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PLYMOUTH



Community Profile

PHASE I EXISTING CONDITIONS

CENTRAL CONNECTICUT
REGIONAL PLANNING
AGENCY

225 N. MAIN ST.
SUITE 304
BRISTOL, CT 06010

IHZ@CCRPA.ORG

(860) 589-7820

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INTRODUCTION

Home Connecticut's Incentive Housing Zone (IHZ) program was established in 2008 in response to the fact that housing prices in the state were beyond the reach of many of the state's residents, particularly "young professionals, working families, people in critical professions, such as firefighters, police officers, teachers and nurses, and [retirees]." (Genuario, 2009) The program aims to help towns create housing that will attract and retain these critical workers. To minimize costs for both residents and towns alike, housing under the program is intended to be constructed at higher densities, in areas of concentrated development, with existing infrastructure, and/or proximity to public transit. As part of the program, 20% of housing units built in an IHZ must be affordable, costing no more than 30% of the annual income of someone making a maximum of 80% of the area median income. This report examines how an IHZ could benefit the Town of Plymouth, Connecticut.

Plymouth is a mid-sized, residential town in southeast Litchfield County. The Parish of Northbury, as the town was first called, was first settled in 1728 and established as its own community in 1739. The town formally incorporated as the Town of Plymouth in 1795. At that time Plymouth had about 290 inhabitants. (Atwater, 1895) After decades of growth, the town lost residents after the Civil War. Plymouth entered the 20th century with a population of 2,800. By the century's end, more than 11,000 called the town their home. Most of Plymouth's growth took place after 1950, when suburban development surged, and the town's population exploded. In contrast with the farmhouses and tight-knit neighborhoods of Plymouth's agricultural and industrial eras, single-family homes set in auto-centric neighborhood subdivisions became the norm in this period. This development paradigm met with success in the marketplace and spread throughout many parts of the country. However, it has had several adverse consequences for the communities that have embraced it, including:

Unaffordable housing: suburban homes consume vast amounts of land. This has two effects that raise the cost of housing beyond the means of many. First, land costs money. Big lots mean high home prices. Second, homes on big lots deplete the supply of available land without creating enough units to damp the demand for homes. This causes land values to go up. As a result, the cost of even modest homes increases when land-intensive construction is undertaken elsewhere.

Housing shortages: big lot building produces unaffordable homes. When compelled to buy large, expensive parcels, developers have two ways to recoup their investment: density and luxury. They can sell many units at low prices or few units at high prices. Unfortunately, density is often forbidden, while luxury is not only permitted but profitable. The resulting homogenous housing stock fails to meet the needs or means of many households. (See *Housing*, p. 30, and *Zoning*, p. 54 for details).

Automobile dependence: a one-house-per-lot system spreads homes over a large area. The places individuals want or need to reach are rarely within walking distance, and with so little density, public transit fails. This makes people—young and old, rich and poor, able-bodied and disabled alike—dependent on automobiles. They depend on cars to get to work, to school, to town hall, and to the store. Since the need to drive is a consequence of housing patterns, the cost of driving must be factored into the cost of housing. Indeed, the people most in need of affordable housing—i.e. those who have difficulty finding a place to live or keeping up with their home payments—are the ones most affected by automobile dependence. (Car ownership might be what makes their housing unaffordable: they may have trouble paying their mortgages because they are paying for their cars instead!)

High property taxes: suburban homes often impose greater demands on public resources than do other, more affordable housing styles. Detached, single-family homes not only encourage families with school-age children to move in; by virtue of their remoteness, they also necessitate disproportionate and inefficient investments in infrastructure (e.g. installation and maintenance of longer streets, water mains, and sewer lines) and drive up the cost of service delivery (by necessitating longer routes and greater distances for services such as plowing, school bussing, waste pickup, and emergency response). As demand for these services escalates, so too will the burden placed on property tax payers, including those with limited incomes. High property taxes have been and continue to be one of the leading causes of unaffordable housing.

Towns without affordable housing face challenges in the coming years. Connecticut's population is aging. Its workforce is approaching retirement, yet its young people are leaving the state in droves. Without workers, businesses may be forced to close or relocate. High yet unpredictable home prices have driven households into debt and default. High and even more unpredictable energy prices have likewise whipsawed their fortunes. Those with higher expenses—large homes and long commutes—have been particularly hard hit. Homeownership and the automobile, once viewed as the keys to financial security and freedom, have become ball and chain to many.

Admittedly, the suburban development paradigm that has been the rule for the past sixty years has had benefits. But it has come with a price, from environmental damage and a loss of social capital to economic costs. The IHZ program was created to give communities an alternative to this. It seeks to spur the development of low-cost, high-benefit housing. By emphasizing the creation of housing near jobs and transit lines, the IHZ program fosters growth that puts residents close to what they need to flourish. By making housing affordable, the IHZ program enables retired, young, working, and low-income people to stay in communities they might otherwise have to abandon. And by siting homes near existing infrastructure, the IHZ program keeps municipal costs down. (New housing can also help towns in more general ways; Table I, below, explains these).

TABLE I. WHY CONNECTICUT TOWNS ARE CREATING HOUSING

1. They need municipal workers. 41% of Connecticut teachers are over fifty and will need to be replaced in the next decade; volunteer fire departments can't find fire-fighters; police officers, road workers, and others can't live in town.
2. They need shoppers to support local merchants. Towns such as Simsbury and Marlborough are planning infill housing in town centers because merchants are suffering from too little foot traffic.
3. They are having trouble passing budgets. According to the Connecticut Conference of Municipalities, 62 towns went to referendum in 2004, but 73 went to referendum in 2007. Mayors and first selectmen say the shrinkage of middle-income, young- and middle-aged families as part of the electorate allows older and lower-income voters to dominate budget votes, and they typically vote "No."
4. They need property tax revenue. If locations can be found to create density, towns are finding, ten property tax bills per acre are better than one.
5. Elderly residents who can't afford or maintain large homes need one- or two-bedroom flats in town centers near the pharmacy, doctor, food store, and other conveniences.
6. Adult children are unable to come back to live in the towns they grew up in. Connecticut has lost a higher percentage of the 25- to 34-year-old population since 1990 than any other state (30.1% decline: 583,882 in 1990; 408,181 in 2006).

(Partnership for Strong Communities)

Towns like Plymouth, with centers that once sustained compact housing, a healthy mix of uses, and walkable streets, are in an ideal situation to take advantage of the IHZ program. By making housing available and affordable to those who need it, the IHZ program promises not only to keep crucial workers in town, supporting local businesses and encouraging job and business creation, but also to reinvigorate the town by drawing a critical mass of people into the town center as residents, workers, shoppers, and pedestrians.

BACKGROUND

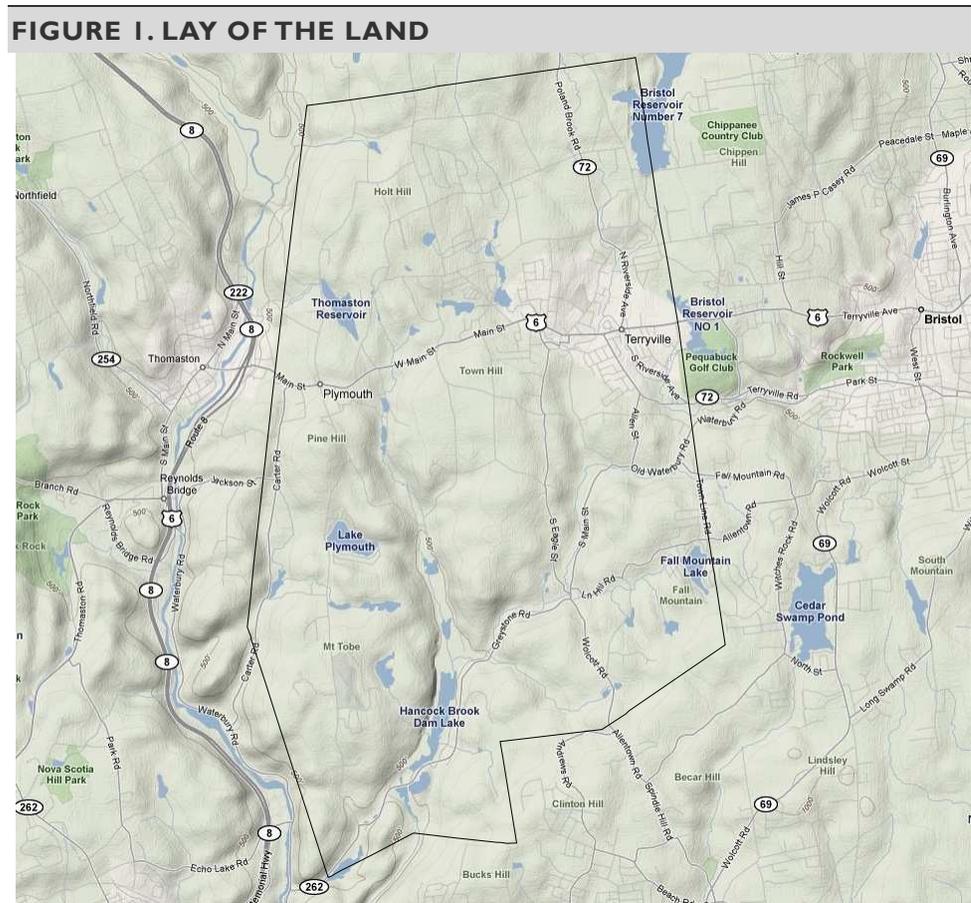
Geography

At twenty-two square miles, Plymouth is smaller than two-thirds of Connecticut's 169 towns and cities. It lies at the southwestern edge of the Hartford metro area (MSA), as defined by the U.S. Census Bureau, and belongs to Litchfield County as well as the seven-town Central Connecticut Planning Region. (It is a member of the Central Connecticut Planning Agency, which prepared this report). The cities of Bristol and Waterbury flank the town to the east and south, suburban Watertown brings up the southwest, and the rural communities of Burlington, Harwinton, Thomaston, and Wolcott surround it on all other sides.

Although Plymouth may technically be part of the Hartford metro area, its distance to the capital makes for a weak connection. As a result, Plymouth orients more towards its neighbors. The town's economic ties, both among businesses and in workforce flows, are much stronger here, in particular with Bristol and Waterbury. The local transportation system reinforces this orientation. Plymouth has excellent access to western Connecticut, the coast, and the New York metro area via Route 8 and freight rail, but it has no direct highway connection to the capital. (U.S. Route 6 and State Route 72, the principal routes to Hartford, become or will shortly become expressways in Farmington and Bristol, respectively.)¹ The dearth of public transit in town further sharpens the town's neighborly focus. Without buses or trains to carry people to and from work, school, commerce, and play, distance is more of a factor. It is a cost both for residents, who are forced to rely on private automobiles, as well as to town business, which cannot integrate as effectively into the regional economy.

¹ Pending completion of the Route 72 extension into Bristol.

A strip of Thomaston divides Plymouth from the Naugatuck River, into whose valley the western section of town slopes. Plymouth's landscape bears witness to the mountain-moving power of the Ice Age glaciers. Rolling hills with some steep grades typify the town. Slopes are particularly steep, even sheer, near Hancock Brook Dam Lake in the southwest. Several named peaks and a network of streams, rivers, ponds, and lakes make up Plymouth's landmarks. The most notable watercourses in town are the Pequabuck and Poland Rivers, tributaries of the Farmington River, as well as Hancock and Leadmine Brooks, tributaries of the Naugatuck River. (See also *Hydrology*, p. 51.) The largest bodies of water include the Thomaston and Bristol Reservoirs north of Route 6, and Lake Plymouth, Hancock Brook Dam Lake, and Fall Mountain Lake to the south. Owing to the important flood control and drinking water functions these bodies fulfill, many are surrounded by public or semipublic open space or preserved land. (For more on preservation status, see *Parks and Open Space*, p. 47.)



Due to Plymouth's challenging terrain, size, and historical inaccessibility from population centers, most of the town has escaped large-scale devel-

opment and, with the exception of Terryville, portions of Route 6, and two lake communities, by and large remains pristine. Plymouth contains some of the largest areas of open space within the Hartford and Waterbury areas and, with careful planning, has the potential to become an outdoor destination for those from nearby towns, the region, and even the state.

Anthropography

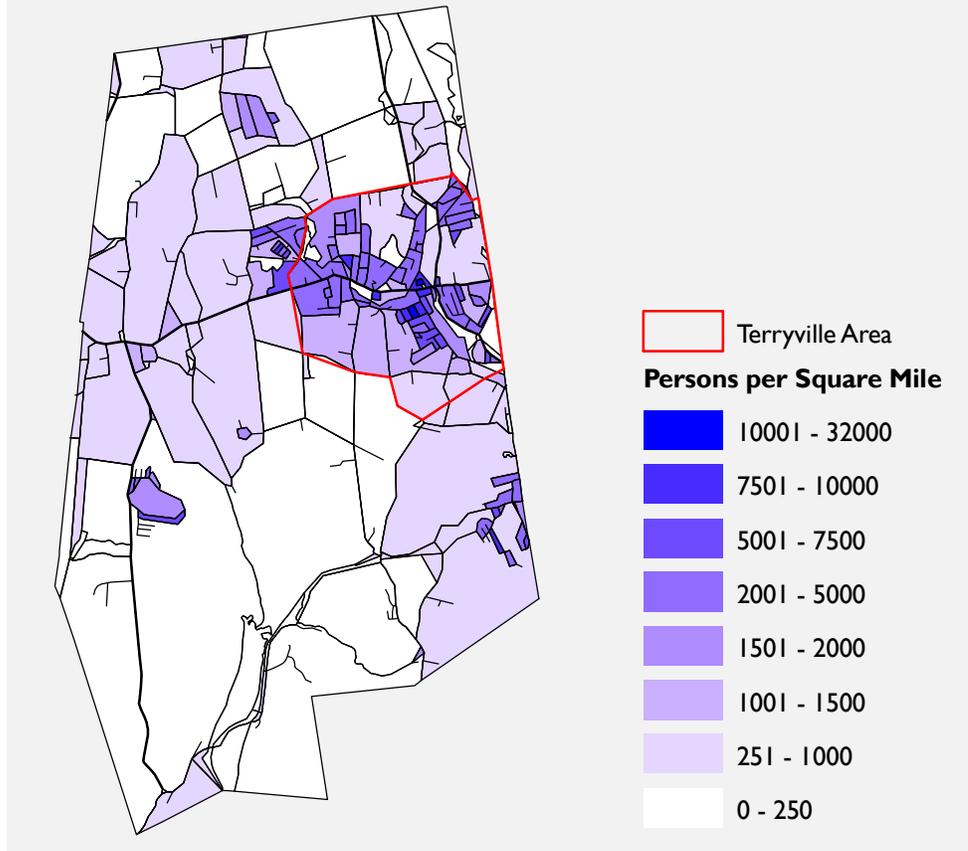
Plymouth is moderately developed. Most settlement centers around and to the northwest of the intersection of Routes 6 and 72, in the historic center of Terryville. About one-fifth of the town's land area has been developed (Figure 40, p. 67).

The town's population density reflects this. While Connecticut averages 709 persons per square mile, and Hartford County, 1,203, Plymouth is home to 561 (CERC, 2008). As Figure 2 (below) illustrates, density varies widely within Plymouth. While most of town has a low population density, there are areas of concentration: west of Terryville along Route 6, to the southeast around Fall Mountain Lake, and in the west surrounding Lake Plymouth. Terryville and the area to its immediate west make up the greatest cluster of people, businesses, and activity in Plymouth. Such a concentration here is unsurprising. Topography, environmental conditions, and the presence of existing infrastructure (Figure 30, p. 47) all suggest these as prime areas for development.

Plymouth's building stock reflects the three stages of development the town has passed through: farmhouses and colonials in Plymouth Center, testifying to the town's roots as an agricultural community; triple-deckers and brick mills in Terryville, chronicling its maturation into an industrial community; and ranches and contemporary suburbans in forest and field, witnessing its ultimate metamorphosis into a residential community.

Plymouth is unusual in the degree to which the building stock generated by the various stages of development persists. Rather than tear down structures, the town built elsewhere. That is, the locus of growth changed as the town grew. Thus, while Plymouth boasts a historic, well-preserved, quintessential town green in Plymouth Center, at the other side of town, it also offers a classic, historic urban core, a downtown. This is Terryville.

FIGURE 2. POPULATION BY CENSUS BLOCK



(U.S. Census Bureau, 2007)

In the years before the car made far-flung living and shopping possible, downtown Terryville was the focus of the community. Many residents lived and worked in or near downtown. All visited it on a regular basis to shop and socialize. A variety of establishments provided goods and services for all aspects of their lives. Many industrial outfits operated in Terryville, along the river and the train tracks. Few are still in business and remain important contributors to the town's economic base. Downtown also housed (and continues to house) civic and religious institutions, such as the town hall, public library, police station, firehouse, post office, and churches.

Though many of its edifices still stand, Terryville's downtown has changed markedly since the dawn of mass suburbanization. The streetcars that once linked it to Bristol, New Britain, and Hartford are long gone. Retail development in surrounding communities has siphoned merchants and shoppers from downtown Terryville during the past several decades.

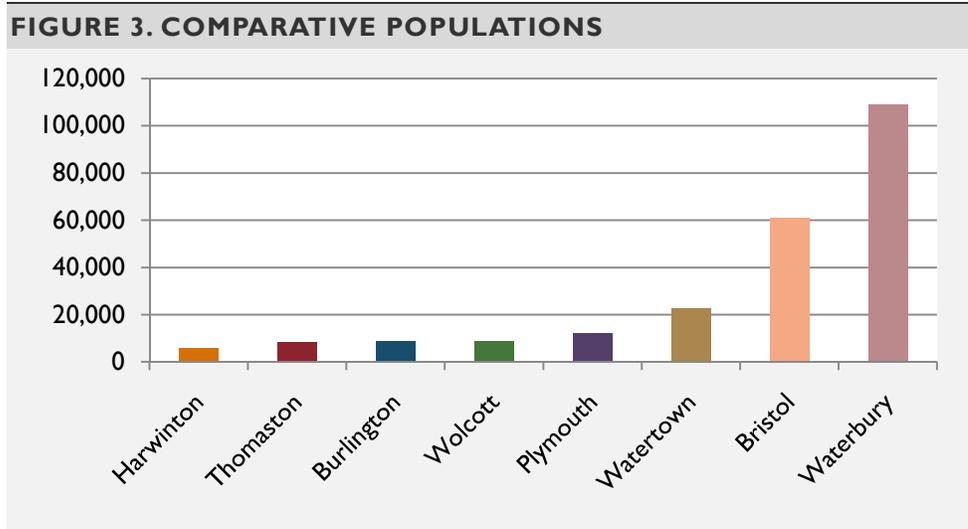
These locations offered the driving public convenience and “free” parking as well as space for the expanding chain stores that were coming to dominate retail.² At the same time, residential development also moved away from Terryville center. This put the businesses remaining downtown beyond the stride of many residents, who might otherwise walk. As a consequence of both of these trends, business and social activity within downtown Terryville is a shadow of its former self. Nevertheless, the twin tendencies of increasing size and remove in retail and residential construction continue to the present. They have most recently surfaced in the guise of “big boxes” and “McMansions.”

Today, downtown Terryville faces challenges. Many of its businesses are marginal; many of its buildings are dilapidated. Yet these challenges are not insurmountable. Downtown rests on a solid infrastructure. It lies on the busy Route 6 corridor and enjoys proximity to the neighboring city of Bristol, access to an active rail line, and a shapely and sturdy historic building stock. With judicious infill and redevelopment, it could offer what a growing post-suburban public wants nowadays: compact, walkable, and mixed-use. As much as downtown is a monument to Plymouth’s past, it is also an opportunity for its future.

Population and Growth

Plymouth is small geographically but mid-sized demographically. Its 2007 population was estimated to be 12,189. (CERC, 2008) This puts Plymouth ahead of its rural neighbors, such as Wolcott and Burlington, but behind the cities of Bristol and Waterbury, both of which dwarf Plymouth in population. Figure 3 (below) compares Plymouth’s population with those of its neighbors.

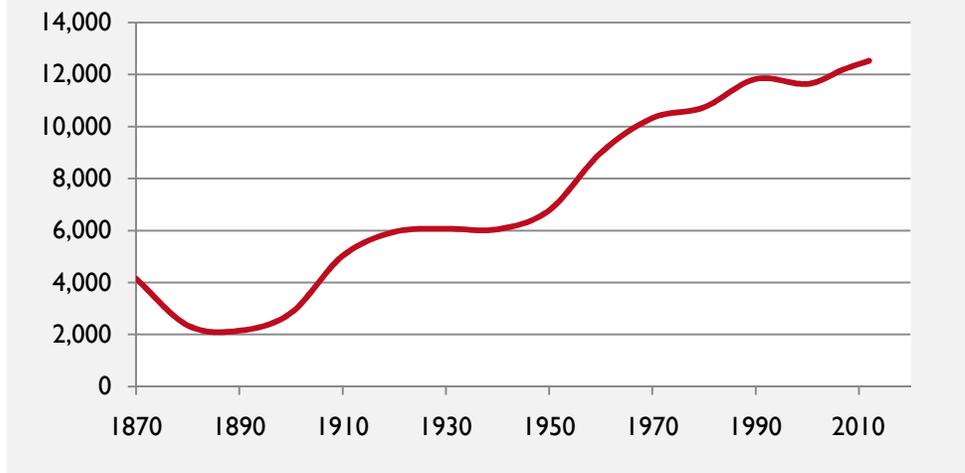
² *In truth, there is no such thing as free parking. The cost of parking is simply passed on to the consumer and town resident, whether or not he makes use of the infrastructure, through higher unit prices, congestion, and heightened property taxes, insurance premiums, and health care premiums.*



(CERC, 2008)

Plymouth has grown over the years, sometimes slowly, sometimes in leaps and bounds. The town underwent four phases in its growth (Figure 4, below). The twenty years following the Civil War saw a decline in population. The town rebounded with a population surge between 1900 and 1920, when growth leveled off again for the duration of the Great Depression. Not until after World War II did growth resume, but when it did, it did so with a vengeance. Plymouth experienced explosive growth in the postwar era. Fully half of its current population was established in that period, as the town grew steadily through 1970. Since then, the overall trend has been upward if fitful. Growth was slow throughout the 1970s but picked up again during the 1980s. The population decreased slightly in the 1990s but increased 4.8% between 2000 and 2007. (CERC, 2008). It is projected that the population will grow at an annual rate of 0.5% through 2012, for an increase of 334 persons. This gain, together with declining average household sizes, will exert further pressure on the housing supply and generate demand for new units in town.

