, or 89,610 acres (85.9 square miles). This percentage is fairly consistent throughout the category of towns. Residential uses range from 58.5 percent for the urban towns, to 61.9 percent for the suburban towns, and 64.7 percent for the rural towns. Residential uses increased more during this past decade than during the 1980's. From 1980 to 1990, residential land usage, as a percentage of all developed uses, increased by 26 percent to 61.7 square miles. From 1990 to 2000, residential land uses jumped to 85.9 square miles representing a 39 percent increase over the previous decade

Within the urban towns, the vast majority of residential land use is of a medium and high-density nature, classified as one or more housing units per acre. The percentage of urban land in this category is almost 10 times that of low-density residential use (less than one housing unit per acre). Within the suburban towns, the percentage of land devoted to residential uses is almost equally divided between medium, high and low density. Not surprisingly, in rural towns, the vast majority of residential development is low density as

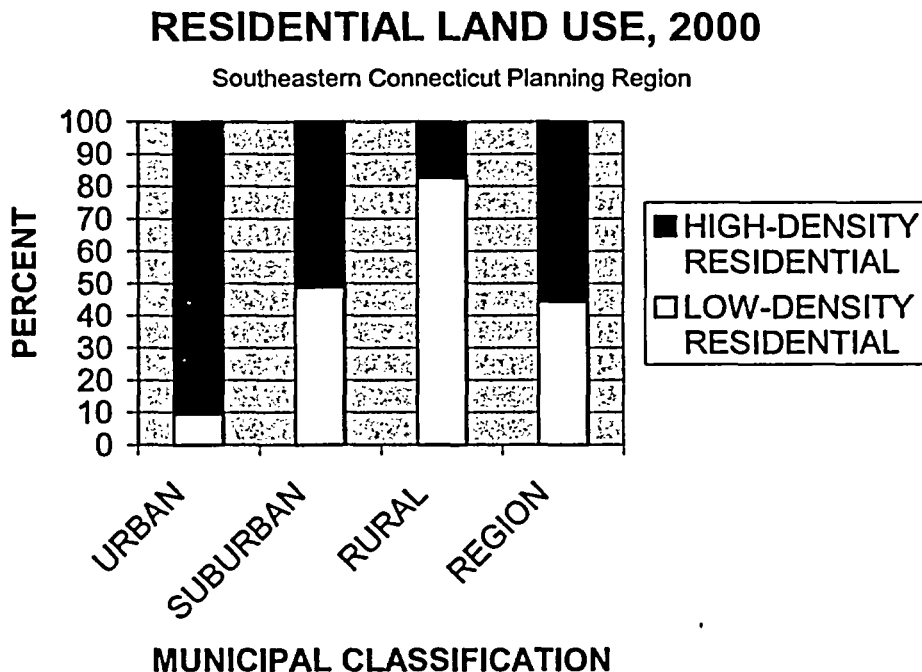
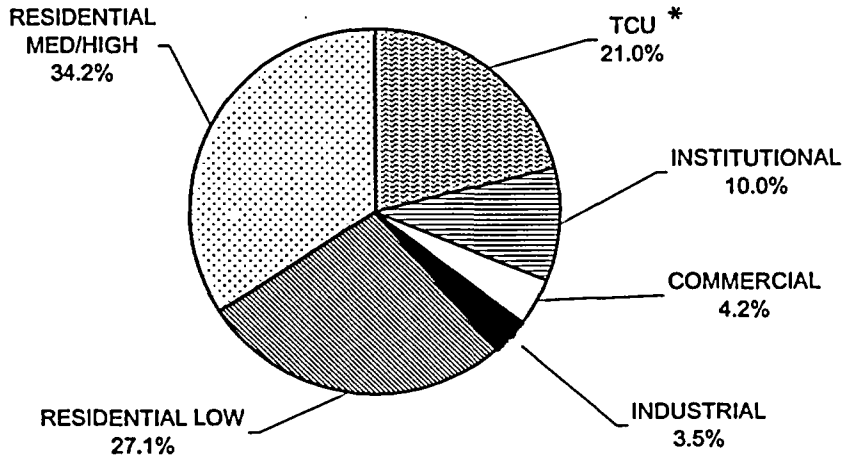


