Town of Narragansett

Comprehensive Plan:
Baseline Report

Approved by the Narragansett Planning Board September 6, 2016
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Narragansett Comprehensive Plan • Baseline Report

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INTRODUCTION

What is the Narragansett Comprehensive Plan?

The Narragansett Comprehensive Plan establishes a roadmap for land use and local government policy over the next 20 years. While the comprehensive plan is required by the Rhode Island Comprehensive Planning Act (R.I.G.L. 45-22.2), it is first and foremost a policy document created with the public that describes a shared vision of the community at large. Goals and policies are established to help decision makers guide future growth and protect the natural environment.
The Narragansett Comprehensive Plan covers the following areas of land use management and local government policy.

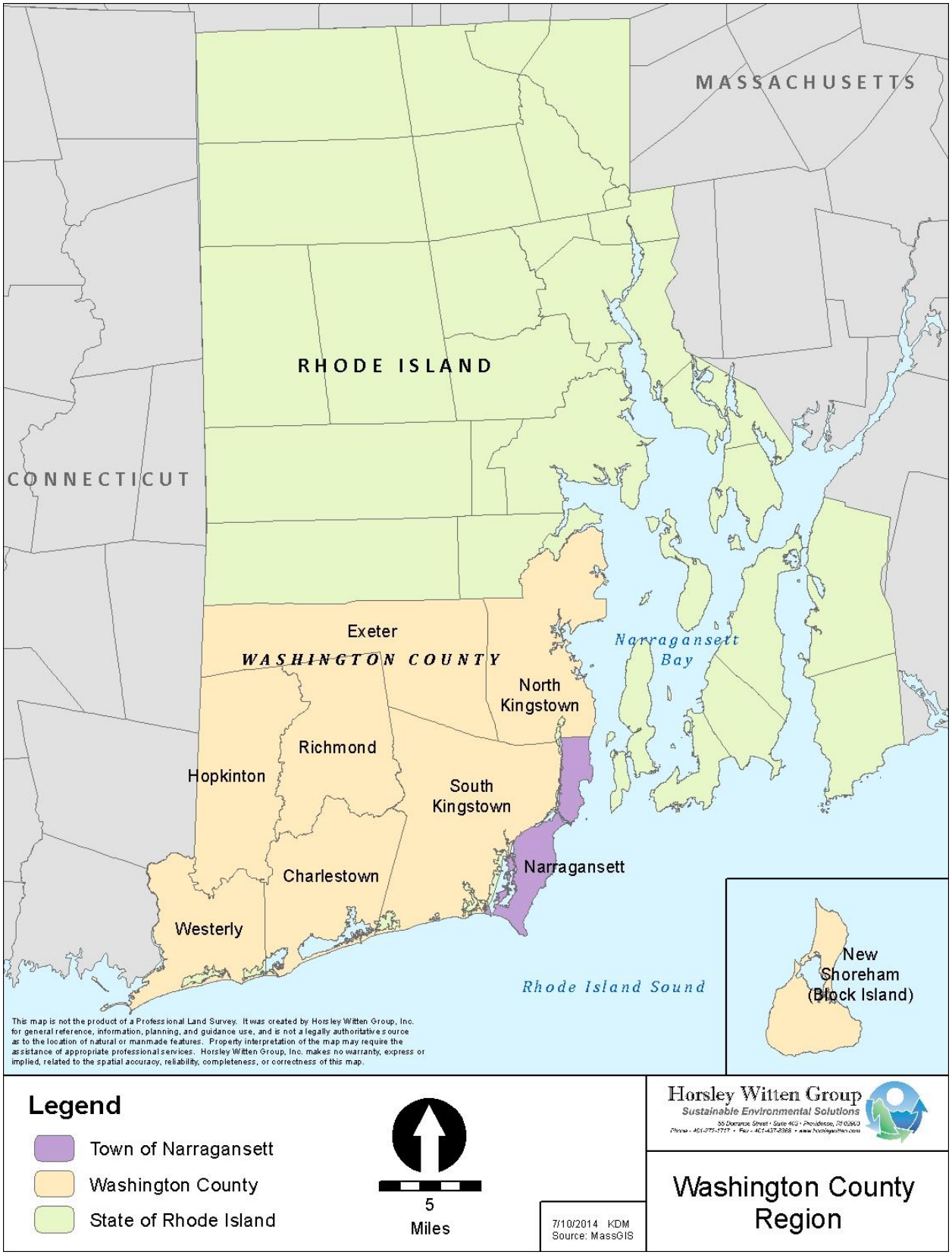
The Narragansett Comprehensive Plan is made up of three volumes: The Baseline Report, The Roadmap, and The Action Plan. This document, The Baseline Report, is a snapshot of existing conditions as they relate to neighborhoods, parks, roadways, public services and facilities, the local economy, and historic and natural assets, among other things that define the quality of life in Narragansett. It includes inventories as well as projections of future needs and/or demands. This information is collected through town staff interviews, public meetings, outreach to key stakeholders, and review of existing reports and other documentation. The Baseline Report was prepared at the onset of the Comprehensive Plan update process and completed in 2013 with some minor edits before adoption. The purpose of this document is to provide the foundation for sound policy development moving forward.

The Roadmap is the primary policy document for the comprehensive plan. The document begins by describing the community vision for Narragansett. It then identifies the formative issues that will shape policy for each of the focus areas within the plan (e.g., Housing, Economic Development, etc.). Finally, the Roadmap lays out the framework for how the Town will reach its vision through established goals and objectives. It is the primary document used by decision makers and incorporates short, mid and long term action items.

The final volume, The Action Plan, details individual action items needed to meet goals and objectives. Responsible parties, such as town departments or boards and commissions, are identified along with implementation timeframes. Since the Comprehensive Plan has a 20 year outlook, action items are divided into short term (to be completed within five years), mid-term (to be completed between five and 10 years), and long-term (to be completed in 10 to 20 years) implementation periods.

Regional Setting

Narragansett is a coastal community located in Washington County, along the southern coast of Rhode Island (Map 1). North Kingstown is to its north and South Kingstown to its west. To the east and south, Narragansett is bordered by Narragansett Bay and Rhode Island Sound, respectively. Regionally, it is a tourist destination known for its scenic beauty. Many public state beaches, miles of scenic vistas, and public access opportunities to the coast draw visitors to the area, particularly during the summer months. Narragansett is approximately 30 miles from Providence, the State's capital.


MASSACHUSETTS
RHODE ISLAND
CONNECTICUT
Exeter
WASHINGTON COUNTY
North Kingstown
Narragansett Bay
Richmond
Hopkinton
South Kingstown
Charlestown
Narragansett
Westerly
Rhode Island Sound
New Shoreham (Block Island)
This map is not the product of a Professional Land Survey. It was created by Horsley Witten Group, Inc. for general reference, information, planning, and guidance use, and is not a legally authoritative source as to the location of natural or manmade features. Property interpretation of the map may require the assistance of appropriate professional services. Horsley Witten Group, Inc. makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or correctness of this map.
Legend
Town of Narragansett
Washington County
State of Rhode Island
5
Miles
7/10/2014 KDM
Source: MassGIS
Horsley Witten Group
Sustainable Environmental Solutions
Washington County Region

Map 1. Washington County Region

Table 1 shows reported populations of Washington County communities from the U.S. Census. Narragansett remains the fourth largest community in Washington County. In 2010, Narragansett lost the largest percentage of its population, followed by Westerly and Charlestown. Comparatively, while some municipalities have higher density in their town or village centers, overall Narragansett is the County's most densely population town with 1,121 persons per square mile.

Table 1. U.S. Census Population of Washington County Communities, 1990-2010

				Change from 2000 to 2010	
City/Town	1990	2000	2010	Total Population	Percentage
Charlestown	6,478	7,859	7,827	-32	-0.4%
Exeter	5,461	6,045	6,425	380	6.3%
Hopkinton	6,873	7,836	8,188	352	4.5%
Narragansett	14,895	16,361	15,868	-493	-3.0%
New Shoreham	836	1,010	1,051	41	4.1%
North Kingstown	23,786	26,326	26,486	160	0.6%
Richmond	5,351	7,222	7,708	486	6.7%
South Kingstown	24,631	27,921	30,639	2,718	9.7%
Westerly	21,605	22,966	22,787	-179	-0.8%
Washington County	109,916	123,546	126,979	3,433	2.8%

Source: U.S. Census, 1990, 2000, 2010

DEMOGRAPHIC CHARACTERISTICS AND TRENDS

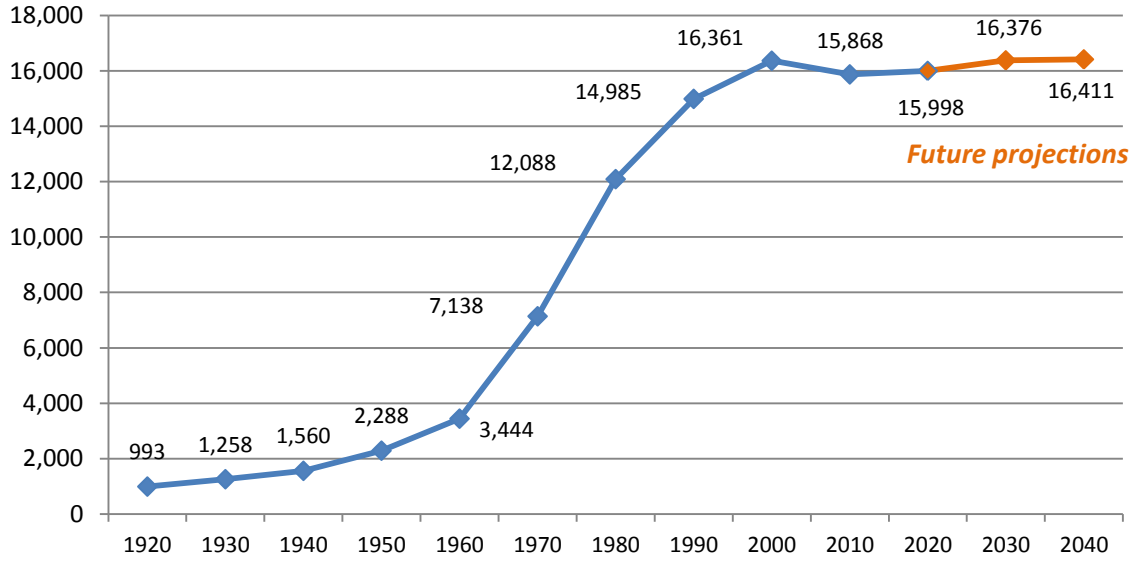
For the development of the comprehensive plan update, the Town prepared the Narragansett Population Trends Report. It is found in Appendix A of this Baseline Report and a summary of the report's highlights is provided here.

Population Growth

According to the 2010 U.S. Census, Narragansett's population dropped from 16,361 to 15,868. While the Town will use this statistic in its planning analysis of the community, Town staff is of the opinion that the U.S. Census under-counted the Town's population and it has not lost individuals but remained flat. Overall, however, the 3% decline is small, but marks the first drop in Narragansett's population since 1920. As show in Figure 1, since 1930, Narragansett has seen continuous growth. The most rapid population increases occurred between the 1960, 1970, and 1980. In 1960, the Town had only 3,444 residents. By 1970, this number rose to 7,138, a 107% increase in 10 years. In 1980, the U.S. Census reported a 67% increase in population with 12,088 residents. This growth is attributed to young families moving into Narragansett.

Figure 1 also shows population projections prepared by the Rhode Island Division of Planning through 2040. These projections are based on demographic trends of both the state and the town, considering deaths, births, net migration and population growth. It is projected that Narragansett's population will remain relatively flat, gaining its 3% lost (413 residents) from 2000 by 2040. It should be noted that these projections are considered a "best guess" based on conditions over the past five years. As social and economic conditions in the region and throughout the state change, population growth will respond accordingly.

Figure 1. Narragansett Population, 1920 to 2040



Source: U.S. Census, 1920-2010; RI Division of Planning Statewide Planning Program, "Technical Paper 162: Rhode Island Population Projections 2010-2040," April 2013.

In conjunction with this projection, the Town takes into consideration the results of its buildout analysis, which showed it is close to residential buildout (See Table 10). It is anticipated that an additional 1,009 year-round homes could be built on existing vacant or underutilized (lots that could be subdivided into buildable lots based on current zoning) lots. When or if these homes will be constructed is uncertain. The state and the New England region as a whole have been slow to rebound from the 2008 Great Recession compared to the rest of the country. The number of building permits issued in Narragansett for residential development that peaked in the early 2000s gradually declined and has been less than 50 per year for the past three years. If it is assumed that this rate continues, it will take 20 years for the Town to be fully built out, within the planning timeframe of this comprehensive plan.

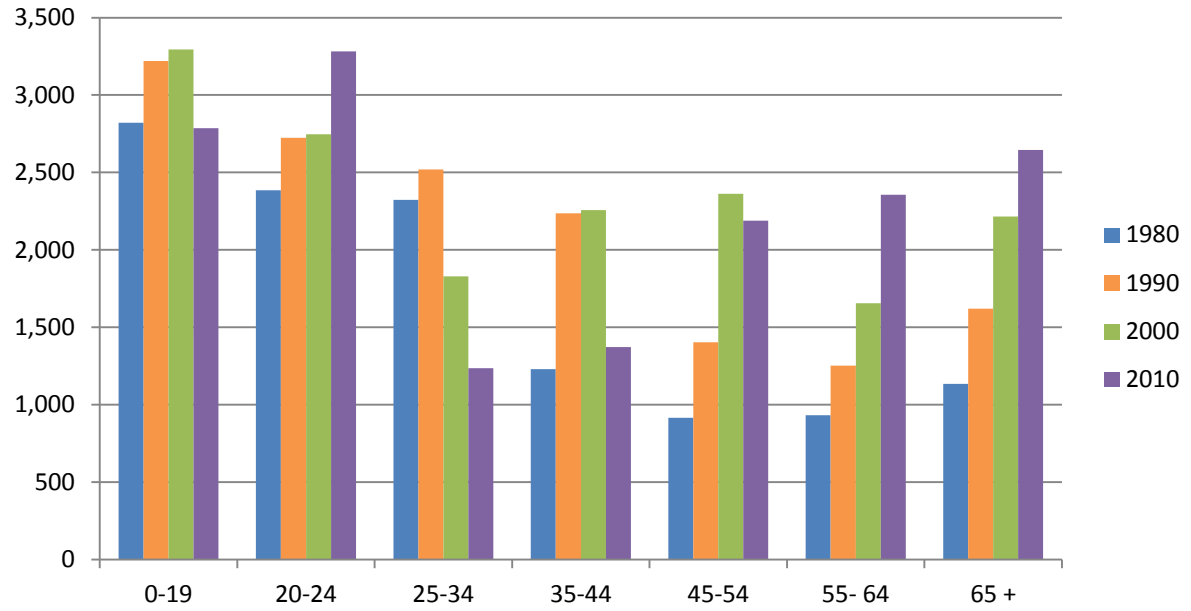
Based on the addition of 1,009 new housing units, the population could grow by 2,805 by 2035. This is calculated using the average family household size (ACS 2010) for Narragansett, 2.78 persons. Average household size (2.36 persons) is somewhat skewed due to the large student population. As discussed in *The Roadmap*, the Town is implementing policies that hope to attract and reestablish families and year-round residents into these new housing units.

The Town does expect some growth in its population over the next 20 years. Based on these two sources, that growth can range from 400 people to almost 3,000. Major influences will be local housing policies that attract new, year-round residents and statewide policies that influence economic revitalization and job creation statewide and in the region.

Age Composition

Narragansett has seen significant shifts in age composition over the last 30 years as well. Figure 2 shows Narragansett's population from 1980 to 2010 broken down into seven age groups called "cohorts" and some notable shifts appear. The most dramatic are decreases in the 25 to 34, 35 to 44, and 45 to 54 age cohorts. The Town's population overall is trending older, as age cohorts over 55 are steadily increasing. In 1990 Narragansett's median age was 31.2 years. In 2000 that number rose to 44.4 years. In 2010 the median age dropped slightly to 40.4 years, but this is expected to stay even or slightly increase in the coming decades.

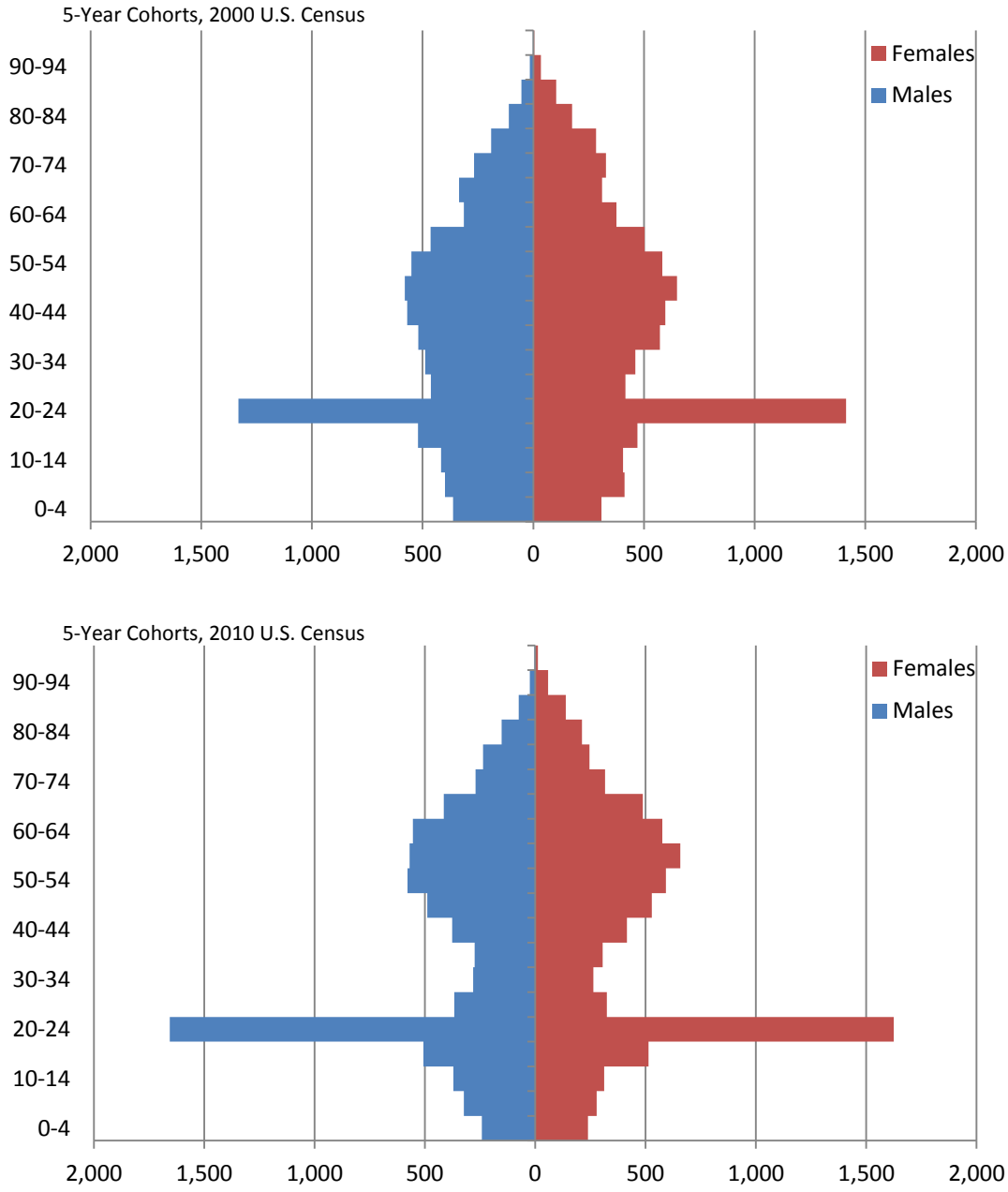
Figure 2. Narragansett Population Age Cohorts, 1980-2010



Source: U.S. Census, 1980-2010

If the population were divided into five-year age cohorts, specific age groups can be analyzed and other characteristics of the Town's population are revealed. Figure 3 compares 2000 with 2010 U.S. Census population data (See Appendix A for charts comparing 1980 through 2010) as population pyramids. Looking at the 2010 data set alone, there are several observations that can be made. First is the spike at the 20 to 24 age cohort, representing the college age population. Heavily influencing the Town's make-up, the 2010 Census reported 3,281 people in this age group, or 21% of the town's population. By comparison, the 25 to 29 age cohort makes up just 4% of the overall state total. The University of Rhode Island (URI) located eight miles in the neighboring town of South Kingstown significantly affects this uneven population. According to URI, 55% of its students live off campus, and many choose Narragansett due to the availability of over 2,500 units of rental housing.

Figure 3. Population Pyramids, 2000 and 2010



Source: U.S. Census

When comparing the 2010 population pyramid with the 2000 pyramid, a shift in the Town's population between age cohorts is observed. The sizeable group of Baby Boomers moves through the age cohorts. In 2000, Baby Boomers were in the age cohorts between 30 and 45. In 2010 they are well-defined in age cohorts 40 to 65. The trend will be for this age group to continue to enter their senior years, and this bulge in the pyramid will more upward.

Also clearly defined in the 2010 chart is the restricted section in the 25 to 40 age cohort. One possible reason for this is lower birth rates during the late 1960s to around 1980 in the U.S. The low birth rate applies to age groups between 30 and 40, which is in between the Baby Boomer and the Echo Boomer

generations. Another possible reason Narragansett is lacking younger adults is current economic trends. The 2010 pyramid shows an unstable population of younger adults, compared to the more stable pyramid in 2000. This indicates that a higher percentage of recent college graduates, young professionals, and first time home buyers, are moving out of Narragansett, or never had a chance to move in. This trend is most likely attributed to their inability to obtain a satisfactory standard of living. A resident's standard of living is determined by factors such as income level, availability of employment, availability of affordable housing, and other factors that affect ones level of wealth, comfort, and overall happiness.

In Narragansett, and many other cities and towns in the U.S., young adults are struggling to find entry level professional jobs and in tough economic times, the search for full-time employment is more difficult. This leads to unemployment or underemployment, and coupled with Narragansett's high housing prices, a difficult environment is created for this age group to obtain a modest standard of living in Narragansett. As a result, young adults are emigrating to other communities, which may provide them with more opportunities. If economic and housing conditions remain unchanged in the area, this trend may continue in the future. These age structure trends are not unique to Narragansett; in fact they are very similar to other towns in Washington County.

Youth

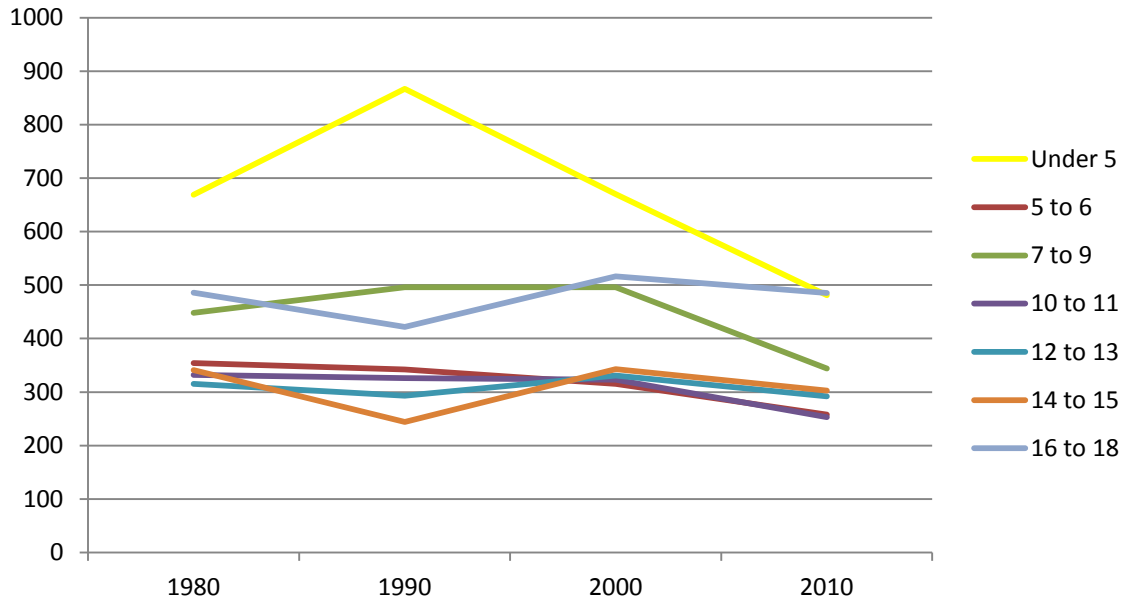
The pyramids in Figure 3 also show a declining school age population. In 2010, Narragansett experienced a drop-off of 578 children, resulting in a 19% reduction in its youth population from 2000. At first, this decline looks abrupt, but after more analysis, this trend was not an anomaly. The overall younger population from 1980 to 2000 remained steady, but the overall population in older age cohorts increased. This resulted in a lower percentage of residents aged 18 and younger, compared to the overall total. In 1980, Narragansett had 2,945 residents aged 18 and under, representing 24% of the overall population. Comparatively in 2000, Narragansett had 2,994 residents aged 18 and under, but the percentage dropped to 18% of the overall population. In 2010, the percentage and the actual count came down to just 15% of the overall population with 2,416 residents in the 18 and under age cohort.

Over the past decade, the student population declined. As shown in Figure 4, in 2010, every age cohort of school-aged children experienced a decline. The most noticeable decline occurred in Narragansett's youngest age groups, under 5, 5 to 6, and 7 to 9, which have all been in decline since 1990.

There are a few possible reasons. As previously mentioned, the first is a result of lower birth rates and national demographic trends. Second, the Baby Boomer generation has a significant effect on demographics. The declining birth rates and number of children under 9 seen in the 2000 and 2010 can be partially attributed to the end of the Echo Boomer generation. Another possible explanation for Narragansett's declining youth populations could be attributed to rising housing prices in Narragansett and the difficulty for young families to settle in Narragansett. If similar economic and housing market conditions continue, Narragansett's deficit of first time home buyers and young children could continue.

It is expected that the student population will steadily increase. According to the Narragansett School Department, student enrollment had been consistent since 2000 and has recently seen a slow increase in the past three years. In conjunction with local policies to attract young families and year-round residents, the Town anticipates growth, albeit slow growth, in their student population over the next 20 years (See Figure 8).

Figure 4. Narragansett Youth Population Trends, 1980-2010



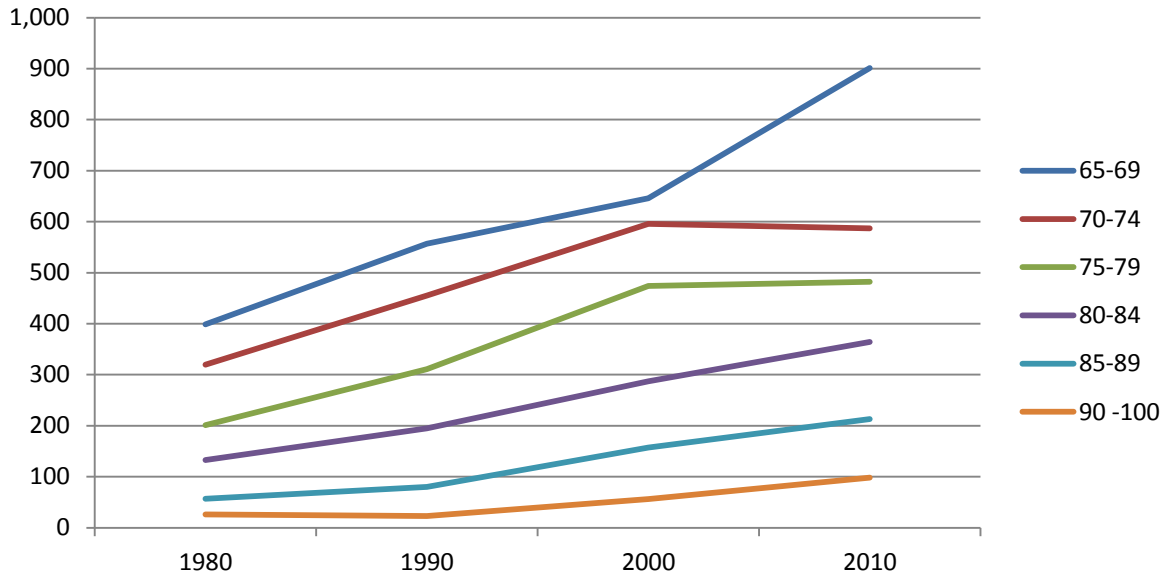
Source: U.S. Census

Elderly

The Town of Narragansett has seen a steadily increasing elderly population since 1980 (Figure 5). In 1980, there were 1,136 residents aged 65 and older making up 9% of the Town's population, by 2010, there were 2,645 Narragansett's elderly residents representing 17%. The net increase in elderly residents from 1980 to 2010 was 1,509, meaning the Town's elderly population has increased by 133% in the last 30 years.

One of the major reasons for this population trend is improved health care and lifestyles leading to longer life expectancy. Another reason for increases in 2010 is the aging Baby Boomers. 2010 was the first census year that Baby Boomers entered into the 65+ age bracket. This trend is just beginning. The oldest of the Baby Boomers in 2010 were just barely 65. The vast majority is still in their 50s. As a result, the numbers of elderly people in Narragansett for the 2020 and 2030 censuses are expected to be much higher than current numbers.

Figure 5. Narragansett Elderly Population Trends, 1980-2010



Source: U.S. Census, 1980-2010

Seasonal Variation

As previously noted, the U.S. Census reported that the Narragansett's population was 15,868 in 2010. During the summer season (June through August), it is estimated that it increases 114% to nearly 34,000 daily. While specific figures on the number of visitors into Narragansett during the high season are not kept, estimations were made in the Population Trends Report, found in Appendix A. This figure is conservatively derived from three primary observations: occupancy of seasonal vacant units (as reported by the U.S. Census), occupancy in local hotels and campgrounds, and average daily attendance at local and state beaches:

Narragansett has approximately 2,766 seasonal vacant units, which typically turnover on a weekly basis. If all units are occupied with an average of 3 persons per house, that would result in 8,298 overnight visitors.

In addition to rental properties, there are 12 bed and breakfasts, three hotels, and two motels, which total 340 available rooms. Further, there are two campgrounds with 297 sites. Assuming 90% occupancy and estimating 2.3 persons per room and three persons per campsite, an additional 1,515 persons are staying overnight in Narragansett.

Three state beaches, Scarborough, Salty Brine, and Roger Wheeler, were estimated to have an average of 8,395 people per day in July 2011. Acknowledging that some of these people were local residents or visitors already staying in overnight accommodations, it was assumed that 75% were day trippers, resulting in an additional 6,296 people.

There is also Narragansett Town Beach, which allows usage by non-residents. The Town averages 5,064 persons per day; however, it was assumed that only 25% were not local residents or overnight visitors. This results in another 1,266 day trippers.

There are three private beach clubs located in Narragansett, but figures regarding their attendance are not published. A conservative estimate of 1,000 for all three was used. It was assumed that only 25% were not local residents or overnight visitors, resulting in an additional 750 day trippers.

Of course, many others visit Narragansett to see the many other attractions in town, including restaurants, museums, parks, historic sites, and shopping. Special events also bring in visitors. As shown in Table 2, a conservative estimate of 33,993 people can be in Narragansett during a busy summer day.

Table 2. Estimated Number of Seasonal Visitors to Narragansett

Type of Visitor	Estimated Population
Seasonal renters	8,298
B&Bs, hotels, motels, campgrounds	1,673
Day trippers: State beaches	6,296
Day trippers: Town	1,266
Day trippers: Private beaches and clubs	750
Estimated Daily Seasonal Visitors	18,125
Town's Population	15,868
Estimated Daily Seasonal Population	33,993
Percentage increase over local population	114%

Race and Ethnicity

The racial categories reported by the U.S. Census generally reflect a social definition of race recognized in this country and not an attempt to define race biologically, anthropologically, or genetically. In addition, it is recognized that the categories of the race in the U.S. Census include racial and national origin or socio-cultural groups. People may choose to report more than one race to indicate their racial mixture, such as "American Indian" and "White." People who identify their origin as Hispanic, Latino, or Spanish may be of any race.[1]

According, Table 3 shows that residents of Narragansett predominantly identified themselves as white (98%). Small percentages identified as Black or African American, American Indian or Alaska Native, Asian, or some other race. Likewise, most residents said they are non-Hispanic or Latino.

[1] US Census http://www.census.gov/population/race/

Table 3. Racial Makeup of Narragansett Residents, 2010

	% of Population
One race	98.7%
Two or more races	1.3%
Race alone or in combination with one or more other races	
White	96.9%
Black or African American	1.5%
American Indian and Alaska Native	1.3%
Asian	1.2%
Native Hawaiian and Other Pacific Islander	0.1%
Some other race	0.6%
Hispanic or Latino	
Hispanic or Latino (of any race)	1.7%
Mexican	0.2%
Puerto Rican	0.6%
Cuban	0.1%
Other Hispanic or Latino	0.8%
Not Hispanic or Latino	98.3%

Source: U.S. Census

Education Attainment

Educational attainment is an indicator of a population's employment characteristics, income levels, and overall quality of life. Narragansett's education attainment for its residents 25 and older has been improving over the last 20 years. The 1990 Census reported that 87% of Narragansett residents were high school graduates or higher. In 2000, that figure rose to 91%. In addition to rising high school graduate rates, the percent of college graduates in the town has also been increasing. In 1990, 37% had a bachelor's degree or higher. In 2000, that number improved to 42%.

As shown in Table 4, the American Community Survey (ACS) 2010 5-Year Estimate (2006 to 2010) reported that Narragansett's residents on average were more educated than Rhode Island residents as a whole. The survey estimated that 96% of town residents 25 and over have a high school diploma or higher. By comparison, the Rhode Island statewide percentage was 84%. Narragansett was also exceeded the statewide percentage of 30% with 52% of its residents having a bachelor's degree or higher.

Table 4. Level of Education Attainment for Residents 25 Years and Older, 2010

Education Attainment	Narragansett	Rhode Island
High school graduate or higher	96%	84%
College graduate (bachelor's degree or higher)	52%	30%

Source: American Community Survey 2010 5-Year Estimates

These high levels of educational attainment in Narragansett, as compared to the overall state, play an important role in the town's labor force. In most instances, educational levels affect one's ability to stay employed and find work, especially in times of economic hardship.

Income

Income characteristics in municipalities are a good measurement of economic prosperity of the community and its residents. Resident income levels are considered to be one of the most important aspects when characterizing quality of life offered by a town, and median household income is the most commonly used statistic. It only displays disposable income, or total income minus personal taxation. It also takes into consideration pooling incomes (incomes of two or more people living in the same residence).

In Table 5, since the 1990 census, Narragansett has seen a large increase in its median household income. In 1990, the median household income in Narragansett was $35,545. In 2000, that number rose to $50,363, and in 2010 the median household income was $57,906. The overall result is a 62% increase in 20 years. This statistic is consistent with the Rhode Island's statewide median household income, which increased by 63% in the same timeframe. While the trend has been a constant increase in median household income for both Narragansett and Rhode Island, Narragansett's household income levels have stayed about 11% above the statewide levels.

Table 5. Median Household Income, 1990, 2000, and 2010

	1990	2000	2010*	Percent change over 20 years
Narragansett	$35,545	$50,363	$57,906	+63%
Statewide	$32,181	$42,090	$52,254	+62%

**Estimated median income*
Source: U.S. Census, 1990, 2000 and American Community Survey 5-Year Estimates, 2010

Although Narragansett's median household income level standing 11% above statewide average may seem significant, some towns are much higher. For example, in 2010, the Town of Barrington had a median household income of $94,300. This makes Barrington's income levels 80% above statewide median average. In looking at this further, Narragansett is actually 27th out of 39 cities and towns in the state in highest median household income. In comparison, Narragansett's neighboring towns of North Kingstown and South Kingstown have median household incomes of $76,316 and $71,192, respectively, ranking 8th and 12th in the state.

Narragansett's low ranking in the state's median household income statistics may come as a surprise to some considering its desirable, and pricey, properties on and around the coast. In looking beyond median household income, a few patterns appear that may explain this status of economic normality in a town many consider to be well-off.

The primary reason for Narragansett's median household income being lower than its neighboring municipalities is its large population of college students. As previously mentioned, Narragansett's demographics are highly affected by URI students living in the town. Most college students living off campus will have two or more roommates. Due to their academic course load, most college students do

not have full time jobs, or in some instances no job at all. Therefore, college students have incomes significantly lower than Narragansett residents who work full time. This lack of significant income in college households then skews the town's median household income statistics.

Although still slightly weighted down by college household incomes, applying the mean household income instead of the median shows Narragansett much closer in comparison to its neighboring towns. In 2010, Narragansett had a mean household income of $87,557. To compare, the state mean was $71,934, North Kingstown's was $100,768, and South Kingstown was $90,642.

The most useful statistics in evaluating and comparing Narragansett to other towns and Rhode Island as a whole are Narragansett's percentage of family households to non-family households and the differentials in the median incomes of family households verses non-family households. Typically, family household income statistics are higher than overall household income statics.

In 2010, Rhode Island's statewide median family household income was 29% higher than median household incomes (Table 6). In Narragansett, the percent increase was much higher with 47%. This relationship in family household income compared to total household income in Narragansett is also much higher than the neighboring towns of North Kingstown (23% increase) and South Kingstown (30% increase). Narragansett's more prominent family income differentials are a result of the town having a much higher percentage of non-family households, including student renters.

Table 6. Median Household Income and Median Family Income

	Median Household Income	Median Family Income	Difference
Narragansett	$57,906	$85,020	47%
North Kingstown	$76,316	$93,844	23%
South Kingstown	$71,192	$92,520	30%
Rhode Island	$54,902	$70,633	29%

Source: American Community Survey 2010 5-Year Estimates

Poverty

In many cities and towns in Rhode Island poverty is a serious problem. In Narragansett, statistical data indicates there is no exception. If one were to simply look at census data without any knowledge of Narragansett's demographic makeup, one would assume Narragansett is one of the most poverty stricken towns in Rhode Island.

As shown in Table 7, in 2010, the ACS reported that 17% of Narragansett's residents were living in poverty. This puts Narragansett well above Rhode Island's statewide rate of 12%. However, like all demographics in Narragansett, these poverty statistics are heavily influenced by college student households, who often have their incomes supplemented with grants, loans, scholarships, part-time jobs, and/or money provided by parents or earned in summer employment. Therefore, the poverty status of college students is not considered to be an issue of overall community prosperity or economic health. As for the percentage of families in poverty in Narragansett the percentages were much lower. Only 5% of people living in family households were in poverty. This is much below the statewide rate of 8%.

Table 7. Poverty Rates in Narragansett and Rhode Island, 2010

	Narragansett	Rhode Island
Individual	17%	12%
Under 18	4%	17%
18 to 64	22%	11%
64 and older	7%	9%
Families	5%	8%

Source: American Community Survey 2010 5-Year Estimates

In looking at the data further, it becomes apparent that the vast majority of Narragansett's residents living in poverty are most likely URI students. Also shown in Table 7, Narragansett residents aged between 18 and 64 were twice more likely to be in poverty than the statewide average (22% in Narragansett compared to 11% statewide). This is influenced by the estimated 2,114 out of the Town's 3,246 college students that were in poverty, representing 65% of the college demographic. In comparison only 4% of Narragansett residents under 18 were living in poverty; that number was 17% for the entire state. Seven percent of senior residents aged 65 and over in Narragansett were living in poverty. This was below the statewide rate of 9%. In total, Narragansett was estimated to have 2,743 people in poverty in 2010, of which, college students represented 77% of that group. By comparison, statewide college students make up only 14% of the total population in poverty. This large college factor, in a relatively small community has a profound impact on the overall poverty rate. Research has shown that this college poverty factor is seen in other small college municipalities in the U.S. One example is Clemson, South Carolina. Clemson is a small college town of 13,230 people with a poverty rate of 34%; however, college students account for 79% of the people in poverty.

LAND USE

The location of land uses influence where and how people live, work, and play. Evaluating land uses allows the Town to identify areas it wants to protect and to find areas suitable for new development and infill. Narragansett is known for its scenic beauty, natural resources, and access to the coast. This is why it has a strong tourism economy. Many also live in Town because of its seaside character. But the local population also requires services and other businesses to meet basic needs. To maintain a high quality of life for residents and sustain the features that attract visitors, the Town must balance development with resource protection.

The Narragansett Zoning Ordinance and Subdivision and Land Development Regulations are the primary tools the Town uses to monitor where development occurs and reduce its impact on the natural environment. It also can give guidance on the aesthetics of development, ensuring that it is attractive and consistent with the Town's character.

History of Land Use Regulation

The Town of Narragansett passed its first zoning ordinance in 1930, which was enabled by a special state act in 1927. The primary goal of these early land use regulations was to separate commercial and residential uses, which has resulted in much of the existing land use pattern.

Narragansett's early ordinance was framed on an urban model, allowing 1,500 square foot residential lots, which exist in higher density neighborhoods today throughout town. When the more modern zoning was implemented, these lots, most being used as summer homes, became legal substandard lots of record. As time went on, the Town experienced economic and environmental impacts of over development. Summer housing was being converted to year-round use and without adequate public services such as potable water and sewers, the natural environment became stressed.

In 1987, the Town adopted a zoning plan that specifically incorporated environmental considerations into density and setback requirements. Using a mapped environmental inventory, the ordinance designated coastal and freshwater wetlands, high water table soils, coastal resources, steep slope, and flood plain overlay districts. Development within these districts requires staff and/or board review. Revisions to the zoning ordinance also made the town's regulatory process consistent with that of Rhode Island Coastal Resources Management Council's (CRMC) objectives within the local special area management plan (SAMP). The new area and setback requirements reduced the rate of growth in sensitive areas, provided greater protection for natural resources, and help to protect against septic system failures in areas with marginal soils.

Land Use Overview

Narragansett's physical and topographic make-up clearly defines the Town, its neighborhoods, and its land uses. Located on three end-to-end peninsulas with islands and barrier beaches, each part of town shares its identity with a waterbody, the coastline, and a location on the linear spike of the Town's road system.

Narragansett is dominated by residential uses. According to Table 8, much of the residential areas are developed at a medium-high density (1/4 to 1/8 acre lots). Commercial uses are located near these areas and service the local neighborhoods. The Town still maintains a significant percentage of

undeveloped areas (nearly 50%), due to environmental constraints to development and local conservation efforts.

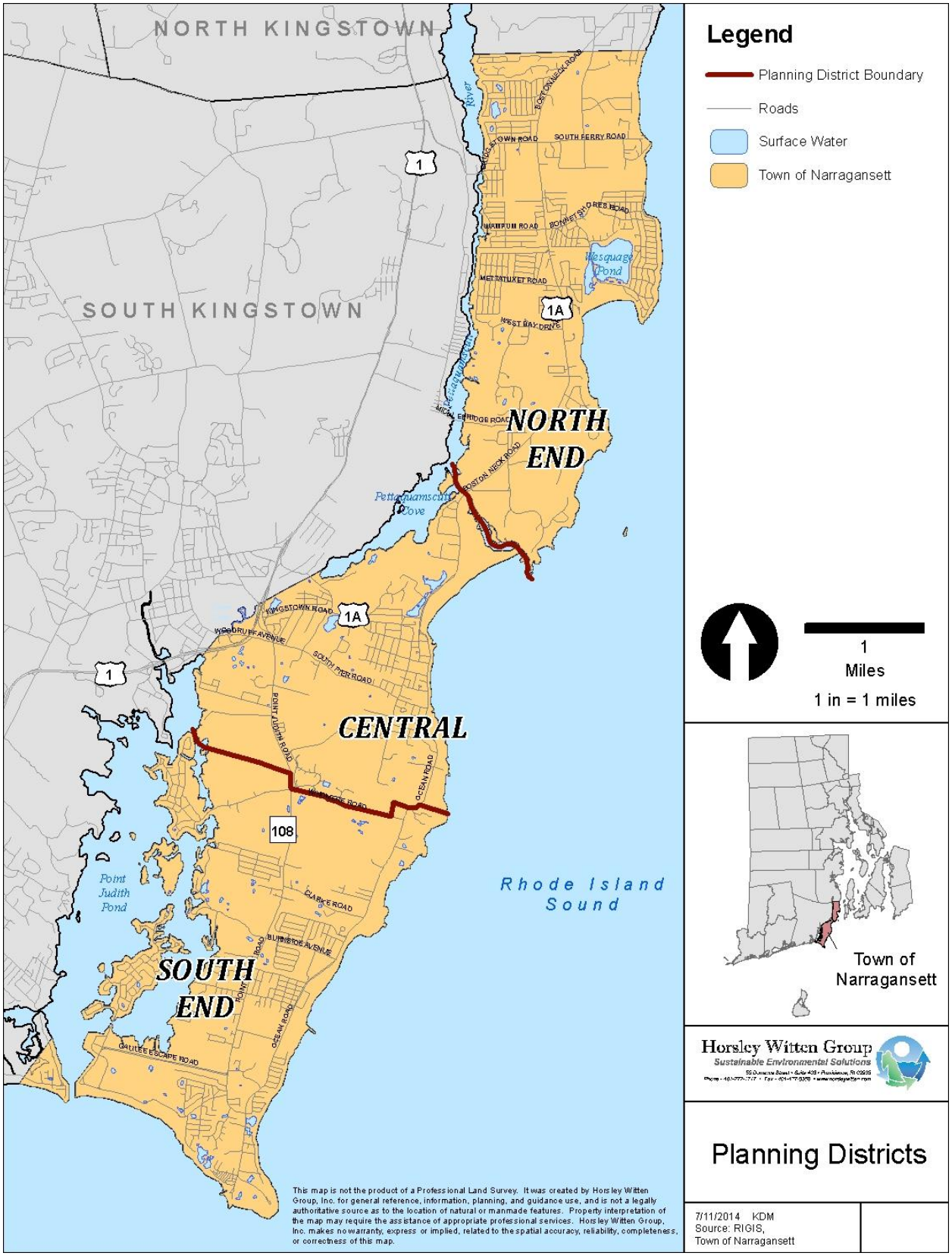
Table 8. Land Use/Land Cover as a Percentage of Total Acreage

Land Use Category	% of Total Acreage
High Density Residential (<1/8 Acre Lots)	4.11%
Medium High Density Residential (1/4 to 1/8 Acre Lots)	20.09%
Medium Density Residential (1 to 1/4 Acre Lots)	9.85%
Medium Low Density Residential (1 to 2 Acre Lots)	2.18%
Low Density Residential (>2 Acre Lots)	0.78%
Residential Development Subtotal	**37.01%**
Agriculture (Cropland, Idle, Pasture)	2.31%
Developed Recreation	4.50%
Commercial (Sale of Products and Services)	2.86%
Industrial (Manufacturing, Design, Assembly, Etc.)	0.21%
Institutional (Schools, Hospitals, Churches, Etc.)	1.55%
Roads (Divided Highways >200' Plus Related Facilities)	0.34%
Water and Sewage Treatment	0.15%
Vacant/Urban Open	0.28%
Other Developed Lands Subtotal	**12.22%**
Beaches	0.94%
Brushland (Shrubs and Brush Areas, Reforestation)	8.57%
Forested Areas	33.80%
Rock Outcrops	0.36%
Sandy Areas (Not Beaches)	0.38%
Surface Water	1.85%
Wetlands	4.72%
Undeveloped Lands Subtotal	**50.63%**

Source: RIGIS Land Use Coverage, 2011

Land Use Planning Districts

As shown in Map 2, the Town is generally thought of as three Planning Districts: North End, the Central Area, and the South End. Each has unique residential, commercial, and industrial areas as well as parks and open space.



Map 2. Planning Districts

North End

The North End extends from the town line with North Kingstown to Sprague Bridge at The Narrows (Map 3). It is bordered by the Pettaquamscutt River (locally referred to as Narrow River) to the west and Narragansett Bay to the east. Boston Neck Road (U.S. Route 1A) is the major roadway running north/south. Christoforo Park is an asset to the North End and provides active recreational opportunities for residents.

North End Residential Areas

Within the North End, there are several diverse neighborhoods that were established prior to the zoning reform in 1987. They are:

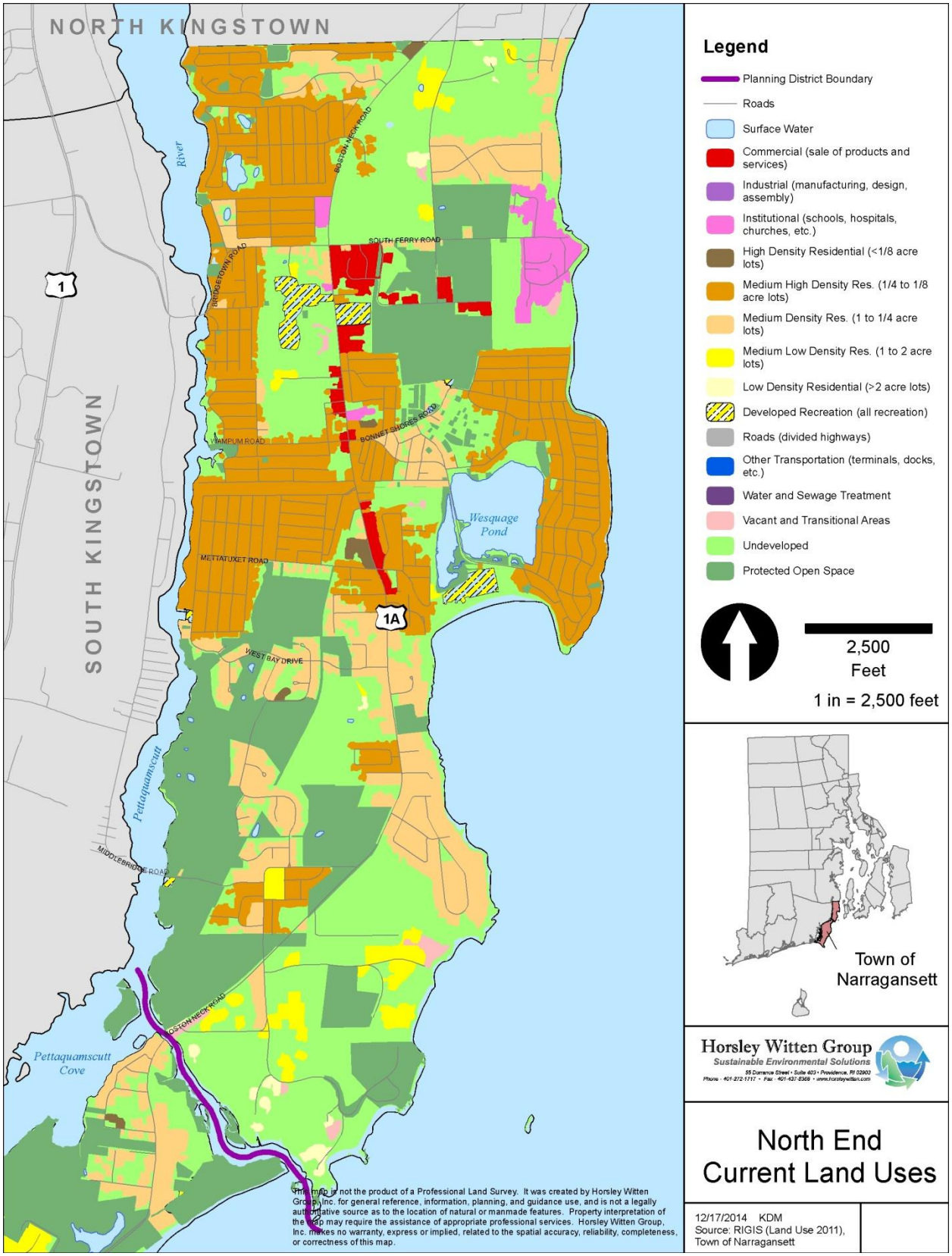
Forest Lakes	Pettaquamscutt Terrace
Rio Vista	Mettatuxet
Riverdell	Bridgeway East
Pettaquamscutt Lake Shores	Hillview Acres
Edgewater	Bonnet Shores

Northgate and Riverfront Estates are newer neighborhoods built under the current environmental requirements. These modern subdivisions incorporate cluster design and preserve a significant portion of the developments as open space to reduce environmental impacts. Greenbelt buffers were provided along the southern portion of Boston Neck Road.

On the bay side of Boston Neck Road, Bonnet Shores covers Bonnet Point and the hillsides surrounding Wesquage Pond. This broad area contains modestly built homes on 50-foot lots of what was originally a summer colony. Increases in housing values over the past several decades have caused substantial improvement and renovation. South of Bonnet Shores lie less numerous plats of larger lots and more substantial neighborhoods are located along the rocky shore leading to Anawan Cliffs.

The North End subdivisions on Narrow River and Bonnet Shores are characterized by suburban- styled development of single family homes. These areas house higher-than-average numbers of young and growing families, and in the case of Bonnet Shores, also house a substantial number of college students during the school year.

Much of the land in this area is characterized by high watertable soils and historically the wet season frequently created problems with septic systems, contributing to bacterial pollution to the Narrow River via storm drain systems and overland flow. In 2001, through bond referenda, the Town completed the North End Sewer Project. Sanitary sewers in eight neighborhoods, serving 1,190 properties, were installed along with four pump stations, a force main, and 13.3 miles of pipeline.



Map 3. North End Current Land Uses

North End Commercial Areas

Despite relatively high peak traffic flows during the summer months, the North End commercial areas situated along Boston Neck Road rely on the locally-oriented demand of year-round residents. These commercial areas extend from the intersection of Bridgetown and South Ferry roads south for about three miles. There are several restaurants and neighborhood-oriented commercial uses.

North End Industrial Areas

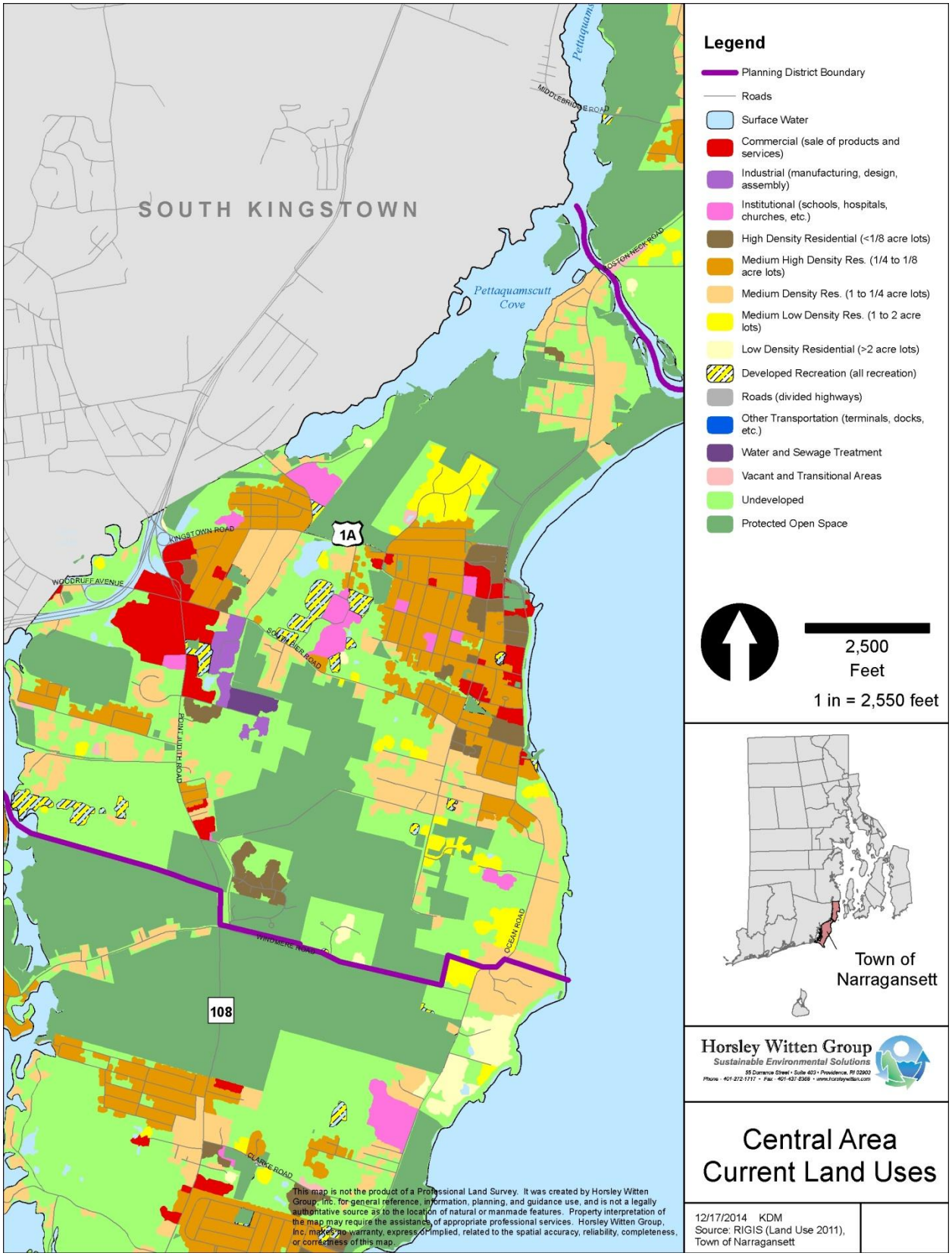
Two major industrial areas are located off of South Ferry Road. The North Star Industrial Park is privately owned and consists of 16 one-acre lots with full utilities, including sewers. It has been developed to house local service-type industries, including automotive repair, waste collection and recycling, building contractors' office and storage uses, heating service and oil delivery businesses, plumbing supply, and fish packing.

The South Ferry Industrial Park is state-owned with 11 lots of one acre or larger. It also has full utilities, including sewers. The Rhode Island Economic Development Corporation (RIEDC) markets the campus and they have attracted research and analytical laboratories, an industrial coating firm, various consulting firms, and a building fabrication firm. Significant areas of undeveloped, industrially-zoned land off of South Ferry Road are owned by the state through URI's Graduate School of Oceanography (GSO). Both GSO and the adjacent federal laboratories of the USEPA, and NOAA have been designated as centers of excellence and represent major employment and world-renown information resources for the southern New England region.

Central Area

The Central Area and its surroundings extend from the north tip of Little Neck at Sprague Bridge south along Ocean Road to Wandsworth Street, and for the purpose of this plan, extend westward to the town line with South Kingstown (Map 4). Within this general area is what is considered a traditional town center including cultural, governmental, recreational, and educational facilities. Town Hall, the post office, the police and fire departments, and library are all located in the Central Area. It includes the major recreational facilities of Canonchet Farm and Sprague Park, and all of the Town's schools and associated recreational areas. The Westmoreland Street Wastewater Treatment Plan is located in the outlying portion of the area.

Pier Marketplace, under private ownership, is at the heart of the Central Area and contains condominiums and commercial development. Adjacent is the public square with Veterans Park and Casino Park. The Town Beach is also in the area. Historic and cultural resources include the South County Museum and The Towers. By virtue of the of the graceful Victorian architecture of The Towers and the surrounding "cottages," attractive beaches, shops, restaurants, and shoreline esplanade, the Central Area is largely used as a place for walking, jogging, sightseeing and socializing.



Map 4. Central Area Current Land Uses

Other Central Area Residential Areas

Residential areas immediately around the Pier Marketplace follow a more traditional grid pattern. Homes are predominately single and two-family structures. Similar to areas in the North End, smaller summer cottages have been substantially improved and renovated into larger residences. Larger homes on more expansive lots are found on Ocean Road, where summer "cottages" have also been renovated and converted for year- round use. Areas further out from the center off of Kingstown Road and South Pier Road are more modern, suburban style developments with single family homes.

Central Area Commercial/Industrial Strip

At the western end of the Central Area, surrounding the intersection of Woodruff Avenue, South Pier Road, and Point Judith Road (Route 108), is the Town's principal automobile-oriented commercial strip center, including two large 175,000 square-foot shopping centers (Mariner Square and Salt Pond Shopping Plaza), a 40,000 square- foot office complex, and a small length of strip-style commercial development with a service station, liquor store, restaurants, Laundromat, car wash, hardware store, and recreation center. Walt's Way Industrial Park is also located in this area. This area is highly visible and heavily travelled.

South End

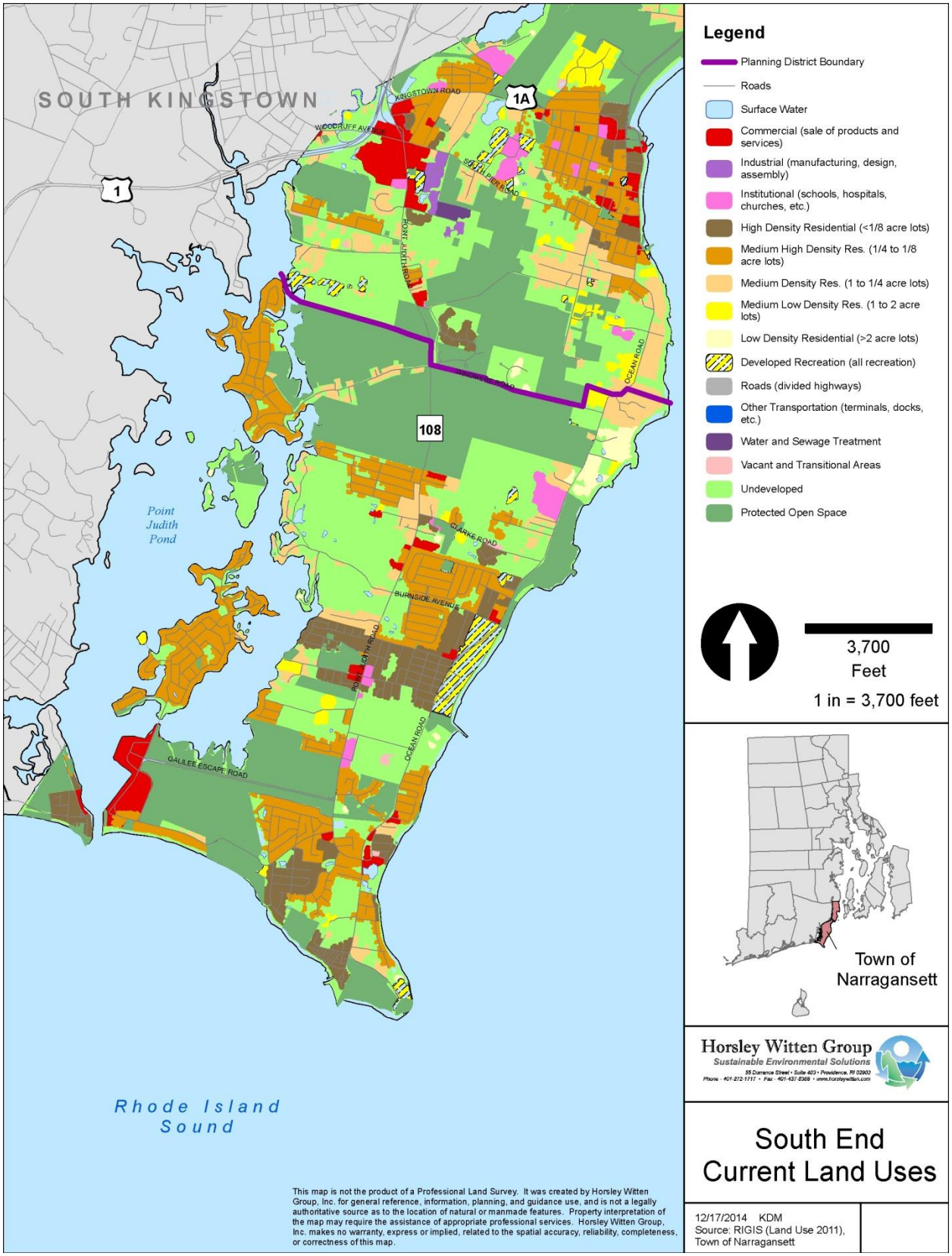
There is no definitive natural feature to mark the South End Planning District, but roughly begins at Long Cove Camp Road and travels east to Windmere Road, and continues eastward to the coast. The Salt Pond islands are included in this planning district, as is the Point Judith Country Club, the state beaches, and Galilee.

South End Residential Areas

The South End neighborhoods are predominately single family homes on 5,000 to 15,000 square foot lots (Map 5). Like Bonnet Shores in the North End, homes in many of the neighborhoods of the South End were summer homes. According to the U.S. Census, it was estimated that 38% are seasonal housing (seasonal, recreational, or occasional use). There is a rapid and consistent trend toward the conversion of seasonal units into year-round residences. Many of these residences are rented to students between September and May and to vacationers in the summer months.

The principal neighborhoods in the South End include the following:

Harbour Island	Sunset Shores
Briggs Farm	SeaCrest Plat
Fort Green Estate	East Pond Heights
Eastward Look	Breakwater Village
Scarborough Hills	Village at Point Judith
Bon Vue Plat	Sea Breeze Plat



Map 5. South End Current Land Uses

On Point Judith Neck each subdivision is oriented toward a specific section of shoreline or cove area. The other defining characteristics are the level of utilities available. Sewered neighborhoods including Eastward Look, Scarborough Hills, Village at Point Judith, and Sea Breeze plat have tended to become occupied year-round while in many of the other Point Judith Neck neighborhoods seasonal occupancy is still quite common.

Among all developments in Narragansett, Breakwater Village is unique because of its evolution from a summer camp to residential condominiums. Residential densities are extremely high with the average lot size approximately 1,600 to 2,000 square feet and the size of housing is severely constrained due to small lot size. Roadways have undergone improvements, but are still narrow and leave very little room for parking. Despite its substandard aspects, Breakwater Village has a summer village character and some of the finest views of Block Island Sound in Narragansett. Consequently, Breakwater Village dwellings have commanded relatively high prices.

The South End community also includes major development on two islands in Point Judith Pond: Great Island adjacent to Galilee and East Pond, and Harbour Island (also known as Foddering Farm). Originally platted in the late 1940s and 1950s, these islands were built-up with summer houses on 50 by 100 foot lots. The islands still have a significant number of seasonal units; however, the trend since the late 1960s has been toward conversion to year-round use. Great Island, in particular, has in large part been converted by owners to retirement homes.

The islands are not sewered, however, the soils and subsoils are derived from glacio-fluvial deposits, and unlike other parts of town have good drainage characteristics. Ironically, in many parts of the islands, percolation rates are so rapid that sewage wastes may not be adequately treated before entering ground and surface waters. This is particularly true of nitrate from septic systems which cause eutrophication or clogging of estuarine waters. This is a watershed-wide problem that must be addressed. While there is virtually no public recreational land designed in the original subdivision plan for these islands, proximity to the shoreline and access to Salt Pond represent a tremendous amenity to the island residents. Many private piers and homeowner association owned access ways have been constructed. In addition, platted road ends may provide additional public access to the waters of Point Judith Pond. Controlling the proliferation of docks is an environmental issue.