FIGURE 4. HISTORICAL POPULATIONS



(U.S. Census Bureau, 2007) and (CERC, 2008)

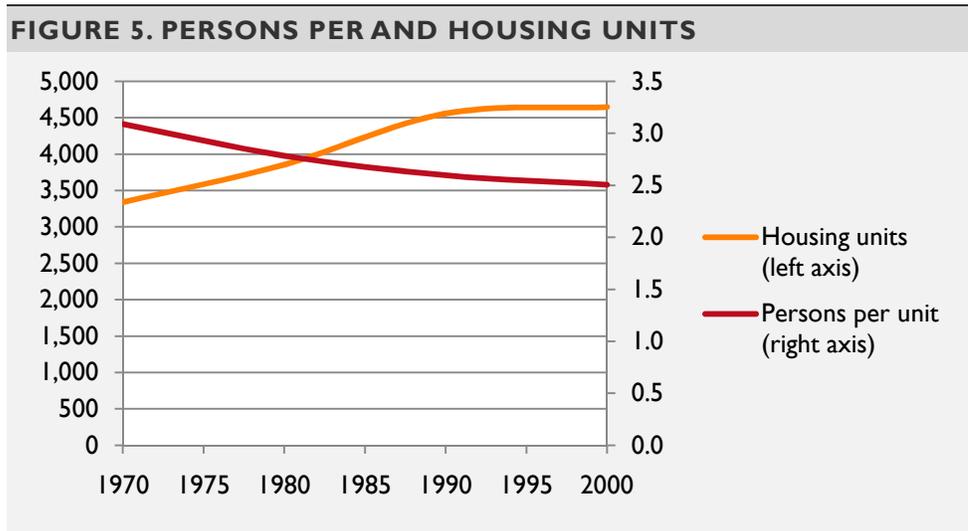
IHZ relevance: Housing demand will keep growing at a moderate clip.
Recommendation: New home construction is warranted.

Households

Plymouth's residents formed 4,600 households in 2007. This corresponds to an average household size of 2.60 individuals (CERC, 2008). However, household sizes vary considerably within the community. Households in owner-occupied housing have on average 2.75 members. Renter households, by contrast, average 2.04 persons (U.S. Census Bureau, 2007). In other words, households that own their homes average 0.71, or 34.8%, more persons than those that rent.

Household sizes also vary across time. Over the last several decades, household size has declined across the developed world. Between 1970 and 2000, the average number of persons per housing unit in Plymouth fell by 0.59 (18.9%). While Plymouth's population growth rate slowed, the number of household units—not coincidentally—swelled by 1,306 (39.1%). The latter outstrips the increase in the town's population (12.7%). Figure 5 (below) overlays these trends. Had household size remained constant, the additional population would have required only 424 new housing units. Fully two-thirds of new housing erected in Plymouth between 1997 and 2000 was built to accommodate not a growing population, but a population that needs or prefers to live alone. The lack of affordable hous-

ing in town is partly attributable to this. (If residents still lived three to a unit, the resulting housing surplus would drive prices down.)



(U.S. Census Bureau, 2007)

IHZ relevance: More new housing units than population growth alone would suggest are called for will be needed if household sizes continue to slide.

Recommendation: New home construction is necessary.

Increasingly diverse household types help to explicate these changes in household size. Today, two of five (41.0%) Plymouth households are non-traditional. They do not consist of married couples. Instead, they comprise single-parent (13.8% of the total), “other” family, and nonfamily households. Viewed apart, none of these groups—young singles, empty nesters, unrelated housemates, etc.—amounts to much. Taken together, however, they are a considerable bloc. This shift has implications for the housing market. Nontraditional households may have different needs and desires than traditional ones. Since most housing was built to accommodate the traditional household, housing supply may no longer fit housing demand. One of the questions for this study is: to what extent does the housing stock in Plymouth meet the needs of the existing—and future—households?

Nearly three-quarters of Plymouth’s existing housing stock (73.4%) is traditional single-family units (Figure 20, p. 30). To the extent that nontraditional households need and desire nontraditional housing, supply is out of

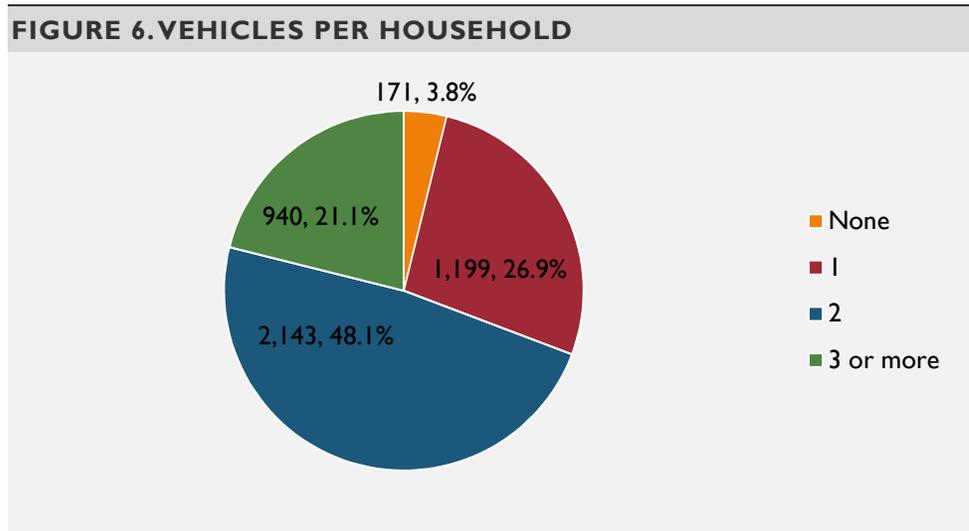
line with demand. One would expect the market to react to such incongruity by increasing the supply of nontraditional housing. Developers should be building fewer single-family homes and more multifamily residences. However, they have not done so. New housing tilts even further in favor of conventional households: 92.6% of construction within the last five years has been single-family homes (Table 2, p. 31). Supply is not aligning with demand. This may be driving prospective residents out of Plymouth or forcing them into homes that are unsuitable for them. The consequence is a dearth of appropriate housing at affordable prices.

Homes are not all that matter to households. In a rural-suburban community like Plymouth, cars are almost as indispensable. As the section *Commute Patterns* (p. 22) bears out, they are the primary means of transportation to and from work for all but a very few in Plymouth. (Only 3.5% of town residents commute by other means. Presumably similar figures hold for other types of trips, such as running errands.) The average household has at least 1.86 vehicles. In comparison, the same household has 1.54 persons in the labor force. (Figure 6, below, gives households by the number of vehicles they possess.) This numerical superiority of vehicles to workers implies that for most Plymouth residents of age and sound mind and body, mobility is not an obstacle to participation in the community and local economy. (Since this section focuses on vehicle ownership, it omits the 22.2% of residents who are under the unrestricted driving age of 18 and the 15.8% who are disabled. Many of these persons cannot drive, so vehicle access is not an issue for them *directly*. However, insofar as they are mobile, their drivers do need vehicles.)

That said, for a minority of households, vehicle access may be a problem. 3.8% have no vehicles at all. Given the absence of transit and the auto-centric paradigm of much development in Plymouth, these households may encounter serious difficulties in accessing services, getting to work, or even getting work at all. (Households without vehicles may find themselves trapped in a vicious circle. Without a car, they cannot get a job, but without a job, they cannot get a car.)

In a relatively auto-dependent place like Plymouth, it seems fundamental that residents have access to a vehicle, but car ownership is expensive. Those hanging from the lower rungs of the economic ladder may discover that in driving to work, they are working to drive. The average, annual cost of single car ownership in Connecticut is \$11,461 (Egan, 2008), 23.9% of

the state median income.³ This represents a high opportunity cost for all Plymouth residents and may burden less affluent households considerably.



(U.S. Census Bureau, 2007)

IHZ relevance: Automobile dependency may be a burden or barrier for many in the community.

Recommendation: New development should be designed to lessen or eliminate the need to own and operate a car.

Economy

Plymouth lags economically. The town ranks 146 out of 169 Connecticut town and cities on economic indicators such as poverty and unemployment. This has led the state to designate Plymouth a “distressed municipality.” (State of Connecticut, 2008b)

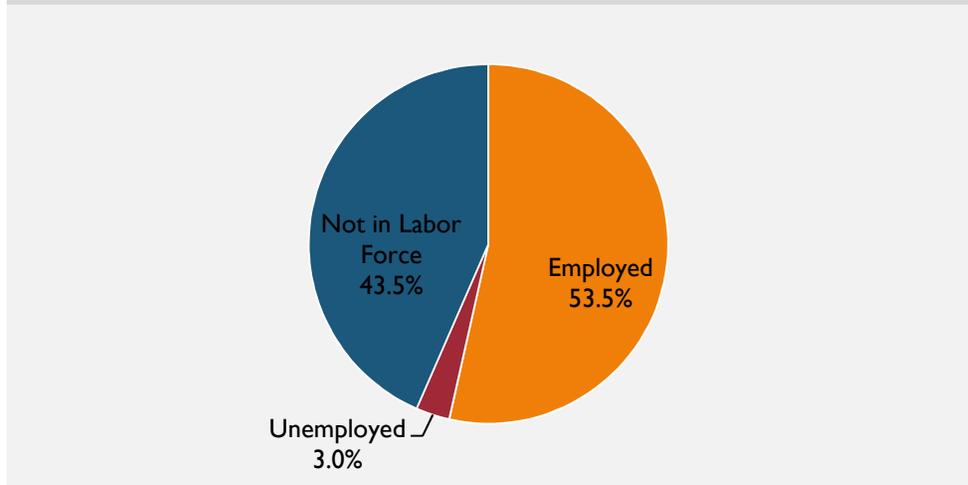
WORKFORCE

Employment in Plymouth is relatively robust. The town’s labor force numbered 6,892 (56.5% of all town residents; 83% of residents aged 18-64) in 2007. Of these, 6,521 were employed, and 371 were unemployed (CERC, 2008). This equates to an unemployment rate of 5.4%, slightly higher than the state rate, or an employment-to-population ratio of 53.5%.⁴ Figure 7 (below) depicts this.

³ For single-person households.

⁴ “Population” refers to town residents of all ages.

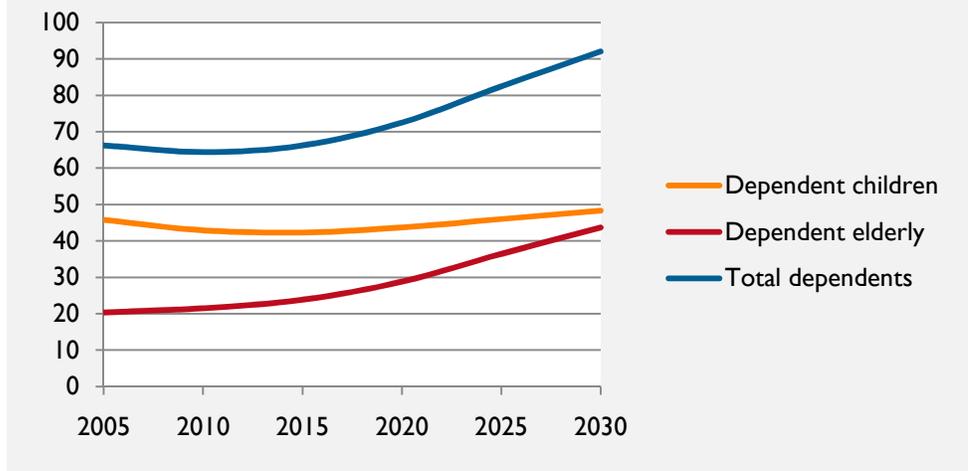
FIGURE 7. EMPLOYMENT RATE



(CERC, 2008)

The ratio of persons not working to workers is 86.9%. Put another way, for every hundred people with jobs, there are 87 without. Many of these people without jobs presumably depend on the support of those who are employed. These numbers are not alarming, given a society with an even age distribution. However, as time passes, the number of dependents *in Plymouth* is likely to rise markedly. It is anticipated that over the next twenty years, the dependent population (aged 0-19 and 65+) will rise by 39% (Figure 8, below). At this time, there will be 92 dependents for every 100 workers. The largest gains will not occur in the youth. The number of persons under twenty years old will actually decline before creeping to 5% over 2005 levels. Instead, the gains will accrue to the elderly. By 2030, the number of seniors per 100 workers will soar by 114.5%! Therefore, not only will the percent of dependents in the population rise, it will rise among people who have permanently exited the work force. As a result, the quality and quantity of services, including housing, demanded by town residents may change sharply, at a time when the proportion of the population in the workforce or entering the workforce will decline.

FIGURE 8. DEPENDENTS PER 100 WORKERS



(University of Connecticut, 2007)

IHZ relevance: The population is graying rapidly.

Recommendation: More senior-friendly accommodations will be needed, from townhouses and “active adult” communities to assisted living facilities.

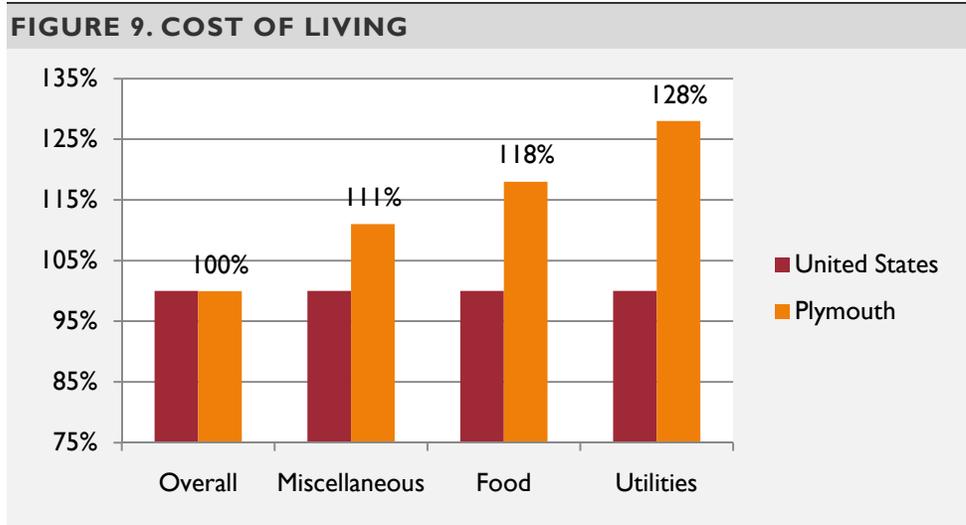
On the employer side, Plymouth is losing jobs. Between 2000 and 2007, Plymouth’s employment had an adjusted annual “growth” rate of -0.4%. This is marginally better than Litchfield County, which experienced -0.7%, but worse than the state, whose employment totals grew 0.1% yearly. (CERC, 2008) Poor employment prospects may worsen Plymouth’s dependency problems in the future. With neither jobs nor housing suitable to attract and retain a population of young workers, the town may encounter difficulty supporting the expanding ranks of its seniors.

Median household incomes in Plymouth are average, at \$66,177 in 2007. This compares to a median of \$68,760 for the county and \$65,859 for the state (CERC, 2008). However, not all households have fared equally well. In 2007, more than one in seven households (15.6%) made do without any earnings whatsoever, and more than one in nineteen (5.4%) fell below the poverty line. The number facing financial hardship jumps to one in ten (10.0%) when the cutoff is raised to 1.5 times the poverty line⁵ (U.S. Census Bureau, 2007).

⁵ Many consider 150% of the poverty line a more accurate measure of hardship. (It is widely held that the poverty line understates the true cost of subsistence.)

COST OF LIVING

Living expenses are reasonable in Plymouth, matching the national average (Fast Forward, Inc., 2008). While overall costs may conform to the mean, however, many goods and services cost substantially more in Plymouth than in the nation. As Figure 9 (below) illustrates, the vital—and fast-inflating—categories of food and utilities are markedly pricier in Plymouth than in the rest of the country, on average.



(CERC, 2008)

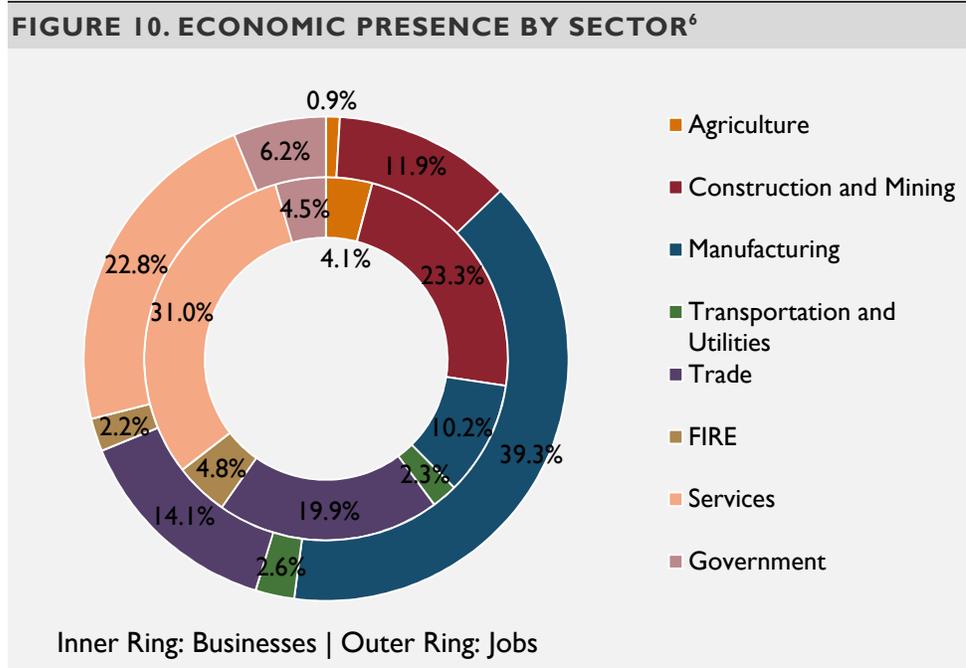
IHZ relevance: Basic necessities, especially utilities, are expensive. This cuts into residents' ability to pay for housing.

Recommendation: New construction should minimize utility costs (i.e., adopt energy-efficient design).

CAPITAL

235 employers have operations in town. As of 2007, they engaged a total of 2,251 workers (CERC, 2008). Employment shows a specialization in manufacturing, which has been and continues to be a keystone of the local economy. Almost 40% of the labor force (39.9%) works in the field. This figure is far higher than county and state rates (17.3% and 11.3%, respectively). Manufacturing in Plymouth includes production of locks, meters, pumps, computers, plastics, electronics, and hardware. With the development of an information economy, other sectors have emerged. Trade and services are beginning to challenge manufacturing's primacy in the town's economic base. In addition to providing jobs, these sectors account for a

large share of town businesses (Figure 10, below), unlike manufacturing. While a few large manufacturing companies can employ many people, firms specializing in services and trade are generally smaller, employing fewer workers. These firms benefit from strength in numbers.