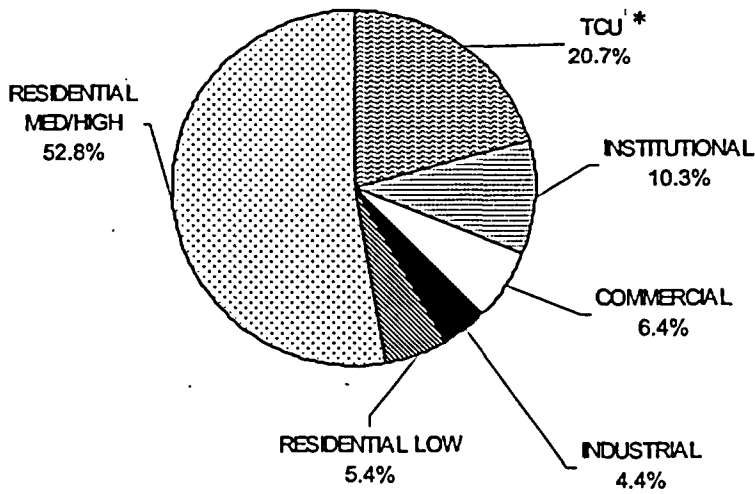
Figure 4

**DEVELOPED LAND USES, 2000**  
**Southeastern Connecticut Planning Region**  
**ALL TOWNS**



**Figure 5**

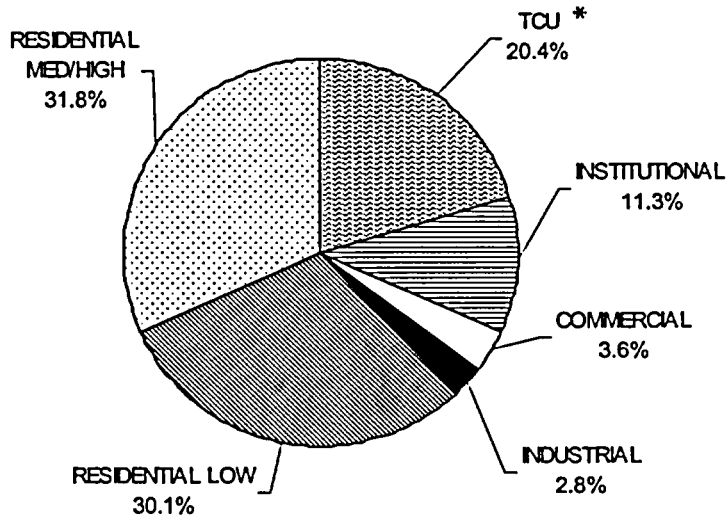
**DEVELOPED LAND USES, 2000**  
**Southeastern Connecticut Planning Region**  
**URBAN TOWNS**



**Figure 6**

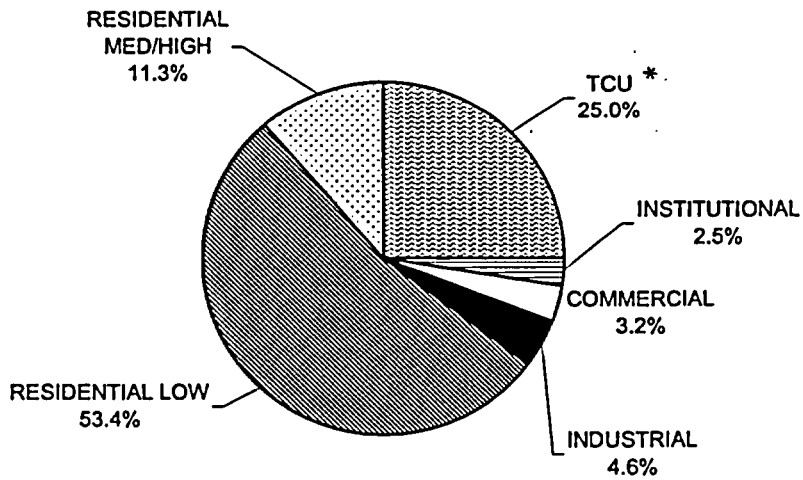
\*Note: TCU denotes "Transportation, Communications, Utilities".

