



Income

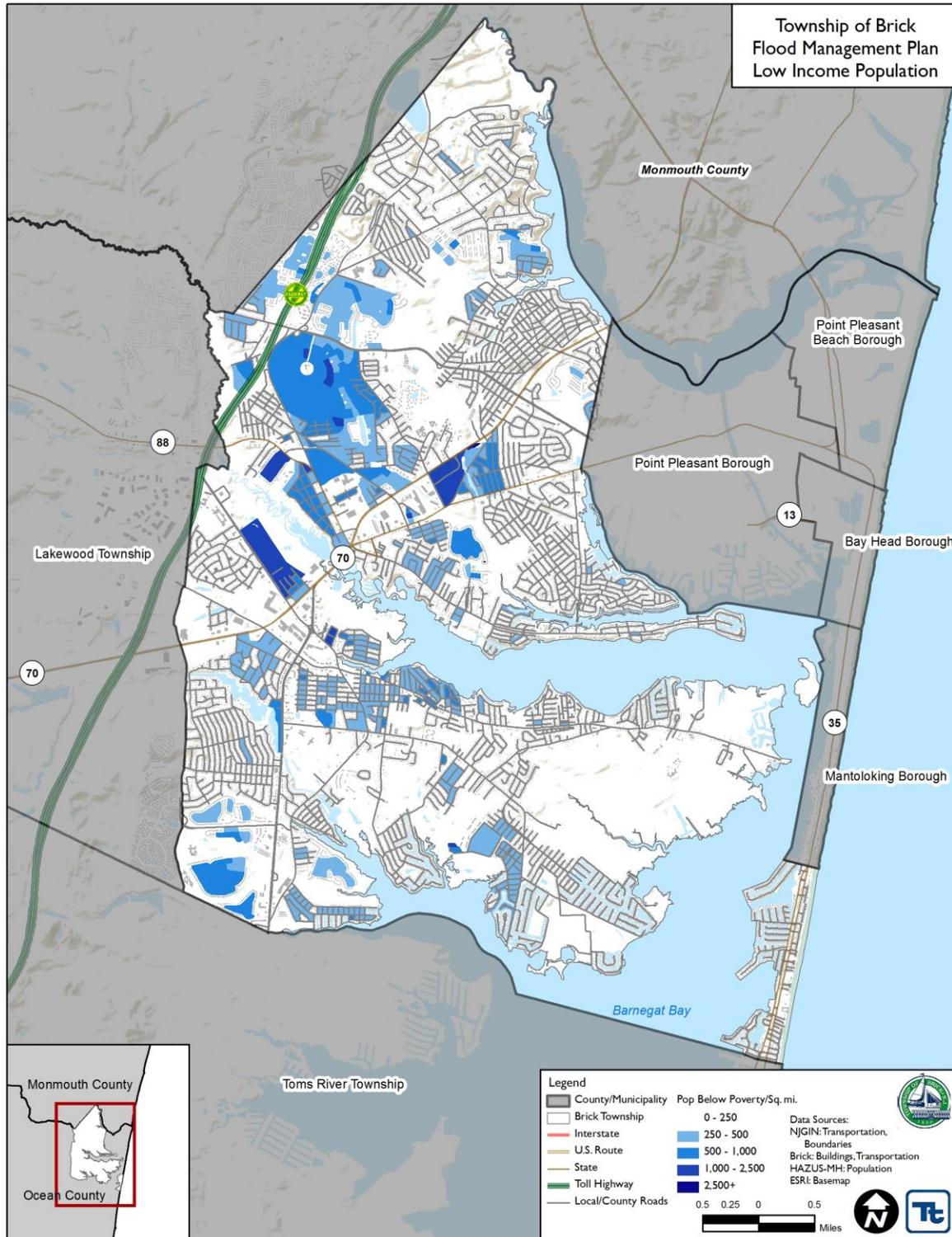
Financial hardships have far-reaching economic, community, and safety implications for residents and especially for young families and the younger workforce. A household which experiences financial difficulties will find it hard or impossible to invest in other areas that can increase safety and resilience. Necessary structural and mechanical improvements, modern technology to access information, vehicles to improve mobility and evacuation procedures, among other investments, may not be possible for individuals experiencing financial difficulties.

The median household income for the Township in 2013 was \$62,544. In the Township, 5% of residents are considered below the poverty line, 3.3% receive Supplemental Security Income, 1.0% receive cash public assistance, and 6.8% receive food stamps and SNAP benefits. Segments of the population experiencing financial hardship can be at additional risk during disaster events due to a variety of circumstances including a lack of access to resources and information to support safety and emergency procedures. Additional information is presented in the 'Disabled and Vulnerable Populations' section below.