(CERC, 2008)

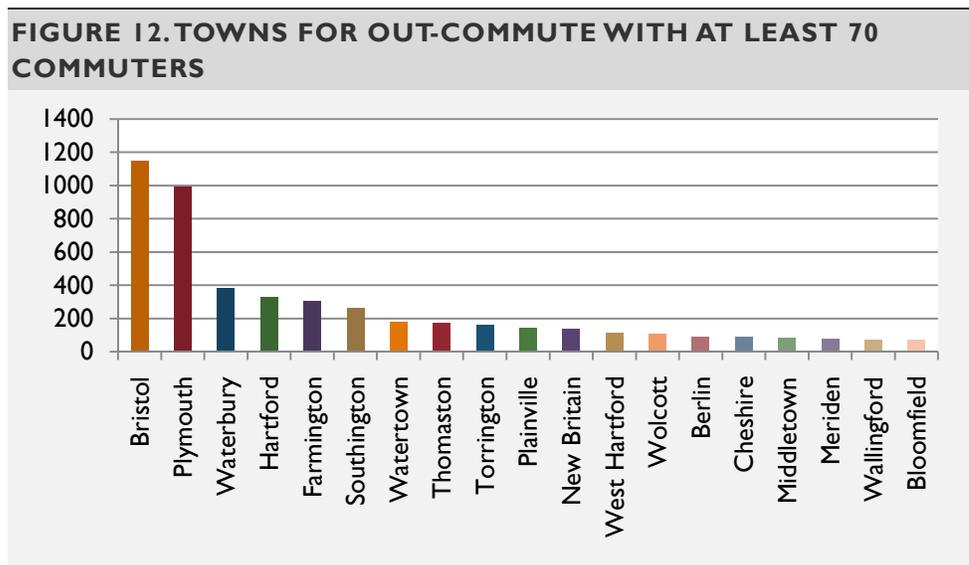
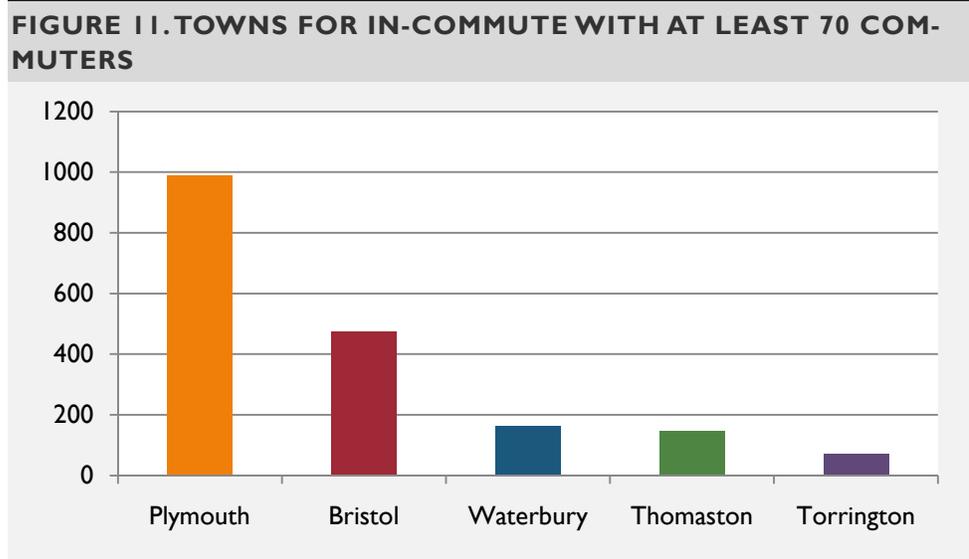
The largest employers in town are the Town of Plymouth, Cook-Willow Health Center, Coldform Inc., Richards Corporation, and Iseli Company (CERC, 2008). To attract further business, the town created a business park in 1973. It has succeeded in this, and, having become built out, the park was recently expanded to a third phase. Plymouth’s retail sector, in contrast, is small. Retail sales in town account for only 0.1% of all retail sales statewide. (CERC, 2008) That is much less than would be expected, given Plymouth’s population, which is 0.3% of the state’s. Town residents either spend much less than Connecticut residents on average or shop correspondingly more in other towns (i.e., revenue leakage).

COMMUTE PATTERNS

Demand for employment exceeds supply in Plymouth’s labor market. (As noted above, 6,892 workers lived in Plymouth in 2007, but only 2,251 worked there.) Roughly 14.4% of resident workers (990 people) actually work in town; the majority are commuters. 85.6% of resident workers

⁶ FIRE stands for “Finance, Insurance, and Real Estate.”

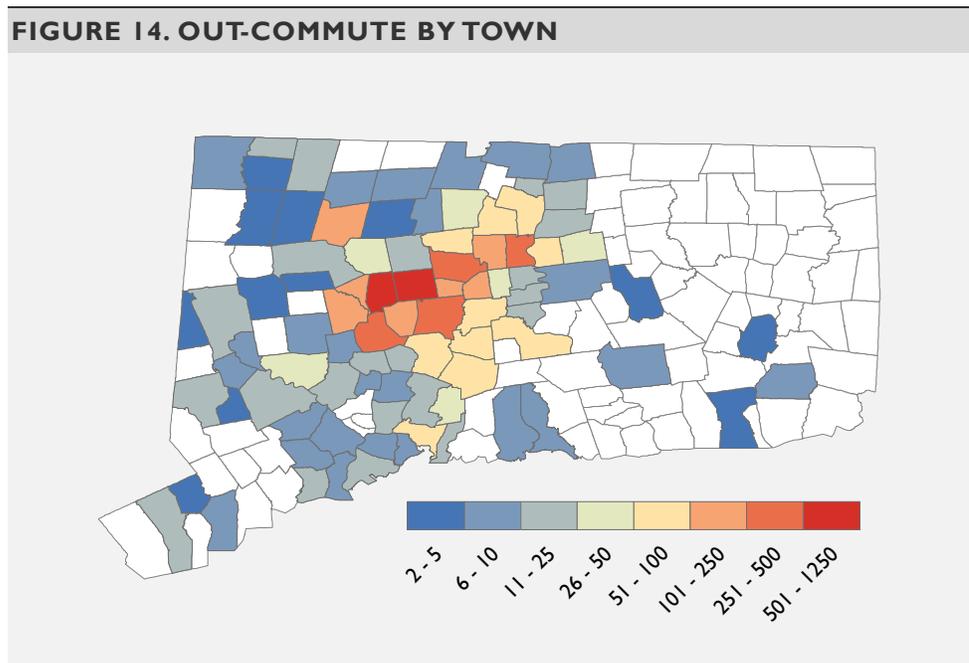
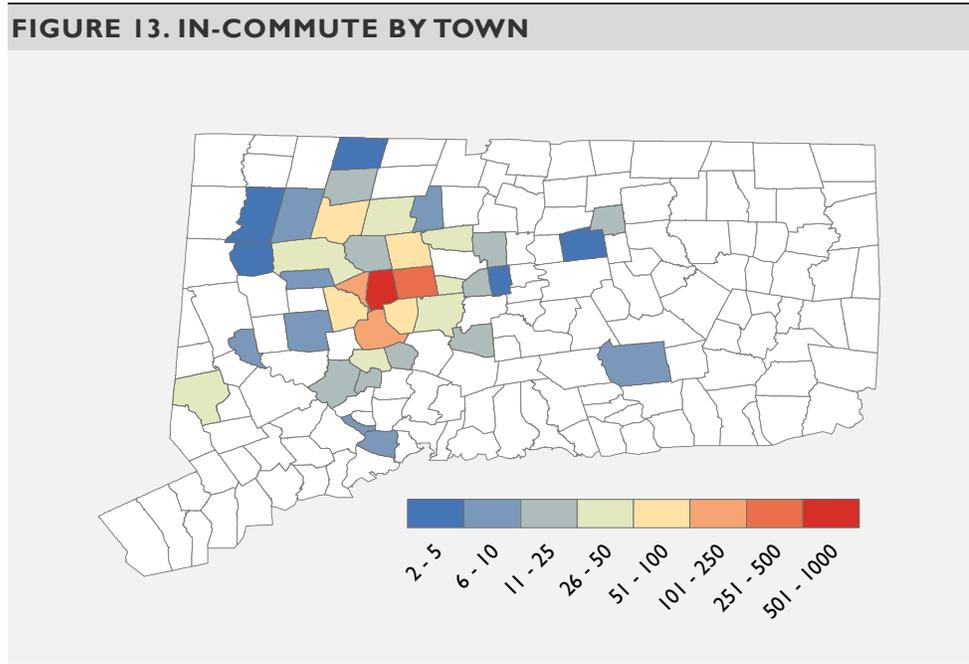
travel to jobs in other towns. Meanwhile, 56.0% of jobs available in Plymouth are staffed by commuters from surrounding towns. As one would expect, the number of residents or workers traveling to or from a particular place varies with its proximity. Most people commute to and from nearby locations. Figure 11 and Figure 12 (below) list the top municipalities for in- and out-commutes.⁷



(U.S. Census Bureau, 2007)

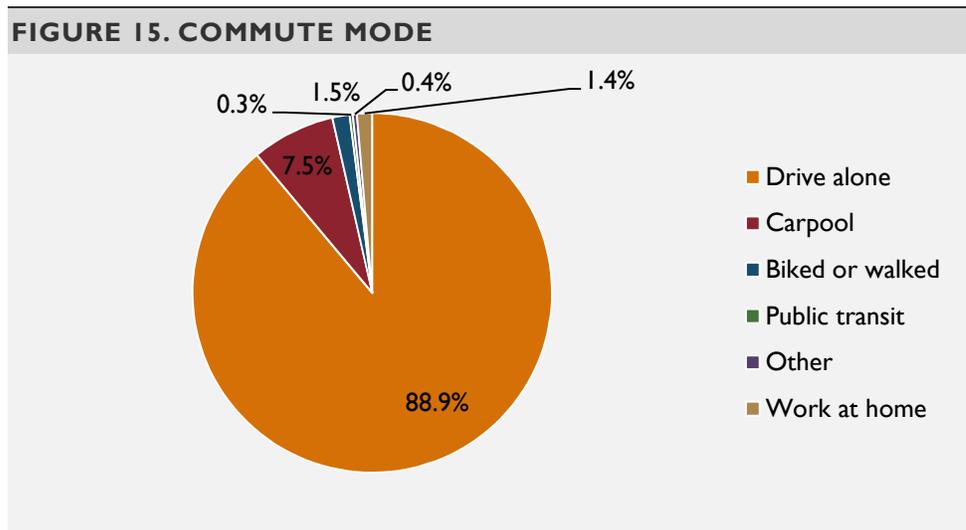
⁷ Those contributing or capturing roughly 1% or more of workers in town or workers from town, respectively.

Some workers do journey farther afield (Figure 13 and Figure 14, below), commuting between Plymouth and towns all over Connecticut. Given the high opportunity costs of long commutes (time and money lost), this suggests that there is a lack of either suitable work near employees' homes, suitable housing near employers' places of business, or both.



(U.S. Census Bureau, 2007)

98.6% of resident workers commute to a job, whether in Plymouth or elsewhere. (Few people work from home.) Commuting skews toward automobiles, especially single-passenger vehicles. Nineteen of twenty commuters (97.7%) drive private cars to work; roughly one in thirteen (7.7%) of those carpool (U.S. Census Bureau, 2007). Other modes of transportation claim minimal shares. Few people (1.5% combined) walk or bicycle to work. Even fewer (0.3%) avail themselves of public transit. That transit use registers at all is surprising, since no transit lines serve Plymouth (see *Public transit*, 41). Figure 15 (below) breaks down the modes of transportation used by commuters in Plymouth.



(U.S. Census Bureau, 2007)

The average commute for a worker living in Plymouth takes 27.4 minutes each way, which equates to 274 minutes per week. Estimating that a majority of workers receive approximately 19 days off per calendar year,⁸ this means that workers living in Plymouth spend, on average, approximately *nine days per year* travelling to and from work. Assuming that most people would prefer shorter commute times, it seems that jobs and housing in Plymouth are inadequate to the needs and desires of its residents and workers. Providing a more varied array of housing and encouraging a broader range of employment options might allow people to work closer to home and live closer to work. This could improve both the employment and housing markets in Plymouth, while engendering a host of secondary benefits (including: lessening of financial burdens associated with

⁸ According to the Bureau of Labor Statistics, roughly 75% of civilian employees receive (on average) 9 paid holidays and 10 paid vacation days per year.

home prices and car ownership, freeing up time for family and civic engagements, fostering community involvement and community pride, lessening traffic congestion and pollution, improving public health, and providing increased foot traffic to local businesses).

IHZ relevance: Residents and workers spend untold time and money driving in circles. This has negative impacts on them as individuals as well as on the entire community.

Recommendation: Construct a variety of housing types near employment centers and encourage development of new sectors of the economy to allow people to live close to work, and vice versa.

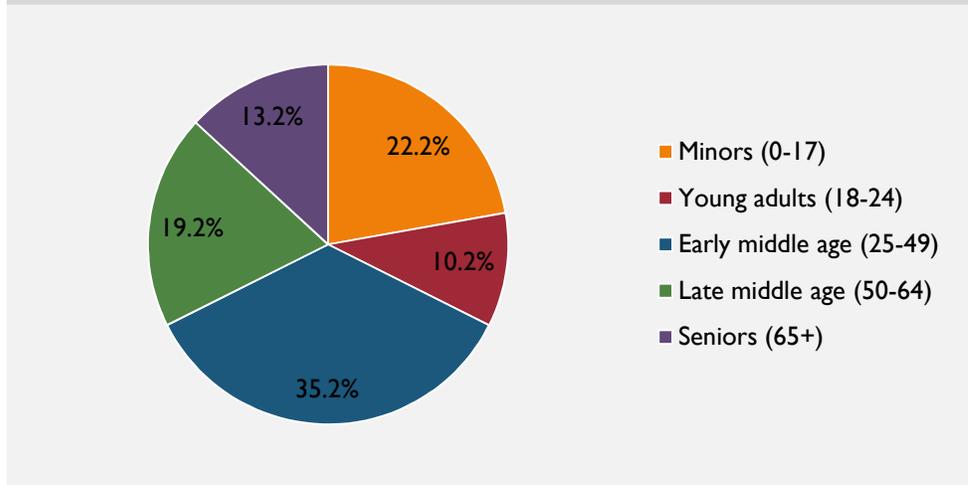
Demography

Plymouth's demographics are similar to those of the county and state. The following section discusses the sex, color and culture, educational attainment, disability status, and age characteristics of Plymouth residents.

AGE

With a median age of 37.5, Plymouth's population is younger than the county's and the state's. (They clock in with medians of 42 and 39, respectively.) Slightly more than a third of residents are in their peak earning years (ages 25-49). This stands the town well. Minors and seniors each comprise just under one-third (32.4%) of the population. However, divisions within these segments of the population are not equal (as Figure 16, below). Nearly 70% of the youngest third are minors; only 30% are of age to enter the workforce. Of the oldest third of the population, 40% are seniors 65 years and older, 60% are late middle-age workers on their way to retirement (CERC, 2008). Although it is not shown below, the middle third has a similar breakdown. In 2000, slightly less than one-third of this group (or roughly 11.5% of the total population) were 25 to 34 years old, while 68% fell between the ages of 35 and 49 (U.S. Census Bureau, 2007).

FIGURE 16. AGE DISTRIBUTION



(CERC, 2008)

The age distribution of town residents does not bode well for the future. The workers who form the backbone of Plymouth’s economy, persons aged 35 to 64, are set to retire by 2030. Yet their presumed successors, persons aged 18 to 34, are the smallest cohort in the town’s population. If the current age distribution does not change but extends into the future, there will not be enough new workers to replace retiring workers. In this regard, Plymouth is like the rest of Connecticut, which has suffered more attrition among its young adults than any other state (Table I, p. 8). To support its aging population, maintain a vibrant economy, and forestall a labor shortage, Plymouth will need to retain the young people already in town and attract new ones. A question for this study is, therefore, how much is the lack of affordable housing an obstacle to this?

IHZ relevance: A labor shortage looms in the future if new workers cannot be recruited and retained.
Recommendation: Housing should be provided at affordable prices to draw and “tie down” employees.

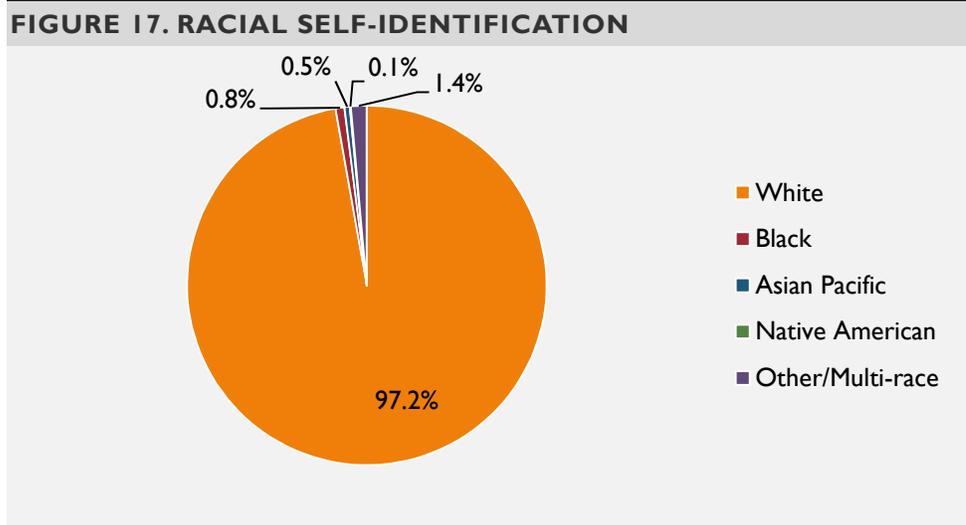
For further relevance and recommendations, also see Workforce (p. 20).

SEX

Plymouth is almost evenly split between men and women. Males constitute 49.8% of the population; females, 50.2% (CERC, 2008).

COLOR AND CULTURE

Plymouth residents primarily label themselves “white.” Only 2.8% identify as any other race. Of those, half identify as multi-racial; slightly more than one quarter, as black; one sixth, as Asian Pacific; and one-thirtieth, as Native American. One in fifty residents (2.1%) of any race identifies as Hispanic (CERC, 2008).



(U.S. Census Bureau, 2007)

DISABILITY

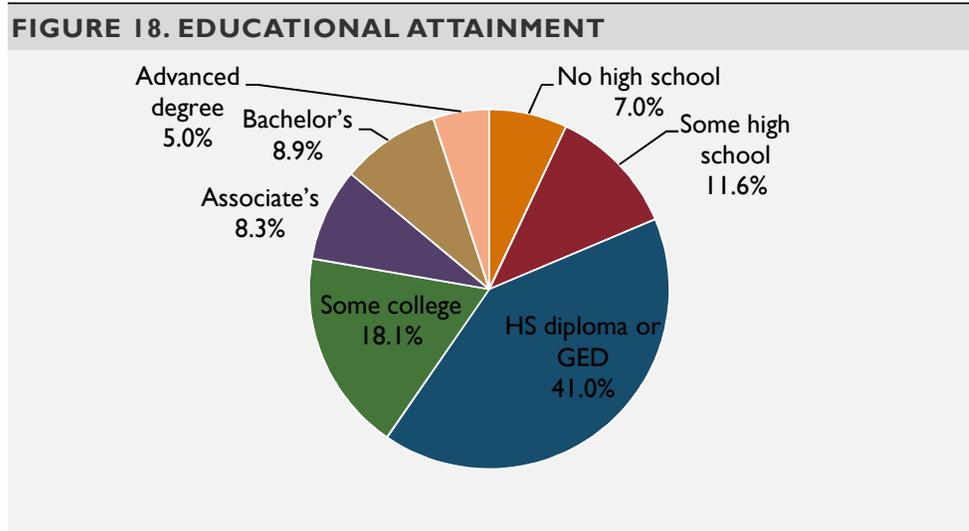
More than one in seven (15.7%) Plymouth residents reports being disabled (U.S. Census Bureau, 2007). These residents may have limited means, mobility, and rely on the support of others. As a consequence, these individuals may be among the most affected by the cost of housing. As the town’s population ages, its disabled population will increase. Housing needs and the ability to pay will change accordingly.

IHZ relevance: The number of disabled residents is large and rising.
Recommendation: Housing should be provided that persons with limited financial and physical ability can afford and access.

EDUCATION

Plymouth’s citizenry is diverse in its educational attainment. 5.0% of adults age 25 or older hold advanced degrees. (These include professional, Master’s, and doctorate degrees.) At the other end of the spectrum, 7.0% never made it past eighth grade. The majority lies in between. 81.4% possess high-school diplomas (or an equivalent); 40.4% have attended college;

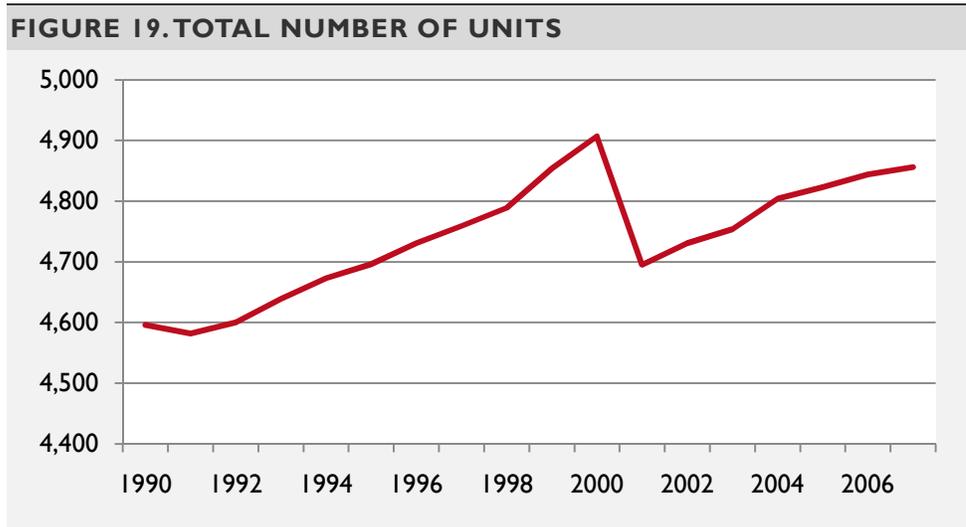
and 13.9% have successfully earned a Bachelor's or higher. Figure 18 (below) charts education in town (by the highest level achieved).