**DEVELOPED LAND USES, 2000**  
**Southeastern Connecticut Planning Region**  
**SUBURBAN TOWNS**



**Figure 7**

**DEVELOPED LAND USES, 2000**  
**Southeastern Connecticut Planning Region**  
**RURAL TOWNS**



**Figure 8**

\*Note: TCU denotes "Transportation, Communication, Utilities".

opposed to medium and high-density. As a percentage, region-wide, low density residential use increased the most of all land use categories in all classes of towns during the past decade.

#### **INDUSTRIAL**

This category includes both extractive industrial uses such as sand and gravel operations and intensive industrial uses such as manufacturing. Land area devoted to extractive industrial uses decreased by approximately one-third during the past decade. Land area devoted to intensive industrial uses increased by approximately one-sixth during this same time period. These two industrial uses combined account for approximately 3.5 percent of the total developed land at the regional level. This represents a decrease from the 4.4 percent recorded in 1990. This decrease was experienced in all town classes with the smallest decrease recorded in urban towns where extractive industrial uses are now nearly non-existent.

#### **COMMERCIAL**

During the previous decade, commercial uses increased in land area by nearly one square mile. Commercial uses continue to account for just over 4 percent of the developed land area at the regional level. The percentage of developed land in this category in 2000 remained very similar to that of 1990. The land area of commercial uses in rural towns remained basically the same between 1990 and 2000, while urban towns experienced a slight increase of 171 acres. Suburban towns accounted for the bulk of additional commercial land at 409 additional acres from 1990 to 2000.

#### **INSTITUTIONAL**

At the regional level, from 1990 to 2000, institutional uses decreased in percentage of developed land. In 1990, such uses accounted for 12.5 percent of developed land area. The 2000 figure is now at 10 percent. However, the total land area devoted to these uses remains basically the same. These figures indicate that new institutional land development has been almost non-existent during this past decade in relation to other categories of land use. Urban and suburban towns contain 97 percent of all institutional uses in the region.

#### **TRANSPORTATION, COMMUNICATION, UTILITIES**

Approximately 21 percent of the region's developed area is in this category. This represents 18,850 acres, or 29.5 square miles. While this amount of land area represents an increase from 1990, the relative percentage of developed land in this category decreased by 4 percent. The decrease in percentage, in this category is consistent for all town classes. Rural towns continue to have the highest percentage of this category in relation to all developed land. These figures appear to suggest that to a large extent,

much of the residential, commercial, and industrial development which occurred over the past decade, in southeastern Connecticut, utilized existing infrastructure.

#### **OPEN SPACE/ACTIVE RECREATION/AGRICULTURE & AGRICULTURAL RESERVE**

These designations are special land use categories that are distinguished from undeveloped land as defined in the Introduction of this study. They are comprised of such uses as cemeteries, state forests, public-private preserves, holdings of water utilities, agriculture and active recreation areas. As shown in Figure 2, the total area of these combined uses account for approximately 19.5 percent of the land area at the regional level. This represents a slight increase from 1990. All classes of towns within the region experienced a slight percentage increase in this land use category. The total area accounts for 69,882 acres, or 109 square miles. Suburban towns account for approximately 46 percent of this category, rural towns 43 percent and urban towns the remaining 11 percent.

The most dominant use within the combined Open Space category is public-private preserves and holdings of water utilities. These uses account for a combined 47,335 acres, or 73.9 square miles. Suburban and rural town's account for approximately 42,128 acres of this area. Rural towns account for slightly more of this subcategory of open space in both percentage and acreage. Within the rural towns, the Pachaug State Forest in Voluntown alone accounts for 34 percent of this category in southeastern Connecticut.