South End Commercial Uses

Commercial use in the South End is focused primarily in the Galilee area where the fishing industry, sport fishing charter boats, sightseeing tour boats, seafood restaurants, seafood retail, a motel, and beaches are located. Much of the land use in the area is a mix of commercial activity directly related to the operation and product of the major industrial activity, fishing.

The Block Island Ferry provides transportation from Block Island to the mainland. In the spring, summer, and early fall recreational use of the ferry is high.

Other commercially-zoned land in the South End is located at the Knowlesway Extension and Route 108 intersection (the site of neighborhood-oriented retail operations) and at the junction of Route 108 and Ocean Road (the site of three restaurant). A fairly large portion of Point Judith in the vicinity of Breakwater Village is zoned B-C. This area as well as the adjacent public parcels may show some promise as a site for a marina/dry stack storage area.

South End Industrial Uses

Industrial uses in the South End are concentrated in the Port of Galilee, the State's principal fishing port. It is home for approximately 230 commercial fishing vessels, including charter boats. In 2009 there were 179 vessels with federal permits ported in the area. Galilee fishermen have traditionally been highly opportunistic, fishing for a wide variety of species in the waters from Long Island to Georges Bank. In 2008, it was ranked 17th among U.S. fish ports for total value of landings in the country and 21st for weight.[2] Associated with the fishing industry are a number of supporting businesses, including welding and fabricating, electronics, and repair. The Port of Galilee is on state-owned land and under state law and is not subject to local zoning regulations. The Town, however, is interested in working with the State to improve the overall appearance of Galilee and to promote its use as a major fishing port.

Existing Zoning Overview

Map 6 shows the Town's current zoning districts, which are summarized in Table 9. Being a predominately residential community is reflected in the fact that nearly 81% of the town is zoned within one of its seven residential districts, and over one third as low-density (R-80).

Table 9. Summary of Narragansett's Zoning Districts

Zoning District	Zoning Code	Description	Approximate Acres Town-wide	Percent of Total
Residential			**7,242.30**	**80.6%**
Low-density	R-80	Single family minimum lot size: 80,000 SF Areas with severe physical limitations for development, or which are within or adjacent to wetlands, intertidal zones, coastal ponds, rivers or watersheds	3,585.2	39.88%
Moderate-low density	R-40	Single family minimum lot size: 40,000 SF Areas where economic factors associated with extensive development are likely to discourage urban-intensity development Characterized by open space interspersed with residential and agricultural land uses	935.3	10.40%
Moderate density	R-20	Single family minimum lot size: 20,000 SF Moderate density residential areas, including certain open areas where similar residential development appears likely to occur	713.4	7.94%
High density	R-10	Single family minimum lot size: 10,000 SF High-density residential areas served by, or adjacent to, a public water system, plus areas where similar residential development appears desirable	1,949.4	21.68%
High density	R-10A	Single family minimum lot size: 10,000 SF High-density residential areas served by public water and public sewer systems, plus areas where similar development appears desirable.	36.7	0.41%

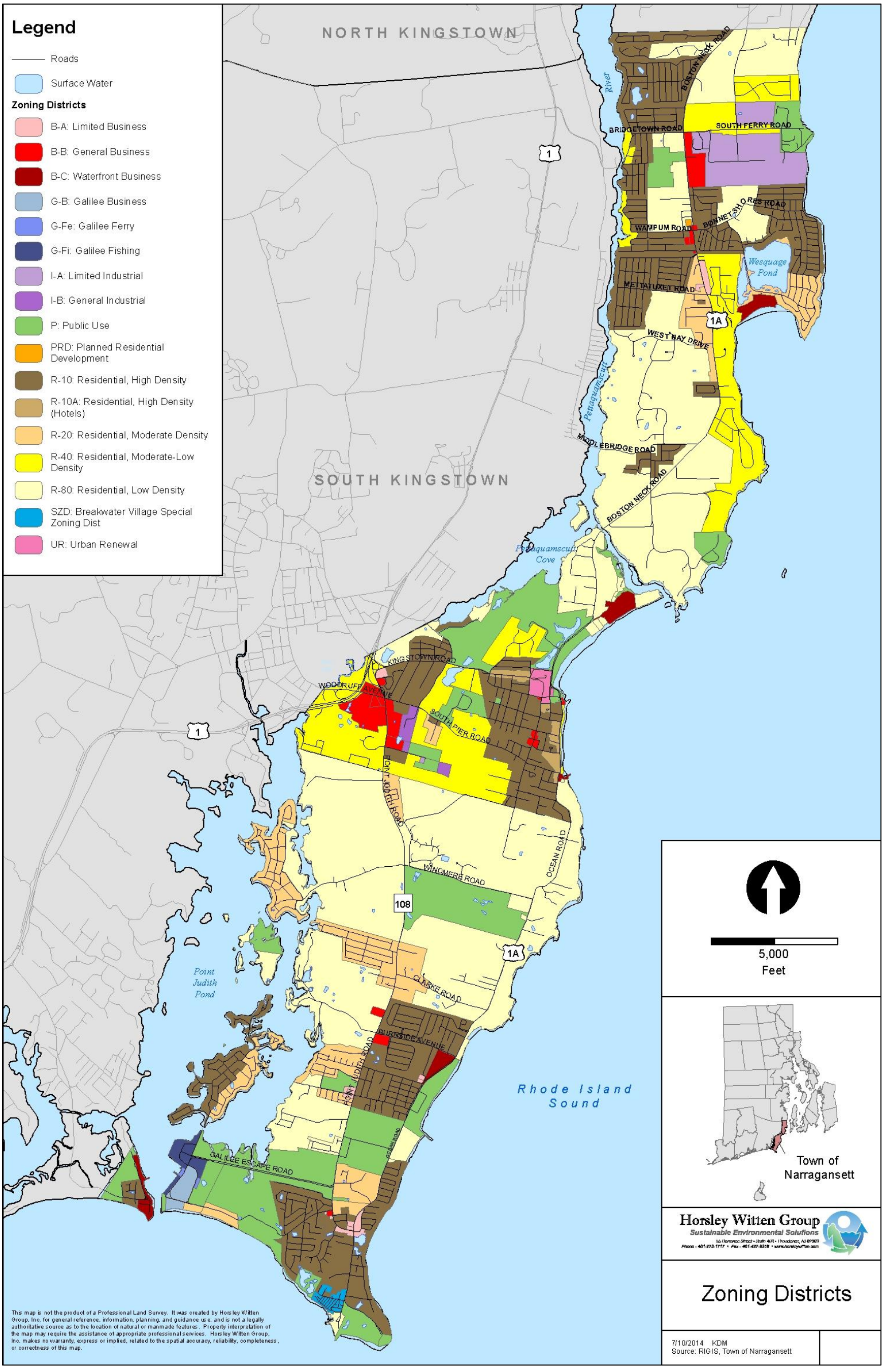
[2] Rhode Island Ocean Special Area Management Plan, adopted October 2010

Zoning District	Zoning Code	Description	Approximate Acres Town-wide	Percent of Total
Planned Residential District	PRD	A floating zone designed to allow for redesign and replat of undeveloped plats of record containing legally recorded substandard lots Used in special conditions where development of preexisting subdivisions would interfere with goals of the Comprehensive Plan Allow for the transfer of development rights within the limits of the original plat, and to form a residential cluster that affords maximum protection of natural resources unsuitable for development. Development standards and design guidelines are provided and allowable density is based on several factors Incentives (subject to review) are offered that would increase density, building coverage, or reduce setbacks, among others.	1.5	0.02%
Breakwater Village Special Zoning District	SZD	Plat M, Lot 167-1 Recognizes the particular development pattern and physical characteristics of Breakwater Village. Provides relief to the unit owners with regards to zoning dimensional regulations Requirements for review by Breakwater Village Condo Association should an owner request a building permit or variance or special use permit from ZBR Dictates permitted uses, dimensional regulations, and special considerations for site design	20.8	0.23%
Commercial			**228.9**	**2.6%**
Limited business	B-A	Minimum lot size: 20,000 SF Building coverage 30% Retail of convenience goods such as groceries and drugs and the furnishing of personal services	32.7	0.36%
General business	B-B	Minimum lot size: 20,000 SF Building coverage 30% Retail of commodities and services dependent upon considerable vehicular and pedestrian traffic	124.7	1.39%
Waterfront business	B-C	Minimum lot size: 20,000 SF Building coverage 30% Retail of goods and services for water-oriented activities	71.5	0.80%

Zoning District	Zoning Code	Description	Approximate Acres Town-wide	Percent of Total
Industrial			**235.4**	**2.6%**
Limited industrial	I-A	Minimum lot size: 40,000 SF Building coverage 30% Research industries and limited industrial uses, but general industrial uses are prohibited The exclusion of general industrial uses is intended to promote the economic welfare of the town by preserving sites for research and limited industrial uses.	211.1	2.35%
General industrial	I-B	Minimum lot size: 40,000 SF Building coverage 30% All industries are permitted uses except those deemed to be particularly obnoxious to the residents of the town. The exclusion of nonindustrial development is intended to promote the economic welfare of the town by preserving special sites for industrial purposes and by controlling the mingling of residences and industrial uses, in accordance with G.L. 1956, § 45-24-33(10).	24.3	0.27%
Other			**1,284.1**	**14.3%**
Public use	P	Reserved for public and semi-public uses, including public parks, playgrounds, and recreation areas; golf courses; areas owned or occupied by the town, state, or federal government; and areas owned or occupied by the University of Rhode Island. No residential, commercial, or industrial development is permitted, except that deemed necessary by the governmental entity that owns the land.	1,197.3	13.32%
Urban renew	UR	Land located within the Narragansett urban renewal project (RI-24) area	24.0	0.27%
Port of Galilee Special District		The purpose of the special planning district is to recognize the unique characteristics of Galilee, including its statewide importance as a commercial fishing port, and to achieve the goals of the Galilee Special District Plan. Outlines use and dimensional regulations as well as design and site plan review requirements for five sub-zones, which include Public (P) and R-20 and those listed below Parking is reviewed on a case-by-case basis and applicants for new developments are required to present a parking plan that addresses existing parking, projected demand, and a means of addressing the demand.		

Zoning District	Zoning Code	Description	Approximate Acres Town-wide	Percent of Total
	G-Fi	The area that encompasses the developed waterfront and other areas which are to be used primarily for commercial fishing and related activities, and other water-dependent uses including charter fishing	31.8	0.35%
	G-Fe	The area within the developed waterfront which is to be used for land-based activities supporting ferry service to Block Island	2.5	0.03%
	G-B	The area which comprises the general commercial and mixed-used area which is to be used primarily for retail goods and services, commercial off-street parking and mixed uses	28.5	0.32%

SF: Square feet
Source: Narragansett Zoning Ordinances



Map 6. Zoning Districts

All these zones allow single-family homes. Two-family and duplex residential buildings are permitted by right with specified dimensional regulations in all residential zoning districts except R-80 (special use permit required). Multifamily developments (maximum of six dwelling units) are prohibited in R-80, but allowed by special use permit in other residential districts, where they are required to go through the land development review process and meet additional performance and design standards.

To address development constraints for substandard lots of record, including flag or hockey stick lots and lots with no street frontage, the Zoning Ordinance provides modified dimensional requirements in residential zones. The intent is not to impose more stringent requirements, but to recognize the unique conditions of these lots and provide property owners with development opportunities while still protecting neighborhood character and critical environmental resources.

There are two unique residential districts: the Planned Residential District (PRD) and the Breakwater Village Special Zoning District (SZD). The PRD is a floating district that allows by right the cluster of detached single family homes in all residential districts. It makes allowances for the redesign and replat of undeveloped plats of record containing legally recorded substandard lots. The intent of the PRD is to address development where preexisting subdivisions might interfere with the goals of the Comprehensive Plan. To do so, techniques such as transferring development rights and the use of cluster design are allowed. Design guidelines are prescribed and incentives can be offered upon review by the Planning Board.

The Breakwater Village SZD addresses the unique conditions of this site as a condominium summer colony converted to year-round residences. It provides unit owners relief from more conventional zoning dimensional regulations and requires the Breakwater Village Condominium Association to review requests for building permits as well as variance and special use permit applications to the Zoning Board of Review. The SZD also dictates permitted uses, and, due to its location near sensitive environmental areas, special conditions for site design.

The major differences between the Town's commercial districts relate to allowable uses. The districts all share similar dimensional requirements with the exception of the minimum side yard setbacks, where B-A (Limited Commercial) and B-B (General Commercial) require 10 feet and B-C (Waterfront Commercial) requires 20 feet. All three districts have a minimum lot size of 40,000 square feet, building coverage of 30%, and maximum building height of 35 feet. Uses allowed in B-A are typically smaller, neighborhood-scale retail businesses and personal services, while B-B generate more pedestrian and auto traffic, such as larger supermarkets. Most uses allowed in B-A and B-B are not allowed in B-C, where the focus is on marine-related businesses.

Both industrial districts also share the same dimensional requirements, and are also distinguished by the allowable uses. Industries permitted in General Industrial are those that would not generate nuisances to residents. Residential uses are not permitted in these zones to ensure that there are locations for future economic opportunities. Uses permitted in Limited Industrial focus on research and less intensive industries.

The Port of Galilee Special District recognizes Galilee as the state's primary fishing port and the purpose of the special district is to ensure that the industry is sustained and can grow. It also recognizes that there are surrounding uses that support tourism, such as the Block Island Ferry to New Shoreham, restaurants, and recreational boating for sightseeing tours and sport fishing charters. The special district is concentrated around the port area and is further divided into five sub-districts that include:

Galilee Fishing Zone
Galilee Ferry Zone
Galilee Business Zone
Public
R-20

The regulations outline permitted uses and dimensional requirements as well as design and site plan review requirements. Parking has always been an issue in the port area and the special district requires parking to be reviewed on a case-by-case basis.

Environmental Overlay Districts

As a result of the environmental mapping done in 1987, special overlay districts were incorporated into zoning, and include coastal and freshwater wetlands, coastal shoreline and other coastal features, areas with a high water table, steep slopes, and areas subject to flooding.

The Coastal and Freshwater Wetlands Overlay District comprises coastal and freshwater wetland features, including swamps, marshes, ponds, intermittent and perennial streams, and areas subject to flooding, among others listed in the Zoning Ordinance. The overlay district specifies prohibited uses and prescribe development standards, which detail setbacks and performance requirements. Proposed projects that do not meet development standards will require a special use permit.

The purpose of the Coastal Resources Overlay District is to preserve, protect, develop, and restore coastal resources and their ecological systems. Special use permits are required and development standards detail performance requirements. Areas that fall within this district include:

- Tidal waters and coastal salt ponds;
- Shoreline features including coastal beaches and dunes, barrier beaches, coastal cliffs, bluffs, and banks, rocky shores, and manmade shorelines; and
- Areas contiguous to shoreline features extending inland for 200 feet ("contiguous areas"), as these lands and waters are defined by CRMC.

The High Water Table Limitations Overlay District includes areas where the water table is within three feet below the surface of the ground for significant periods of the year, creating moderate to severe limitations for subsurface development. The overlay district is divided into two sub- districts. Areas within the overlay district "A" are those where the water table is generally within 18 inches of the surface. Overlay district "B" includes specified soils that can also be limited by a seasonal high water table. The overlay district prohibits certain uses and requires special use permits for OWTSs. Design standards limit maximum coverage for structures, paving and other impervious materials.

The Steep Slope Overlay District is comprised of areas with slopes that exceed 15%. In these areas there is a potential for severe soil erosion and problems with construction of buildings and OWTSs. Development standards apply to minimize cuts, fill, and regrading; control runoff and erosion, ensure that the leaching systems of onsite wastewater treatment systems are parallel with the general contours of the land; and ensure that footings of all structures extend into stable rock or soil.

The Flood Hazard Area Overlay District contains special flood hazard areas, including floodways and coastal high hazard areas. Special flood hazard areas are subject to recurrent flooding which presents serious hazards to the health, safety, welfare, and property of the residents of the town of Narragansett. Prohibited uses include, but are not limited to, any filling, encroachment, construction, or other development in a floodway which might cause an increase in flood levels within the town during the 100-year flood. Special use permits are issued for alterations of natural floodway features and construction of any flood barriers that divert floodwaters.

Development standards require a proposed project to be construction in a way that minimizes flood impacts to new structures and associated elements, as well as minimizing flood impacts on neighboring properties. Detailed requirements listed in the ordinance include structure elevations, construction materials, onsite wastewater treatment systems, and meeting standards established by the Federal Emergency Management Agency (FEMA) and CRMC.

Historic Districts

The Town has four local historic districts identified in the Town Ordinance:

- Central Street Historic District,
- Towers Historic District,
- Earles Court Historic District, and
- Ocean Road Historic District.

The purpose of the ordinance is to:

- Safeguard the heritage of the Town by preserving districts and structures which reflect elements of the Town's cultural, social, economic, political and architectural history;
- Foster civic beauty;
- Stabilize and improve property values in such historic districts;
- Strengthen the local economy; to promote the use of such historic districts for the education, pleasure and welfare of the citizens of the town; and
- Provide, where feasible, housing, including but not limited to limited equity cooperative housing, and other housing for low and/or moderate income residents.

Surrounding each district are properties that contribute to the integrity of the district. While these properties are not required to present exterior alterations to the Historic District Commission, they are strongly encouraged to do so. The Commission will review proposed and offer guidance on methods to enhance historic features. Incentive can be offered.

Build-Out Analysis

Buildout projections were prepared to assess the potential for future residential growth in Narragansett. This type of analysis evaluates the entire land area of the Town for its development potential under current zoning regulations to the maximum extent allowable. Projections are based on land ownership, regulated zoning densities and applied assumptions.

Projections were developed by:

- Identifying which lands are considered vacant (not built) and underutilized (current zoning would allow for a lot to be subdivided and additional unit(s) could be construction);
- Calculating parcel-specific constraints (wetlands, water bodies and open space designations); and
- Determining the remaining amount of developable land available for development under the existing zoning regulations.

As shown in Table 10, a preliminary buildout projection estimated the potential for an additional 578 to 1,598 units in the future. This range reflects, at the low end, the amount of 'buildable' land area in conforming lots (vacant) in the different residential zoning districts and, at the high end, the potential resulting from development of an additional 1,020 pre-existing lots (underutilized). In comparison, as of 2010, Narragansett had 9,470 housing units. Due to a gap in the Town's parcel dataset (2004) as compared to the Town's Computer Assisted Mass Appraisal (CAMA) dataset (current to 2012), the potential exists that some of the parcels identified for future growth have already been subdivided and/or developed. A review of the building permits from 2005 to 2011 revealed 271 permits approved for single family residential development. These permits may account for some of the projected units at full buildout, and should be considered when understanding the potential future growth of the Town overall.

To fully understand the reasonable context for growth in Narragansett, considered a beach resort community, several factors need to be further discussed. U.S. Census data for Narragansett (2010) includes a large seasonal demographic (24% or 2,314 households are seasonal). Therefore, a reasonable expectation for growth (and the secondary impacts of this growth) over the planning horizon likely resembles a percentage of the future potential growth that can be realized at full buildout. Several additional factors will also likely offset future potential growth (and impacts) that can be realized at full buildout. It is very unlikely that every underutilized parcel will be further subdivided and developed to the maximum extent allowable. Also, a percentage of new development will likely be realized through redevelopment. Finally, all development, whether new or redevelopment, is subject to the prevailing economic climate.

For more information, including a description of the assumptions and methodology used for the buildout analysis, see Appendix B.

For comparison purposes, we can show projections made in 1994 and 2008 to see the Town's progression towards buildout (Table 11). In the 1994 Comprehensive Plan, it was estimated that the town was at 73% of its buildout and projected that it would be at full buildout by 2012, adding almost 3,000 new housing units. The analysis did not separate between lots that could be subdivided (underutilized lots) and those that were vacant. In 2008, the Comprehensive Plan projected that there was potential for another 1,800.

Table 10. Buildout Summary

Zoning District	Planning District		
	North End (units)	Central Area (units)	South End (units)
Residential High Density (R-10A)			
Vacant	NA	10	NA
Underutilized	NA	21	NA
Residential High Density (R-10)			
Vacant	87	82	183
Underutilized	121	431	166
Residential Moderate Density (R-20)			
Vacant	10	2	1
Underutilized	4	8	28
Residential Moderate-Low Density (R-40)			
Vacant	42	49	41
Underutilized	57	38	11
Residential Low Density (R-80)			
Vacant	37	24	10
Underutilized	53	51	31
Total - Planning District	**411**	**716**	**471**
Total Town Wide - Vacant (low end)	**578**		
Total Town Wide – Underutilized	**1,020**		
Total Vacant and Underutilized (high end)	**1,598**		

Table 11. Comparison of Historic Buildout Analyses for Narragansett

	1994	2008	2012
Vacant (low end)	NA	600	578
Underutilized	NA	1,200	1,020
Total Town Wide (high end)	2,983	1,800	1,598

Sources: 1994 Narragansett Comprehensive Plan, 2008 Narragansett Comprehensive Plan

ECONOMIC DEVELOPMENT

Economic development is the long-term process of improving the quality of life of residents with goals of creating more jobs and better paying jobs, growing property and sales tax base, reducing poverty, having a more diversified and stable economy, and improving public services. It requires active engagement from the community, including government, organizations, institutions, and businesses. Long-term efforts develop local talent, retain jobs, and foster an environment that supports job creation, local businesses, and entrepreneurs. Critical are maintaining affordable housing, a supportive community, and public services such as education and training opportunities, and even recreation and cultural possibilities. Economic development should be sustained over time and ought to provide young people with an opportunity to stay and work in the community or to return from college and find a good job.[3]

When we characterize local economic conditions, we consider state or regional trends, where residents are working and in what types of industries, and what local employment opportunities are in town. We should also take into account the local business environment and is it considered business friendly. Equally important is the fiscal standing of the town and its ability to provide goods and services to residences and businesses.

State Trends

During the past decade, Rhode Island's economy fluctuated dramatically, reflecting national trends and a persistent economic downturn after 2008. According to the Rhode Island Department of Labor and Training (RIDLT),[4] between December 2001 and January 2007, Rhode Island experienced an economic upswing when private sector jobs grew by 5.4%, outpacing all other New England states; however that momentum slowed later in 2007. The state budget crisis, increased energy costs, and the housing market and credit collapse pushed Rhode Island into a recession nearly one year ahead of the rest of the nation. In December 2009, the state's unemployment rate reached its highest in 30 years at almost 13% and for three months that percentage held steady. Nationally, unemployment reached its peak of 10% in October 2009 and then slowly improved. Rhode Island's rate dropped to almost 12% in September 2010; however it still has the highest unemployment rate in New England and fifth nationally at 11% (2011). Job losses occurred in nearly all economic sectors with the largest declines in manufacturing, construction, profession and business services, financial activities, accommodation, food services, and government. RIDLT estimates that, between December 2006 and June 2011, Rhode Island lost 31,000 jobs, or -6%.

The National Bureau of Economic Research declared the end of the recession in June 2009, but national job losses continued. In Rhode Island, employment continued to decline until April 2010. This loss was exacerbated by the floods from the record-breaking rainfall in March 2010. RIDLT reports that 240 Rhode Island businesses employing nearly 4,900 workers were negatively affected by significant flooding.

Recovery is, and will continue to be, slow. RIDLT projects modest job growth statewide for all education and skill levels. By 2018, employment is projected to increase by nearly 40,000 jobs over 2008 levels. This projected growth will be driven primarily by the increased demand for products and services in the

[3] Daniels, et. al. The Small Town Planning Handbook (Chicago: APA Planners Press, 2007)
[4] Rhode Island Department of Labor and Training. 2011. Rhode Island Employment Trends and Workforce Issues.

health care and social assistance; professional, scientific, and technical services; educational services; retail trade; and accommodation and food services sectors. The RIDLT reports that the largest gains continue to occur in the health care and social assistance sector and project an increase of 13,000 jobs by 2018 in that sector alone.

This growth will be due largely to our aging population along with medical advances and new technologies promoted by the Knowledge Economy. Many people associate the Knowledge Economy only with high-technology industries such as telecommunication and financial services and can include architects, bank workers, fashion designers, pharmaceutical researchers, teachers, and policy analysts, among many other vocations and professions.

Local Workforce

In 2010, there were an estimated 8,856 Narragansett residents in the workforce (16 years and older). Of these, 8,815 were employed in civilian jobs (not members of the Armed Forces).
While decreasing by almost 5% from 2000 (Table 12), a majority of those employed still classified themselves as working for private entities. Increases were seen by those indicating they were government workers (25%) or self employed (10%).

Table 12. Class of Worker of Employed Narragansett Residents, 2000 and 2010

Class of Worker	2000		2010	
Private wage and salary workers	6,244	70%	5,384	64%
Government workers	1,893	21%	2,093	25%
Self-employed in own not incorporated business workers	824	9%	856	10%
Unpaid family workers	25	0.3%	29	0.3%

Source: 2000 U.S. Census, 2010 ACS 5-Year Estimates

The increase in self-employed individuals and decrease in those employed by private businesses can be a reflection of the hard economic times Rhode Islanders have been experiencing in the later part of the decade. As of 2011, the state's annual average unemployment rate was 11%, significantly higher than the national average of 9%.[5] Narragansett's annual average unemployment rate in 2011 was 8%, but, as shown in Table 13, represented the lowest number in the immediate region.

Table 13. Average Annual Unemployment Rates, 2011

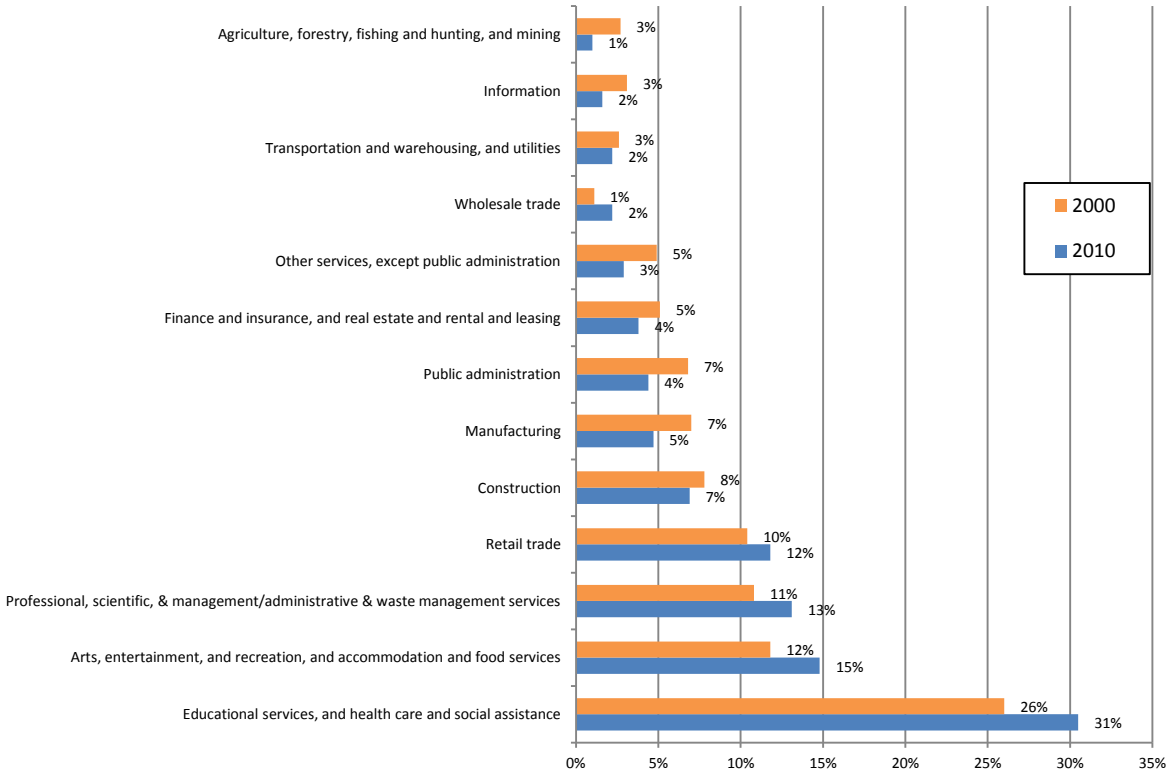
2011 Average Annual Unemployment Rate	
Narragansett	8%
North Kingstown	9%
South Kingstown	10%
State of Rhode Island	11%

Source: RI Department of Labor and Training, Labor Market Information, released March 2012

[5] U.S. Bureau of Labor Statistics, "Regional and State Unemployment, 2011 Annual Report Summary" released February 29, 2012.

Figure 6 shows employment sectors for Narragansett residents. In 2010, most residents remained primarily employed in the same industry sectors as they did in 2000. Those in the education, health care, and social assistance services industry increased from one quarter to one third of residents. Increases were also documented in arts, entertainment, and recreation and accommodation and food services; professional, scientific, management, administrative and waste management services; retail trade; and wholesale trade industries. Residents working in the construction, manufacturing, public administration, and information industries had notable decreases, reflective of the state's struggling economy.

Figure 6. Employment Sections of Narragansett Residents, 2000 and 2010



Source: U.S. 2000 Census, American Community Survey 2010 5-Year Estimates

It was estimated that in 2010 a majority of residents (85%) commuted alone for approximately 24.5 minutes, a good indicator that most individuals did not work in Narragansett (Table 14). Compared to 2000, however, while more residents commuted alone, they were driving fewer miles in 2010. There were some additional residents who were walking to work (2%), but those taking public transportation (1%) decreased. More people, however, were working from home at 4%, up nearly 1% from 2000.

Table 14. Commuting to Work Characteristics for Narragansett Residents, 2000 and 2010

Commuting to Work	2000	2010
Car, truck, or van -- drove alone	84%	85%
Car, truck, or van -- carpooled	9%	7%
Worked at home	3%	4%
Walked	1%	2%
Public transportation (excluding taxicab)	2%	1%
Other means	1%	0.6%
Mean travel time to work (minutes)	26.5	24.5

Source: American Community Survey 2010 5-Year Estimates (2006-2010)

Local Businesses and Employment

When it comes to economic vitality, Narragansett is inherently linked to Washington County and its neighboring communities. It is a residential suburban community and the most densely populated municipality in Washington County. While it does not host the larger economic employers in the region, such as South County Hospital and the University of Rhode Island (URI) (both in South Kingstown) its geographic location provides unique economic opportunities. The beaches and fishing opportunities along the coast create a booming (but seasonal) tourism industry and also allows Narragansett to be home to URI's Narragansett Bay Campus where marine research is conducted by the Graduate School of Oceanography, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service, and to the state's commercial fishing fleet at Galilee.

Table 15 provides an overall summary from the years 2005 to 2010 of the type of business in Narragansett by employment sector. Sectors that survived (and are surviving) the economic downturn and continued to remain established or grow in numbers were:

- Transportation and Warehousing Information
- Professional and Technical Services Education Services
- Health Care and Social Assistance Arts, Entertainment, and Recreation Accommodation and Food Services Government

Sectors that continued to experience closures without no new businesses taking their place were:

- Wholesale Trade Retail Trade
- Finance and Insurance
- Real Estate and Rental and Leasing Administrative Support and Waste Management Other Services (except Public Administration)

Table 15. Estimated Number of Business Establishments in Narragansett, 2005-2010

Employment Sector	2005	2006	2007	2008	2009	2010
Total Private and Government	**492**	**493**	**493**	**494**	**485**	**484**
Total Private Only	**474**	**474**	**474**	**474**	**465**	**464**
Construction	50	47	48	47	49	46
Manufacturing	21	20	20	18	18	19
Wholesale Trade	34	34	34	28	25	24
Retail Trade	50	52	53	55	50	48
Transportation and Warehousing	11	9	10	10	9	9
Information	5	5	4	*	*	6
Finance and Insurance	18	15	18	17	17	16
Real Estate and Rental and Leasing	32	33	31	29	29	27
Professional and Technical Services	48	47	50	48	49	53
Administrative Support and Waste Management	33	35	30	33	31	31
Educational Services	5	5	4	6	7	6
Health Care and Social Assistance	38	38	39	41	44	44
Arts, Entertainment, and Recreation	14	14	13	12	13	15
Accommodation and Food Services	65	66	68	69	71	73
Other services (except Public Administration)	47	51	48	48	45	46
Government	19	20	19	20	20	20

Note: The Agriculture, Forestry, Fishing and Hunting Sector is not included because reported data do not appear to adequately represent the fishing industry as a whole in Galilee. Other data sources are considered in the Baseline Report.
**Data not available. Source: RIEDC, Community Profile, Narragansett (2012)*

Table 16 lists the average employment of local establishments in Narragansett from 2005 to 2010.

Table 16. Average Employment of Local Business Establishments in Narragansett, 2005-2010

Employment Sector	2005	2006	2007	2008	2009	2010	2010 Avg. Annual Wage†
Total Private & Government	**4,213**	**4,128**	**4,275**	**4,624**	**4,294**	**4,346**	**-**
Total Private Only	**3,168**	**3,089**	**3,210**	**3,485**	**3,272**	**3,323**	**-**
Construction	113	117	123	121	96	94	$51,454
Manufacturing	119	120	98	94	89	87	$49,217
Wholesale Trade	91	77	75	69	67	79	$63,199
Retail Trade	643	635	713	752	665	629	$27,059
Transportation and Warehousing	134	95	96	119	97	97	$36,394
Information	2	3	2	*	*	15	$61,341
Finance and Insurance	55	53	58	63	48	48	$73,450
Real Estate and Rental & Leasing	96	95	100	113	97	96	$37,624

Employment Sector	2005	2006	2007	2008	2009	2010	2010 Avg. Annual Wage†
Professional and Technical Services	127	109	119	112	86	93	$63,861
Administrative Support and Waste Management	88	84	92	104	81	78	$30,038
Educational Services	4	5	5	10	9	4	$45,530
Health Care and Social Assistance	343	360	368	391	461	450	$41,121
Arts, Entertainment, and Recreation	158	155	171	171	159	158	$23,744
Accommodation and Food Services	941	932	963	1,136	1,104	1,166	$16,239
Other services (except Public Administration)	232	227	206	205	186	209	$26,602
Public Administration	1,045	1,039	1,066	1,141	1,022	1,023	*

Note: The Agriculture, Forestry, Fishing and Hunting Sector is not included because reported data do not appear to adequately represent the fishing industry as a whole in Galilee. Other data sources are considered in the Baseline Report.
**Data not provided by RIEDC or RIDLT. † Rhode Island sectors, RIDLT's RI Employment and Workforce Trends 2011*
Source: RIEDC, Community Profile, Narragansett (2012)

While the number of businesses in Narragansett remained stable until 2008, the number of people they employed fluctuated annually. This is reflective of the seasonal nature of local businesses. With a tourism-based economy, Narragansett sees the most economic activity between Memorial Day and Labor Day. Employment sectors that are typically encompassed within the industry are hospitality, including hotels, inns, and bed and breakfasts, as well as restaurants, entertainment and arts, recreational opportunities.

According to Table 15, in 2010, the Accommodations and Food Services employment sector had the greatest number of business establishments in Narragansett (73), which employed an estimated 1,160 people (Table 16), the most of all sectors. Because there are few hotels and other types of accommodation businesses in town, these establishments were primarily restaurants. The number of businesses in this sector incrementally increased each year and the number of people they employed increased accordingly. Table 16 also provides the annual average salary for an employee in this sector, about $16,200, a low wage; however these types of jobs, are typically part time, and, as previously stated, in a town like Narragansett, seasonal.

Professional and Technical Services (53 count), Retail Trade (48 count), Construction (46 count), Other Services (except Public Administration) (46 count), and Health Care and Social Assistance (44 count) were also employment sectors that had a large number of establishments in 2010. Growth varied by sector, but those that consistently gained new businesses were Professional and Technical Services and Health Care and Social Assistance sectors, two sectors that also maintain good wages and require specialized degrees or some other level of higher education or training.

In Narragansett, retail stores such as grocery stores, gear shops, and other amenity retail, are strongly supported by the tourism industry. Most visitors to Narragansett are "day trippers" or rent houses, rather than stay at hotels.

In some instances the sectors with the largest number of establishments did not necessarily employ a significant number of people. For example, while there were 53 Professional and Technical Services

businesses, they only employed 93 people, less than two persons per business. The impact of these types of establishments on job creation is small.

Agriculture

Agriculture and the food industry as a whole have grown in Rhode Island over the past decade. The State of Rhode Island has put more focus on policies that preserve and enhance existing agricultural resources to promote economic development by way of local food production and the development of food products.

The agricultural community in Narragansett is small. Existing farms include Sunset Farm and Canonchet Farm. The section Open Space and Outdoor Recreation Resources details the master plans that protect existing uses on these sites, including small-scale farming, passive recreation, and natural resource protection. Sunset Farm rents its buildings for private functions and has retail space for products grown onsite, including cattle. Canonchet Farm is primarily focused on tourism and recreation, but has a small-scale community garden and raises some livestock, though not for slaughter.

Major Employers and Employment Centers

Businesses in Narragansett are diverse. RIEDC annually lists the state's major employers, defined as companies or governmental organizations employing at least 100 people. Table 17 lists those located in Narragansett. According to the table, the Town of Narragansett employs 400, however, this is misleading. Approximately 200 are employed by the Parks and Recreational Department on a seasonal basis. Other major employers are URI, DeWal Industries (manufacturers of PTFE and UHMW-PE skived film), VNS Home Health Service, and Stop and Shop Supermarket.

Table 17. Companies and Governmental Organizations in Narragansett Employing 100 or More Persons (March 2011)

Company	Number of Employees	Type of Industry
Narragansett School Department	434	Schools
Town of Narragansett	400	Government
University of Rhode Island (Bay Campus)	300	Colleges and universities
VNS Home Health Service	150	Home health service
DeWal Industries Inc.	135	Manufacturing of specialty films, tapes, and laminates
Ocean Rose Inn	120	Hotel and motel
George's of Galilee	118	Restaurant
U.S. Environmental Protection Agency	100	Federal government – environmental programs
Aunt Carrie's	100	Restaurant
The Stop & Shop Supermarket Company LLC	100	Grocery retail

Source: RIEDC, Major Employers in RI March 2011

Other significant employers are listed in Table 18, which highlights companies employing, on average, more than 25 persons, but less than 100, in 2011. Those that are seasonal in nature, such as

restaurants, may increase their staff accordingly through part-time, temporary positions; as a result, number of employees may increase in the summer months.

Table 18. Businesses in Narragansett Employing Between 25 and 100 persons (March 2011)

Company	Number of Employees	Type of Industry
Point Judith Country Club Inc.	80	Sports and recreation
Bonnet Shores Beach Club Condominium Association Inc.	70	Sports and recreation
Sand Hill Associates, Ltd	60	Restaurants and cafes
Ceimic Corporation	60	Technical and scientific research
SSHM Management Services Organization,	50	Accounting
The Washington Trust Company of Westerly (2 locations)	42	Banking
Marmaxx Operating Corporation	40	Apparel and accessories retail
Shaw's Supermarket, Inc.	40	Grocery retail
Twin Willows Inc	40	Restaurants and cafes
Homegoods Inc.	37	Floor and window coverings retail
Rite Aid Corporation (2 locations)	36	Drug stores and pharmacies
Porta Phone Co. Inc.	35	Auto equipment
Ocean Tides Inc.	35	Individual and family services
Eartec Company, Inc.	35	Wireline telecommunications equipment
Narragansett Counsel	30	Apparel and accessories retail
Bailey-Flood Narragansett Ford	30	Automobile dealer
EB Thomsen, Inc.	30	Canned and frozen foods
Southwind Corporation	30	Casual dining restaurants
Dave Handrigan's Seafood Inc.	30	Fish and seafood products
Saber Holdings LLC	27	Grocery retail
RI Chrysler Dodge Inc.	25	Automobile dealer
Martone Painting Company	25	Specialty contracting
Hunt Marine I, LLC	25	Transportation Services

Source: Major Employers in Rhode Island, March 2011. RIEDC

There are three industrial parks in Narragansett where many of the businesses listed in the above tables are located. The following provides a brief description of each.

Narragansett Bay Campus/South Ferry Industrial Park

The Narragansett Bay Campus is located at the end of South Ferry Road and consists of 20 URI buildings that contain a mix of offices, research labs, classrooms, and meeting spaces. There is a total of roughly 300,000 square feet of built space, about half of which is contained in six major buildings: Horn Laboratory, South Laboratory, Watkins Laboratory, Center for Atmospheric Chemistry Studies, Coastal

Institute, and Ocean Science and Exploration Center which houses offices of the Dean and administrative staff, as well as the Claiborne Pell Marine Science Library, National Sea Grant Library, and the Inner Space Center.

Other notable features of the Narragansett Bay Campus include:

- A facility that provides continuous running seawater to the Ann Gall Durbin Marine Research Aquarium, Ark Annex to the Aquarium, and Luther Blount Aquaculture Laboratory;
- The Equipment Development Lab, which provides design, fabrication, and test capabilities for scientists;
- A large geological samples storage facility; and
- A dock for the RV Endeavor and a small boat facility;

And numerous specialized research facilities for physical and numerical modeling of large-scale ocean circulation or earth mantle behavior.

In addition, the URI Department of Ocean Engineering is located on the campus, with federal Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA) laboratories. The Narragansett Bay Campus also serves as homeport for the URI Graduate School of Oceanography's (GSO) research vessel, RV Endeavor, with a pier located along the campus waterfront. The pier allows for efficient staging of cruises and easy access to the open ocean, only a few miles south of the campus.

It is estimated that nearly 300 faculty, marine research scientists, graduate students, and administrative, professional, technical, and support staff comprise the GSO community at the Narragansett Bay Campus.[6]

North Star Industrial Park

Located off of South Ferry Road, the North Star Industrial Park is privately owned and consists of 16 one-acre lots with full utilities, including sewers. It has been developed to house local service-type industries, including automotive repair, waste collection and recycling, building contractors' office and storage uses, heading service and oil delivery businesses, plumbing supply, and fish packing. There are also small manufacturing businesses that develop and assemble water treatment machinery and underwater instrumentation.

Walt's Way Industrial Park

Walt's Way Industrial Park is located off of South Pier Road near the intersection with Point Judith Road (Route 108) and the on-ramp to U.S. Route 1. Industries within the park include marine and automotive services and repair, fish packaging, HVAC services, solid waste removal, and fabrication of commercial and industrial machinery.

Point Judith/Galilee

Point Judith/Galilee is the home to the state's largest fishing port. The Rhode Island Department of Environmental Management (RIDEM) manages the port and maintains security with the U.S. Coast Guard. The commercial port contains 40 piers in all for commercial berthing. There are 202 assigned

[6] http://www.gso.uri.edu/narragansett-bay-campus

slips and approximately 230 commercial vessels are registered with RIDEM. In 2010, Point Judith/ Galilee ranked as the 4th largest port in New England and 26th largest U.S. port in dollar value of landings. RIDEM reported in that year that vessels in Point Judith/Galilee landed 67.3 million pounds valued at $69.2 million. The top species landed by value were lobster, Loligo (squid), and fluke. For perspective, in 2005, Point Judith was ranked the 15th largest port in the U.S. for value of landings and 22nd for landings weight.[7]

Businesses and industries that support the commercial fisheries are also located in the area, including dealers, processors, truck transportation, fueling, supply ice, electronics, and gear, among other vessel and equipment services. The port is also where the Block Island Ferry docks.

In 2007 a study was conducted that evaluated the economic impact of saltwater recreational fishing in the State of Rhode Island. According to the report, it generated a total economic impact of $160 million in direct and indirect expenditures. Saltwater angling was the 8th largest tourist attraction in Rhode Island. Fishing charters are largely located in Washington County.[8] It can be assumed that many vessels leave from Galilee and Jerusalem.

Within the port area are also businesses catering to tourists, including restaurants, souvenir shops, and a hotel. Many tourists are on their way to Block Island or a chartered fishing trip. Weekly rentals are nearby as well as Salty Brine State Beach and Roger Wheeler State Beach.

Aquaculture is also active in Point Judith Pond. According to the 2013 Aquaculture Annual Status Report[9] released by CRMC, there are 47.3 acres of aquaculture activities in the pond, or 3.05% of the total pond acreage. This figure represents more than half of the total acres dedicated to aquaculture in the South Coastal Ponds (Winnapaug, Ninigret, Potters, and Point Judith) that year (81.7 acres). The Eastern oyster is the dominant aquaculture product in Rhode Island, followed by hard clams and blue mussels. CRMC anticipates continued growth of the state's aquaculture industry.

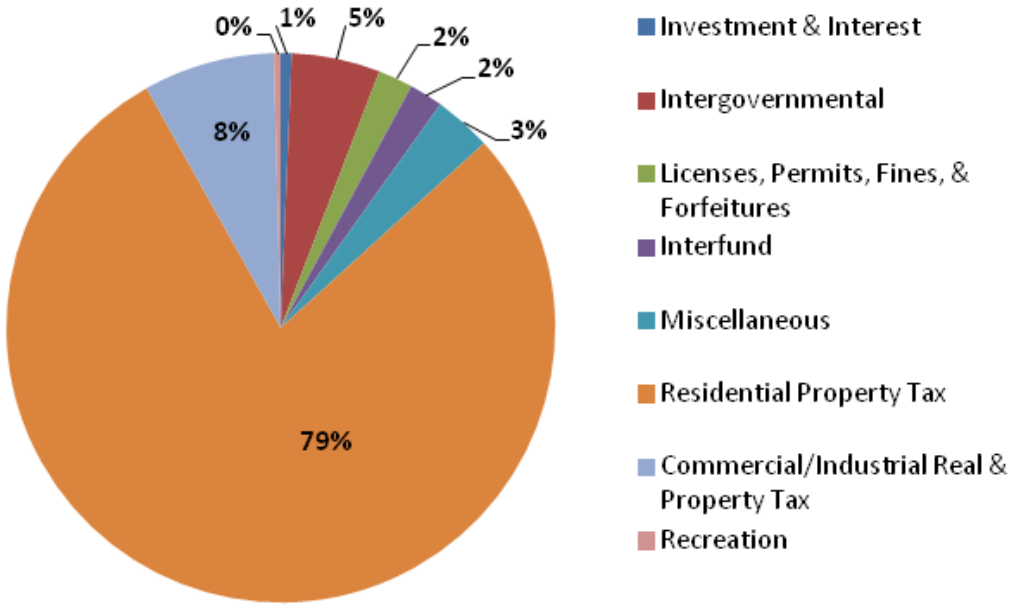
Economic Development and Municipal Fiscal Health

Economic development is linked to the fiscal health of a community. Municipalities in Rhode Island rely heavily on local property taxes to finance services and facilities. As a community dominated by residential uses, Narragansett also relies on property tax revenues. This reliance is shown in Figure 7, which shows the distribution of municipal revenue categories that support both school and municipal expenditures for fiscal years 1991/1992 and 2009/2010. Fiscal year 1991/1992 was selected because these figures were used in the 1994 Comprehensive Plan and were available for comparison with the current budget.

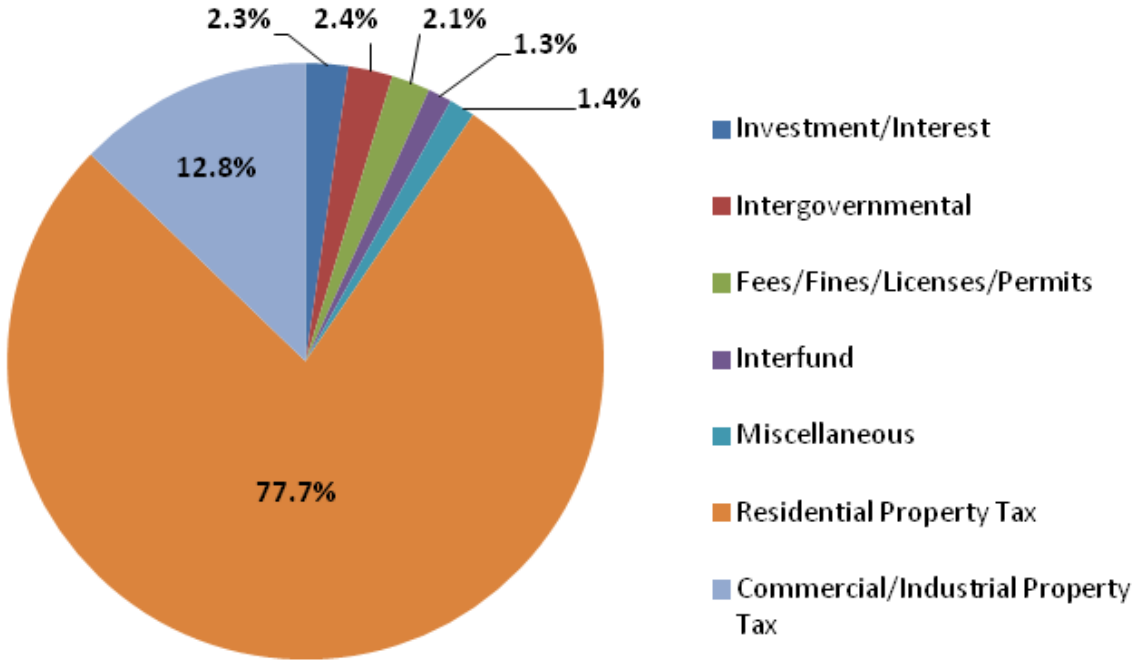
[7] Rhode Island Commercial Fishing Industries and Seafood: The Development of an Industry Profile. Prepared by the Cornell Cooperative Extension Marine Program. October 12, 2011.
[8] "Rhode Island Recreational Saltwater Fishing Industry Trends and Economic Impact," prepared by Ninigret Partners for the Rhode Island Saltwater Anglers Foundation. January 2007.
[9] http://www.crmc.ri.gov/aquaculture/aquareport13.pdf

Figure 7. Municipal Revenue into the Narragansett General Fund (Fiscal Years 1991/1992 and 2009/2010)

Municipal Revenue Categories of the General Fund (2009-2010)



Municipal Revenue Categories of the General Fund (1991-1992)



Notable differences are the shift in revenue sources. In 1991/1992, commercial/industrial property taxes comprised 12.8% of revenue. In 2009/2010, it decreased to 8%. Even though property taxes continue to contribute to the majority of municipal revenue which goes into the General Fund, there is more emphasis on intergovernmental and departmental sources.
Intergovernmental revenues include state reimbursements for beach parking fees, civil preparedness, hotel tax, meal and beverage taxes, motor vehicle taxes, Rhode Island Health and Educational Building Corporation Housing Aid, and telephone tax. Revenue from investment and interest as well as licenses, permits and fees has reduced; however recreation funds are included in 2009/2010 and were not in 1991/1992.

Table 19 lists the various tax rates of Washington County communities. Narragansett has the lowest residential property tax rate, and its commercial real estate tax lies somewhere in the middle within the other surrounding communities. A lower rate is appealing for property owners, but meeting the service demands of residents must also be taken into consideration.

Table 19. Tax Rates of Washington County Communities, 2010

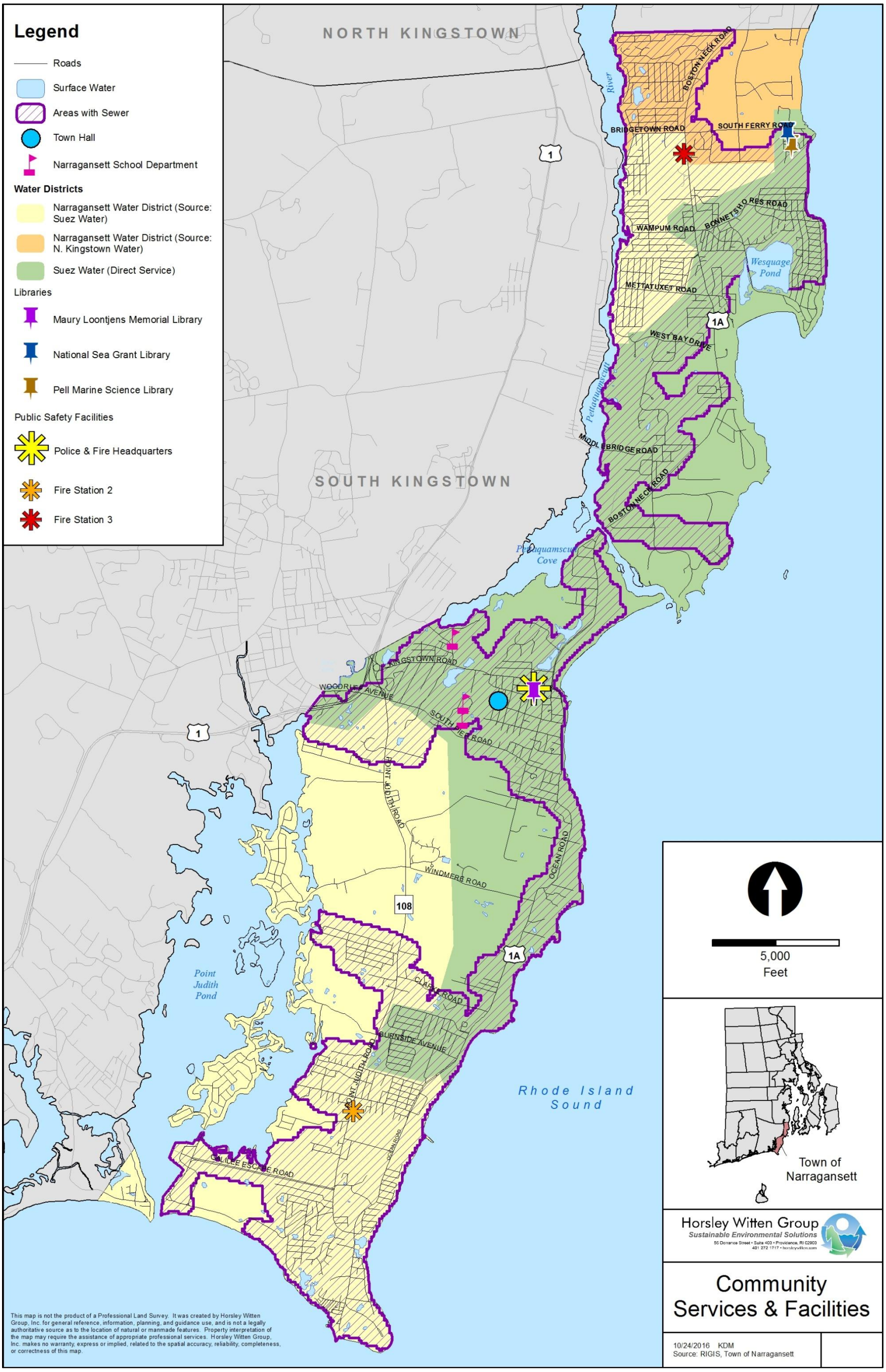
	Residential Property					
Municipality	Rate	% Full Val.	Reval. yr	Commercial Real Estate	Motor Vehicle	Business Personal Prop
Charlestown (*)	$9.06	100%	2010	$9.06	$13.08	$9.06
Exeter (*#)	$13.44	100%	2008	$13.44	$32.59	$13.44
Hopkinton (*)	$19.34	100%	2010	$19.34	$21.18	$19.34
Narragansett	$8.97	100%	2008	$13.45	$16.46	$13.45
North Kingstown	$17.26	100%	2009	$17.26	$22.04	$17.26
Richmond (*)	$18.46	100%	2010	$18.46	$22.64	$18.46
South Kingstown (*)	$14.51	100%	2009	$14.51	$18.71	$14.51
Westerly (*)	$9.74	100%	2009	$9.74	$29.67	$9.74

Per $1,000 of Assessed Value ** Also have local fire district taxes*
Tax Roll Year 2011 (Assessed 12/31/10) *# May exempt wholesale inventories Updated 9/15/2011 $ May exempt retail inventories Source: RI Realtors Association (www.riliving.com); Department of Municipal Affairs*

COMMUNITY SERVICES AND FACILITIES

The Town of Narragansett offers many services to its residents, including water, sewer, public library, and public safety. The Parks and Recreation Department also runs a variety of programs for all ages. The Department of Public Works maintains some Town facilities, including roadways and the stormwater management system. The Parks and Recreation Department offer a variety of recreational programs for all ages, and maintain the Town's many parks.

Engineering Division manages the town's water supply as well as wastewater management. The following provides an overview of these services as well as the School Department and other responsibilities of the Town. An overview of community services are shown in Map 7. Parks along with other recreation and open space resources owned and managed by the Town are depicted on Map 18, Map 19, and Map 20 found in the chapter entitled "Open Space and Outdoor Recreation Resources" at the end of the report.



Map 7. Community Facilities

Town Administration and Operations

Narragansett government operates as a "council-manager" model. The Town Council is an elected body that sets town policies, passes local ordinances, and votes for appropriations. The Town Council appoints a Town Manager to oversee the daily operations of the municipality.

Most department offices are located within Town Hall, with the exception of the Department of Parks and Recreation located on Clarke Road, Department of Public Works located on Westmoreland Street, and the Police Department and Fire Department headquarters, which are on Caswell Street in the Public Safety Building.

Town-Owned Property Inventory

Town-owned properties, including buildings and grounds, are provided in Table 20.

Table 20. Town Facilities Inventory

Common Name	Property Address
General Government	
Municipal / School Offices	25 Fifth Avenue
Schools (also used for Recreation)	
Mumford Elementary School	55 Mumford Road
Narragansett High School	245 South Pier Road
Narragansett Pier School	235 South Pier Road
Park / Recreation / Open Space	
Community Center	53 Mumford Road
Canonchet Farm	106 Anne Hoxsie Lane
Sprague Park Tennis Courts	51 Mumford Road
Recreation Department Maintenance Building	195 Kingstown Road
Grass Island	Caswell Street
Veterans Park	Memorial Square
The Towers	35/36 Ocean Road
Casino Park	25 Ocean Road
Narragansett Town Beach	Boston Neck Road
Beach Pond	20 Boston Neck Road
Water Access	Ocean Road (near Central)
Water Access	Ocean Road(near Continental)
Leroy Thompson Playground	Boon Street
Sprague Pond	Kingstown Rd/Lakewood Dr
Kingstown Road Park	Kingstown Road
Sprague Park Monument	Kingstown Road
Christofaro Park	1160 Boston Neck Road
Pettaquamscutt Lake Shores Tot Lot	Columbia Road

Common Name	Property Address
Mettatuxet Mini-Park	Woodridge Road
Eastward Look Mini-Park	Foster Lane
George C. Playfield	851 Point Judith Road
Bridgepoint Commons	Boston Neck Road
Sunset Farm (Kinney Bungalow)	505 Point Judith Road
The Camp	Point Judith Road
Open Space/Wetlands	Kingstown Road
Public Safety	
Police Station / Fire Station #1	40 Caswell Street
Fire Station #2	900 Point Judith Road
Fire Station #3	1170 Boston Neck Road
Cultural Facilities	
Maury Loontjens Memorial Library	35 Kingstown Road
Public Works	
Garage / Maintenance Facility	260 Westmoreland St.
Maintenance Facility / Storage	45 Avice Street
Comfort Station	31 Kingstown Road

Source: Town of Narragansett

Schools

The discussion of schools in the context of the comprehensive plan focuses on meeting facility demands. Student enrollment will dictate if new buildings are needed and if school grounds meet the demands of local programs. Because the comprehensive plan guides land use decisions, locating new facilities, if needed, would be a reasonable projection to come out of the plan.

Student Enrollment

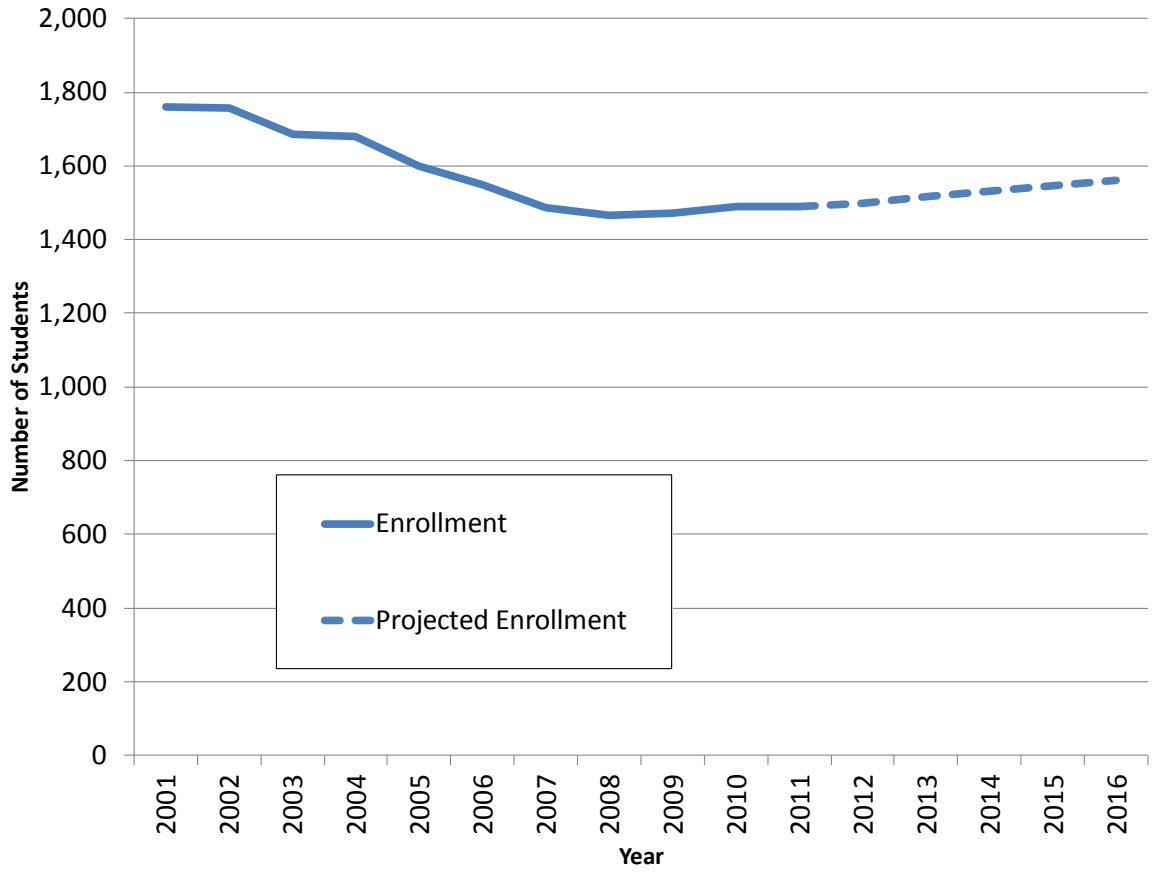
Demographic data presented earlier in this report showed decline in the number of school- aged children for the past eight years. This trend has since leveled off. This is consistent with the School Department's student enrollment, which has been slowly declining over the past 10 years. However, the current school year (2012-2013) showed approximately the same number of students in September of 2012 as in June of 2012. Since 2005, enrollment of Narragansett school-aged children in non-public schools has also declined from 347 in 2005 to 166 in 2011.

Projections were made for the Town by the New England School Development Council (NESDEC) (January 2012) and are shown with past enrollment numbers in Figure 8. Cited factors taken into consideration when forecasting future student enrollment were:

- Real estate turnover and new residential construction;
- Migration, in or out, of the school system;
- Drop-outs, transfers, etc.; and
- Births to residents.

While student enrollment since the beginning of the 2000s declined, recent figures showed a leveling off in the past two years and, as noted, no decrease was seen in the current school year. This trend is expected to continue, modestly, as indicated in Figure 8.

Figure 8. Student Enrollment and Projected Enrollment (NESDEC, January 2012)



Source: Narragansett School Department

School Buildings

The School Department oversees three schools:

School	Description
Narragansett Elementary School	55 Mumford Road Grades: Pre-kindergarten to 4 90,000 square-foot building, built in 1958 Additions in 1968, 1973, and 1995 20 +/- acres School bus parking lot Abuts Sprague Park and Canonchet Farm
Narragansett Pier School	235 South Pier Road Grades: 5 to 8 65,000 square-foot building, built in 1990

	Addition in 1995 15 +/- acres Abuts high school
Narragansett High School	245 South Pier Road Grades: 9 to 12 119,000 square-foot building, built in 1975 35 +/- acres Abuts Pier School

The School Department has a strong commitment to continued maintenance and upkeep of its facilities and grounds. Its Facilities Management Plan outlines a capital improvement plan for the School Department's buildings and grounds over the next 20 years (2030). In 2006, voters approved a $21 million bond that addressed major improvements to all schools. The scope of work included roofing, windows, doors, heating and ventilation systems, some flooring and painting, and security improvements and a new science lab at the high school. This work was completed in 2008. There is currently a $7.5 million seven-year capital improvement plan (fiscal years 2010-2016). Within the first three years of this plan, the elementary school has received new classroom furniture and exterior doors and the West Wing was completely renovated including a new roof over that wing. The middle school also received new classroom furniture as well as new exterior lighting and exterior doors and the completion of tile floor replacement throughout the school. The parking lot roadways and basketball court were resurfaced. At the high school, new furniture was purchased for classrooms and the library renovated. Improvements were made to the soccer field, and the gymnasium/auditorium bathrooms were enlarged.

It should also be noted that all three schools are designated emergency shelters in the Town's Hazard Mitigation Plan.

School Grounds

Each school has recreational fields and equipment. They are as follows:

Narragansett Elementary School

- One multipurpose field
- Two areas with playground equipment
- One multipurpose court

Narragansett Pier School

- One multipurpose field
- One softball/baseball diamond
- One basketball court

Narragansett High School

- One soccer field
- One softball diamond
- Track and field event venues
- One stadium field (football)
- One baseball diamond

The Town of Narragansett Athletic Fields Assessment and Master Plan report (June 30, 2011) reviewed both school and town-maintained athletic fields, evaluating condition and usage and recommending short-term maintenance and repairs for each field. The stated goal of the Master Plan is to provide sufficient fields, by type, such that the demand on any individual field does not exceed 200 scheduled team uses per year. This threshold maximizes use while allowing for proper irrigation and field maintenance. The assessment concluded that 11 of the 18 fields evaluated exceeded the usage goal. While they are not school-maintained fields, Field 3 at Domenic Christofaro (baseball) and Sprague Park (baseball) both exceeded 400 uses per year. Recommended uses for these fields are 200 and 225 respectively. The back field at the High School (baseball and multi-purpose), which is school-maintained, and the lower Field 2 at Domenic Christofaro (multi-purpose), which is town-maintained, both have 396 annual uses.

Two hundred uses are recommended for lower Field 2 and no uses are recommended for the back field at the High School.

The Master Plan lists many recommendations for the school- and town-maintained fields. The School Department is targeting improvements to the High School stadium for 2014, including turf, track, bleachers, lighting, restrooms, and concession stand.

Safe Routes to School

Safe Routes to School (SRTS) programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. SRTS programs examine conditions around schools and conduct projects and activities that work to improve safety and accessibility, and reduce traffic and air pollution in the vicinity of schools. As a result, these programs help make bicycling and walking to school safer and more appealing transportation choices thus encouraging a healthy and active lifestyle from an early age.[10]

The Rhode Island Safe Routes to School Program, administered by the Rhode Island Statewide Planning Program, Rhode Island Department of Transportation, and the Safe Routes to School Steering Committee, receives federal funding, when available, to distribute grants to communities for local projects. Awards can be infrastructure projects, such as new crosswalks, sidewalk repairs, or traffic calming strategies, or non-infrastructure projects like walking clubs or traffic enforcement. In 2009, the Town was successful in acquiring Safe Routes to School funds for both types of projects as follows:

A $300,000 grant was received to address pedestrian and bike circulation into and around the middle and high schools. Informal paths to the school properties will be formalized and new pedestrian/bike access routes from South Pier Road will be made. New crosswalks will link a newer residential neighborhood on the south side of South Pier Road to the schools. The project is in the design phase.

A $4,500 was received for programs that promote biking and walking to school, including a bike rodeo. Bike to School days are regular events and use volunteers to bike with students to school.

[10] www.saferoutesinfo.org

Future School Needs

The current student enrollment is well below capacity of the School Department's internal capacity and there is potential for growth within the system. In the interim, there is no intent by the School Department to surplus the available space. No new school buildings or expansions are needed in the current 20-year planning period.

The School Department's Athletic Fields Assessment and Master Plan report concluded that the Town's "robust" outdoors sports program should be met with 18 to 19 ball fields to evenly distribute teams and usage, rather than the 13 that the Town already maintains. The current level of usage is said to be unsustainable; however, the report recognizes that developing six new fields is not realistic. Some fields can withstand the high usage. They propose redevelopment of specific ball fields and a more strategic redistribution of field use to allow for periodic resting of specific fields. The Parks and Recreation Department will have to take this report into consideration when evaluating capital improvements and maintenance resources. With regards to recommendations to School Department grounds, the high school outdoor athletic facilities will be upgraded with improvements such as new synthetic turf, track, drainage, fencing, benches, score board, and lighting.

The School Department will continue to implement its 2008 Strategic Plan and Capital Plan for its buildings and grounds.

Public Safety

The Police and Fire Departments, which include emergency response personnel, are located in the Public Safety Building on Caswell Street. Improvements to upgrade the complex are moving forward and expected to be completed by 2014.

Police

The Police Department is headquartered at the Public Safety Building and has one sub-station in Galilee, which is shared with the State and only staffed during the peak summer season. The Department has several divisions, including the Harbor Master. There are currently 41 available police officer positions and 39 are filled. The Police Chief acknowledges that this is sufficient to meet the needs of the Town. Table 21 provides a summary of the Departments various divisions.

Table 21. Police Department Divisions and Associated Staffing and Responsibilities

Division	Staffing/ Responsibility
Administrative Division	The Administrative Division is responsible for the administrative duties of the department, and includes the Chief of Police, Deputy Chief of Police, an Executive Secretary, and a Captain.
Canine Unit	The Canine Unit is K-9 Goro, who has been in service since 2012. He has located numerous breaking-and-entering suspects and received a number of commendations for his outstanding performance. He has also attended all three schools in Narragansett as a public relations tool. He has conducted demonstrations for all three schools, Boy Scouts of America and the Community Police Academy.
Detective Division	The Detective Division is staffed by one Lieutenant, one Sergeant, four detectives and a civilian fingerprint specialist.

Division	Staffing/ Responsibility
Prosecution Division	The Prosecution Division represents the Narragansett Police Department at the 4th Division of the District Court at the J. Howard McGrath Complex on Tower Hill Road for misdemeanor cases and the Rhode Island Traffic Tribunal at the Oliver Stedman Government Center, also on Tower Hill Road, for state traffic offences. Narragansett Municipal Court for local ordinance violations and municipal traffic offences is held Thursday nights at Town Hall.
Patrol Division	The Patrol Division includes three Lieutenants, five sergeants, and nine dispatches, which are shared with the Fire Department and EMS, and 20 officers.
Animal Control	There is one full-time and one part-time Animal Control Officer. The animal shelter is shared with the Town of South Kingstown, and it is located on Asa Pond Road in Wakefield.
Community Police	The Narragansett Police Department takes great pride in its efforts to reach out to the community. These include: School Resource Officers have presence in the local schools and run the DARE Program. The Community Police Division maintains an interactive relationship with the URI community. Officers meet with URI Officials to discuss any student related issues that may arise during the course of the school year. Officers also talk with URI Students about any quality of life issues. The Community Police Division participates in monthly meetings with the Narragansett Prevention Partnership. This relationship has helped to facilitate programs to fight underage drinking, underage smoking, fake ID's and drunk driving. The Community Police Division also takes part in Child Safety Seat Installation. Officers are trained and nationally certified to correctly and safely install infant carriers and convertible seats. The Community Police Division takes part in the well-being and safety of the elderly in our community. They work with South County Elder Care, Tri-Town Community Action, and RI Elderly Affairs. The Community Police Division also monitors and collects data with state of the art technology in suspected speed problem areas
Harbor Master	The Harbor Master also falls under the auspices of the Police Department and is responsible for policing the waters within the town's jurisdiction and managing its coastal waters and harbors. The Town has the authority to regulate size, type, location, and use of all anchorages and moorings within the town's public waters and impose penalties for violations of harbor management ordinances. The Harbor Master administers and enforces the provisions of the Harbor Management Plan (adopted in December 2006, and approved by CRMC May 2007) and subsequent ordinances.

Fire/Emergency Response

The Fire Department, including emergency medical responders, is also headquartered at the Public Safety Building on Caswell Street. As shown in Table 22, it employs 35 personnel:

Table 22. Fire Department Personnel

Position	Total Staffing
Fire Chief	1
Fire Marshall (Captain)	1
Administrative Assistant	1
Captain	4
Lieutenant	12
Firefighter/EMT-C	16
Total	35

Source: Narragansett Fire Department

As previously noted, the Department shares a dispatch with the Police Department. Staff is cross-trained in both fire response and medical response. Eight are on duty at all times. The Fire Department has three facilities, which are listed in Table 23.

Table 23. Narragansett Fire Department Stations and Equipment

Station	Equipment	Staffing
Station 1 – Pier 40 Caswell Street	Engine 1 Reserve Engine 1 Ladder 1 Rescue 1 Fire Alarm Bucket Truck Marine 1 (14 ft inflatable) One Pick-Up Truck (which tows Marine 1) 2 cars	4 on duty at all times
Station 2 – North 1170 Boston Neck Road	Engine 2 (cross-manned) Rescue 2 (cross-manned)	2 on duty at all times
Station 3 – South 900 Point Judith Road	Engine 3 (cross-manned) Rescue 3 (cross-manned)	2 on duty at all times

Source: Narragansett Fire Department

According to a recent audit performed on the Department, it responded to between 2,200 and 2,600 incidents annually in the last three years (Table 24). The audit concluded that the demand for emergency medical services (EMS) represents 60% of all calls for service and the demand for EMS in July and August increases by 40% to 50%.

Table 24. Narragansett Fire Department EMS and Non-EMS Calls for Service, 2008-2010

Year	EMS Calls	Non-EMS Calls	Total	% EMS Calls	% Non-EMS Calls
2008	1,390	846	2,236	62%	38%
2009	1,453	848	2,301	63%	37%
2010	1,592	1,078	2,670	60%	40%

Source: 2012 Fire Department Assessment Report, MMA Consulting Group, Inc.

The Fire Department receives mutual aid from the neighboring towns of North Kingstown (paid staff) and South Kingstown (volunteer staff). The three communities share resources and equipment when needed. The on-shift Captain makes a determination on a case-by-case basis on when to contact either town for assistance in responding to an emergency call. As shown in Table 25, calls for mutual aid range from 56 to 99 in the past three years.

Table 25. Narragansett Fire Department Calls for Service by Category, 2008-2010

	2008	2009	2010
Fire			
Structure	32	23	24
Other	25	23	27
Subtotal	57	46	51
Rescue/EMS	1,390	1,453	1,592
False Alarm	299	258	350
Mutual Aid	56	99	87
Other Calls	434	445	590
Total	2,236	2,301	2,670

Source: 2012 Fire Department Assessment Report, MMA Consulting Group, Inc.

Emergency Management Agency

The Narragansett Emergency Management Agency (NEMA) is responsible for the planning, response, recovery, and mitigation of natural disasters, technological accidents, terrorism, and weapons of mass destruction. The NEMA Director is also the Fire Chief, and the Police Chief serves as the Deputy EMA Director. Through the Town's website provides residents and businesses with information on preparedness and emergency notifications.

Public Safety Needs

Current public safety needs are being met with existing staffing levels and facilities. The projected increase in population over the next 20 years is no expected impact these services.

Maury Loontjens Memorial Library

The Maury Loontjens Memorial Library, located at 35 Kingstown Road, is the former Narragansett Public Library, renamed in 2007 in memory of the late Town Manager. The library is open Monday through Saturday and on Sundays September to May. It is adjacent to the Public Safety Building on Caswell Street. The building is approximately 9,300 square feet and total collection size of 60,700. In 2011, the library's circulation was about 186,700 pieces, an increase of 51% in six years. There are 12 computers

for Internet access with free Wifi which had over 23,600 uses in 2011, or an average of 455 uses per week, a 218% increase over 2009. The library participates in the Rhode Island Office of Library and Information Services' (OLIS) inter-library loan program with other municipal libraries across the state through the Ocean State Libraries consortium.

The library is a very busy community space. With approximately 50% of town residents having library cards, the library keeps its space active by organizing approximately 31 programs per month for all ages. Tables fill up quickly as private tutors increasingly use the library as a place to meet students. Also very popular is a small conference room that can be reserved by community groups. In the summer, even seasonal visitors to Narragansett will venture into the library, particularly on rainy or very hot days.

Future Library Needs

The library is at capacity. Space in the building is limited, and the library is developing a building program based on its March 2012 assessment, which includes strategies for expansion and potential funding sources.

Public Works

The Public Works Department is organized into four divisions: Administration, Highway Maintenance, Facilities Maintenance (including maintenance of The Towers), and Fleet Maintenance and its overall major responsibilities are:

- Roadside mowing
- Maintaining a fleet of over 150 vehicles, equipment, and boats
- Maintaining town roads, including street sweeping
- Performing road reconstruction
- Removing snow and ice
- Maintaining the stormwater management system
- Maintaining traffic signs and markings
- Maintaining of Town Hall, Comfort Station, Avice Street Maintenance Facility, and The Towers
- Maintaining street trees
- Coordinating the residential recycling program

As show in Table 26, staffing includes both full-time and part-time employees.

Table 26. Department of Public Works Division Staffing (2012)

Administration	Highway Division	Facilities Maintenance	Fleet Maintenance
Director Supt. of Operations Clerk Part-Time Clerk Part-Time Recycling Coordintor	1 Full-Time Foreman 4 Full-Time Equipment Operators 4 Full-Time Truck Drivers* Full-Time Laborers* Part-Time Laborers 1 Part-Time Laborer/Painter 1 Part-Time Equipment Operator 1 Part-Time Truck Driver 1 Part-Time Intern/Specialist	2 Part-Time Janitors The Towers Part-Time Building Maintenance Part-Time Janitors	Full-Time Foreman Mechanics 1 Part-Time Mechanic Helper

**One position is vacant and unfunded*

The Department has a maintenance facility on Westmoreland Avenue. It has eight bays; four are used for vehicle maintenance, and four are used for Highway Division equipment storage.
There is also outdoor storage for sand/salt, road construction materials, fleet vehicles, and other equipment. A scheduled building expansion will add office space for the Highway Division as well as indoor storage for vehicles and equipment.

Solid Waste Management/Recycling

The Town does not provide trash curbside pickup. Residents either use a private contractor or bring their own trash to the Rose Hill Regional Transfer Station located on 163 Rose Hill Road in South Kingston. The facility also accepts recyclable materials. From this facility, solid waste and recyclables are taken to the Rhode Island Resource Recovery Corporation (RIRRC) facility in Johnston, Rhode Island.

According to RIRRC, in 2013, Narragansett recycled 36.9% of its trash and meets the state recycling rate goal of 35%. This is calculated by dividing the total tons of bin recyclables plus yard debris, clothing and scrap metals by the total of these tons plus the tons of trash delivers to the landfill. In addition to this, the state mandates that municipalities also meet the 50% diversion rate, which expands to include other materials such as tires, mattresses, clean wood, clothing, motor oil, filters, etc., which are diverted for reuse or recycling. In 2013, Narragansett did not meet this goal. Its overall diversion rate was only 39.5%.

Because residents of both South Kingstown and Narragansett use the same transfer station, and residency is not recorded when trash and recyclables are dropped off, an assumed percentage of the total recycling and diversion rates for the facility is applicable to Narragansett. This percentage may not accurately reflect resident usage of the facility.

In June 2010, the Town Council adopted a Solid Waste Ordinance which outlines the steps necessary for the Town to implement a local recycling program for residential properties. In 2012, the Town Council approved the implementation of a town-wide residential recycling program, which is scheduled to begin January 2013. The Department of Public Works will coordinate the new Residential Recycling Program.

Parks and Recreation – Indoor Facilities

The Parks and Recreation Department manages programming and maintains the grounds and facilities

of the Town's indoor and outdoor recreation facilities, including the Town Beach, playgrounds, and ballfields. The Department also oversees the rentals at the North Beach Clubhouse, Casino Park, Kinney Bungalow, and The Towers. Discussion of the outdoor facilities and programming are provided in "Open Space and Outdoor Recreation" of this Baseline Report.

There is a need for indoor recreational facilities in Narragansett. The Narragansett Community Center is the Town's only public indoor recreation facility. It is located adjacent to Narragansett Elementary School and Sprague Park and contains meeting rooms, craft rooms, classrooms, exercise fitness room, computer room, kitchen, and other rooms. The center is typically used during weekdays as a senior center (with an on-site senior citizens coordinator) and on afternoons, evenings, and weekends as a meeting place for a broad range of youth athletic leagues, boy and girl scouts, and other civic organizations. The facility was built in 1977.

The South County YMCA in South Kingstown, which requires membership, is the only other indoor recreational space.

Engineering

The Engineering Department through Engineering, Water, and Wastewater Divisions, oversees water and wastewater utilities. It also acts as project manager for capital improvement projects that are constructed by the Town associated with water infrastructure, wastewater infrastructure, roadways, stormwater facilities, and Town-owned buildings, and for special Town projects (such as Superfund sites, antenna site leases, etc.).

Water Utilities

The Town of Narragansett, through the Water Division owns and operates a water distribution system that consists of over 70 miles of water mains, hydrants, meters, and appurtenances as well as:

- 500,000 gallon standpipe at Fire Station 2, North End
- 750,000 gallon water storage tank, Point Judith Road
- 750,000 gallon water storage tank, Kinney Avenue
- Point Judith Road booster station
- Three chlorine injection treatment stations (under construction in 2012)

The Town does not operate independent ground or surface water sources; therefore, it purchases wholesale water from the Town of North Kingstown (North End) and Suez Water Company (North End and South End). There are approximately 5,200 customers in three main areas, North End, South End, and Jerusalem, which are shown on Map 7. The Jerusalem service area, located adjacent to the South End, was interconnected by link to Galilee in 2001 by directional drilling and installation of an 8-inch line. Although both the North End and South End service areas remain completely separate, they are connected indirectly by means of the Suez Water Company distribution system, which has the ability to furnish water to both areas.

In June 2012, the Town completed an update to its Water Supply System Management Plan (WSSMP). A copy of the Executive Summary is found in Appendix C. According to the WSSMP, customer accounts consist of 5,037 residential connections, 104 commercial connections, 10 industrial connections and 41 governmental connections. The Town provides water to 63% of its residents and businesses in

Narragansett. Within the water service area, there are 11 private wells in use that could be switched to public service and added to the current volume served. Current average day customer demand is 0.758 million gallons per day (MGD).

Future Water Utility Needs

Water purchased from the Town of North Kingstown is sourced from the Hunt/Annaquatucket/ Pettaquamscutt Aquifer and Suez Water Company is sourced from the Chipuxet Aquifer. According to the Rhode Island Water Resources Board, both aquifers are stressed and during peak water demands exceed state resource protection goals.[11] Under projected water use, it is expected that the average day demand will be equal to 0.771 MGD. For the 20-year planning period, it is expected that the demand will be 0.787 MGD. These projections are based primarily on population projections and do not account for significant water savings potentially realized through demand management techniques, and the Town actively implements water conservation strategies. The projections do, however, consider non-account water at the current rate of 15%.

It would appear that the Narragansett water system supplies are adequate to meet existing and future demands for the 20-year planning period. The Water Division employs an annual capital improvement program which addresses system improvement and replacement and rehabilitation projects as needed.

Wastewater Utilities

The Narragansett Facilities Plan for Wastewater Management was completed and approved by the RIDEM in 2007. The Town is serviced by two wastewater treatment facilities. Portions of the northern end of town and the Pier area are serviced at the Westmoreland Treatment Plant (or South Kingstown Regional Wastewater Treatment Facility) and the Scarborough Treatment Plant services areas in the south end, including Galilee. All other areas have onsite wastewater treatment systems (OWTS).

Treatment Plants

The Westmoreland Treatment Plant, constructed in 1974 and subsequently expanded in 1992, is a shared facility with the Town of South Kingstown, which also operates the plant, and URI. The three entities jointly finance improvements and upgrades.

Narragansett underestimated how much capacity it might need when the facility was first constructed and purchased additional capacity as part of the 1992 expansion. It then began leasing unused flow capacity from URI in 1995. By 1998, sewage flows from Narragansett exceeded the authorized amounts and in 1999 the Town restricted further sewer extensions in the service area. Table 27 shows the allocation of the regional facility's 5.0 million gallons per day (MGD) capacity.

Table 27. Current Flow Distribution, Westmoreland Treatment Plant

Partner	1974 Original Capacity (MGD)	Original Percentage	1992 Expansion	1995/2001 URI-Narragansett Leases (MGD)	Current Available Capacity (MGD)	Current Available Percentage
South Kingstown	1.69	41.0%	0.435	0.00	2.13	42.6%
Narragansett	0.78	19.0%	0.435	0.20	1.42	28.4%

[11] http://www.wrb.state.ri.us/documents/Chipuxet_specific%20watershed.pdf

URI	1.65	40.0%	0.00	(0.20)	1.45	29.0%
Totals	4.13	100.0%	0.87	0.00	5.00	100.0%

Source: Narragansett Facilities Plan for Wastewater Management, 2007

In an effort to manage the overall sewer flows to the regional facility, the Town has been investigating the impacts of inflow (unauthorized connections) and infiltration (unwanted groundwater or surface water), referred to as "I/I." In the past five years, I/I improvements have allowed the Town to reduce its overall flow contributions to the facility. A 2008 Sewer Policy Amendment created a funding source for a program where I/I removal credits are "purchased" via new connection permit fees, and earmarked for future improvement projects. System improvements, including increased pumping capacity and the ongoing program to remove I/I have now allowed the town to reduce the amount of treatment capacity being leased from URI. As of July 2012, it has gone from 0.40 MGD to 0.20 MGD.

The Scarborough Treatment Facility located off of Ocean Road adjacent to Scarborough State Beach meets the current and projected flows with its capacity of 1.4 MGD. Several improvements to the facility have been made to ensure that the system runs efficiently and meets water quality standards. Expansions to service residences of Great Island, Harbour Island, the Baltimore Avenue area, and Alexander Drive area are being evaluated.

Onsite Wastewater Treatment Systems (OWTS)

In 2002, the Town established a Wastewater Management District (WWMD) to ensure that OWTSs are operating properly, regularly inspected, and routinely maintained to prevent malfunctioning systems and to serve, where appropriate, as an alternative to municipal sewer systems. Ultimately, however, it is the responsibility of homeowners to inspect and maintain their OWTS to make sure it is properly functioning. The WWMD is town-wide and the ordinance allows the Town to enforce the proper maintenance of all existing and future OWTSs.

To assist homeowners, the Town offers low-interest loans to upgrade OWTSs. Through RIDEM's State Revolving Fund, co-managed by the Rhode Island Clean Water Finance Agency and Office of Water Resources, the Town has secured $150,000 and completed eight systems at $15,000 each over the past four years.

Wastewater Utility Needs

New growth is anticipated in areas that are already serviced with wastewater infrastructure. Connections in these areas will be allowed for infill. The Scarborough Facility can accommodate additional growth and it is estimated to be approximately 300 new units. The Westmoreland Facility also has capacity, but the Town needs to negotiate with URI and the Town of South Kingstown to increase their share.

Stormwater Management

While the Public Works Department performs all installation and maintenance of existing stormwater infrastructure, the Division of Engineering is responsible for the overarching Narragansett Stormwater Management Program. The Division acts as the project manager for the design of new stormwater

management system infrastructure.

The Town prepared the Narragansett Stormwater Management Program Plan (SWMPP) to meet the requirements of the United States Environmental Protection Agency (USEPA) as it implemented Phase II of its National Pollutant Discharge Elimination System (NPDES) stormwater regulations. Under Phase II, small municipal separate storm sewer systems (MS4s), which includes municipalities with urbanized areas that have a population less than 100,000 are required to receive a NPDES permit for discharging stormwater. In 2003, the permit was issued to the Town of Narragansett through RIDEM and its Rhode Island Pollutant Discharge Elimination System (RIPDES) Program.

The Division of Engineering manages the implementation of the SWMPP, which has the primary purpose to control stormwater runoff and improve water quality. The plan anticipates how the Town will comply with the six control measures required by USEPA:

- Public Education and Outreach
- Public Participation/Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Good Housekeeping/Pollution Prevention

Each control measure outlines short, mid and long term actions the Town has and will take to control and minimize common stormwater pollutants, such as oil, grease, pesticides, and sediment from construction sites as well as trash and debris. Doing so will protect local waterways and ensure that they are suitable for recreational activities and wildlife habitat.

Stormwater Management Needs

The SWMPP has an implementation schedule for programs and actions to meet the objectives of the plan. Needed resources focus on staffing and volunteers. Funds are needed to support municipal staff activities, including producing education materials, mapping infrastructure, conducting monitoring and sampling and other requirements outline in the SWMPP. Every year the Town prepares a review its accomplishments. This annual review should be used to gauge future stormwater management needs.

Environmental Remediation

The Town is named a Potentially Responsible Party (PRP) at two superfund sites. The Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA) assigns liability to parties responsible, in whole or in part, for the presence of contamination on a property.[12] As a PRP, the Town is responsible for contributing to the contamination clean-up efforts.

Rose Hill Regional Landfill

Rose Hill was previously operated by the towns of South Kingstown and Narragansett. In September 2002, the USEPA, RIDEM, and the towns of Narragansett and South Kingstown entered into a Final Consent Decree for remediation of Rose Hill. Since then, the site has been capped and long-term groundwater and air monitoring has started to determine the effectiveness of the cap and what, if any, additional remediation actions may be necessary in the future.

[12] http://www.epa.gov/oecaerth/cleanup/superfund/liability.html

The current estimated cost of completing the clean-up of Rose Hill is approximately $21,600,000. The Town's share of this obligation is estimated to be $4,767,000. The Town has paid $2,000,000 to the federal government to settle all past liabilities associated with Rose Hill and approximately $505,000 for its share of natural resource damages through June 30, 2011. The $2,000,000 was funded through a 20-year general obligation bond sold in September 2002 with interest at 1.18%. The outstanding balance at June 30, 2011 is $1,331,625.

The Final Consent Decree also requires reimbursement to the State of 30% of the costs associated with remediation of this landfill and ongoing operation and maintenance costs. These costs are currently estimated at $3,586,000 and will be shared equally by the two towns. Narragansett's remaining share of the estimated cost of $2,030,000, which includes an estimated $277,000 for continued monitoring and site maintenance, will be paid to the State over a 27-year period which began in 2011. Accordingly, approximately $2,030,000 was reported as accrued claims and judgments in the 2011 government-wide financial statements.

West Kingston/URI Disposal Area Landfills

The West Kingston/URI Disposal Area Landfills, also known as the Plains Road Landfill (Plains Road), was added to the Superfund list in 1992. URI and the towns of Narragansett and South Kingstown have agreed to participate in the remediation of the site under state landfill closure regulations. Project costs paid to date total $7,072,693, for which the Town was obligated to pay $1,766,124. Through June 30, 2011, the Town has paid approximately $1,476,000 of this amount. An additional $290,000 for operation and maintenance costs will be paid over the next 27 years. The Town paid $7,019 in fiscal year 2011 towards these costs.

ENERGY

There are many reasons why a community should think about the energy it uses. Globally, as the world's population grows and expands, the increased demand for energy resources, particularly fossil fuels like oil, natural gas, and coal, will impact availability, delivery, and costs, posing a threat to not only our nation's economic competiveness, but its security as well. Also part of the equation is how we consume energy and its impact the natural environment, particularly air quality. As a result, there is national momentum to reduce our dependency on fossil fuels and move toward energy efficiency and cleaner energy sources.

At the local level, municipalities are recognizing the importance of energy consumption and its impact on the economic, social, and environmental aspects of the local community. Energy is consumed when we drive our cars, turn on the heat, mow the lawn, or buy something that was produced thousands of miles away. Energy efficiency and planning for energy can range from addressing municipal facilities and operations to developing local renewable energy sources such as wind, solar, and water (hydro). It can also encompass the community at large and the energy consumption habits of residents and businesses. Addressing energy through local policy can bring many benefits:

- Cost savings: Increased energy efficiency and energy conservation in municipal facilities and operations can save communities money on fuel and utility costs. Providing residents and businesses with opportunities to make homes and buildings more energy efficient can put money in their pockets too.
- Increased revenues: Considering renewable energy facilities in town may potentially bring in additional revenue to offset municipal property taxes, as well as offset energy costs.
- Cleaner environment: Reducing energy consumption and using renewable energy reduces greenhouse gas emissions and improves air quality.
- Healthier community: Encouraging residents to conserve energy can get them out of their cars and take public transportation, or even ride a bike or walk, promoting healthier lifestyles.
- More efficient development: Asking residents to drive less means development needs to be walkable and bikeable. Compact, village scale development reduces travel times, increases transportation options, and has lower operating costs for businesses.
- Regional collaboration: Energy usage and conservation transcends municipal borders. Partnering with neighboring towns maximizes resources and showcases a regional commitment to meeting the energy challenge together.[13]

The first step most communities take when starting to plan for energy is evaluating municipal facilities and operations. Local governments have direct control over these activities and can take appropriate actions. The Town of Narragansett has already taken steps in this direction.

Municipal Operations and Facilities

Through the Washington County Regional Planning Council, the Town contracted with an energy services company (ESCO) to audit municipal buildings, recommend energy saving improvements, assist with financing, handle the contracting, and then guarantee savings on energy costs. From May 2011 through February 2012, an audit was performed by Johnson Controls, Inc. (JCI) with the intent to find ways to

[13] Vermont Natural Resources Council and Vermont League of Cities and Towns. April 2011. Energy Planning and Implementation Guidebook for Vermont Communities.

reduce energy costs, provide capital upgrades, increase the energy efficiency and reliability of the town's mechanical and electrical systems, and to maintain or improve occupant comfort and well-being. JCI submitted a report to the town in July 2012, and the following are major findings listed in that document:

There are many opportunities to reduce energy costs within the town buildings. By implementing the recommendations outlined in this study, the Town could reduce energy by 16.24% (15.40% electric and 16.75% thermal) based on the average utility data established as the baseline period.

Equipment Conditions Improvement: Some of the mechanical and electrical systems are in poor condition, but are operated well, given current funding and staffing level constraints. Town buildings have a mixture of programmable and nonprogrammable (electric dial gage) thermostats.
Heating System Condition: The existing boilers/furnaces in the buildings that are near the end of their useful life have been included for boiler/furnace replacement, particularly Town Hall, the Community/Senior Center, both wastewater treatment plants, North End Fire Station, South End Fire Station, and Parks Maintenance building.

Community Energy Usage

There has been no formal evaluation of energy use by Narragansett residents and businesses; however, there are existing data sources that can be used to give a perspective about current energy consumption. Primarily, residents use the most energy to heat their homes and for transportation. Table 28 lists how occupied homes in Narragansett were heated in 2000 and 2010. Nearly 70% used fossil fuels: natural gas or oil. From 2000 to 2010, there was an increase in the use of utility gas and electricity and a decrease in fuel oil. Over the past decade the cost of home heating oil has become very expensive and many homeowners have switched to cheaper options, such as natural gas. There were no homes that used solar energy and less than 1% that used other types of fuels.

Table 28. Home Heating Fuel for Occupied Housing Units in Narragansett, 2000 and 2010

Fuel	Percentage of Occupied units (2000)	Percentage of Occupied units (2010)
Utility gas	29.6%	30.2%
Bottled, tank, or LP gas	8.4%	9.7%
Electricity	17.8%	18.8%
Fuel oil, kerosene, etc.	41.2%	39.5%
Coal or coke	0.1%	0.0%
Wood	2.6%	1.2%
Solar energy	0.0%	0.0%
Other fuel	0.3%	0.7%

Source: 2000 U.S. Census and American Community Survey 2010 5-Year Estimates

Overall, older homes tend to be less energy efficient than newer homes. In 2010, almost half (47%) of the homes in Narragansett were built before 1970 (Table 29). About 16% was built before 1940. Local weatherization programs assist low-income individuals and families to reduce energy consumption and increase energy efficiencies in their homes. These types of programs are available to Narragansett

income-eligible residents through South County Community Action. The program includes an energy audit to determine need for insulation, weather-stripping, air sealing, and wrap pipes. An Appliance Management Program also examines electrical use in the home (computerized audit) and replaces light bulbs, if they are determined to be inefficient.

Table 29. Age of Narragansett Housing Stock, 2010

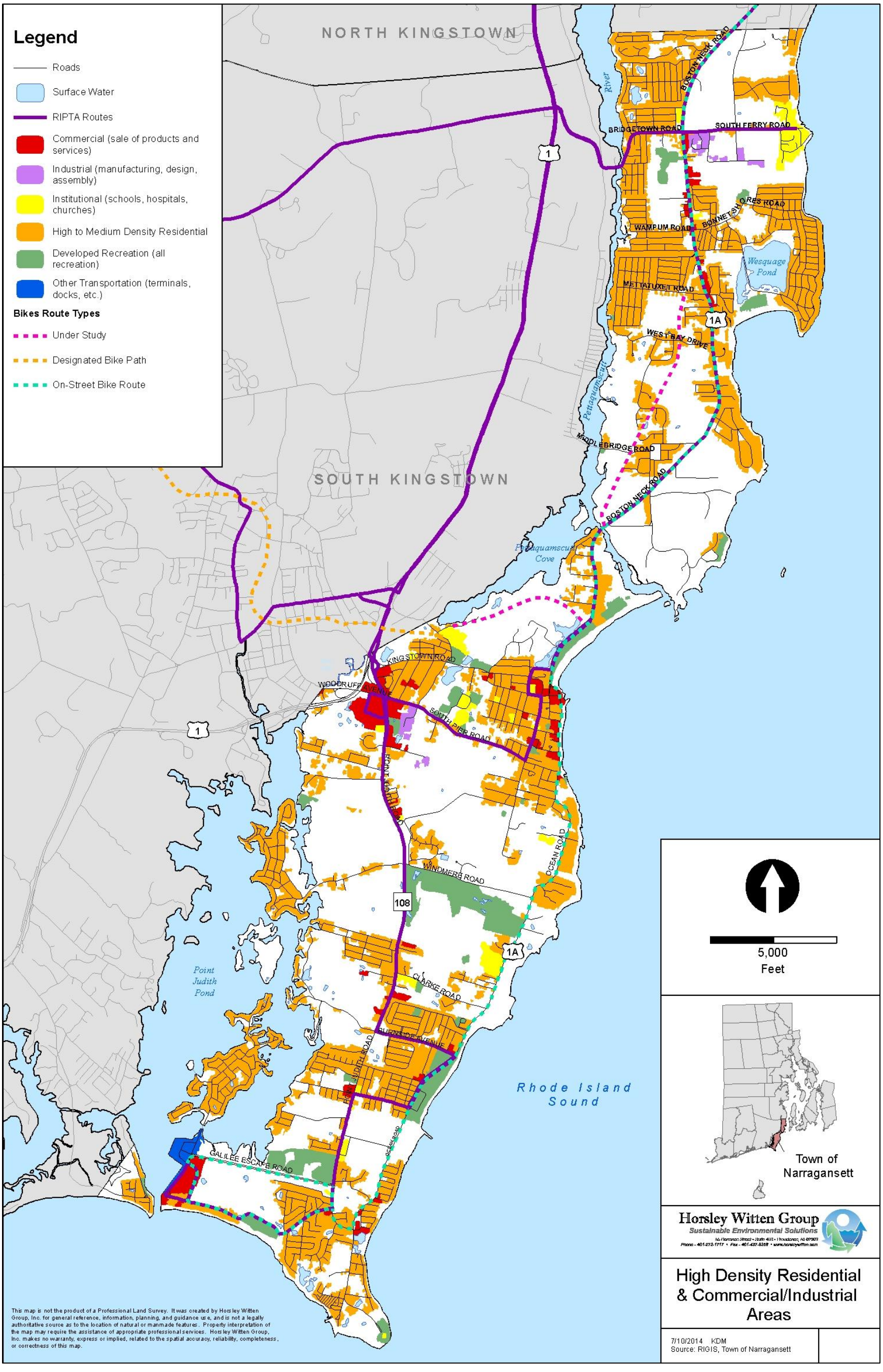
Year structure was built	Percentage of housing units
1939 or earlier	11.0%
1940 to 1949	5.1%
1950 to 1959	15.5%
1960 to 1969	15.8%
1970 to 1979	16.4%
1980 to 1989	17.9%
1990 to 1999	9.3%
2000 to 2004	7.1%
2005 or later	1.9%

Source: American Community Survey 2010 5-Year Estimates

Transportation energy use combines three basic factors: the mode of transportation, the fuel efficiency associated with transportation, and the total distance traveled. The automobile is one of the most inefficient modes of transportation, because it usually requires fossil fuel, and also tends to have high total distance traveled per capita, because it can only transport a small number of people. Buses and trains rank higher in efficiency because they can carry more people, resulting in less total miles traveled per capita. Bicycle and pedestrian modes of transportation are thought of as the most efficient forms of transportation, because they do not require fossil fuel products; however these modes are limited as they are typically only used for short distances.

Map 8 shows the relationship between areas of higher residential density and places of employment or commerce (commercial and industrial areas). People that live in these areas generally have access to shopping and services, but walking and biking conditions connections don't always exist or are in need of improvement (see **Transportation and Circulation**). Further, the commercial establishments might not meet all the demands of the neighborhood, such as a grocery store, and residents still must travel by car to other parts of town. Bus service (RIPTA) is also available along Boston Neck Road and Point Judith Avenue.

Most Narragansett residents commute to work by car alone (Table 30) and since 2000, this percentage has increased and fewer are carpooling (down 2.3%), but commuters are traveling two lesser miles to reach their place of employment.



Map 8. Areas of High Density Residential and Commercial/Industrial Areas

Table 30. Commute to Work, 2000 and 2010

Transportation Option	Percentage 2000	Percentage 2010
Car, truck, or van -- drove alone	84.1%	85.3%
Car, truck, or van -- carpooled	8.8%	6.5%
Public transportation (excluding taxicab)	1.6%	1.4%
Walked	1.3%	1.9%
Other means	1.0%	0.6%
Worked at home	3.2%	4.3%
Mean travel time to work (minutes)	26.5	24.5

Source: 2000 U.S. Census and American Community Survey 2010 5-Year Estimates

There is also a relationship between population density and the location of goods and services and places of employment. Having goods and services closer to where people live allows them to walk or bike rather than drive, resulting in lower distance traveled. As shown in Map 8, high and medium density development (less than one acre) is dispersed throughout the town. As discussed under land uses, small, neighborhood businesses are available for daily needs. Larger shopping centers, Salt Pond Plaza (location of the town's only supermarket) and Mariner Square, are at the corners of Woodruff Avenue, South Pier Road, and Point Judith Road, which is a four-lane intersection with one (east/west) to two (north/south) left-turn lanes. Walking and biking in this area is challenging. RIPTA does service this area.

NATURAL HAZARDS

Natural hazards are events such as severe storms like hurricanes, Nor'easters, winter storms and blizzards, flooding, drought, and sea level rise. These events can have adverse impacts on people, property, and critical facilities. Narragansett as a coastal community is vulnerable to these events, and some areas of town are more so than others. Natural hazard mitigation refers to policies and actions a municipality undertakes to reduce the adverse impacts of natural events. In 2011, the Town updated the Narragansett Hazard Mitigation Plan. A Hazard Mitigation Planning Committee comprised of the Community Development, Public Works, Emergency Management, Engineering, Fire, and Police departments led the effort. The update process required the committee to review relevant hazards that Narragansett was vulnerable to and evaluate the risks associated with those hazards. Data and pertinent information were updated, including mitigation goals and objectives, as well as strategies to reduce the impacts from these types of events. The Hazard Mitigation Plan describes in detail the natural hazards the Town is most vulnerable to. A summary is provided here.

Severe Storms

Rhode Island is most vulnerable to severe storms, which include Nor'easters, winter storms, ice storms, and severe thunderstorms. These events bring flooding and high winds. The trajectory of these severe storms determines the local effect. Those with a southern origin bring heavy rain and those coming from the north bring cold air and the potential for snow and ice (Nor'easters). Any winter storm, regardless of its trajectory, can be accompanied by high winds. Storms with sustained winds above 30 miles per hour (mph) generally cause low impact, widespread damage, while winds above 50 mph are powerful enough to cause significant damage.

Climate change predictions indicate that storms in the Northeast are likely to occur more frequently and be more severe. For the Northeast region overall, where winter precipitation mainly falls as rain rather than snow, that is likely to continue.[14]

In Narragansett, severe storms are not common. Snow, ice, rain, and wind do occur but do not typically rise to the level of severe. Washington County has reportedly experienced at least one serious windstorm per calendar year. If one were to occur, the entire Town of Narragansett would most likely be affected.

Hurricanes

Hurricanes begin as tropical depressions in their formative stages. If the sustained velocity of the winds exceeds 39 mph it becomes a tropical storm. Once the tropical depression becomes a tropical storm it is considered a threat and given a name. When the winds exceed 74 mph, the system then becomes a hurricane. Most tropical depressions begin off of the coast of Africa near the Cape Verde Islands or near the Caribbean as the sea surface temperature is above 81° Fahrenheit in the summer months. Tropical storms and hurricanes then will travel a path that may take them up the east coast, potentially impacting Rhode Island and Narragansett.

While there is a low probability that the Town will be significantly impacted by a hurricane in the next five years, one direct hit on the State of Rhode Island could be catastrophic for all cities and towns. High winds and storm surges are primary concerns with hurricanes and tropical storms, and discussed below.

[14] http://www.epa.gov/climatechange/impacts-adaptation/northeast.html

Higher density areas near the coastline and those with higher elevations would be more susceptible to wind damage during a hurricane. Coastal and low-lying areas would be greatly impacted by storm surges.

Heat Waves

A heat wave occurs when a system of high atmospheric pressure pulls air from upper levels of our atmosphere toward the ground, where it becomes compressed and increases in temperature.

This high concentration of pressure makes it difficult for other weather systems to move into the area, which is why a heat wave can last for several days or weeks. The longer the system stays in an area, the hotter the area becomes. The high-pressure inhibits winds, making them faint to nonexistent. Because the high-pressure system also prevents clouds from entering the region, sunlight can become punishing, heating up the system even more. When a combination of all of these factors come together to create temperatures that hover 10 degrees higher than the average high temperature for a region, a heat wave occurs. When heat waves occur, the entire town is vulnerable, but certain populations feel the greatest impact, such as the very young, those with health conditions, and the elderly.

Flooding

Groundwater seepage, stormwater runoff, and coastal storms (storm surges) cause most of the flooding in Narragansett. In recent years, the Town has experienced minor flooding almost annually. While such flooding may occur infrequently, groundwater seepage and stormwater drainage can be a consistent problem in rainy months. Pettaquamscutt Terrace, portions of the center of town, and Caswell Street all have reoccurring flood issues. Areas within the floodplain and velocity zones, as designated by the Federal Emergency Management Agency, are most vulnerable to the impacts of flooding (See Map 13 in the discussion of natural resources).

During the month of March in 2010, the state experienced record breaking rainfall and hundreds of businesses and thousands of residents were impacted. In Narragansett, Crooked Brook flooded, causing Kingstown Road to be impassable for an entire day. Sprague Pond Dam outfall culvert failed and there were approximately 300 basements that flooded simply due to high groundwater.

Tornados

The National Weather Service defines a tornado as a “violently rotating column of air extending from a thunderstorm to the ground.” Tornados are the most violent of all atmospheric storms and are capable of tremendous destruction. Wind speeds can exceed 250 miles per hour, and damage paths can be more than one mile wide and 50 miles long. The frequency of tornados occurring in Rhode Island is low; it is ranked 49th out of the 50 states for occurrence of tornados.

Drought

A drought can be defined as a continuous period of time in which rainfall is significantly below the norm for a particular area. Therefore, droughts are not localized to one community, such as Narragansett, but rather become regional concerns. Droughts could be as short as one summer, or as long as several years. According to the Rhode Island Water Resources Board, although Rhode Island is often considered a “water-rich” state, it can experience extended periods of dry weather, from single season events to multi-year events, such the long-term drought of the mid-1960s. When they do occur, they can reduce

potable water supplies, provide inadequate stream flow volumes to support fish, increase the threat of wildfires, and pose a threat to vegetation that relies on natural precipitation.

Earthquakes

An earthquake is caused by a sudden displacement within the earth. Displacement at relatively shallow depths may be caused by volcanic eruptions, or even by avalanches. The resultant earthquakes are usually light and do little damage. Strong and destructive earthquakes usually result from the rupturing or breaking of great masses of rocks far beneath the surface of the earth. The ultimate cause of these deep ruptures has not been established. All earthquakes produce both vertical and horizontal ground shaking. This ground movement begins at the focus or hypocenter, deep in the earth, and spreads in all directions. The motion we feel is the result of several kinds of seismic vibrations.

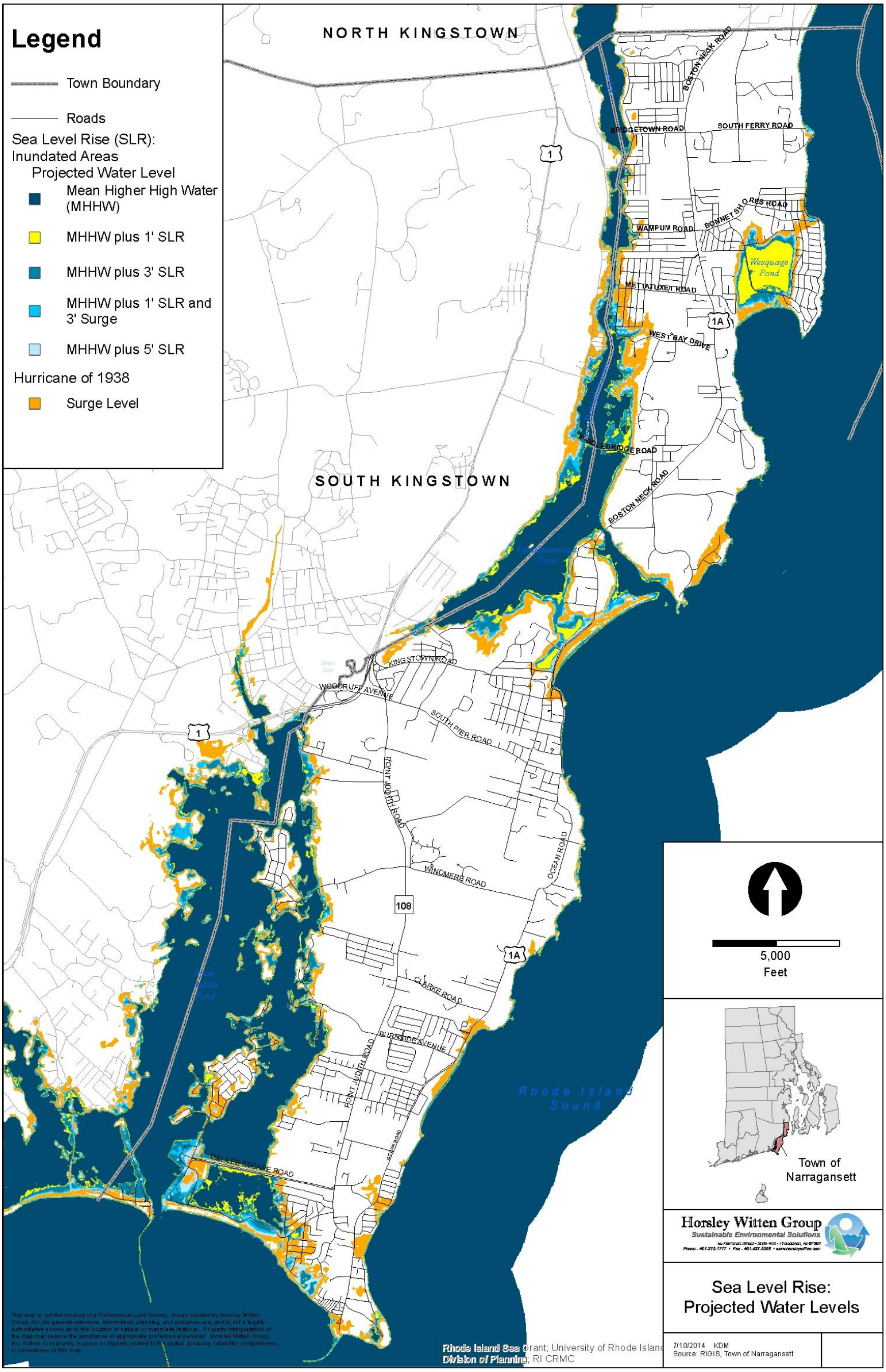
Should an earthquake occur, the entire town would be impacted; however, it is estimated that they occur in Narragansett once every 30 years.

Sea Level Rise

Climate is defined as the long-term observed weather average for a geographic region. Fluctuations in climate, referred to as climate change, have been observed, related to both natural and man-made activities. The long-term climate change trend has been noted due to increased temperatures, extremes between heavy precipitation and periods of drought, and rising sea level. Sea level rise refers to the change in mean high water over time in response to global climate and local tectonic change.[15] The impacts of projected increases in rain and in the number of severe storm events with storm surges, coupled with rising sea levels, may lead to more frequent and damaging flood events, particularly in coastal communities like Narragansett.

CRMC in partnership with URI Ocean Engineering, Rhode Island Sea Grant Program and the URI Environmental Data Center have develop GIS web-based maps call STORMTOOLS.[16] These multiple sea level rise scenarios and storm surge, along with historical storm impacts, help Rhode Island coastal communities assess their vulnerability and plan for sea level rise and storm surge. Map 9 was creating using this tool. It shows four sea level rise scenarios plus the impacts associated with the Hurricane of 1938, considered the most devastating storm to hit Rhode Island. In addition, in 2016, CRMC adopted within its coastal program upper sea level rise curves based on NOAA data as calculated by the U.S. Army Corps of Engineers Sea Level Change Curve Calculator with a possible seven feet above 1990 levels by 2100.[17]

[15] Rhode Island Coastal Resources Management Program, Section 145: Climate Change and Sea Level Rise
[16] www.beachsamp.org/stormtools/
[17] www.corpsclimate.us/ccaceslcurves.cfm.



Map 9. Areas Vulnerable to Sea Level Rise

Areas all along Narragansett's coastline are vulnerable to sea level rise. Specifically:

- Town Beach and Pier area.
- Low-lying areas along Narrow River and Pettaquamscutt Cove, dominated by residential uses, protected open space and recreational areas.
- Low-lying Sand Hill Cove residential neighborhoods
- Jerusalem, which has residential and commercial uses.
- Low-lying areas adjacent to Point Judith Pond, dominated by protected open space, recreational areas and residences.
- Low-lying areas of Harbor Island and Great Island, dominated by protected open space and residences.
- Little Beach in Bonnet Shores.
- Low-lying residential neighborhoods in the Scarborough area.

Sea level rise will also have future impacts on coastal wetlands. Additional resources from CRMC and its partners include Sea Level Affecting Marshes Model (SLAMM) Maps for the coastal wetlands of all 21 Rhode Island coastal communities.[18] The purpose of these SLAMM maps is to show how coastal wetlands will likely transition and migrate onto adjacent upland areas under projected sea level rise scenarios of 1, 3, and 5 feet in the coming decades. According to CRMC, it is projected that Narragansett may see losses of 167 to 212 acres of coastal wetlands in the future with 3 and 5 feet of sea level rise, respectively.[19]

Beach Replenishment

The beach and dunes of Narragansett Beach serve a number of important natural functions, including dissipating incoming wave energy to minimizing storm damage and acting as flood control for inland areas. They also provide wildlife habitat for shorebirds. Equally important, Narragansett Beach offers recreational and economic benefits to the Town.

Natural coastal processes such as waves, tides, currents, storm surges, and sea level rise influence the deposition of sand on Narragansett Beach and its erosion. Waves and tides result in short-term effects while storm surges and sea level rise, as discussed earlier, can have severe long-term impacts. Narragansett Beach is also influenced by seasonal variation. In the fall and winter months, waves are larger and stronger, and storms are more frequent, carrying sand to offshore sandbars. In the spring and summer, waves are small and the sand slowly returns to the beach, albeit not in the amount that was carried off in the earlier seasons.

To maintain this important resource, the Town routinely replenishes the beach with an ongoing Maintenance Assessment with CRMC. The current process is to truck in sand from a local quarry at the start of each summer season, typically about 300 cubic yards (20 to 30 truck loads). If a major storm hits the area, more material may be required.

In 2011, Woods Hole Group prepared a Beach Replenishment Study to evaluate existing conditions and recommend long-term beach replenishment alternatives. According to the Woods Hole Group, a study from the U.S. Geological Survey (USGS) evaluated the Narragansett shoreline between 1869 and 2003

[18] http://www.crmc.ri.gov/maps/maps_slamm.html.
[19] http://www.crmc.ri.gov/maps/maps_slamm/slamm_narragansett.pdf.

and found that over the 134-year period, the average erosion rate of Narragansett Beach ranged from -0.56 to -0.95 feet per year. Historic, long-term coastal erosion rate mapping developed by CRMC in partnership with URI[20] show erosion rates from 1939 to 2004 at Narragansett Beach between -0.3 to -1.2 feet per year. Both studies demonstrate long-term erosion of the beach. Additionally, as part of CRMC's Shoreline Change Special Area Management Plan, maps are being developed that show future accelerated shoreline erosion.

The Woods Hole Group Study provided a variety of alternatives and potential sediment sources, which included:

- Upland – Local sand and gravel mining facilities that could supply sand via trucking operations,
- Narrow River – Sand from the flood tidal delta and Sprague Bridge areas of the Narrow River,
- Offshore – Sand from offshore areas, and
- Navigation Channels – Sand dredged from nearby navigation/construction projects.

Construction methods proposed were trucking material, mechanical dredging, and hydraulic dredging. The Town will further evaluate to determine the most feasible option to implement.

[20] www.crmc.ri.gov/maps/maps_shorechange.html.

TRANSPORTATION AND CIRCULATION

The objective of the local transportation system is to provide access to employment, shopping, recreational, and community facilities in a safe, efficient and sustainable manner. The transportation system supports other facets of life in the Town, including economic development, quality of life, social equity, and public and environmental health.

Narragansett's natural geography and historic development patterns have influenced the layout of the present circulation system, depicted in Map 9. Beginning in the eighteenth century, settlements at South Ferry and Narragansett Pier originated as landings for the export of locally grown agricultural products. Boston Neck Road (U.S. Route 1A) was one of Narragansett's first major roads and it provided the transportation linkage between these two settlements. This road and its adjoining local roads formed the beginnings of Narragansett's circulation system.

As an important transportation link to Newport, South Ferry was Narragansett's principal settlement through the eighteenth and into the nineteenth century.

A transformation in Narragansett's development took place in the mid-nineteenth century when Narragansett's seaside location began to attract tourists. The Narragansett Pier Railroad which linked the Kingston Station with Narragansett Pier was constructed in 1876. This transportation facility provided direct rail access to Narragansett Pier and encouraged the growth of tourism. In 1882, Ocean Road was extended from South Pier to Point Judith, providing access to the coastline south of the Narragansett Pier village.

Narragansett Pier changed significantly with the introduction of the automobile early in the 20th century. Once a resort where out-of-state residents came by train or steamer for vacations, it gradually became a day-trip destination for Rhode Island residents. Interurban streetcar service, which began service in 1898 in Narragansett and served more than 700,000 annual passengers per year at its peak, ceased operations in 1922. Route 1was widened and improved and other new roads were built to accommodate the new popular pastime of automobile touring. Starting in the early 1960s, Narragansett became part of the suburban development surrounding the Providence area. As the use of automobiles increased, the roads improved and travel time was reduced thereby making it easier to live in Narragansett and work in Providence. With the easier commute, Narragansett began to attract more year-round residents.

Narragansett's shoreline remains one of the Town's most important assets and this regional amenity has also generated considerable traffic. The increased turning conflicts associated with the commercial development impede normal through traffic flow. Roadway improvements can bring temporary relief to traffic congestion; however, improvements also frequently increase the desirability and accessibility of adjacent property, inducing more traffic in the long run.

Existing Highway Systems

Functional Classification

Roads and highways are grouped into classes or systems that are based upon the road's intended character of service. The five major classifications of roads are Freeway/Expressway, Principal Arterial, Minor Arterial, Collector, and Local. The method of classification assumes that all roads serve two basic functions: direct access to property; and travel mobility. Distinctions are made as to the varying degrees

that a road accomplishes these basic functions. For example, local roads provide a greater proportion of direct property access, while collectors and arterials provide a greater proportion of travel mobility.

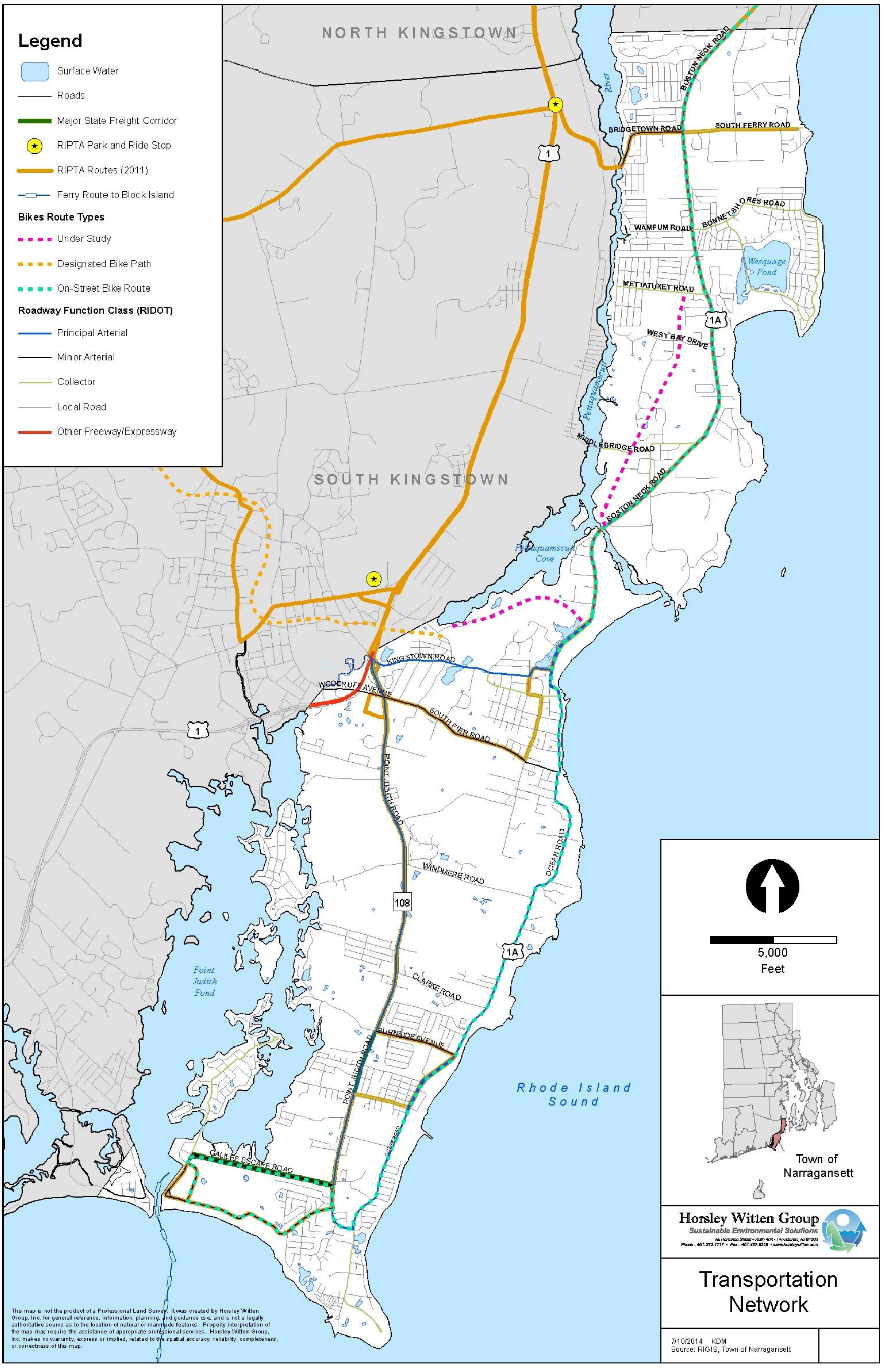
Another important factor in assigning functional classification is the type of area that the road will serve. There are two types of service areas: urban areas and rural areas. The Federal Highway Administration defines urban areas as those areas with populations greater than 5,000 persons and above. Rural areas are defined as the areas outside the boundaries of urban areas.

Map 10 shows the functional classification of roads and highways in Narragansett according to the Rhode Island Statewide Planning Program's Highway Functional Classification System for the State of Rhode Island, 2005-2015. Table 31 details the specific road segments and their classifications in Narragansett. There are 25.17 miles of roads under state jurisdiction in Narragansett, including the principal arterials, minor arterials, and major collectors in both the small urban and rural categories. Jurisdiction of the Town's roads includes approximately 121.6 miles of minor arterial, collector, and local roads.

Table 31. Roadway Functional Classification and Length (2005-2015)

Route	Segment Name	Miles	State or Local	Segment Name	Miles	State or Local
Freeways & Expressways (Urban)				**Collector (Urban)**		
1	State Highway 1A	0.7	State	Bonnet Point Road	0.88	Local
	Sum	***0.7***		Bonnet Shores Road	0.91	Local
Principal Arterial (Urban)				Boon Street	0.25	Local
	Beach Street	0.2	State	Colonel John Gardner Road	0.93	Local
				Conch Road	0.5	Local
108	Kingstown Road	0.1	State	Dolphin Road	0.03	Local
108	Old Point Judith Road	1.63	State	Exchange Place	0.08	Local
108	Point Judith Road	2.92	State	Franks Neck Road	0.04	Local
1A	Beach Street	0.99	State	Franks Neck Road	0.22	Local
1A	Boston Neck Road	4.94	State	Gibson Avenue	0.25	Local
1A	Kingstown Road	0.85	State	Great Island Road	0.35	State
1A	Narragansett Avenue	0.53	State	Harbor Road	0.05	Local
	Sum	***12.16***		Kingstown Road	0.55	Local
Minor Arterial (Urban)				Knowles Way	0.42	State
	Bridgetown Road	0.65	State	Marine Drive	0.1	Local
	Burnside Avenue	0.64	State	Mettatuxet Road	0.67	Local
	Galilee Connector Road	0.34	State	Middlebridge Road	0.43	Local
	Galilee Escape Road	1.17	State	Ocean Road	1.01	State
	Great Island Road	0.36	State	Old Boston Neck Road	0.67	Local
	Ocean Road	5.511	State	Ottawa Trail	0.21	Local
	South Pier Road	1.44	Local	South Ferry Road	0.91	Local
	Sand Hill Cove Road	1.39	State	*Sum*	*9.46*	
	Succotash Road	0.47	State	**Town Total**		
	Woodruff Avenue	0.48	Local	***Sum***	***34.77***	
	Sum	***12.45***				

Source: RIDOT and RIGIS



Map 10. Transportation Network

The primary function of each type of road in Narragansett is as follows:

Freeway/Expressway- An expressway's only function is to carry traffic and as a result expressways are designed specifically for high speed travel mobility. Since an expressway has controlled access, there are no at-grade intersections or parking. The road functions as a highly efficient carrier. The interstate highway provides the highest level of travel mobility and no direct property access. A 0.70 mile section of State Highway 1 is classified as freeway/ expressway in Narragansett.

Arterial- The arterial street functions primarily to carry large volumes of traffic through the community. It is designed for trips of moderate length, slower speed and limited land access. The arterial provides access between the interstate and residential and commercial areas in the community. Such facilities may carry local bus routes and include connections to local collector roads. There are 17.67 miles of streets classified as principal arterial and 6.94 miles of streets classified as minor arterial in Narragansett.

Collector- The collector street functions primarily to conduct traffic from local residential roads to arterial roads. Land access is a secondary function of the collector street but access is generally less restricted on collectors than arterials. Collector streets pass through residential areas both collecting and distributing traffic from local streets. There are 9.46 miles of streets classified as collector in Narragansett.

Local- Local roads comprise the balance of streets in Narragansett. Local roads primarily provide direct access to property. The local roads also serve to provide low levels of travel mobility to and from the collectors and arterials. There are approximately 112 miles of municipally owned local roads in Narragansett.

The functional classification system is used to determine eligibility under the federal-aid system. The relationship between functional classification, federal funding category, and highway jurisdiction is shown in Figure 9. Several of the functional classifications, including rural minor collectors and rural and urban local roads, are not part of the federal-aid system.

Figure 9. Highway Functional Classification and Federal Aid Eligibility

Rural		Urban
Principal Arterial		
Interstate	NHS	Interstate
Other Freeway & Expressway		Other Freeway & Expressway
Other Principal Arterial		Other Principal Arterial
Minor Arterial		
Minor Arterial		Minor Arterial
Collector		
Major Collector		Major Collector
Minor Collector		Minor Collector
Local		Local

= Federal-Aid Eligible

Source: RI Statewide Planning Program

Traffic Volumes

The traffic volumes in Narragansett reflect the normal commuting activities of a suburban community. In addition, on many of the roads the traffic volumes are strongly influenced by seasonal summer beach traffic.

Table 32 provides traffic volumes on major roads in Narragansett for the year 2011. These traffic volumes were provided by the Rhode Island Department of Transportation (RIDOT) and represent automatic traffic volume counts. Roadways carrying the largest volume of traffic include Point Judith Road (Route 108), Boston Neck Road (U.S. Route 1A), and Woodruff Avenue.

Table 32. Traffic Volumes on Selected Roadways in Narragansett

Road Segment	2011 ADT
Point Judith Road (north of Angell Road)	18,600
Boston Neck Road (between West Bay Drive and Anawan Drive)	18,100
Boston Neck Road (Castle Road)	18,000
Woodruff Avenue (between Salt Pond Rd and Robinson St)	15,500
South Pier Road (between Rt 108 and Lakewood Drive)	14,100
Sand Hill Cove (east of State Beach)	8,600
Point Judith Road (between Galilee Escape and Sand Hill Cove)	7,400
Ocean Road (between Burnside Avenue and Knowles Way)	6,000
Sand Hill Cove (east of Galilee Bypass)	3,600
Great Island Road	3,500

Source: RIDOT

Seasonal Traffic Volume

The Average Daily Traffic (ADT) is the actual volume of vehicles which were counted during the counting period. The Annual Average Daily Traffic (AADT) is the average volume of traffic using the road over entire year. For roadways with a large seasonal variation in traffic flow, the difference between ADT and AADT is quite large. For example, if a traffic count was taken in the summer months in Narragansett the ADT could be larger than the AADT because of its summer traffic flow. On the other hand, if a traffic count was taken during the winter months, the ADT would likely be smaller than the AADT.

The location of employment centers, shopping facilities, and recreational activities is important in identifying heavily traveled routes. Although Narragansett has a large volume of recreational traffic which causes seasonal variation, it also has a large volume of traffic generated from its residential areas. Since most of the residents of the Town work outside of town, there is a large commuting population. Also, the Town has major shopping centers such as the Salt Pond Shopping Center on Point Judith Road, which generates large volumes of traffic. It is therefore difficult to identify which roads are primarily influenced by recreational traffic and which roads have large volumes of traffic primarily as a result of local travel activities.

A traffic impact study conducted in July 2005 by RAB Professional Engineers, Inc. for a proposed commercial development, illustrates the large seasonal fluctuations in traffic volume on Point Judith

Road. It was determined from the counting program that a large increase in traffic volumes, typically 20% to 30%, but sometimes greater than 40% during scheduled events and on weekends, occurs on Point Judith Road during the summer months. The increase during the summer months can vary on a daily basis due to weather or scheduled events by up to 10,000 vehicles per day.

Based on this study, it is estimated that summer weekday ADT of approximately 25,000 to 28,000 vehicles per day traverse Point Judith Road in the project area, compared to a total daily volume of between 17,000 and 20,000 vehicles during an off-season month. Traffic volumes tend to increase gradually over the course of the day, then peak during the late afternoon period when beachgoers heading home, coincide with shoppers in the commercial area and the daily commuting traffic. Traffic volumes increase for short periods ahead of scheduled ferry departures throughout the day.

Several roads are susceptible to cut-through traffic due to the linear configuration of the Town's roadway network. Mumford Road between Kingstown Road (U.S. Route 1A) and Route 1 (Tower Hill Road) is one such road. Middlebridge Road also connects those roads, further north.

Traffic congestion is caused by vehicle demand that exceeds roadway capacity. Congestion can occur throughout Town, especially during summer months, peak travel periods, and coinciding with the ferry schedule. There are four primary focus areas that experience traffic congestion:

The northern segment of Route 108, beginning at the Town line and through the Dillon Rotary. Boston Neck Road (U.S. Route 1A) north of Narragansett Town Beach can become very congested especially due to with beach traffic. Specific intersections would include the signalized intersections of Boston Neck Road and Bonnet Shores Road and Bridgetown Road, which are approximately 4,000 feet apart.

Ocean Road in the vicinity of The Towers and seawall experiences traffic congestion and parking demand. The roadway is currently two-lanes with on-street parking and sidewalks on both sides.

Route 108 and Galilee Escape Road to and from the Village of Galilee experience congestion in conjunction with seasonal traffic.

Traffic Accidents

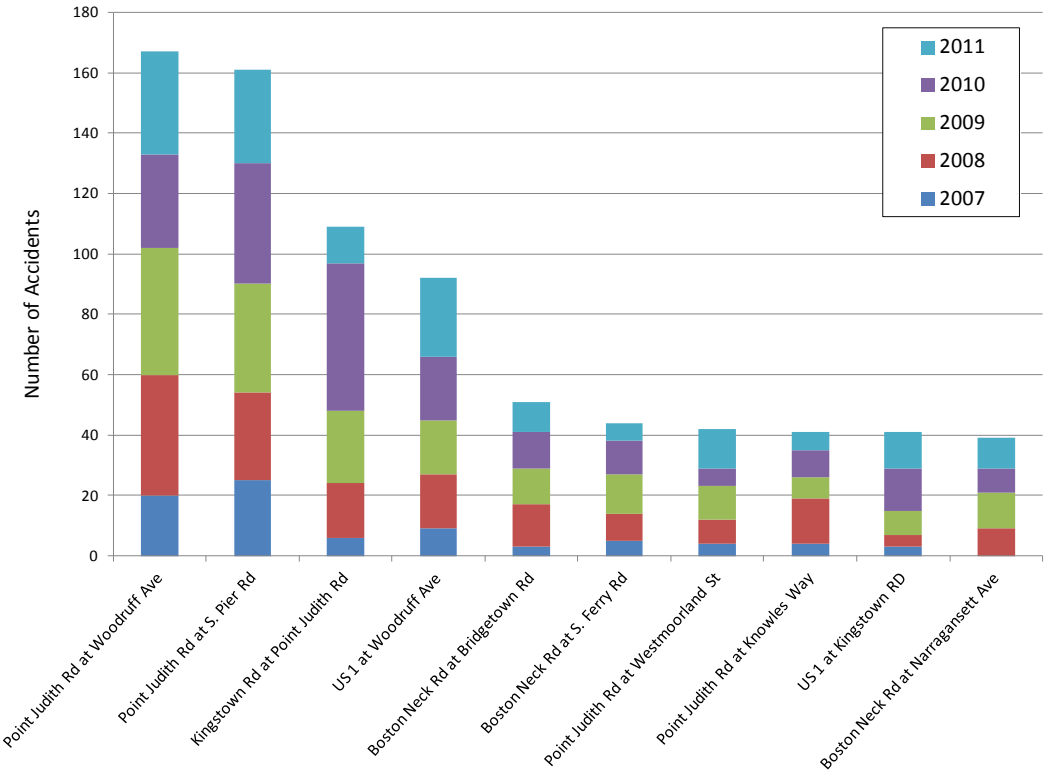
The five year summary of accident data for Narragansett and for the State was obtained from RIDOT. This data was used to identify accident problem areas and trends. The five year data were compiled from RIDOT's Accident Location and Reporting System (ALRS). The ALRS is an accident reporting system in which accidents reported to the Registry of Motor Vehicles by the motor vehicle operator and/or the police are recorded and geographically identified. The data provide a reasonable representative sample of accident types and locations.

The ALRS data were used to identify intersections where the highest number of accidents occurred within the Town. Figure 10 shows the top ten intersections in the five year period from 2007 to 2011. Totals for the year 2007 are located at the bottom of the bar with totals for 2011 located in the top segment of the bar. Five intersections stand out as having the highest incidences:

- Route 108 (Point Judith Road) and Woodruff Avenue;
- Kingstown Road and Point Judith Road (Route 108);
- U.S. Route 1 and Woodruff Avenue;

- Boston Neck Road (U.S. Route 1A) and Bridgetown Road; and
- Point Judith Road (Route 108) and South Pier Road.

Figure 10. Intersections with the Highest Number of Accidents (RIDOT)



Source: RIDOT

Accident information from the Narragansett Police Department for the period January 1, 2007 to December 31, 2011 was also utilized to identify the road segments with the highest number of accidents reported. Table 33 identifies the top ten road segments and the number of accidents reported.

Scenic Road Designations

There are no state-designated scenic roads within Narragansett. Boston Neck Road has been historically signed as "scenic" for most of its length within the Town for many years. It could be a candidate for formal designation by the state Scenic Roadways Board in the future. Old Boston Neck Road also has scenic qualities, from South Ferry Road to Boston Neck Road adjacent to the Pettaquamscutt Cove National Wildlife Refuge (to the east) and private properties (to the west).

Table 33. Road Segments with the Highest Number of Accidents

Road Name	2007	2008	2009	2010	2011
Boston Neck Road	81	109	107	100	95
Great Island Road	14	15	9	14	11
Kingstown Road	37	42	46	67	40
Narragansett Avenue	13	6	18	11	9
Ocean Road	41	32	39	60	55
Point Judith Road	169	155	186	188	166
Route 1 Off-ramp at Woodruff Ave.	14	15	12	20	20
Sand Hill Cove Road	16	18	21	15	13
South Pier Road	21	25	15	18	21
Woodruff Avenue	29	42	31	25	24
SUBTOTAL	435	459	484	518	454
TOWNWIDE TOTAL	647	657	706	736	666
PERCENTAGE OF TOWNWIDE	**67%**	**70%**	**69%**	**70%**	**68%**

Source: Narragansett Police Department

Proposed Road Improvements

The Rhode Island Statewide Planning Program publishes the Transportation Improvement Program (TIP) for proposed road improvement projects. The TIP includes a four-year plan that indicates the priority and anticipated initiation dates of proposed projects. The TIP is prepared by the State Planning Council, with input from the Rhode Island Statewide Planning Program, the Transportation Advisory Committee, and the Rhode Island Public Transit Authority, Rhode Island's 39 cities and towns, and the general public. The Town of Narragansett regularly participates in developing the TIP. As shown in Table 34, there are several projects currently programmed in Narragansett on the latest TIP.

Table 34. Projects in Narragansett Part of the Transportation Improvement Program (Fiscal Years 2013-2016)

Project	Program	Cost (millions)
South County Bike Path Extension	Study and Development	$1.55
Great Island Bridge	Bridge	$3.00
Boston Neck Rd Beautification – South	Enhancement	$0.25
Ocean Rd Beautification – Phase I & II	Enhancement	$0.62
Bridgetown Rd	Pavement Management	$1.00
South Pier Rd Reconstruction	Pavement Management	$1.30
Ocean Rd @ Knowlesway	State Traffic Commission	--
Point Judith Rd @ Knowlesway	State Traffic Commission	--
Point Judith Rd @ Woodruff Rd/S Pier Rd	State Traffic Commission	--

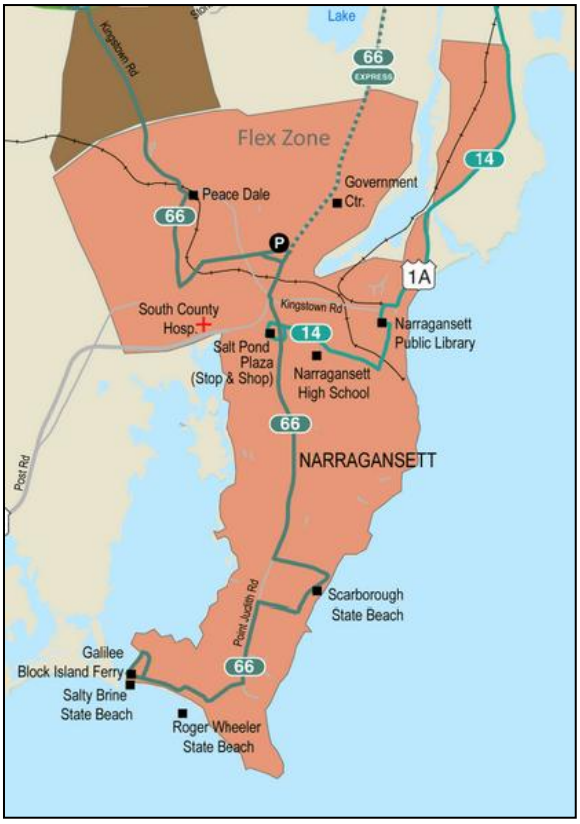
Source: RIDOT

Public Transportation – Bus Service

Rhode Island Public Transportation Authority (RIPTA) bus routes provide regular service between Narragansett and Providence (Figure 11). RIPTA operates express and local bus service between the Salt Pond Plaza in Narragansett and Kennedy Plaza in Providence (RIPTA Route 14). There is also bus transit service between Newport, Jamestown, and the University of Rhode Island and Narragansett (RIPTA Route 64). These RIPTA routes operate daily and make stops at Bonnet Shores and Narragansett Pier. In spring 2007, a new bus service was added to serve the southern half of the Town using Point Judith Road and Sand Hill Cove Road and terminating at the Block Island ferry dock in Galilee, (RIPTA Route 66). This route also originates in Kennedy Plaza and provides transit between Providence, the Community College of Rhode Island in Warwick, URI, the Kingston Rail Station, and Salt Pond Plaza. After its initial launch, Route 66 was subsequently shortened and service frequency was reduced due to RIPTA's budget constraints.

Narragansett is one of six communities in which RIPTA offers FlexService, a zone-based demand-responsive service designed especially for suburban and rural communities. Flex Service operates weekdays from 6:00 AM to 6:30 PM to three regularly scheduled stops: Salt Pond Plaza, Stedman Center, and the University of Rhode Island's Bay Campus, or anywhere within Narragansett's Flex Zone by reservation. Reservations for travel must be made at least 48 hours in advance. Service is provided using 16-passenger, ADA accessible cutaway van. Flex Service also provides connections to RIPTA's fixed-route bus service for travel outside the Flex Zone. Passengers can transfer to RIPTA Routes 14 and 66 at Salt Pond Plaza.

Figure 11. RIPTA Routes 14, 64, and 66 through Narragansett



Source: RIPTA

Rail Transportation

There are no active rail lines within Narragansett. Rail service to Boston and New York is available nearby at the Kingston Railroad Station in South Kingstown. AMTRAK scheduled service is also available with direct connections to locations along the northeast corridor such as Philadelphia, Baltimore, and Washington, D.C.

A rail line once extended from the main line at the Kingston station to Narragansett Pier, a distance of approximately nine miles. At the Pier, this line connected with ferry boats which provided service to the islands in Narragansett Bay. This rail service ended in 1955 and the rail line was abandoned.

Pedestrian and Bicycle Accommodations

Narragansett provides accommodations for safe movement of both pedestrians and bicyclists throughout most of the Town, in line with its status as a destination for tourists and other seeking outdoors recreation. In addition to the heavy pedestrian traffic associated with summer tourism, several bicycle rides are held and Narragansett remains a year round destination for bicyclists attracted by scenic views and accommodating roads.

Sidewalks are present on both sides of the streets throughout the mixed-use areas of Town (e.g. Boon Street), as well as Ocean Road north of South Pier Road and Boston Neck Road/Beach Street south of Sprague Bridge, Point Judith Road, and Great Island Road. South Pier Road, Narragansett Avenue, and Sand Hill Cove Road have sidewalks on one side of the street only (north and south sides, respectively). Sidewalks are primarily concrete, and in mixed condition. Crosswalks are marked at intersections throughout the town with accessible curb ramps, although ramps are lacking detectable warnings for ADA compliance.

Boston Neck Road is the preferred route for recreational bicyclists in the town, due to its aesthetic qualities, relative quiet, and shade. Typical roadway speeds are 35 to 45 miles per hour (mph), with a wide shoulder provided. "Share the Road" signage is present on Boston Neck Road. No other marked on-street bicycle facilities (i.e., bike lanes, shared lane markings) are present on town roads.

Phase III of South County's William O'Neil Bike Path was completed in 2011. This path runs along a former railroad right-of-way that once ended in Wakefield. The bike path was expanded by RIDOT to connect South Kingstown and Narragansett. The next phase under consideration is potential expansion to Narragansett Town Beach.

As previously mentioned in this report, Narragansett was the recipient of a $300,000 Safe Routes to School Grant in 2010. The Town has been working collaboratively to implement pedestrian and bicycle improvements to the Pier Middle School, which are focused on enhanced connections and internal circulations for the school campus. Elements include connection to Prospect Avenue behind the school campus, which was formerly gated, and to Central Street.

Bridges are being added to allow the existing trail to cross a stream, thereby providing a straight connection between a dense neighborhood and the schools.

One traffic calming measure that is beneficial to pedestrian circulation is a neckdown, which is present on Kingstown Road. On Boon Street, sidewalks are currently provided on both sides of the street along with wayfinding signage, and businesses fronting Boon Street are oriented to the sidewalk.

Water Transportation

Out of Galilee, the Interstate Navigation Company operates two ferry services to Block Island. A traditional ferry runs with schedules varying from one to three trips a day in the winter to ten trips a day in the summer. A high speed ferry, traveling between Galilee and Block Island in only 30 minutes, operates with four trips per day in the spring and fall and six trips per day in the summer. This is a seasonal service available from mid-May through mid-October.

These ferry services are the primary transportation links between Block Island and the mainland. As such, their continued operation is essential. The ferries are also an important component in the island tourism economy. Most of the visitors to Block Island arrive by the ferry from Galilee. Most of the visitors use their private automobiles to get to Galilee to take a ferry to Block Island. Parking space at Galilee is at a premium during the summer months and Block Island commuters compete with the recreational beach users and the year-round fishing industry for the limited amount of parking space available. During the summer months, substantial pulses in traffic occur on Town roadways ahead of scheduled ferry departures.

Pier Area Shuttle

The Town had sponsored seasonal shuttle service in the Pier Area. From Memorial Day to Labor Day, the shuttle made a continuous loop every 30 minutes from 9:00 AM to 6:00 PM at the following stops:

- Narragansett Elementary School (9:00 AM first shuttle)
- South Pavilion at the Town Beach
- North Beach Pavilion (5:30 PM last shuttle)
- The Towers
- South Pier Road and Ocean Road
- Boon Street at Leroy Thompson Park
- Pier Market Village

Signage directed riders regarding route, fee, and seasonal operation. The Town hopes to reestablish this service in the future.

HOUSING

Narragansett's housing is diverse and poses unique challenges. The Town experienced fast population growth through the 1980s and 1990s, but as it approaches full build-out, the construction of new housing will slow and redevelopment opportunities and rehabilitation of existing housing will become priority. The current conditions of the Town's housing stock, including its location and affordability, are evaluated to ensure that the needs of all residents are met through a variety of housing types (single family homes, apartments, and condominiums) and for many income levels (single adults, young families, empty-nesters, and seniors).

Narragansett faces a unique challenge in that nearly one quarter of its housing units are rented for seasonal use. During the summer, cottages are rented weekly and from September to May, students from URI occupy the units. This poses a challenge in trying to meet the demand for rental housing by permanent residents and those who would like to move to Narragansett and cannot afford to purchase a home. Many property owners are more inclined to rent seasonally because it is more lucrative, particularly during the summer months.

Housing Characteristics

Types of Housing

The ACS (2010) reports that the majority of housing in Narragansett is single family homes (Table 35), and this number is slowly rising as more residential units constructed in town are single family units. Noted loss of units can be attributed to the margin of error associated with the ACS estimates.

Table 35. Number of Units in Housing Structures

	2000	2010	Margin of Error	Difference
Total housing units	9159	9,910*	+/-412	+751
1-unit, detached	79.4%	82.0%	+/-2.8	2.6%
1-unit, attached	4.0%	2.3%	+/-0.8	-1.7%
2 units	5.2%	4.5%	+/-2.1	-0.7%
3 or 4 units	3.1%	4.5%	+/-1.4	1.4%
5 to 9 units	3.2%	2.2%	+/-0.9	-1.0%
10 to 19 units	1.4%	1.3%	+/-0.7	-0.1%
20 or more units	2.8%	2.5%	+/-1.0	-0.3%
Mobile home	0.2%	0.6%	+/-0.8	0.4%
Boat, RV, van, etc.	0.7%	0.0%	+/-0.4	-0.7%

Source: 2000 Decennial Census, American Community Survey 2010 5-Year Estimates
** The American Community Survey is a mandatory, ongoing statistical survey that samples a small percentage of the population every year. Since data are based on samples, a margin of error is calculated to account for sampling and nonsampling errors.*

The different residential areas in Narragansett and the types of housing in each are provided in "Land Use Planning Districts" section of *Land Use*. Also refer to Maps 3 through 5, which show existing residential densities.

Most housing in Narragansett has two to three bedrooms (Table 36). Nearly one quarter (22.3%) have four or more units.

Table 36. Number of Bedrooms in Housing

	2010	Margin of Error
Number of Bedrooms	9,910*	+/-412
No bedroom	1.6%	+/-1.2
1 bedroom	6.4%	+/-1.9
2 bedrooms	32.4%	+/-3.6
3 bedrooms	37.3%	+/-3.2
4 bedrooms	15.8%	+/-3.1
5 or more bedrooms	6.5%	+/-2.0

Source: American Community Survey 2010 5-Year Estimates
** The American Community Survey is a mandatory, ongoing statistical survey that samples a small percentage of the population every year. Since data are based on samples, a margin of error is calculated to account for sampling and nonsampling errors.*

Age of Housing

As shown in Table 37, most of the housing in Narragansett was built between 1950 and 1990, corresponding with the Town's population boom.

Table 37. Age of Housing Stock

	Number of Units	Margin of Error	% of Total	Margin of Error
Total Housing Units	9,910*	+/-412	-	-
Built 2005 or later	189	+/-95	1.9%	+/-1.0
Built 2000 to 2004	707	+/-212	7.1%	+/-2.1
Built 1990 to 1999	918	+/-241	9.3%	+/-2.4
Built 1980 to 1989	1,770	+/-315	17.9%	+/-3.0
Built 1970 to 1979	1,627	+/-288	16.4%	+/-3.0
Built 1960 to 1969	1,561	+/-326	15.8%	+/-3.2
Built 1950 to 1959	1,536	+/-281	15.5%	+/-2.8
Built 1940 to 1949	508	+/-175	5.1%	+/-1.7
Built 1939 or earlier	1,094	+/-247	11.0%	+/-2.4

Source: U.S. Census, American Community Survey 2010 5-Year Estimates
** The American Community Survey is a mandatory, ongoing statistical survey that samples a small percentage of the population every year. Since data are based on samples, a margin of error is calculated to account for sampling and nonsampling errors.*

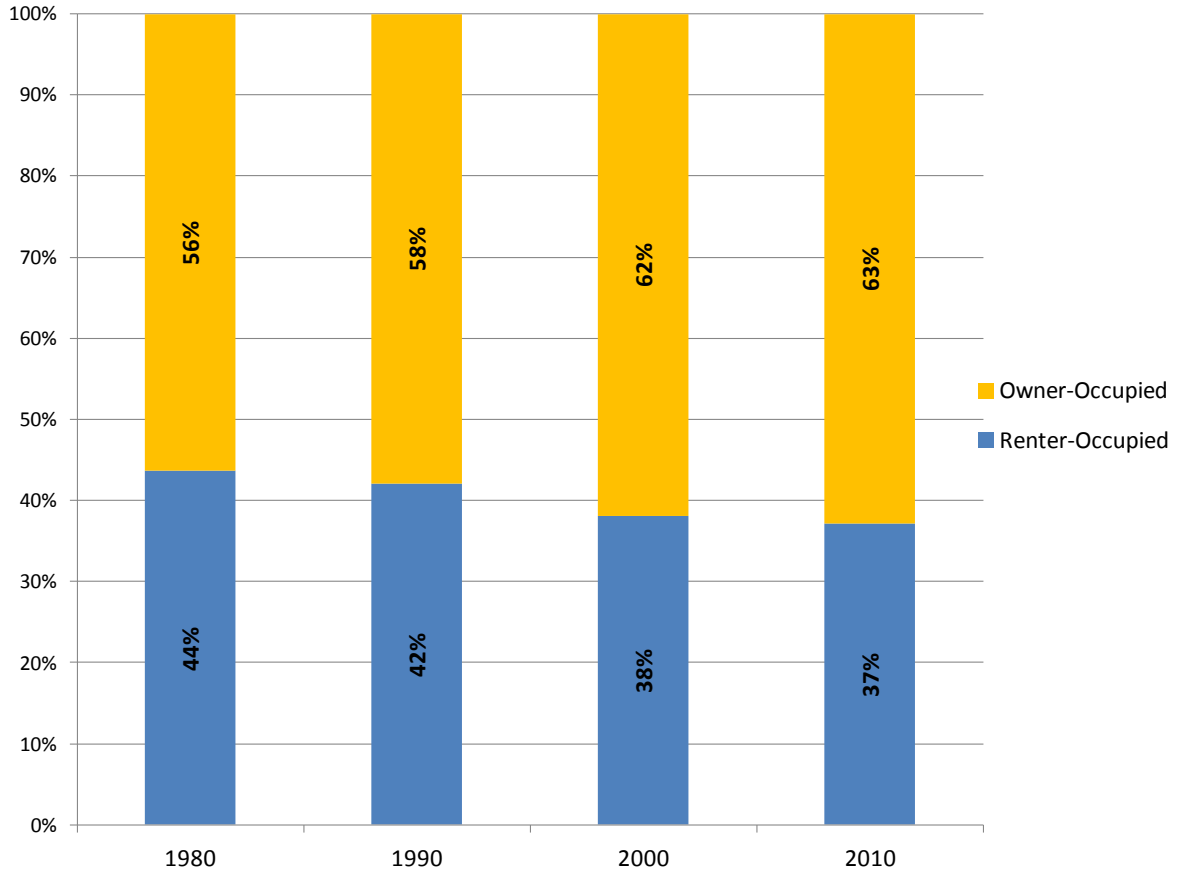
Housing Conditions

Narragansett's housing is generally in good condition and there are no specific neighborhoods that appear to be worsening in their condition or becoming blight. Issues related to housing conditions are more on an individual basis and, in some instances, related to nuance complaints.

Tenure and Occupancy

Narragansett has historically been an even mix of owner-occupied and rental housing. Figure 12 shows the gradual increase of owner-occupied units, from 56% in 1980 to 63% (4,208 units) in 2010; however, there still is a high proportion of rental properties in Narragansett (37% or 2,496 units).

Figure 12. Residential Occupancy, 1980-2010



Source: U.S. Census, 1980-2010

If housing occupancy is looked at in more detail, we find that while the U.S. Census reported high vacancy rates in Narragansett between 1980 and 2010, shown in Table 38. A large portion of those vacant units were, and continue to be, seasonal rentals. In Narragansett, seasonal units are rented both in the summer (weekly, and perhaps in some instances monthly) and to URI students September to May. The number of seasonal housing units continued to increase through 2010, consistently comprising one quarter of the Town's total housing stock. It should also be noted that some of the year-round vacancies may also include households that choose to not live in Narragansett year-round, but also choose not to rent when they are not in town.

The market appeared to be slightly impacted by the economic recession in the later part of the 2000 decade. While the number of total housing units increased slightly in 2010, occupied units decreased, and vacant units decreased, both in seasonal rentals and year-round vacancies.

Table 38. Breakdown of Housing Occupancy Status, 1980-2010

	1980 (% of total units)	1990 (% of total units)	2000 (% of total units)	2010 (% of total units)
Total Housing Units	6,587	8,206	9,159	9,470
Occupied	5,179 (77.3%)	5,846 (71.2%)	6,846 (74.7%)	6,704 (70.8%)
Vacant	1,498 (22.7%)	2,363 (28.8%)	2,313 (25.3%)	2,766 (29.2%)
Seasonal, recreational, or occasional use vacancy	N/A	1,891 (23.0%)	2,035 (22.2%)	2,314 (24.4%)
Year-round vacancy	N/A	472 (5.8%)	278 (3.0%)	452 (4.8%)
Average person per household	2.33	2.56	2.39	2.36
Average person per family household			2.86	2.78

Source: U.S. Census, 1990-2010

How Narragansett compares to other Washington County communities is shown in Table 39. Westerly has a slightly higher percentage of rental units, but it has a more urbanized, mixed use town center and older mill villages, such as Potter Hill and Bradford, with multi-unit housing. Narragansett still maintained more rental properties than South Kingstown, which also has a strong seasonal community and is a popular housing option for URI students choosing to live off campus.

Table 39. Housing Status of Occupied Units in Washington County Communities, 2010

	Owner-occupied	Renter-occupied
Charlestown	84%	16%
Exeter	86%	14%
Hopkinton	80%	20%
Narragansett	63%	37%
North Kingstown	75%	25%
South Kingstown	73%	25%
Westerly	65%	35%

U.S. Census, 2010

Table 40 shows a noticeable increasing trend in housing units occupied by single residents and non-family members. There are a few possible contributors. The first relates back to the decreasing number of younger children in the town and the possibility that young families are moving out of town. Also, there has been an historic trend nationally of more individuals living alone. In 2000, one in four lived alone, compared to 7.7% in 1940, and Rhode Island has historically had higher rates of individuals living alone compared to other states. Nationally, the number of persons older than 65 living alone is also increasing.[21] Another contributor is a large number of non-relatives living together. Although there is no data that specifically says these units are occupied by college students, it is safe to conclude that students make up the majority of data set.

[21] 2010 Census Briefs: Households and Families 2010. http://www.census.gov/prod/cen2010/briefs/c2010br-14.pdf

Table 40. Housing Occupancy, Family and Non-Family Members, 1990-2010

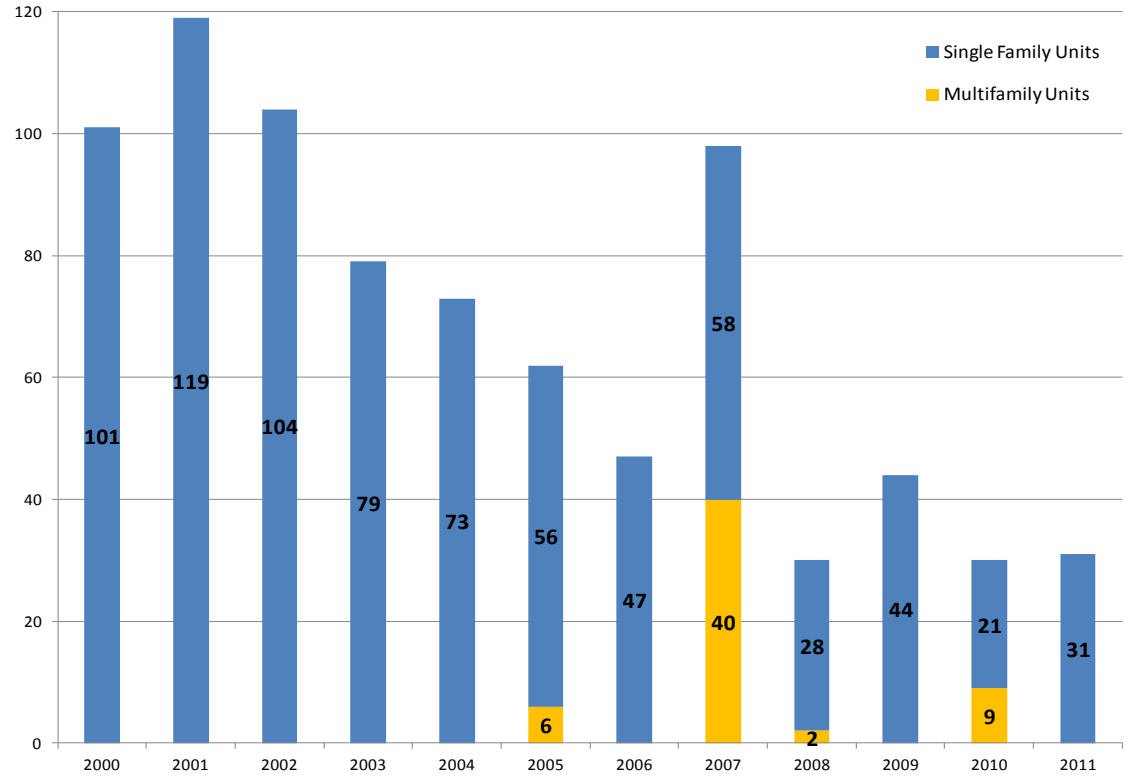
	1990	2000	2010
Family Housing	3,537	3,846	3,560
Non Family Housing	2,306	3,000	3,144
Non Family Percentage	40%	42%	47%
Residents Living Alone	1,313	1,859	1,917
Non Relatives Living Together	N/A	2,298	2,739

Source: U.S. Census, American Community Survey 2010 5-Year Estimates

Housing Development and Past Trends

As shown in Figure 13, over the last decade, a majority of permits issued for new home construction have been for single family homes. Between 2000 and 2011, only 28 new units were in multifamily structures, compared to the 747 issued for single family.

Figure 13. Building Permits Issued for New Residential Construction, 2000-2011



Source: Narragansett Building Inspector

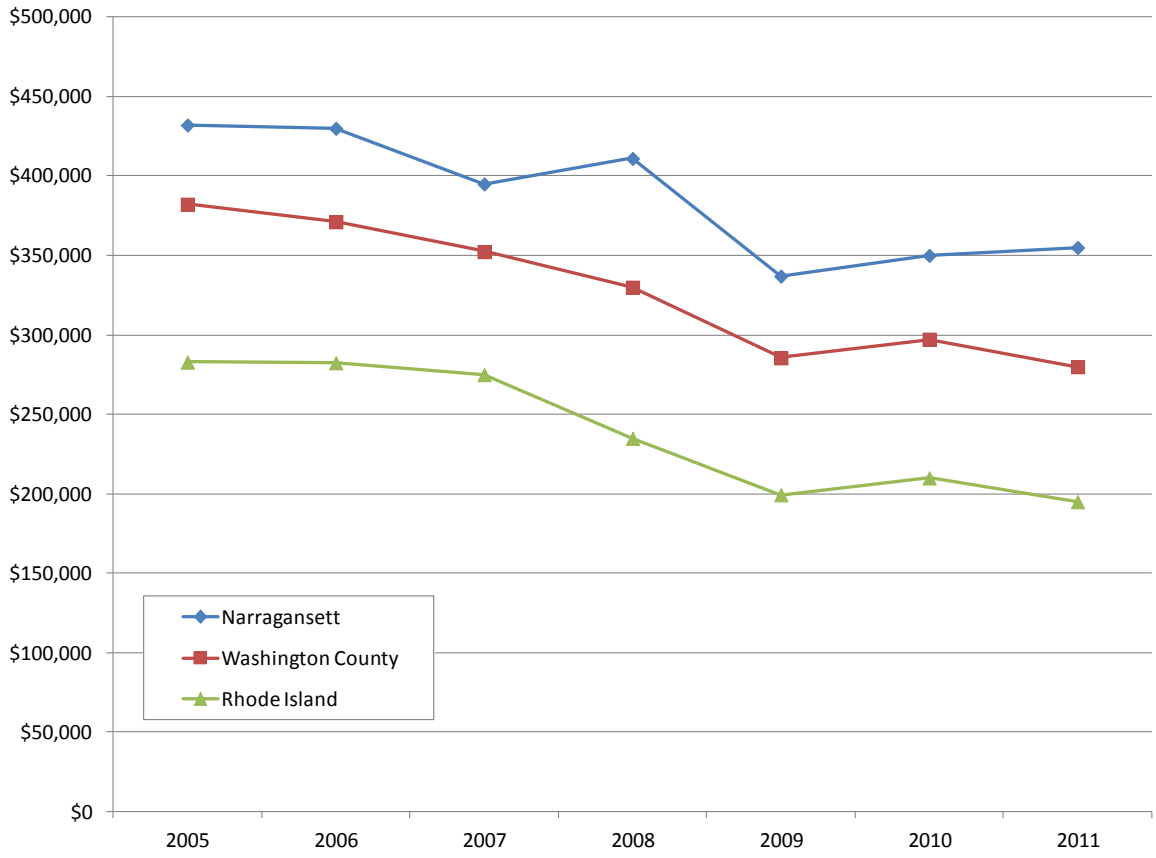
Median sales prices for single family homes in Narragansett continued to be the highest in Washington County (Table 41). Even as overall sales prices have declined in the past five years, Narragansett still remained a community with higher priced homes. In 2011, the median sales price for a single family home in Narragansett was $160,000 more than the statewide median price (Figure 14).

Table 41. Single Family Median Sales Prices, 2005-2011

	2005	2006	2007	2008	2009	2010	2011
Charlestown	$389,900	$392,500	$400,000	$390,000	$288,000	$350,000	$308,750
Exeter	$390,000	$377,500	$296,000	$350,000	$285,000	$311,500	$322,500
Hopkinton	$303,500	$282,500	$302,000	$249,450	$250,000	$225,000	$220,000
North Kingstown	$415,000	$397,450	$376,000	$344,000	$292,000	$304,505	$280,000
Narragansett	**$432,105**	**$430,000**	**$395,000**	**$411,050**	**$337,000**	**$350,000**	**$355,000**
Richmond	$315,000	$318,500	$276,325	$236,750	$265,000	$239,000	$230,000
South Kingstown	$374,500	$365,000	$355,000	$316,000	$286,250	$290,000	$280,000
Westerly	$335,000	$321,950	$349,900	$300,000	$282,000	$276,750	$275,000
Washington County	$382,200	$371,250	$352,450	$330,000	$285,625	$297,253	$280,000
Rhode Island	$282,900	$282,500	$275,000	$234,900	$199,400	$210,000	$195,000

Source: RI Realtor Association (www.riliving.com)

Figure 14. Single Family Home Median Sales Price, Narragansett, Washington County, and State, 2005-2011



Source: RI Realtor Association (www.riliving.com)

Housing Affordability

Like all communities, Narragansett strives to provide diverse, affordable housing to its residents with a range of household incomes. As discussed above, Narragansett home prices continued to be the highest in Washington County and one of its greatest challenges to overcome to attract young residents and families.

In addition to high home sale prices, there are many factors to consider when quantifying and characterizing the need for affordable housing in Narragansett. Understanding these issues will allow the Town to develop strategies to meet the demand.

The Cost of Living in Narragansett

One way to evaluate the need for affordable housing is by looking at how much a household pays for monthly shelter expenses such as rent and mortgage, including associated insurance and utilities. When a household pays more than 30% of its income on these items, it is considered unaffordable. Table 42 lists the average monthly rents from the Rhode Island Housing Rent Survey conducted in 2010. Rents in Narragansett were on average between $120 and $190 more that the state average. To afford these rents, a household would need an average income of $51,400.[22]

Table 42. Average Monthly Rents for Advertised Unfurnished, Non-seasonal Housing, 2010

	1 Bedroom	2 Bedroom	3 Bedroom
Narragansett	na	$1,285	$1,722
State Average	$943	$1,165	$1,531

Source: Rhode Island Rent Survey by RI Housing, 2010

In 2011, the median sales price for a single family home in Narragansett was about $355,000. A typical monthly housing payment for this home would be approximately $2,427 and would require a household income of $97,100.[23]

Some Narragansett residents are struggling with housing costs. In 2010, the ACS estimated that more than half of renters were paying 30% or more of their household incomes towards gross rent.[24] While this number appears to be significant, a majority of renters in Narragansett are college students with little to no income, presumably supplemented with outside assistance, such as educational grants and loans.

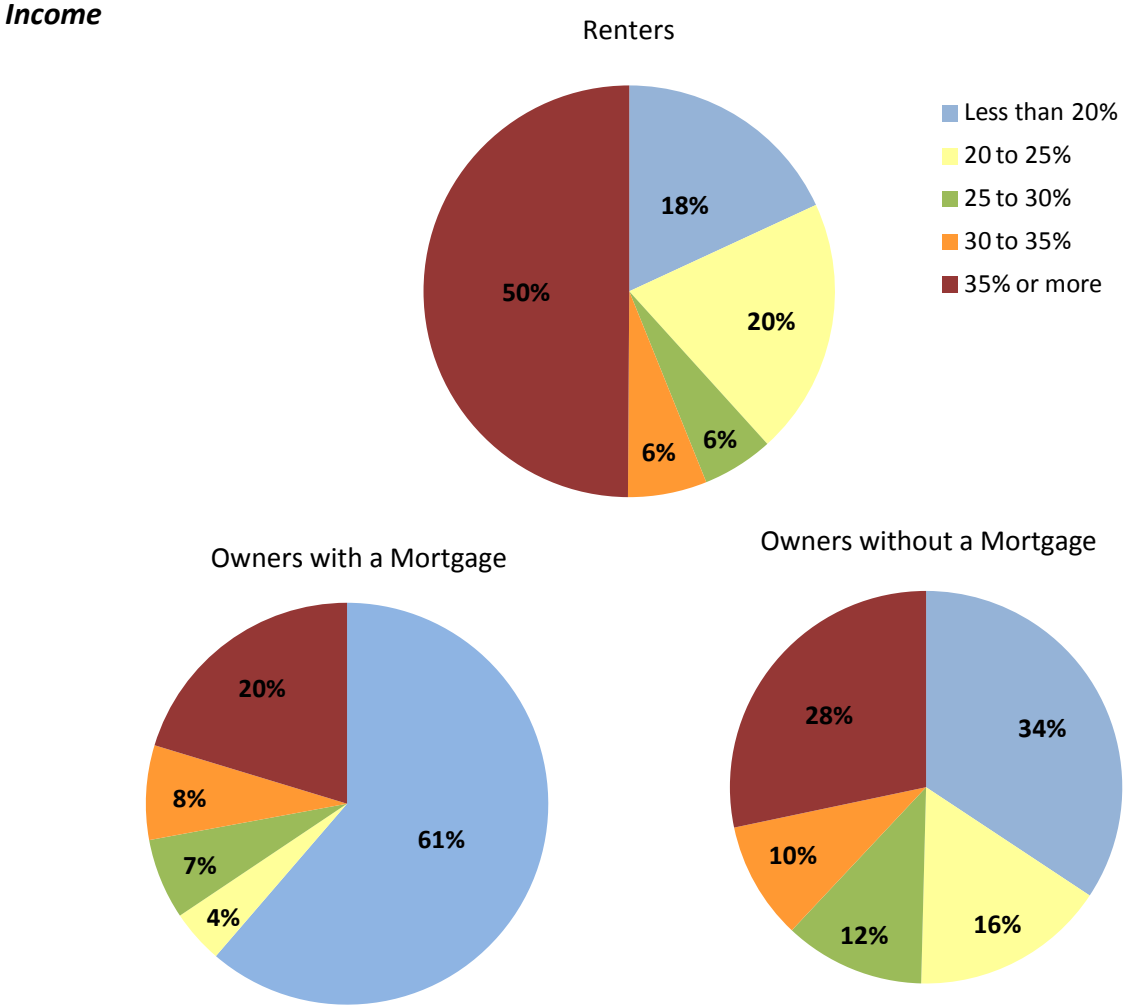
[22] HousingWorks RI Factbook, 2010. www.housingworksri.org

[23] HousingWorks RI calculates this using a 30-year mortgage at 4.69% interest (2010 average rate) with a 3.5% down payment, property taxes (the state's average rate of $16.44 per $1,000 of the home's valuation), hazard insurance ($75/month), and monthly mortgage insurance (1.15%/month).

[24] The U.S. Census defines "gross rent" as the amount of the contract rent plus the estimated average monthly cost of utilities (electricity, gas, and water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter (or paid for the renter by someone else). Gross rent is intended to eliminate differentials which result from varying practices with respect to the inclusion of utilities and fuels as part of the rental payment.

More telling figures are those for homeowners. Nearly 40% of those without mortgages (typically seniors) were paying more than 30% of their income towards selected monthly owner costs.[25] Just over one quarter of homeowners with a mortgage were paying expenses considered unaffordable. Figure 15 provides additional detail regarding these households and percentage of income towards housing expenses.

Figure 15. Gross Rent and Selected Monthly Owner Costs as a Percentage of Household Income



Source: American Community Survey 2010 5-Year Estimates

Foreclosures

There are many factors that contribute to the local rate of foreclosures, including the economic environment, housing availability and costs, and property values, among many others. Currently, economic recovery from the recession that started in 2008 is slow in Rhode Island. Leading up to the recession, the gradual increase of home sale prices in the state started in 2000 and peaked between 2005 and 2006. When the housing and credit market crash occurred in 2008, high unemployment spread throughout the country and Rhode Island had, at one point, the second highest rate, after Michigan. Property values depreciated and homeowners found themselves with homes worth less than

[25] The U.S. Census defines "selected monthly owner costs" as those costs calculated from the sum of payment for mortgages, real estate taxes, various insurances, utilities, fuels, mobile home costs, and condominium fees.

their mortgages. Initially, many received financing under very loose lending practices and subprime adjustable mortgage rates that, coupled with high unemployment, ultimately resulted in payments they could not afford. Foreclosures throughout the state reached record highs and in 2009 the state's foreclosure rate ranked 10th in the nation. Those hit the hardest were the more urban communities of Providence, Warwick, Cranston, Pawtucket, and Woonsocket.

In 2011, Rhode Island still led the New England states in foreclosure initiations. While the number of foreclosures filed decreased from 2009 to 2010 and the state's rate of foreclosure initiations and serious delinquencies dropped, the number of actual foreclosures increased in 2011. Some attribute this to the slow processing procedures. Conditions may be improving for residents statewide. In Narragansett, between 2009 and 2011, 38 foreclosures were filed, or 1.2% of mortgaged housing stock, a rate much lower than many Rhode Island communities. There were four filed in 2011.[26] The few foreclosures can be attributed to stable employment and household incomes of residents.

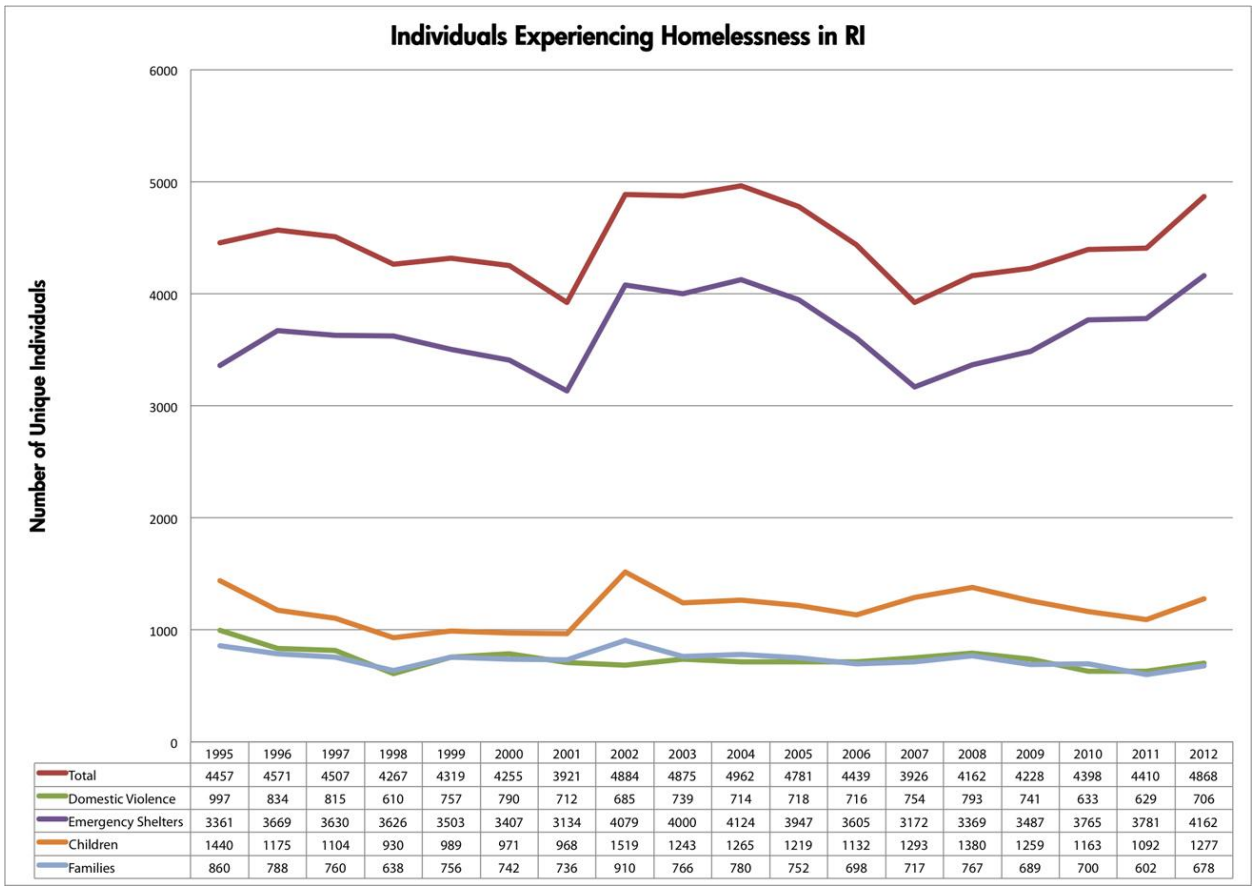
Homelessness

According to the Rhode Island Coalition for the Homeless, the number of Rhode Islanders entering into the homeless shelter system at any given time a given year has steadily increased since 2007. In 2012, the number of individuals reached nearly 4,900, 26% of which were children (Figure 16).

The number of Narragansett residents that are or were formerly homeless during a given year is not known. According to the 2008 annual report of the Rhode Island Emergency Shelter Information Project, 34 clients in area shelters identified Narragansett as their last place of residence (2007-2008). Based on the increasing demand for beds statewide, it can be assumed that a similar increase has occurred in Narragansett. Resources for those that are homeless or on the verge of becoming homeless in Narragansett are the Domestic Violence Center of South County (Wakefield), Welcome House of South County (Peace Dale), and Warm Shelter (Westerly).

[26] HousingWorks RI Special Report: Foreclosures in Rhode Island. Spring 2012. www.housingworksri.org

Figure 16. Individuals entering into the homeless shelter system, 1995-2012



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total	4457	4571	4507	4267	4319	4255	3921	4884	4875	4962	4781	4439	3926	4162	4228	4398	4410	4868
Domestic Violence	997	834	815	610	757	790	712	685	739	714	718	716	754	793	741	633	629	706
Emergency Shelters	3361	3669	3630	3626	3503	3407	3134	4079	4000	4124	3947	3605	3172	3369	3487	3765	3781	4162
Children	1440	1175	1104	930	989	971	968	1519	1243	1265	1219	1132	1293	1380	1259	1163	1092	1277
Families	860	788	760	638	756	742	736	910	766	780	752	698	717	767	689	700	602	678

Source: RI Coalition for the Homeless (www.rihomeless.org)

Low and Moderate Income Units

In 2004, the Rhode Island state legislature passed the Low and Moderate Income Housing Act (RIGL §45-53) in an effort to meet a statewide shortage of housing affordable to low and moderate income households. Within one year, the Act required each community to prepare an affordable housing plan that described the local demand and outlined strategies the community would take to meet the needs of its low and moderate income residents. The Act mandated a goal that 10% of each community's housing stock must be affordable to low and moderate income households, defined as:

> "…any housing whether built or operated by any public agency or any nonprofit organization or by any limited equity housing cooperative or any private developer, that is subsidized by a federal, state, or municipal government subsidy under any program to assist the construction or rehabilitation of housing affordable to low or moderate income households, as defined in the applicable federal or state statute, or local ordinance and that will remain affordable through a land lease and/or deed restriction for ninety-nine (99) years or such other period that is either agreed to by the applicant and town or prescribed by the federal, state, or municipal government subsidy program but that is not less than thirty (30) years from initial occupancy." (RIGL §45-53-3 Definitions)

Narragansett completed its Affordable Housing Plan and received approval in 2005. During the current update process, it has been integrated into the Comprehensive Plan.

Low and moderate income levels are established by the U.S. Department of Housing and Urban Development (HUD) annually for each HUD Metro Fair Market Rent Area. A low income household has an income at or below 80% of the area median income. A moderate income household has an income between 80% and 120% of the area median income. These figures are adjusted by household size. The Town has implemented several strategies to meet the state-mandated low and moderate income (LMI) units goal of 10%. As shown in Table 43, LMI units comprise 3.5% of the Town's 7,156 year-round housing units. To meet the 10% goal, an additional 466 LMI units are needed.

Table 43. Housing Stock and LMI Unit Summary, 2011

Total housing units	9,470
Less seasonal units	2,314
Total year-round units	7,156
10% state-mandated goal	716
Total LMI Units	250
LMI units as a percent of total year-round units	3.5%
Additional LMI units to meet state-mandated 10% goal	466

Source: 2010 U.S. Census, RI Housing (5/20/2011)

As of May 2011, 250 LMI units were distributed among housing types that met the needs of the elderly, families, and populations with special needs and are detailed in Table 44. Slightly less than half of the LMI units were dedicated to families (120 units or 48%) or the elderly (108 units or 43%). Elderly LMI units were all rentals and family LMI units were a mix of rental and homeownership. A small percentage (8.8%) was dedicated to residents with special needs, specifically supportive units for rent (9 units) and group home beds (13 units).

Table 44. Existing LMI Units, May 2011

Development Name	Type	Tenure	Actual Address	Total LMI units
Elderly				
Beachwood Apartments	RIH Elderly	Rental	30 Kingstown Road	56
Mansion Avenue Apartments	Public Hsg-Elderly	Rental	25 Fifth Avenue	4
South Wind Apartments	RIH Elderly	Rental	29 South Pier Road	48
Elderly Subtotal				**108**
Family				
Boon Street	Public Hsg - Family	Rental	129 Boon Street	2
Clarke Point	RIH Family	Homeownership	190 Clarke Road, Bldg B; 200 Clarke Road, Bldg A	40

Development Name	Type	Tenure	Actual Address	Total LMI units
Coffey Avenue	RIH Family	Homeownership	12,14 Coffey Avenue; 9, 1 Frances Avenue	4
Continental Street	RIH Family	Rental	33 Continental Street	2
Fieldstone Apartments	RIH Family	Rental	125 Knowlesway Extension	24
Kingstown Road	Public Hsg - Family	Rental	48, 129, 131 Kingstown Road	7
Perkins Avenue	Public Hsg - Family	Rental	18 Perkins Avenue	1
Rockland Street	Public Hsg - Family	Rental	6 Rockland Street	2
Water's Edge Apartments	RIH Family	Rental	130 Caswell Street	32
Wayland Trail	RIH Family	Homeownership	50 Wayland Trail	1
Fifth Avenue/ Robinson Street	RIH Family	Rental	50A, 50B Fifth Avenue	2
Surfside Condominiums	Other-Family	Homeownership	20 Narragansett Avenue, #804, 904	3
Family Subtotal				**120**
Special Needs				
Galilee Mission	Supportive Units	Rental	268 Kingstown Road	9
Group Home Beds	Group Home Beds	NA	NA	13
Special Needs Subtotal				**22**
Total LMI Units				**250**

Source: RI Housing, 5/20/2011

Since May of 2011, the Town has approved several projects that include LMI units. Two have been constructed: Narragansett Highlands with 16 LMI units and Mettatuxet Replat with two LMI units. Further, projects have been approved but are not yet built. They are Farm House with three LMI units, Atlantic East with 16 LMI units, and Christian Brothers with 90 LMI units. As shown in Table 45, these units will bring total LMI units to 377, or 5.3% of year-round housing.

Table 45. LMI Units Constructed and Approved Since May 2011

Development Name	Total LMI Units
Constructed	
Narragansett Highland	16
Mettatuxet Replat	2
Approved but Not Constructed	
Farm House	3
Atlantic East	16
Christian Brothers	90
Total Anticipated New LMI Units	**127**
Existing LMI Units	**250**
Total LMI Units	**377**
Percentage of Total Year-Round Housing	**5.3%**

Housing Needs

Overall Housing Needs

The Town projects that in the next 20 years the population is estimated to increase by 2,800. This number is tied to the buildout analysis and the estimate of 1,009 new year-round housing units (2.78 persons per family household). Whether this full number of new units is realized is contingent on a property owner's desire to build or even subdivide their lot in some instances. Alternatively, the State projects the Town's additional population in 20 years to be 413, which, assuming they would be year-round residents, would be accommodated by about 150 new housing units (2.78 persons per family household).

Overall, single family homes have been the dominate construction activity. The market for these types of homes exists in Narragansett, and it is assumed that they will continue to be the dominate new construction.

Fewer duplex and multi-family buildings have being built. Less than 10 permits have been issued in the past five years. Multi-family housing can increase the market affordability of Narragansett to younger families and professionals as well as to seniors looking to down-size but want to stay in the community. These units might only have one or two bedrooms. Smaller units would be most appropriate as infill in the Pier Area, near shopping, restaurants, the library, and the schools. This area is also accessible to one of the RIPTA bus routes that serve the Town. The area also has water and sewer service, and fewer environmental constraints to development.

Multi-unit housing also opens opportunities for year-round rentals, an expressed housing need. The number of year-round rentals in Narragansett has been on the decline for several reasons, including the seasonal nature of the community. Single family homes also can be rentals, but may not be as affordable in the housing market.

Low and Moderate Income Housing Needs

There exists a clear demand for more affordable housing options in Narragansett. As demonstrated in the charts in Figure 15, 28% of homeowners with a mortgage and 38% of homeowners without a mortgage

pay more than 30% of their income on housing costs, creating a housing cost burden. Many of these households are predominately elderly, and this population and economic condition can be expected to grow as the Baby Boomers age. Equally, the loss of residents between the ages of 25 and 40 indicate that young families are leaving town, and the need for affordable housing opportunities for families still remains high. With the significant number of seasonal rentals, the opportunities for moderate and low income households to rent in Narragansett becomes a greater challenge. Both of these groups can benefit from more affordable housing opportunities.

Current LMI household types available in Narragansett are:

- Elderly: 108 units
- Family: 120 units
- Other (Special Needs): 22

To determine the projected number of LMI units that the Town will need in the future, the 1,009 year-round housing units projected based on the buildout analysis (Appendix B) were used. These additional units would increase the 10% mandated goal of 716 by 100 units. Therefore, the total projected need for affordable housing at full buildout would be 816 units.

HISTORIC, CULTURAL AND SCENIC RESOURCES

Narragansett's historic and cultural resources, along with its scenic views and vistas, are important attributes that give the town its sense of place. Distinguishing landmarks and notable views can easily be identified as being in Narragansett, like The Towers, the Harbor of Refuge, or the Point Judith Lighthouse, and these features contribute greatly to Narragansett's character as a seaside community.

Historical Overview

The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) published a town- wide inventory of Narragansett's historic and cultural resources. The survey offers background on the development of Narragansett. According to RIHPHC, Narragansett was part of the lands of the Narragansett Indians prior to English settlement. English colonists began coming to New England in the 1650s and over the next half-century, Rhode Island, Connecticut, and Massachusetts vied for control over Narragansett lands. Eventually, the British crown placed the region under Rhode Island authority.

After the defeat of the Narragansetts during King Philip's War (1675-6), European settlements spread throughout the region. Starting in the late 17th century, large rural estates along the coast from Wickford to Charlestown were created. Among these larger landholdings, the "Narragansett Planter Society," landowners that grew and exported agricultural products through the use of slave labor, evolved, but died out before the Revolutionary War. Agriculture, however, remained an important part of the local economy until the 19th century. Narragansett's primary settlements through the 18th and 19th century were at Narragansett Pier and South Ferry, the latter of which was on an important transport route to Newport.

The Industrial Revolution that impacted so many other communities in Rhode Island seemed to bypass Narragansett, primarily because of its lack of streams that could generate enough power to fuel large factories. During this period, the local economy was based on farming and shipping, with secondary occupations such as shipbuilding.

By the mid-19th century, however, Narragansett's economy shifted, and people began visiting Narragansett to experience its seaside attractions. Two significant developments occurred that shaped the town's architectural character: hotels were built at Narragansett Pier and large summer homes were constructed by affluent out-of-towners. A primary form of transportation to get to the Narragansett was the Narragansett Pier Railroad, which brought visitors to the Pier area from Kingston Station. By the last quarter of the 19th century, Narragansett had joined Newport and Watch Hill as one of the premier summer destinations in Rhode Island.

While a popular destination through the beginning of the 20th century, Narragansett's popularity began to wane. The Narragansett Pier Railroad eventually stopped running because of increased use of the auto, which encouraged more day trips and fewer visitors extending their stay.

Structures were destroyed through several devastating fires. In 1900, two of the Pier's premier landmarks, the Rockingham Hotel and the Casino, were destroyed in a great conflagration which consumed several adjacent business blocks. Only The Towers (a part of the Casino) survived. The Sprague Mansion, also known as Canonchet, burned to the ground in 1909. In the 1920s two more Pier hotels burned: the Imperial in 1925 and the Revere Hotel in 1928. In the early 1980s, one of two remaining hotels, the Greene Inn was destroyed by fire.

The 1938 Hurricane eventually brought an end to the resort hotel era in Narragansett. The storm wiped clean whole areas of beach front, including hotels and beach pavilions at the Pier, and the fishing villages of Galilee and Jerusalem.

Between 1940 and 1960, the Pier became a blighted commercial district and derelict summer homes along Ocean Road were demolished. The Urban Renewal Program of the early 1970s demolished several blocks in the Pier. Between 1970 and 1972, the entire 28 acres was cleared to create a super-block for redevelopment. Not only was the historic fabric demolished, but also the street grid network. During this time and for several decades previous, historic seaside summer "cottages" (Shingle-style and stone mansions) along Ocean Road were considered white elephants - too large to heat and maintain. Many were torn down to be replaced by contemporary homes for year-round occupancy.

The latter part of the 20th century saw a renewed interest in Narragansett as a destination. While new development, both seasonal and year-round, in the North and South Ends of town has been characterized as suburban type housing, many of the historic homes in the Pier area and along Ocean Road have been restored to preserve a significant portion of the Town's remaining historic character.

Not only did Urban Renewal remove the commercial heart of the Pier, it replaced the old buildings with new architecture contextually alien to New England seaside architecture. Significantly, this area remains set apart from surrounding historic residential fabric. A phased redevelopment plan for the entire site has been proposed by the private owner of the Pier Marketplace. The plan involves complete rehabilitation of the existing 88 apartment units and construction of a new residential building bringing the total to 104 dwelling units. Later phases will include expansion and rehabilitation of the existing commercial and retail uses.

Historic Districts and Structures

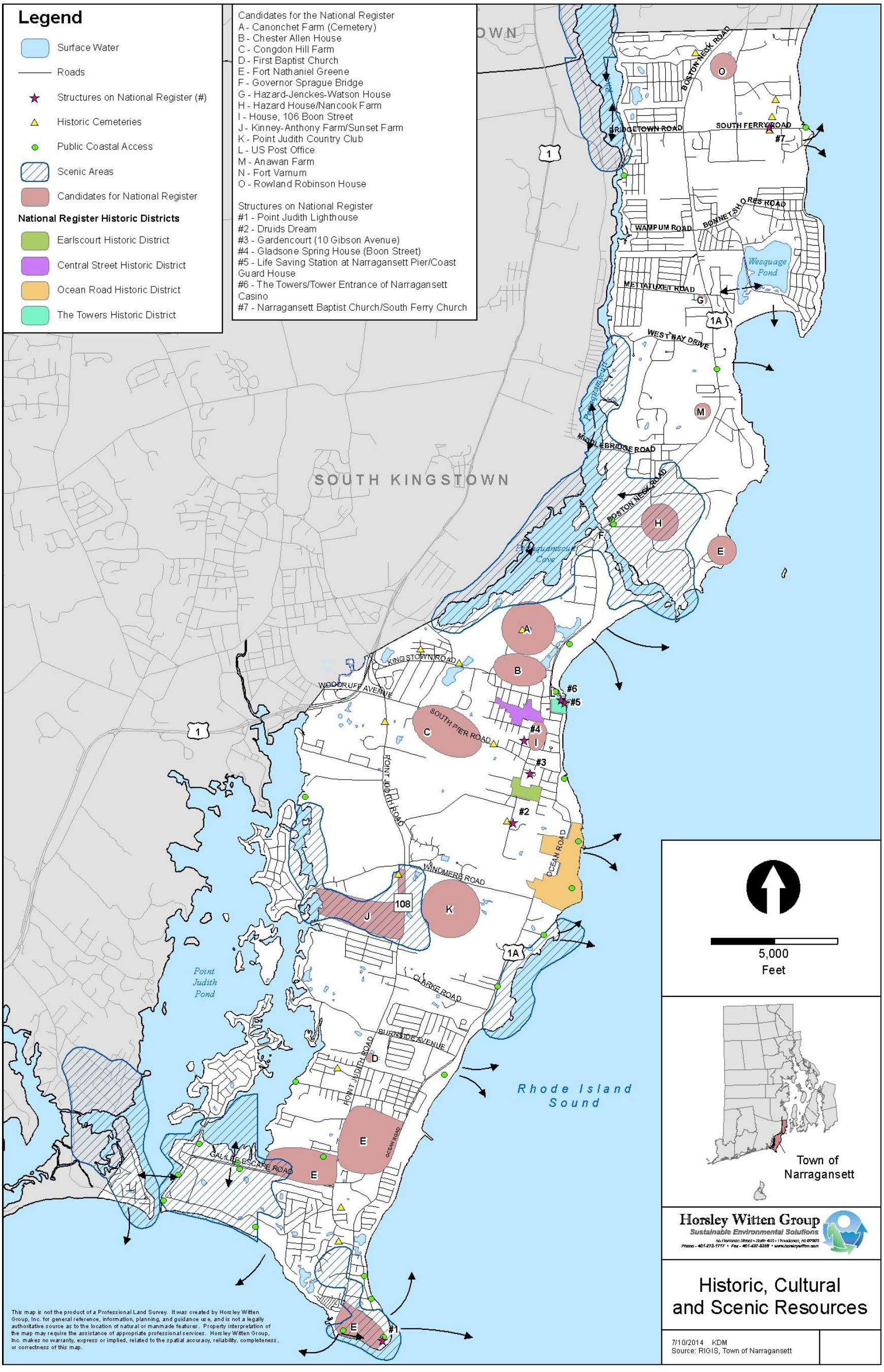
The RIHPHC historic and cultural survey of Narragansett is a compilation of material from two separate surveys of the Town conducted by the RIHPHC in 1974 and in 1986. The first survey, limited to the Narragansett Pier area, resulted in the publication of Narragansett Pier, Narragansett, RI Statewide Historical Preservation Report W-N-1, 1978. The project was initiated to identify resources worthy of inclusion in the National Register of Historic Places, which is a federal list of structures, sites, areas, and objects significant to American history, architecture, archaeology, and culture and the official inventory of the Nation's cultural and historical resources worthy of preservation. Most properties entered are nominated for inclusion by state historical preservation agencies like the RIHPHC. All properties must be reviewed and approved by the U.S. Department of the Interior prior to their entry in the Register.

The 1986 survey is a result of the RIHPHC's ongoing program to evaluate properties of historical, archaeological, and architectural significance in Rhode Island. In all, over 160 resources in Narragansett were researched and recorded by RIHPHC. The report is a significant inventory and appraisal of the remaining cultural resources, which individually and in districts convey the heritage and architectural character of the Town and its sense of place. As a result of survey activities, resources and districts have been listed or have been recognized as eligible for listing in the National Register of Historic Places. They are presented in Table 46 and shown in Map 11.

Table 46. Properties Listed on or Eligible for the National Register of Historic Places

Properties Listed on the National Register of Historic Places		
Resource	**Location**	**Date Listed**
Central Street Historic District	Central and Caswell Streets	8/18/82
Druidsdream	144 Gibson Avenue	7/20/89
Dunmere Gatehouse and Grounds	530-80 Ocean Road	9/23/05
Earlscourt Historic District	Earles Court and Gibson Avenue	8/18/82
Gardencourt	10 Gibson Avenue	8/18/82
Gladstone Spring House	145 Boon Street	5/10/84
Life Saving Station at Narragansett Pier/Coast Guard House	40 Ocean Road	6/30/76
Narragansett Baptist Church/South Ferry Church	South Ferry Road	11/25/77
Ocean Road Historic District	Ocean Road, Hazard and Newton Avenues	8/18/82
Point Judith Lighthouse	1470 Ocean Road	3/30/88
The Towers/Tower Entrance of the Narragansett Casino	Ocean Road	1969
The Towers Historic District	Exchange, Taylor and Mathewson Streets and the Atlantic Ocean	8/18/82
Properties Which Deserve Consideration for Nomination		
Resource	**Location**	
Anawan Farm	650 Boston Neck Road	
Barnes Newberry, Jr., House	Ocean Road	
Breakers Archeological Site	off Ocean Road	
Campbell [archeological] site	Boston Neck Road	
Canonchet Farm (Cemetery)	106 Anna Hoxsie Lane	
Chester Allen House	Narragansett Avenue	
Congdon Hill Farm	South Ferry Road	
Fort Nathanial Greene	Old Point Judith Road	
Fort Varnum	Old Boston Neck Road South	
Governor Sprague Bridge	Boston Neck Road	
Hazard House/Nancook Farm	Old Boston Neck Road	
Hazard-Jenckes-Watson House	850 Boston Neck Road	
Kinney-Anthony Farm/ Sunset Farm	Old Point Judith Road	
Point Judith Country Club	Windermere Road	
Point Judith First Baptist Chapel	796 Point Judith Road	
Rowland Robinson House	Old Boston Neck Road North	
Sprague I Archeological Site	off Boston Neck Road	
United States Post Office	Exchange Street	

Source: Town of Narragansett



Map 11. Historic, Cultural and Scenic Resources

Scenic Views

Scenic resources have been both formally and informally inventoried. Notable scenic areas, also depicted in Map 10, are along Narrow River and The Narrows, the area around the Galilee Escape Road, Jerusalem, Point Judith, Scarborough Beach and the area around Sunset Farms, to name a few. Other views are to and from Wesquage Pond, Narragansett Town Beach, Hazard Rock, and Black Point, among others.

Cultural Resources

The Town also has developed a rich cultural scene through the visual and performing arts as well as events that showcase important local landscapes and natural history. Throughout the year, events are held at a variety of venues throughout town that highlight Narragansett's unique seaside character. Activities include live music, plays, festivals, art exhibits, lectures, and tours. Some locations where these events and activities are held include:

- South County Museum
- Narragansett Community Center
- Narragansett Town Hall
- Veterans Park
- The Towers
- Narragansett Bay Classroom at URI's Narragansett Bay Campus

Historic Cemeteries

The RI Advisory Commission on Historical Cemeteries recognizes several historical cemeteries in the Town of Narragansett. Some of the original inhabitants of Narragansett are buried in these cemeteries in graves dating back to the mid-1700s. These people were the first settlers to farm the land, build houses, stores, railroads, and shipping piers. The historical cemeteries in Narragansett reflect the history of the town and the family heritage of many Narragansett residents. Table 47 lists the names of these cemeteries and their locations in the town and they are also shown on Map 11.

Table 47. Narragansett Historical Cemeteries

Historical Cemetery Name or Lot	Location
William Knowles Cemetery	Off Point Judith Rd, at intersection of Sand Hill Cove Rd. (approximately 300 ft. back)
Green Kenyon Lot	On Green Kenyon Driftway, east of house #51
Gibson Avenue Cemetery	Gibson Avenue, opposite B&B
Joseph N. Austin Cemetery	Off Point Judith Rd and Foddering Farm Rd
Congdon Perkins Lot	South Pier Rd on property #145
Lucky Star Lot	In front of shopping center on Point Judith Rd
Avice Street Cemetery	On the corner of Pleasant and Avice, next to the road.
Sprague Park Cemetery	Next to tennis courts on Kingstown Rd
Canonchet Farm Cemetery	Next to South County Museum's main gate
Franklin-Gardiner Cemetery	Opposite South Ferry Meeting House, South Ferry Rd

Historical Cemetery Name or Lot	Location
Stanton Lot	800 ft. off of South Ferry Road behind Meeting House
Rowland Robinson Burial Ground	Behind #30 Riverdell off of Ginger Lane
Collins Lot	Behind #37 Horizon Drive
John H. Knowles Lot	Next to #29 Anglers Court

Source: Town of Narragansett

NATURAL FEATURES

As a coastal community, Narragansett's natural features are diverse and play a key role in the community's quality of life. They strongly influence the town's three economic bases: fishing industries, real estate market, and tourism, all of which are dependent on the health of the natural environment.

Geology

Bedrock Geology

Map 12 depicts the bedrock and surficial geology. Narragansett is composed of two principal types of bedrock. The 275 million year old Narragansett Pier Granite located from just south of Wesquage Pond south to Point Judith was formed from production of magma beneath the earth's surface brought about by a thickening of the earth's crust during continental collision. Black Point and Hazard Rocks are two places in the town where Narragansett Pier Granite can be easily seen.

The second type of bedrock, the Rhode Island Formation, is located primarily in the northern portion of the town. These 300 million year old rocks were originally deposited as sediments in the Narragansett Basin. These sediments were subsequently changed into the meta- sedimentary rocks that we see today by the intense heat and pressure generated by the collision of Africa with eastern North America. A good example of the Rhode Island Formation occurs at Bonnet Point.

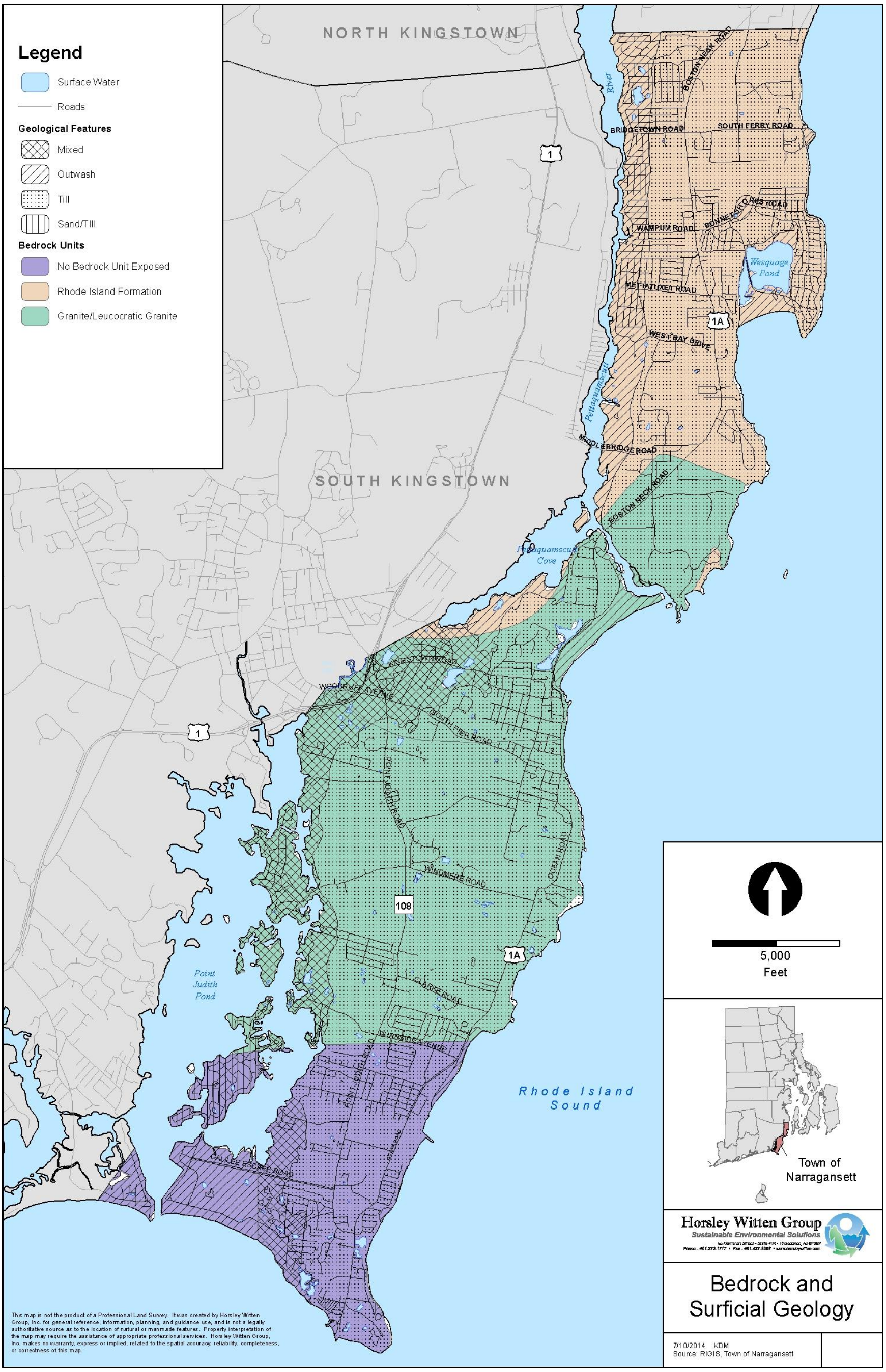
From an economic perspective, the rocks of the Rhode Island Formation have little value as they are too soft for construction purposes. It is interesting, however, to observe these rocks in many of the stone walls in the northern portion of town. The Narragansett Pier Granite has been used locally but the varying color and texture of the rock have made extensive quarrying uneconomical.

Surficial Geology

Map 12 also shows surficial geology. Surficial deposits are sandwiched between the bedrock and the soils. Most of the surficial deposits in Narragansett are of glacial origin. Other deposits include wind deposited or aeolian materials and shoreline erosion and deposition. It is of interest to note that prior to the last glacier, the Narrow River valley was joined with the Saugatucket River valley. A buried valley extends southwestward from Pettaquamscutt Cove to Upper Pond and is filled with glacial deposits to a depth as great as 100 feet below sea level.

In Narragansett, 80% of the surficial deposits are glacial till, a poorly sorted and compact mixture of boulders, gravel, silt and clay. The till was deposited directly in front of the glacier, and is referred to as either ground moraine or end moraine. End moraine which covers most of Point Judith Neck marks the one time position of the edge of the ice sheet. Till is generally not a good source for municipal drinking water because its compacted materials will not allow groundwater to flow easily.

The remainder of the surficial deposits within Narragansett was laid down by the melting streams emanating from the margins of the retreating glacier. Outwash, as these deposits are called, is a well sorted mixture of sand and gravel. Outwash deposits in Narragansett are primarily located along the shores of Narrow River and along the shores and islands of Point Judith Pond. When of sufficient thickness and transmissivity, outwash deposits are excellent locations for municipal wells. In Narragansett, however outwash deposits are too near salt water to be of any substantial value as a drinking water resource. Withdrawal of water from these outwash areas results in the intrusion of salt or brackish water and the contamination of well water.



Map 12. Bedrock and Surficial Geology

Soils

The Rhode Island Soil Survey provides comprehensive soil mapping and classification. It also characterizes the constraints and benefits of each soil type in relation to septic systems, construction, recreational use, agriculture and natural resource management. The majority of soils in Narragansett originated from glacial till (Map 12). These soils are highly compacted and contain soil layers that are nearly impervious to water. Low lying areas and localized depressions remain saturated throughout much of the growing season.

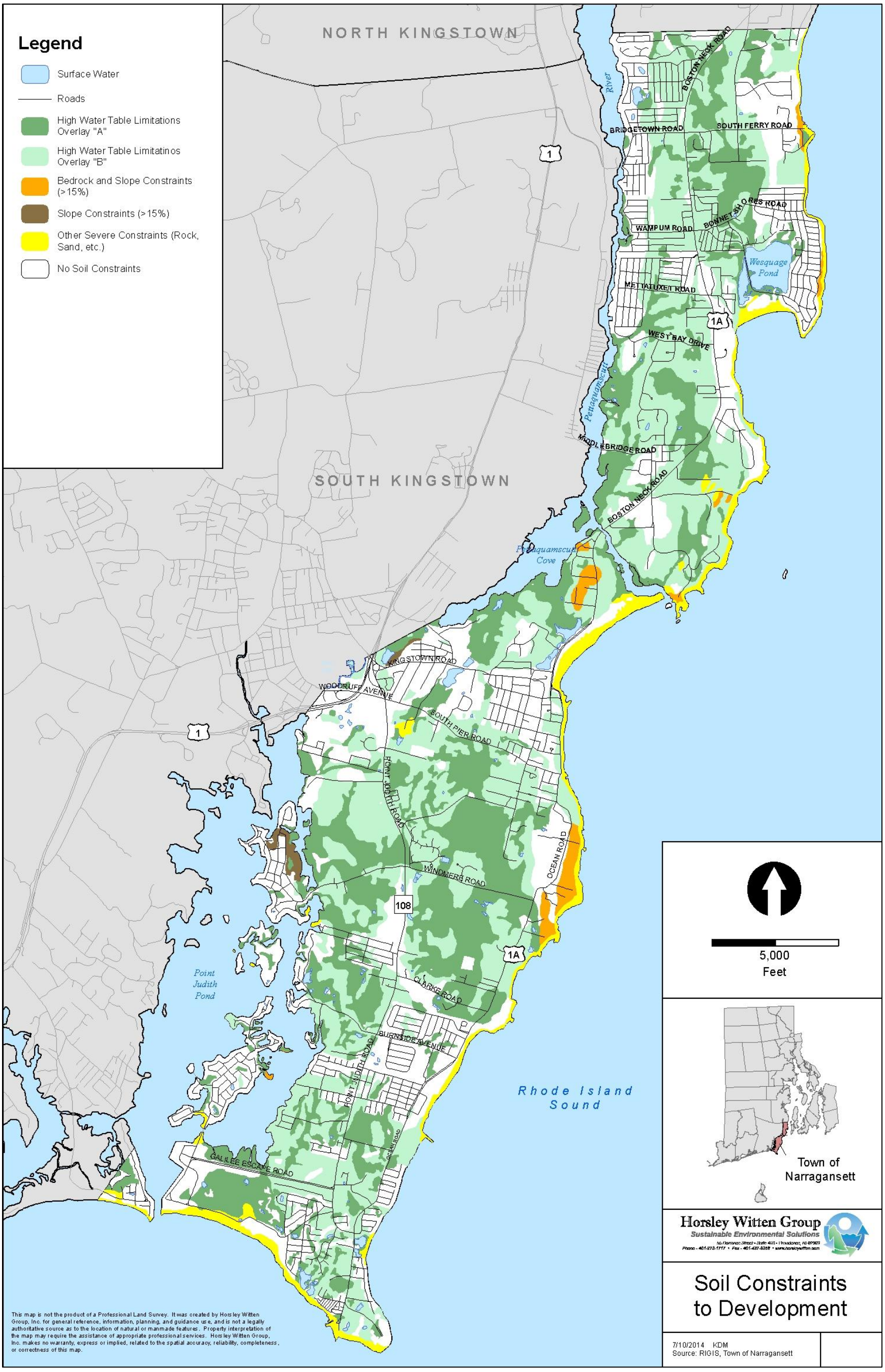
In better drained areas, these glacial till soils are characterized by slow permeability and seasonally high water tables. The use of these soil types are regulated under Section 4.5 (High Water Table District) of the Narragansett Zoning Ordinance. Approximately 73% of the soils in Narragansett present severe constraints for the efficient operation of septic systems.

Map 13 depicts the soil types included in the Town's High Water Table Limitation Overlays "A" and "B," which are soils with rapid percolation rates and soils constrained by other characteristics such as excessive stoniness or steep slopes. In the "A" district the water table is zero to 18 inches from the surface. High water table "A" soils often correspond to wetlands. In the "B" district the water table is 18 to 36 inches from the surface. Due to the high water table and low permeability of many of Narragansett's soils, septic system functioning is impaired, foundations flood, and frost heaving disturbs roads and other improvements on the ground's surface. High silt content, slopes and high water tables also make many of Narragansett's soils extremely prone to erosion. Generally these soils cannot be developed without sewers and/or expensive drainage improvements. Town regulations restrict septic systems and in-ground fuel tanks in high water table areas.

Excessively permeable soils include those soils with percolation rates of five minutes per inch or greater. These out wash soils have sandy or gravely subsoils and, due to the rapid percolation, may inadequately treat septic effluent. This is particularly true of nitrates, which in excess cause eutrophication of estuarine waters and pathogenic bacteria and viruses that may impact human health. CRMC requires denitrification septic systems for dwellings and businesses located within its Special Area Management Plans; however, the overriding requirement for denitrification is implemented through Rule 39 of the RIDEM Onsite Wastewater Treatment System (OWTS) regulations. Rule 39 requires denitrification systems for new or repaired OWTSs anywhere within the Critical Resource Boundary.[27]

At this time excessively permeable soils are not covered by Section 4.5 of the Zoning Ordinance. It is recommended, however, that these soils be incorporated into the soil overlay district. The Town may also require a denitrification system with the granting of a special exception, staff review or variance under Section 4.4 (Coastal Resources Overlay District) or 4.3 (Coastal and Freshwater Wetlands) of the Narragansett Zoning Ordinance.

[27] www.dem.ri.gov/programs/water/owts/regulations-reports/crabndry/php.



Map 13. Soil Constraints to Development

Wetlands, Hydrology and Floodplains

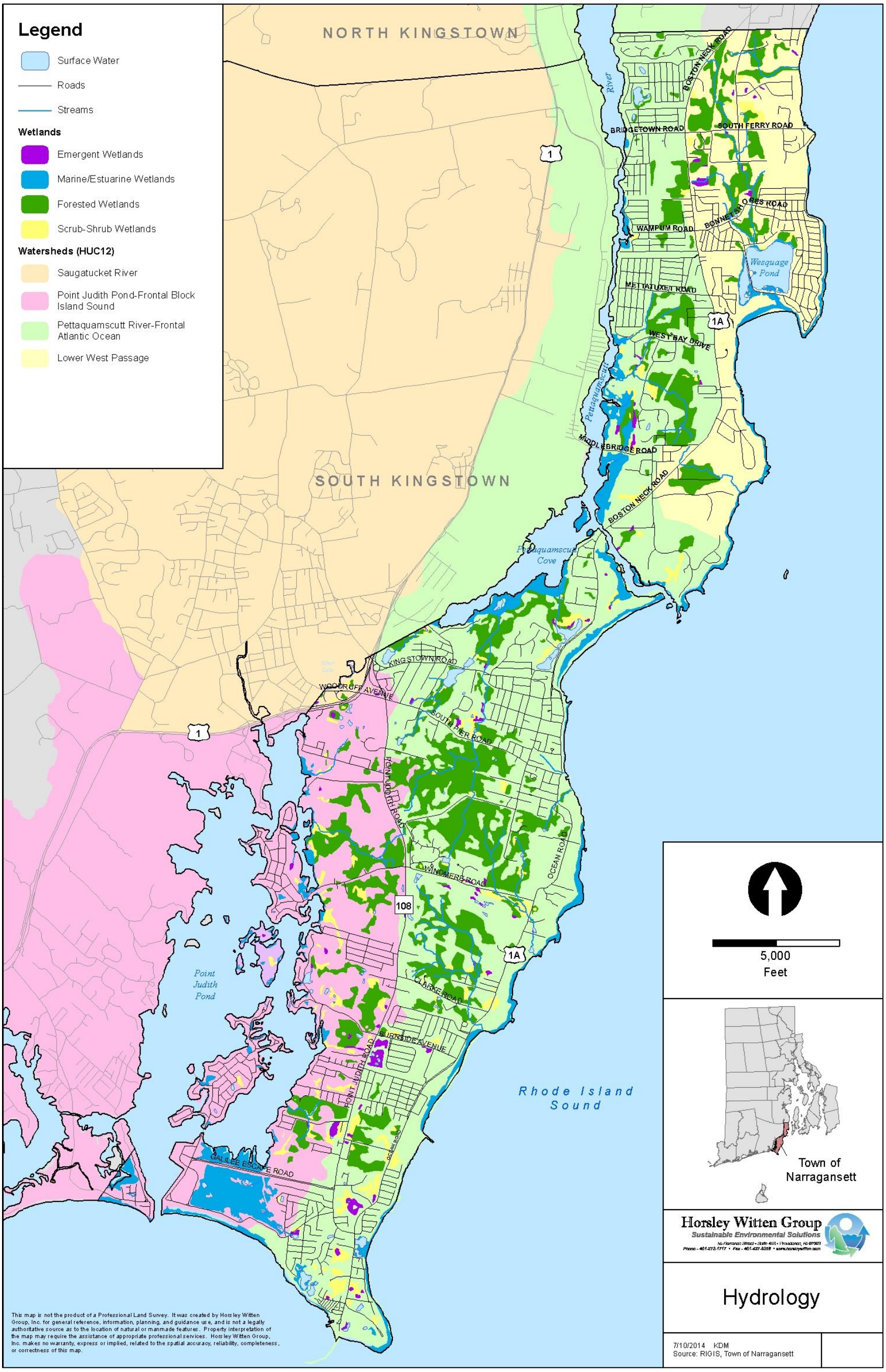
Wetlands

Wetlands, legally defined under Section 2-1-20 of the RI General Laws (RIGL), have special biological and hydrological characteristics. Wetlands serve several important functional values including, flood control, water purification, erosion control, groundwater recharge and discharge, increasing natural system productivity, providing spawning and breeding ground for fin fish and shellfish and providing and maintaining wildlife habitat and recreational opportunities. Because of these public benefits, wetlands have been deemed unsuitable for development and are protected to varying degrees by federal, state and local regulations and development restrictions. Locally, wetlands are regulated under the Town's Coastal and Freshwater Wetlands Overlay District (Section 4.3 of the Narragansett Zoning Ordinance). Size limitations for Narragansett wetlands differ from those of the State regulations. Special reviews, variances and special exceptions are required for activities within the overlay district. The overlay includes a 100 foot buffer in sewered areas platted before August 7, 1989 and a 150 buffer in unsewered areas or sewered areas platted after the above date.

Map 14 shows local wetlands and other hydrological features. The State categorized wetlands into five principal types: marine, estuarine, riverine, lacustrine, and palustrine. Marine wetlands include the ocean and associated intertidal zone. Estuarine wetlands include those wetlands, mudflats, beaches and open water, associated with ecological systems that receive both fresh and saltwater inputs. Narrow River (Pettaquamscutt River) and Point Judith Pond are both classified as estuarine systems. Lacustrine wetlands are associated with fresh, open water areas greater than 20 acres in size. There are no lacustrine wetlands in Narragansett.

Palustrine wetlands are associated with small (less than 20 acres) fresh, open water areas, or they may be vegetated freshwater systems such as red maple swamps or cattail marshes. The five main wetland categories are further described according to the following vegetative types: forested (trees greater than 20 feet tall), scrub shrub (woody vegetation less than 20 feet tall) or emergent non-woody vegetation).

In Narragansett, as elsewhere in the state, there is often a correlation between soil types and the location of wetlands. Generally, soil types included in the High Water Table "A" District indicate the presence of wetlands. Freshwater wetland soils within the Town include, but are not limited to, Mansfield mucky silt loam (Ma), Carlisle muck (Co), Scarboro muck sandy loam (Sb), Walpole sandy loam (Wa), Ridgebury, Whitman and Leicester extremely stony fine sandy loam(Rf) and Stissing silt loam (Se). Salt marshes are most often associated with Matunuck mucky peat (Mk) soils. Narragansett is fortunate to have large expanses of salt marsh. These areas are vital to the continued health and productivity of our estuarine and offshore waters and are discussed in greater detail in the Coastal Resource section below.



Map 14. Hydrology

Watersheds

A watershed or drainage basin is an area within which all surface water runoff collects in natural and man-made channels, and then flows to the same principal water body. Some precipitation also percolates into the ground to either emerge in nearby ponds and wetlands or to infiltrate more deeply to replenish groundwater supplies. The high points between two watersheds are called a drainage divide. Precipitation falling directly on the divide is split between the watersheds on either side. The four main watersheds in Narragansett are Narrow River (2,848 acres), Point Judith Pond (2,337 acres), the Atlantic Ocean/Narragansett Bay (3,112 acres), and Wesquage Pond (783 acres). These principal watersheds are also depicted in Map 14.

Non-point source pollution describes a wide variety of activities and processes that contribute pollutants to our surface and groundwater. These include under functioning septic systems, erosion from construction sites, household hazardous waste that is improperly disposed of and runoff from residential lawns, roads and parking lots. The Town's Stormwater Pollution Prevention Plan aims to reduce this pollution in runoff.

Since 1989 Narrow River has been closed to shell fishing. At times the bacterial counts have even exceeded the level considered safe for swimming. Sections of Point Judith Pond have suffered a similar fate.

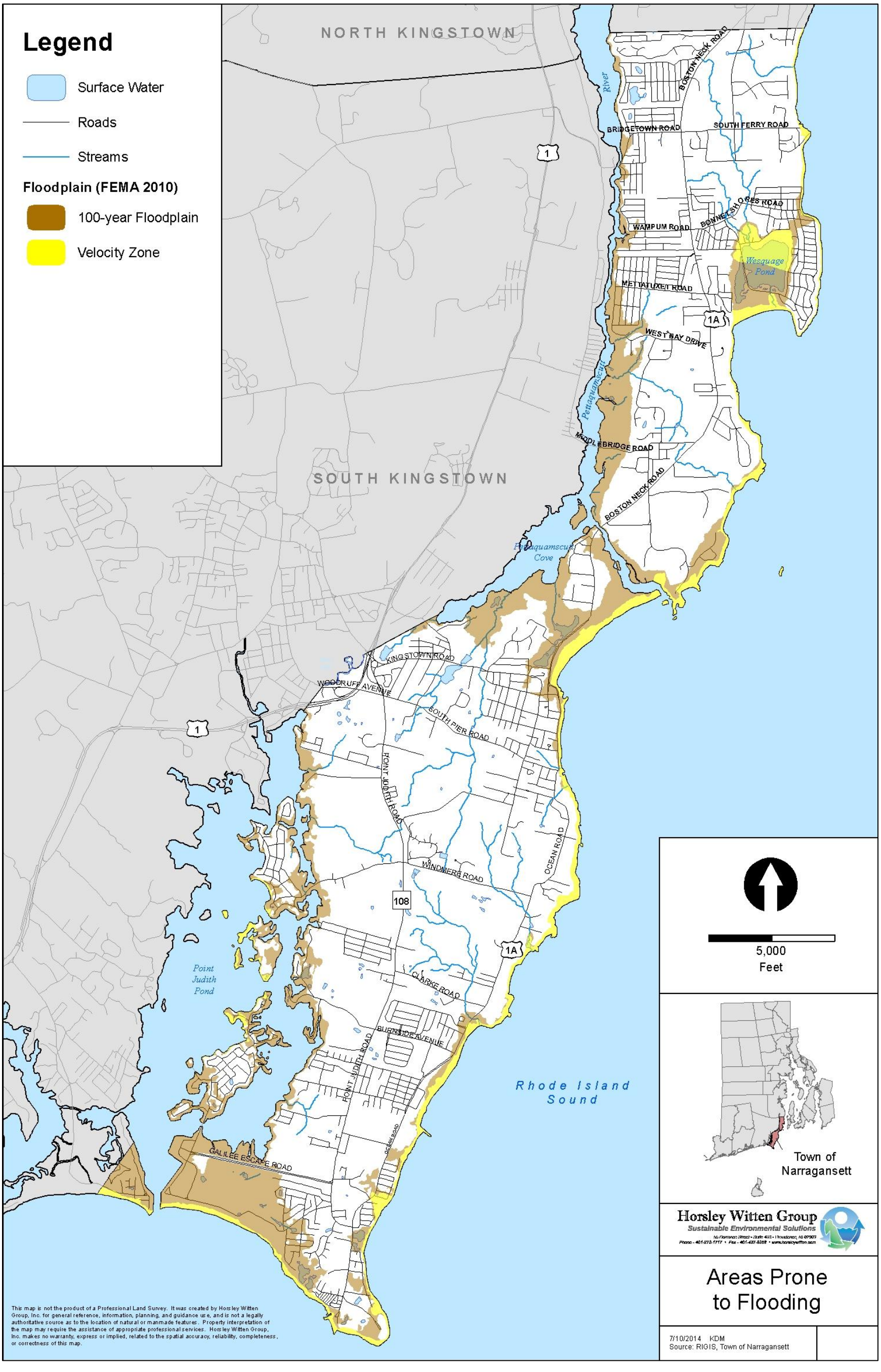
Preventing non-point source pollution is far more effective and economical than retrofitting a site or undertaking in-pond or in- stream renovations. Reducing the volume of pollutants generated through source control techniques and land use and conservation practices within a watershed directly affect the water quality of the receiving water body. For example, dense development, the lack of sewers, the poor soils and the steep slopes of the Narrow River watershed have resulted in adverse water quality impacts.

The control of non-point source pollution entails many different approaches. Some such as detention basins are structural, while others involve modifying the way we do things, such as watering and fertilizing our lawns, using less toxic household cleaners, pumping our septic systems on a regular basis, etc.

Flood Zones

In Narragansett most flood areas are contiguous to the ocean or estuarine shoreline. In addition, inland flood zones may occupy small depressions and stream banks (see Map 15). During Narragansett's history several catastrophic storms have caused great damage and loss of life within these areas.

Flood zones in Narragansett that are regulated by Section 4.7 of the Zoning Ordinance, include "A" zones and "V" zones. Both of these zones are considered to be Special Flood Hazard Areas (SFHA) within the 100-year floodplain with a 1% chance of flooding within any given year. The "V" or velocity zone is associated with wave action as well as flooding. Areas within the SFHA along the coast are subject to flooding from storm surges and or heavy rains associated with hurricanes or severe storms.



Map 15. Areas Prone to Flooding

There are specific construction requirements for any new or substantially improved structure located within an "A" or "V" zone. The most important of these requirements is the proper elevation of the structure. Specific requirements for construction are found in the State Building Code.

Most lending and mortgage institutions require that all structures, residential and commercial, located within the SFHA have flood insurance. In addition to the "A" and "V" zones there is a Coastal Barrier Resource Area (CBRA). Construction that complies with the building codes is allowed, however flood insurance is not available for any new or substantially improved structure, built or remodeled on or after Nov. 16, 1991.

National Flood Insurance Regulations administered through the Building Codes require adherence to special construction standards in these areas. The "V" zone, or velocity zone, is associated with wave action as well as flooding.

Estuarine and Marine Resources

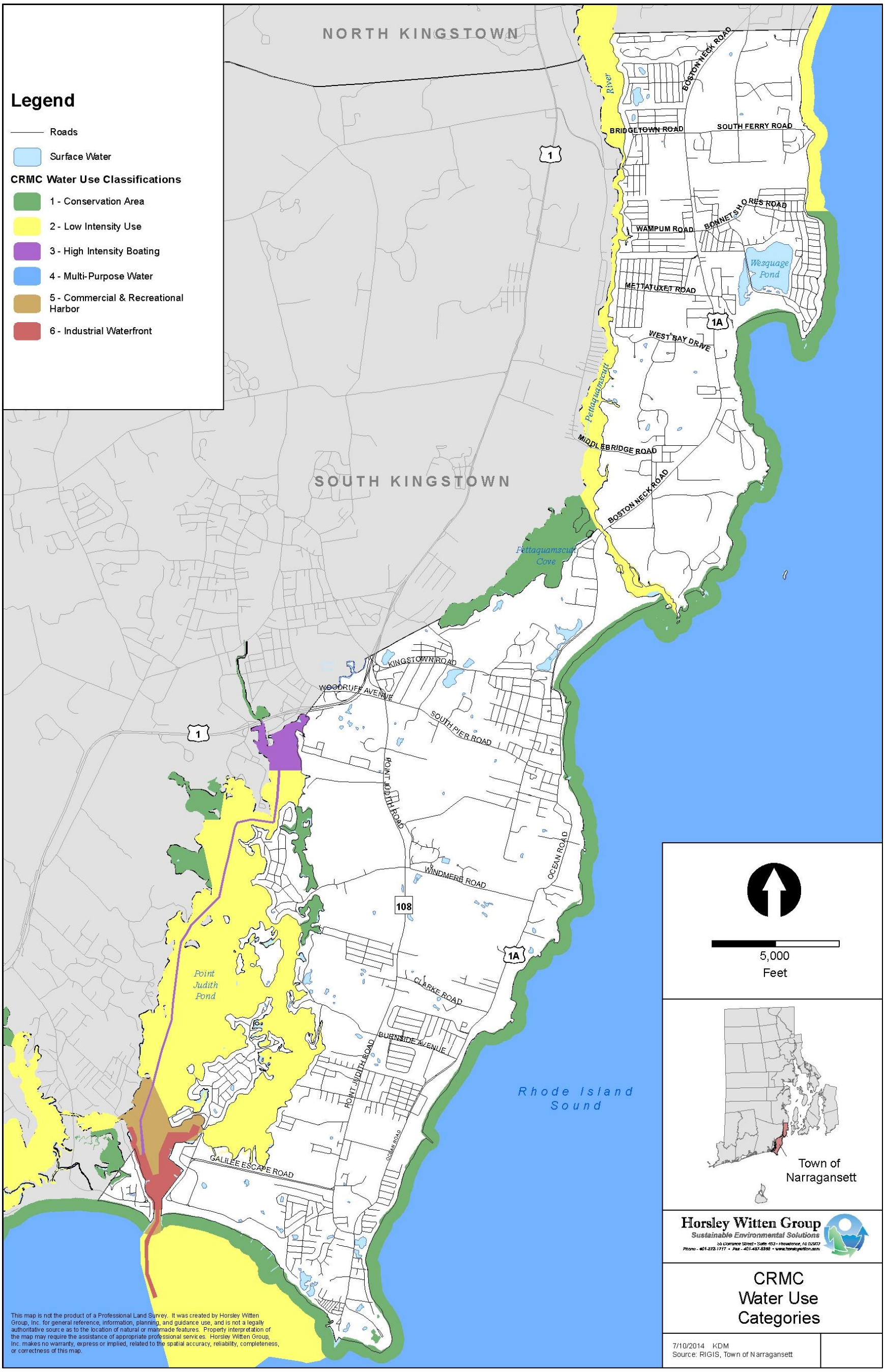
The coastal resources in Narragansett comprise the waters of Point Judith Pond, Narrow River, Wesquage Pond, Rhode Island Sound, the mouth of Narragansett Bay and the shoreline ecosystems that border them. Narragansett's coastal resources are its greatest economic and environmental assets. Point Judith Pond and Narrow River are among the most beautiful, productive and unique estuarine resources in the state. The 400+/- acres of salt marsh and the associated waters of these estuaries serve as breeding and spawning grounds for shellfish and fin fish.

Unfortunately, the same physical conditions that make these waters productive make them extremely vulnerable. Poorly flushed systems tend to retain pollutants that can contaminate shellfish and exterminate shellfish larvae. In addition, surplus nutrients from human activities, particularly nitrates, can result in an over production of phytoplankton and seaweed, which can smother spawning habitats and decrease oxygen and available light.

The tourism and fishing industries, which are vital to the town's economy, depend upon the protection and enhancement of its estuarine and marine resources. As discussed under Economic Development, commercial landings in 2010 from Point Judith, Galilee and Jerusalem were 67.3 million pounds, with a value of $62.9 million. Further, it has been estimated that between 2001 and 2005, 66 different charter and party boats made 7,709 trips, carrying approximately 100,000 anglers. Recreational boating is also supported by the many marinas and private docks within Point Judith Pond and Snug Harbor.[28]

Section 4.4 of the Zoning Ordinance, the Coastal Resource Overlay District, includes all areas within 200 feet of the inland edge of the coastal feature as defined by CRMC. The changes in the 1987 zoning ordinance, as well as Narragansett's sewer policy are designed to protect the Town's coastal resources. These Town regulations complement regulations enacted by CRMC with the adoption of the state's Coastal Resources Management Plan and the Special Area Management Plans (SAMPs) for the Narrow River and Salt Ponds. State regulatory classifications of the waters and adjacent lands are depicted in Map 16.

[28] Ocean Special Area Management Plan. CRMC. 2011



Map 16. CRMC Water Use Categories

Point Judith Pond

Point Judith Pond is home to the state's largest commercial fishing port, and serves as one of Rhode Island's largest recreational boating centers. In 2008, Galilee was ranked 17th among U.S. fish ports for total value of landings in the country, and 21st in weight.

With approximately 1,300 slips and moorings it is the state's third largest harbor and contains 5.3% of the state's slips and moorings. The location and size of the breachway in Point Judith Pond has had a significant impact on the development of Point Judith Pond as a recreational and commercial resource. Without the breachway Galilee would not serve as an important fishing port. Breachway changes throughout time have also had a profound impact on the ecology of the Pond. Additional information on the ecology and history of Point Judith Pond may be found in *An Elusive Compromise: Rhode Island Coastal Pond and Their People* and in the Salt Ponds Special Area Management Plan. The existing Town boundary between Narragansett and South Kingstown represents the location of a former breachway at Jerusalem.

Point Judith Pond has a diurnal tidal regime with a range of about three feet. Hydrodynamically, the pond is characterized by two water regimes. Closest to its outlet at the breachway, water from Block Island Sound enters the lower pond as a progressive wave to a point approximately one-third of the way up the pond, to just below the islands. In the lower pond, flushing is rapid and the water is similar in clarity and salinity to the waters of Block Island Sound. North of this area a low-energy regime exists, where the tide resembles a standing wave. Water levels rise and fall due to the intrusion of a "salt wedge" of denser (saltier) ocean waters under the less saline estuarine waters. Minute plants, animals and fish larvae, collectively known as plankton thrive in this area due to limited wave action, a balanced input of land derived nutrients and a mix of fresh and saline waters. The combinations of conditions in this estuary and others like it, such as Narragansett Bay and Narrow River are crucial to the survival of virtually all of the important sports and commercial fisheries in the State. The State's estuaries serve as breeding, nursery or larval stage habitat for over 70% of Rhode Island's commercial fin fish catch. Forty-four species of fin-fish representing all life stages have been inventoried in Point Judith Pond. These include larval and are juvenile forms of commercially valuable species such as Atlantic menhaden, hake, scup, and winter flounder.

An analysis of the Pond Watchers' data from 1985 to 1994 shows elevated coliform and fecal coliform reading in Point Judith Pond. Contamination in the pond is due to several factors including, failing and aging septic systems, improper waste disposal from boats, increased numbers of boats and increased urban runoff. The northern reaches of the pond are identified as impaired waters by RIDEM (2012) and do not support shellfish consumption. Much of the Point Judith Pond watershed is classified as "Developed beyond Carrying Capacity" by CRMC. Nitrates from septic systems and home lawns are a pollution issue that must be addressed.

Narrow River

Narrow River (formally Pettaquamscutt River), although similar in some aspects to Point Judith Pond, stands on its own as an exceptional water body. Geologically and hydrologically, portions of this estuary have the characteristics of a fjord,which distinguishes Narrow River from almost every other estuary in the continental U.S. The northern basins are as deep as 60 feet and contain very low levels of oxygen in the bottom portions of the water column. The remaining portions of the river are shallow, with an average depth of three to five feet. Flow is sluggish, except in constricted areas.

The importance of this resource as a significant natural area has been specifically identified by the Rhode Island Natural Heritage Program. Additionally, Narrow River is listed in Open Space Preservation in RI: An Inventory of Significant Sites and in the RI Landscape Inventory: A Survey of the Scenic Areas. The river has been identified by EPA as a priority wetland in New England and the Senator John H. Chafee National Wildlife Refuge has been created in the area from Pettaquamscutt Cove to Middle Bridge. Significant acreage has also been obtained in South Kingstown along the river.

CRMC's Narrow River Special Area Management Plan, adopted in 1985, and revised in 1998 contains a wealth of information on Narrow River and outlines CRMC's policies and regulations relative to development in the watershed. Narrow River has been classified by CRMC as a poorly flushed estuary. Poor flushing, steep slopes, and dense development have combined to make Narrow River extremely sensitive to stormwater borne pollution. RIDEM has four water quality stations on the river which they sample four to five times per year. Although Narrow River supports a modest shellfish population, the river was closed indefinitely to shellfishing in 1987 due to high bacteria levels. In 1993, the entire river, including Pettaquamscutt Cove remained closed to shellfishing. In the past, when water quality permitted, Narrow River supported a few small, commercial shell fish operations. Most shellfish, however, were harvested for personal consumption. In 1990, bacterial levels at some stations were measured at 15 to 60 times the acceptable shellfishing standards for total and fecal coliform and 4.5 to 6.1 times the acceptable coliform levels for swimming. Between 1980 and 1985, 45.6% of the samples collected by DEM exceeded state limits for fecal coliform. In 2012, RIDEM still lists Narrow River as impaired, not supporting shellfish consumption.

The extension of sewers to the Narrow River area and the implementation of the Tri-Town Narrow River Stormwater Management Plan are designed to improve the existing water quality of the river.

Wesquage Pond

Wesquage Pond is 60+/- acre barrier pond located in Bonnet Shores. The pond has been divided by a causeway into an east and west basin. The west basin is less saline than the east basin and contains fish species such as pike, freshwater bass and perch. The inlet to the pond is located on the south side of the east basin on Bonnet Shores Beach. A wide band surrounding the entire pond is located in the 100 year flood zone (see Map 13). The flood zone is particularly pronounced on the southern and north eastern sides. Generally speaking, the soils immediately surrounding the pond are characterized by high water tables. The north and northeast shores of the pond are sewered.

Narragansett Bay and Rhode Island Sound

Narragansett's bay and ocean shoreline varies from cobble/cliff to rocky shore to sandy beaches. The shoreline is exposed to ocean swells which enter Narragansett Bay from the south and southeast. Barrier beaches, composed of fine sand include Narragansett Town Beach and the Dunes Club extending to the inlet at Narrow River; Wesquage Beach at Bonnet Shores; Sand Hill Cove (Roger Wheeler State Beach) and Matunuck Beach. Scarborough Beach, stretching from Black Point to a point just north of the treatment plant is a gently sloping, fine-sand beach, backed by till upland. These beaches are among the most popular in the state and regularly attract tens of thousands of persons per season.

The water quality in Rhode Island Sound and the lower portion of Narragansett Bay is excellent due to few discharges and the high rate of flushing. The two exceptions to this are the outfalls for the Westmoreland Regional Treatment Plant which is located 1,500 feet east of North Pier and the Scarborough Treatment Plant which is located approximately 2,200 feet offshore. Prior to discharge, the

waste from both plants receives secondary treatment. The permits stipulate that the monthly average discharge must have 85% of the total suspended solids (TSS) and biological oxygen demand (BOD) removed. In no instance, however, may the average monthly discharge exceed 30 milligrams per liter (mg/liter) BOD or TSS.

In addition to swimming, the marine environment in Town also provides additional recreational and economic opportunities. These include surf fishing (principally for striped bass, bluefish and tautaug), surfing, and scuba diving. Commercial lobster trapping, fish traps and inshore otter trawling also make use of inshore areas.

Harbor Management Plan

The Harbor Management Commission was responsible for initially developing the Harbor Management Plan and reviews it annually. The Commission is currently undertaking an update to acknowledge completion of action items and to update existing ordinances. The Commission also provides guidance to town government, commissions, and boards during the decision- making process for locally proposed waterfront development projects. They also represent the Town before the State regarding decisions associated with state-proposed coastal development and other proposed waterfront projects.

The Harbor Management Plan provides goals and policies for the positive management of the town's harbors and coastal bodies to balance diverse uses and provide public access. It is an administrative document and gives the authority to manage these resources to the Harbor Master and Harbor Management Commission. The primary objectives of the plan are:

Safeguard and improve water quality to ensure continued use for safe public contact associated with recreation, recreational and commercial fishing activities, and boating.
Gain the proper balance between preservation of natural environment and the diversity and intensity of activities.
Provide safe, equitable, and efficient distribution of private and commercial moorings, and ensure public health and safety are protected.
Provide a vehicle for continued discussion and coordination among the different authorities responsible for boating safety and enforcement.
Enhance the quality, maintenance, and management of coastal access locations and identify new areas, working collaboratively with environmental organizations and the Conservation Commission.
Recognize the historic and economic importance of the local fin and shell fisheries, and take appropriate measure to prevent encroachment on the impairment of these resources.

Inland Resources

Narragansett lies within a physiographic region known as the Narragansett Lowland, a relatively narrow band of land lying on the bay islands and the land west of Narragansett Bay. The area lies below the 200 foot elevation and has a climate moderated by ocean temperatures. This climate is distinctly cooler in summer and slightly warmer in winter. The climate is also moister than inland portions of the state.

In historical times, Narragansett was entirely cleared for agriculture, as is shown by the stone walls that run throughout the town. Since the gradual abandonment of agriculture in the last century, much of the open land has undergone regrowth with a succession from meadow to shrubland to red-maple and oak forest.

The landscape of Narragansett has a diversity of habitat types including salt marsh, transitional wetlands, fresh water wetlands, including red maple swamps, shrub swamps, marshes and small streams, and upland areas in various stages of clearing and regrowth to maple and oak forest cover (Map 17).

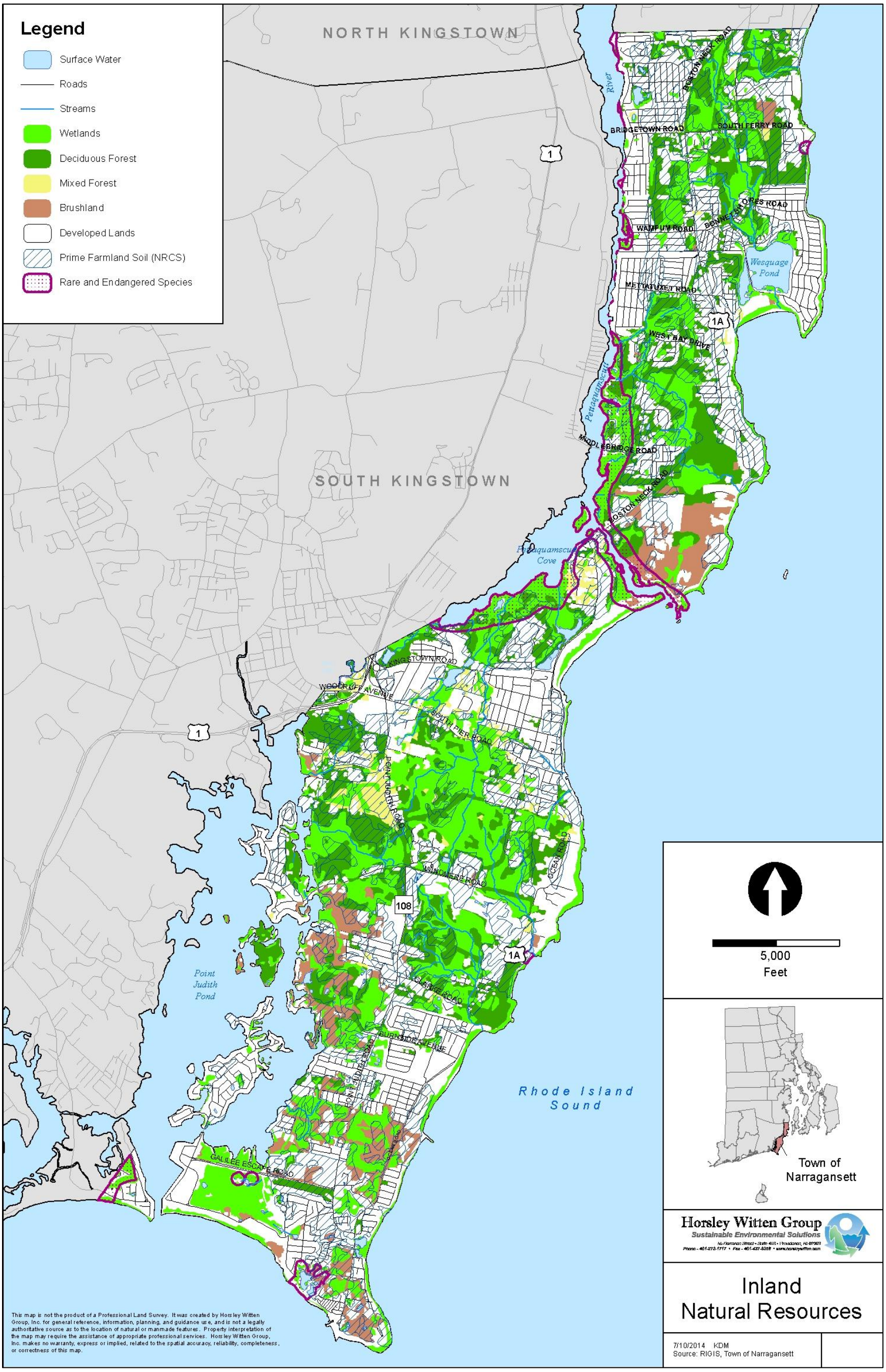
Of the upland areas, the wet meadows were abandoned first and are as a rule covered by a dense growth of water tolerant shallow-rooted species such as red maple, tupelo, and swamp white oak. Shrubs and other plants growing beneath the tree canopy are typified by such species as high bush blueberry, sweet pepperbush, sensitive fern, cinnamon fern, and green briar. Due to the very low relief and transitional wetland plants on these high water table soils, wetland boundaries are often difficult to establish.

Narragansett has over 1,100 acres of upland deciduous forest, four acres of mixed coniferous and deciduous forest and 1,400+/- acres of wetland forest. In addition there are 1,300 acres of upland deciduous shrubland. Much of this acreage is on properties participating in the Farm Forest and Open Space program and town-owned properties. The dominant tree in both upland and wetland forests in town is red maple (Acer rubrum). Other species of note include oaks (Quercus sps.) and tupelo (Nyssa sylvatica). The dominant street tree in Narragansett is Norway maple (Acer platancides). There are no significant coniferous resources in the Town of Narragansett.

Due to its diversity of habitat, Narragansett is considered a bird watching "hot spot." An average of 316 bird species is seen in Rhode Island each year, and the overwhelming majority may be viewed within the Town boundaries. Species of common interest that inhabit the town year round include various waterfowl, pheasant, grouse, quail, dove, and crow.

Wild animals once considered rare or non-existent in Narragansett now seem to be making a regional come-back. Among these are the beaver, the fisher, and the porcupine. Species of common interest that inhabit the town include rabbits, squirrels, deer, woodchucks, raccoons, skunk, possum, and fox.

To date there is no comprehensive list of the flora and fauna of Narragansett. Where possible, particularly on Town-owned open space parcels, efforts to study characterize and inventory species and habitats should be made. Assistance from the State's universities should be solicited.



Map 17. Inland Natural Resources

Rare, Threatened, and Endangered Species

The Rhode Island Natural Heritage Program (RINHP), an agency of RIDEM, provides a comprehensive inventory of the state's biological diversity. The program is the only central data bank for RI's rarest and most vulnerable plants, animals and ecologically significant natural communities. Due to limited staff and funding, however, it is not always possible to inventory all potential areas that might provide habitat to rare, sensitive or endangered species. As of 1990, there were 267 plant species listed by the RINHP in Rare Native Plants of Rhode Island.

RINHP has identified Narrow River, Point Judith Refuge (Twin Pond) and Matunuck Beach and Succotash Marsh as supporting rare, threatened, or endangered species. These three areas as well as the town's other sensitive natural resources must be protected from further degradation and where possible enhance. Table 48 lists rare species occurring either currently or historically in Narragansett. General areas where these species might be found are located on Map 17.

Table 48. Narragansett's Rare, Threatened and Endangered Species

This table has been updated [remove this text line]

Genus/Species	Common Name	Status	Last Observed
Ixobrychus exilis	Least Bittern	State Threatened	1984
Thamnophis sauritus	Eastern Ribbon Snake	State Concern	1985
Cicindela hirticollis	Beach-dune Tiger Beetle	State Threatened	1994
Limosella subulata	Atlantic Mudwort	State Concern	1995
Honckenya peploides	Seabeach-sandwort, Sea-purslane, Sea-chickweed	State Concern	2001
Ligusticum scothicum	Scotch Lovage	State Concern	2006
Liatris scariosa	Northern or New England Blazing Star	State Endangered	2007

STATUS. The status of each species is designated as defined:
State Endangered: Native species in imminent danger of extirpation from Rhode Island.
State Threatened: Native species that are likely to become State Endangered in the future if current trends in habitat loss or other detrimental factors remain unchanged.
State Concern: Native species not considered to be State Endangered or State Threatened at the present time, but are listed due to various factors of rarity and/or vulnerability.
Source: http://rinhs.org/wp-content/uploads/2011/07/RI-Rare-Plants-2016-simple-list.pdf and http://rinhs.org/wp-content/uploads/2012/05/ri_rare_animals_2006.pdf

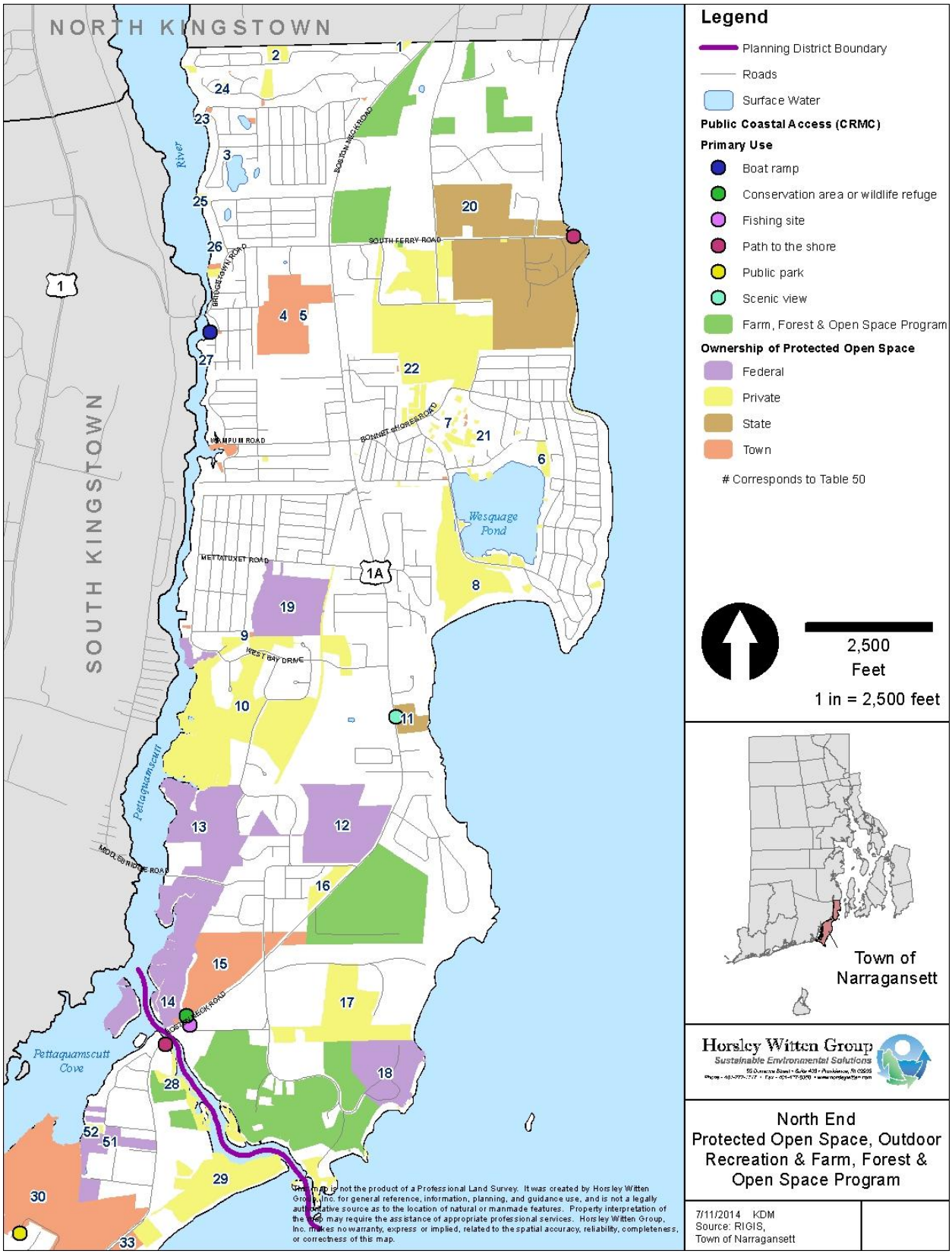
OPEN SPACE AND OUTDOOR RECREATION RESOURCES

Protected open space and outdoor recreation resources not only add to the quality of life for local, year-round residences, but attract seasonal visitors and contribute to the local economy. They offer opportunities to swim, fish, boat, and observe diverse coastal and inland habitats. Access to these resources are protected and maintained by the Town, including the Narragansett Preservation Land Trust, the State, and non-governmental organizations like The Nature Conservancy and the Rhode Island Audubon Society. Some private owners have opened their properties to the public on a limited basis.

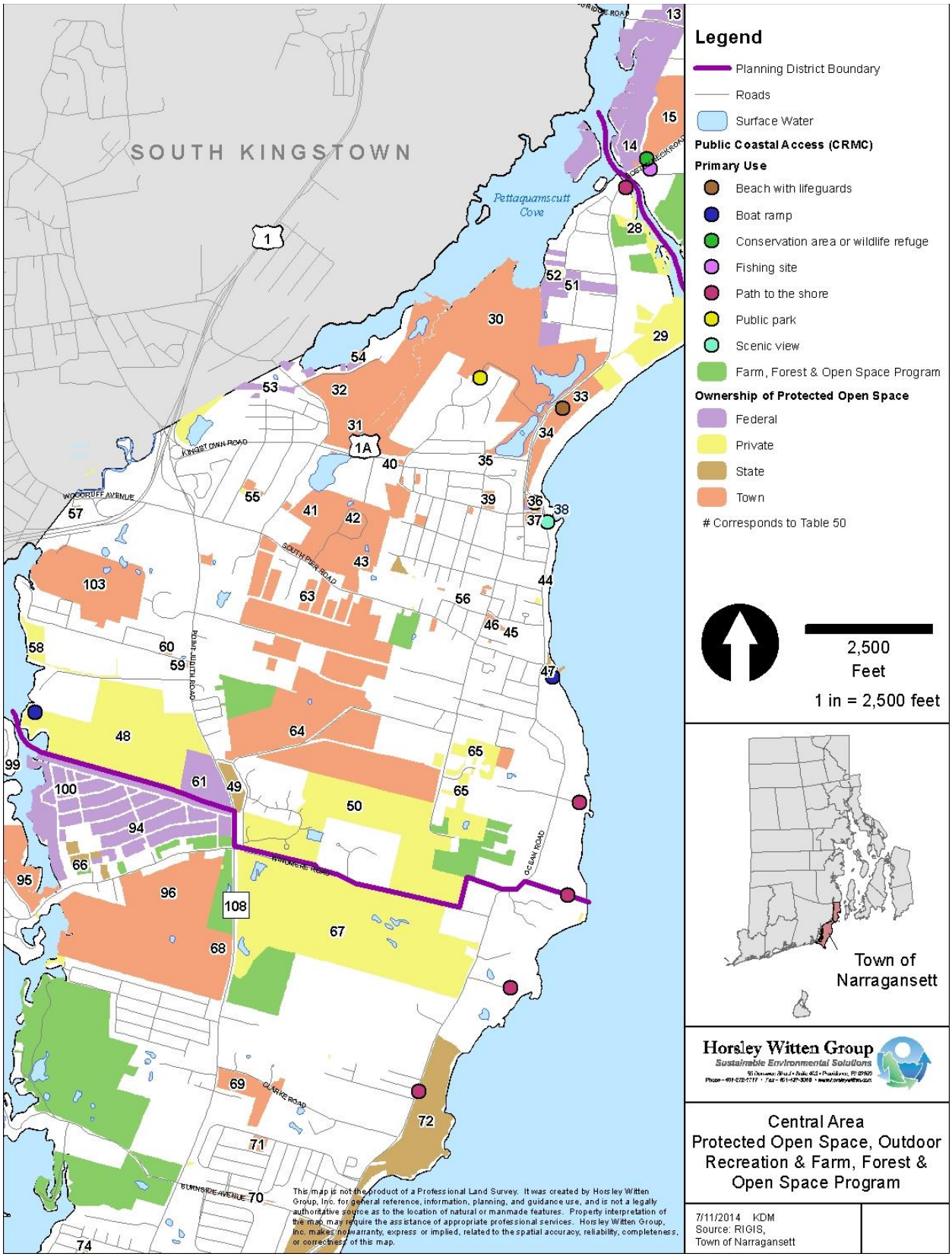
The Town has worked to establish greenbelts as a way to protect natural resources and important landscapes through the creation of contiguous green space. Each of the three planning districts, North End, the Central Area, and the South End, are inventoried to meet the needs of the residents for open space and recreational opportunities.

Protected Open Space and Outdoor Recreation Inventory

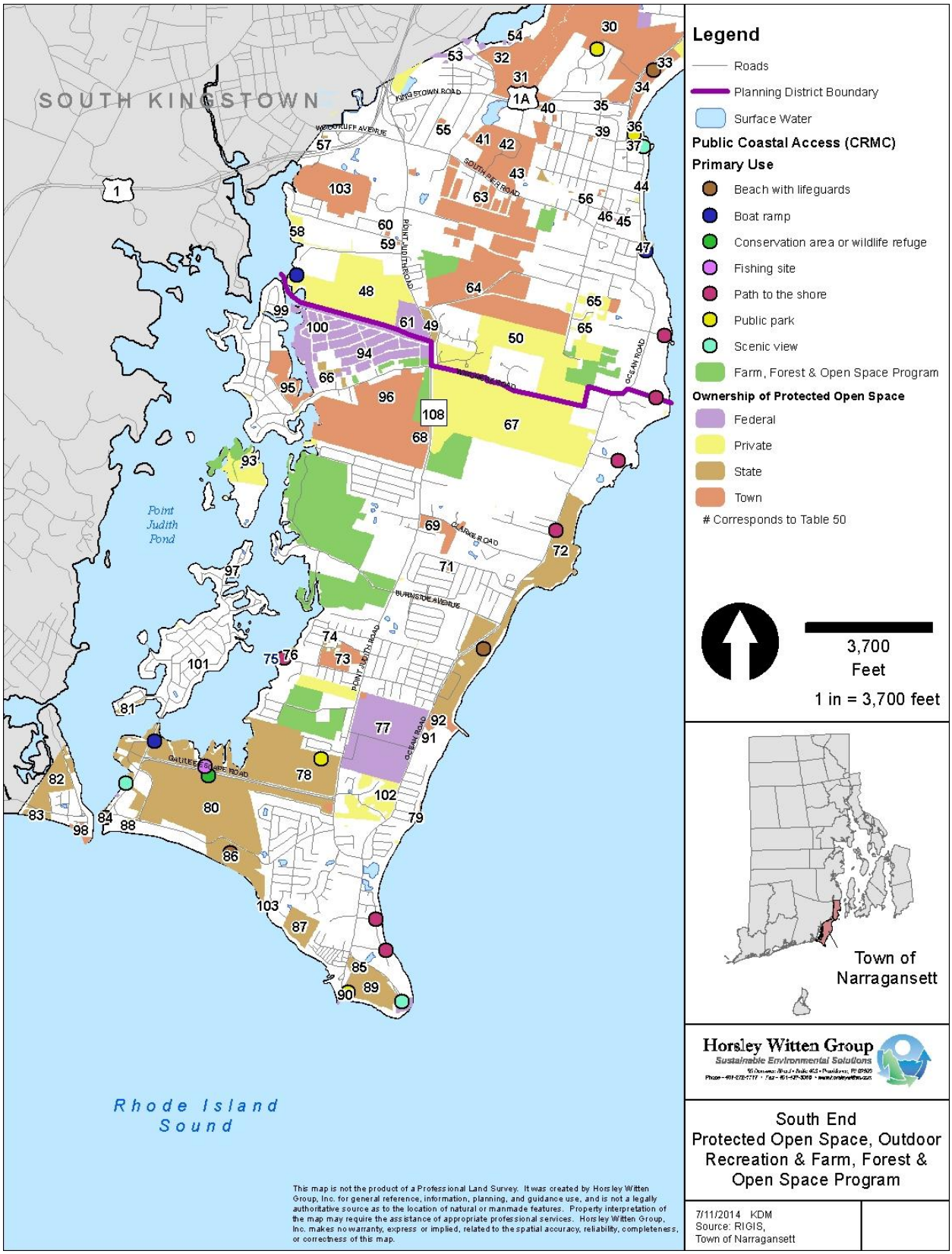
A detailed parcel inventory, by the Town's three Planning Districts, is provided in Table 49, and shown in Map 18, Map 19, and Map 20. Included are federal, state, local, and private public open space and recreational resources, both passive and active. Properties participating in the Farm, Forest, and Open Space tax credit program are also listed. The Farm, Forest and Open Space Act allows land to be assessed at its use-value in order to encourage the maintenance of Rhode Island's productive agriculture and forested land. Landowners in the program must agree not to develop or subdivide their land for a minimum of 15 years. In return for this commitment, the land is taxed at the lower "current use" rate. There is a monetary penalty for early withdrawal or disqualification from the program. Renewal in the program is required and lands participating in the program should not be considered permanently protected from future development.



Map 18. North End Protected Open Space, Outdoor Recreation and Farm, Forest & Open Space Program



Map 19. Central Area Protected Open Space, Outdoor Recreation, and Farm, Forest & Open Space Program



Map 20. South End Protected Open Space, Outdoor Recreation, and Farm, Forest & Open Space Program

Table 49also provides information on the type of outdoor recreation or open space resource on each property. Open space is defined by the Rhode Island Department of Environmental Management as

> "…undeveloped or partially developed real property owned by an agency of the State of Rhode Island that includes, but is not limited to, the following: conservation land, forested land, wetlands, recreation land, management areas, agricultural land, critical habit, recreational areas, and corridor parks. Such lands may include amenities such as small parks, green buffers along roadways, or any open area that is owned by an agency. While many parcels are specifically designated as open space, open space may also refer to undesignated, undeveloped land with particular conservation or recreation interest."

Types of uses in Table 49 are defined as:

- Tot lot: Small areas intended for children of preschool age.
- Playground: Primarily for children aged five to twelve. Includes an apparatus area for older children and a field and/or court area for games or informal play.
- Playfield: Provides space for recreation in forms requiring more area than is available in playgrounds, and often serves as a recreation center for several neighborhoods or school. Suitable for games such as football, soccer, baseball, and softball. Areas for court games are sometimes associated.
- Community Park: Area of diverse environmental quality. May include areas suited for intense recreation such as athletic complexes. May provide areas of natural amenities for outdoor recreation such as hiking, environmental education, agriculture, picnicking, horseback riding, etc. May be any combination of the above depending on site suitability and community need.
- Neighborhood Park: Area for intense recreational activities such as field games, court games, crafts, playground apparatus, skating, picnicking, etc; approximately 10 to 25 acres.
- Mini Park: Multi-purpose parks generally less than five acres in size. Similar in function, but smaller than a neighborhood park.
- Village Green/Public Square: Green space in the center of town that may be used for quiet activities as well as special events such as concerts and festivals. This green space visually ties together the downtown area.
- Conservation Area: An area designated for the protection and management of the natural/cultural environment with recreational use as a secondary objective.
- Beach: Waterfront area with sandy shore primarily used for sunbathing and swimming.
- Coastal Access: Areas providing physical or visual access to the water. Includes scenic overlooks, rights-of-way, boat landings, waterfront parcels. A more detailed inventory follows.
- Campground: An area providing space for tents, camper and/or motor homes and associated amenities. An overnight or day camp run for youth.
- Marina: A boat basin that has docks, moorings, supplies, and other facilities for boats.
- Vacant: Undesignated, undeveloped areas.
- Military: Areas owned by the military that provide open space and greenbelt value, but are restricted to use by the military. Portions of the property may be developed for military purposes.
- Miscellaneous: Item not otherwise specified.[29]

[29] The various parcels owned by the Bonnet Shores Fire District, some of which are vacant, some of which provide active recreation and coastal access, have been grouped together under miscellaneous

Table 49. Outdoor Recreation and Protected Open Space and Landscapes

# ON MAP	PLAT & LOT	PARCEL NAME	SITE TYPE	OWNER	ACRES
NORTH END PLANNING DISTRICT					
1	N-K 1-A	Riverdell Pond	Conservation	Private	0.97
2	N-K 3; N-K 4	Forest Lakes Preservation Assc	Beach	Private	3.46
3	N-F 359; N-F 360	Pettaquamscutt Minipark	Tot Lot	Town	0.35
4	N-A 42A; N-A 147	Christofaro Park/North End	Community	Town	34.72
5	N-A 36	URI Foundation/ Next To Playground	Vacant	Private	0.37
6	N-S 112; N-S 112-A	Wesquage Pond/Audubon	Conservation	Private	71.83
7	N-R 256; N-R 255;N-R 225; N-R 910; N-S 51-A; N-R 253-4;[A]	Bonnet Shores Land Trust	Conservation	Private	23.69
8	N-S 634; N-S 629; N-S 372; N-S 630; N-S 621; N-S 631	Bonnet Shores Beach	Beach	Private	36.13
9	N-G 442	Mettatuxet Minipark	Playground	Town	0.54
10	N-Q 50-A THRU 50-F; N-Q 52	Northgate Dedication	Conservation	Private	106.95
11	N-I 10	Boston Neck Overlook	Conservation	State	6.83
12	N-P 1-A; N-P 1-C1	Riverfront Open Space Dedication	Conservation	Federal	53.14
13	N-P 1-B; N-P 1-C2; N-Q 50-A; N-L 12; N-L 13;[B]	J.H. Chafee Wildlife Refuge	Conservation	Federal	151.19
14	N-O 2-2; N-O 2-3; N-O 8-24;	Bridgepoint Commons	Community Park	Federal	25.06
15	N-O 5; N-O 8; N-L 22; N-L 23	Bridgepoint Commons	Community Park	Town	41.14
16	N-L 18	Narrow River Land Trust Inc	Conservation	Private	6.19
17	N-N 4; N-N 5; N-N	Namcook Dedication	Conservation	Private	45.18
18	N-M 10	Fort Varnum (Military)	Military	Federal	33.52
19	N-G 471; N-G 471-	Mettatuxet Road	Conservation	Federal	37.93
20	N-D 9; N-C 6-A	Board of Trustees	Vacant	State	54.96
21	N-R 7; N-R 62; N-R 147; N-R 579; N-R 825; N-R 882	Town of Narragansett	Vacant	Town	0.53
22	N-R 256-A; N-R 22; N-R 23; N-R 26; [C]	Audubon Society of RI	Conservation	Private	21.25
23	N-F 6; N-F 7	Pettaquamscutt Lake Shores Imp	Conservation	Private	0.72
24	N-K 2; N-K 2-A; N-K 2-B	Riverdell Assoc; Private Owner	Conservation	Private	3.49
25	N-F 608	Edgewater Homeowners Assoc	Beach	Private	1.12
26	N-F 620	Edgewater Homeowners Assoc	Conservation	Private	0.51

# ON MAP	PLAT & LOT	PARCEL NAME	SITE TYPE	OWNER	ACRES
27	N-A 30-1	Pettaquamscutt Terra Impr Assoc	Conservation	Private	0.15
TOTAL NORTHERN PLANNING DISTRICT					**761.92**
CENTRAL AREA PLANNING DISTRICT					
28	A 4-F; A 4-G; A 5-A; A 9-A; A 9-B; A 33-A; A 33-B; A 38; A 40; A 31-B; A 39	Audubon Land/Narrow River	Conservation	Private	10.5
29	A 33	Dunes Club	Beach	Private	32.46
30	B I-A; C 494; C 494-A	Canonchet Farm	Community Park	Town	160.00
31	B 5	Sprague Field	Neighborhood	Town	16.11
32	B 3; B-2 3	Narragansett Elementary School	Playground/ Playfields	Town	23.34
33	B 6	Narragansett Town Beach-North	Beach	Town	6.94
34	C 459-A; C 461; C 461-A; C 462 THRU C 468; C 476	Narragansett Town Beach-South	Beach	Town	18.68
35	C R6	Open Land-Narragansett	Vacant	Town	0.16
36	C 456; C R-5	Casino Park	Public Square	Town	1.4
37	C 453-A	Veteran's Park	Public Square	Town	1.67
38	C 453; C 454-1	Towers	Public Square	Town	0.18
39	C R-3	Pier Memorial Park	Public Square	Town	1.4
40	H 38; H 39; H 44; H 44-A	Open Land-Kingstown Road	Conservation	Town	6.03
41	H 13; H 13-12	Sprague Pond	Conservation	Town	16.72
42	H 36; H 84	Narragansett High School	Playfields	Town	33.88
43	H 83; H 90	Pier Middle School	Playfields/ Playground	Town	15.54
44	D 136-A	Open Land-Ocean Road	Vacant	Town	0.15
45	D 211-A	Abandoned Railroad	Vacant	Federal	0.13
46	D 214	Thompson Memorial Park	Playground	Town	2.01
47	E 132-A; E 149; E 150-A	Tucker's Dock-Landing and State Pier	Coastal Access	State	1.45
48	Y 7	Long Cove Camp and Marina	Campground/ Marina	Private	100.18
49	X 27	Brenton's Grove/ RIDEM	Picnic	State	5.19
50	Z 1; X 14	Polo Club Open Space	Conservation	Private	134.56
51	A 88; A 90; A 93; A 95; A 94; A 10-1; A 58; A 29; A 11-3; A 62; A 10	United States of America	Vacant	Federal	17.3
52	A 91; A 92	Narrow River Land Trust Inc	Conservation	Private	1.32

# ON MAP	PLAT & LOT	PARCEL NAME	SITE TYPE	OWNER	ACRES
53	B-2 6; B-2 5; B-2 114; B-2 86-A; B-2 92-A; B-2 91; B-2 92; B-2 98; B-2 99; B-2 67; B-2 101; B-2 70	United States of America	Vacant	Federal	6.59
54	B-2 99-B	Town of Narragansett Riverside Dr	Vacant[D]	Town	0.59
55	O 103; O 18	Town of Narragansett Inez St	Vacant	Town	1.29
56	Q 34-A; Q 64-A	Town of Narragansett Caswell St and Congdon St	Vacant	Town	0.42
57	W 163	State of RI; RIDEM	Vacant	State	0.36
58	Y 1-17	Sunnybrooke Farm Prop Owners Assoc	Conservation	Private	7.09
59	Y 1-1	Town of Narragansett Point Judith Rd/Wandsworth	Vacant	Town	0.61
60	W 117; W118	Town of Narragansett Wordsworth and Wandsworth Sts	Conservation	Town	0.45
61	Y 9	U.S. Fish and Wildlife Service	Conservation	Federal	17.25
62	Q 17-A	Town of South Kingstown	Vacant	Town	5.00
63	Q 100; P 4; Q 104; P 305; F 42	Town of Narragansett	Vacant	Town	12.08
64	Q 27-21; X 4 THRU 6; X 1; X 8; X 9; X 9-1 THRU 9-8; X	Town of Narragansett	Conservation	Town	115.26
65	F 44-A; F 44-B; F 44-C	Kendall Green Open Space	Vacant	Private	12.68
103	W 82-29 THRU 82-79	Town of Narragansett	Conservation	Town	53.9
TOTAL CENTRAL AREA PLANNING DISTRICT					**840.87**
SOUTH END PLANNING DISTRICT					
66	Y-2 52; Y-2 80; Y-2 81; Y-2 91 THRU 95; Y-2 125 THRU 132; Y-2 136; Y-2 137; Y-2 138; Y-2 173 THRU 175	URI-Open Land Foddering Farm Road	Conservation	State	4.78
67	Z-1 1	Point Judith Country Club	Golf Course	Private	181.26
68	Y-3 1-A; Y-3 1-B; Y-3 1-C	Sunset Farm	Community Park	Town	101.32
69	V 28; V 34	Camp Jori	Camp	Town	11.87
70	S-1 300 THRU 302	Burnside Ave and Greene Lane	Vacant	Town	1.04
71	S-1 296	Eastward Look Recreation Area	Minipark	Town	2.03
72	T 534; S 136; S 137; S 123; S 144; K 5	Scarborough Beach/ Black Point	Beach/ Conservation	State	97.66

# ON MAP	PLAT & LOT	PARCEL NAME	SITE TYPE	OWNER	ACRES
73	U 91 (portion)	George C. Playground	Minipark	Town (Leased)	3.287
74	U 103; U 111; U 118; U 127; U 129; U 135; U 140; U 142	RI State College	Conservation/ Vacant	State	3.00
75	U 93	Knowlesway Access	Coastal Access	Town	0.27
76	U 95; U 142 (STATE PORTION)	Knowlesway Access	Conservation/ Coastal Access	State	1.67
77	K 461; L 239; L 240	Fort Nathanial Greene (Military)	Military	Federal	101.91
78	R 141; R-1 6; R-1 5-B; R-1 5-C	Fisherman's Memorial State Park	Campground	State	108.71
79	L 234	Open Land / Glenwood Ave	Coastal Access	Town	0.68
80	J 38; I-G 96; I-G 84; I-G 85; I-G 86	Galilee Bird Sanctuary	Conservation	State	180.67
81	R-2 376	Little Comfort Island Access	Conservation/ Coastal Access	State	1.58
82	I-J 1; I-J 66	Succotash Management	Conservation	State	25.63
83	I-J 2	East Matunuck State Beach	Beach	State	3.28
84	I-G 71	Salty Brine State Beach	Beach	State	1.09
85	M 173	City of Providence Senior Center	Sr. Center	Private[E]	2.34
86	N 175, J 35	Roger Wheeler State Beach	Beach	State	29.54
87	N 318	Point Judith Refuge	Conservation	State	16.2
88	I-G 79	Galilee Beach Club	Beach	Private	1.87
89	M 165; M 172	Point Judith State Park	Conservation	State	28.89
90	M 166	Army Corps Access	Coastal Access	Federal	2.5
91	K 460-17	Town of Narragansett Ocean Road	Vacant	Town	2.09
92	R-4 4-A; R-4 4-B; R-4 5-B; R-4 5-A	Audubon Society if RI	Conservation	Private	17.93
93	Y-2 1; Y-2 96; Y-2 101 AND 102; Y-2 105 THRU 110; Y-2 112 THRU 118; [F]	United States of America	Conservation	Federal	93.63
94	Y-1 7-1; Y-1 380-A; Y-1 7-5; Y-1 7-7 THRU Y-1 7-12	Town of Narragansett	Conservation	Town	20.91
95	Y-2 6	Town of Narragansett Fodderning Farm Road	Conservation	Town	43.29
96	R-3 52	Town of Narragansett Marine Drive	Vacant	Town	0.26
97	I-J 64	Robinson, Thurston B	Vacant	Private	3.58
98	Y-1 238; Y-1 410; Y-1 457; Y-1 436; Y-1 118	Harbour Island Improvement Assoc	Conservation	Private	0.82

# ON MAP	PLAT & LOT	PARCEL NAME	SITE TYPE	OWNER	ACRES
99	Y-3 318	Briggs Farm Improvement Assoc	Conservation	Private	1.05
100	R-2 304; R-2 228	Great Island Improv Assoc	Vacant	Private	1.19
101	L 224-A; L 224-B; L 224-C	Tradewinds Corp	Conservation	Private	27.99
102	N 167	Sea Breeze Improvement Association	Vacant	Private	0.15
TOTAL SOUTH END PLANNING DISTRICT					**1,125.97**
TOTAL TOWNWIDE RECREATION CONSERVATION AND OPEN SPACE					**2,728.76**
PROPERTIES PARTICIPATING IN THE FARM FOREST AND OPEN SPACE PROGRAM					**628.26**
TOTAL ACREAGE					**3,357.02**

[A] PLAT AND LOT CONTINUED (BONNET SHORES LAND TRUST): N-R 219; N-R 1075; N-R 546; N-R 217; N-R 902; N-R 890; N-R 600; N-R 931; N-R 932; N-R 920; N-R 688; N-R 992; N-R 871; N-R 869; N-R 864; N-R 1018; N-R 1019; N-R 1106; N-R 1099; N-R 855; N-R 726; N-R 1271; N-R 1286; N-S 635; N-S 288; N-S 629-B; N-S 372; N-S 451; N-S 622.

[B] PLAT AND LOT CONTINUED (J.H. CHAFFEE WILDLIFE REFUGE): N-P 1-51; N-P 1-52; N-P 1-53; N-P 1-54; N-L 28-4A; N-L 28-3A; N-L 28-2-A; N-L 28-1A; B 2-5, 6, 7; N-L 29; N-L 28-1B; N-L 28-2-B; N-L 28-2-B; N-L 28-3-B; N-L 28-4B; N-O 6; N-O 7; N-Q 50-B; N-Q 43-B.

[C] PLAT AND LOT CONTINUED FOR AUDUBON SOCIETY OF RI: N-R 24; N-R 28; N-R 536; N-R 30; N-R 227; N-R 230; N-R 250; N-R 248; N-R 232; N-R 246; N-R 234; N-R 218; N-R 244; N-R 216; N-R 206; N-R 236; N-R 573; N-R 208; N-R 239; N-R 213; N-R 210; N-R 911; N-R 211; N-R 921; N-R 940; N-R 946; N-R 943; N-R 936; N-R 872; N-R 938; N-R 948; N-S 112; N-R 973; N-R 734; N-S 112-A; N-R 970; N-R 724

[D] PENDING TRANSFER TO UNITED STATES FISH AND WILDLIFE SERVICE

[E] PRIVATE CAMPGROUND (CAMP CRONIN) OWNED BY THE CITY OF PROVIDENCE

[F] PLAT AND LOT CONTINUED FOR FEDERAL GOVERNMENT: Y-2 121 THRU 124; Y-2 144 THRU 166; Y-2 178 AND 179; Y-2 185 THRU 209; Y-2 217 THRU 439; Y-2 445 THRU 449; Y-2 486 THRU 601

As shown in Table 50, of the 3,357 acres of recreation and open space in Narragansett, only 755 acres, or 22%, are owned by the Town. Table 51 further shows that of the town-owned 755 acres, 65% (493.8 acres) is located in the Central Area, 24% (183.8 acres) in the South End and 10% (77.3 acres) in the North End. Most of the Town-owned open space is included within the Town's community parks (Table 52). These areas are multi-use facilities with open space included as an element of the overall management plan. Community parks include Bridgepoint Commons, Christofaro Park (North End playfield), and Sunset Farm.

Table 50. Acreage and Ownership of Recreation, Conservation and Open Space Land by Planning District

Owner	North Acres	%Total North	Central Acres	% Total Central	South Acres	%Total South	Townwide Acres	% Total of Town
Federal	300.8	29%	41.3	5%	198.0	14%	540.2	16%
State	61.8	6%	7.0	1%	502.7	37%	571.5	17%
Town	77.3	7%	493.8	53%	183.8	13%	754.9	22%
Private	322.0	31%	298.8	32%	238.2	17%	859.0	26%
FFO*	291.3	28%	89.5	10%	247.4	18%	628.3	19%
Leased	0.0	0%	0.0	0%	3.3	0%	3.3	0%
Total	**1,053.3**	**100%**	**930.4**	**100%**	**1,373.4**	**100%**	**3,357.0**	**100%**

** FFO includes land undeveloped or subdivided by a land owner for a minimum of 15 years and can be withdrawn at any time.*

Table 51. Ownership of Recreation, Conservation and Open Space by District as a Percentage of Town Total Acreage

Owner	North Acres	% Total	Central Acres	% Total	South Acres	% Total	Town Acres
Federal	300.8	56%	41.3	8%	198.0	37%	540.2
State	61.8	11%	7.0	1%	502.7	88%	571.5
Town	77.3	10%	493.8	65%	183.8	24%	754.9
Private	322.0	37%	298.8	35%	238.2	28%	859.0
FFO*	291.3	46%	89.5	14%	247.4	39%	628.3
Leased	0.0	0%	0.0	0%	3.3	100%	3.3
Total	**1,053.3**	**31%**	**930.4**	**28%**	**1,373.4**	**41%**	**3,357.0**

** FFO includes land undeveloped or subdivided by a land owner for a minimum of 15 years and can be withdrawn at any time.*

Table 52. Acreage of Town-Owned Land by Site Type

Facility Type	Acres
Conservation/ Open Space	256.6
Playground	2.6
Playfield	72.8*
Tot Lot	0.4
Public Square/ Village Green	4.7
Mini Park	5.3**
Community Park	351.7
Neighborhood Park	16.1
Beach	25.6
Coastal Access	0.9
Total	**758.1**

**Includes 3.287 acres of land leased by the town at George C. Playground*
***Playfields often have playground equipment as well. Total acreage is inflated by 24.5 acres as it reflects entire parcel boundary which would include land used for school buildings as well.*

The federal government owns 540 acres town-wide. Fort Nathaniel Greene accounts for nearly one-quarter of this total acreage. This parcel, although primarily open space, is reserved for use by the military. Another small parcel of federal land (1.3+ acres) abuts the Harbor of Refuge and provides the Army Corps of Engineers access to the breakwater to undertake needed repairs. Much of the remaining 400 federal acres are located within the boundaries of the John H. Chafee Wildlife Refuge. The federal government continues to be interested in the purchase of additional acreage to expand the refuge.

Table 53 shows the relative amounts of private versus public recreation and open space in the Town of Narragansett as a percentage of the Town's total land area. Private and semi-public groups such as the Audubon Society of Rhode Island, Point Judith Country Club, local homeowners associations, and the Dunes Club own 859 acres, or 26%, of the Town's recreation and open space. Together with Farm, Forest and Open Space land, privately controlled recreation and open space accounts for 45% of the Town's total.

Table 53. Relative Acreage of Narragansett's Public and Private Recreation and Open Space

Access	Acres	% Total Recreation Acreage	% Total Town Acreage*
Private	858.9	25.6%	9.7%
FFO	628.3	18.7%	6.9%
Public (federal, state & local)	1,869.78	55.7%	20.5%
Total	**3,317.6**	**100%**	**36.8%**

**The total town acreage of Narragansett is 9,117 acres.*

With the exception of Camp Varnum (34 acres), which is owned by the Rhode Island National Guard, the majority of the 493 acres of state-owned land in Narragansett is primarily designed to serve the seasonal influx of the regional population. Facilities include Scarborough, Roger Wheeler and Salty Brine state beaches, Fisherman's Memorial Park, Black Point, and Point Judith Park (formerly Camp Cronin). Point Judith Refuge and the Galilee Salt Marsh function primarily as state wildlife sanctuaries. The Galilee Saltmarsh is also a major shellfishing area.

Over the years tidal flow to the southern portion of the Galilee Saltmarsh was blocked by the construction of the Galilee Escape Road. This severely degraded the wetland's value as a wildlife resource. The Galilee Salt Marsh Restoration Project was a multi-million dollar effort with a number of contributing partners, including the RIDEM, the Rhode Island Department of Transportation, U.S. Army Corps of Engineers, Ducks Unlimited, U.S. Fish and Wildlife Service, and other agencies. Marsh restoration was completed and dedicated in 1997 and since then the results have been strong. In total, approximately 84 acres of salt marsh habitats and 14 acres of tidal creeks and ponds were restored.

Active Outdoor Recreation Facilities Inventory

Table 54 represents an inventory of Narragansett's outdoor recreation facilities and the types of uses available. Most are located in the Central Area Planning District in close proximity to the schools.

It is evident from waiting lists, geographical distribution, scheduling problems, and public demand, that there are shortages of certain facilities.

Existing Recreational Programs

The Narragansett Parks and Recreation Department runs extensive and diverse programs for youth, adults, and seniors. Excluding special events, over 2,500 residents take advantage of them each year. Youth programming includes many organized sports like basketball, soccer, baseball, and tennis. There are also summer day-camp activities. Softball and basketball leagues are also offered to adults. Because of its unique location on the coast, the Parks and Recreation Department also run surfing lessons for all ages and has a junior lifeguard program in the summer for youth.

The Parks and Recreation Department sponsors a variety of programs for Narragansett Seniors. Programs are generally held in the Senior Center located on Mumford Road and include the following: special trips and events, arts and crafts, senior swim, line dancing, bowling, etc. The Center also houses community events such as blood drives, Insight programs (legally blind persons of all ages), "55 Alive" driving courses, tax preparation assistance, flu clinics, rabies clinics, elections, etc.

Table 54. Inventory of Outdoor Recreational Resources

Facility	Pool	Soccer	Tennis	Baseball	Softball	Basketball	Football	Fitness	Track	Skateboard	Multi Purpose	Playground	Picnic	Trails
The Camp	1	**** 0	3	0	0	1	0	Proposed	No	No	Yes	Yes	Yes	No
Canochet Farm	0	0	0	0	0	0	0	No	No	No	Yes	No	Yes	Yes
Domenic Christofaro Park	0	2	4	LL, 1	0	2	0	No	No	Yes	No	Yes	No	No
Eastward Look Mini-Park	0	0	2	0	0	1	0	No	No	No	No	Yes	Yes	No
George C. Park	0	0	2	LL, 1	0	1	0	No	No	No	No	Yes	Yes	Yes
High School	0	1	0	F, 1	1	0	1	No	Yes	No	Yes	No	No	No
Mettatuxet Mini-Park	0	0	0	0	0	1	0	No	No	No	No	Yes	Yes	No
Narragansett Elementary School	0	1	0	0	0	0	0	No	No	No	Yes	Yes	No	No
Narragansett Pier School	0	1	0	0	0	0	0	No	No	No	Yes	Yes	No	No
Pettaquamscutt Tot-Lot	0	0	0	0	0	0	0	No	No	No	No	Yes	Yes	No
Sprague Park	0	0	5	F, LL, 2	0	0	*** 0	No	No	No	Yes	Yes	Yes	Yes
Leroy Thompson Park	0	**** 0	0	T, 1	0	1	0	No	No	No	Yes	Yes	Yes	No
Narragansett Community/ Senior Center	0	0	0	0	0	0	0	Yes	No	No	No	No	Yes	No
Bridgepoint Commons	0	0	0	0	0	0	0	No	No	No	Yes	No	Proposed	Proposed
Narragansett Town Beach	0	0	0	0	0	0	0	No	No	No	Yes **	No	Yes	No
Pier Mini-Park	0	0	0	0	0	0	0	No	No	No	No	No	Yes	No
Veterans Park	0	0	0	0	0	0	0	No	No	No	Yes	No	No	No
Casino Park	0	0	0	0	0	0	0	No	No	No	Yes	No	Yes	No
Sunset Farm	0	0	0	0	0	0	0	No	No	No	Yes	No	No	Yes

F = Reg. Size LL= Little League T = T-Ball
*** Beach Volleyball Summer Program: 4 courts *** Used for Football Practice Field **** Used for Soccer Practice Field*

The Parks and Recreation Department also sponsors concerts at the Gazebo, the annual Rhode Island Philharmonic Concert on Narragansett Beach, a pumpkin festival, the Narragansett Triathlon, Festival of Lights, Galilee Fishing Tournament, and other events.

Community-Managed Programs

There are also a series of community run recreation activities, some of which have participants from South Kingstown as well as Narragansett. These leagues include the following: Narragansett Little League Association, South County Soccer, Pre-Teen Football, American Legion Baseball, and Cheerleading.

Narragansett Town Beach

Narragansett Beach, known for its smooth sand and surf, is one of the most beautiful beaches in the State. Owned and operated by the Town, it consists of a North and South Pavilion, the Beach Clubhouse, and the Cabanas. The beach is run as an enterprise account which means that the revenue generated from beach operations is used to pay beach expenses. The staff consists of 75 to 120 part-time seasonal employees.

The South Pavilion, the largest and most modern of the beach pavilions, was open to the public in 1990. This facility was constructed in order to provide quality services for daily beach- goers. Services include bathrooms, changing and shower facilities, concessions, seasonal lockers, information, administrative offices, and storage. The seasonal lockers provide the Town with revenue to supplement the sale of seasonal passes. The South Pavilion also functions as administration headquarters for all beach operations. The South Pavilion underwent major renovations from 2009 to 2011, addressing windows, ceiling, fencing, shingle, doors, and signage.

The North Pavilion is the last remaining structure constructed after the 1954 hurricane. Major renovations began in 2011 and were completed in 2012. Services offered within this facility include:

- 263 changing rooms
- Private shower area for those renting units
- Outdoor showers
- Bathrooms
- Information center
- Small equipment storage area
- Concession area
- First aid lifeguard room

The North Beach Clubhouse is a multi-use facility. During the 2006 calendar year this facility generated $50,000+ and was used on approximately 150 days. This facility offers a large main room with a maximum capacity of 100 people. There are also bathroom facilities and a full service warming/kitchen area. In 2011, exterior renovations were completed, including new roof, windows, shingles, and doors. The philosophy behind the operation of this building is to service the community and not to generate a profit. Alternative types of advertising and rate structures are being explored in order to operate this facility more economically.

State Beaches and Other State Recreational Facilities

The State, in the interest of all Rhode Islanders, has made substantial investments in the acquisition and improvement of beaches and other coastal recreation areas in Narragansett. These facilities include Scarborough, Roger Wheeler and Salty Brine State beaches, Black Point, Point Judith Park, Galilee Salt Marsh, Point Judith Refuge, and Fisherman's Memorial Campground. As a result, Narragansett has some of the finest beaches in the State. As evidenced by the numbers in Table 55, these beaches are a major attraction for tourists as well as local and state residents. As such, the beaches are a major asset to local businesses.

Table 55. Attendance at State Beaches

State Park/Beach	2009 Season	2010 Season	2011 Season
Salty Brine Beach	NA	26,278	35,594
Scarborough North 1	229,712	184,038	186,698
Scarborough North 2	NA	NA	18,662
Scarborough South	101,942	85,402	89,174
Roger Wheeler Beach	225,763	129,690	190,835
Total	**557,417**	**425,408**	**520,963**

Source: RI Department of Environmental Management

Coastal Access Inventory

Narragansett provides some of the best opportunities in the State for coastal recreation. These opportunities are varied and include swimming, sunbathing, surfing, hiking, fishing, shellfishing, birding, and boating. Access is provided to Narragansett Bay, Point Judith Pond, Narrow River, and the Atlantic Ocean. State and town beaches are the jewels of coastal recreation, but access is also provided through a myriad of other coastal rights-of-way (ROW). The Town has completed a comprehensive inventory of over 90 public, private and association controlled coastal access ways throughout Narragansett. Public access points are only shown on Map 18, Map 19, and Map 20.

It should not be inferred, however, that all such ROW's should be used or developed. Not all of the sites listed are safely accessible. In addition, some of these sites due to environmental constraints cannot sustain heavy usage. Table 56 lists some of the attributes and limitations for public access ways and notes whether the site has been officially designated as a ROW by CRMC.

Table 56. Coastal Public Access Inventory

Location	Ownership Status	Description
Narragansett Rd, Plat NB	Unaccepted Town Road Legal status undetermined	40 ft wide ROW, small path leading to steep drop and rocky shore
Indian Trail, Plat NK, Lot 4	PRIVATE, Homeowners Association	For use by plat residents and guests only.
Intersection Woodsia and Winterberry, Plat NF, Lots 6,7	PRIVATE, Pettaquamscutt Shores Homeowners Association	For use by plat residents and guests only.

Location	Ownership Status	Description
Woodsia and Pettaquamscutt Lake Rd, Plat NF, Lot 326	PRIVATE, Pettaquamscutt Lake Shores Homeowners Association	For use by plat residents and guests only.
Lakeside Dr and Edgewater, Plat NF, Lot 608	PRIVATE, Edgewater Homeowner's Association	For use by plat residents and guests only.
Lacey Bridge	State of Rhode Island	Fishing potential, restricted parking, dangerous curve.
Pettaquamscutt Ave	Town Accepted Road	Boat ramp and roadside parking, 60 ft wide ROW
Beach Ave, Plat NA, Lot 30-1 Landrie Memorial Beach	PRIVATE, Pettaquamscutt Terrace Homeowners Association	For use by plat residents and guests only.
Conanicus Rd, Plat NE	Town Accepted Road	Scenic, viewpoint, undeveloped, but potential for small boat ramp.
Searidge Dr, near Horizon, between Plat NB, Lots 48-26 and 48-27	PRIVATE	For use by plat residents and guests only.
South Ferry Rd, Plat NC	Town Accepted Road and adjacent state owned lot	Pebble beach, small parking area, fishing from Pier when research vessel not at dock.
Col. John Gardiner Rd between Anchorage and Bonnet Shores Rd	PRIVATE, Bonnet Shores Fire District	For use by plat residents and guests only.
Bonnet Battery on Col. John Gardiner, Plat NS, Lot 451	PRIVATE, Bonnet Shores Fire District	Historic significance, For use by plat residents and guests only.
Bonnet Point Rd Access way, Plat NS between lots 609 and 610. Located between Dunes Road and Col John Gardiner Rd	Unaccepted Town Road Legal status undetermined	Narrowing road leads to seawall and rocky shore. Platted as 30 ft access way, upper portion used as driveway by adjacent homes.
Dunes Rd, Plat NS, Lots 621 and 622	PRIVATE, Bonnet Shores Fire District	For use by plat residents and guests only.
Camden Rd, Plat NS, Lot 635	PRIVATE, Bonnet Shores Fire District	
Harwich Rd.	Unaccepted Town Road Legal status undetermined	Limited potential as access way in current condition.
Burbank Ave.	Unaccepted Town Road Legal status undetermined	Limited potential as access way in current condition.
Lake Rd./Pwky Dr.	Unaccepted Town Road Legal status undetermined	Grassed lot adjacent to residence
Bonnet Pt. Rd./Causeway	Unaccepted Town Road Legal status undetermined	Potential for fishing, no parking.
Mettatuxet Road at South River Drive, Plat NG, Lot 237	PRIVATE, Mettatuxet Homeowner's Association	For use by plat residents and guests only.
South River Dr, Plat NG, Lots 236 and 238	PRIVATE, Mettatuxet Homeowner's Association	For use by plat residents and guests only.
Conanicut Ave at Arnold Road	PRIVATE	

Location	Ownership Status	Description
Boston Neck Rd, Plat NI, Lot 9	State of Rhode Island	Overlook with view of Bay, currently no parking or shore access
North Cliff Drive	PRIVATE	Insufficient evidence presented at CRMC hearing to declare public. For use by plat residents and their guests only
Anawan Drive	PRIVATE	Insufficient evidence presented at CRMC hearing to declare public. For use by plat residents and their guests only
Middle Bridge	Towns of Narragansett and South Kingstown	Abutting land privately owned, fishing from bridge, private parking for nominal fee, bait shop, boat rental
Bridgepoint Commons	Town of Narragansett and USFWS	Access via Bridgepoint Drive, parking, scenic view, habitat protection area, no water access.
Sprague Bridge	RIDOT	Parking, fishing, scenic overlook, historic bridge, litter problem, boat ramp southwest side of bridge access from Starr Drive
Starr Dr. West	Unaccepted Town Road Legal status undetermined	Overgrown at this time
Row 200 feet to the north of Wood Dr.	PRIVATE	For use by residents of Wood, South, and Dale Road plat and their guests.
Canonchet Farm	Town	Trails through woods to Pettaquamscutt Cove, parking, picnicking, and museum.
Narragansett Town Beach	Town	Swimming, concessions, parking, changing facilities etc.
Riverside ROW (north) 40 foot ROW, located between lots 95 and 99 on Plat B-2	Town ROW	ROW leads to Town-owned lot 99B. Currently difficult to access; drainage easement on lot.
Riverside Drive (south) 20 foot ROW, located between lots 88 and 89	Platted Unaccepted ROW Legal Status Undetermined	Currently inaccessible. Road is not in ROW location.
Narragansett Sea Wall	RIDOT	Extends from S. Pier Rd to Narragansett Beach. Walking, views, fishing, roadside parking.
Westmoreland St	Unaccepted Town Road Legal status undetermined	Good potential if developed
Wandsworth St	Accepted Town Road	Good access with parking, small boat ramp
“Tucker’s Dock”	RIDOT	Small craft ramp, fishing, surfing site, parking lot
Wood Hill Rd	Unaccepted Town Road Legal status undetermined	Sandy beach, remnants of boat ramp
Wheatfield Cove Rd	Unaccepted Town Road	small sandy beach, currently no parking, small boat launch
Foddering Farm Rd	Accepted Town Road	small boat launch, currently no parking
Flintstone Rd (west end)	Unaccepted Town Road Legal status undetermined	currently used a driveway to a private home

Location	Ownership Status	Description
Flintstone Rd (between Lots 45, 46)	Unaccepted Town Road Legal status undetermined	Grass strip 8 ft wide to Pt. Judith Road.
Flintstone Rd (east end)	Unaccepted Town Road Legal status undetermined	Possible to launch a small boat.
Sunset Farm	Town Property extends to Pt. Judith Pond	Trails need to be developed to facilitate access to water.
Hazard Ave	Unaccepted Town Road	Historical/scenic area, fishing, no swimming, dangerous rocks.
Newton Ave	Unaccepted Town Road	Historical/scenic area, fishing, no swimming, dangerous rocks.
Bass Rock Rd	Accepted Town Road	Historical/scenic area, fishing, no swimming, dangerous rocks.
Black Point	RIDEM	Fishing/hiking, scenic views, cliffs and bluffs. Park in state lot for Scarborough.
Scarborough State Beach	RIDEM	Swimming, concessions, parking, picnicking etc.
North Fort Rd	Public Easement along shore	Coastal walkway. Enter North Fort Rd and head north along shore or walk south from Scarborough. No access through subdivision.
Pocono Rd. Plat L between Lots 241 and 243	PRIVATE	For use by plat residents and guests only.
Glenwood Ave at High, Plat L. Lot 235	Town owned lot	Narragansett Pier Sports Fishing Association access
Glenwood Ave Plat L, Lot 234	Town-owned lot	Steep drop to water.
Third Street at Ocean Spray Ave	Unaccepted Town Road Legal status undetermined	Rip Rap shoreline, small sandy beach, outfall structure for street drain.
Nichol Ave	Unaccepted Town Road Legal status undetermined	Small pathway mowed at end of asphalt to an abrupt 6 ft scarp to cobble sandy beach; severe erosion, no easy access to the beach.
Conant Ave	Accepted Town Road	Rocky beach with drop-off to water. 8 ft concrete retaining wall and drainage structure. No easy access to the beach.
Calef/Louise Ave	Accepted Town Road	Paper street located north of Pt Judith Rd at Pole 8. Grass strip 50 ft wide by 140 ft long, extends east from X of Louise and Calef to a cobble beach.
Clinton Ave	Unaccepted Town Road Legal status undetermined	Narrow pathway, most of ROW covered in herbaceous, wetland plants.
Pilgrim Ave	Accepted Town Road	Rocky beach with drop-off to water.
Rose Nulman Park Plat M, Lot 162	Privately owned, but public access encouraged	5.5 acre parcel overlooking the ocean. Ample parking, benches, site of proposed park.
Light House	US Coast Guard	View, historic
Pt Judith State Park, Plat M, Lot 165, 172	RIDEM	Sand beach, parking, hiking, fishing, and good potential for a boat launch/marina.
Break-wall Access, Plat M, Lot 166	Army Corps of Engineers	Break-wall, sand beach, fishing, good potential for a boat launch/marina.

Location	Ownership Status	Description
Pt. Judith Wildlife Refuge	RIDEM	Protected wildlife refuge
Roger Wheeler State Beach	RIDEM	Sandy beach, shallow drop-off, large parking lot, concessions, etc.
Salty Brine State Beach Breachway	RIDEM	Sandy beach, restaurants, parking, seawall, fishing, scenic views.
Ocean Ave, Jerusalem	Town Accepted Road	Wide pathway to sandy beach.
West Wall	US Corps of Engineers	Breachway at Jerusalem and Galilee
East Matunuck State Beach (Narragansett/South Kingstown)	RIDEM	Parking, concessions, rest rooms and beach.
Succotash Saltmarsh (Narragansett/South Kingstown)	RIDEM	Canoeing, occasional nature tours, bird watching, park at state beach.
Succotash Marsh, Succotash Road Entrance, Plat I	Town dead ends in state land	Access to Succotash salt marsh and beach on Pt Judith Pond.
State Pier 4	RIDEM	Fin fishing, swimming, parking, and small beach.
State Pier 3, Galilee	RIDEM	Just north of the Block Island Boat, commercial fishing fleet, sightseeing tours.
Great Island Bridge Boat Ramp	RIDEM	Ample parking, small dock, well maintained boat ramp. No swimming,
Galilee Salt Marsh (Bluff Hill Cove Access)	RIDEM	Recreational shellfish area, bird watching, parking along Escape Road.
Fisherman's Memorial Park and Salty Acres	RIDEM	Camping, shellfishing, nature programs, views.
Sunset Shore Drive at Green Acres Drive	Unaccepted Town Road Legal status undetermined	Grass lawn to pond.
Knowlesway Extension	Accepted Town Road	Potential for picnics, fishing, scenic viewing. Adjacent Town and State lots to the north have potential for future enhancement.
Pondview Rd	Private ROW	Access limited to plat residents and their guests only.
Meadow Rd	Private ROW	Access limited to plat residents and their guests only.
Durkin Drive	Unaccepted Town Road Legal status undetermined	Overgrown footpath.
Robertson Road	Unaccepted Town Road Legal status undetermined	Overgrown road end.
Marine Drive, Plat R-3, Lot 82	PRIVATE, owned by Great Island Improvement Association	For use by plat residents and guests only.
Penguin Drive, Plat R-3, between lots 14 and 15	12 ft extension off Town Accepted Road. Legal status undetermined	Difficult to access.
Seacrest Drive, Plat R-3	Town Accepted Road	Walking access to Pt. Judith Pond. Access chained.

Location	Ownership Status	Description
Seacrest Drive, Plat R-4		Possible to hand launch a small boat. Access chained.
Starfish Drive, Plat R-2 at 304	Town Accepted Road	For use by plat residents and guests only.
Starfish Drive, Plat R-2 between Lots 316 and 317, 318	PRIVATE, owned by Great Island Improvement Association	Walking access to Pt. Judith Pond.
Island Road	Town Accepted Road	Sand and Pebble Beach
Mollusk Road, Plat R-2	Town Accepted Road	Sensitive environmental area. No development plans at present.
Little Comfort Access, Plat R-2, Lots 376 thru 392, 407	RIDEM	Scenic view of Galilee. Sandy beach.
East Shore Rd, Plat R-2, between lots 13 and 14	40 ft wide extension off Town Accepted Road. Legal status undetermined.	Access to Pt Judith Pond, possible to hand launch a small boat.
East Shore Rd, Plat R-2, between lots 19 and 22	50 ft wide extension off Town Accepted Road. Legal status undetermined.	Access to Pt Judith Pond, possible to hand launch a small boat.
East Shore Rd, Plat R-2	40 ft wide extension off Town Accepted Road. Legal status undetermined.	Walking access to Pt Judith Pond.

**denotes CRMC designated ROW*

Any discussion of public access ways must contain the caveat that in some cases the legal title to platted roads and ROWs is unclear. Prior to the adoption of formal subdivision regulations, persons were not obliged to formally dedicate roads before recording plats and selling lots.
Indeed, the costs and responsibilities of road construction and design provided an economic incentive not to dedicate roadways. As a result, areas indicated as roads on plats often lack documentation of a formal dedication, despite the fact that they are used by the public and maintained by the Town.

In light of this common failing, Rhode Island courts, through several decisions, have established a general rule that the indication of a roadway on a recorded plat constitutes an implied public dedication. The courts have also ruled that roads are accepted by a town through public usage and/or the town's actions to maintain the road over a period of 20 years. Municipalities may also move to formally accept existing roads.

The public ROWs listed in Table 54 fall into a range of certitude according to the following criteria:

- Property is owned by local, state or federal government and is used to access the shore.
- Platted, town-accepted streets or ROW's that are used by the public for shoreline access.
- Platted, town-accepted streets or ROW's that are not yet developed for public access.
- Platted streets or ROW's that have not yet been officially accepted by the Town.

Conservation and Passive Recreation

According to Ocean State Outdoors: Rhode Island's Comprehensive Outdoor Recreation Plan (Report Number 113, 2009), passive outdoor activities such as walking, bicycling, picnicking, jogging, and nature observation and photography rank statewide, in frequency, among the top ten outdoor activities. These

kinds of activities may take place in a variety of settings ranging from sidewalks in urban areas to dense woods. Many of the Town's community parks and open spaces provide abundant opportunities for passive recreation.

Map 18, Map 19, and Map 20 show the interconnection of recreation and open space lands. From these maps it is obvious that state, private and Farm, Forest and Open Space properties provide valuable greenbelts between many of the Town's facilities. In areas where public access is not permitted these lands still provide visual and environmental buffers that help to improve the quality of life for Narragansett residents. These protected lands help prevent the fragmentation of open space and provide many valuable environmental benefits including: preservation of habitat, natural conduits and barriers for flora and fauna, natural filters to protect ground and surface waters, sediment and nutrient sinks, and temperature regulation and flood protection.

Since the late 1970s, cluster zoning has preserved hundreds of acres of sensitive and strategic open space. Although not in full town ownership, such space is protected through perpetual conservation easements granted to the Town. Furthermore, such property, although not open to public use, remains on the tax rolls.

In the past two decades, the local, state and federal governments have acquired strategic and environmentally valuable parcels. The three most recent town acquisitions are Canonchet Farm (175 acres), Bridgepoint Commons (town portion 38 acres) and Sunset Farm (100 acres), plus the adjacent 48 acres (Rotelli). All have significant scenic and open space uses as a basic element of their management plans.

Major state open space holdings include Galilee Saltmarsh, Point Judith Park and Refuge, Black Point, Succotash Saltmarsh and the Sprague Bridge Overlook. In addition, the Federal government is currently expanding the 600-acre John H. Chafee Wildlife Refuge, approximately half of which will be located in Narragansett. Some active recreational uses, such as beaches, ball fields, golf courses and the like may provide associated open-space values.

Recreation and Open Space Facility Master Plans

The Town has prepared management and development plans for its principal recreation and open space sites, specifically Sunset Farm, Canonchet Farm, Christofaro Playground, The Towers, The Camp, and Bridgepoint Commons. Objectives are based upon the current need for active and passive recreation as assessed by the recreation inventory, public interest and current demand. . Highlights of these plans are summarized below. Specific policies pertaining to each site appear in the goals and policies section of this Plan.

The development of any of the facilities and programs mentioned below is dependent upon the availability of state and local funds. Given the current economic situation, the Town will be seeking help from volunteer groups and nonprofit organizations for things such as trail maintenance, beautification, environmental and agricultural education, habitat improvement and program development. Pals of the Playground is one such group that was formed to raise money for a new playground at the Domenic Christofaro site. It is this spirit of cooperation and volunteerism that will enable Narragansett to both maintain and improve its recreation, agricultural, and open space programs.

Revenues obtained from the leasing of Narragansett's fine public buildings such as the Towers, the North Beach Clubhouse, and the Kinney Bungalow at Sunset Farm could provide funds for recreational development and building maintenance. Necessary repairs to these facilities should be made so that income from them can be generated.

Domenic Christofaro Park

Christofaro Playground is a 36.4 acre recreational complex located in the North End of town. Although the area is primarily devoted to active recreation, approximately 25% of the site is still forested. On site facilities include four tennis courts, two basketball courts, one baseball field, and multiple soccer fields. There is a skateboard/in-line skate park that is need of replacement. In addition, the Park includes a playground area, picnic area, and concession stand and bathrooms.

BridgePoint Commons

Bridgepoint Commons is a 38.3 acre parcel purchased by the Town in 1989 with the assistance of State Recreation and Open Space Bond monies. An additional 26 acres adjacent to Pettaquamscutt Cove was purchased by the U.S. Fish and Wildlife Service as the first acquisition in the development of the John H. Chaffee Wildlife Refuge. The Town-owned portion of Bridgepoint Commons is divided into recreation and conservation areas.

Management objectives for the Bridgepoint Commons Conservation Area are as follows:

- Preserve and protect critical habitat along the shore of Narrow River (lands under federal jurisdiction).
- Maintain diversity and quality of habitat up-slope from Bridgepoint Drive.
- Retain and enhance the buffer function of the site relative to present and potential future pollution sources.
- Protect the archaeological potential of the site.
- Preserve and enhance scenic values from Boston Neck Road and on-site.

The Town mows designated areas throughout the spring, summer, and fall in order to maintain wildlife habitat and scenic vistas.

Recreation areas nearest the federal refuge will be developed as passive recreation. Future development for Bridgepoint includes a small picnic area, clearing along the road to better expose the stone walls, interpretive signage about Narrow River, installation of an entrance sign, and entrance landscaping. In addition, the State is investigating the possibility of the West Bay Bike Route which would cross the property. Reconstruction of stone walls has recently been completed.

Canonchet Farm

The Canonchet Farm site is made up of 160 acres of former farm land, forest and wetlands located west of Boston Neck Road in the vicinity of Narragansett Town Beach. This property was formerly known as the Robinson Farm in the 19th century and later as the Sprague Mansion homestead. Located on a hill known as "Little Neck," the property was acquired by the Town in 1974 with financial assistance from State and Federal sources. Soil qualities, which were noted in a past plan, indicate much of the site to be environmentally constrained for structural development. Roughly 40 to 45 acres of the site can be identified as soils appropriate for development. These soils are predominantly located in the area

around the South County Museum, the upper and lower meadows and the area of the Anne Hoxsie Lane parking lot.

Two official plans have been drafted since 1974 targeted to management of this site. In 1978, the "Recreation Master Plan – Canonchet Farms" was drafted by Albert Veri Associates, a consultant firm. This plan was superseded by the Towns own "Canonchet Farm Master Plan" drafted by the Community Development Director Clark Collins in 1993.

Today's master plan was created using policies from these previous plans as a foundation and supplementing these with input from several sources. Integral to this process were the following documents:

- Report to the Town Council, March 2, 2009 – by the Canonchet Farm Master Plan Review Committee.
- A Master Plan For Canonchet Farm, October, 2009 – by the Narragansett Tree Society (as presented by Patrick Brady and William Bivona).
- Survey Results, 2010 – by the Narragansett Parks & Recreation Department.

Elements of the Plan

The following offers a summary of the master plan's components and policies.

- Farm and Museum Development: The South County Museum is located on the Farm. The master plan accommodates its expansion and will be updated when and if this occurs.

- Nature Trails: Hiking trails are a major component of the Farm's recreational program. In addition to serving as a highlight of the Farm, the trails also serve to provide a primary access corridor between activity areas.

- Habitat Clearing/Vista Enhancement: Two meadows, through managed clearing, offer views of historic stone walls and vistas of the property.

- Beech Grove: This area is located adjacent to the parking lot off Anne Hoxsie Lane and is a portion of the area targeted for the clearing of invasive vegetation and modest hiking trail expansion.

- Fishing Pier/Docks: Opportunities for fishing docks and small boating access (non- motorized) exist along Narrow River and Lake Canonchet.

- Linear Park: A linear park is envisioned along the Boston Neck Road frontage from the corner of Narragansett Avenue north to the town's pump station, offering visibility external to the site.

- Access: Canonchet Farm is accessed from Strathmore Street. Access through the site is in the planning stages.

- Parking: The property currently contains an overflow parking lot for the Town Beach. While the

lot is needed, this parking lot will be eliminated. A new location for the overflow parking lot is under consideration.

- Nature Center: A nature center is proposed to enhance educational experiences at the Farm. Its location is in the planning stages.

- Camping: Camping is not permitted on the property, however, the Town will consider it on a case-by-case basis for organized scouts and military groups.

- Site Management: Future management of the Farm will be done through development of a commission.

- Bike Path: A bike path is anticipated through the site. Its alignment has yet to be determined.

- Utilities: Future utilities for proposed facilities will be constructed underground in accordance with the conditions of the grant acquisition program.

The plan contains additional elements unrelated to policies associated with the Farm. They are:

- Reconstruction of the Carriage House
- Garden development in compliance with grant acquisition program in the area around the Carriage House and along Anne Hoxsie Lane, just north of the northernmost properties on Canonchet Way
- Directional and information signage throughout the Farm along proposed facilities

<u>The Towers</u>

The Towers is a unique historical resource which recalls the popularity of Narragansett as a nineteenth century seaside resort. The three and a half story stone structure was designed by McKim, Mead and White of New York, one of the nation's most prominent late nineteenth century architectural firms. It was designed as an addition to the Narragansett Casino, a rambling Shingle style structure which swept out to the side on grounds laid out by Frederick Law Olmsted, noted landscape architect and the designer of Central Park. The wooden part of the casino and the tower roofs were destroyed by fire in 1900. The Towers was rebuilt in 1908 following plans drawn by J. Howard Adams. In 1938 it was damaged by the hurricane and in 1965 by fire. Subsequently, the State of Rhode Island acquired the building and gave it to the Town. Restoration work began in 1974 and has proceeded sporadically since that time.

During the summer of 1992, The Towers were open to the public for the first time in 59 years. Visitors from 34 states and 12 countries as far away as Kenya and Venezuela toured The Towers. In addition, the building was available for private lease and booked every weekend. Approximately 1,660 people attended a total of 16 special events. The hiring of a Towers Coordinator greatly facilitated the successful first season.

Improvements constructed to date at The Towers include:

- New roof
- New addition and associated historical museum, elevator and stair tower

- First floor heating
- Sprinkler system
- Interior lighting
- Exterior holiday lights replaced with safe, low energy system
- Fireplace and chimney repairs
- Roof repair from Hurricane Bob and 1991 Nor'easter
- Men's and women's rest rooms second floor west tower
- Heating system
- Cupola reconstruction
- Balcony reconstruction
- Window replacement/reconstruction, (ongoing)
- Warming kitchen
- Relocation of fountain to Casino Courtyard

Sunset Farm

Sunset Farm is a unique resource that represents a vestige of Narragansett's past. The Anthony Farm, as it was previously called, was part of the Point Judith Neck Lands divided among several Narragansett Planters during the 17th and 18th centuries. Its fertile grounds provided lush pasture for dairy cattle, horses and sheep. The land was used as pasture for several centuries, but always as part of another farm. It was not until James W. Anthony purchased the property in 1850 that it became a self-contained homestead. The farmhouse and main barn were constructed shortly after 1862. In 1897, the property was sold to Francis S. Kinney, a successful tobacco magnate and a member of the fashionable Narragansett Pier summer colony.

It is reported that Kinney purchased this land following a disagreement with the management of Point Judith Country Club, which was established in 1886 on former Anthony land across Point Judith Road. Kinney purchased the site because of its proximity to Point Judith Country Club for use as a private clubhouse and for post polo game parties. The small red barn with weatherboard siding was built by Kinney to house polo ponies. The Kinney Bungalow designed by architects P.O. Clarke and A.R. Spaulding was built in 1899 and modeled after an East Indian bungalow.

The property was purchased by Mrs. Irving Chase, another Narragansett Pier summer resident, who left it to her daughter Mrs. Lucia Chase Ewing, co-founder of the American Ballet Theater Company. The Kinney Bungalow was used as a summer practice studio by the members of the dance company. Ballet bars still accentuate the upstairs balustrade. The property was used
by the Red Cross during World War I and as a communications post for Fort Nathaniel Greene during World War II.

The property today represents the last sizeable farmland acreage on Point Judith Neck that has survived from the days of early settlement. The farmhouse, barn and land serve as a reminder of Narragansett's agricultural heritage. The Kinney Bungalow represents the transition from an agricultural economy to a fashionable summer resort. Sunset Farm has been found eligible for inclusion in the National Register of Historic Places. A formal nomination process has been initiated in order to secure this designation and any associated grants.

The Town purchased the property in March of 1991, with assistance from the Trust for Public Lands, $900,000 from State Open Space and Recreation Grants and $1.2 million from a local referendum. In

1993 an additional 43 acres were obtained through the generosity of the Rotelli Family, the Champlain Foundation and The Nature Conservancy. The property includes many diverse habitats including a large expanse of saltmarsh, coastal shrub community, streams, wetlands, prime agricultural land, old field, and upland forests.

Prior to acquisition, the property was divided into four management parcels. This was done to avoid use conflicts and to ensure that appropriate grant restrictions would be placed on the land and that no grant restrictions would be placed on the buildings. The Narragansett Land Conservancy Trust is responsible for the management and development of the property.

Parcel A, Recreation
This 41 acre parcel will be used for active recreation and agriculture. Recreational uses will be designed to maintain the property's visual and historic integrity and will be compatible with existing and planned agricultural activities.

It is the intent of the Narragansett Land Conservancy Trust to support the development of sustainable agriculture and related educational programs at Sunset Farm. For the past decade, the site has been actively farmed. Various species of plants and flowers are grown and sold at the farm. The site also hosts a number of animals including chickens, goats, and cattle in excess of 40 heads.

Parcel B, Buildings
Parcel B includes all of the buildings and 7.26 acres of land. This parcel was not purchased with RIDEM funds and is therefore not restricted by any grant conditions. Management of the parcel, however, will complement the goals and intended uses on adjacent parcels. The farmhouse is the private residence of the farm manager. All other buildings are open to the public and will provide a base of operation for recreational and educational activities. The Kinney Bungalow could serve as a site for a much needed future community center. The Kinney Bungalow has recently undergone a complete renovation including bathrooms, new kitchen, and rehabilitation of second floor function room. The building is currently available for renting for special events held between April and October.

Parcel C, Open Space and Passive Recreation
The 58.8 acres of Parcel C provide outstanding opportunities for environmental education and research and passive recreation. Possibilities include self-guided nature trails, interpretive programs, habitat enhancement, equestrian trails, wildlife demonstration programs, tree or shrub nursery, etc. Although this sub-parcel contains a variety of habitats, interspersion is low. Due to its soils and hydrology, the area is well-suited to habitat improvement and wildlife management.

Parcel D, Conservation Easement
This parcel is under private ownership. The Land Trust retains a conservation easement on this property which enables the homeowner to build one single family home on 13.85 acres. Sighting controls and other restrictions ensure that the environmental and scenic integrity of Parcel D will be maintained.

<u>Sprague Park</u>
Sprague Park, which covers 15 acres adjacent to Narragansett Pier, is the centerpiece of the Town's active recreation program. It provides playing fields and accessory buildings for major organized sports such as football, baseball (adult and youth facilities) and tennis while also providing playgrounds for summer day camp, picnicking, and special events. The park also includes a Community Center, war

memorial and an attractively maintained landscape. In addition to accommodating town recreation programs, high school sports programs make use of the tennis and baseball fields.

As one of the Town's principal community parks, it would be desirable to continue further facility enhancements. Unfortunately access to more developable land adjacent to Sprague Park on Canonchet Farm is made difficult by areas subject to storm flowage and wetlands.

The renovated building at the Sprague Tennis Courts has a meeting room which is available for rental. Small group meetings or activities are suited well for this building as the room can comfortably hold up to 40 people.

The Camp

The Camp is located on Clarke Road and is approximately 13 acres. Once completed, facilities at the Camp will include: an aquatics building and municipal pool (closed in 2012), three tennis courts, an outdoor basketball court, multi-use fields, and a recreation and gymnasium room.
It addition to active recreational facilities, the Camp also houses the Parks and Recreation Department's administration offices, the recreation and education building, and the windmill house, and storage cabins. The Department is presently requesting a work shop with the Town Council to provide guidance on the future plans and commitment for funding to repair the Recreational Building, tennis courts, basketball court and possible replacement of the pool.

Assessment/Needs Analysis

Narragansett had experienced a rapid and sustained increase in population over the past five decades; however, the 2010 U.S. Census shown a slight 3% drop, the first since the 1930s. When doing the recreation needs assessment, it is important to look at existing and projected population in order to be able to adequately assess recreational needs.

Total acreage alone is not an adequate criterion for judging whether or not a community's recreational needs are being met. Age, disposable income, education, ethnic background, geographical location, attitudes toward the environment, and available leisure are important factors used in determining recreational needs. The distribution of recreation sites in relation to population, the group to be served, the type of recreational activity, seasonal fluctuations, ability to maintain existing facilities, and the physical capacity of the site should also be considered.

According to the National Recreation, Park and Open Space Standards and Guidelines, each community is unique due to geographical, cultural, climatic, and socioeconomic differences. It is imperative, therefore, that each community evaluate and modify these guidelines according to their own individual needs.

Although the town does not specify an acreage standard, at a minimum town-owned recreation and open space acreage should not drop below the 1990 per capita ratio of .0249 acres of combined recreation and open space per person. The Town's current rate is .17 acres per capita. As the population grows, additional land must be acquired and existing facilities more fully developed in order to maintain current per capita acreage and facility ratios.

Athletic Fields Assessment

Initiated by the Narragansett School Department in 2011, the Town of Narragansett Athletic Fields Assessment and Master Plan reviewed both town- and school-maintained athletic fields. Condition and usage were evaluated and short-term maintenance and repair recommendations were made for each field. The assessment concluded that 11 of the 18 fields evaluated exceeded the usage goal of 200 scheduled team uses per year. Focusing on town-maintained fields, Field 3 of Christofaro Park (baseball) and Sprague Park (baseball) both exceeded 400 uses per year, where proposed uses per year were 200 and 225 respectively. The baseball diamond at Christofaro Park was characterized as being in fair to poor condition, noting the infield needed grading, the outfield has week turf growth density and significant turf loss due to wear from soccer played in the outfield, and planking on spectator seating was deteriorated, among other issues. The baseball diamond at Sprague Park was characterized as being in generally good condition. Noted conditions included several portable spectator seating units needing replacement, a few localized areas within the outfield were devoid of turf, and the pitcher's mound needed minor regrading, among others.

The lower Field 2 at Christofaro Park (multi-purpose) was reported to have 396 uses per year and 200 were recommended. The multi-purpose field was characterized as being in fair condition. The assessment noted that the field needed a rest period due to overuse and high demand, turf growth density was weak and several areas were devoid of turf, and field and spectator seating was not compliant with the Americans with Disabilities Act.

2011 Recreation Department Survey

In 2010, the Parks and Recreation Department mailed a survey to 2,500 randomly selected addresses. In each planning district, the North End, Central Area, and South End, roughly 850 residents received surveys. Approximately 690 surveys, or 27%, were returned. The beginning of the survey asked some demographic questions. Almost half of the survey respondents lived in the North End (48%), and 21% lived in the Central Area, and 32% lived in the South End. Nearly 94% owned their own homes, and 31% had total family incomes greater than $150,000.

Overall, when asked if they were currently satisfied with the programs offered by the town, 289 answered "yes," and 18 stated "no." Respondents were asked their level of satisfaction on recreational programs and facilities. As shown in Table 55, most are generally satisfied with the quality and variety of programs and they meet the needs of residents.

Table 55. Level of Agreement with Statements Regarding Recreational Programs and Facilities

Statement Posed	Strongly or Slight Agree	Neutral	Strongly or Slightly Disagree
I am satisfied with the quality of community recreation programs	46.0%	38.7%	15.2%
I am satisfied with the variety of community recreation programs	44.0%	35.7%	20.2%
I am satisfied with the variety of park recreation programs	52.2%	31.1%	16.7%
The fees for recreational programs are affordable	48.3%	39.4%	12.2%

Statement Posed	Strongly or Slight Agree	Neutral	Strongly or Slightly Disagree
More park and recreation areas should be desiganted to cater to the needs of teenagers in our area	53.4%	33.0%	13.6%
I am satisfied with the quality of park and recreation facilities	54.6%	29.7%	15.8%
Most playgrounds in our area meet the needs of our young children	61.4%	30.3%	8.3%
Parks and recreation areas need better lighting to make them safer and user friendly	51.2%	37.0%	11.8%
The quality of maintenance of the town been and facilities is acceptable	55.4%	19.4%	25.2%
I am satisfied with the cost of facility rentals	33.0%	42.2%	24.8%
I am satisfied with the cost of a beach pass and parking pass	42.4%	22.2%	35.4%
I am satisfied with the recreational programs associated with the town beach	38.9%	40.1%	21.1%
The town beach should have year round rest room facilities	55.8%	15.4%	28.8%

Additional comments to this question focused on the need for better maintenance, including keeping areas clean of litter and debris, as well as extended use of restrooms into the fall months. Other comments considered the fees associated with facility rental and usage, including the beach, and were at times conflicting. Some contended that they were too high, particularly for the elderly, and others stated they should be raised. There was also a statement that non-residents should be charged higher fees.

The survey also asked respondents to list additional facilities or programs that they would support on four larger parcels that the Town currently owns: Bridgepoint Commons, Canonchet Farm, Sunset Farm, and The Camp. Many had similar responses. For Bridgepoint Commons, most respondents did not know where this property was located (61 of 113 comments).

Activities commonly supported were a dog park (8 comments), being left as it is (7 comments), nature and walking trails (7 comments), and sports/multipurpose fields (6 comments). For Canonchet Farms, most commented that they would support nature, walking, hiking, or fitness trails (43 of 168 comments). Other common activities that would be supported included leaving it the way it was (21 comments), bike path (19 comments), educational and children's programs (12 comments), and polo (8 comments). At Sunset Farms, most commented that they would support leaving it the way it is (22 of 124 comments). Others commonly supported walking, fitness and hiking trails (13 comments); educational classes (12 comments); and music, art, and theater programs (10 comments). Finally, for The Camp, most commenters did not know where the facility was located or had no knowledge of it (19 of 113 comments). Others supported leaving the site the way it is (12 comments), covering the pool for year-round use (9 comments), activities for teens (7 comments), and expanding pool hours to after 4:30PM and on weekends (5 comments).

The survey also asked residents to consider which programs should be expanded and for which age groups. A majority responded that the Town should increase trips and tours, fitness programs, concerts, and educational programs for adults over 55. There was also strong support for fitness programs for adults between 26 and 54 as well as aquatic programs and social activities for adults over 55. An increased need for more programs for teens between
13 and 17, such as sports, social activities, environmental education, and fitness programs, was also expressed. There was also high support for aquatic programs for elementary school children. Respondents also suggested new programs or more specific types of programs, such as yoga, Zumba, and Tai-Chi for adults, bike paths and bike lanes, tennis, swimming, and art classes.

The survey looked to find out why residents might not participate in town-sponsored programs. As shown in Table 56, most respondents did not know what was available and there was a lack of information on programs.

Table 56. Survey Responses for Not Participating in Town Recreation Programs

Reason for not participating	Number of respondents	Percentage of total responding to this question
No interest in programs offered	115	9.8%
Unable to get to program	24	2.0%
Feed are not affordable	37	3.2%
Do not know what's available	327	27.9%
Lack of time	131	11.2%
Don't have anyone to participate with	53	4.5%
Times and facility locations not convenient	59	5.0%
Inadequate amenities (bathroom/seating areas, etc.)	77	6.6%
Do not feel safe	9	0.8%
Lack of information on programs	341	29.1%

Respondents were asked to check off the facilities the Town should consider constructing or expanding. The most popular were:

- Bike/walking paths (361 respondents)
- Indoor swimming pool (273 respondents)
- Additional restroom facilities (271 respondents)
- Additional nature trails (236 respondents)
- Dog exercise field (201 respondents)
- Indoor/outdoor ice skating facility (191 respondents)
- Youth program center (180 respondents)

Finally, in light of potential budget cuts, the survey asked if respondents would be willing to pay more for recreational programs. 55% responded that it would depend on the amount of the increase, 25% said no, and 17% indicated that they would be willing to pay more.

Recreation Needs

The following items were considered in assessing need and in the development of local recreation and open space standards for town-owned land and facilities:

- The needs and desires of the citizens as gathered from a variety of public forums.
- The inventory and condition class analysis of all existing parks and recreational facilities be undertaken in accordance with the "State of RI Outdoor Recreation, Conservation and Open Space Inventory Form."
- Time-travel distance of each facility as it relates to the service area.
- Demographic, social, ethnic, and economic profiles of the community.
- Local attitudes, traditions, customs, preferences, demand, participation characteristics, level of use, scheduling conflicts, etc.
- The degree to which land within the individual properties is undevelopable due to limited access, wetlands, soils, etc.
- New trends, patterns and activities in recreation.
- Tourist versus resident use of town facilities.
- Parks and Recreation Department use of school property as scheduling permits and vice versa.
- Maintenance requirements.
- Responses to the 2011 Recreation Survey
- Results of the 2012 Field Assessment

Overall, Narragansett has acquired properties to ensure that recreational, conservation, and open space opportunities will continue to be available to residents. In the 1985 Recreation Plan, it was concluded that there was an immediate need for playground and community park facilities in the North and South Ends. This need still exists. The following summarizes the future need for indoor and outdoor recreational needs.

Indoor Recreation Needs

An indoor gymnasium is the Town's greatest indoor recreational need. The existing Community Center is too small to service a gymnasium and functions primarily as a Senior Center. The Center is well-maintained, but improvements such as room dividers, handicap access improvements and floodlights should be considered. With available gym space at a premium, time allocations have been cut for at least two adult programs. There is a demand for adult basketball, volleyball and similar programs, but gym space is not available. This lack of space negatively impacts all other indoor sports programs for both youth and adults. The potential of constructing an inter-municipal sports complex with neighboring towns should be investigated.

Outdoor Recreation Needs

The immediate needs for outdoor recreational facilities include the following:

- Regulation baseball (children and adult-based ballfields)
- All purpose festival field
- Improvements to existing playgrounds to make them accessible to persons with disabilities
- Neighborhood-based recreation including tot lots, playgrounds and basketball courts
- Soccer field
- Bike paths

- Skateboard facilities at Christofaro Park needs replacement

Regulation Size Baseball: Presently the Town has two regulation sized baseball fields which are located at Sprague Park and Narragansett High School. The number of groups competing for playing time at Sprague Park has sorely taxed the capacity of this field. Presently this field accommodates the Narragansett High School, Narragansett Sr. Little League, and Adult Men's Leagues. The second regulation field, located at the high school, is not "state of the art" but it is playable.

Courts: Narragansett's 16 tennis courts are in good condition. There is a current need for an additional basketball court at Sprague Park and Christofaro Park. The Town's community parks provide potentially suitable locations.

Playgrounds: There is a demonstrated need for some up-grading of our existing facilities in terms of replacing old equipment that, by design, is not consistent with recently enacted safety standards. In addition, accessibility as mandated under the Americans with Disabilities Act (ADA) must also be provided.

Neighborhood-Based Recreation: The lack of neighborhood-based recreation is particularly evident in the North End Planning District, which has a high percentage of children. Tot lots and basketball courts in neighborhood areas would also help to fill the need. All future improvements should be sensitive to the needs of persons with disabilities and conform to the requirements of ADA.

Bike Paths: The South County Bike Path follows the right-of-way of the former Narragansett Pier Railroad. It begins at the Kingston Railroad Station and passes through the Great Swamp, Peace Dale and Wakefield before terminating at the ocean front at Narragansett Pier. To date, a bicycle path has been constructed from Kingston Station to Route 108 Crossing and extends into Narragansett at the Narragansett Elementary School. Preliminary designs are underway for extension to the South County Museum. In addition, planning and design work is underway on a bike path along the abandoned Sea View Railroad TOW, extending from Goddard Park in Warwick to Point Judith through Narragansett.

The West Bay Bike Path has the potential for providing significant transportation benefits to residents and visitors of North Kingstown and Narragansett. The two towns recognized the need to improve bicycle travel between the towns and requested that RIDOT investigate the feasibility for a continuous bike path. The southern terminus of the proposed trail would be the State Pier at Galilee where ferry service to Block Island is available. From Galilee a route will be sought to bring cyclists north into the Narragansett Pier.

APPENDIX A

Narragansett Population Trends Report

June 2012

Narragansett Population Trends Report

2010 US Census Data Compilation for Narragansett, Rhode Island

Photo: by Ya Zhang, 2010 Point Judith, Rhode Island. Available at: http://photo.net/photodb/photo?photo_id=11074717 [accessed on May 8, 2012]

Narragansett Department of Community Development

Population Trends Report

June 2012

Narragansett Planning Board

Terence Fleming, Chair

Dr. Joseph O'Neill, Vice Chair

Stephen E. Glazer

John P. Hodnett

Vincent A. Indeglia

Produced by:

Michael DeLuca, Narragansett Planning Director

Bruce Lofgren, Planning Intern

Acknowledgements

The ***Population Trends*** report was produced by the Town of Narragansett's Department of Community Development in May 2012. This report was primarily written by Bruce Lofgren, planning intern, under the direction of Michael DeLuca, Planning Director, and the rest of the Department of Community Development staff.

Individuals from outside of the Department that helped in gathering information for the Population Trends Report are:

Amanda Martin, Principal Planner, Rhode Island State Wide Planning Program

Gina Simeone, RI DEM Division of Parks & Recreation

Steven Wright, Interim Director, Town of Narragansett Department of Parks and Recreation

Cindy Duckworth, Narragansett Building Inspection Department

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Rhode Island Statewide Planning Program

Narragansett School Department

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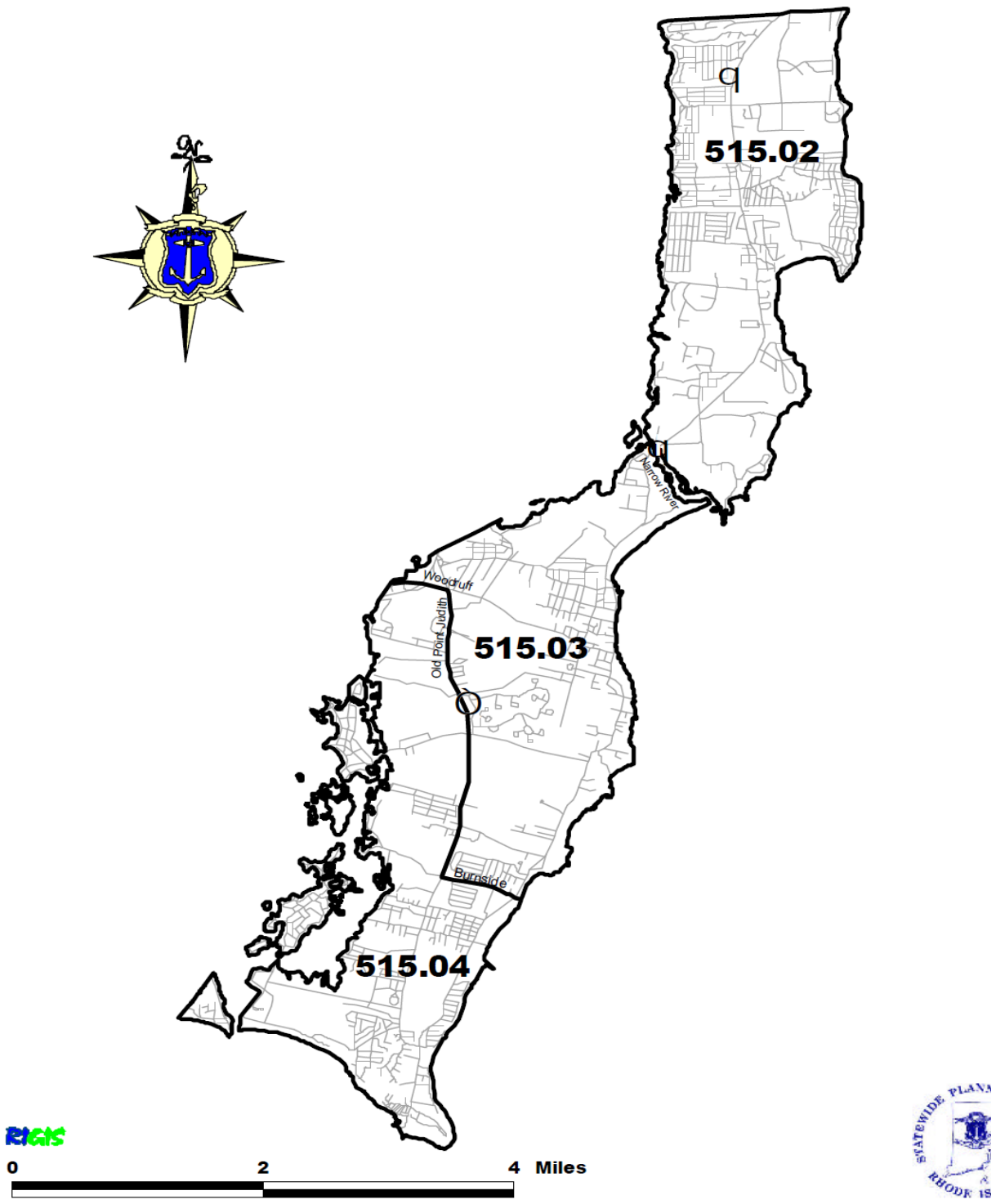
Narragansett 2010 Census Tracts



Introduction

The United States Census Bureau is the government agency responsible for the United States Census. The first U.S Census report was taken shortly after the American Revolution in 1790. The purpose was to get an accurate count of Americans, and their state of residency. To be as precise as possible, the census required that every household be visited, and that the total number of persons and their basic descriptions (White Males over 16, White Males under 16, White Females, or slaves/other free persons) for every district be counted and sent to the president. In addition, the report was required to be posted in "two of the most public places within [each jurisdiction], there to remain for the inspection of all concerned."[1] Since the first census, the U.S Census Bureau has been reproducing this report every ten years. The decennial report information is an essential data set used in distributing Congressional seats, electoral votes, and government program funding. It is also an important data tool for businesses, which use the census information to forecast future product demands, choosing new locations for expansion, and projecting future needs for nursing homes, day care centers, and hospitals. Additionally, census data is used by federal, state, and local governments in planning locations of new housing and public facilities, transportation planning, local schools, utilities, and evaluation of local demographics.

Most recently, the Bureau released its 22nd report in 2010. Since the 1790 census, the report has become much more complex and sophisticated. However, in 2010 only ten questions were asked. The topics were gender, age, race, ethnicity, relationship, and whether you own or rent your home. This shortened version in 2010 is the result of the addition of the American Community Survey to the census program. First released in 2008, the American Community Survey is an ongoing, yearly collection of data asking questions about education, housing, jobs, etc. This information was previously collected in the long- form questionnaires of the census report (received by 1 out of 6 households surveyed). As a result, detailed socioeconomic data is much more up to date than prior to the adoption of the survey.

To help summarize important aspects of census and survey data in Narragansett, the Narragansett Department of Community Development has produced this ***Population Trends*** report. The intention of the first edition of the ***Population Trends*** is to highlight characteristics of the 2010 US Census, as well as provide some characteristics of prior census reports over the past decades. The 30 year period highlighted in this report shows demographic trends that will be useful in future planning of the town. In addition to overall population numbers and age structure of the town, this publication will also explain the seasonal population changes and how it affects certain town demographics. To fully understand socioeconomic trends in Narragansett, this report will explore more detailed characteristics regarding education, employment, income, poverty, housing, ethnicity, and ancestry. Throughout the chapters of ***Population Trends***, Narragansett's demographics will be compared and contrasted with statewide census data from Rhode Island, and also with other Rhode Island Municipalities. This data evaluation between statewide averages and other cities and towns of Rhode Island is intended to give the reader a perspective of how Narragansett stands in comparison. Also when applicable, major differentials between these will be explained and accounted for.

[1] U.S. Census Bureau, Housing and Household Economic Statistics Division

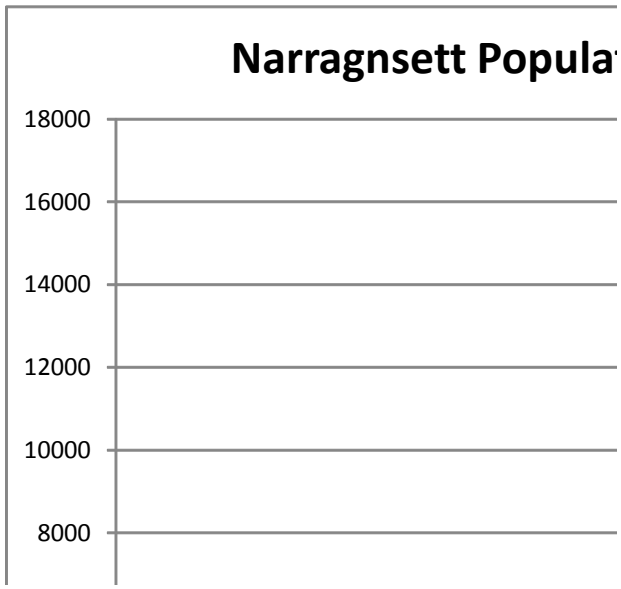
General Population Characteristics

According to the 2010 U.S. Census report, Narragansett has a population of 15,868. This number is down from 16,361 reported in the 2000 U.S. Census. While the Town accepts this statistic, it does not necessarily mean Narragansett lost 493 individuals in the last decade. We will elaborate on the Town's population variations in section V. For the purposes of statistical analysis the Town accepts the reduction as counted.

This 3 percent decline is small, but marks the first drop in Narragansett's population since the 1920 census. Beginning in 1930, Narragansett has seen continuous growth of varying degrees in every U.S Census report prior to 2010. The most rapid population increases occurred between the 1960, 1970, and 1980 census. In 1960, the town had only 3,444 residents. By 1970, this number rose to 7,138, a 107 percent increase in 10 years. In 1980, the U.S. census reported a 67 percent increase in population with 12,088 residents. The chart below shows Narragansett's population growth since the 1890 U.S census.

Narragnsett Population Trends 1890 To 2010

Year	Population
1890	1408
1900	1523
1910	1250
1920	993
1930	1258
1940	1560
1950	2288
1960	3444
1970	7138
1980	12088
1990	14985
2000	16361
2010	15868



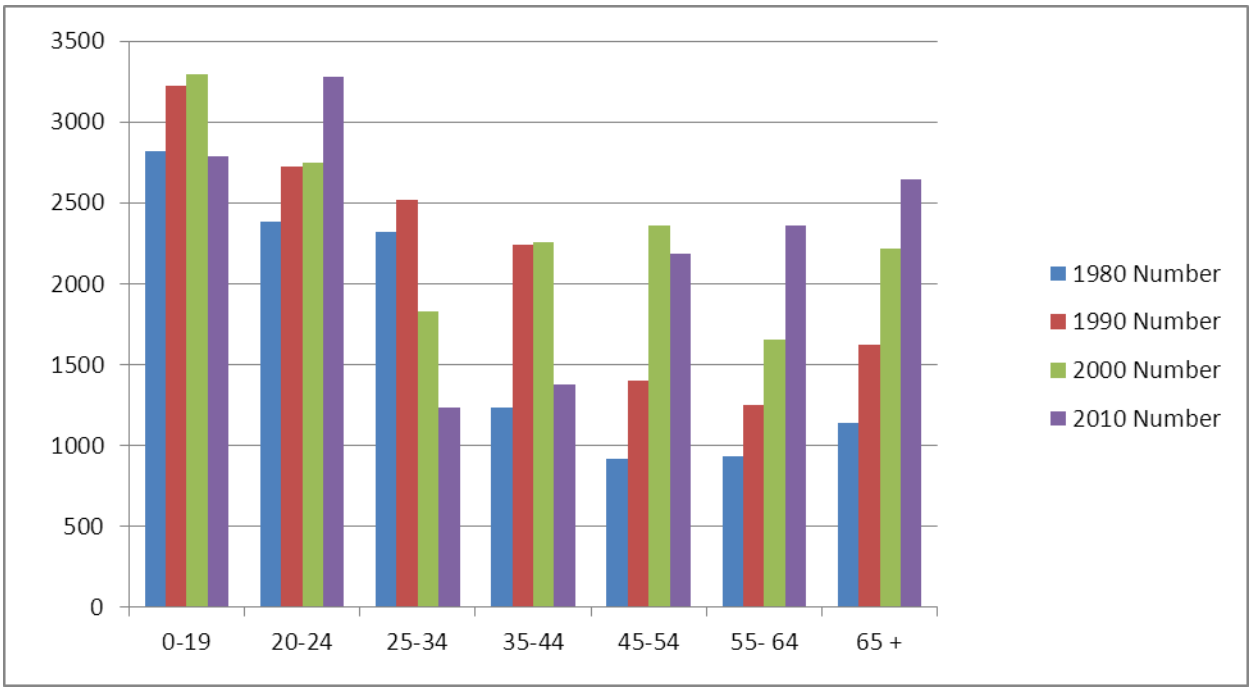
Year		Year		Year	
1890	1,408	**1940**	1,560	**1990**	14,985
1900	1,523	**1950**	2,288	**2000**	16,361
1910	1,250	**1960**	3,444	**2010**	15,868
1920	993	**1970**	7,138		
1930	1,258	**1980**	12,088		

Accounting for the Population Trends

In addition to analyzing the trends in overall population numbers, it is also important to break down these numbers into age groups. Just focusing on the total number of people in the town fails to show trends for future populations, changing sizes of specific age groups, and reasons for prior population fluctuations. In Narragansett, we have seen significant shifts in age composition over the last 30 years.

The figure below shows Narragansett's age composition from 1980 to 2010. It is broken down into 7 age groups called "cohorts", including school aged children (0-19) , college age students and young adults (20-24), mid twenty's to early -thirties (25-34), mid-thirties to early forties (35-44), mid-forties to early fifties(45-54), mid-fifties to early sixties (55-64), and the elderly population (65 and over).

Narragansett Age Composition 1980 to 2010



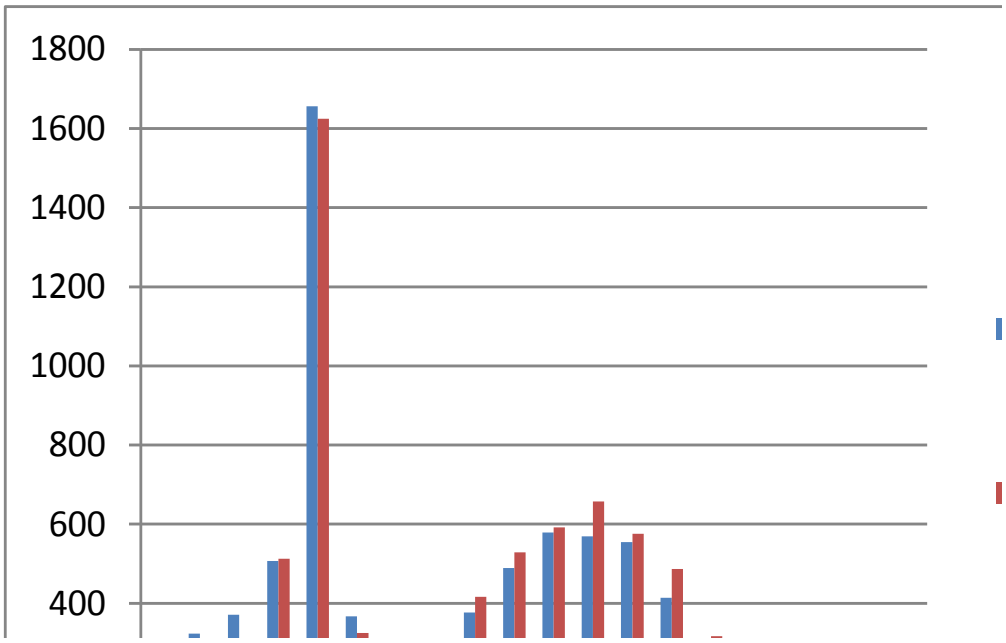
Age Group	1980	1990	2000	2010
0-19	2,822	3,221	3,294	2,786
20-24	2,385	2,724	2,746	3,281
25-34	2,323	2,520	1,829	1,237
35-44	1,231	2,237	2,257	1,373
45-54	916	1,404	2,363	2,189
55- 64	933	1,252	1,656	2,357
65 +	1,135	1,621	2,216	2,645

In this previous figure, there are some notable shifts in several age cohorts. The most dramatic are in the age groups of 25 to 34, 35 to 44, and in the older populations. The town's population overall is trending older, all age cohorts over 50 are steadily increasing. In 1990 Narragansett's median age was 31.2 years. In 2000 that number rose to 44.4 years. In 2010 the median age dropped slightly to 40.4 years, but this is expected to stay even or slightly increase in the coming decades.

Also noteworthy, Narragansett's young adults (post college age) and first time home buyers are declining. This trend of a growing elderly population and a declining young adult (ages 24-35) and youth population (ages 0-19) might reflect lower birth rates. Also, this trend might be attributed to rising home prices in Narragansett. The dramatic increased housing costs of the past 15 years make it hard for young couples in the 24 to 35 age group to settle and have families in town.

The chart below shows Narragansett's population in 5 year cohorts as of 2010 census, separating the male population (blue line) from the female population (red line).

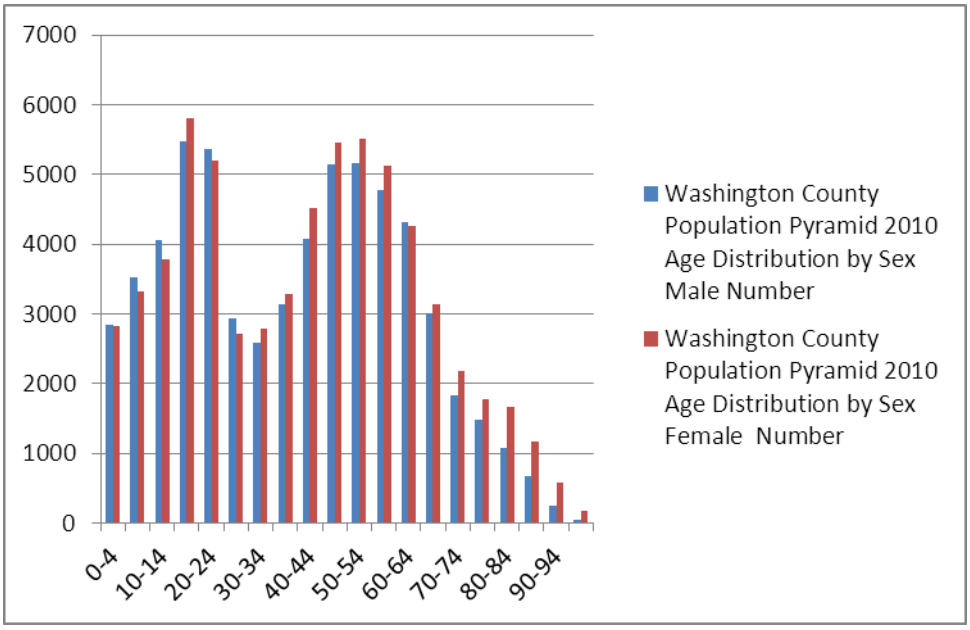
Narragansett's Population by Sex in 2010



In this chart, the largest spike in population represents the college age population of Narragansett. This age group heavily influences the makeup of the town. In 2010, there were 3,281 people in the age group of 20 to 24, making up 20.6 percent of the town's population. This means one of every five people in the town falls in this five year age cohort. In comparison, the age group of 25 to 29 makes up just 4 percent of the overall total. The University of Rhode Island located 8 miles away in neighboring town of South Kingstown significantly affects this uneven population. According to the University of Rhode Island, 55 percent of its students live off campus. Many of these students settle in Narragansett due to the availability of over 2,500 units of rental housing. The next figure is the same graph, but it is taken from 2010 census data for all of Washington County. In the Washington Country graph the age group of 20 to 24 is still shown with a spike, but it is not nearly as dramatic as Narragansett. For comparison, in

Washington County there are 10,566 people that fall into the five year age cohort of 20 to 24 out of 126,979. This accounts for 8.3 percent of the county's population. In other words Narragansett had proportionately more than twice as many young adults than the county average.

Washington County's Population by Sex in 2010



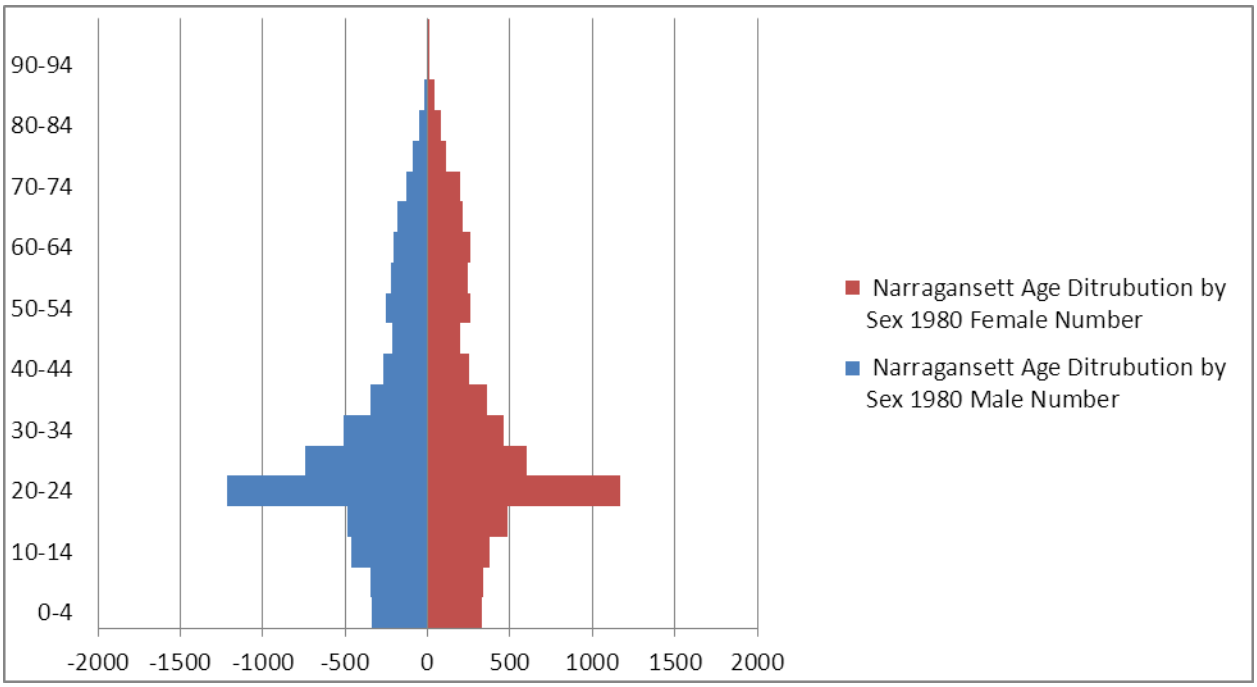
In addition to the spike in young adult population, both maps show a second hump in the population aged between 45 and 65. This age group represents the "baby boom" generation. The baby boom generation was born in the Post World War II era, usually between the years of 1946 and 1963 as defined by the U.S Census Bureau. This demographic group is common throughout the United States and is to be expected in population trends for most cities and towns.

The large percentage of population that the baby boomers make up also contributes to the young adult spike previously mentioned. In addition to college students in Narragansett, this age group can also be defined as the children of the baby boom generation. Therefore, to say that this spike of young adults is predominantly non-indigenous to Narragansett would not be entirely true.

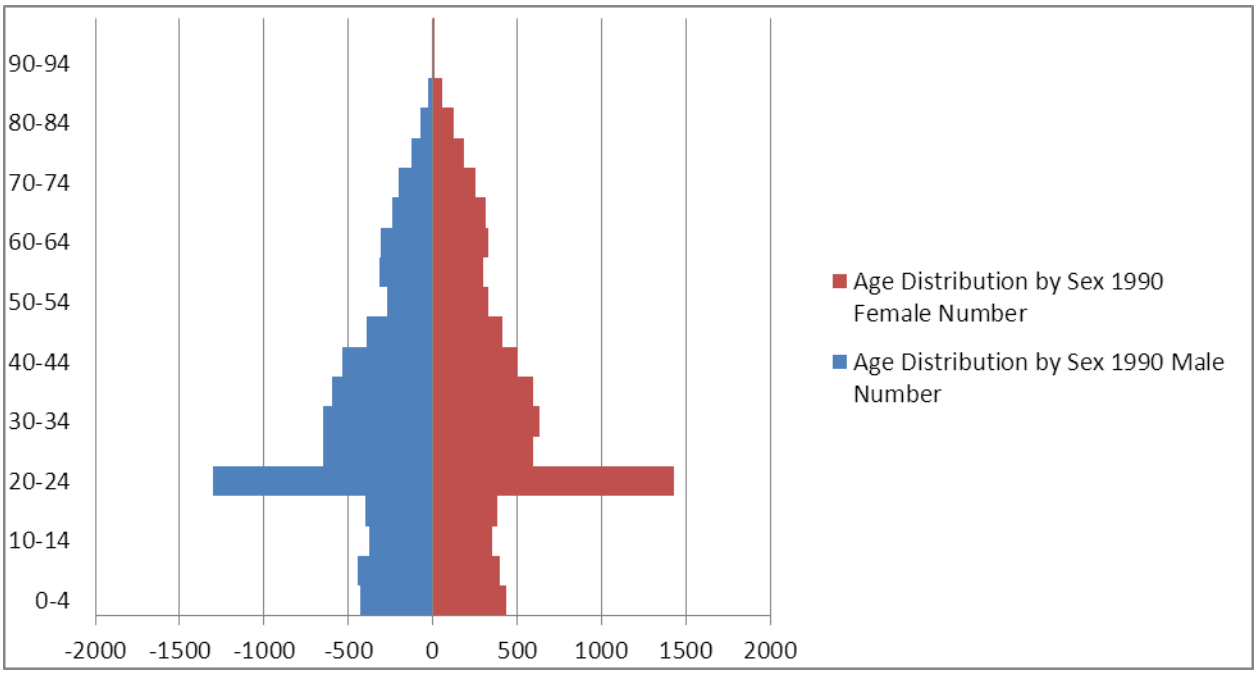
Another pattern that emerges in these two charts is the differential between the number of females and males. The charts show a pattern of more male births than female births. There is also a pattern of females outnumbering males beginning in the late thirties and becomes increasing apparent in older age groups. This occurrence of more male births and longer female life expectancies is common.

The next few pages of this report show a series of graphs referred to as population pyramids or age structure diagrams. A population pyramid graph shows the population by sex (males on one side, females on the other) and age using the five year age cohorts in previous charts. The pyramids show Narragansett's population in each decade from 1980 to 2010.

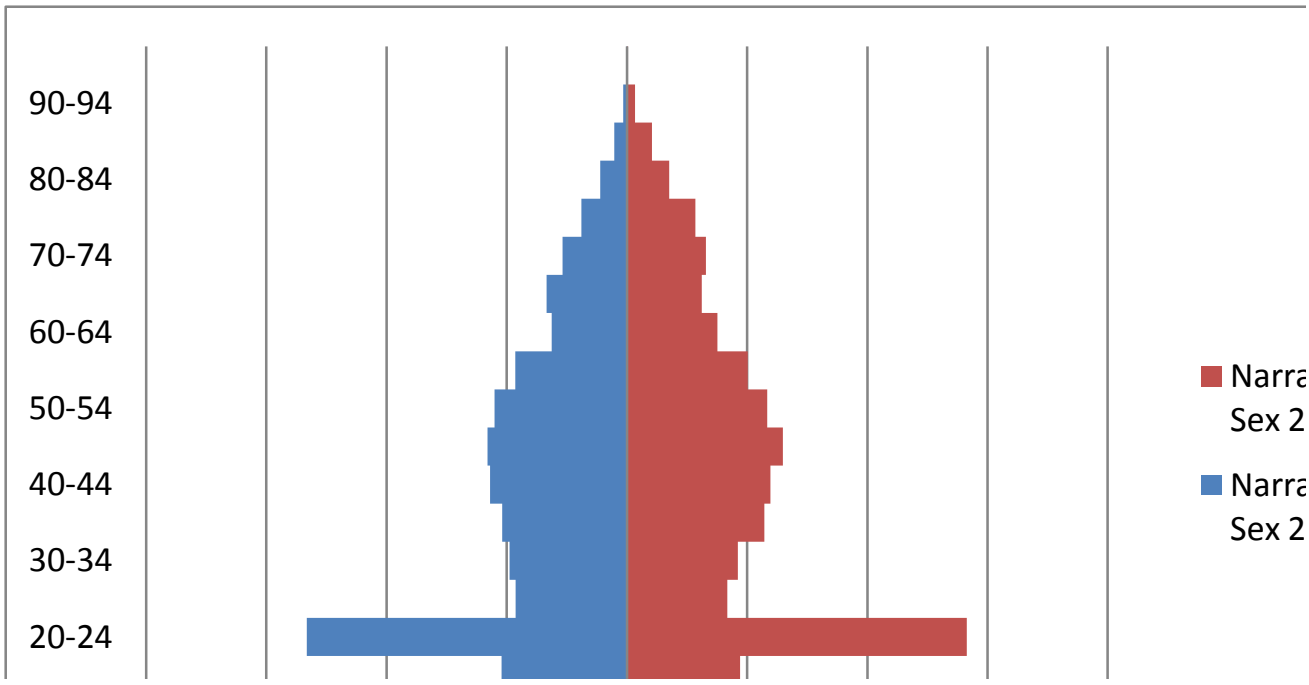
Narragansett's 5 year Cohort Population Pyramid as of 1980



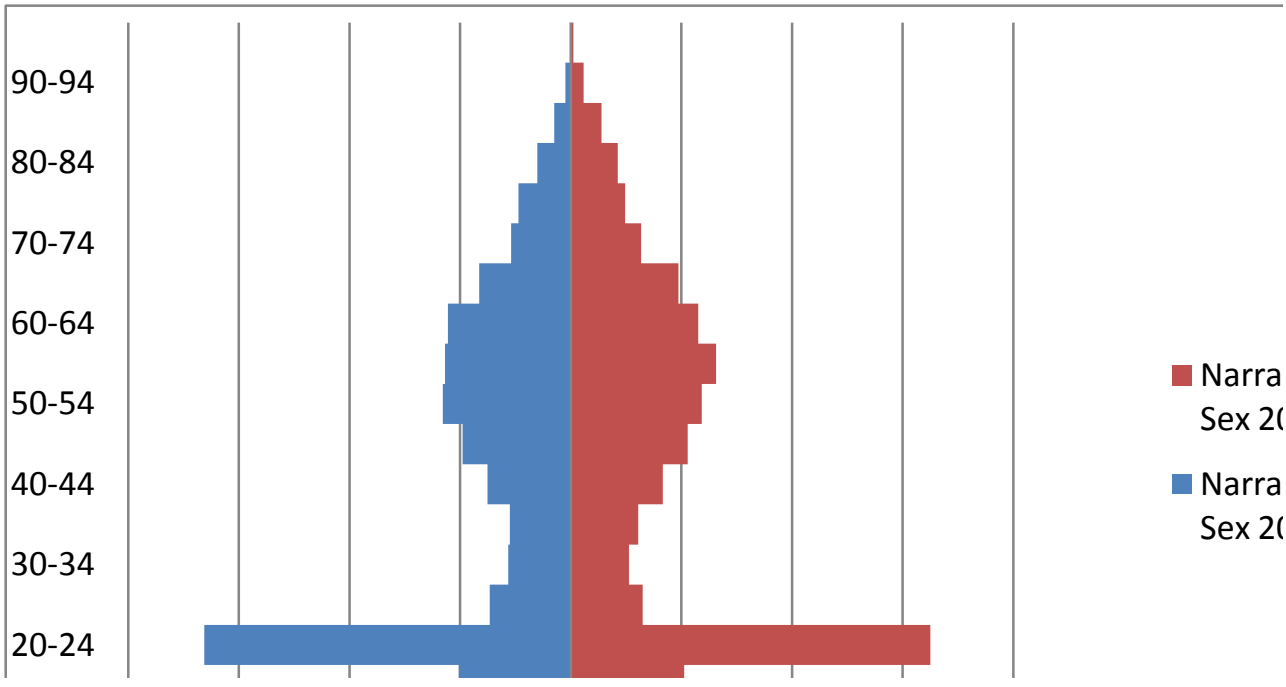
Narragansett's 5 Year Cohort Population Pyramid as of 1990



Narragansett's 5 year Cohort Population Pyramid as of 2000



Narragansett's 5 year Cohort Population Pyramid as of 2010



In this sequence of five-year cohort population pyramids it is interesting to see the shifts in population previously described in this report. This is just another way of presenting the demographic data that may be easier to interpret. An important feature to notice in the population pyramids is the aging baby boom generation. As the sequence goes on, you can see this sizeable group move through the age cohorts. In 1980, baby boomers were in the age cohorts between 20 and 35. In 2010 the baby boomers are well defined in age cohorts 40 to 65. Also becoming increasing noticeable is the offspring of the baby boomers. This generation is commonly referred to as the "echo boomers". The echo boomers first begin to appear in the 1990 pyramid in the youngest age brackets, and in 2010 are shown in the age brackets between 10 and 25. A more detailed explanation of this generation will be covered in Section III.

Also clearly defined in the 2010 chart is the restricted section in the age groups of 25 to 40. One possible reason for this is lower birth rates during that time period. During the late 1960s to around 1980 birth rates in America were very low. This low birth rate applies to age groups between 30 and 40 years of age. This age group sits in between the baby boom generation and the echo boom generation. In addition to being in between population booms, environmental movements in the 1970s also resulted in lower child births. The most relevant was the Zero Population Growth Movement. The basic concept of the movement was that the Earth was too overpopulated and humanity should attempt to keep population growth as close to zero as possible to ensure long-term environmental stability. The movement suggested that increased population would result in mass starvation, natural resource depletion, and continued environmental degradation. The face and founding father of the movement was Stanford Biologist Paul Ralph Ehrlich. Ehrlich was the author of the highly influential book titled *Population Bomb,* which was published in 1968. In the book, Ehrlich insisted that "We must rapidly bring the world population under control, reducing the growth rate to zero or making it negative." He believed that the United States should be at the forefront of the movement and also that "The mother of the year should be a sterilized woman with two adopted children."[2] As a result of this movement, families of the 1970's became much more cautious about the number of children they had. This is just one possible explanation as to why population numbers of the era were low.

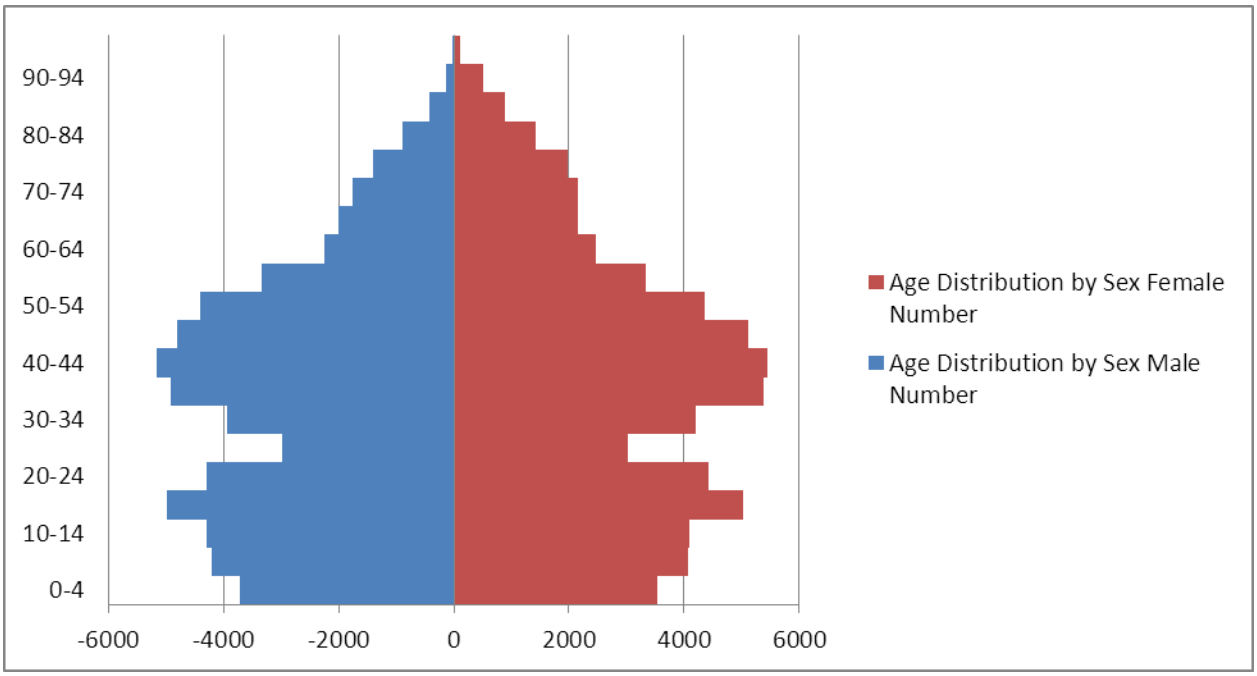
Another possible reason Narragansett is lacking younger adults is current economic trends. The 2010 pyramid shows an unstable population of younger adults, compared to the more stable pyramids in preceding census years. This indicates that a higher percentage of recent college graduates, young professionals, and first time home buyers, are moving out of Narragansett. This trend is most likely attributed to their inability to obtain a satisfactory standard of living. A resident's standard of living is determined by factors such as income level, availability of employment, availably of affordable housing, and other factors that affect ones level of wealth, comfort, and overall happiness. In Narragansett, and many other cities and towns in the United States, young adults are struggling to find their niche. In tough economic times, individuals with little or no professional experience struggle to land entry level professional jobs. This leads to unemployment or underemployment of inexperienced members of the community. This employment factor combined with Narragansett's high housing prices; create a difficult environment for this age group to obtain a modest standard of living. As a result, young adults are emigrating to other communities, which may provide them with more opportunity to live a prosperous

[2] Paul R. Ehrlich. The Population Bomb, Sierra Club/Ballantine Books, (1968)

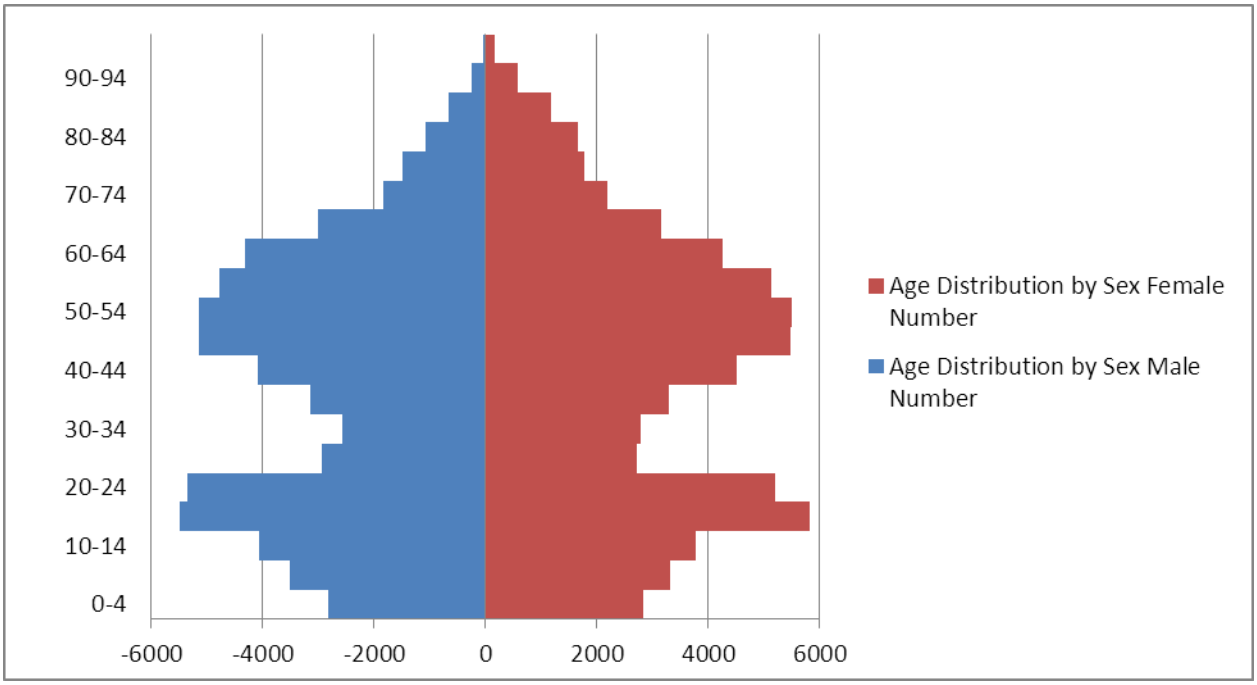
and more desirable existence. If economic and housing conditions remain unchanged in the area, this trend may continue in the future. However, these age structure trends presented in this section are not unique to Narragansett; in fact they are very similar to other towns in Washington County.

For the sake of comparison, population pyramid graphs for all of Washington County in 2000 and 2010 are included on the next page. When comparing the county's population pyramid with Narragansett, notice the similar patterns in first time home buyer and recent college graduate departures, as well as the highly defined baby boom and echo boom populations.

Washington County's 5 year Cohort Population Pyramid as of 2000



Washington County's 5 year Cohort Population Pyramid as of 2010

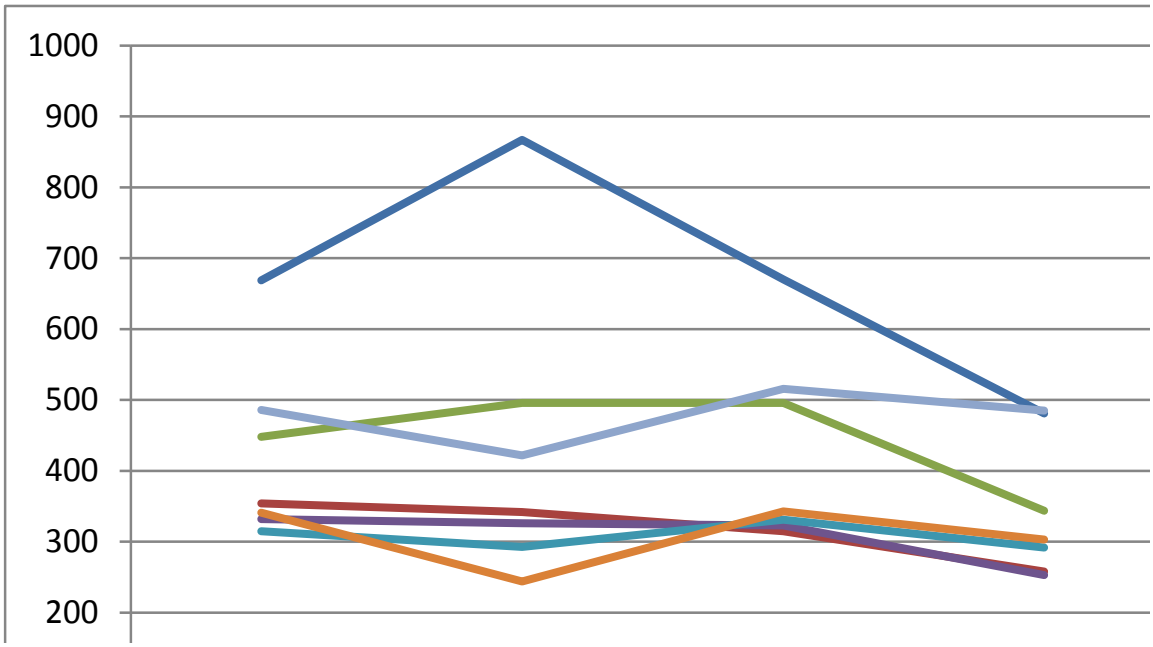


Narragansett's Youth Population

This section will focus on Narragansett's youth population or residents who are aged 18 and under. From 1980 to 2000, the number of Narragansett's young residents (18 and under) remained stable with around 3,000 in the town. In 2010 this trend changed, and Narragansett experienced a drop-off of 578 children, resulting in a 19 percent reduction in its youth population from 2000. At first this decline looks abrupt, but after more analysis this trend was not an anomaly. Although overall numbers from 1980 to 2000 remained steady, overall population in other age cohorts increased. This resulted in a lower percentage of residents aged 18 and younger, compared to the overall total. In 1980, Narragansett had 2,945 residents aged 18 and under; representing 24 percent of the overall population. Comparatively in 2000, Narragansett had 2,994 residents aged 18 and under, but the percentage dropped to 18 percent of the overall population. In 2010, the percentage and the actual count came down to just 15 percent of the overall population with 2,416 residents in the 18 and under age cohort.

For a more detailed look, the chart below shows Narragansett's youth population by year in seven different age cohorts.

Narragansett Youth Population Trends 1980-2010



	Age Under 5	Age 5 to 6	Age 7 to 9	Age 10 to 11	Age 12 to 13	Age 14 to 15	Age 16 to 18
1980	669	354	448	332	315	341	486
1990	867	342	496	326	293	244	422
2000	670	315	496	323	331	343	516

2010	481	258	344	253	292	303	485

The graph on the previous page shows a 30 year trend in the town's youth population. In 2010, every age cohort in the graph experienced a decline. The most noticeable decline is occurring in Narragansett's youngest age groups. The age groups of under 5, 5 to 6, and 7 to 9 have all been in decline since 1990.

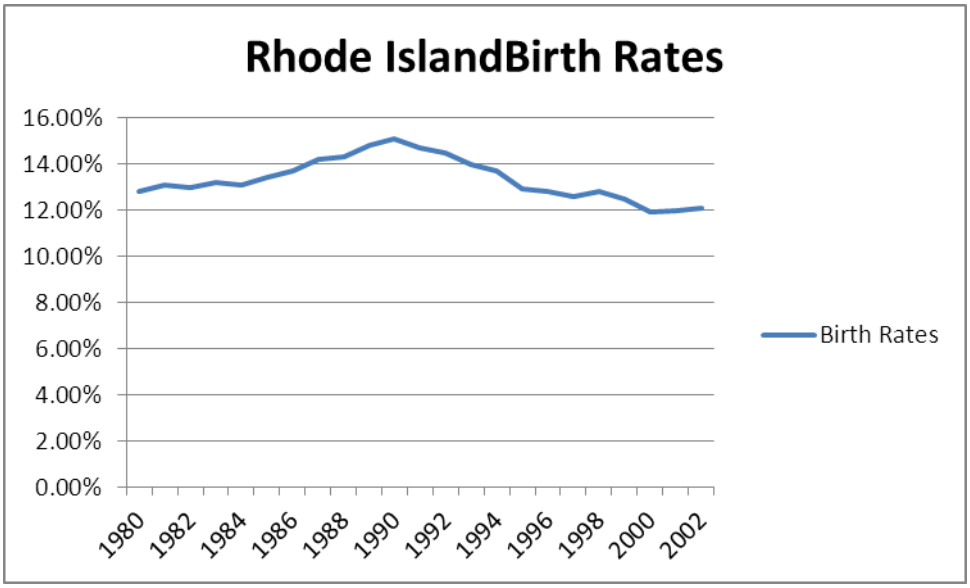
There are a few possible reasons for this decline in Narragansett's youngest residents. The first is a result of lower birth rates and national demographic trends. As previously mentioned in this report, the baby boom generation has a significant effect on demographics. The declining birth rates and number of children under 9 seen in the 2000 and 2010 census can be partially attributed to the end of the "echo baby boom" generation. The echo baby boom generation is the offspring of the post-World War II baby boomers. The United States Census Bureau defines the echo boom generation as people born between 1982 and 1995. In the graph on the previous page, Narragansett's echo boomers are represented in the 1990 peak of children under 5. This is again apparent in 2000 when age groups 12 to 13, 14 to 15, and 16 to 18 saw increases and were all at thirty year highs. In 2010, these "Echo Boomers" began to mature out of the youth population cohorts.

Another possible explanation for Narragansett's declining youth populations could be attributed to rising housing prices in Narragansett. High living costs make it difficult for young families to settle in Narragansett. If similar economic and housing market conditions continue, Narragansett's deficit of first time home buyers and young children could continue.

Birth Rates

In an attempt to further understand Narragansett's recent decline in youth population, the ***Population Trends*** report will use birth data from the Rhode Island Department of Health. However, birth rates released by the Rhode Island Department of Health are currently only available up to 2002. This will assist this report in showing older children in the town, but cannot account for younger children.

The best and most commonly used indicator in showing birth statistics is the birth rate. The birth rate is calculated by dividing the number of live births with the number of people in the geographical area and multiplying it by 1000. This gives you the number of births for every 1000 people. It does not however, take into account how many women of childbearing age there are in the area. As a result, in rare circumstances when an area has unbalanced percentages between women who could have potentially had a child, and the rest of the population the rates can be altered. In Rhode Island, birth rates between 1980 and 2002 have seen some obvious changes. There is no accurate data for Narragansett during this full time frame, but the chart on the following page highlights birth tends in Rhode Island. In the chart there is an obvious spike in birth between the mid-1980s and the early 1990s. The highest year over the 22 year period was 1990 when the state had a birth rate of 15.1 percent. The lowest rate was in 2000 when the rate dropped to 11.9 percent. When comparing these rates with youth census statistics in Narragansett a similar pattern appears. This peak rate in 1990 is shown on the Narragansett's graph on the previous page when children under 5 were at 30 year highs in the town



As for Narragansett, the Department of Health has released data that shows birth numbers and rates in Narragansett between 1998 and 2002. During this five year time frame, Narragansett had 617 births. This resulted in a 7.5 percent birth rate. This rate of 7.5 % is very low compared to the state wide average of 12 percent during the same time frame. Narragansett's birth rates between 1998 and 2002 were the second lowest in the state. The two most recent years with birth rate data are 2001 and 2002. In 2001, Narragansett had 114 births in the town with a rate of 6.9 percent making in the third lowest in the state that year. In 2002, the birth rate dropped slightly with 112 births, and a 6.8 percent birth rate which represented the lowest rate in the state.

Mentioned previously in this report, the terms "baby boomers" and "echo boomers" were defined and explained. These generation patterns have had and will continue to have a direct effect on birth rates. In the graph above, the echo boom generation is visible in the high birth rate spike during the mid 1980's to the early 1990's. Assuming fertility rates of the echo boom generation are comparable to their baby boom parents, another similar birth rate increase is expected in the future. Predicting when this next generation will be born is challenging because of changing patterns in maternal ages, or the age in which a mother gives birth. Recently, Rhode Island, along with the United States as a whole, is experiencing increasing numbers of mothers having children after the age of 35 and decreasing numbers of women having children before the age of 25. This trend in advanced maternal age is expected to continue and should be included in any prediction in future birth rate trends. Taking that into consideration, the echo boom offspring is most likely to occur 25 to 40 years after the spike shown in the graph above. Applying this estimation to the graph above, Narragansett should expect the next generation anywhere between 2010 and 2035.

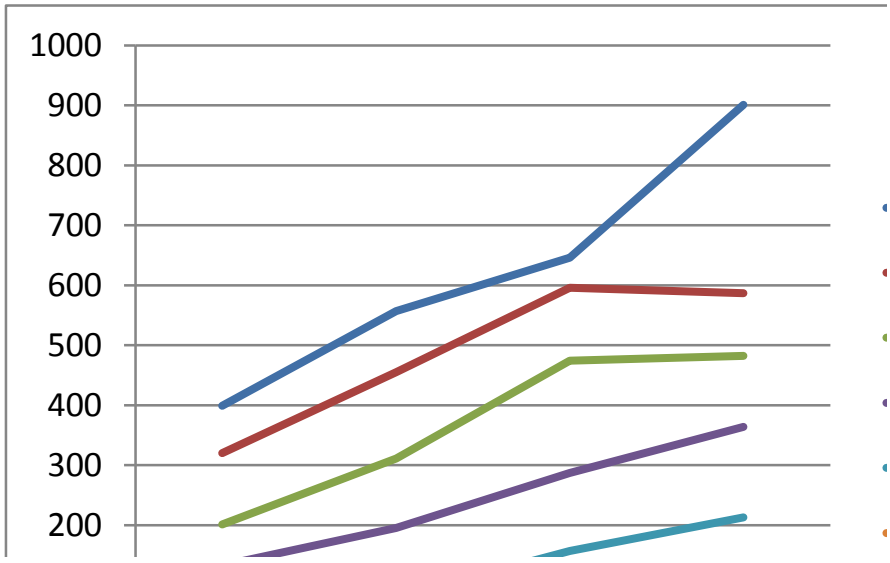
Narragansett's Elderly Population

The Town of Narragansett has seen a steadily increasing elderly population since 1980. In 1980, there were 1,136 residents aged 65 and older making up 9 percent of the town's population, by 2010, there were 2,645 Narragansett's elderly residents representing 17 percent of the town's population. The net increase in elderly residents in the town from 1980 to 2010 was 1,509 meaning the towns elderly population has increased by 133 percent in the last 30 years.

One of the major reasons for this population trend is improved health care and lifestyles leading to longer life expectancy. Another reason for increases in 2010 is the aging baby boom generation. 2010 was the first census year that baby boomers entered into the 65+ age bracket. However, this trend is just beginning; the oldest of the baby boomers in 2010 were just barely 65. The vast majority of the baby boom generation is still in their 50's. Therefore, the numbers of elderly people in Narragansett for the 2020 and 2030 censuses are expected to be much higher than current numbers.

In the chart or graph below, Narragansett's elderly population is shown by age from the 1980 to 2010.

Narragansett Elderly Population Trends 1980 to 2010



	Age 65-69	Age 70-74	Age 75-79	Age 80-84	Age 85-89	Age 90-100
1980	399	320	201	133	57	26
1990	557	455	311	195	80	23
2000	646	596	474	287	157	56
2010	901	587	482	364	213	98

The most prominent increase in the graph on the previous page is in the age group of 65 to 69. As previously mentioned this represents the beginning of the baby boomers entering into the elderly age brackets. Also noticeable is the increased number of people living into their 80's and 90's. When broken down further it is interesting to note this increased longevity in Narragansett residents. In 1980, there were 83 people in the town aged 85, and over. By 2010, that number rose to 311. Representing a 275 percent increase.

This increasing trend in elderly population may put added pressure on community facilities and services, housing needs, and overall community dynamics. Proper planning for town facilities and programs will need to be conducted to serve the growing population cohort.

Seasonal Variations

The Town of Narragansett is heavily influenced by its seasonal populations. Unlike most other towns in Rhode Island, Narragansett experiences large population fluctuations depending on the time of year. Some changes in population can be attributed to seasonal housing (vacant in the winter), and the 2000 plus rental units alternately populated by college students from the University of Rhode Island, and Narragansett's summer tourists. At the time the Census is taken, the URI students are still be in school and occupying their academic rentals. In May, the URI academic year ends, also ending student academic leases. These rental units are then re-populated a few weeks later by summer weekly renters. While firm figures are not available, it is likely that during the months of June through September the town's population, including day trippers, increases by 100 percent, and during the busiest of weekends and special events the number can be much higher. Through data analysis and United States Census information this section of the report will give the best estimate of Narragansett's seasonal population.

The 2010 United States Census Bureau Report indicates Narragansett has a year round population of 15,868. Census survey information is taken in April; it is therefore safe to accept this represents the winter population. In the Census's report, 6,704 of the town's 9,470 housing units were occupied, and 2,766 were vacant (seasonal units).

Although there is no accurate data for college student populations in the town, it is believed that during Mid-May through Mid-June Narragansett's population is at its annual low. This deficit is short lived. The months of July and August bring seasonal residents to the area. During this time, all but a few of the 9,470 housing units in the town are occupied. If all of the 2,766 seasonal housing units in Narragansett are filled with a conservative estimate of 3 persons per unit the town's population estimate rises to 24,169.

In addition to the seasonal housing units, Narragansett has 12 bed and breakfasts, 3 hotels, 2 motels, and 2 campgrounds. This adds a total of 340 rooms and 297 campsites. On summer weekends, Narragansett's lodging and campgrounds can be filled to near 100 percent capacity. Assuming 90 percent capacity and estimating 2.3 people per hotel room and 3 people per campsite, an additional 1,515 people can be added to the seasonal population. After adding Narragansett's guests staying overnight in hotels and campgrounds to the estimated summer resident population, the town's population estimate increases to 25,684. This is a 62 percent increase in population.

This number estimates Narragansett's total population staying overnight in town during the summer months. However, Narragansett, a premier tourist destination in the state, has a daytime population far exceeding that estimate.

To account for the total number of people in Narragansett during the summer one must also include the "day trippers" to the town. Although it is impossible to account for everyone, attendance data from Narragansett's popular tourist attractions allow for a reasonable and conservative estimate. Narragansett's prime summer attraction is its beaches. The town has 3 state beaches; Scarborough, Salty Brine, and Roger Wheeler; Narragansett Town Beach, and 3 private beach clubs. According to RI

DEM, an average of 8,395 people per day attended the 3 state beaches in July 2011. The Narragansett Parks and Recreation Department conducted an 11 day attendance study at Narragansett Town Beach in August 2011. The results of the town beach study counted an average attendance of 5,064 people per day. Attendance data for the town's private beach clubs is not published, but a total of 1,000 people a day for the three private beaches can be conservatively estimated. In total, the average beach attendance per mid-summer day in Narragansett is 14,459. However, this number cannot account for beach goers who live or are staying in Narragansett overnight. In an effort to avoid double counting Narragansett's overnight residents in beach attendance data, some percentage estimates must be made.

This report will estimate that 75 percent of people at Narragansett Town Beach are local overnight residents, and 25 percent are day trippers to the town. For state and private beaches in the town, the estimate used will be 25 percent local overnight residents and 75 percent day trippers. Using these estimates, day tripper beach attendance at Narragansett Town Beach is 1,266. Day tripper state beach attendance is 6,296, and day tripper attendance at the private beach clubs is 750. This revised estimate results in an average of 8,312 day trippers per day attending its beaches in the summer. This increases Narragansett's daytime population to an estimated 33,996; a 114 percent population increase from the winter population.

In the summer season, Narragansett has several other attractions besides its beaches that bring people into the town. Tourists also come for its restaurants, marinas, aesthetic scenery, and other natural attractions. Recreational activities such as fishing, clamming, scalloping, water skiing, and boating also attract visitors. Also located in Narragansett is the Block Island Ferry which brings hundreds if not thousands of people to Block Island every summer day. However, attendance numbers for these attractions are unavailable or unreliable. For credibility, additional day trippers that come to Narragansett for attractions aside from its beaches will not be counted or included in this reports estimate. This will keep the total daytime seasonal population estimate a conservative one.

Another source of data that indicates summer population increases in Narragansett are traffic reports. A Traffic Impact and Access study was taken in 2006 at the intersection of Route 1a and Bridgetown Road. Vanasee Hangen Brustlin Inc. observed traffic and collected traffic counts at the intersection in May and again in July. The data collected in May was considered off season traffic and data collected in July was considered peak season traffic. The numbers were taken at "peak hour" during the midweek evening commute and again midday on Saturday. The results conclude that the intersection receives 26 percent more traffic in July than it does in May. The data also explains that certain movements through the intersection see much larger increases. The largest increase in traffic direction was northbound traffic during the midweek evening commute (a complementary southbound increase is assumed for the morning). The report determined that northbound traffic increased by 75 percent on Route 1A in July. This increase in northbound traffic can most likely be attributed to beach goers leaving Narragansett in the late afternoon and early evening.

In addition to the Route 1A study, a Traffic Impact Study by RAB Engineers was taken at the intersection of Route 108, Woodruff Avenue and South Pier Road in 2006. The study took data from October 2004

for offseason numbers and in July 2005, for peak season numbers. Data was collected at the peak hour of the evening commute during midweek. The RAB data revealed that overall traffic in the intersection increased by 46 percent during July. Similar to the Route 1A study, evening northbound traffic was the most seasonally affected. The RAB study showed that peak season traffic traveling northbound through the intersection of route 108 and Woodruff Avenue increased by 71 percent (again a complementary south bound increase in the morning is assumed).

In Summary, Narragansett's year round population reported in the 2010 census report was 15,868. After adding in summer seasonal population of overnight guests in Narragansett, the population estimate rises to 25,684. After calculating the average number of day trippers in Narragansett and adding that to the overnight summer population, the average number of people in Narragansett on a typical summer day is approximately 34,000. Therefore, we can conservatively conclude Narragansett's summer population ranges between 62 percent (with no day tripper population) to 114 percent (including day trippers) above the town's offseason population. In evaluating traffic studies, data suggests an overall seasonal traffic increase of 26 to 46 percent. Traffic data also shows an evening northbound traffic increase of 71 to 75 percent. The sizeable increase in evening northbound traffic indicates the added day trippers and beachgoers leaving after spending the day in the town. This figure also indicates beachgoers and other day trippers tend to leave town in a shorter time window than when they arrive earlier in the day. While there is no way to predict a truly accurate seasonal population in Narragansett, this report provides the best conservative estimate.

It is important to note that these numbers indicate an average summer day in Narragansett. On some midweek summer days and foul weather days these estimates could be high. By contrast, population numbers for weekends, holidays, and special events in the town can be well above this reports estimated seasonal population of 34,000.

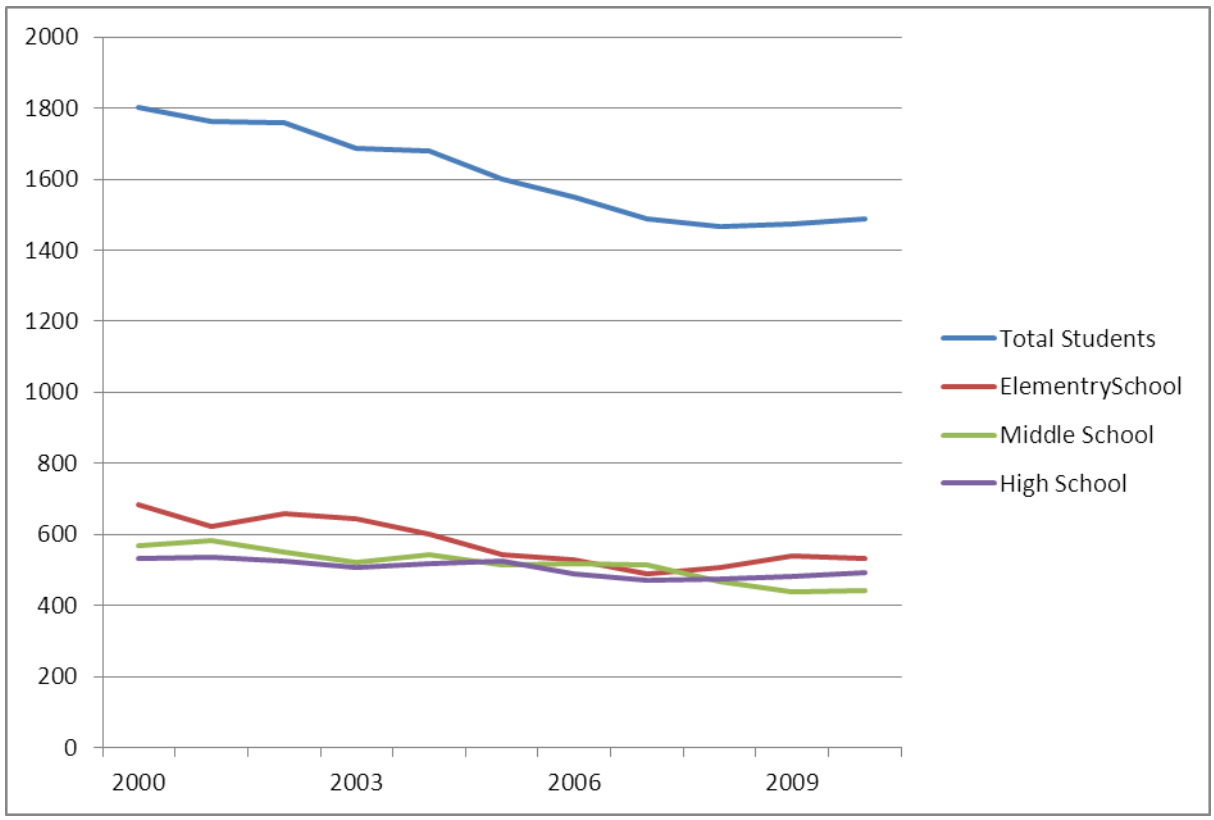
Educational Characteristics

Educational Characteristics of Narragansett are a very important demographic to study when analyzing population dynamics of the Town. Education and its related expenses are some of the largest factors to consider in municipality planning. These educational expenses are related to the number of residents enrolled in Narragansett's Public School System each year.

As previously highlighted in the youth population section of the ***Population Trends*** report, Narragansett's school age population has recently been in decline. Using school enrollment data from 1992 to 2011 collected by the Narragansett School Department this trend becomes increasing apparent. According to enrollment data, school enrollment hit its nineteen year high in 1994 with 1,955 students. In 2011, Narragansett had 1,462 students in the school system. To remain consistent with the rest of the ***Population Trends*** report, this section will compare numbers from 2000 and 2010. From 2000 to 2010, Narragansett's school numbers declined in all of the town's schools; Narragansett Elementary School's total enrollment decreased by 22 percent, Narragansett Middle School's dropped by 26 percent, and Narragansett High School experienced a modest 7 percent decrease since 2000. The overall total enrollment in the town had a 17 percent loss between 2000 and 2010.

The graph below highlights the town's enrollment trends in each school from 2000 to 2010.

Narragansett School Enrollment Trends 2000 to 2010



Year	Total Students	Elementary School	Middle School	High School
2000	1801	683	567	532
2001	1761	622	583	537
2002	1758	659	551	526
2003	1685	645	522	506
2004	1680	599	543	517
2005	1600	544	514	526
2006	1550	528	518	488
2007	1488	488	515	472
2008	1466	507	467	474
2009	1473	538	437	480
2010	1489	531	442	492

This is 17 percent decline in school enrollment from 2000 to 2010 is consistent with the 19 percent decline in Narragansett's youth population. Therefore, this trend was expected and does not indicate any major impact from Narragansett's children leaving the district, dropping out of school, or home schooling. It shows consistency with overall youth population trends in the town.

Adult Education Attainment

Narragansett's adult population is also an important aspect in the town's demographics. Educational attainment helps when analyzing the town's employment and labor characteristics, income levels, and overall quality of life of its residents.

Narragansett's education attainment for its residents 25 and older has been improving over the last 20 years. The 1990 census reported that 87 percent of Narragansett residents were high school graduates or higher. In 2000, 91 percent of town residents were high school graduates or higher. In addition to rising high school graduate rates, the percent of college graduates in the town has also been increasing. In 1990, 37 percent had a bachelor's degree or higher. In 2000, that number improved to 42 percent.

The most recent data available for Narragansett's educational attainment is found in the American Community Survey 5-Year Estimates from 2006 to 2010. The survey reports that Narragansett's residents on average are more educated than Rhode Island as a whole. The survey estimates that 96 percent of town residents 25 and over have a high school diploma or higher. In comparison, the Rhode Island state wide average is 84 percent. Narragansett is also above the states average with 52 percent of its residents having a bachelor's degree or higher, compared to 30 percent statewide.

These high levels of educational attainment in Narragansett (compared to state levels) play an important role in the town's labor force. In most instances, educational levels play a key role in one's ability to stay employed and find jobs, especially in times of economic hardship. The next section of this report will focus on labor and employment trends in Narragansett.

Labor and Employment Characteristics

The Town of Narragansett could be most accurately described as a residential suburb. This means that the majority of residents in the workforce commute out of town to work. According to the Rhode Island Department of Labor And Training; Narragansett had 9,136 residents working in the labor force in 2010. However, only 4,346 jobs (excluding self-employed) are located in the Town of Narragansett. Although there are no exact percentages for 2010, in 2000 RIDLT reported that 71 percent of Narragansett residents work out of town.

In addition to the residents in the labor force, the town had 805 residents unemployed in 2010, resulting in an 8.1 percent unemployment rate. Comparatively in 2000, the unemployment rate in Narragansett was 2.8 percent with only 273 unemployed residents in the town. This marks a significant increase in unemployment in Narragansett since the 2000 report, but this trend is a statewide phenomenon since the economic downturn of 2008. Rhode Island as a whole had a 4.2 percent unemployment rate in 2000, which increased to 11.2 percent statewide by 2010.

It is interesting to note that in 2010, Narragansett had the lowest unemployment rate of any town in Rhode Island. This could be attributed to Narragansett residents having educational attainments well above the statewide average. This educational factor is previously discussed in the educational characteristics section of this report.

Another important aspect in evaluating Narragansett's labor characteristics is looking at the town's principal employers. As previously stated, Narragansett has 4,346 established jobs in town. The largest employers in the public sector are the; University of Rhode Island, Environmental Protection Agency, National Marine Fisheries Service, and the Town of Narragansett.

In the private sector the majority of jobs are held in the category of leisure/hospitality services. This job sector accommodates Narragansett's large tourism industry, with most service jobs located in the many restaurants and hotels in the town. The largest providers of private jobs in Narragansett are; DeWal Industries, Stop and Shop, Georges of Galilee, VNS Home Health Service, and the Dunes Club. Many of these jobs in the private sector are seasonal positions, and overall jobs in the town can seasonally fluctuate. Data from the a 2000 RIDLT report reported an increase of 1,045 jobs in Narragansett between the first quarter (January to March) and the third quarter(July to September) with about 600 more jobs in retail sales and about 375 more jobs in services.

Income Characteristics

Income characteristics in municipalities are a good measurement of economic prosperity of the community and its residents. Resident income levels are considered to be one of the most important aspects when evaluating quality of life offered by a Town. This section of the report will describe income in many different ways, analyzing income data for households, families, different age groups, and also elucidating poverty statistics in Narragansett. Also, this report will make an attempt to compare Narragansett's income characteristics to similar towns in the state as well as to statewide statistics. These comparisons and differentials in Narragansett highlight the stature and wellbeing of the community.

Median Household Income is the most commonly used statistic in evaluating a town's economic wellbeing. It is usually an important indicator in quality of life of town residents because it only displays disposable income, or total income minus personal taxation. It also takes into consideration pooling incomes, incomes of two or more people living in the same residence.

Since the 1990 census, Narragansett has seen a large increase in its median household income. In 1990, the median household income in Narragansett was $35,545. In 2000, that number rose to $50,363, and in 2010 the median household income was $57,906. The overall result is a 62.91 percent increase in just 20 years. This statistic is remarkably consistent with the Rhode Island's statewide median household income which increased by 62.38 percent in the same time frame. While there has been a remarkable constancy in median house hold income trends between Narragansett and Rhode Island, Narragansett's household income levels have stayed about 11 percent above the state wide average, since 1990. The chart below illustrates this trend.

Narragansett Median Income Compared to Statewide Average Income				
Year	1990	2000	2010	Percent Change over 20 years
Narragansett Median Household Income	$35,545	$50,363	$57,906	+62.91%
Statewide Median Household Income	$32,181	$42,090	$52,254	+62.38%

Although Narragansett's median household income level standing 11 percent above statewide average may seem significant, some towns are much higher. For example, in 2010, the Town of Barrington, well known for its affluence, had a median household income of $94,300. This makes Barrington's income levels 80 percent above statewide median averages. In looking at this further, Narragansett is actually 27th out of 39 cities and towns in the state in highest median household income. In comparison, Narragansett's neighboring towns of North Kingstown and South Kingstown have median household incomes of 77,471 and 73,759 ranking 8th and 12thin the state, respectively.

Narragansett's low ranking in the states median household income statistics may come as a surprise to some, who consider Narragansett to be on the wealthier side of the economic spectrum. In looking

beyond the most commonly used data set of median household income, one can see a few patterns that may explain this status of economic normality in a town many consider to be well-off and luxurious to live in.

The most obvious reason for Narragansett's median household income being lower than its neighboring municipalities is its large population of college students. As previously mentioned in this report, Narragansett's demographics are highly affected by University of Rhode Island students living in the town. Most college students living off campus live in houses with 2 or more roommates. Due to their academic course load, most college students do not have full time jobs, or in some instances no job at all. Therefore, college students have incomes significantly lower than Narragansett residents who work full time. This lack of significant income in college households then affects the entire town's median household income statistics.

As previously stated, a town's median household income is the most commonly used statistic in evaluating community wealth. However, in a town like Narragansett, where a large group of people earn much less than other groups, the mean income becomes equally important.

Although still slightly weighted down by college household incomes, applying the mean household income instead of the median shows Narragansett much closer in comparison to other towns. In 2010, Narragansett had a mean household income of 87,557. To compare, the state wide average was 71,934, North Kingstown's was 100,768, and South Kingstown was 90,642.

Another statistic used in evaluating town's income levels is per capita income. Per Capita Income or income per person is a measure of mean income within an economic aggregate. It is calculated by taking a measure of all sources of income in the aggregate and dividing it by the total population. Per Capita income is much different than median income in that, it does not attempt to reflect the distribution of income or wealth. Therefore, per capita income (like mean household income) is not as affected by a large group of people (ex. college students) who make significantly less than the wealthiest citizens in town. After looking at Narragansett's per capita income, compared to North Kingstown, South Kingstown, and RI statewide average, it becomes apparent that the working class of Narragansett is much more competitively wealthy with other neighboring towns. The per capita income in Narragansett for 2010 was $37,159. In comparison; North Kingstown had a $38,911 income, South Kingstown had a $32,332 income, and the Rhode Island statewide average was $28,707.

Another indicator that Narragansett's income levels are affected by college students is noticeable in family household income statistics. The most useful statistics in evaluating and comparing Narragansett to other towns and Rhode Island as a whole are Narragansett's percentage of family households to non-family households, the differentials in the median incomes of family households vs. non-family households.

Family household income statistics are higher than overall household income statics. In 2010, Rhode Island's state wide median family household income ($70,633) was 26 percent higher than overall household incomes ($54,902). In Narragansett, the percent increase between median family household income and all household median incomes was much higher than statewide. In Narragansett, median

family household income ($85,020) was 47 percent higher than overall median household income ($57,906) in the town. This relationship in family household income compared to total household income is also much higher than the neighboring towns of North Kingstown (22 percent Increase), South Kingstown (29 percent increase). Narragansett's more prominent family income differentials are a result of the town having a much higher percentage of non-family households, comparatively. This housing demographic will be discussed further in the Housing section of the ***Population Trends*** report.

Poverty

In many cities and towns in Rhode Island poverty is a serious problem. In Narragansett, statistical data indicates there is no exception. If one were to simply look at census data without any knowledge of Narragansett's demographic makeup, one would assume Narragansett is one of the most poverty stricken towns in Rhode Island. However, like all demographics in Narragansett, these poverty statistics are once again heavily influenced by college student households. The intention of this section is not to diminish or downplay the economic hardships of Narragansett's college residents, as many of them struggle to get by. However, college students due to their full time enrolment in school and their low incomes are necessarily categorized to be living in the defined state of poverty. For college students, income is replaced with money by grants, loans, scholarships and money provided by parents or earned in summer employment. Therefore, it is not considered to be an issue of overall community prosperity or economic health.

In 2010, the American Community Survey reported that 17.2 percent of Narragansett's residents were living in poverty. This puts Narragansett well above Rhode Island's statewide average of 12.2 percent. As for the percentage of families in poverty in Narragansett the percentages were much lower. Only 4.7 percent of people living in family households were in poverty. This is much below the statewide average of 8.4 percent. In looking at the data further, it becomes apparent that the vast majority of Narragansett's residents living in poverty are most likely college students from the University of Rhode Island.

Narragansett residents aged between 18 and 64 were twice more likely to be in poverty than the statewide average (22.4 percent in Narragansett and 11.2% Statewide). This is due to an estimated 2,114 out of the Town's 3,246 college students were in poverty, representing 65.1 of the college demographic. In comparison only 4.3 percent of Narragansett residents under 18 were living in poverty; that number was 16.7 percent for the entire state. Senior residents aged 65 and over in Narragansett, 6.5 percent were living in poverty. This was below the state wide average of 9.3 percent. In total, Narragansett was estimated to have 2,743 people in poverty in 2010. Out of the 2,743 in poverty, college students represented 71 % of that group. In comparison, statewide college students make up only 13.7 percent of the total population in poverty. This large college factor, in a relatively small community has a profound impact on the overall poverty rate. This college poverty factor is seen in other small college municipalities in the United States. One of the most comparable is Clemson, South Carolina. Clemson is a small college town of 13,230 people with a poverty rate of 33.6 percent. However, college students account for 79.3 percent of the people in poverty.

Housing Characteristics

This section of the report will highlight Narragansett's housing makeup and its trends over the last few decades. Housing Characteristics in Narragansett are unique in that many of the town's housing units are used for seasonal, recreation, and occasional use. The census includes these units used seasonally, and recreationally as a subset of vacant housing, therefore they are included in the vacant unit total. According to the Census, "a housing unit is vacant if no one is living in it at the time of the interview, unless its occupants are only temporarily absent. In addition, a vacant unit may be one which is entirely occupied by persons who have a usual residence elsewhere." As a result of this, the town has a very high percentage of vacant units, but the vast majority of the town's vacant houses are classified into the seasonal category. Narragansett to a certain degree is considered a beach resort community and therefore many of the housing units are only used in the summer. As defined by the Census, seasonal housing units are "intended for occupancy only during certain seasons of the year and are found primarily in resort areas".[3]

Another unique aspect is the percentage of owner occupied homes to renter occupied homes. The chart below represents selected housing characteristics for the Town of Narragansett from 1980 to 2010.

Narragansett Housing Trends 1980 to 2010				
	1980	1990	2000	2010
Total Housing Units	6,587	8,206	9,159	9,470
Occupied Units	5,179	5,843	6,846	6,704
Vacant Units	1,498	2,363	2,313	2,766
Seasonal Homes(included in Vacant Housing)	N/A	1,891	2,035	2,314
Vacant %	22.74%	28.80%	25.25%	28.21%
% of Vacant used for Seasonal, Recreational or Occasional Use	N/A	80.00%	88.00%	83.70%
Owner Occupied	2,916	3,382	4,237	4,208
Renter Occupied	2,263	2,641	2,609	2,496
Percent Renter Occupied	43.70%	45.20%	38.12%	37.23%
Ave Persons Per Household	2.33	2.56	2.39	2.36

In the chart above there are a few data sets that have trended abnormally over the past 30 years, but overall housing characteristics have remained relatively similar. The most apparent change is the number housing units, which has increased by 44 percent since the 1980 census. This of course is to be expected as town population increased dramatically in the past 30 years. Another notable trend in the data above is the percentage of renter occupied units compared to owner occupied units. It is noticeable that the number of owner occupied unit's increases (91 percent since 1980), while renter occupied units stay fairly consistent (10 percent increase since1980). Also standing out in this chart is the high percentage of vacant houses. It is important to note that units categorized as vacant can be for

[3] U.S. Census Bureau, Housing and Household Economic Statistics Division

sale, units for rent not yet occupied, and used for seasonal, recreational, and occasional use. In the case of Narragansett, 82 percent of the vacant houses in town were categorized as seasonal, recreational, or occasional use in 2010. Also important when looking at housing statistics is the makeup of the housing unit.

Narragansett Housing Trends Family vs. Non Family			
	1990	2000	2010
Family Housing	3,537	3,846	3,560
Non Family Housing	2,306	3,000	3,144
Non Family Percentage	39.50%	43.80%	46.90%
Residents Living Alone	1,313	1,859	1,917
Non Relatives Living Together	N/A	2,298	2,739

This chart above shows a noticeable increasing trend in housing units occupied by single residents and non-family members. There are a few contributors to this. The first relates back to the decreasing number of younger children in the town. Also, new single resident homes are created when older children and young adults move out of their family homes adding to the non-family housing percentage. This population trend is fully explained in the Youth Population Trends section of this report. Another contributor is a slight increase in college student rentals in the town. This grouping is dominated by the large number of non-relatives living together. Although there is no data that specifically says these units are occupied by college students, it is safe to conclude that students make up the majority of data set.

Age of Housing Units

In Narragansett, most of the housing units in town were built in the 1950's 1960's and 1970's. The chart on the following page shows the age of Narragansett's housing units by decade of construction. One interesting feature in the graph is that 8,787 or 91. 7 percent of the current housing units in Narragansett have been built since 1939.

Age of Narragansett Housing Units 2010		
Year Built	Number of Units	% Age of All Units
2006 to 2010	206	2.10%
1999 to 2005	535	5.50%
1995 to 1998	410	4.30%
1990 to 1994	555	5.70%
1980 to1989	1,650	17.00%
1970 to 1979	1,941	20.10%
1960 to 1969	1,464	15.10%
1940 to 1959	2,026	20.90%
1939-earlier	896	9.30%

In the chart above there are some interesting trends. The time period between 1940 and 1959 was a time of rapid growth in Narragansett. During this time period, Narragansett's population doubled. To accommodate the new families for the Post WW II population boom 2,026 houses were built in town in just 19 years. Narragansett experienced its most rapid population increases between 1960 and 1990. Over this thirty year period, Narragansett transformed from a rural town of 3,444 to a densely populated suburban community of 14,985 residents. The age of the housing stock represents this change with over 50 percent of the current housing stock built in that period. Most recently, Narragansett has seen a decline in the number of houses being built in town. The most likely reason for this is the national recession that hit occurred in 2008. This factor is exhibited in the graph with only 206 units being built in the last 4 years.

Race and Ancestry

Race and ancestry of a municipality's residents is an important aspect to consider in community planning. Diversity and varied family origin brings with it differing cultures and beliefs. Increasing or decreasing trends of a community's' diversity oftentimes plays a role in how people of the town socially interact and define themselves as Americans. In Narragansett, there is very little diversity.

As of the 2010 census, 95.7 percent of the town defined themselves as white alone with no other race combination. This overwhelming majority of white residents makes Narragansett much less diverse than Rhode Island overall with 81.4 percent claiming their race as white alone. However, Narragansett's lack of racial diversity is not unusual in Washington County where 93.8 percent of residents claimed themselves as white only. The most distinguishing racial group that are more prevalent in Narragansett and Washington County than the statewide average are Native Americans, due to the presence of the Narragansett Indian Tribe. Although the tribe is more so associated with the Town of Charlestown, where their longhouse is located, they still make up a unique demographic in town and are well represented in the community. The chart below shows racial census data, reported in the 2010 census. In addition to Narragansett data, this report has included Washington County, and Rhode Island statewide data for comparison.

Racial Diversity in Narragansett, Washington County, and Rhode Island in 2010

Race Claimed	Narragansett	Washington County	Rhode Island
	Percentage	Percentage	Percentage
White	95.70%	93.80%	81.40%
Hispanic or Latino	1.70%	2.40%	12.40%
Black or African American	0.80%	1.20%	5.70%
American Indian or Alaska Native	0.70%	0.90%	0.60%
Asian	0.80%	1.60%	2.90%

Since the 1980 U.S. census, the bureau has asked Americans to claim their ancestry or ethnic background in addition to their race. Ancestry refers to a person's ethnic origin or descent, or heritage, or the place of birth of the person or the person's parents or ancestors before their arrival in the United States. Although its intention was not to find out someone's degree of attachment to a particular ethnicity, often times dominant ancestry groups of a community have varying levels of cultural and social presence that affect a municipality's identity. One of the best local examples of an ancestry's influence in a community is the Italian influence in Providence's Federal Hill. In Narragansett, the top five Ancestry groups are identical to Washington County, and very similar to Rhode Island as a whole. The chart on the following page shows these ancestry groups and their overall percentages in the highlighted geographic scale.

Top Five Ancestry Groups for Narragansett, Washington County, and Rhode Island					
Narragansett			**Washington County**		
Ancestry Group	Number	Percentage	Ancestry Group	Number	Percentage
Irish	5,550	25.60%	Irish	35,335	20.24%
Italian	3,670	17%	Italian	27,129	15.54%
English	2,610	12.10%	English	25,302	14.50%
French	1,517	7%	French	14,443	8.30%
German	1,389	6.40%	German	13,768	7.90%

Rhode Island		
Ancestry Group	Number	Percentage
Irish	211,879	20.10%
Italian	202,067	19.10%
English	135,087	12.80%
French	131,396	12.40%
Portuguese	101,095	9.60%

Appendix A. Narragansett and the State of Rhode Island

Narragansett & The State of Rhode Island 2010			
	Narragansett 2000	Narragansett 2010	Rhode Island 2010
Population	16,361	15,868	1,052,567
Population Change	9.18%	-3.00%	0.41%
Growth in # of Housing Units	11.60%	3.40%	5.35%
Percent of Housing Units Vacant	25.25%	28.21%	10.70%
Percent Renter Occupied	38.12%	37.23%	39.30%
Persons per Household	2.39	2.37	2.44
Mean Household Income	$64,621	$87,557	$71,934
Median Household Income	$50,363	$57,906	$54,902
Increase in Median Family Income from Past Census	41%	15%	30.50%
Per Capita Income	$28,194	$37,159	$28,707
Unemployment Rate	2.80%	8.10%	11.20%
Families in Poverty	7.80%	4.70%	8.40%
Median Age	44.4	40.4	39.4
Median Gross Rent	$765	$1,235	$882
Median Home Values	N/A	$426,200	$279,300
High School Graduate or Higher	91%	96%	87%
Bachelor's Degree or Higher	42%	52%	30%

Appendix B. Narragansett and other Rhode Island Municipalities

Five Largest Municipalities in Rhode Island 2010	
Municipality	2010 Population
1. Providence	178,042
2. Warwick	82,672
3. Cranston	80,387
4. Pawtucket	71,148
5. East Providence	47,037
24. Narragansett	15,868

Five Fastest Growing Municipalities in Rhode Island 2000- 2010	
Municipality	Rate of Population Growth
1. West Greenwich	20.60%
2. North Smithfield	12.70%
3. South Kingstown	9.70%
4. Foster	7.80%
5 Richmond	6.70%
31. Narragansett	-3.00%
Rhode Island Statewide	0.40%

Five Largest Percentage Population Declines 2000-2010	
Municipality	Rate of Population Decline
1. Middletown	-6.80%
2. Newport	-6.80%
3. Warren	-6.60%
4. Woonsocket	-4.70%
5. Jamestown	-3.90%
9. Narragansett	-3%

Five Highest Median Household Incomes 2010	
Municipality	Median Household Income
1. Exeter	$98,438
2. Little Compton	$94,866
3. Barrington	$94,300
4. East Greenwich	$93,636
5. West Greenwich	$81,419
27. Narragansett	$57,906

Five Lowest Median Household Incomes 2010	
Municipality	Rate of Population Decline
1. Pawtucket	$33,904
2. Central Falls	$34,389
3. Woonsocket	$36,359
4. Providence	$37,237
5. North Providence	$48,510
13. Narragansett	$57,906

Five Highest Per Capita 2010	
Municipality	Per Capita Income
1.East Greenwich	49,479
2.New Shoreham	48,212
3. Barrington	46,029
4.Little Compton	44,260
5. Jamestown	44,057
9. Narragansett	37,159

Five Highest Median Family Income 2010	
Municipality	Median Family Income
1. Barrington	116,295
2. East Greenwich	114,605
3. Exeter	111.121
4. Little Compton	106,488
5. Portsmouth	96,173
14. Narragansett	85,020

References & Other Sources of Information

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http://www.census.gov/

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http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml

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http://www.planning.ri.gov/census/ri2010.htm

Rhode Island Department of Training and Labor State of the State Report 2011

http://www.dlt.ri.gov/lmi/pdf/stateofstate.pdf

Narragansett Parks and Recreation Department

http://www.narragansettri.gov/index.aspx?NID=135

Narragansett Department of Building Inspection

http://www.narragansettri.gov/index.aspx?nid=79

Rhode Island Department of Environmental Management

http://www.dem.ri.gov/

BankRI Traffic Impact Study Point Judith Road Narragansett, Rhode Island 2005

Proposed CVS Pharmacy Peer Review of VHB Report and Independent TIAS Narragansett, Rhode Island 2007

APPENDIX B

Build Out Analysis

Buildout Analysis

The Horsley Witten Group, Inc. (HW) developed the following Buildout Analysis for the Town of Narragansett. HW utilized *Appendix A - Zoning Ordinance, Town of Narragansett, Rhode Island,* as a resource. HW also coordinated with municipal staff (Director of Community Development, Environmental Planner Specialist and Tax Assessor) to resolve data issues, make appropriate assumptions, and develop a methodology appropriate for the Town's conditions and needs. This document summarizes the process behind the analysis and findings.

Purpose

A buildout analysis allows a community to test existing regulations and envision its possible future when land is developed to the maximum extent allowable which, in turn, emphasizes the need to update and revise existing land use regulations routinely, and helps officials improve planning for the future.

Process

In order to anticipate the future development and/or redevelopment of parcels within the Town, HW developed assumptions to better understand how the Town may be developed based on existing zoning and recent development trends. Using GIS, existing Town data was assembled into a user-friendly format to make projections. A summary of Buildout Analysis assumptions and proposed process was vetted through the Director of Community Development and Environmental Planner Specialist prior to conducting the Buildout Analysis, as follows:

- Parcel Shapefile (Planning Department) and Computer Assisted Mass Appraisal (CAMA) Database (Tax Assessor) were 'joined' based on *REM_PID* data field – the unique identifier.
- Wetlands_Update_2007 Shapefile (Planning Department) and Parcel Shapefile (Planning Department) were 'intersected' with wetland areas removed and a new 'calculate geometry' function provided the remaining developable area.
- Wetlands_Intersect Shapefile (HW) and Parcels Shapefile (Planning Department) were 'joined' based on *REM_PID* to include all data into one dataset (Parcels_Final).
- Coded Parcels_Final Shapefile (HW) with a new data field 'Built' based on the CAMA Database field *TotalAssess* which represents assed value of buildings…or built. Built 1 = Built/Underutilized, Built 2 = Not Built/Vacant.
- Coded Parcels_Final Shapefile (HW) with a new data field 'Plan_Distr' based on the Planning District Shapefile (Planning Department). 1 = Northern, 2 = Central, and 3 = Southern sections.

Methodology

Vacant Parcels

Parcels within residential zones were selected out individually (R-10, R-20, etc.) and had to meet the minimum land area (threshold) for development. For those parcels that met this criterion, the available developable land area was then divided by the minimum lot area for that zone, to yield the number of potential future units.

Underutilized Parcels

Completed similarly to vacant, except that the threshold was doubled, R-80 requires 80,000 SF minimum – the threshold was 160,000 SF (80,000 for the existing structure and an additional 80,000 for the next structure). For parcels that met this criterion, the minimum lot area (80,000 SF) was subtracted from the available developable area (to account for the existing structure), then divided what was left by the minimum lot area to yield the number of potential future units.

Constraints

Typically, a 15% infrastructure reserve is applied to all developable parcels (reducing the available developable area) to account for roadways/setbacks, but Narragansett does not fit the typical scenario, in that it is fairly built out, and most new development would likely be infill on existing roadways.

Findings

Based on the process described above, HW identified a number of vacant and underutilized parcels. A preliminary buildout projection estimated the potential for an additional 578 to 1,020 units in the future. This range reflects, at the low end, the amount of 'buildable' land area in conforming lots (vacant) in the different residential zoning districts and, at the high end, the potential resulting from development of pre-existing lots (underutilized). In comparison, as of 2010, Narragansett had 9,470 housing units. Due to a gap in the Town's Parcel Dataset (2004) as compared to the Town's Computer Assisted Mass Appraisal (CAMA) Dataset (current to 2012), the potential exists that some of the parcels identified for future growth have already been subdivided and/or developed. A review of the building permits from 2005 to 2011 revealed 271 permits approved for single family residential development. These permits may account for some of the projected units at full buildout, and should be considered when understanding the potential future growth of the Town overall. Findings by Zoning District and Planning District are summarized in the table below.

Buildout Analysis Summary: Vacant and Underutilized Parcels

Zoning District	Planning District		
	1 (units)	2 (units)	3 (units)
Residential High Density (R-10A)			
Vacant		10	
Underutilized		21	
Residential High Density (R-10)			
Vacant	87	82	183
Underutilized	121	431	166
Residential Moderate Density (R-20)			
Vacant	10	2	1
Underutilized	4	8	28
Residential Moderate-Low Density (R-40)			
Vacant	42	49	41
Underutilized	57	38	11
Residential Low Density (R-80)			
Vacant	37	24	10
Underutilized	53	51	31
Total - Planning District	**411**	**716**	**471**
Total - Vacant (low end)	**578**		
Total - Underutilized (high end)	**1,020**		
Total - Overall	**1,598**		

Context for Growth

To fully understand the reasonable context for growth in Narragansett, which is considered a beach resort community, several factors need to be further discussed. First, U.S. Census data for Narragansett (2010) includes a large seasonal demographic (24% or 2,314 households considered to be 'seasonal'). Therefore, a reasonable expectation for growth (and the secondary impacts of this growth) over the planning horizon likely resembles a percentage of the future potential growth to be realized at full buildout. Second, it is very unlikely that every underutilized parcel will be further subdivided and developed to the maximum extent allowable. Additionally, a percentage of new development will likely be realized through redevelopment. Finally, all development, whether falling under new or redevelopment is subject to the prevailing economic climate.

APPENDIX C

Town of Narragansett Water Supply System Management Plan
Executive Summary April 2012

Town of North Kingstown Water Supply System Management Plan
Executive Summary September 2015

SUEZ Rhode Island Water Supply System Management Plan
Executive Summary January 2017

TOWN OF NARRAGANSETT, RHODE ISLAND
WATER SUPPLY SYSTEM MANAGEMENT PLAN

EXECUTIVE SUMMARY

APRIL 2012

Prepared for:

Town of Narragansett, Rhode Island
25 Fifth Avenue
Narragansett, Rhode Island 02882

Prepared by:

C&E Engineering Partners, Inc.
342 Park Ave.
Woonsocket, Rhode Island 02895

C&E Project No. J1111

Executive Summary

This Water Supply System Management Plan (WSSMP) has been prepared as required under Rhode Island General Laws 46-15.3, as amended and titled "The Water Supply System Management Planning Act" (Act). The legislative authority to effectuate the goals and polices of this Act has been conferred to the Rhode Island Water Resources Board (RIWRB). To this end, the RIWRB has promulgated the Rules and Regulations for Water Supply System Management Planning, October 1998, as amended to implement the provisions of the Act.

Under this legislation, the Town of Narragansett – Narragansett Water Division, as a water purveyor supplying over 50 million gallons of water per year is responsible for the preparation and adoption of a WSSMP. It is also required that the Town update this WSSMP every five years and supply information as stipulated in the Regulations.

This WSSMP has been prepared to provide the proper framework to promote the effective and efficient conservation, development, utilization and protection of the natural water resources of the State as utilized by the Town. Further, the overall goals shall be consistent with State Guide Plan Element 721 – *Water Supply Policies for Rhode Island* and the Town of Narragansett Comprehensive Plan. The purpose of this WSSMP is to outline the objectives of the Water Supply System Management Planning process for the Town of Narragansett Water Division, and to serve as a guide to employ the proper decision-making processes.

The WSSMP contains a detailed description of the water system and includes the policies and procedures related to the general operation and management of the water system. The Emergency Management section relates to the vulnerability assessment of the water system for use in emergency planning. It shall be incumbent upon the Town of Narragansett Water Division to implement the recommendations and procedures outlined in this WSSMP in order to comply with the overall requirements of the Act.

Background

The Town of Narragansett Water Division is responsible for day to day operation of the water system. Figures 2-1 through 2-3 in the body of the report provide an overall organizational chart

of the Town government as well as an expanded breakdown of the Town's Engineering Department and Water Division.

Water System Description

The Town of Narragansett owns and operates a water distribution system consisting of over 70 miles of water main, storage tanks, booster station, hydrants, meters and appurtenances that serve approximately 5,192 customer accounts in three (3) main areas of the Town.

Narragansett does not own or operate any independent surface or groundwater supply sources. The Town purchases all of the water it distributes on a wholesale basis from the following two (2) sources:

- Town of North Kingstown (Narragansett North End)
- United Water Company (formerly Wakefield Water Company) (Narragansett North End and South End)

The Narragansett water system is divided into three (3) subsystems consisting of the North End, South End and Jerusalem service areas. The Jerusalem service area, located adjacent to the South End of the system was interconnected by link to Galilee in 2001 by directional drilling and installation of an 8-inch line. Although both the North End and South End service areas remain completely separate, they are connected indirectly by means of the United Water Company distribution system, which has the ability to furnish water to both areas.

The Narragansett water distribution system utilizes three (3) storage facilities located throughout the service area and one (1) booster pump station located on Point Judith Road (Route 108) between South Pier Road and Westmoreland Street. This is also the location of an interconnection between the United Water Company system and the Town's distribution system. The primary function of this station is to boost the system's hydraulic head when the incoming supply pressure from the United Water Company system is determined to be insufficient to accommodate the required demand. The actual booster station operation is directly related to the water elevation in both the Kinney Avenue and Point Judith water storage tanks.

The system's water transmission mains are primarily involved in the conveyance of potable water between the points of water purchase, the water supply system service area, and the system storage tanks. These water mains are 16-inches and 12-inches in diameter. The exact age of all these water mains is unknown; many of the ages have been estimated from historical records however, the first water mains installed as part of this water system were placed in service circa 1938 and consisted of asbestos cement (AC).

Policy and Procedure

The Narragansett Water Division services 5,192 area water customer accounts consisting of 5,037 residential connections, 104 commercial connections, 10 industrial connections and 41 governmental connections. The Water Division provides water to 63% of its residents and businesses in Narragansett. Within the water service area there are eleven (11) private wells in use that could be switched to public service and added to the current volume served. Current average day customer demand is 0.758 mgd. Under projected water use for the 5-year planning period, it is expected that the average day demand will be equal to 0.771 mgd. For the 20-year planning period, it is expected that the demand will be 0.787 mgd. These projections are based primarily on population projections and do not account for significant water savings potentially realized through demand management techniques. They do, however, consider non-account water at the current rate of 14.66 percent.

It would appear that the Narragansett water system supplies are adequate to meet existing and future demands for the 5- and 20-year planning periods. The Narragansett water supply system does not operate any surface or groundwater sources of supply but, instead, purchases 100% of its water on a wholesale basis from neighboring water supply systems (i.e. United Water Company, Town of North Kingstown).

The Water Division employs an annual capital improvement program which addresses system improvement and replacement/rehabilitation projects. The most significant modifications and improvements since preparation of the previous WSSMP include the following.

- Install a new pressure transmitter at the North End water storage tank and calibrate the tank level.
- Install security cameras at the Point Judith water storage tank and a new fiber optic cable from the Point Judith water tank to the Kinney Avenue water tank for camera and remote gate access.
- Point Judith Road Booster Pump Station Upgrade: Install a new roof and siding on building structure.
- Kinney Avenue Water Storage Tank: Clean interior surfaces and inspect the tank.
- North End Water Storage Tank: Clean interior surfaces and inspect the tank. Rebuild existing 8" Ross valve and convert it from an altitude valve to a solenoid valve control.
- Point Judith Water Storage Tank: Paint exterior and interior surfaces and inspect the tank. Install a new cathodic protection system.
- Master Meter Replacement Program: Purchase and install 4 Mag master meters and install at all of the system entry points.

The Emergency Management section of this Plan (Volume II) establishes the responsibilities and authority within the Narragansett Water Division for responding to most probable emergencies and outlines specific tasks for carrying out functional and constructive solutions based on a review of the potential emergencies and risks. The procedures outlined are consistent with the goals of the State Emergency Water Supply System Management Plan. It is also intended that this document provide guidance to ensure that the primary aspects of recovery from an emergency are addressed in an organized manner to aid in an efficient response and in maintaining drinking water quality and quantity.

NORTH KINGSTOWN
WATER SUPPLY SYSTEM MANAGEMENT PLAN
EXECUTIVE SUMMARY

September 18, 2015

NORTH KINGSTOWN
WATER SUPPLY SYSTEM MANAGEMENT PLAN
EXECUTIVE SUMMARY

Introduction and Background

This Water Supply System Management Plan Five Year Update has been prepared as required under the Rhode Island General Laws 46-15.3, as amended and titled "The Water Supply System Management Planning Act" (Act). The legislative authority to effectuate the goals and policies of this Act has been conferred to the RIWRB. To this end, the RIWRB has promulgated the Rules and Regulations for Water Supply System Management Planning, October 1998, as amended to implement the provisions of this Act.

Under this regulation, the Town of North Kingstown – North Kingstown Department of Water Supply (NKWD), as a water purveyor supplying over 50 million gallons of water per year, is responsible for the preparation and adoption of a WSSMP. It also requires that the Town update this WSSMP periodically, as significant changes warrant, and every five years, or as otherwise stipulated in the Regulations.

Water Supply System Management Plans are prepared in order to provide the proper framework to promote the effective and efficient conservation, development, utilization and protection of the natural water resources of the State as utilized by the water purveyor. Further, the overall goals shall be consistent with the State Guide Plan Element 721, *Water 2030*. The purpose of this WSSMP is to outline the objectives of the Water Supply System Management Planning process for the Town of North Kingstown Water Supply System, and to serve as a guide to employ the proper decision making processes toward meeting that goal.

The WSSMP contains a description of the water system and includes the policies and procedures related to the general operation and management. The Emergency

Management section relates to the vulnerability assessment of the water system for use in emergency planning. It shall be incumbent upon the NKWD to implement the recommendations and procedures outlined in this WSSMP in order to comply with the overall requirements of the Act.

Water System Description

The Town of North Kingstown Water Supply Department, which is wholly owned by the Town of North Kingstown, was established by legislation of the General Assembly of the State of Rhode Island circa the late 1930s. The majority of the water system infrastructure was installed in the 1940s and **1950s**. Since that time, the system has expanded to meet the needs of the Town's growing population. It is presently operated as a self-supporting enterprise fund where all operations are financed from revenues derived from various user fees.

Water Supply Sources, Pumping Stations and Water Storage Tanks

The primary source of raw water supply for the North Kingstown water system is groundwater. Water is pumped directly into the distribution system for consumption, or serves to provide storage capacity in the storage facilities. The water supply, at present, consists of 11 water supply wells and pumping stations that serve the Saunderstown High, Slocum High and Low service areas. The Water Department installed a new gravel packed well (Well #11) and received new source approval from the RI Department of Health in April 2005. This well helps to meet peak demands associated with development that has occurred within the Town over the past ten (20) years and provide system flexibility and redundancy. In addition to the proposed new well, a satellite well (well #5a) was constructed to replace existing well #5. The new satellite well went into service in the summer of 2005.

The NKWD does not own or operate any water treatment facilities. Historically, source water has been treated with caustic for pH adjustment and a corrosion inhibitor is added for lead and copper control. As a result of acute violations of the Total Coliform

Rule in 2001, 2002, and 2003 a disinfection pilot study, was initiated in the low service area of the distribution system (wells #1, 2, 6, 9, & 10) in the summer of 2005. The purpose of the pilot study was to evaluate the effectiveness of using sodium hypochlorite to control bacterial regrowth in the distribution system. All chemical treatments take place at each well station facility.

Water Distribution

The transmission and distribution system consists of approximately 175 miles of water main, constructed mainly in the 1940s and 1950s. The majority of the system consists of asbestos cement (AC) pipeline ranging in size from 6 to 16 inches. New and replacement mains consist predominantly of polyvinyl chloride (PVC) pipe.

The service area is typically operated as three (3) independent systems, operating at different hydraulic grades. The service areas are isolated by several gate valves, which remain in the "closed" position and a pressure reducing valve (PRV). The North Kingstown Water System owns three (3) booster pumping stations in addition to the eleven (11) well pumping stations. Only two of these booster pumping stations are operational. In the event of an emergency, water could be supplied to the high service system from the low service by boosting the hydraulic grade through one of these facilities and opening a gate valve. If the shortfall occurred in the Low Service Area, water could be supplied from the high service area by opening one of the gate valves that isolate the pressure zones. Sharing water between the pressure zones is complicated to some extent by the Low Service Area disinfection. The NKWD has recently constructed a PRV/Booster pumping facility that will allow us to share water between pressure zones without compromising disinfectant residuals in the Low Service Area.

The Slocum service zone is controlled by the overflow elevation of the Slocum elevated water storage tank, with an overflow elevation of 348 feet mean sea level (MSL) and a total storage capacity of 500,000 gallons, and the Saunderstown service zone is

controlled by the overflow elevation of the Saunderstown Standpipe (overflow elevation is 298 feet MSL) and a total storage capacity of 528,000 gallons. It should be noted that prior to 1996 the Slocum tank overflow elevation was equal to 298 feet MSL. In order to increase domestic service pressures in the vicinity, the original standpipe was replaced with an elevated storage tank that afforded an additional fifty (50) feet of storage height and an additional pressure zone was subsequently created.

Water storage in the low service zone is provided by three (3) facilities. The Bow Hunters Water Storage Tank (overflow = 215 feet MSL), North End Standpipe (overflow = 210 feet MSL), and the Wickford Standpipe (overflow = 210 feet MSL) each provide regional storage capacity within the low service area. Total low service area storage capacity is 4,375,000 gallons.

Interconnections

The NKWD maintains five interconnections to neighboring water purveyors. They include the Town of Narragansett Water System (wholesale connection), and emergency connections to Warwick Water, the Quonset Development Corporation (Quonset Point Industrial Park), the Kent County Water Authority (KCWA) and an emergency-only interconnection, which requires the deployment of a temporary line on the Jamestown/Verrazano Bridge, with the Jamestown Water District.

Legal Agreements

North Kingstown has approved written agreements with the Kent County Water Authority and the City of Warwick for use of the interconnections to supply water during emergencies. North Kingstown has also entered into written agreements with the Town of Jamestown periodically for emergency water supply. An attempt to enter into a new agreement with the Town of Narragansett failed to gain the support of the North Kingstown Town Council. The Water Department is unaware of any former agreement with the Quonset Development Corporation. The Water Department will commit to

initiating discussion with all interconnected communities and the North Kingstown Town Council about the establishment of updated legal agreements.

Metering and Non Account Water

The source and distribution system is 100% metered. Master meters located at each individual well/pump station meter 100% of the water produced from the North Kingstown well field supply system. Every domestic service connection within the North Kingstown Water System is metered at the point of sale, thus providing 100% distribution metering. In recent years the NKWD has made the changeover to automatic reading and billing (ARB) remote distribution metering, and more recently to radio read meters, with the intent of recovering operating and capital costs of system operations, reducing unaccounted-for water volumes and collecting more accurate water use data. Additionally, all master meters at the well stations will be re-calibrated in the current fiscal year.

Shortly after the introduction of a disinfectant to the low service area, an increase in non-account water was evident. This was due, largely, to a scouring of biofilm in the individual service lines which allowed historic pinhole leaks to lose water at an accelerated rate. The department aggressively repaired leaks as they became evident and additional undertook a leak detection survey by an outside contractor. Stabilization in the low service area through the action of our corrosion inhibitor additive has occurred and non-account water, which peaked in 2006 has declined. The Department will continue to implement programs to improve the efficiency of water use and measurement.

Population Served

The service population is comprised mainly of residential, commercial, and government customers of which there are approximately 9,556 metered accounts. The total current service population has been estimated at approximately 24,341 people. The remaining residents not served by the public water system are served via private individual wells.

Average day demand based on pumping data for the past five (5) years is approximately 2.6 million gallons with a maximum day demand of approximately 6.9 million gallons (July 2008).

The Town of North Kingstown has grown steadily over the past twenty (20) years. It has become evident that the more recent large lot subdivision developments use a significantly greater amount of water during the summer months than older smaller lot developments. New subdivision development in the southwest region of Town and the related prevalence of in-ground lawn and landscape irrigation systems has been the major contributors to seasonal high water demands.

This reality, that water usage in this largely residential community which is driven primarily by lawn size and the preponderance of in ground irrigation systems has caused us to rethink the format of our Major Users Technical Assistance Program (MUTAP). Rather than base this important demand management component around the traditional concepts of modification of commercial & industrial water usage, NKWD has decided to focus its MUTAP on the high usage irrigation accounts as well. Details of the program are included within the body of this WSSMP.

Demand Management

Pursuant to R.I. General Laws 46-15-8, as well as 46-15.3-5.1, 46-15.7-3, 46-15.8-5 the Water Resources Board has promulgated the Water Use and Efficiency Rule for Major Public Water Suppliers. The rule establishes targets and methods for efficient water use and requires that each major supplier prepare a Water Efficiency and Demand Management Strategy (DMS) to achieve the identified targets. Water use efficiency targets are to be reached through the application of required methods identified in section 4.1 of the rule and through the application of selected optional methods listed in section 4.2 and/or any other methods as appropriate.

The Water Department is very cognizant of the fact that the maximum day demand is encroaching on the available safe yield of its sources. A demand management program including revisions to the water service area, twice a week lawn irrigation restrictions and customer education programs have been implemented. Recent concerns regarding the Hunt River and the impact of water withdrawal on the availability of streamflow have resulted in a more focused effort to reduce seasonal demand increases and wasteful use of water. North Kingstown continues to employ proper system management procedures aimed at increasing the overall operating efficiency of its water supply distribution system with the underlying theme of water conservation.

Available Water and Safe Yield

North Kingstown's total pumping capacity in the Hunt, Annaquatucket, Pettaquamscutt Aquifer System is approximately 8.9 MGD but in reality the flow would be less given that individual well yield is less when other wells nearby are pumping at the same time. Previous Water Supply Management Plans used available water estimates published in the USGS water supply papers. These plans failed to acknowledge that the USGS reports did acknowledge the streamflow implications of pumping at these levels during dry periods or under drought conditions.

The recent estimates developed by the Water Resources Board applying the RIDEM developed Streamflow Depletion Methodology indicate that the low flow allowable depletion in the Hunt, Annaquatucket, Pettaquamscutt Aquifer System is approximately 4.8 MGD. The fact that seasonal high water demand associated with North Kingstown's current customer base may often exceed 4.8 MG demonstrates the need to manage the use of our current supply sources and look for sustainable future sources of water supply.

Anticipated Future Demands

In 2012 the North Kingstown Town Council approved an amendment to the North Kingstown Comprehensive Plan that included revisions to the North Kingstown Water

Service Area. This revision is meant to aid in meeting the goals of the Water Use Efficiency Act, to support state and local efforts to direct growth to appropriate areas, and to promote protection of outlying land areas, which in North Kingstown includes our sensitive groundwater protection zones. As part of this effort, the Horsley Witten Group (HW) was tasked with preparing a buildout analysis of the revised Water Service Area. Looking at a 20-year horizon, HW developed estimates for the number of potential residential units and commercial and industrial acres that could be served and estimated the demand in gallons per day under the revised Water Service Area Map based on existing zoning designations. The analysis also took into consideration parcels outside of the revised Water Service Area that have frontage on existing water mains. The results of their analysis estimated an average day increase of 1.7 MG and a peak day increase of close to 4 MG[1].

Rate Structure and Financial Management

The North Kingstown Town Council did adopt a Water Rate schedule that includes inclining block rates for all water customers and a "fourth tier" for residential customers to discourage excessively high water use. The rate schedule includes a base rate set at the average cost of producing and distributing water. There was consensus among the Town Council members that all or a portion of the funds generated by the fourth tier could be used to finance education and incentive programs.

The water department has prepared a Request for Proposals to update water rates and fees. The primary objective is to make certain that adequate funding is available to operate, maintain and improve infrastructure to ensure the reliability of the community's water supply as well as the establishment of a revenue stabilization fund in accordance with state Water Use Efficiency Act.

[1] Multiplier used for peak based on 2005 water pumping data

Emergency Management

The Emergency Management section of the Plan establishes the responsibilities and authority within the NKWD for responding to most probable emergencies and outlines specific tasks for carrying out functional and constructive solutions based on a review of the potential emergencies and risks. The procedures are consistent with the goals of the State Emergency Water Supply System Management Plan. It is also intended that this document provide guidance to ensure that the primary aspects of recovery from an emergency are addressed in an organized manner to aid in an efficient response and in maintaining drinking water quality and quantity. This Emergency Management section was completely updated in November of 2004 to operate as a "stand alone" document capable of being utilized in all emergency situations. This was done in conjunction with the federally mandated vulnerability assessment.

Water quality protection has always been of the highest priority to the North Kingstown Water Department, and in spite of the continuing source water protection assessment which indicates that the water supply has a low susceptibility for contamination, it is understood that any supply can become contaminated. Ongoing diligent protection efforts are critical to continue to protect this critical asset.

SUEZ RHODE ISLAND
WATER-SUPPLY SYSTEM MANAGEMENT PLAN
EXECUTIVE SUMMARY

January 2017

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SUEZ RHODE ISLAND
WATER-SUPPLY SYSTEM MANAGEMENT PLAN
EXECUTIVE SUMMARY

1.0 INTRODUCTION

This Executive Summary for the SUEZ Rhode Island (SUEZ, fka United Water Rhode Island) Water Supply System Management Plan (Plan) has been developed in compliance with the regulatory and guidance documents pertaining to water supply planning, of the State of Rhode Island. The *Rules and Procedures for Water Supply System Management Planning, dated October 2002,* were promulgated pursuant to the requirements and provisions of Rhode Island (RI) General Laws Title 46 Waters & Navigation Chapter 46-15.3 Public Drinking Water Supply System Protection.

This Plan maintains consistency with the goals and policies of the Comprehensive Plan of the Town of South Kingstown, July 1992, as amended May 2005 and 2014, and the Comprehensive Plan of the Town of Narragansett – Baseline Report Draft 2B, dated February 25, 2016. Additional plans that have been incorporated into the update include the following:

- Water Resources Board (WRB) 2012 Strategic Plan
- State Guide Plan Element 721, Report 115, Rhode Island Water 2030
- Rhode Island State Land Use Policies and Plan – Land Use 2025
- United Water (SUEZ) Rhode Island Demand Management Strategy, prepared by Pare Corporation December 2012.

Common goals expressed in these plans such as water source protection and control of land development, have been reviewed as part of the development of this Plan and the goal of this Plan is to comply with the provisions of the Water Supply Planning Regulations referenced previously, by developing a comprehensive water-supply management plan for the SUEZ Rhode Island water-supply system. The report is also intended to achieve effective and efficient conservation, development, utilization, and protection of the water-system's resources. These objectives should be achieved in ways that satisfy the present and future needs of the SUEZ Rhode Island customer base.

The goals of the South Kingstown Comprehensive Plan and the Narragansett Comprehensive Plan are to maintain the high quality of residential life within the subject service area, while controlling the future rate of growth. These goals are recognized herein and their contents are referenced in the development of future water demand projections. Additionally, the region has opportunities for economic development through areas in and around the special planning districts of both communities, as well as within other industrial and commercial zoned portions of the water supply service area.

2.0 BACKGROUND

SUEZ is a utility located in Washington County, Rhode Island. SUEZ owns and operates a public water-supply and distribution system in a non-exclusive territory, serving portions of the Towns of South Kingstown, Narragansett, and the Village of Point Judith. Neighboring water purveyors located in the area include the Town of South Kingstown Utilities Department, the Town of Narragansett Water Division, the Town of North Kingstown Water Department, the Kingston Fire District, and the University of Rhode Island Utility system. SUEZ was incorporated in 1887 by George Alexander, Benjamin C. Mudge, George T. Lamphear, and Benjamin R. Curtis, with the intent of furnishing water to the Town of South Kingstown and neighboring communities.

SUEZ is organized as a Corporation under the Laws of the State of Rhode Island. SUEZ is a 100% subsidiary of the SUEZ Resources, Paramus, NJ, which is a wholly own subsidiary of SUEZ, Paris, France. The CEO of SUEZ is Jean-Louis Chaussade.

3.0 GENERAL SYSTEM DESCRIPTION

The SUEZ water system consists of the following components:

- Two well fields (seven well total);
- Treatment facilities (at each well field);
- Six pump stations (one at each well field and four in the distribution system (two of the distribution system pump stations are out of service);
- Five storage facilities;
- Transmission system; and
- Seven system interconnections.

The system relies on all components functioning in concert. The two well fields produce finished water by utilizing pumps and treatment facilities. The well fields have storage capacity in the form of clear wells. The finished water is then pumped through the pump stations into the transmission system. The transmission system functions to distribute water to customers and to provide or draw water from the storage facilities in the transmission system. The three storage tanks in the transmission system serve to even out periods of low and high demand. If the aggregate customer demand exceeds the total finished water produced from the well fields, the tanks will provide the additional finished water to meet demand.

3.1 Water-Supply Sources

The singular source of raw water supply for SUEZ water system is groundwater. Two well fields accommodate 100% of the service area demand. An emergency source of water is from interconnections with adjacent water systems. After treatment at the well fields, water is supplied either directly into the distribution system for consumption, or serves to augment storage volumes within the storage facilities.

Overall, the operation and productive capabilities of the system to meet the needs of the water service community have been efficient and capable, with the ability to supply potable water of good to superior quality to the service population being readily maintained.

3.2 Water Treatment Facilities

Lime is added to provide for the adjustment of pH values for corrosion control, which in effect, raises the pH from an initial value of approximately 5.8 to approximately 7.6. Sodium hypochlorite is also injected into the water at both locations to provide for disinfection in such a manner as to maintain a 0.5 mg/1 free chlorine residual. In addition, zinc orthophosphate is also added to the water for corrosion control and raw water is passed through an aerator for the removal of carbon dioxide. Full emergency power is available through an emergency generator at each well field.

3.3 Storage Facilities

The SUEZ water system includes five storage facilities. The clear wells at the well fields function as storage facilities and there are three remaining storage facilities located

throughout the service area. All storage facilities are constructed of steel, with the distribution facilities of standpipe configuration, with the exception of one tank, and the clear wells of reservoir types. The status of all three-distribution storage facilities are continuously transmitted via telemetry to the control system which responds to changes in storage levels. The controls are set up in the form of a matrix which allows selection of the water level in any of the three distribution storage tanks to operate the booster pumps at either or both of the well fields. This remote transmission allows a continuous charting and digital display of facility water levels at the control location or can also be monitored via computer phone modem to the SUEZ office for management over view as well as for the Chief Plant Operator to monitor from his home or vehicle.

3.4 Pumping Stations

The SUEZ water-supply system includes six booster pumping stations, one at each well field and four in the within the service area. The booster stations provide the means by which water from the well fields can be supplied to the system. Operation of the pump stations is automatically controlled by the water level in any of the three distribution storage facilities.

3.5 Raw Water and Finished Water Transmission Facilities

The system's water transmission mains convey potable water between the well pumping stations, booster pumping stations, the water-supply service area, and the system storage facilities. The system employs a well dispersed and generally strong grid layout in an effort to provide and maintain satisfactory reliability and redundancy. The entire distribution system is fully interconnected. This allows the system to operate mostly as a single pressure zone. These components of the treatment and transmission facilities are routinely monitored, repaired and/or upgraded to maintain performance reliability.

SUEZ customer service representatives are also trained to be attentive and alert to possible leaks whenever in the vicinity of customer components (i.e., meter, curb stop, hydrant, valve). In addition, storage facilities, production records, and distribution system pressure are continuously monitored on a daily basis in an effort to detect unusual or abrupt changes in performance.

3.6 Distribution Facilities Including Low and High Service

The entire distribution system is fully interconnected, with the overflow elevations of the distribution system storage tanks being operated to assist with the control pressure in their zones.

3.7 Planned Extensions

There are presently no major planned extensions of the water distribution system.

3.8 Interconnections

SUEZ currently maintains a total of seven system interconnections with neighboring water utilities. Four of the interconnections are maintained with Narragansett and the remaining three with South Kingston.

3.9 Population Served and Projections

SUEZ supplies a significant portion of the Towns of Narragansett and South Kingstown, which includes a various array of structures (i.e. residential, commercial, industrial, governmental), that are serviced by SUEZ.

All undeveloped areas within the water service area are eligible to be served as the demand requires, and depending upon the circumstances involved, SUEZ or the property developer may extend existing water main lines and associated appurtenances necessary for the adequate supply of water into those areas. Extension of water distribution lines outside of the present service area is contingent upon formal approval of SUEZ, and is subject to the hydraulic feasibility of the current system to accommodate any such extensions. In either case, the new mains would become the property of SUEZ following satisfactory installation, testing and acceptance.

There continues to be a portion of the service area which depends primarily on private well systems. The majority of these private wells are associated with single family residences; however, some wells provide water to commercial and industrial facilities within the service area. These private well systems and their service population would also be eligible to be served by the SUEZ system; again, contingent upon formal approval of SUEZ.

Table 1 presents the current and projected services populations for the SUEZ water-supply system.

Table 1

Present and Projected Service Population

2015	2020	2035
19,021	19,617	20,923

3.10 Major Users

In addition to its two wholesale customers, SUEZ supplies water to three other large users with a demand greater than 3 million gallons per year (South County Hospital, URI School of Oceanography and Meadow Brook Apartments). These major users are involved in a range of operations from residential, governmental and health services. The water consumed by the South County Hospital is the most significant of all the major users.

3.11 Metering

3.11.1 Master Meters

All of the water pumped from the SUEZ groundwater supply system is metered at each well field. These master meters provide for 100% source metering and are provided with corresponding transmitters which allow a continuous charting and digital display of well field production, at both sites. These meters are checked and calibrated annually.

3.11.2 Distribution Meters

Every residential, commercial, industrial and government customer serviced by SUEZ's water-supply distribution system is metered, thus providing 100% distribution metering. Wholesale meters are read daily and billed on a monthly or quarterly basis. Residential users are read quarterly on a three month cycle, and billed quarterly. The majority of commercial, industrial, and seasonal users are read on the same three month cycle and billed quarterly. The larger users are read and billed monthly.

Meter testing and calibration is provided by SUEZ on a request (from Owner) basis, in the event of meter failure, or when owner use dramatically changes. Additionally, random

meter testing is performed by SUEZ personnel as manpower requirements dictate. Small user meters (less than 2") are tested and calibrated on a twenty year cycle or whenever the meter register rolls over, whichever occurs first. This testing is performed by an outside contractor. Maintenance of these meters is generally not performed unless it can be accomplished efficiently. Normally, due to the fact that SUEZ does not maintain a meter repair shop, the meters are simply replaced. Larger meters (2" and above) are tested and calibrated every two years. Wholesale meters are checked and calibrated annually. This work is performed by an outside contractor through competitive bidding. Typically, the same company performs necessary repairs in a timely manner.

3.12 Legal Agreement

In addition to the implied legal obligations associated with the SUEZ corporate regulations defining the responsibility of SUEZ to furnish potable water to its customers, the company is also legally bound to provide water to its wholesale customers. The company maintains legal agreements with the Town of South Kingstown Utilities Department and the Town of Narragansett Water Division for the supply of water. While SUEZ is regulated as a public water supply, no additional specific legal obligations or contract agreements exist regulating the SUEZ's provision of water.

3.13 Unaccounted-For Water

Unaccounted for water use consists of the difference in the sum of the volume of water metered at the point of supply and that recorded at all points of sale. This unaccounted for water typically consists of water consumed for both authorized and unauthorized uses. Authorized uses include water main/storm drain flushing, sewer/street cleaning, landscaping in public areas, construction sites, etc. It also includes water which is metered but not billed, and therefore is not reflected in the recorded volumes of water sold. Unauthorized uses typically include system leaks, malfunctioning meters, meter pit bypasses, water theft, other unmetered public use, etc. SUEZ's estimated percentage (%) of system unaccounted-for water has stabilized over the past three years, and is currently 4.0%, well in line with the desired State goal of 15%.

It should be noted, that SUEZ has several programs in existence which endeavor to promote the maximum efficiency of its water use and curtail even further the degree of unaccounted-for water.

3.14 Demand Management

3.14.1 General

Demand Management consists of those conservation measures which achieve long-term water savings by providing incentives and technical assistance to consumers as a means of improving efficiency of water use and reducing waste. Such water conservation measures, whereby suppliers and/or local water utilities and government work to influence water consumption, is the most fundamental approach to water conservation, since the ability to conserve water lies primarily with the water user. Consequently, the success of these measures is highly dependent upon consumer participation and cooperation.

The demand management program proposed herein will therefore focus predominantly on those measures and approaches which achieve permanent long-term water savings without requiring major user habit changes. The five (5) basic demand management techniques are as follows:

- Installation of water conserving, low-flow plumbing devices (retrofit) and revision of plumbing code regulations.
- Promotion of water recycling and efficient use and reuse; provision of technical assistance to industrial, commercial and governmental users.
- Public education on water conservation and water supply issues.
- Appropriate use of fees, rates and charges.
- Water use regulations and restrictions.

The most effective measures are those that achieve long-term water savings without great expense, effort or inconvenience to water users (e.g. installation of water- saving devices and technologies, manufacturing process changes, or pressure reduction). In comparison, the effectiveness of water use restrictions and other methods that require intensive participation or habit changes are likely to diminish over time.

3.14.2 Goals

The demand management goals of SUEZ are divided into short-term and long-term goals, as follows:

Short-Term Goals

1. Minimize peak demand use requirements
2. Implement system-wide residential retrofit program

Long-Term Goals

1. Minimize average demand use requirements
2. Provide water-use audit services to all major users

One hundred percent (100%) of the water delivered to the SUEZ water system customers is metered.

3.15 Supply Management

The SUEZ system's historic water production volumes for the past five years (2010 - 2015) are presented below.

Table 2

Summary of Historic Water Production
(million gallons)

2010	2011	2012	2013	2014	2015
1,128.9	1,079.9	1,130.9	1,044.5	1,013.9	1,035.3

3.16 Available Water

It is the overall objective of SUEZ to ensure the availability of an adequate supply of potable water to meet the existing and future needs of its customers. This section will focus on presenting the quantities of potable water available to the water supply system at present, and at the projected 5- and 20-year planning periods.

3.16.1 Aquifer Yield

Currently available yearly production data from SUEZ indicates that to date, the peak demand year for its well fields that tap Mink Brook Aquifer (MBA) in the Mink Brook watershed occurred in 2012. Approximately 1,131 million gallons were pumped that year from the MBA (i.e., an average of 3.10 mgd). Given the historical ability of the SUEZ wells and MBA to sustain pumpage at about 3 mgd, and the current land-use and recharge characteristics of the hydraulically connected Chipuxet River watershed and associated glacial outwash deposits, the current and projected SUEZ demands are considered to be sustainable by the local ground-water resources.

Although the ability to calculate an exact aquifer yield value for the MBA and associated lower portion of the Chipuxet River watershed is limited due to the currently available site-specific hydrogeologic data, references indicate that at the 50th percentile, the estimated gross yield of the Chipuxet River watershed (from baseflow calculations) during the typical annual lowest-flow condition month of September is approximately 15.90 mgd. As previously discussed, available historic pumpage data for the SUEZ Wells during the peak demand summer months (including September) indicate that some portion of the 15.90 mgd annual low-flow yield in the Chipuxet River basin is available as recharge (either as direct inflow or as replenishable storage) to the MBA and is expected to continue to be available in order to meet the projected future average daily demand.

3.17 Safe Yield

The State of Rhode Island, Division of Water Supply Management does not define Safe Yield for groundwater sources. Instead, the capacity of the well or well field is evaluated to determine if adequate supply is available. In conformance with the Division guidelines, 90% of the well/well field capacity can be utilized towards determination of the system's available water.

3.18 Anticipated Future Demands

3.18.1 Future Demand Analysis

It should be noted that the development of future projections assumed reasonable estimates for unaccounted-for water and would therefore, reflect the total amount of water

supply needed (i.e. total pumping supply) to meet overall system demands. It is anticipated that the present levels of available water will be more than sufficient to accommodate the expected growth in the system average and maximum day demands.

When developing these scenarios, no consideration was made for anticipated "water savings" other than reduction in the level of non-account water, therefore, allowing the demands to be evaluated on a worst case scenario. It is anticipated that a future water conservation target in the region of 10% will only help to further ensure an efficient and adequate supply of source water throughout the 5- and 20-year planning horizons.

3.18.2 Growth in Demand

The intent of this section is to project the future water demands expected of the SUEZ water-supply system for the 5- and 20-year planning periods. To best project future water use, several factors must be considered and evaluated for both the Town of South Kingstown and Town of Narragansett portions of the service area; some of which include changes in population density, industrial and commercial water use and development, wholesale of water to adjacent systems, seasonal influx, economic development, changes in the service area, land use, water quality, water use rates, and conservation measures.

In an effort to quantify the likely growth expected in SUEZ demands during the planning horizons of this plan, the Narragansett and South Kingstown Community Comprehensive Plans, completed in recent years, were reviewed. These documents focus primarily on current and future trends in each Town, and allow a determination of the availability of opportunities for population and economic growth in both Towns. The potential impact that these opportunities will likely have on future growth of both wholesale users, as well as within SUEZ's own service area, have been analyzed.

3.18.3 Narragansett

The Town of Narragansett Comprehensive Plan – Baseline Report Draft 2B, dated February 25, 2016, presents a preliminary build out projection that was used to estimate the current growth. The year 2010 US Census stated the population of 15,868 represents a decrease in population from the 2000 census of 16,361. Population projections prepared by the Rhode Island Division of Planning (RIDP) were developed for the 5-year (2020) and 20-year (2035) planning

periods. The RIDP estimates that the town population in 2020 and 2035 will be 15,988 and 16,411. This would amount to an approximate population increase of approximately 3 percent between 2010 and 2035. The impact to demand should be minimal over the short term as a result of this increase.

The majority of future growth in the Town is expected to consist of residential development which continues to be the Town's dominant land use. Economic development in the Town is not expected to increase significantly during the next 5- to 20-year periods due to limited availability of developable industrial land.

An analysis of current and future Town land use mapping indicates that much of the area served by the SUEZ distribution system in the Town is located in Low density, Moderate-Low density and High density developed areas, with small commercial and minimal industrial regions. The impact of expected growth in the SUEZ service area within the Town of Narragansett will largely result from expansion to its residential consumer base, with minimal growth expected in commercial and industrial sectors. The Narragansett Comprehensive Plan also indicates that an additional 1,009 year-round homes could be built on exiting vacant or underutilized lots. When or if these homes will be constructed is uncertain. It is assumed that it will take 20 years for the Town to be fully built out, within the time frame of the Comprehensive Plan.

3.18.4 South Kingstown

A review of the South Kingstown Comprehensive Community Plan (Updated 2014) was completed to develop a basis for understanding current and anticipated land use practices in the Town. The plan indicates that 74% of all Town land are zoned residential and less than 1% is zoned commercial.

The plan indicated that population in the Town increased significantly between 1970 and 1990, with a 20.7% increase in each decade. Between 1990 and 2000, the population increased by 13.4% and between 2000 to 2010, the population increased by 10%.

The year 2010 US Census stated the population as 30,369. The Rhode Island Statewide Planning Program prepared population projection estimates for the 5-year (2020) and 20-year (2035) planning periods. The RIDP estimates that the population in 2020 and 2035 will be 32,756 and 36,734. This would amount to an approximate

population increase of 9 percent between 2010 and 2020 and an approximate population increase of 9 percent between 2020 and 2035. This estimate is consistent with the slowing population growth trend over the last few decades. Similar to Narragansett, this gradual slow growth will be considered in the short term demand projections but will become more significant for the 20-year planning period.

Commercial growth in the Town was noted as growing at a rate of 1.05% during the 1990's. Given the limited availability of commercial space, special development districts have been established along Route 1, Main St., and Highway commercial areas in an effort to revitalize existing commercial space.

Industrial development in the Town has been very slow between 1990 and 2000 which is largely consistent with the trend in the State of Rhode Island and in the Northeast region. The plan concluded that the potential for future industrial growth in the Town will be a challenge in the decades to come.

A review of the Town land use mapping and comparison to the existing water supply service area indicates that the greatest impact on future growth of the SUEZ system will likely result from increased development of residential land within and adjacent to the current SUEZ service area.

SWRI Service Area

The impact that the development in both Towns has had on the growth of SUEZ's own service area can be evaluated by considering the increase in the system's number of services over the past 10 years. The annual number of services added to the system has been relatively constant and can be categorized as slow steady growth which is consistent with the previous decade as well. The average number of new system-wide services added annually over the past 10 years is 44.8. This *services growth rate* compares favorably with the preceding development growth rates discussed for both Towns. In light of that, it appears that the rate of growth of both wholesale user service areas closely correlates with that of SUEZ's own service area. It is, therefore, proposed that the ten year historic rate of growth in SUEZ system's production volumes be utilized as the methodology to predict the estimated future demands of the SUEZ system.

As the above discussion suggests, quantifying the effects of increased development on future water use demands on the SUEZ water-supply system is a complicated task due to the multitude of variables involved. Given the desirability of both the Town of South Kingstown and Narragansett as residential communities along with the availability of developable residential properties in both Towns, it is expected that the existing rate of growth in production volumes will likely continue for a number of years. It is expected that the major component of this growth will result from residential expansion, with minimal industrial, and small commercial growth expected.

The expected system demand for the 5- and 20- year planning periods is presented in below.

Table 3

Summary of Project Water Demand
(Million Gallons)

2015	2020	2035
994	1,150	1,247

3.19 Capital Improvement

SUEZ continues to employ an aggressive pro-active Capital Improvement Program of water main replacement/rehabilitation which has been in effect for several years, with the intent of replacing existing low capacity mains and water meters, upgrading system storage facilities, and improving overall system reliability.

3.20 Rate Structure

The current rate structure provides a separate rate structure for assessing charges to residential users, commercial, industrial and municipal users, among others. The rate structure for each consists of a combination of a *Customer Service Charge* (Flat Rate) plus a *Volume Charge* (Block Rate). The *Customer Service Charge* is applied based on the size of the customer's meter, with the *Volume Charge* computed based on the actual volume of metered consumption.

In the case of residential use the Volume Charge is computed on an inclining block rate structure, with the user paying more per unit of water as consumption enters a higher

block. This type of rate structure encourages the conservation of water by rewarding the user who minimizes use. The same incentive is not provided to commercial, industrial or municipal users however, who are assessed at a fixed rate structure.

3.21 Financial Management

SUEZ is a privately-held water utility, operating under the laws and regulations of the State of Rhode Island, and subject to regulation by the Rhode Island Public Utility Commission and SUEZ utilizes an accrual system for recording its financial transactions, and all books of record are kept in compliance with generally accepted accounting principles. It is the intent of SUEZ that the costs (expenses, including depreciation) of providing the services to its users on a continuing basis be financed or recovered fully through user charges.

SUEZ strives to meet the following objectives:

a) to provide its customers with potable water of high quality and sufficient quantity to meet all of their needs, while simultaneously providing excellent customer service, all at a reasonable cost.
b) to provide our employees with challenging opportunities in the water industry, with fair and reasonable compensation.
c) to provide our stockholders a reasonable return on their investment.

All general operations of SUEZ are financed from water revenues in the form of user fees. Capital improvements to the water system are initially financed internally by generated funds of SUEZ. Where sufficient funds are not available internally, a contribution to the equity of SUEZ is made by parent company.

3.22 Emergency Management

SUEZ has an approved Emergency Management Plan. The plans established the responsibility and authority within SUEZ for responding to potential emergencies and outlines specific tasks for addressing such emergencies.

3.23 Water-Supply Source Protection

SUEZ has prepared a Water Quality Protection Plan that includes the necessary components of the Rhode Island Wellhead Protection Program (WHPP). SUEZ has ongoing strategies to ensure the continued protection of SUEZ's water-supply sources. A primary goal of these strategies is to provide for the protection of raw water supplies in those areas subject to the influence of the groundwater wells. This protection is accomplished fundamentally by owning and controlling sufficient land area around each of these wells to preclude as much as possible the threat of raw water contamination. SUEZ's two well fields are both located on over 30 acre parcels of land owned by SUEZ. In addition, SUEZ has purchased 47 acres of land in the vicinity of one the well fields. Ownership of the property has been transferred to a land trust with SUEZ dictating permissible uses. A second parcel of 30 acres of land in the same vicinity has also been purchased and turned over to the land trust.

The RIDEM has delineated WHPA for all public wells in Rhode Island. The WHPA overlies the MBA and encompasses 100% of SUEZ's water. There have been no changes to factors affecting water quality in the SUEZ watershed since the 2003 Source Water Assessment.

3.24 General Policies

The Plan is intended to be consistent with the goals and policies of the Town of South Kingstown and Narragansett Comprehensive Plans, as they pertain to water supply and management. Conversely SUEZ's Engineering and Water Operations personnel shall promote consistency between the contents of this Plan and the policies of these documents. For example, the cooperative efforts required with respect to source protection were noted earlier in this plan, and such joint efforts should progress as appropriate. Also, at present, prior to any type of water main extension or new development being serviced, local planning board approval must be issued.

Future land uses, zoning requirements, growth projections and other areas of mutual interest, with regard to service area expansion, shall be consistent with the ability of the water supply system to accommodate the expected potable water requirements of the system.

In addition, SUEZ shall continue to pursue the accommodation of the current and future needs of its water supply system through the coordination of its efforts with those of its neighboring water supply utilities. SUEZ has relationships with the South Kingstown Utilities Department, the Town of Narragansett Water Division, and the North Kingstown Water Department. In the case of an emergency, joint efforts will be employed to allow each utility to help one another. Future endeavors shall include efforts in regard to regional cooperation with respect to aquifer protection with adjacent towns, and state and federal agencies, system interconnections, service area expansion, capabilities to assist in the response to water supply emergencies, the potential for regionalization, etc.

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