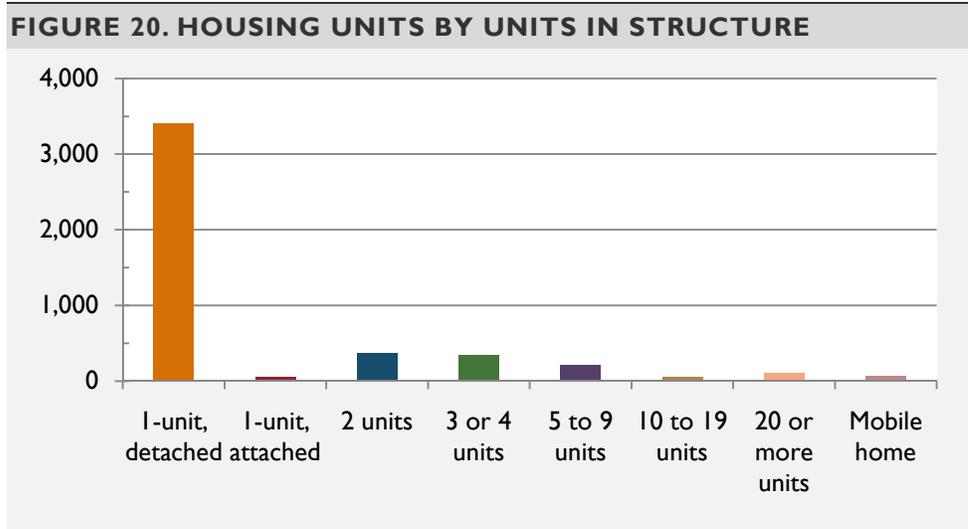
(U.S. Census Bureau, 2007)

HOUSING

Plymouth has about 4,856 housing units. Most of these (64.7%) are single-unit structures. Growth in housing has been modest (Figure 19, below). In 2007, 18 permits were authorized. (State of Connecticut, 2008a) This amounts to 0.3% of the existing stock. In the same year, 275 homes sold. The median sale price was \$175,000. (Town of Plymouth, 2008a)



The vacancy rate for housing in Plymouth is low. In 2000, it was 4.2%. This is lower than the region, at 5.1%, and nearly one-third lower than the state, 6.1%. The housing stock by and large consists of single-family homes (74.5%). The majority of these (98.4%) are detached. Figure 20 (below) shows the make-up of the housing stock by the number of units in each structure.



(U.S. Census Bureau, 2007)

Construction in recent years has been more or less homogeneous. As Table 2 (below) makes clear, in every year but 2004, all new homes have been single-unit residences.

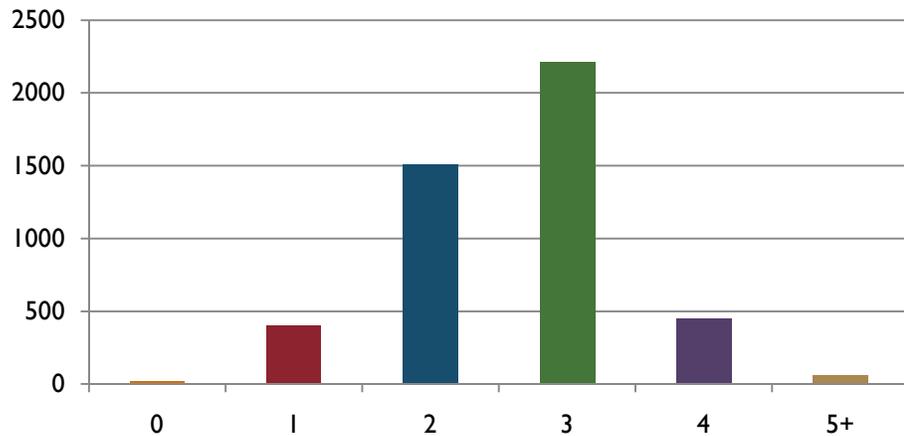
TABLE 2. RECENT HOME CONSTRUCTION BY UNITS

Year	1 unit	2-4 units	5+ units
2003	28	0	0
2004	48	4	7
2005	23	0	0
2006	21	0	0
2007	18	0	0
Total (% of all)	138 (92.6%)	4 (2.7%)	7 (4.7%)

(State of Connecticut, 2008a)

Most homes in town have two or three bedrooms (2.62 on average). Dwellings of this size accounted for 3,719 (75.7%) of the 4,907 units found in Plymouth in 2000. These homes are well suited to local owner-occupied households, which are on average comprised of 2.75 people. Renter-occupied households tend to be smaller, with 2.04 people. Indeed, 22.7% of all households in town comprise a single person. Overall, 41.0% of households in Plymouth are nontraditional. Due to smaller household size or tighter budgets resulting from fewer incomes in the household, these residents may want or need smaller accommodations. Yet Plymouth has only 416 units with fewer than two bedrooms, compared to 1,840 nontraditional households.

FIGURE 21. NUMBER OF UNITS BY BEDROOMS



(U.S. Census Bureau, 2007)

Figure 21 (above) tallies housing units by number of bedrooms. Were the population distributed among them equally, there would be 2.51 persons per unit, or 1.0 persons per bedroom (U.S. Census Bureau, 2007). In other words, existing housing in Plymouth is fully inhabited. There are only 36 more people in Plymouth than bedrooms. Of course, in reality the population is not evenly distributed; average household size is 2.6 and the majority of housing units in town (58.5%) have three or more bedrooms. In tandem with the fact that the majority of units in town are single-family, detached homes, this further evinces the failure of Plymouth’s housing stock to meet the changing needs of its population.

IHZ relevance: Housing demand for nontraditional homes exists, but the private market has failed to meet it.
Recommendation: New construction should be more balanced. It should include townhouses and condominiums.

Units designated “affordable” make up 7.1% of the town’s housing stock.⁹ (State of Connecticut, 2007c) As the availability and affordability of units differs with the type of tenure, owned and rented housing are treated separately below.

⁹ This figure lies below the ten percent target set by the state and opens Plymouth to the Affordable Housing Land Use Appeals Procedure under Connecticut General Statute 8-30g.

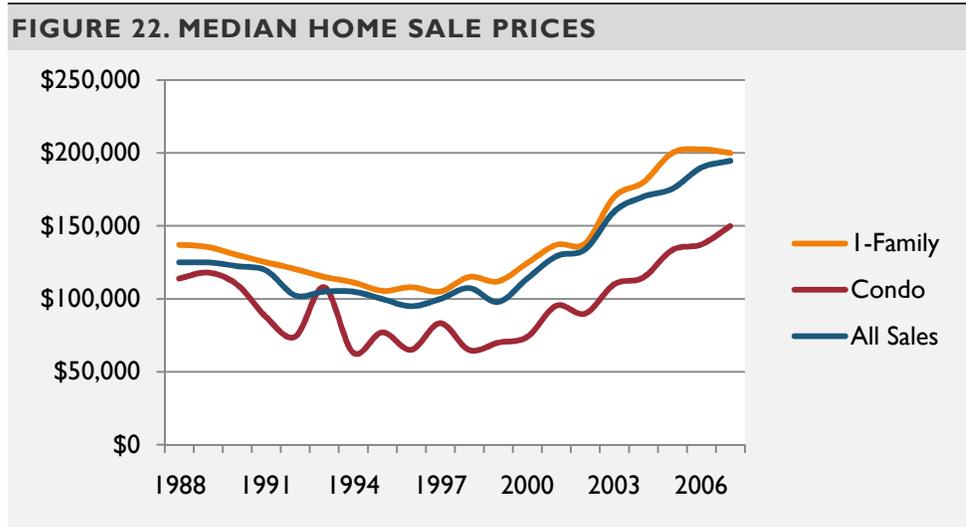
OWNED

Most Plymouth residents (83.2%) “own” their homes (U.S. Census Bureau, 2007). (Due to outstanding mortgages, many do not own their homes outright.) In the last decade prices have appreciated sharply. Figure 22 (below) illustrates this. Between 1998 and 2007, median prices for all homes sold nearly doubled (+81.0%), outpacing both population growth and inflation. This drastic increase in equity enriched homeowners, but it also made homes less affordable for prospective buyers. Wages may have inched upwards, but home prices have skyrocketed. Indeed, a recent study finds Plymouth on the brink of being “unaffordable.” (Partnership for Strong Communities, 2008) While a household earning the median income did qualify for a mortgage on the median-priced home in town with a surplus \$6,010.37 in 2007, in 2006 it had a mere \$517.42 to spare.¹⁰ Fluctuations in home prices and earnings explain this change and suggest that some Plymouth homeowners may be skating on thin ice. Even if homeowners in Plymouth qualify for a mortgage, they cannot count on this margin being there—under poor economic circumstances, some year they may crash through.

Moreover, the market became even more difficult for new buyers, as the price increase did not distribute equally across all housing classes. While single-family homes rose 73.9% in value, condominiums ballooned an incredible 131.0%. This compounds the affordability crisis, as condominiums have traditionally served as a more economical alternative to single-family homes. In 1998, the median condominium went for 56.4% of the cost of the median single-family home. By 2007, the ratio increased to 75.0%. The increase, in absolute terms, is astronomical: where the median condo in 1998 sold for \$82,232 (in 2007 dollars), in 2007 it sold for \$149,900, or 82.3% more, *after* adjusting for inflation. In Plymouth, the housing market grew pricier on the whole, with increases at the bottom outpacing those at the top. As Figure 22 (below) shows, however, condominium prices have been far more volatile during the past twenty years than single-family home prices. While it is unlikely that all of this variation (particularly the dramatic vacillations between 1992 and 1994) can be explained by

¹⁰ *Factual basis for 2007 (2006): median sales price: \$194,950 (\$200,000); median income: \$66,177 (\$62,176); monthly payment with 10% down: \$1,403.89 (\$1,438.70); qualifying income with 10% down: \$60,166.63 (\$61,658.58); difference between median income and qualifying income: \$6,010.37 (\$517.42). Assumptions: 4.5% fixed rate, 30 year loan, 1% of purchase price put toward taxes and insurance, \$60 per month for property insurance, home buyer has saved 10% of the purchase price for the down payment and has no outstanding debt.*

changes in supply and demand, the relatively steady increase in condo price since 1998 and its proportional difference compared to the increase for single-family home strongly suggests an undersupply. Therefore it appears that Plymouth may be experiencing a shortage of condominiums and similar housing.



(The Warren Group, 2008)

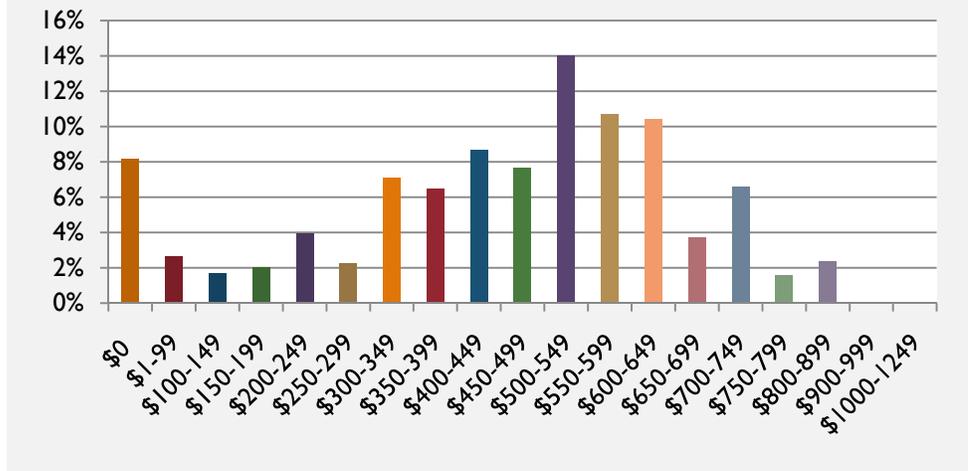
IHZ relevance: Housing has become very expensive. Demand for condominiums in particular has outstripped supply, and prices reflect that.

Recommendation: New housing, especially in the condominium market, should be erected to boost supply and temper prices.

RENTAL

20.3% of housing units are rentals. Renters make up roughly one-sixth (16.8%) of the resident population. (The difference in the figures reflects the fact that renters tend to live in smaller households, so the same number of people require more units.) Rents in 2000 ranged from nothing (gratis) to over \$800. The average monthly rent in 2000 was \$447.88, or \$171.22 per bedroom. Given the hyperinflationary growth in real estate prices since 2000, rents are likely nearly twice that now. There is considerable variation between rents paid, as Figure 23 (below) indicates.

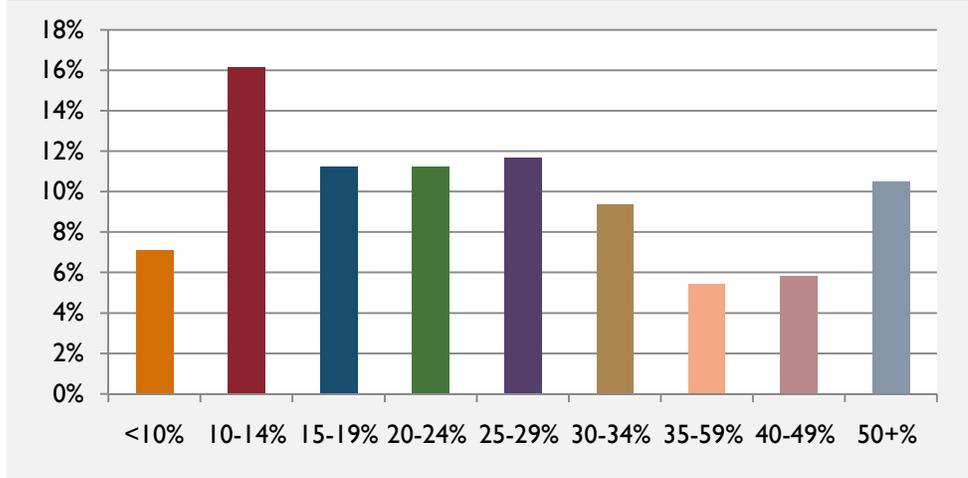
FIGURE 23. PERCENT OF UNITS BY RENT



(U.S. Census Bureau, 2007)

The burden rent imposes on households varies just as dramatically. Rent accounts for anywhere from under one-tenth to over one-half of household income. Figure 24 (below), which graphs rent as a share of income, exhibits a bimodal distribution. This suggests a two-class system. Many renters have found affordable housing, but large numbers suffer under housing-predicated financial duress. In 2000, over three in ten renters (31.1%) reported paying more than thirty percent—an unsustainable share—of their household income for rent alone. (U.S. Census Bureau, 2007) Given that real estate prices have since inflated much faster than income, the distribution pictured below most probably no longer holds. The columns to the right are likely to be substantially taller; those on the left, shorter. In other words, rent likely eats up a precariously large share of income for a much larger group of households now.

FIGURE 24. PERCENT OF HOUSEHOLDS BY PERCENT OF INCOME SPENT ON RENT



(U.S. Census Bureau, 2007)

IHZ relevance: Rent has become an unbearable burden for many.
 Recommendation: More housing is needed to relieve market pressure, lessen rent, and free up earnings for other purposes.

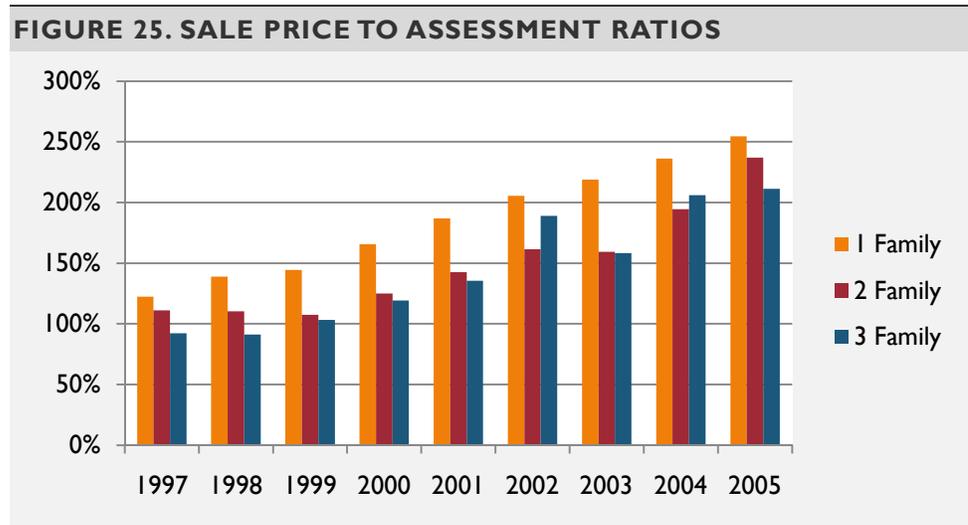
REAL ESTATE SALES AND VALUATION

Real estate valuation has not kept up with inflation in the housing market. In 1997, homes in Plymouth sold for an average of 133.8% of their assessed value. By the most recent year for which data were available, 2005, the ratio had jumped to 221.6% (Table 3 and Figure 25, below). That is, homes that changed hands that year were assessed on average at just 45.1% of the actual sale price. These artificially low assessments are a problem for a couple reasons. First, they deprive the town of necessary revenues. Second, they convey a false impression that housing is more affordable than it really is. The grand list is not indicative of what prospective buyers can expect. Instead, they must be prepared to pay double, if not more, of what the grand list would suggest.

TABLE 3. SALE PRICE TO ASSESSMENT RATIOS				
Year	1 unit	2 units	3 units	Average
1997	139.3%	84.5%	109.0%	133.8%
1998	142.4%	100.3%	97.7%	140.0%
1999	155.7%	113.2%	98.9%	152.0%
2000	171.7%	111.8%	114.5%	165.9%
2001	172.2%	158.9%	134.0%	169.6%
2002	173.0%	160.5%	134.0%	170.8%

2003	193.0%	155.2%	134.9%	188.8%
2004	207.7%	168.8%	171.2%	203.7%
2005	224.3%	197.6%	203.2%	221.6%
All years	178.8%	144.5%	141.6%	175.4%

When the data are broken out by housing type, a second trend emerges. Single-family homes consistently sell at a higher multiple of their assessed value than two- and three-family homes do. Indeed, single-family homes sold 37.1% higher above their assessed value than three-family homes did. This means that, while multi-family residences can be had closer to their assessed values and thus may be more affordable to buyers, they are at a relative tax disadvantage. Residents of multi-family homes pay more in taxes per unit value of their homes (a higher effective tax rate). Since the former often are of more limited means, such assessment ratios mean that those who have less pay more on a percentage basis. This unequal burden makes housing less affordable for those who need affordable housing the most.



(Office of Policy and Management, 2008)

INFRASTRUCTURE AND PUBLIC SERVICES

Institutions

SCHOOLS

Most school-age children in town attend the public Plymouth School District, which enrolled 2,019 students in 2007-2008. The school system consists of two elementary schools (Harry S. Fisher Elementary and Plymouth Center School), one middle school, and one high school. Figure 26 (below) shows the sites of these schools. Plymouth recently built a state-of-the-art high school, which allowed them to redistribute students better among remaining buildings. The Eli Terry Middle School took over the old high school, and the Harry S. Fisher Middle School became the new Harry S. Fisher Elementary School. There are also six daycare centers or nursery schools in town to cater to the needs of preschoolers (CERC, 2008).

Facilities and staffing match school enrollment projections. After years of growth, enrollment has begun to contract. This is consistent with statewide trends. It is predicted that Connecticut public school enrollment will shrink 17% between 2004-05 and 2020-21. (University of Connecticut, 2008) Figure 27 (below) charts the average class sizes for selected grades in Plymouth's schools. This decline is already visible in the lower grades. Barring any unforeseen influx of children, it should trickle up as pupils in the system age, graduate, and are succeeded by younger, smaller cohorts. If staffing levels are kept constant, this will give rise to excess capacity. According to the Superintendent of Schools, Plymouth's school system could readily absorb 200-300 additional students. With such slack, a modicum of new housing should have little to no effect on the school system, even if it is designed to attract families with current or future school-age children (e.g. as single-family homes instead of apartments).

FIGURE 26. SCHOOLS

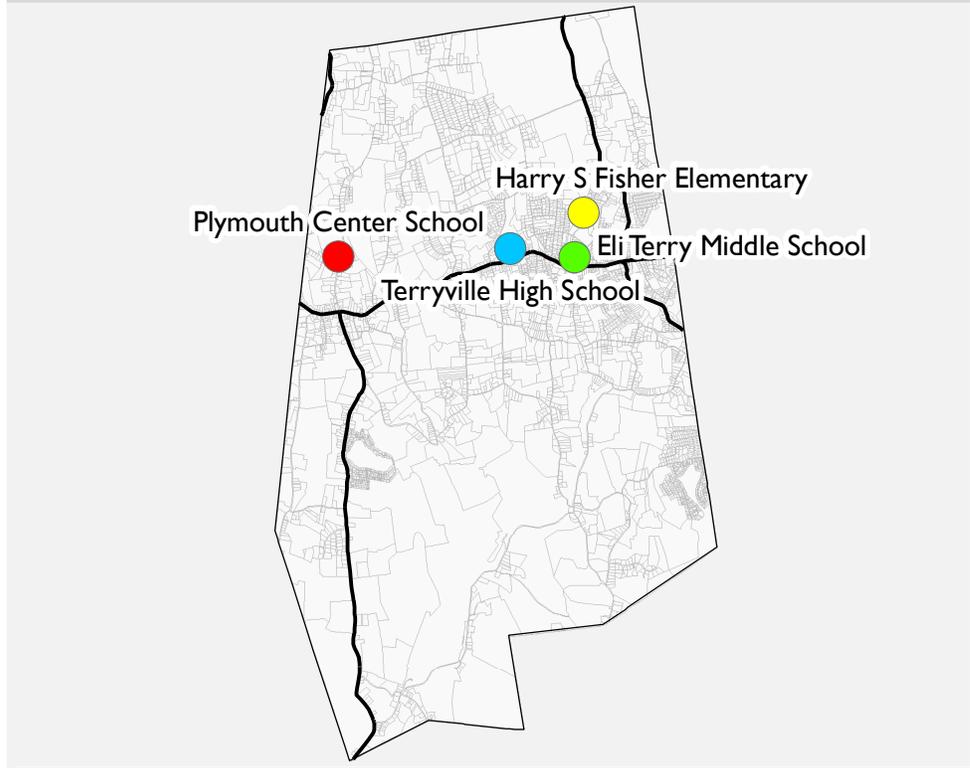
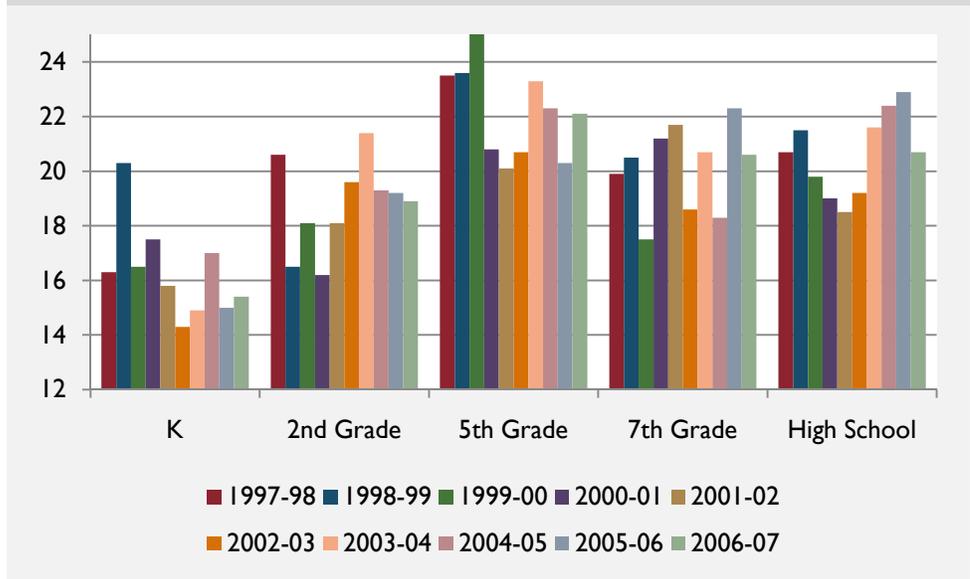


FIGURE 27. STUDENTS PER CLASS



(State of Connecticut, 2008c)

IHZ relevance: Schools can absorb modest enrollment increases.
Recommendation: Education should not hinder new housing creation.

Though no universities or colleges lie in Plymouth, residents have access to a variety of tertiary education centers. Leading research and teaching institutions lie within a 45-minute drive. These include University of Connecticut branches in Hartford, West Hartford, Farmington, Waterbury, and Torrington; Connecticut State University campuses in New Britain, New Haven, and Danbury; and Trinity College in Hartford, Wesleyan University in Middletown; Quinnipiac University in Hamden; and Yale University and Albertus Magnus College in New Haven. Other institutions within commuting distance include Post University in Waterbury; Charter Oak State College and Briarwood College in Southington; and the Connecticut Community Colleges in Hartford, Farmington, Middletown, New Haven, Waterbury, and Winsted.

LIBRARIES

As of 2001, the town library housed 60,969 volumes, with a circulation per capita of 3.7 (CERC, 2008). If these reserves prove insufficient, libraries in adjacent towns are also open to town residents. The public universities and colleges listed above also extend reading and, in many cases, borrowing privileges to the public.

HOSPITALS AND HEALTH CARE

Plymouth is sufficiently well-served in health care. The town has 182.8 physicians per 100,000 people. This compares favorably with the national average of 169.7. (CERC, 2008) Several clinics and health centers of various types conduct business and serve residents in town; and though Plymouth has no hospitals of its own, a plethora lies within a short drive. These include Bristol Hospital; St. Mary's Hospital and Waterbury Hospital in Waterbury; and Charlotte Hungerford Hospital in Torrington; as well as New Britain Hospital and the Hospital for Special Care in New Britain, the Hospital of Central Connecticut in Southington, and the University of Connecticut Health Center in Farmington.

IHZ relevance: Practices can absorb modest patient increases.
Recommendation: Health care should not hinder new housing creation.

EMERGENCY SERVICES

Police

The Plymouth Police Department consists of approximately 27 officers. The crime rate in town is 1,496 offenses per 100,000 residents, half the state average of 2,981. (CERC, 2008) Staffing and facilities are adequate at present and should meet future demand, provided that population gains in town are modest.

Fire

The Terryville Volunteer Fire Department provides fire and emergency response. It comprises ninety-five members and three firehouses. As with the police, the department's staffing, facilities, and equipment are adequate at present and should meet future demand, provided that population gains are modest and recruitment of volunteer firefighters remains possible.¹¹

IHZ relevance: Fire and police can absorb modest client increases.
Recommendation: Services should not hinder new housing creation.

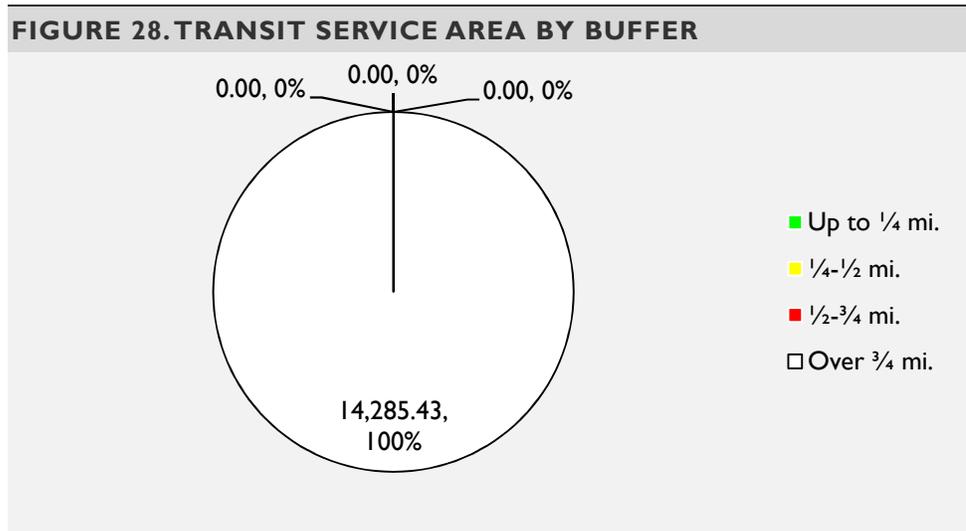
Connections

PUBLIC TRANSIT

Plymouth falls between the cracks of transit systems. No public transit or paratransit service operates in town. Neighboring communities, in contrast, enjoy multimodal bus and rail transportation. CT Transit buses in Bristol provide local, express, and connecting service to destinations within Greater Hartford, including Hartford, New Britain, Middletown, and Meriden. Transfers to Amtrak trains to Springfield and New Haven are available at several points. Likewise, CT Transit buses from Waterbury run to and through the communities that surround the city, with the exception of Plymouth, as well as to New Haven. In addition, the Bridgeport Metro-North Railroad terminates in Waterbury. The line connects to the Northeast Corridor mainline in Bridgeport, allowing transfers to Stamford, New York City, New Haven, Providence, and Boston.

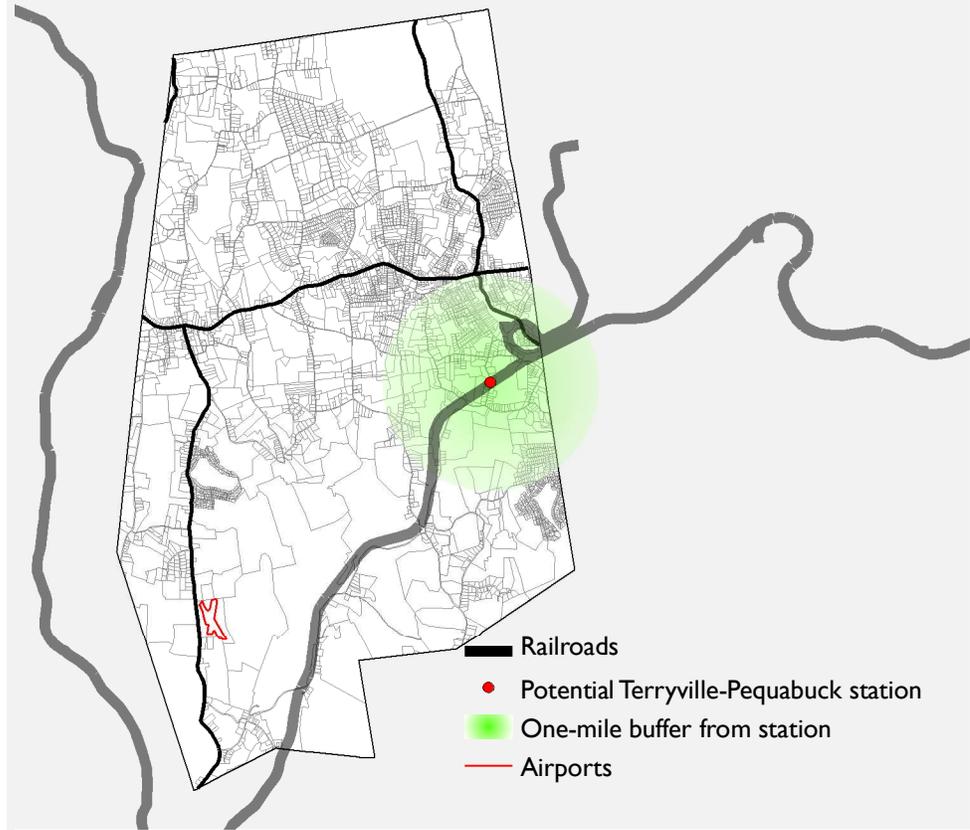
¹¹ If recruitment levels fall below retirement, Plymouth, like other towns, may find it necessary to hire full-time personnel.

The IHZ program for which this study has been conducted envisions the development of workforce housing around or near transit lines or nodes. As Figure 28 (below) shows, this criterion is wholly inapplicable to the Town of Plymouth. No town land, even at the town’s margins, falls within a walkable distance of public transit.



The dearth of buses (and trains) in town explains why the mode share public transit has in Plymouth is so low. Considering that the majority of residents work outside of town, adding bus or train service could make a real difference. It could give residents and workers a viable alternative to driving, saving them time and money, as well as lessening congestion on Route 6. Though no passenger buses or trains currently operate in town, the basic infrastructure for such service—high-capacity roads and railroad tracks—does exist (Figure 29, below). Calls to bring local and regional public transit to Plymouth have been and continue to be made. Some have advocated running buses from Bristol into Terryville. At present, a plan to extend train service from Waterbury to Hartford is under consideration. The latter would pass through Plymouth and could, as diagrammed below, include a stop in the vicinity of the population centers of Terryville and Pequabuck.

FIGURE 29. TRANSPORTATION INFRASTRUCTURE



IHZ relevance: Public transit is not available.

Recommendation: Development need not take transit into account but should consider possible extensions into town.

TRANSPORTATION

Bicycle routes

At present, there are no bicycle facilities at all in town. The Naugatuck River Greenway, an interregional, multiuse trail running from Stratford to Torrington, skirts the Plymouth border in the neighboring communities of Waterbury, Watertown, Thomaston, and Harwinton. The Greenway allows for commuter, utility, and recreational cycling (and walking) and connects to other local cyclist and pedestrian networks as well as other greenways, including the East Coast Greenway and the Housatonic River Greenbelt.

IHZ relevance: Bicycle routes not relevant but may be in the future.
Recommendation: Greenway corridors should be preserved.

Rail

One rail line runs from the south to the east of town. Figure 29 (above) plots this line. The line is active (in freight use) and belongs to Pan Am Southern. To the south, it runs to Waterbury; to the east, to Berlin. Pan Am Southern holds trackage rights from Berlin south to New Haven and north well into Massachusetts, as well as from Waterbury to Derby. These lines connect thence into the North American rail network.

Nothing of the tram or passenger rail service that operated in the region, including in Plymouth proper, remain. There has been talk in recent years, however, of restoring commuter rail between Hartford and Waterbury. Such service would likely pass through Plymouth and may be something to keep in mind in long-term planning.

IHZ relevance: Passenger rail not relevant but may be in the future.
Recommendation: Railroad rights of way should be preserved.

Roadways and state highways

Two major roads traverse Plymouth. The major east-west route through town is U.S. Route 6; the major-north south route is State Route 72. These intersect in the only real center of clustered settlement in town, the village of Terryville. Thick black lines denote these routes on the maps this report. Figure 1 (p. 10) depicts most roads in the Town of Plymouth. Despite the lack of limited access highways in town, Plymouth has good highway access. To the immediate west of town lies State Route 8, a lightly-trafficked expressway. This road runs from Winsted and Torrington in the north via Waterbury to Bridgeport in the south and links Plymouth to Greater New York and the Connecticut coast, including New Haven, Stamford, New York City, Long Island, and New Jersey via Interstate 95 and State Route 15 (the Merritt Parkway).

IHZ relevance: Depends on scale and site of IHZ.
Recommendation: Can only be made on a per-project basis.

Aviation

Plymouth hosts a general access airport, Waterbury Airport (FAA ID# N41). It boasts two landing strips: 250 × 1,600-foot runway and a 135 × 2,005 foot runway. Both have turf surfaces. Ten single-engine aircraft are based at the airport, as are twelve gliders and three ultra-lights. For the twelve-months ending December 31, 2007, 15,860 aircraft operations, or an average of 43 per day, were recorded at the airport. General aviation accounts for nearly all of these. (GCR & Associates, 2008) The airport is located three miles south of the Plymouth Green, on Mount Tobe Road (Route 262). Figure 29 (above) shows its position. Waterbury Airport is privately held (by Killcourse, Shade, & Seymour).

IHZ relevance: Airports can generate significant noise and pollution.
Recommendation: New homes should be sited away from the airport.

UTILITIES

Water

Connecticut Water Company (CWC), a regulated, publicly owned water company, delivers water to customers along Route 6 and in Terryville. CWC anticipates that demand will necessitate augmentation in the future. By 2010, it is expected that service will have been expanded to the Fall Mountain Lake community and the environs of the town's Business Park. By 2025, service may also be extended to the Lake Plymouth community.

The system's water emanates from a local aquifer, the Terryville Wellfield (Figure 32, p. 53). As supply has been tight during periods of peak demand, the water mains were recently extended along Route 6 to interface with CWC's Thomaston system. This connection should allow the system to meet demands through the year 2010. However, additional supply will be needed for the system to maintain an adequate margin of safety during periods of peak demand. Without new sources, average maximum daily demand is projected to equal the system's available supply by circa 2010. By 2025, supplies will be inadequate to cover even average daily purposes. Transfers from CWC's Thomaston system, which the company is pursuing, should be able to alleviate these problems and guarantee sufficient water

through 2050. In addition to the Thomaston connection, CWC can also activate connections to the City of Waterbury's and the City of Bristol's public water systems in the event of a water shortage.

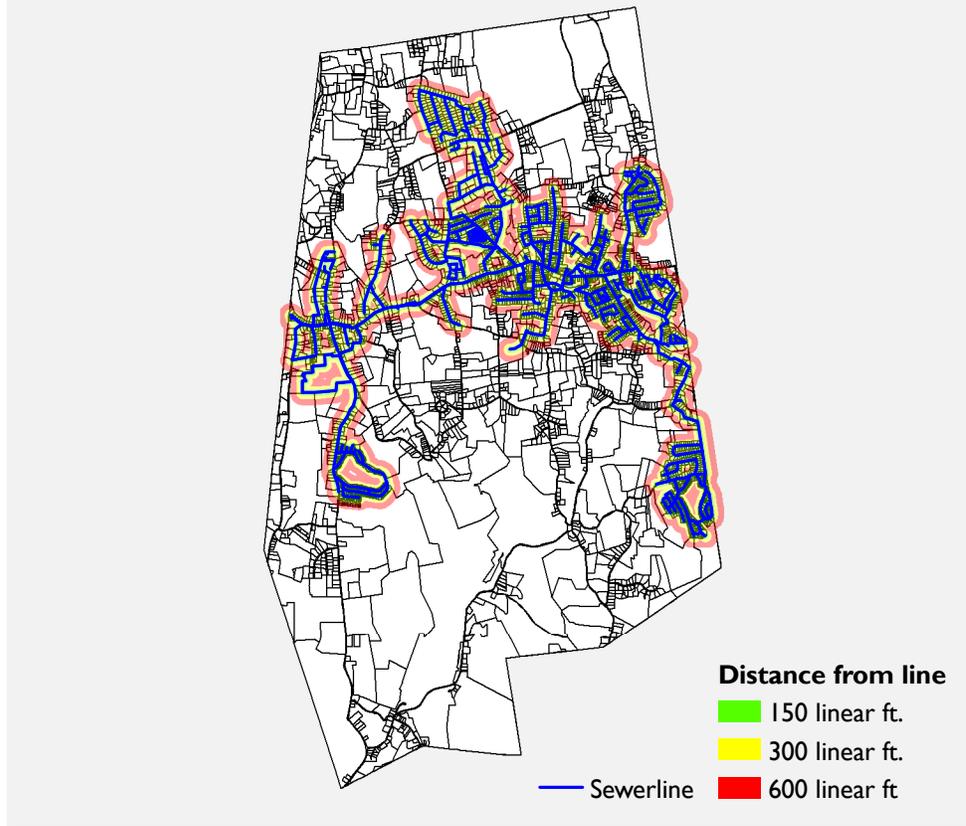
Sewers

Public sewers are present in the downtown of as well as in more recent subdivisions to the immediate northeast and northwest of Terryville, the Route 6 strip, and the littoral communities of Fall Mountain Lake and Lake Plymouth. Figure 30 (below) shows their paths in 2009. Many residences in town have access to sewers. Residential areas without sewers rely on underground septic systems. Parts of town not covered by sewers include the northeast, the northwest, and nearly the entire area south of Route 6.

No major expansions of the system are envisioned. Most areas without public sewers are likely to remain so. Only minor extensions, if at all, are expected within the next ten years. Areas that may gain sewers in the near future include the north-center of town to the Harwinton town line; the region to the northeast of Plymouth Center, and properties along the mains that run to the lake communities.

Contemporary, comprehensive assessments of Plymouth's sewer system are not available. Without such data, all significant new projects will need to be evaluated for their impact on the sewer system, in order to ensure that capacity remains sufficient to meet demand.

FIGURE 30. SEWER NETWORK



Electricity and Gas

Virtually all areas accessible by paved road are equipped with electric lines. The Western Division of Connecticut Light and Power (CL&P), a subsidiary of Northeast Utilities, provides electrical services. Plymouth's primary energy provider is the Covanta Bristol power plant, also known as the Bristol Resource Recovery Facility, which utilizes trash incineration as a renewable energy source. Yankee Gas provides natural gas to some parts of Plymouth.

IHZ relevance: Public utilities can absorb new demand and hookups.
Recommendation: Utilities should not hinder new housing creation. To keep housing costs to a minimum, new construction should only occur where infrastructure already exists.

Parks and Open Space

Open space holdings in Plymouth total 5.59 square miles (3580.5 acres), or 25.1% of the town's land area. Designated open space is clustered. The

largest open space parcel by far lies in the northeast and belongs to the Bristol Water Department. The largest group of parcels lies in the southwest and comprises parts of the Mattatuck State Forest, the Hancock Brook Flood Control Area, the Boy Scouts of America Camp Mattatuck, and private holdings. Hiking trails, notably the Tunxis and Mattatuck blue-blazed trails, wend across much of the land and, indeed, town.