Agriculture and agricultural reserves are estimated to account for 13,480 acres, or 21 square miles. This represents a decrease of approximately 2.1 square miles during the past decade. Presently, 95 percent of this land use category can be found in suburban and rural town's. Agricultural uses are almost equally divided between suburban and rural towns in both percentage and acreage.

Active recreation uses total 9,067 acres, or 14.2 square miles. Approximately 63 percent of this area is located in suburban towns. Surprisingly, rural towns have slightly more land area in this category than do urban towns.

#### **NATIVE AMERICAN TRIBAL RESERVATIONS**

The Golden Hill Paugussett, Mashantucket Pequot, Paucatuck Eastern Pequot, and Mohegan Tribal reservations account for approximately 3,150 acres in Southeastern Connecticut. The Mohegan Tribe and Mashantucket Pequot reservations are the only two Federally recognized reservations in the region, and are the most visible, having developed gaming/resort facilities, that attract thousands of visitors daily. Reservation areas may also contain housing and other tribal government facilities.

#### **UNDEVELOPED LAND**

In southeastern Connecticut, undeveloped land totals 195,464 acres, or 305.4 square miles. This represents land not utilized for any of the above developed, open space or

agriculture uses. It includes forests, fields, wetlands, and waterbodies. At the regional level, undeveloped land represents 55.5 percent of the total area. This is a reduction from the 1990 estimate of 61 percent. This means that during the past decade about 1 percent of the land area of the region was being developed every two years. The long term implications of this pattern are significant.

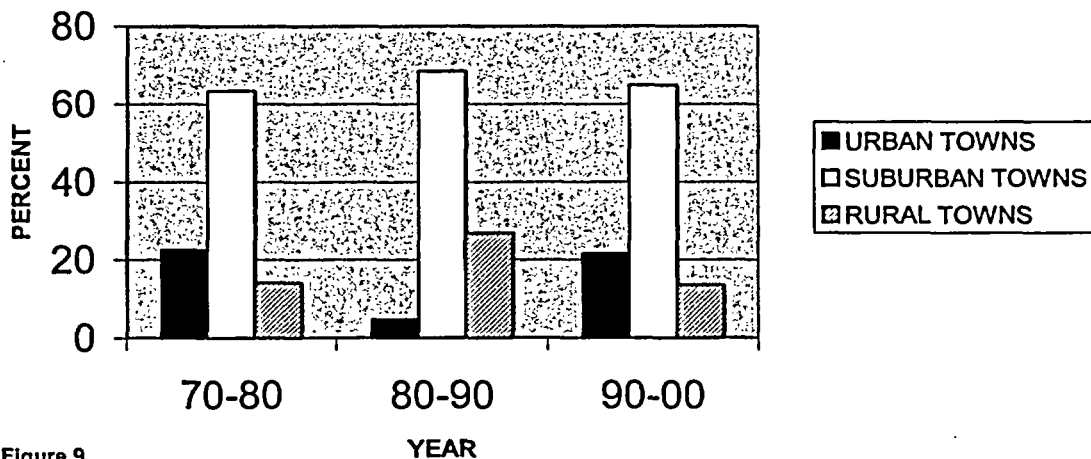
In 2000, 28.4 percent of the land in urban towns was undeveloped. The suburban towns had 58.5 percent of their land area in this category and the rural towns 59.8 percent.

## GROWTH CHANGES

In 1990, SCRPA calculated that developed uses in the Southeastern Connecticut Region totaled 73,479 acres, with a total land mass area of 358,106 acres. This meant that 20.5 percent of the region was developed at that time. Of the developed uses, urban towns contained 25 percent, suburban towns had 62 percent and the rural towns 13 percent. At present, the area of developed uses has increased to 89,610 acres, or 25 percent of the land area of the region. The relative percent distribution of total developed uses among towns remains basically the same in 2000 as in 1990.

In the decade between 1990 and 2000, development grew at a rate of about 22 percent. This is comparable to the 1980's growth rate of 20 percent. But unlike the 1980's, the 1990's saw a different distribution of new growth between the urban, suburban, and rural towns. During the 1980's, new growth occurred primarily in the suburban and rural towns, at 68.5 and 26.8 percent respectively, with the urban towns accounting for only 4.7 percent of the new growth. During the 1990's, 21.5 percent of the new growth occurred in the urban towns, whereas 65 percent occurred in the suburban towns and 13.5 percent in the rural towns. By comparison, the distribution of new growth in the 1990's more closely mirrored that which occurred during the 1970's. Figure 9 below depicts these trends.

**GROWTH IN DEVELOPED LAND USES BY MUNICIPAL  
CLASSIFICATION, 1970-2000**  
Southeastern Connecticut Planning Region



Other notable characteristics of new growth during the 1990's involve commercial and industrial development. Both intensive industrial uses and commercial uses increased in geographic area. Extractive industrial uses decreased in geographic area. However, as an



overall percentage of developed uses, commercial and industrial uses remained fairly constant for the last two decades.

In the category of transportation, communications, and utilities, there was a slight decrease in relative percentage despite an increase in acreage. One possible explanation for the decrease in this category is that the growth of the 1990's utilized the existing road network as much as possible.

Residential uses have historically been the dominant component of developed uses and the 1990's reinforced that trend. During this period, residential uses increased from 53.8 percent to 61.3 percent of all developed uses in the region. Following national trends, low-density residential uses in the region increased among all town classifications from 1990 to 2000.

With increasing amounts of land being used for intensive development, it is not surprising that the land area devoted to agricultural uses continues to decline. What is surprising is the relatively small reduction in the agricultural category that has occurred in relation to the increases in intensive land uses. While this relationship may be a short-term anomaly, it may also reflect the growth of intensive agricultural activities such as nurseries which complement present development trends with their landscape products.

Land devoted to active recreational uses seems to have stagnated during the 1990's. The data indicate that this is a category that did not experience any significant change. While there have been slight percentage decreases in the rural towns and slight increases in the suburban towns, in this category of use it has been insignificant in relation to the growth in residential use.

Overall, regional growth during the 1990's continues the pattern commonly referred to as "sprawl". The rate of growth in land area devoted to low-density residential use is the major indicator of this pattern. Additionally, as residences increase, some form of commercial development usually follows to provide readily accessible services. In the composite, all of these activities reinforce the pattern of dispersed development further removed from existing infrastructure.

Many factors encourage a dispersed development pattern. In addition to the absence of public water and sewer systems, they include the local tax structure and its relationship to municipal operating costs, educational facilities, and other local services. Community character and individual preference are also key factors. At present, the interaction of all of these forces guide development patterns.

Regional development during the past decade, especially in residential uses, seems to be in conflict with the latest population trends from the U. S. Census. Population data indicate a small, (less than one-percent) growth rate during this past decade. When compared to a significant (39 percent) increase in the land area consumed for residential development, there appears to be a disconnect between these data sets. Tabulation methods used in these land use surveys may account for some discrepancy. Decreasing household size may also be a contributor. But the underlying fact is that low-density

residential development is the predominant land use in southeastern Connecticut. The preference for this type of land use will continue to result in increasing amounts of sprawl within the region.