In addition, there are currently a number of both homeowners and renters substantially burdened by housing costs in the Township. Among current homeowners with a mortgage, 43.6% spend more than 30% of their income on monthly housing costs. Among renters, a troubling 61.2% spend more than 30% of their income on monthly housing costs. The U.S. Department of Housing and Urban Development (HUD) considers families that pay more than 30% of their income for housing to be cost-burdened and as a result are likely to experience significant economic hardship. Figure 4-7 shows the distribution of low-income populations throughout the Township.



Figure 4-7. Distribution of Low-Income Population in the Township of Brick, New Jersey



Source: HAZUS MH-2.2

Note: HAZUS-MH 2.2 ranges of Less than \$20K per year and between \$10-20K were used to determined poverty level





Disabled and Vulnerable Populations

The 2010 U.S. Census estimates that 54 million non-institutionalized Americans with disabilities live in the U.S. This equates to about one-in-five persons. People with disabilities are more likely to have difficulty responding to a hazard event than the general population. Local government is the first level of response to assist these individuals, and coordination of efforts to meet their access and functional needs is paramount to life safety efforts. It is important for emergency managers to distinguish between functional and medical needs in order to plan for incidents that require evacuation and sheltering. Knowing the percentage of population with a disability will allow emergency management personnel and first responders to have personnel available who can provide services needed by those with access and functional needs.

Residents with Disabilities or Health Concerns

Residents with disabilities comprise a segment of the population with increased vulnerability to future disaster events. The nature and extent of the disabilities vary greatly; however, it is imperative to plan for safe evacuation, sheltering and housing to accommodate all circumstances. Currently there are 9,741 civilians (12.9% of the population) with a disability in the Township of Brick. Of these individuals, 956 are children and 4,636 are over the age of 65. Children and elderly with disabilities are even more vulnerable and must be included in the planning and implementation of disaster recovery and resiliency initiatives.

While not disabled, residents without health insurance are also at increased risk during disasters. If injured these residents may face challenges accessing healthcare and/or may experience significant financial or legal burdens as a result. There are currently 6,712 individuals (8.9% of the population) without health insurance. Opportunities to educate these residents about the availability and importance of health insurance should be explored through appropriate planning and outreach methods. These efforts would increase safety on a daily basis while also reducing health risks during and after future disasters, which is an essential component of resilience.

Limited Information and Resources

A critical component of public safety and future resiliency is the availability of information and resources related to evacuations and emergency procedures. Whether due to a language barrier, lack of equipment, or other resources, residents who are unable to access or execute emergency response procedures are extremely vulnerable during disaster events. Currently 3.0% of the Township of Brick's population (2,118 people) primarily speak another language and speak English "less than very well." In addition, 19.6% of the population do not have broadband internet at home. Inability to speak English and lack of access to the internet at home largely limit a resident's ability to learn about safety alerts, evacuation procedures and other relevant emergency response information. Additionally, 1,850 housing units or 6.5% of total housing stock do not have access to a vehicle. Without direct access to a vehicle these households are at an increased risk due to limited evacuation options.

To create greater safety and resilience, the Township of Brick should proactively work to ensure access to emergency preparedness and response information for people who don't speak English or have limited access to the internet before, during, and after disasters. In addition, the Township should work to ensure the safety of those without access to a vehicle by investing in alternative transit, creating quality housing that allows for sheltering in place, and creating a pedestrian realm that is safe and connected.

4.3 GENERAL BUILDING STOCK

The 2013 American Community Survey identified 28,568 households in the Township of Brick. The 2010 U.S. Census identified 33,677 housing units in the Township of Brick, with an 88.6% occupancy rate resulting



in a 7.0% renter vacancy rate and a 1.7% homeowner vacancy rate. Homes in the Township of Brick are primarily owner-occupied (83.3%) (U.S. Census 2010). The majority of homes in the Township are one-unit detached structures (76.4%) with the remainder divided between one-unit attached structures (12.3%), multi-family structures (10.9%), and mobile homes (0.4%) (ACS 2013). The median price of a single-family home in the Township of Brick was estimated to be \$257,900 in 2013 (ACS 2013).

Homes in Township of Brick are neither predominantly historic nor modern with only 2.3% built before 1939 and only 4.8% built after 2000. The majority of homes were built between 1970 and 1989 (46.6%) with a significant number also being built between 1940 and 1969 (35.6%) (ACS 2013). These older homes may represent an opportunity for structural upgrades and retrofit improvements to capitalize on modern building techniques, flood plain restrictions, and increased safety and resilience.