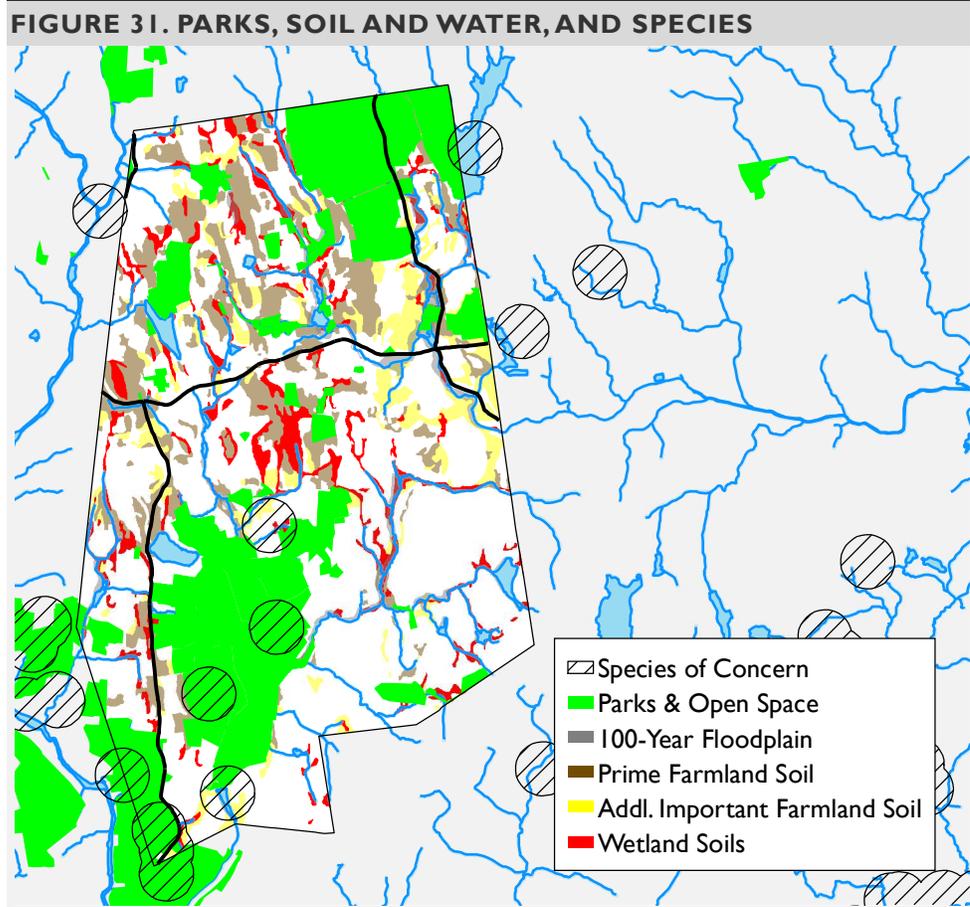
Plymouth exceeds Connecticut's enunciated goal of preserving 21% of the state as open space by 2023. However, two caveats are in order. First, less than half of open space holdings in town by area belong to government at any level (federal, state, or local). The rest is in semipublic or private hands: water companies, sporting associations, and nonprofits. Though some (such as land trusts) may indeed legally bind themselves to preserve the land, on the whole such ownership raises doubts about the long-term security of the land as open space. At some point in the future, the calculus may change. Landowners may decide that it is no longer stands in their interest to hold the land as open space. They may put it up for sale or develop it themselves.

Second, as a statewide target, considerable variation is to be expected among cities and towns. Urban and built-out suburban communities have less land to preserve, and many will not be able to attain the state's target within their borders. As a result, in order to strike the 21% target, rural communities such as Plymouth will have to preserve substantially more than 21% of their area as open space. Thus, though Plymouth already exceeds the statewide goal for land preservation, if the state is to meet that goal, Plymouth will need to preserve more land.

The opportunities for land preservation in Plymouth are enormous. As Figure 37 (p. 64) shows, 39.4% of the town is undeveloped or farmland that has not been designated as open space or placed under conservation easement. Only 38.5% of the town's open space has been preserved as such. That is, 61.5% of the land, a whopping 5,593.2 acres, is privately owned and subject to development. Were this land developed as residential, the economic and environmental costs for the town would be huge.

Plymouth has not completed an open space plan or established a fund to acquire open space for preservation and passive recreation. As the town grows, preservation will become paramount for two reasons. Continued development will decrease the amount of remaining open space in private hands. At the same time, it will increase the demand for open space. If the

rural town character, land-based livelihoods, high quality of life, and ecosystem services are to be maintained in Plymouth, it is essential that sufficient open space is set aside.



IHZ relevance: There is a need for additional land preservation.
Recommendation: New construction should not occur on virgin land. Already-developed lands should be redeveloped.

ENVIRONMENT

Habitat and Wildlife

Challenging terrain, size, and historical inaccessibility have spared much of Plymouth from the large-scale development that typifies its neighbors to the south and east. With the exception of Terryville in the east, two lake communities in the south, and some strip development along Route 6, the town remains in a wild state, with large tracts of unfragmented forest and ecosystems that are still intact. Given their scenic, recreational, and natural functions, many of these areas should not be targeted for growth. Instead, insofar as is possible, they should be set aside for preservation or restricted to low-impact uses consistent (recreation, farming and forestry, etc.)

There are several sites throughout town that may harbor endangered, threatened, or of concern species (Figure 31, above). Due to the presence of these species, as well as other factors (e.g. peripheral location), these areas may be inappropriate for development.

IHZ relevance: Parts of town provide important habitat or harbor species of concern.

Recommendation: New construction should not occur in these areas.

Soils and Agriculture

Plymouth's hilly landscape does not make for expanses of prime farmland. A full three-quarters (75.2%) of the town lies on soil that is not classified as ideal for farming. The remaining quarter splits between prime (15.0%) and additional important farmland soil (9.8%). As Figure 31 (p. 49) shows, these farm-worthy soils dapple the landscape, hewing to the contours of hill and dale. Although some of this land has already been lost to agriculture through development, especially in the vicinity of Terryville, areas

with valuable soil are still undeveloped and thus potentially available to agriculture. These predominantly follow an arc stretching along Route 6 from the northeast to the northwest of town and down Carter Road to the southwest. Notwithstanding the availability of land, only three farms (at last count) currently operate in Plymouth. However, with rising transport costs, booming interest in locally-grown food, such as fresh produce, wine, and cheese, and new agritourism ventures, agriculture in Plymouth may be ripe for a renaissance. If so, demand for farmland will grow. If Plymouth is to cash in on this trend, it must ensure that land of sufficient quality and quantity is available for farmers.

IHZ relevance: Agriculture may become increasingly viable in town.
Recommendation: Development should take farmland preservation and agricultural soil suitability into account.

Hydrology

SURFACE WATER

Small areas of floodplain and wetland areas streak and splatter Plymouth. Figure 31 (p. 49) shows these. The largest of Plymouth's floodplains fringe the Pequabuck and Poland Rivers as well as the Hancock and Todd Hollow Brooks. The most extensive wetlands lie in the center of town, southwest of the crest of Town Hill. Numerous, smaller wetlands form the headwaters of and feed into the streams, brooks, and rivers that vein the town. Floodplains and wetlands present constraints to development. As would be expected, most of them have not been developed, save a handful of historical parcels in Terryville that were developed prior to the introduction of wetland and floodplain regulation. If appropriate measures are not taken, development of these areas may have an impact on local water quality and ecosystem vitality.

IHZ relevance: Certain areas contain wetlands or are prone to flood.
Recommendation: Construction should avoid these areas, with the exception of already-developed flood zones that are re-developed in a flood-proof way.

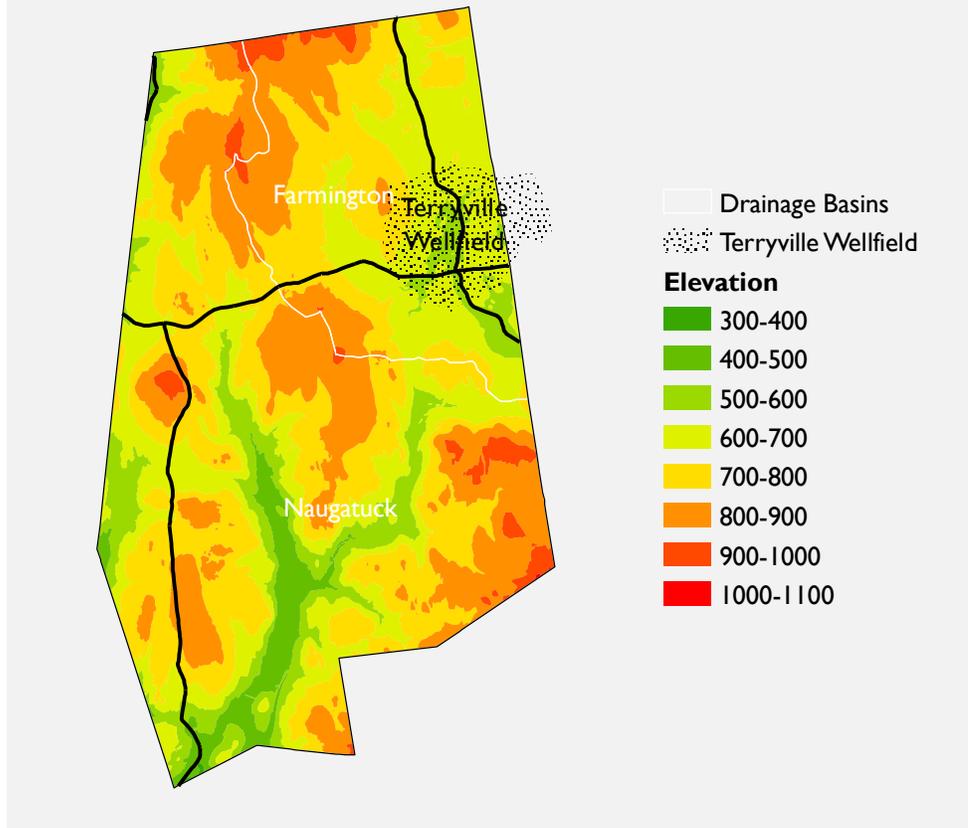
GROUNDWATER

Plymouth covers two drainage basins. The northeast third of town lies within the Farmington River's; the remainder, within the Naugatuck Riv-

er's. Drainage basins are labeled in white in Figure 32 (below). Plymouth's land conceals one aquifer. The Terryville well field is centered about one-half mile north of the intersection of State Routes 6 and 72.

The presence of an aquifer in town has implications for development. The Aquifer Protection Act subjects land within the bounds of a protected aquifer to more stringent development controls and prohibitions. Activities that are regulated under the act include the use of "hazardous materials such as RCRA hazardous wastes, hazardous substances regulated under CERCLA, pesticides, and petroleum products." Such activities range from "manufacturing industries, chemical wholesale storage industries, gasoline stations, [and] auto and engine service stations [to] dry cleaners... and furniture strippers." In addition, "[i]nstallation of new underground storage tanks for storage or transmission of oil or petroleum or hazardous materials is prohibited, with allowances for replacement of existing tanks." (State of Connecticut, 2007b) To address such concerns, the town has adopted a set of Aquifer/Watershed Protection Regulations that limit the type and extent of development permitted in the aquifer area.

FIGURE 32. TOPOGRAPHY AND HYDROLOGY



Features in top-left not labeled due to space constraints.

IHZ relevance: One aquifer lies beneath the town's surface.
Recommendation: Aquifers should not impede simple residences but may trip up mixed-use projects.

LAND POLICY AND PRACTICE

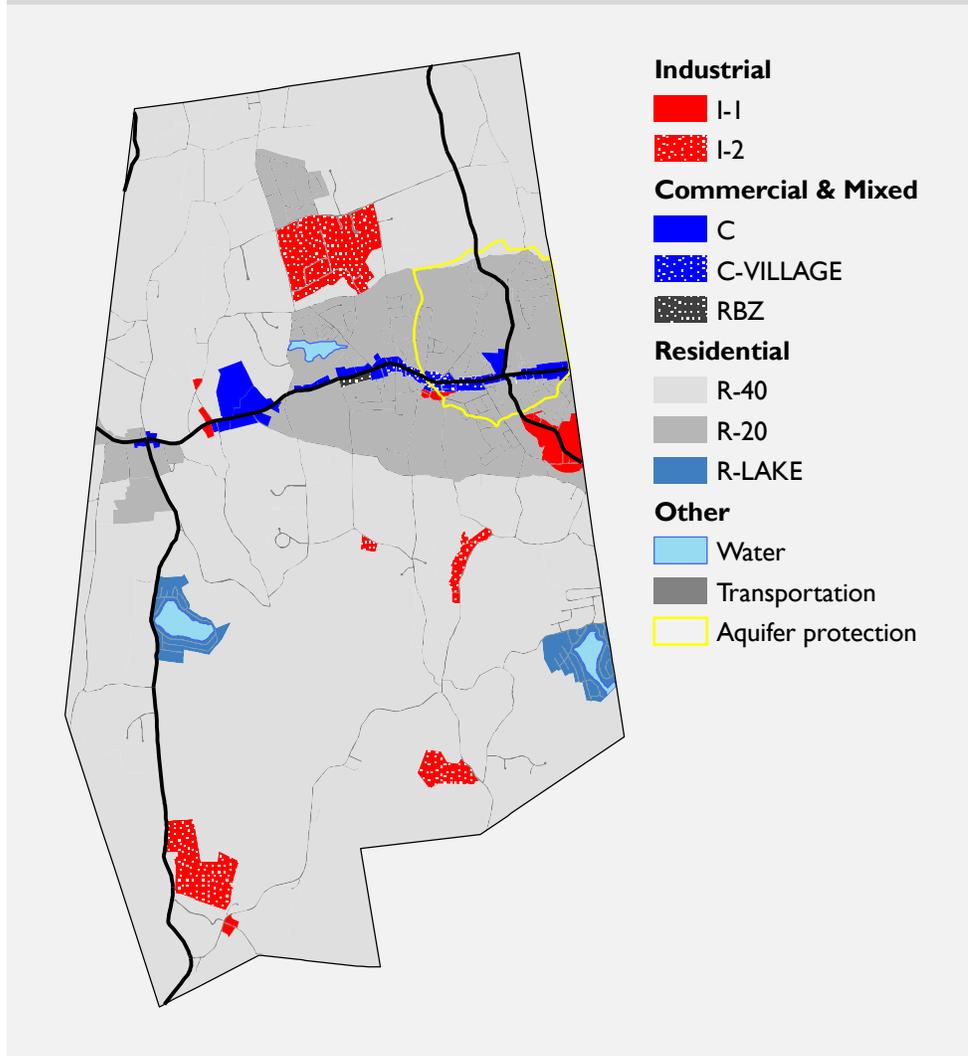
Zoning

TOWN

Plymouth practices conventional zoning, which segregates “land uses” on a parcel basis. This contrasts with approaches such as form-based codes that design growth instead of regimenting it and performance zoning, which eschews regulation for context-specificity and flexibility. However, the town has instituted design guidelines that, while still focused on use, strive to “promote the principles of New Urbanism and Smart Growth.” These rules, which apply to the “Village District” (Terryville center) only, have much in common with form-based codes.

The town recognizes three major land uses: industrial, commercial, and residential. Industrial land in town is scattered. The largest clusters of it lie in Pequabuck, at the Bristol border; north of Lake Winfield; and by the airport in the southwest. Isolated industrial land also exists in or near Plymouth and Terryville centers and in the southeast quadrant of town. Commercial parcels occupy significantly more central real estate, fronting Route 6 in Terryville center, in Todd Hollow, and in Plymouth center. Residential land blankets the rest of town. (The code does not recognize open space or agriculture zones). These zoning categories further divide into two types of commercial, two of industrial, three of residential, and one transitional commercial and residential zone. Figure 33 (below) maps the zoning code.

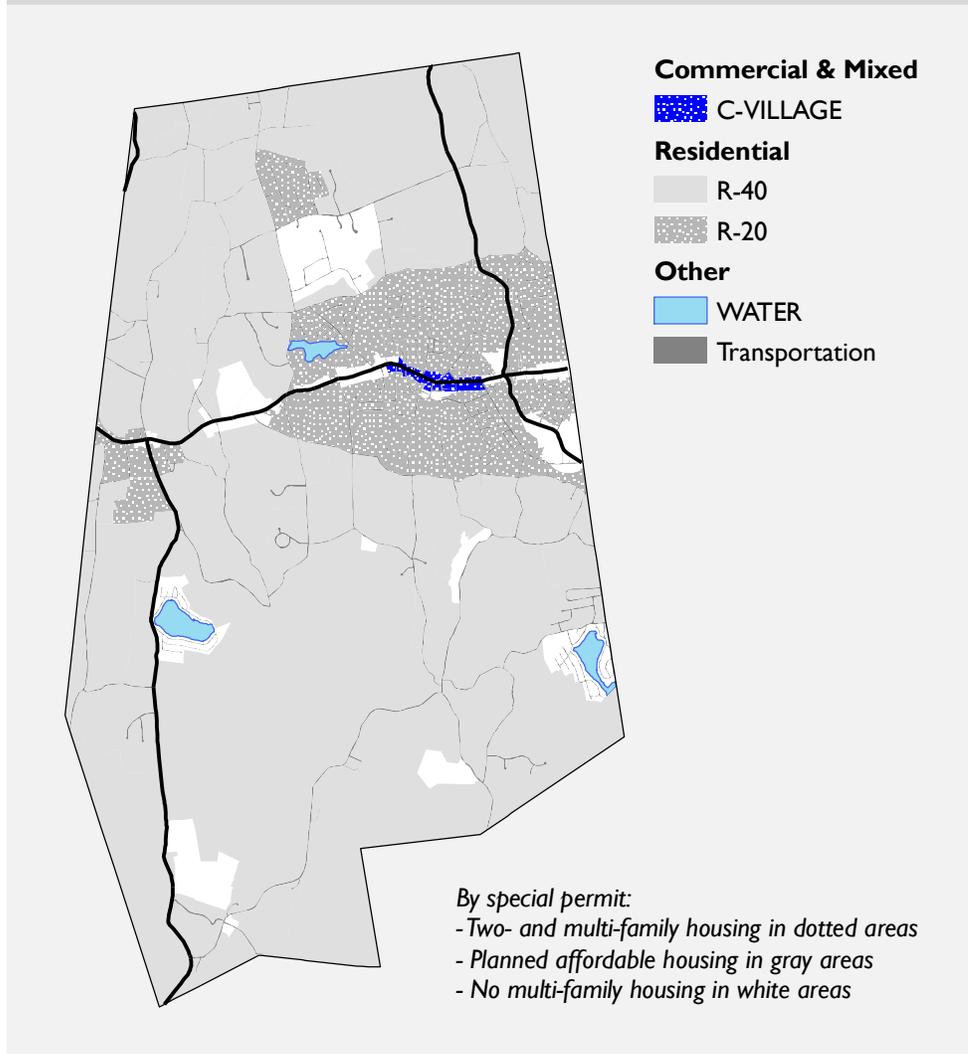
FIGURE 33. CURRENT ZONING



Current Provisions

Before proposing an IHZ, it is necessary to determine if and how the zoning code already provides for comparable housing. Plymouth does not allow small-lot, two-family, or multifamily housing—which tend to be more affordable on a unit basis than large-lot single-family detached homes—at present by right in any zones. However, with the obtention of a special permit, two- and multifamily housing may be erected in the R-20 and C-VILLAGE zones; also by special permit, senior residence and planned affordable housing developments may also be built in the R-40 zones and, conceivably, the R-20 zones (Figure 34, below).

FIGURE 34. AREAS ZONED FOR MULTIFAMILY HOUSING



As the map shows, *all* but a few parts of town allow two-family or multi-family housing. However, this remark is subject to qualifications. First and foremost, the development of multifamily housing anywhere in town is contingent on special permit. The issuance of such a permit is far from guaranteed. Second, it is debatable whether, even by special permit, the construction of multifamily housing is permissible in the R-20 zone. The zoning code is of two minds on this. While its *Table of General Land Use Regulations* shows that “Planned Affordable Housing” is allowed by special permit, the relevant section on such developments states only that “Planned Affordable Housing Developments... may be approved as a Special Permit in the R-40 Zone.” (Town of Plymouth, 2008b) Given that the more restrictive interpretation usually wins out, such developments will likely only be approved, if then, in the less developed parts of town—i.e.,

not as infill or redevelopment but rather as open-space devouring green-field development. Such development often spells higher costs for the town and residents alike (due to higher infrastructure and service costs as well as greater automobile dependency). Finally, the costs of complying with the rules for “Planned Affordable Housing” developments may be so high as to make the construction of affordable housing under the program fiscally unattractive, if not impossible.¹² In other words, from a developer’s point of view, the costs of a project may outweigh the benefits.

IHZ relevance: Procedural hurdles and regulatory and location costs obstruct the creation of affordable housing.
Recommendation: Housing location and regulations should be chosen as to maximize affordability.

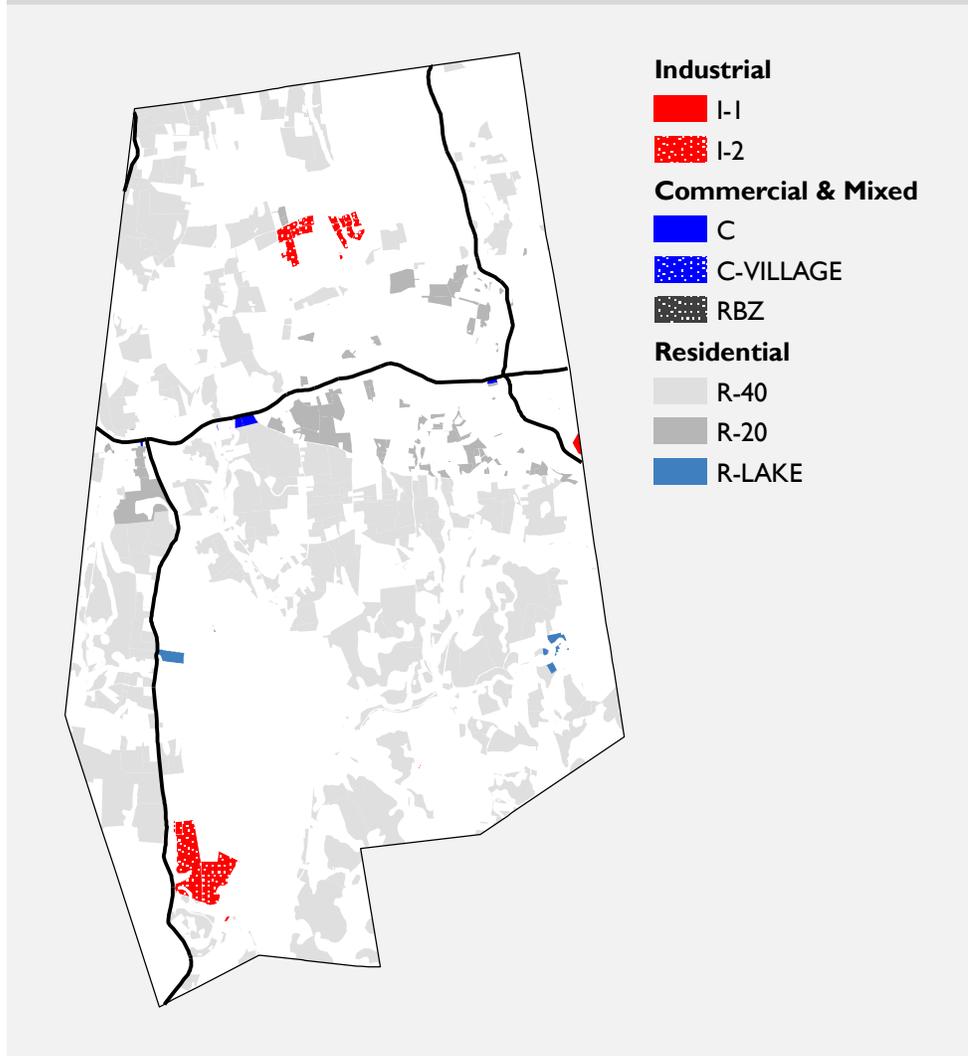
Location and regulation, however, are not the only factors that govern the chances for affordable housing. On-the-ground conditions play a role, too. Just because an area is zoned for a use, does not mean that it is available for that use. The land may be occupied. Thus, the question is: how much of this land is available for development?

Developable Land

It is easier to paint on a blank canvas. By the same token, it is easier to build on “empty” land. Before considering redevelopment, one should first take a look at undeveloped land. It is worth noting, however, that land is not like art supplies in one important regard: it is irregular. Not all land is buildable, and much of what remains vacant is that way because of development constraints. Figure 35 (below) maps all the parcels in town that are *both vacant and developable*. (Note that the map only attests to the *status*—a binary representation—of development by *parcel*. It does not speak to the extent or intensity of development. That is, a 1,000 square foot house on a 100 acre property still counts and is depicted as developed. Thus, the map does not picture infill or redevelopment opportunities.)

¹²Such developments have low maximum densities but high ancillary requirements. The zoning code does not provide for multifamily housing in such developments; at most, it allows for two-family homes. It also limits density to five units per acre and height to two stories; asserts a minimum lot size of ten acres; caps floor area ratios at 20%; imposes steep open space set-asides, buffers, and setbacks; and mandates a disproportionate number of parking spaces for small units.

FIGURE 35. VACANT AND DEVELOPABLE LAND BY ZONE



As the map indicates, supplies of developable, vacant *parcels* vary by zone. Table 4 (below) lists the theoretical build-out limits for residences, given current zoning and vacant parcels.¹³ (Redevelopment and infill of already developed parcels are not included in these totals.) Of developable land currently zoned residential, 91.3% is zoned for large-lot, single-family, detached homes. Apartments, condominiums, townhouses, or duplexes—housing that may be more affordable and appropriate to the nontraditional households that now make up two of five Plymouth households—may only be erected on the remaining 8.2%, and then only with special permit. As a comparison of Figure 33 and Figure 34 suggests, the situation is even extremer for the village district (C-VILLAGE zone), which may include

¹³ Calculated by area, assuming regular-sized lots and 25% is required for infrastructure or is unbuildable. R-LAKE figures assume connection to the public water supply.

residences as mixed use. Zero acres of undeveloped property remain here. This is slim pickings indeed!

TABLE 4. VACANT RESIDENTIAL LAND					
Zone	Vacant acres	Allowed? (by special permit)			Maximum lots (current zoning)
		Duplex	Apartment	PAHD ¹⁴	
C-VILLAGE	0.00	✓	✓		0
R-20	306.41	✓	✓	✓	500
R-40	3,415.24			✓	2,789
R-LAKE	18.17				37
Total	3,739.82				3,326

Parcels zoned for mixed-use commercial and higher-density residential cluster in Terryville center. Most are occupied. The lion’s share of vacant and buildable land, in contrast, lies in the rural parts of town. As a result, while large-lot, single-family residential is plentiful, fully vacant land zoned for two- and multifamily residential units is scarce. The C-VILLAGE zone counts no undeveloped parcels; while the R-20 theoretically has space for five-hundred additional lots, which may include duplexes and apartments, most of the vacant, developable parcels lie at its fringe. They are far from concentrated development, transit, and infrastructure. This makes them inappropriate for the housing envisioned by the IHZ program. In summary, there are few vacant parcels under the current zoning regime where affordable workforce housing may be constructed in line with the IHZ program. If such housing is to be developed in town, it will perforce involve re-development.

IHZ relevance: Scant vacant, suitable land is available for workforce housing.
 Recommendation: New construction should seek to redevelop land.

Redevelopable Land

Since the IHZ can overlay any zone, in theory any parcel in town that meets the suitability and eligibility criteria of the program—even those zoned industrial—could host and be redeveloped as an IHZ. For example, holes of low population density punch the Terryville area (Figure 2, p. 12). Many of these comprise defunct industries or marginal businesses. Given their central location, these parcels might be a good candidate for an IHZ

¹⁴ *Planned Affordable Housing Development.*

and workforce housing. However, the IHZ program stipulates that overlay zones attain the minimum densities below.

Housing Style	Minimum Density (dwelling units per acre)
Single-family detached	6
Duplex or townhouse	10
Multi-family	20

Plymouth’s zoning is restrictive. At present, it only allows one unit per lot *by right*. Two- and multifamily units are only approved by special permit. In other words, the maximum allowable density for two- and multifamily units is zero. This stands the town well with respect to the IHZ program. For an Incentive Housing Zone to be eligible for state funds, the density it permits by right must exceed the underlying, preexisting maximum allowable density for the same housing style by 25%. As Table 6 (below) shows, the densities Plymouth currently allows by right in all zones fall far short of the figures above. This means that all zone and housing style combinations in Plymouth would be eligible for funding under the IHZ program.¹⁵

Zone	Minimum lot area	Maximum by right			IHZ eligibility		
		Height/stories	Units/coverage	Units per acre	Detached house	Duplex	Multi-family
R-40	40,000	30/	1/	1.09	✓	✓	✓
R-20	20,000	12½	1/	2.18	✓	✓	✓
R-LAKE	16,000 ¹⁷	30/	1/	2.72	✓	✓	✓
RBZ	12,000	30/	1/	3.63	✓	✓	✓
C-VILLAGE	11,000	none ¹⁸	none ¹⁸	none ¹⁸	✓	✓	✓
C	Housing prohibited under current regulations.				✓	✓	✓
I-1	Housing prohibited under current regulations.				✓	✓	✓
I-2	Housing prohibited under current regulations.				✓	✓	✓

Minimum lot areas are given in square feet. Heights are given in feet.

¹⁵ The three columns under the supertitle “IHZ” verify the eligibility of each respective zone under the program for the following housing styles: detached, single-family homes (“Detached house,”) duplexes and townhouses (“Duplex”) and multifamily residences (“Multi-family”).

¹⁶ The maximum density (“Units per acre”) assumes no constraints, such as wetlands or slopes. The highest obtainable density will be lower, sometimes markedly so, in many cases. Abbreviations in the table are as given in the legend for Figure 31 (above.)

¹⁷ With public water supply; 20,000 square feet without.

¹⁸ Units by special permit only.

Since no zones provide for two- or multi-family housing *by right*, all zones would qualify for all forms of building under the IHZ program. That said, even though zones—and thus land—in town would be *eligible* for an IHZ, it might not be *suitable*. Some parcels sit in an area of concentrated development with ample public infrastructure and services (e.g., sewers and transit). Conversely, others lie in remote greenfields with meager access to public goods. The success of an IHZ, both in recruiting developers and residents *and* securing state funds, will also depend on its location. Thus, to succeed in setting up an IHZ, the strategy going forward should be to identify parcels that are suitably situated.

IHZ relevance: All of Plymouth is eligible for the IHZ program, but not all of Plymouth is suitable.

Recommendation: Eligibility is not a barrier. Suitable parcels should be sought out. (*The second phase of this Community Profile will do this.*)

STATE

Land use policy and planning have traditionally been a local prerogative. In recent years, however, the State of Connecticut has been exercising greater authority in this area. Local planning and development should not be inconsistent with the state’s policies, as spelled out in its Conservation and Development Policies Plan. Figure 36 (below) shows the state’s intent with respect to development in Plymouth. Certain areas are targeted for conservation, while others are for growth. IHZs are no exception to this. They should be in harmony with the state plan.

The guidance the state offers for *conservation* in Plymouth is rational. It is also consistent with the Central Connecticut Regional Planning Agency’s Regional Plan of Conservation and Development. The state recommends maintaining the status quo—wilderness and rural use—in the northern quarter and southern half of town. This is a smart and necessary move. These areas provide critical ecosystem services and fill open space needs, not only for the town, but for the entire region. Development here would be costly to serve and bring uncertain benefits at best.

The state plan is less rational and even regressive on *development* in town. It foresees a massive expansion of the developed area in town along and *up to two miles in* from Route 6 (the “growth area” on the map). Given the town’s limited means and modest infrastructure, as well as the valuable

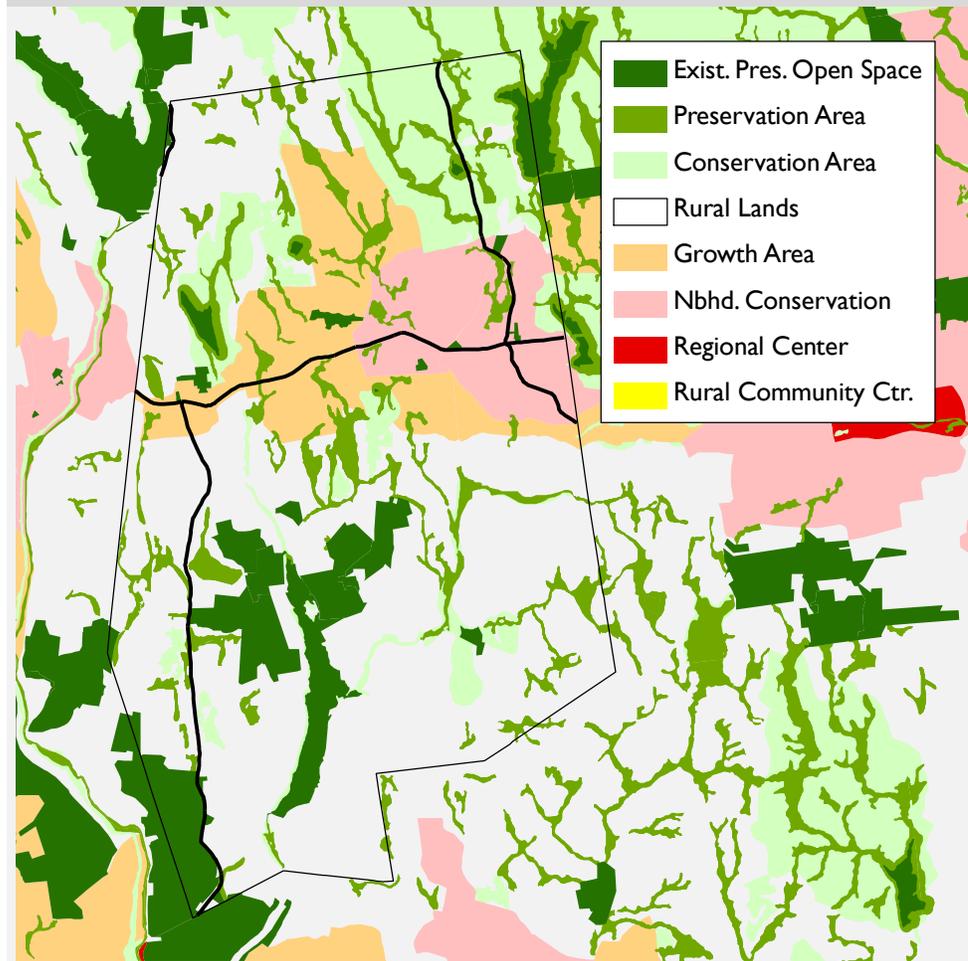
natural resources that would be sacrificed, such sprawling growth seems inadvisable. For a plethora of reasons, a better and, in order to qualify for IHZ payouts, mandatory solution would be a *concentration* of new development. Unfortunately, the state has not identified any regional or rural centers in Plymouth. This in part mirrors Plymouth's status as an outlying rural community. Yet it overlooks the fact that Plymouth has a real downtown, Terryville. Instead, the state labels all of Terryville a "neighborhood conservation area." This is a problem on two grounds:

1. It does not espouse any pattern of spatial concentration. Instead, it is uniformly shaded (pink). The map gives no pointers on how to develop here. It would be inefficient and context-insensitive to develop everything in exactly the same style, at the same density, with the same use. Plymouth will have to choose what kind of development it wants not in the neighborhood conservation area as a whole, but in each of its neighborhoods one-by-one.
2. Terryville is a *natural* place to develop. It is convenient, walkable, and connected to services. It is already developed yet possesses sufficient capacity for growth. Treating it as a "conservation area" may deter development or redevelopment, thus working against smart growth by forcing development into undeveloped areas.

In contrast, the CCRPA's Plan of Conservation and Development for the Central Connecticut Region does identify "Town Center Enhancement Areas." Terryville qualifies as one of these areas. Such a designation does not have any legal effect, but it may be useful in planning.

The state map does a better job of advertising where *not* to develop. It places the environmental preservation and conservation areas (shaded green) off-limits for much development. The state has begun to hold municipalities accountable for their land use decisions by withholding state funding from projects which would conflict with the state plan. If Plymouth wants state project funding, it must avoid developing this area. In short, the state plan is useful for guidance on where *not* to develop but not on where to.

FIGURE 36. STATE PLAN AREAS



(State of Connecticut, 2007a)

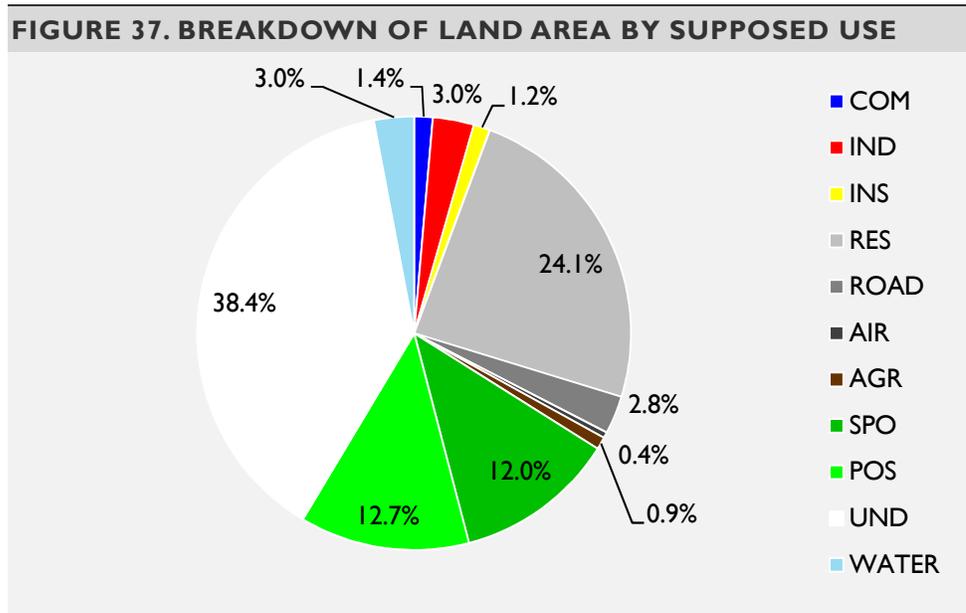
IHZ relevance: The IHZ must not be inconsistent with the state plan.
Recommendation: Preservation and conservation areas should not be developed.

Land Use

Land use in Plymouth reflects zoning, though there are discrepancies.¹⁹ Discrepancies often result from properties not being used at all (i.e. vacant), municipal uses not incorporated into the zoning code (e.g., open space and institutional), and private nonconforming uses. The total area and percentage of town occupied by each supposed use (the use ascribed

¹⁹ Land use is supposed. (It is determined on a parcel basis by existing zoning and any administrative acts, such as variances and conditional use permits, that have been granted for a parcel.)

to an entire parcel, rather than the actual land coverage) is shown in Figure 37 (below).

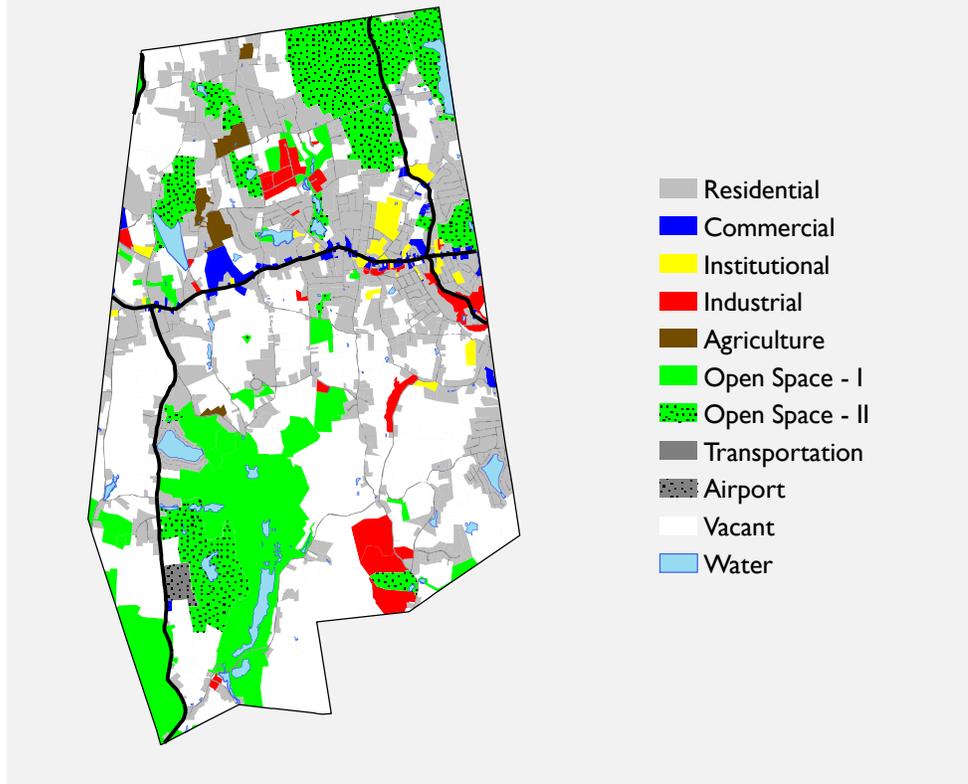


Land with no attributed use (“vacant” or undeveloped land) is the greatest use category by far, at 38.4%.²⁰ Open space (not including bodies of water) follow, with a sum of 24.7%.²¹ The next largest category is residential. It accounts for one in every four acres (24.1%). Business (commercial and industrial uses) comes in at 4.4%.

²⁰ It should be noted that much of this land is not only undeveloped but undevelopable due to constraints. In addition, there may be hidden costs to development, such as increased demand for services or loss of open space. These may render development in certain as-yet undeveloped areas undesirable.

²¹ This differs slightly from the 25.1% reported in *Parks and Open Space* (p. 45). The discrepancy in the percentages owes to differences between the land use and open space inventories.

FIGURE 38. SUPPOSED LAND USE

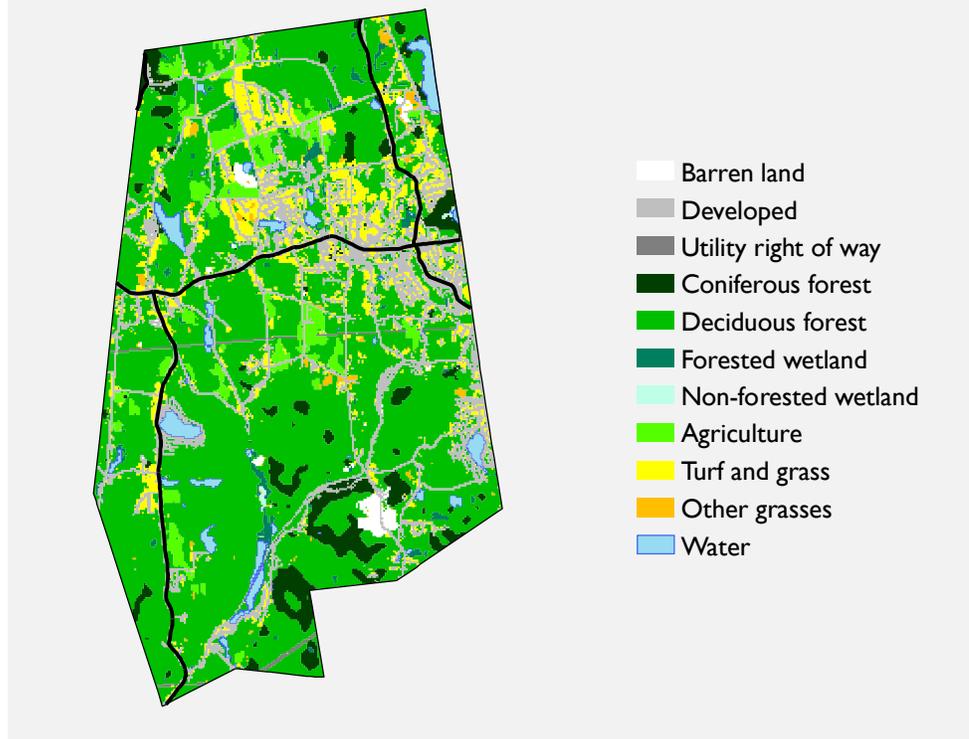


Land Cover

Neither what the zoning code and map permit nor what use is recorded correspond exactly to the actual condition, or cover, of the land. The latter can only be ascertained by visits to the site or via remote sensing, such as aerial or satellite photos. Figure 39 (below) classifies land cover in Plymouth.²² Woodlands are the dominant land cover in town and, despite the encroachment of suburban development in recent years, for the most part still form large, contiguous tracts. “Other” grass- or farmland fields punctuate these in the north-center and center of town. Developed land centers in the eastern half of Route 6 (the village of Terryville). It also rings Cedar Swamp Pond and Lake Plymouth. Development in the core of areas has been relatively consistent with respect to land cover. However, towards the fringes, especially in northern Terryville, consistency falls, and scattered patches of turf and grasslands appear.

²² *The data are derived from satellite images.*

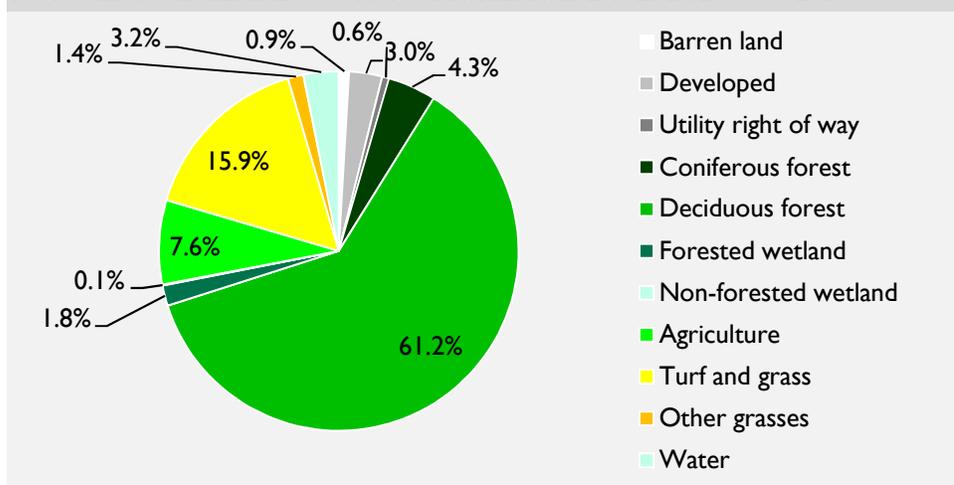
FIGURE 39. LAND COVER



(University of Connecticut, 2006)

The greatest land cover type by far (61.2%) is deciduous forest (Figure 40, below). Two-thirds (67.4%) of Plymouth is forested. This is above the state average of 57%. 17.3% of town is turf or grassland. Agriculture accounts for 7.6%. 5.1% consists of wetlands and water. As the figure above shows, recent growth in Plymouth has been uneven, with turf and grass (yellow areas) interspersed with developed areas (gray). These yellow areas, by virtue of their proximity to existing development, are likely both in a less intact natural state and more able to draw on installed infrastructure. They may therefore be ideal sites for infill development. In contrast, the town's woodlands (green areas) and large remain unfragmented and may be good targets for preservation.

FIGURE 40. BREAKDOWN OF ACREAGE BY LAND COVER



IHZ relevance: Land in town differs in the degree to which it remains in a natural state or has been affected by humans.

Recommendation: Development should target, in descending priority, barren, developed, and turf and grasslands.

Walkability

One of the greatest barriers to affordable housing is transportation. In recent years, transportation has come to consume a large share of workers' take-home pay. This leaves less available not only for discretionary purchases and savings but also for basic necessities, such as housing (mortgage payments, rent, and maintenance). One way to make housing more affordable is therefore to cut other costs. As transportation is one of the largest outlays in most individuals' budgets, perhaps second only to housing, it is a natural place to start.

As *Commute Patterns and Connections* (p. 22 and 41, respectively) evince, the automobile reigns in Plymouth. Nearly all workers commute and, it is likely, run their errands by car. This bias may in part owe to rational choice. Driving is often the most convenient way to get around. However, it may also reflect a paucity of alternatives. People do not only drive when they want to; they also drive when they have to. If streetscapes are unpleasant for pedestrians, people will prefer not to walk. If roads are busy and sidewalks absent, people will be afraid to walk. And if destinations are far apart, people will not be able to walk.

If driving were socially, environmentally, and economically neutral, individuals' choice, whether of free will or by force, to drive would be irrelevant. Unfortunately, driving is none of the three. It is injurious to the community, to the planet, and, as *Households* (p. 15) makes clear, to our pocket-books. Driving costs dearly. Walking, in contrast, is free. Given how much we as a society drive, the potential for savings is huge. If a penny saved is a penny earned, every vehicle that a household can replace with walking, biking, or transit is equivalent to a pay raise of over \$11,000 per year. That is a lot of pennies! They could make the difference between having and not having a home. Making neighborhoods walkable (or building new housing in already walkable neighborhoods) is one of the best ways to improve the home affordability. As such, a town-wide analysis of Plymouth using the Walk Score technique was conducted for this report. Walk Score "calculates the walkability of an address by locating nearby stores, restaurants, schools, parks, etc." The technique works by "award[ing] points based on the distance to the closest amenity in each category. If the closest amenity in a category is within .25 miles (or .4 km), [it] assign[s] the maximum number of points. The number of points declines as the distance approaches 1 mile (or 1.6 km)—no points are awarded for amenities further than 1 mile. Each category is weighted equally and the points are summed and normalized to yield a score from 0–100. [The key in Figure 41 explains the meaning of these scores.] The number of nearby amenities is the leading predictor of whether people walk." In short, Walk Score "measures how easy it is to live a car-lite lifestyle." (FrontSeat, 2008)

When it comes to walkability, there are two Plymouths (Figure 42, below). One is "somewhat walkable": some homes, parks, and offices are within foot distance, but they often pose more of a hike than some residents would accept. Another is "car-only" or "car-dependent": sprawled, with few if any destinations within walking distance. These environments correspond to the development styles identified in the section *Anthropography* (p. 11), the historic center and the postwar suburbs. Figure 41 (below) presents the findings of this analysis as a map.

FIGURE 41. WALKABILITY MAP AND KEY²³

0-24 Car-dependent (driving only)

No destinations are within walking range. You can walk from your house to your car!

25-49 Car-dependent

Only a few destinations are within easy walking range. For most errands, driving or public transportation is a must.

50-69 Somewhat walkable

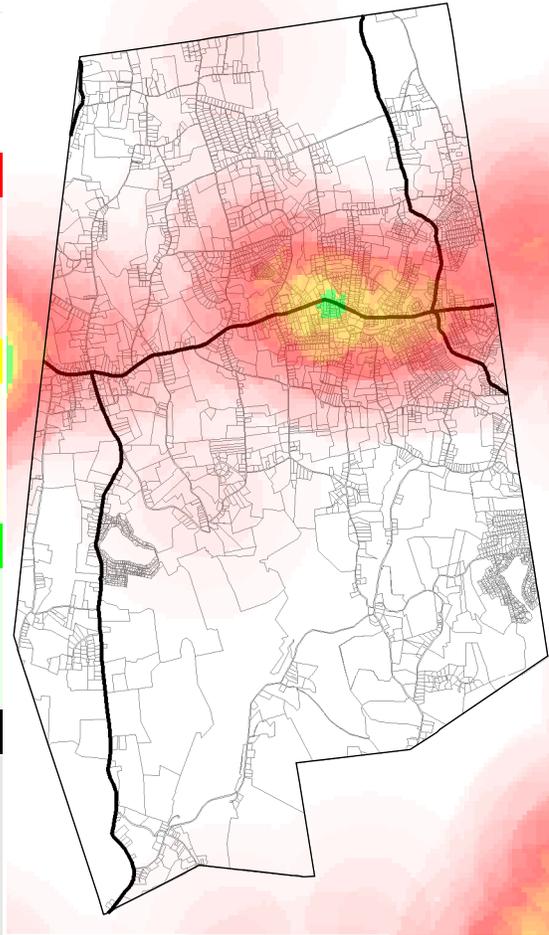
Some stores and amenities are in walking distance, but many everyday trips still require a bike, public transportation, or car.

70-89 Very walkable

It's possible to get by without owning a car. **Not found in Plymouth.**

90-100 Walkers' paradise

Most errands can be accomplished on foot, and many people get by without owning a car. **Not found in Plymouth.**



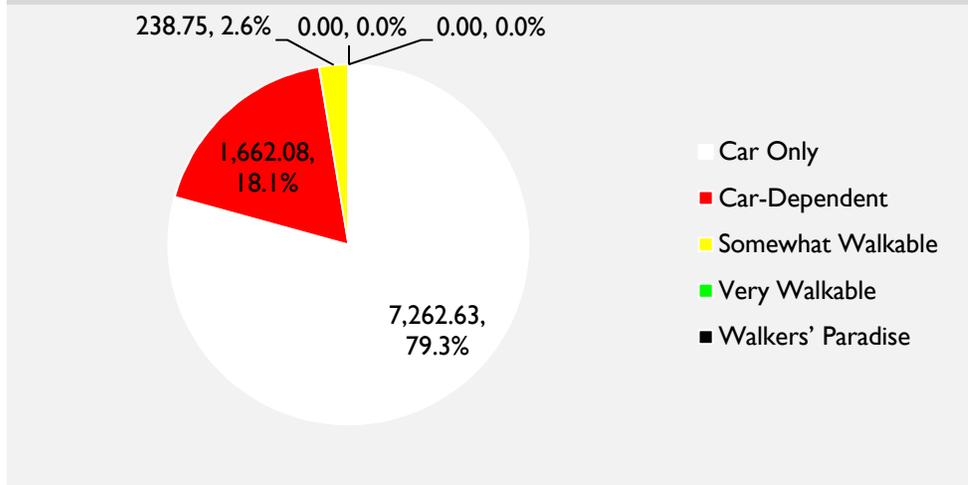
The main implication from the figure above is that the most walkable and thus that most ripe for workforce housing neighborhood is Terryville.²⁴ The area around the bend in Route 6, from Tomlinson Avenue in the west to Maple Street in the east represents the most walkable part of town and should be most appropriate for development.

Figure 42 (below) breaks out the number of acres and percentage of Plymouth that falls into each of the walkability zones. Note that no parts of Plymouth—not a single acre—falls into either the “very walkable” or “walkers’ paradise” classes.

²³ Key from (FrontSeat, 2008)

²⁴ Note that much of the area determined to walkable may not be, in fact, pedestrian-friendly. Sidewalks, crosswalks, and lights may be lacking. However, these are streetscape issues and can be remedied with relative ease. (Installing sidewalks is cheap, at least compared to the decades-long costs of, for instance, locating development in the wrong spot.)

FIGURE 42. WALKABILITY ZONES



In order to maximize affordability, workforce housing should be concentrated *at least* in the zones determined to be at least “somewhat walkable” and *ideally* in those found to be “very walkable.” To further augment walkability and capitalize on ancillary benefits, such as reduced congestion and air pollution, increased foot traffic for local businesses, and a revived downtown and more vibrant community, new construction should mingle places of residence with places of work, entertainment, and recreation. In other words, it should be mixed use.

IHZ relevance: Neighborhoods vary widely in walkability.
Recommendation: New construction should focus on walkable areas, to give residents more options and to raise walkability.

FINDINGS

Section:	Population and Growth
IHZ relevance:	Housing demand will keep growing at a moderate clip.
Recommendation:	New home construction is warranted.

Section:	Households
IHZ relevance:	More new housing units than population growth alone would suggest are called for will be needed if household sizes continue to slide.
Recommendation:	New home construction is necessary.

Section:	Households
IHZ relevance:	Automobile dependency may be a burden or barrier for many in the community.
Recommendation:	New development should be designed to lessen or eliminate the need to own and operate a car.

Section:	Economy
IHZ relevance:	The population is graying rapidly.
Recommendation:	More senior-friendly accommodations will be needed, from townhouses and “active adult” communities to assisted living facilities.

Section:	Economy
Section:	Economy
IHZ relevance:	Basic necessities, especially utilities, are expensive. This cuts into residents' ability to pay for housing.

Recommendation: New construction should minimize utility costs (i.e., adopt energy-efficient design).

Section:	Economy
IHZ relevance:	Residents and workers spend untold time and money driving in circles. This has negative impacts on them as individuals as well as on the entire community.

Recommendation: Construct a variety of housing types near employment centers and encourage development of new sectors of the economy to allow people to live close to work, and vice versa.

Section:	Demography
IHZ relevance:	A labor shortage looms in the future if new workers cannot be recruited and retained.

Recommendation: Housing should be provided at affordable prices to draw and "tie down" employees.

Section:	Demography
IHZ relevance:	The number of disabled residents is large and rising.

Recommendation: Housing should be provided that persons with limited financial and physical ability can afford and access.

Section:	Demography
IHZ relevance:	Housing demand for nontraditional homes exists, but the private market has failed to meet it.

Recommendation: New construction should be more balanced. It should include townhouses and condominiums.

Section: Demography
IHZ relevance: Housing has become very expensive. Demand for condominiums in particular has outstripped supply, and prices reflect that.
Recommendation: New housing, especially in the condominium market, should be erected to boost supply and temper prices.

Section: Demography
IHZ relevance: Rent has become an unbearable burden for many.
Recommendation: More housing is needed to relieve market pressure, lessen rent, and free up earnings for other purposes.

Section: Institutions
IHZ relevance: Schools can absorb modest enrollment increases.
Recommendation: Education should not hinder new housing creation.

Section: Institutions
IHZ relevance: Practices can absorb modest patient increases.
Recommendation: Health care should not hinder new housing creation.

Section: Institutions
IHZ relevance: Fire and police can absorb modest client increases.
Recommendation: Services should not hinder new housing creation.

Section: Connections
IHZ relevance: Public transit is not available.
Recommendation: Development need not take transit into account but should consider possible extensions into town.

Section: Connections
IHZ relevance: Bicycle routes not relevant but may be in the future.
Recommendation: Greenway corridors should be preserved.

Section: Connections
IHZ relevance: Passenger rail not relevant but may be in the future.
Recommendation: Railroad rights of way should be preserved.

Section: Connections
IHZ relevance: Depends on scale and site of IHZ.
Recommendation: Can only be made on a per-project basis.

Section: Connections
IHZ relevance: Airports can generate significant noise and pollution.
Recommendation: New homes should be sited away from the airport.

Section: Connections
IHZ relevance: Public utilities can absorb new demand and hookups.
Recommendation: Utilities should not hinder new housing creation. To keep housing costs to a minimum, new construction should only occur where infrastructure already exists.

Section: Parks and Open Space
IHZ relevance: There is a need for additional land preservation.
Recommendation: New construction should not occur on virgin land. Already-developed lands should be redeveloped.

Section: Habitat and Wildlife
IHZ relevance: Parts of town provide important habitat or harbor species of concern.
Recommendation: New construction should not occur in these areas.

Section: Soils and Agriculture
IHZ relevance: Agriculture may become increasingly viable in town.
Recommendation: Development should take farmland preservation and agricultural soil suitability into account.

Section: Hydrology

IHZ relevance: Certain areas contain wetlands or are prone to flood.

Recommendation: Construction should avoid these areas, with the exception of already-developed flood zones that are redeveloped in a flood-proof way.

Section: Hydrology

IHZ relevance: One aquifer lies beneath the town's surface.

Recommendation: Aquifers should not impede simple residences but may trip up mixed-use projects.

Section: Zoning

IHZ relevance: Procedural hurdles and regulatory and location costs obstruct the creation of affordable housing.

Recommendation: Housing location and regulations should be chosen as to maximize affordability.

Section: Zoning

IHZ relevance: Scant vacant, suitable land is available for workforce housing.

Recommendation: New construction should seek to redevelop land.

Section: Zoning

IHZ relevance: All of Plymouth is eligible for the IHZ program, but not all of Plymouth is suitable.

Recommendation: Eligibility is not a barrier. Suitable parcels should be sought out. *(The second phase of this Community Profile will do this.)*

Section: Zoning

IHZ relevance: The IHZ must not be inconsistent with the state plan.

Recommendation: Preservation and conservation areas should not be developed.

Section: Land Use
Section: Land Cover

IHZ relevance: Land in town differs in the degree to which it remains in a natural state or has been affected by humans.

Recommendation: Development should target, in descending priority, barren, developed, and turf and grasslands.

Section: Walkability

IHZ relevance: Neighborhoods vary widely in walkability.

Recommendation: New construction should focus on walkable areas, to give residents more options and to raise walkability.

BIBLIOGRAPHY

Atwater, F. (1895). *History of the Town of Plymouth, Connecticut*. Meriden, CT: The Journal Publishing Company.

CERC. (2008, August). *Plymouth, Connecticut: CERC Town Profile 2008*. Retrieved October 1, 2008, from CERC: <http://www.cerc.com/TownProfiles/default.asp>

Egan, A. (2008, February 14). *Best and Worst States to Own a Car*. Retrieved October 1, 2009, from Forbes: http://www.forbes.com/2008/02/14/cars-states-ownership-forbeslife-cx_ae_0214cars.html

Fast Forward, Inc. (2008). *Plymouth, Connecticut*. Retrieved October 1, 2008, from Sperling's Best Places: <http://www.bestplaces.net/city/Plainville-Connecticut.aspx>

FrontSeat. (2008). *How it Works*. Retrieved October 1, 2008, from Walk Score: <http://www.walkscore.com/how-it-works.shtml>

GCR & Associates. (2008, September 25). *Waterbury Airport*. Retrieved October 1, 2008, from AirportIQ 5010: <http://www.gcr1.com/5010web/airport.cfm?Site=N41>

Genuario, S. R. (2009). *Office of Policy and Management Annual Report to the Governor and General Assembly on Incentive Housing Zones*. Hartford, CT: Office of Policy and Management.

Office of Policy and Management. (2008, November 24). *Real Estate Sales Listing*. Retrieved December 1, 2008, from Intergovernmental Policy Division: http://www.ct.gov/opm/cwp/view.asp?a=2987&q=385048&opmNav_GID=1807

Partnership for Strong Communities. (2008, April). *2007 Town Affordability Study*. Retrieved October 1, 2008, from HOMEConnecticut: http://www.homeconnecticut.org/index.php?option=com_content&task=category§ionid=3&id=5&Itemid=10

Partnership for Strong Communities. (n.d.). *Why Connecticut Towns Are Creating Housing*.

State of Connecticut. (2007c). *Affordable Housing Appeals List*. Retrieved January 1, 2009, from Department of Economic and Community Development: <http://www.ct.gov/ecd/cwp/view.asp?A=1105&Q=251248>

- State of Connecticut. (2008a). *Connecticut Housing Information*. Retrieved October 1, 2008, from Department of Economic and Community Development: <http://www.ct.gov/ecd/cwp/view.asp?a=1106&q=250640>
- State of Connecticut. (2008c). *Connecticut Strategic School Profiles: Plymouth School District*. Retrieved October 1, 2008, from Department of Education: <http://www.csde.state.ct.us/public/cedar/profiles/index.htm>
- State of Connecticut. (2007a, September 20). *Conservation and Development Policies Plan, 2005-2010*. Retrieved 1 2008, October, from Intergovernmental Policy Division, Office of Policy and Management: <http://www.ct.gov/opm/cwp/view.asp?a=2990&q=383182>
- State of Connecticut. (2008b). *Distressed Municipalities List*. Retrieved January 1, 2009, from Department of Economic and Community Development: <http://www.ct.gov/ecd/cwp/view.asp?Q=251248&A=1105>
- State of Connecticut. (2007b, January 2). *Summary and Outline of the Aquifer Protection Land Use Regulation*. Retrieved October 1, 2008, from Department of Environmental Protection: <http://www.ct.gov/dep/cwp/view.asp?a=2685&q=322256>
- The Warren Group. (2008). *Plymouth*. Retrieved October 1, 2008, from Town Stats: <http://www.thewarrengroup.com/portal/TownStatsLogin/tabid/470/Default.aspx>
- Town of Plymouth. (2008a, December 1). Grand List. Plymouth, CT.
- Town of Plymouth. (2008b). *Zoning Regulations (January 10, 2008)*. Plymouth, CT.
- U.S. Census Bureau. (2007, July). Census 2000, Summary Files 1 and 3. Washington, DC.
- University of Connecticut. (2007, March). *2010-2030 Population Projections for Connecticut Towns*. Retrieved October 1, 2008, from Connecticut State Data Center: <http://www.ctsdc.uconn.edu/Projections.html>
- University of Connecticut. (2006). *Connecticut's Changing Landscape*. Retrieved March 1, 2009, from Center for Land use Education and Research: http://clear.uconn.edu/projects/landscape/statewide_landcover.htm
- University of Connecticut. (2008, June 25). *Where have all the children gone?* Retrieved October 1, 2008, from Connecticut State Data Center: http://www.ctsdc.uconn.edu/Educacn/2008_Projections/CtSDC_PublicSchoolEnrollment_2004-2030.pdf