FIGURE 10

# SOUTHEASTERN CONNECTICUT REGION

## GENERALIZED LAND USES, 2000

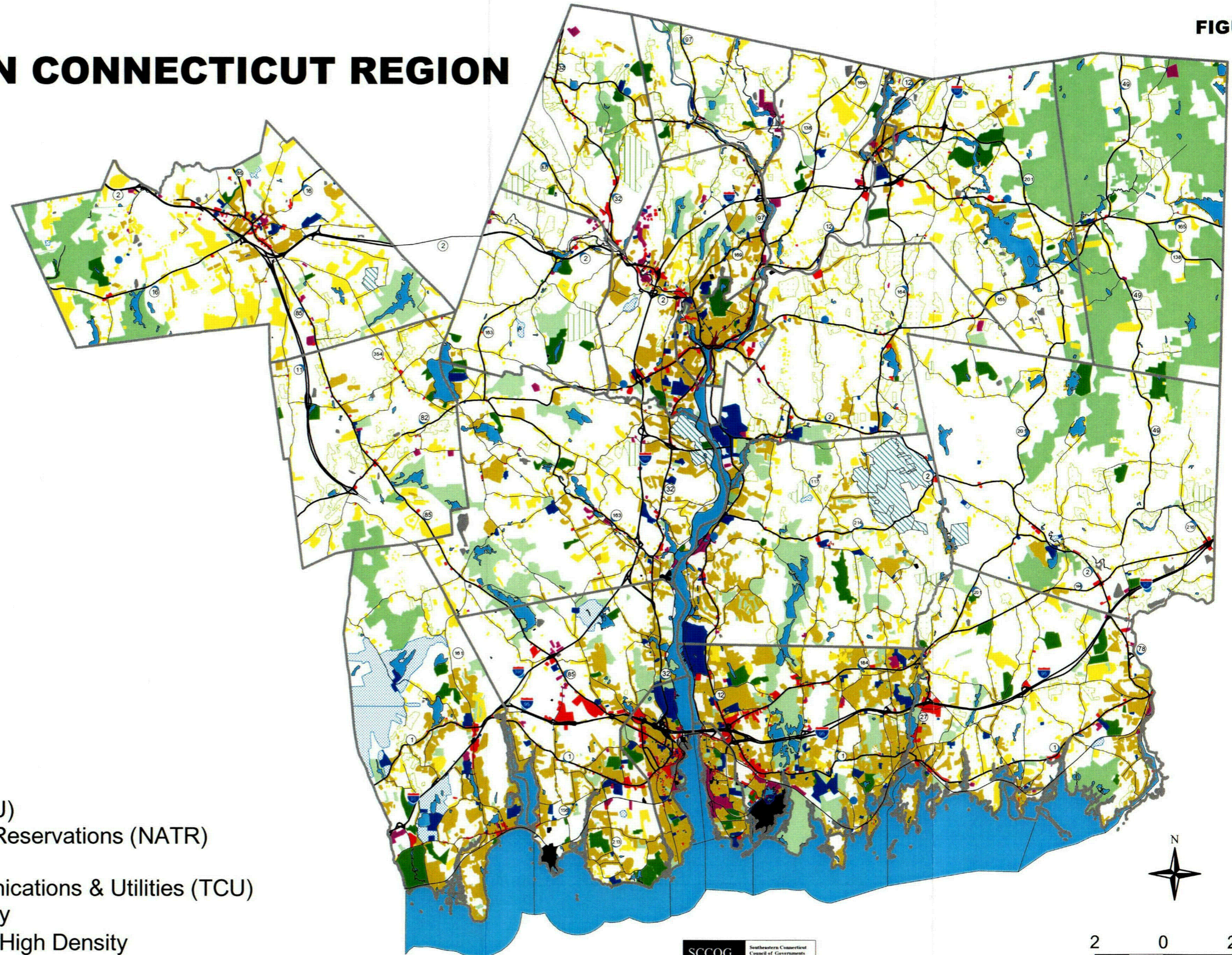
### LEGEND

#### Roads

-  Primary Highway
-  Secondary Highway

#### Land Use

-  Active Recreation
-  Agriculture
-  Agriculture Reserve
-  Commercial
-  Industrial
-  Industrial - Extraction
-  Institutional
-  Institutional - Extensive
-  Mixed Urban Uses (MUU)
-  Native American Tribal Reservations (NATR)
-  Open Space
-  Transportation, Communications & Utilities (TCU)
-  Residential - Low Density
-  Residential - Medium to High Density



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