Due to its location as a coastal community and other environmental and meteorological conditions, numerous areas of Township of Brick are at risk for flooding from coastal and riverine waterways. According to the 2014 Ocean County Hazard Mitigation Plan, approximately 20% of the parcels in the Township of Brick are located within the 1% flood zone and are vulnerable to future flood damage. There are currently 4,312 National Flood Insurance Program (NFIP) policies in the Township and due to past flood events, there have been 3,271 instances of paid losses totaling over \$200 million. Tables 4-6 and 4-7 below provide additional information on NFIP policies and parcels in the 1% flood zone respectively.

Table 4-6. NFIP Policies in the Township of Brick

NFIP Policies in Force	Number of Closed Paid Losses	Amount of Closed Paid Losses	Total Number of Repetitive Loss Events	Total Repetitive Loss Payments
4,312	3,271	\$213,707,753	316	\$16,531,062

Source: Ocean County Hazard Mitigation Plan 2014
 NFIP National Flood Insurance Program

Table 4-7. Properties in the Township of Brick Located in 1% Flood Zone

Parcels in 1% Flood Zone	Total Parcels in the Township	% Vulnerable Parcels	Dollar Value of Improvements in SFHA	Total Number of Critical Facilities in SFHA
11,421	55,551	20.56%	\$1,686,676,200	5

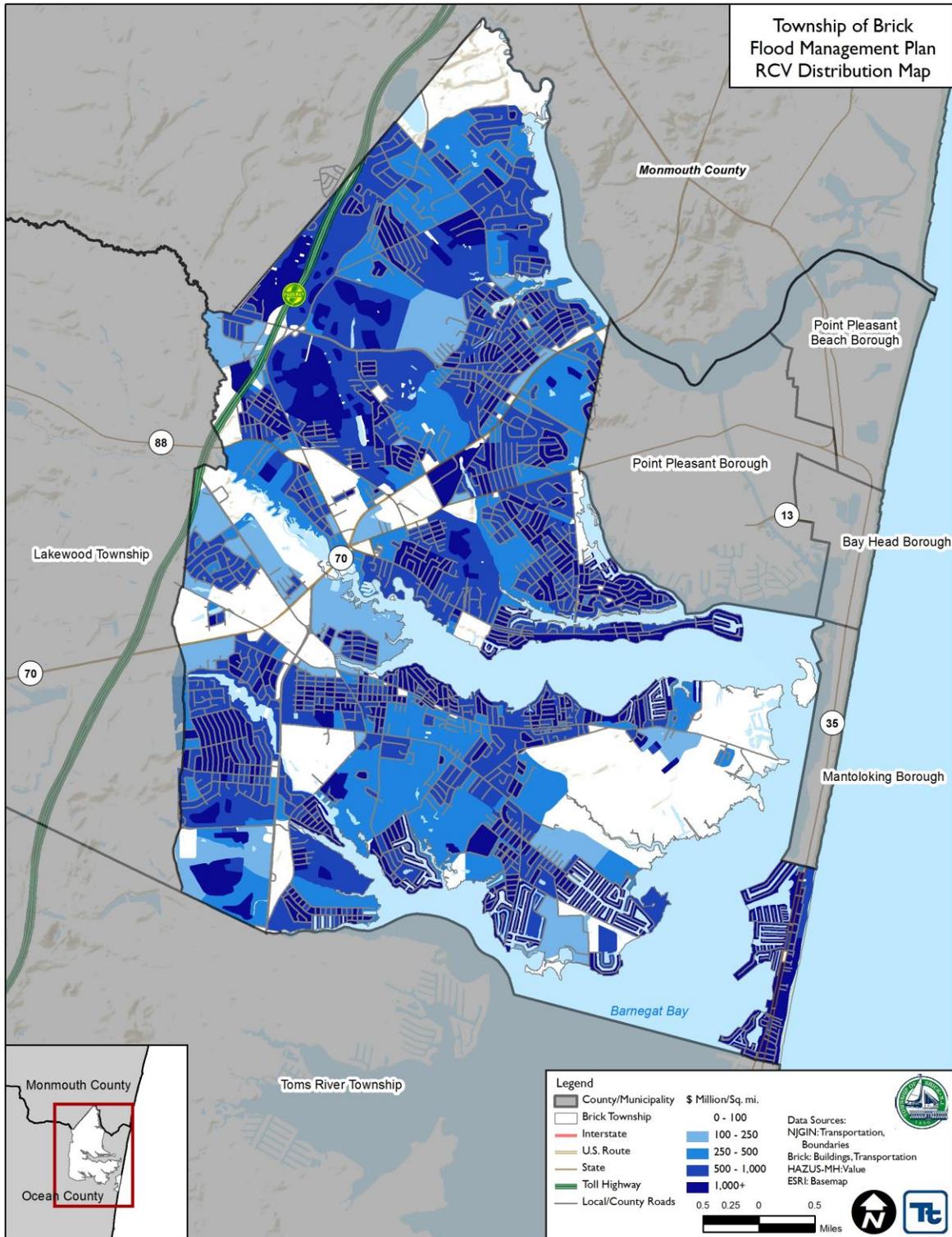
Source: Ocean County Hazard Mitigation Plan 2014
 SFHA Special Flood Hazard Area

Some homes in the Township of Brick lack essential facilities and services that present safety risks for residents. Current deficiencies in the Township include 557 housing units without telephone service, 588 housing units without complete kitchen facilities, and 153 housing units without complete plumbing facilities. Without adequate telephone, kitchen, and plumbing services a home is unable to support proper sheltering in place during an emergency by limiting access to information, help, and basic necessities. These unsafe or outdated housing conditions present daily safety risks that are only magnified during flooding and other disaster events (ACS 2013).

The Township also has 117 mobile homes which while not inherently dangerous, do create unique conditions that could increase risks during flooding or emergencies. Without the structural stability of a traditional home, mobile homes must be carefully located away from floodplains and other hazard areas to reduce the risk of washouts, isolation, or other catastrophic failure. Mobile home owners should also be aware of safe evacuation routes and procedures in advance of disaster events (ACS 2013).



Figure 4-8. Distribution of Buildings in the Township of Brick



Note: RCV – Replacement Cost Value





Table 4-8. Building Stock Count and Replacement Value by Occupancy Class in the Township of Brick

Total		Residential		Commercial		Industrial	
Count	Value	Count	Value	Count	Value	Count	Value
40,489	\$18,755,258,907	39,094	\$15,766,432,088	1,154	\$2,131,577,543	28	\$57,754,045

Source: Brick Township

4.4 ECONOMY

After a natural hazard event, economic resiliency helps to drive and expedite recovery. An understanding of the major employers and economic sectors in the Township whose losses or inoperability would impact the community and its ability to receive from a disaster is essential.

The County Business Pattern is provided by the U.S. Census Bureau and is an annual series that presents sub-national economic data by industry. County Business Patterns covers most of the country’s economic activity. The ZIP Code Business Patterns data is available after the release of the County Business Patterns and provides the number of establishments by employment-size classes by detailed industry in the U.S. (U.S. Census Bureau 2010).

According to the 2012 ZIP Code Business Pattern, the Township of Brick had a total of 1,536 business establishments, with healthcare and social assistance having the highest number of establishments in the Township. Other large industry sectors include retail trade, construction, professional, scientific and technical services, and other services. Table 4-9 provides the 2012 Code Business Pattern information for the Township of Brick.

Table 4-9. 2012 Township of Brick’s Code Business Patterns

Industry	Number of Establishments
Agriculture, Forestry, Fishing and Hunting	1
Accommodation and Food Services	126
Administrative and Support; and Waste Management and Remediation Services	101
Arts, Entertainment, and Recreation	31
Construction	210
Education Services	23
Finance and Insurance	68
Health Care and Social Assistance	253
Information	17
Manufacturing	25
Management of Companies and Enterprises	5
Other Services (except Public Administration)	175
Professional, Scientific, and Technical Services	148
Real Estate and Rental and Leasing	53
Retail Trade	219
Transportation and Warehousing	30
Utilities	1
Wholesale Trade	50
Total	1,536

Source: U.S. Census Bureau 2010



4.5 DEVELOPMENT TRENDS AND NEW DEVELOPMENT

Historic growth and development in the Township of Brick has generally followed a linear suburban growth pattern evidenced by commercial development primarily along major transportation routes with residential development behind along local roads. Major growth in the Township began after the opening of the Garden State Parkway which sparked a period of shopping center, strip mall, and auto-oriented development. Following a decline in commercial development and rising vacancies, the Township proactively encouraged a shift in growth practices that encouraged re-investment in the downtown center and the use of planning tools including mixed-use overlays and streetscaping. Recent efforts have resulted in renovations to former commercial sites including the Brick Plaza, Kennedy Mall, Riviera Plaza, Laurel Square, and the Town Hall Shoppes. (Brick Township Master Plan 2007).

The Township of Brick is mostly built-out with few remaining development sites. Those sites that remain mostly have environment constraints that restrict development (Brick Township Master Plan 2007). Given the current limitations on available development sites in the Township and a commitment to more sustainable land use practices, future growth and development will continue to focus on infill development and the redevelopment of existing areas with associated improvements to enhance the community and overall quality of life. This will include the restriction of development on parcels that would have a negative impact on environmental resources, and it will also prevent the existing flood problem from worsening. The Township will be able to use sustainable redevelopment practices as well to minimize and lessen current stormwater issues during redesign periods. Higher density single and multi-family development will be encouraged in the Mixed-Use Overlay Zone in the Town Center and additional growth will be directed to four target areas within the community with existing infrastructure and suitable land for redevelopment (Brick Township Master Plan 2007).

Higher density single and multi-family development will be encouraged in the Mixed-Use Overlay Zone in the Town Center where infrastructure and suitable land for redevelopment exist. (Brick Township Master Plan, 2007) As this report is written, the Township has a number of multi-family development projects in various phases of development, located in the Town Center and along major corridors. Single family residential development has been slowly increasing since the Great Recession that began in 2008. Much of the single family residential building permits that have been issued by the Township are related to the rebuilding of damaged housing stock from Super Storm Sandy. Commercial development has also begun to pick up with a number of commercial projects currently underway along the major corridor in the Township. However, the township has experienced a growing number of vacancies in commercial areas including the closing of two supermarkets.

Table 4-10. Township of Brick Building Department Permits Issued 2012-August 2015

Township of Brick Building Department Permits Issued 2012-August 2015 as per NJ Department of Community Affairs Construction Reporter		
Demolitions	New Housing Units Authorized by Building Permits	New Housing Units Issued Certificates of Occupancy
483	478	143

Redevelopment outside of the Town Center will focus on resiliency planning and the elevation of structures in predominantly residential neighborhoods that are in the floodplain. Neighborhood planning studies are underway to recommend design standards to guide the evolution of these neighborhoods into sustainable places to live. Higher buildings will create aesthetic and accessibility challenges from the street. The Township is preparing recommendations to alleviate any negative impacts to neighborhood cohesiveness through the neighborhood planning process.



Planning for improvements to developed areas to enhance the quality of life in the township include efforts to connect bicycle and pedestrian trails and sidewalks to neighborhoods and public spaces, upgrades of municipal parks and playgrounds and the planting of trees on all public facilities including county road corridor plantings, school plantings and municipal facilities through the utilization of grants and special development funds.

4.6 CRITICAL FACILITIES

A comprehensive inventory of critical facilities in the Township of Brick was developed from various sources including the Ocean County geographic information systems (GIS) and input from the Flood Mitigation Plan (FMP) Planning Committee.

The CRS defines a critical facility as follows:

A structure or other improvement that, because of its function, size, service area, or uniqueness, has the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if it is destroyed or damaged or if its functionality is impaired. Critical facilities include health and safety facilities, utilities, government facilities, and hazardous materials facilities. .

The Committee defined critical facilities and infrastructure as those that are essential to the health and welfare of the population. These become especially important after a hazard event.

The definition of critical facilities for the floodplain management plan includes essential facilities but is not limited to the following:

- Critical Operating Facilities are the facilities that house most City personnel and are required for the day-to-day conduct of Township business: Township Municipal Complex, Township Maintenance Building.
- Critical Response Facilities are the Township facilities necessary for hazard event response. They include fire stations, police stations, hospitals, emergency operations center and evacuation centers, such as schools, and recreation and park facilities.
- Critical Infrastructure consists of public and private infrastructures in two categories: utilities and transportation. Critical transportation infrastructure includes highways, streets and bridges. Critical utilities infrastructure includes potable water systems (treatment and reservoirs), pump stations, wastewater systems (treatment plants, major interceptors and sewer lines), electric power systems (substations) and communication systems.

Critical facilities data is protected in the State of New Jersey under Executive Order 21. As a result, due to the sensitivity of this information, a detailed list is not provided in this document. The list is on file with the Township. Summaries of the general types of critical facilities and infrastructure in the Township of Brick are provided in the below sections. General locations are shown on accompanying figures.

Critical facilities are those facilities considered critical to the health and welfare of the population and that are especially important following a hazard. As defined for this FMP, critical facilities include essential facilities, transportation systems, lifeline utility systems, high-potential loss facilities, and hazardous material facilities.

Essential facilities are a subset of critical facilities that include those facilities that are important to ensure a full recovery following the occurrence of a hazard event. For the Township of Brick risk assessment, this category was defined to include police, fire, EMS, schools/colleges, shelters, senior facilities, and medical facilities.



The inventory of critical facilities presented in this section represents the current state of this effort at the time of publication.

4.6.1 Essential Facilities

This section provides information on emergency facilities, hospital and medical facilities, shelters, schools, and senior care and living facilities.

Emergency and Essential Facilities

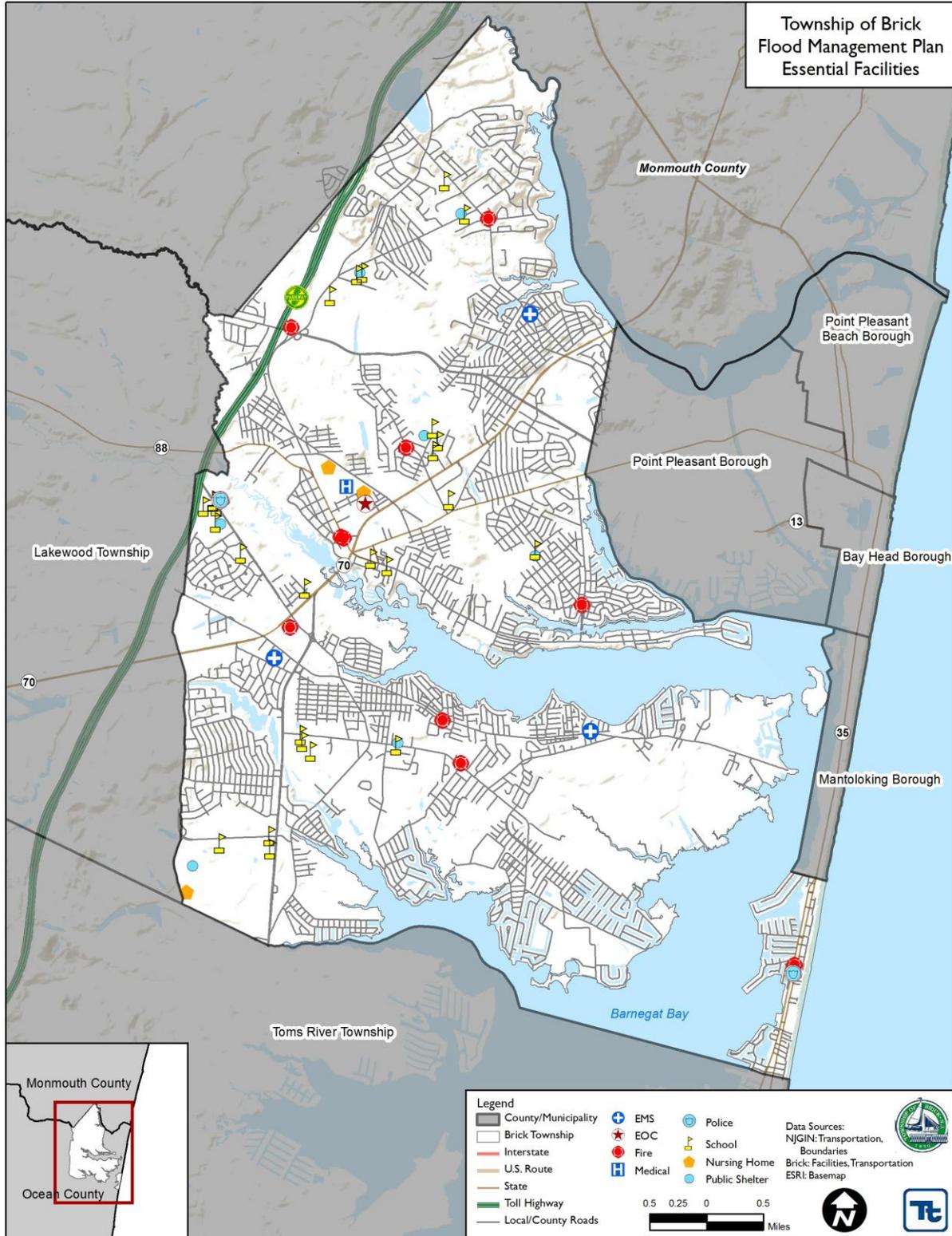
For the purposes of this FMP, emergency facilities include emergency operation centers (EOC), police, fire, and emergency medical services (EMS). Figure 4-11 displays the location of these facilities based on the HAZUS-MH inventory data, Ocean County HMP inventory, County GIS data, and input from the FMP Planning Committee.

Table 4-11. Emergency and Essential Facilities in the Township of Brick

Facility Type	Number of Facilities
Emergency Operations Centers	3
Police Stations	2
Fire Departments	11
EMS Facilities	3



Figure 4-9. Emergency and Essential Facilities in the Township of Brick





Hospitals and Medical Centers

Ocean Medical Center, an award winning healthcare facility, is located in the Township of Brick. Since its creation in 1984, Ocean Medical Center has expanded its medical services and research capabilities including a \$43 million expansion project in 2004 to add an intensive care unit and establish the Shore Rehabilitation Institute. Ocean Medical Center is now a 315-bed facility offering Ocean County's first primary angioplasty program, high-risk cardiac catheterization, a full range of oncology services including one of the most advanced radiation oncology departments in the area, orthopedic and rehabilitation services, a modified single-room maternity unit, and a 40-bed inpatient unit dedicated to caring for the elderly (Ocean Medical Center <http://www.oceanmedicalcenter.com/OMC/>).

Schools

There are 29 schools and other education facilities in the Township. Some schools serve a secondary vital purpose as shelter locations. Figure 4-10 displays the locations of schools within the Township of Brick.

Shelters

There are 7 shelters, all of which are school facilities, in the Township of Brick. These include Brick Memorial High School, Brick Township High School, Herbertsville School, Lake Riviera Middle School, Midstreams Elementary School, Osbornville School, and Veterans Memorial Middle School.

Senior Care and Senior Living Facilities

There are 4 senior facilities in the Township of Brick which include Laurelton Village, Meridian Nursing & Rehab, Ocean Medical Center Acute Care of the Elderly Unit, and Shorrock Gardens Care Center

4.6.2 Transportation Systems

This section presents available inventory data for major transportation systems in the Township of Brick. There are no airports in the Township. Figure 4-10 shows regional transportation lifelines serving the Township of Brick.

Highway, Roadways, and Associated Systems

The Township of Brick has access to several major transportation corridors including State Routes 70 and 88 running northeast to southwest through the Township. The Garden State Parkway also passes through the western portion of the Township of Brick and has three exits (Exits 89, 90, and 91) within the municipal boundary. The Township of Brick is served by the North Jersey Coast Line of the New Jersey Transit rail service at the Bay Head Station. The North Jersey Coast Line provides commuter rail service to New York City. The Township of Brick is not served by any mass transit train stations. The Township of Brick has access to the New Jersey Transit bus service providing transportation between the Township and Philadelphia via the 317 route and to Trenton via the 67 route. (Brick Township SRPR 2014). Lifeline Utility Systems

This section presents communications, potable water, wastewater, and energy resource utility system data. Due to heightened security concerns, local utility lifeline data sufficient to complete the analysis have only partially been obtained.

Communications

Brick has several critical communication facilities and towers within the Township. Three towers are located on top of the Mantoloking Road Storage Tank, the Morris Avenue Storage Tank, and the Alaska Avenue



Storage Tank. Additionally, there is a communication tower located on the Brick Reservoir property, but the tower itself is located in Wall Township.

Potable Water Supply

The Brick Township Municipal Utilities Authority (BTMUA) maintains a comprehensive municipal drinking water system including a water treatment plant rated to process up to 16 million gallons of water per day, 336 miles of distribution piping and six water storage tanks. The BTMUA's water supply consists of surface water from the Metedeconk River and Brick Reservoir, and groundwater from eight Cohansey wells, four Potomac-Raritan-Magothy wells, one Englishtown well, and one Aquifer Storage & Recovery well. Each of the surface water sources is capable of meeting the full treatment production capacity of 16 million gallons per day, and the 13 wells provide a total production capacity of approximately 12 million gallons per day. The Brick Reservoir is fed with water pumped from the Metedeconk River and provides approximately 860 million gallons of reserve water supply. Between 2010-2014, the BTMUA supplied an average of 8.25 million gallons of water per day to its more than 40,000 residential, commercial and bulk customers. The residents of the Township of Brick living on the barrier island receive water service from the New Jersey-American Water Company. The BTMUA and New Jersey-American water systems are regulated by NJDEP's Division of Water Supply and Geoscience. (BTMUA)

Wastewater Facilities

The Brick Township Municipal Utilities Authority (BTMUA) sewer collection system serves all developed areas of the Township of Brick including the barrier island for a total of approximately 35,000 customers. The sewer system includes approximately 340 miles of sewer pipe and 27 pumping stations. The BTMUA conducts regular maintenance of the system including inspections, flushing of the lines, and video camera inspections (Brick Township Master Plan 2007).

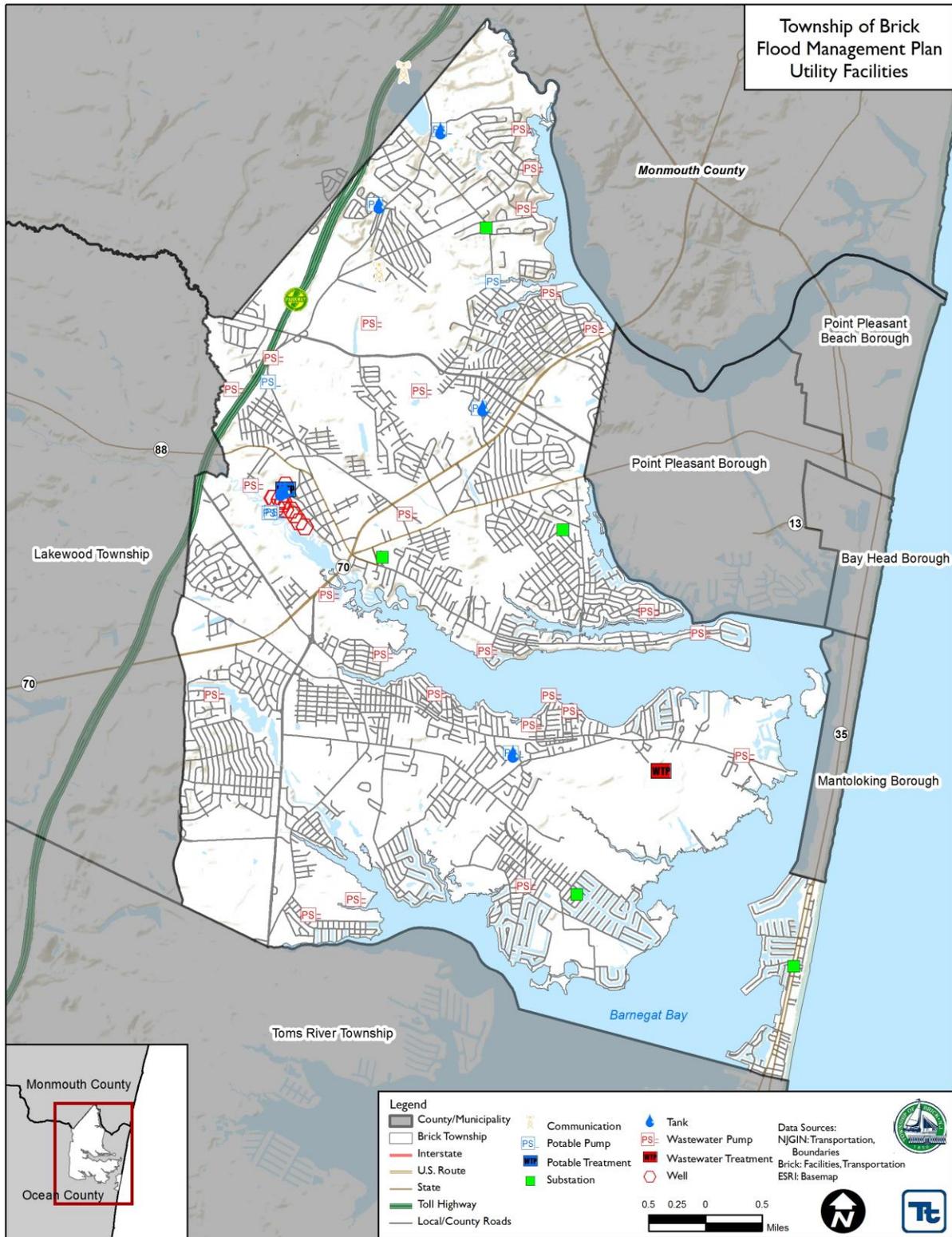
The Ocean County Utilities Authority (OCUA) provides treatment of all sewage within the Township at its Northern Water Pollution Control Facility. This facility utilizes activated sludge technology to treat sewage and is permitted to discharge treated effluent one-mile off shore via 5,000 feet of piping into the Atlantic Ocean (Brick Township Master Plan 2007).

Energy Resources

Jersey Central Power & Gas (JCP&L) is the primary provider of energy for the Township. For this plan, the Township identified 5 JCP&L owned substations that are located within the municipality. