

3.7.3. GREENWICH, NJ

Population Density	42.1/ sq. mi.
Form of Government	Township
Category	Rural Bayshore
CRS Rating	9

Median Household Income	Median Per Capita Income	% Owner Occ	Population	2000-2010 Pop Growth Rate	% White	% Hispanic	% Minority	% Seasonal Housing
55456	28237	75.4	804	-0.52	91.4	3%	10.1%	3.0

Adaptations	Status	Incorp orates CC	Type	Impact	Standard Costs	Funding Source
Coastal Community Vulnerability Assessment Tool	Completed	Yes	Procedural	Recommendation	Unique Very Low (< \$1,000)	State, NOAA
Conservation Zone - Restrictive Zoning and Environmental Impact Statement Requirement	Implemented	No	Prevention	Mandatory	Unique Low (< \$10,000)	None

CONTACTS

Mayor Ted Kiefer
rivendellnursery@msn.com

Trudy Hansen, Resident, liaison to Sustainable Jersey
tvhansen@earthlink.net

Michael Henry RA, PP, Vice Chair, Twp. Planning Board
mhenry@watsonhenry.com

Greenwich Township
 1000 Ye Greate St.
 Greenwich, NJ 08323

POPULATION AND GEOGRAPHY

Greenwich Township is the smallest community in our survey. The Township, including the Village of Greenwich, has a population of 804 people. Its population, which is 91% white, has exhibited a slow but steady decline in recent decades. Greenwich is located on the Delaware Bay, on the Cohansey River in western Cumberland County, about an hour south of Philadelphia. The town's 19 square miles is largely wetlands and farmland with a few small settlements. The town was settled in the mid-1600s and has a significant historic district designated as a state and federal historic district. It is protected by agricultural levees that are hundreds of years old and in declining condition.

Greenwich is a riverine community that is predominantly agricultural. Its maritime history—as a colonial port-of-entry and as a major 18th and 19th century ship-building, oystering, and fishing center—is well documented. It is primarily a year-round community with only 3% of the housing stock reported as seasonal.

COASTAL ISSUES

Greenwich Township is a low-lying community surrounded by coastal wetlands and the Delaware Bay. As the Coastal Community Vulnerability report stated, "While the township has made great progress towards preserving its historic and natural landscape, coastal hazards threaten agriculture, historic properties, tidal wetlands, and the safety of township's residents. Greenwich Township is already experiencing coastal erosion along the Delaware Bay, saltwater intrusion into freshwater resources, habitat transition from freshwater to salt marshes, and shallow coastal flooding in low-lying areas" (NJDEP 2011).

The mapping exercise revealed that, although Greenwich currently experiences shallow coastal flooding in low-lying areas during spring tides, storm surge from a Category 1 hurricane would be rebuffed by tidal wetlands that protect the majority of the community.

Indeed, Superstorm Sandy had a relatively minor impact on the community. However, the report concluded that a storm having a magnitude greater than Category 1 would inundate a large expanse of developed land (p.9) and stated "the destruction of a hurricane or major nor'easter could have an immense impact on historic resources in the township and result in short-term disruption of agricultural production" (p.13)

The Mayor agreed that "flooding is a big issue" in the township. (Personal Communication, Jul. 26, 2012). Two primary earthen levees dating to colonial times have become highly vulnerable and a third agricultural levee was breached in the late 1980s. That levee was repaired in 1994. The town then worked for two years with DEP and the Corps of Engineers but the last active repair project was abandoned in 1996. "The levees help retain our fresh irrigation water since we don't have a very deep aquifer. We are very concerned with fresh water resources that are protected by these three dikes," Mayor Kiefer explained. One of the biggest challenges in Greenwich is not just its physical vulnerability, but its lack of resources. "Greenwich has few financial resources and our local government functions are primarily served on a volunteer basis," Mayor Kiefer explained.

Township interviewees explained that the Township lacks the infrastructure, technical resources, and financial resources of larger communities. For example, flapper gates need to be replaced at one of the dikes, but the cost is estimated at a minimum of \$100,000. Without working tide gates, the dike is compromised and Greenwich-Bridgeton Road, a major county road and coastal evacuation route, is at high risk of flooding. At this time, the Township is working with Cumberland County officials to make emergency repairs to the physical structure of the dike adjacent to this road, to be followed by critical tide gate repairs to protect the community while further solutions are identified.

Township interviewees indicated that Greenwich Township has been experiencing the effects of water rise in multiple ways. Planning/Zoning Board member Michael Henry said, "One thing we are concerned about is the fact that in recent periods of heavy rainfall we have noted an increase in the shallow aquifer level. In addition to flooding, some homes are experiencing groundwater rise in their basements. In some instances, groundwater flooding has occurred in houses where homeowners have not seen water in basements in 50 years. There is a sense that increased tide levels are putting pressure on the shallow aquifer and putting back pressure on the aquifer. The implications are increased insurance claims, and insurance redlining which would affect mortgage values..." (Personal Communication, July 26, 2013).

At the end of December 2010, a heavy snowstorm was followed by rapid temperature rise and snow melt that caused extensive flooding, especially in basements of properties along the Township's historic Ye Greate Street. In August 2011, a major storm followed by Tropical Storm Irene resulted in flooding. Other storms and storm surges have threatened several historic homes nearest the Cohansey River that were directly protected by the breached levee, and historic and contemporary properties in the Township have experienced repeated basement flooding and other damage.

A detailed study of elevations was conducted as part of the Vulnerability Assessment Tool, one of the adaptations profiled in Greenwich. The study's final report states that, "In a worst case scenario, almost everyone in the town would be affected." Xx

As of July 2012, sandbags that were used to protect the Market Street levee from Tropical Storm Irene remained, although this is far from a permanent solution. Trudy Hansen, a member of the Sustainable Greenwich advisory committee, said that, "coastal vulnerability is a very serious issue... it affects both the built and natural environment and impacts the lives of all residents" (Personal Communication, July 26, 2013).

ADAPTATIONS

Coastal Community Vulnerability Assessment Tool and Getting to Resilience Survey

The community was very grateful to have been selected to participate in the project. The Mayor said, "The Coastal Community Vulnerabilities Assessment Tool project was one of the best things that has come our way" (Personal Communication, July 26, 2013).

Greenwich Township is using the data generated from the project in recent communications with Verizon Wireless, who contacted the town wishing to site a badly needed cell tower. Using the new storm surge projections, the Township wants the utility to site the critical telecommunications facility outside the areas projected to be inundated by the most extreme storm surges. The Township has also formed a special Dikes Committee that is working with state and county officials to find appropriate solutions and alternatives to the continuing threats of flooding, storm surge, and water rise.

Greenwich Township also drew some distinctions between itself and the majority of New Jersey communities in the way they could use the information in the report. Interviewees said that common responses, including regulating building code, are not as relevant in a slow-growing rural historic township such as Greenwich. They are concerned with protecting their historic district, open space, farms, and an agricultural way of life. As Mayor Kiefer explained, "We are concerned with protecting what we have rather than regulating new development. We could change all of the codes on the books and it wouldn't make a difference..."

One of the direct outcomes of the vulnerability study was a community visioning study that the Township conducted with the aid of a University of Pennsylvania School of Design/Historic Preservation Planning studio. The Township has also reached out to the Civil and Environmental Engineering department at Rowan University and is hoping to obtain assistance in gathering data that will help the Township develop proactive measures for challenges including water supply and septic system options.

In general, the interviewees felt that they had limited resources to implement the solutions necessary to become more resilient. They thought our report might help because, as Ms. Hansen explained, "It would be valuable to have more access to information about how other communities... especially those with similar challenges...are meeting water-related challenges. We have several different types of water rise, flood, and storm surge impacts, but we often feel like we are in the dark...we don't know where to access that information or look at how other communities have implemented protective measures."

Conservation District Zoning and Environmental Impact Statement Requirements

Although growth pressure has been minimal, the Township attempts to protect its agricultural way of life and low-impact human activities through a number of regulations. Over one-third of the Township, the majority of which is coastal wetlands, is protected by a conservation easement. The town's Conservation District (CD) zoning category includes the majority of tidal marshes, floodplains, and wetlands in the Township.

The zoning code describes the zone as "established to recognize and conserve environmentally sensitive areas from inappropriate development or uses" (Greenwich, N.J., Town Code Art. XIV, §700) Conservation Areas are established to recognize and conserve environmentally sensitive areas from inappropriate development or uses. It prescribes that land in the CD district can only be used for compatible activities such as farming, nurseries, recreation, forestry, game farms, fisheries, wildlife sanctuaries, and arboretums. Parking, dumping, sewage treatment, and the application of pesticides is prohibited without approval.

For any activity in the CD district, the township requires:

1. A detailed environmental impact statement establishing the exact limits of environmentally sensitive areas.
2. Buffer requirements in accordance with the requirements under the State of New Jersey.
3. Any landowner with development adjacent to a conservation overlay area must submit an environmental impact statement (EIS).

The EIS requirement is unique among our study communities. Although some states, such as New York, require EIS, Greenwich is the only town we know of that has instituted such a requirement on its own. Although procedures are not detailed, an EIS could significantly help to disclose hydrologic and ecologic impacts of any development activity and ensure the town opportunity has an to consider mitigation measures. The Township also requires 1 foot of freeboard described in its flood hazard ordinance. (Greenwich, N.J., Town Code, Art V. §388)

In the Conservation Zone, development is greatly limited and the law requires any proposed development prepare an EIS; 1 foot freeboard is required. (Ch 388, Art V.)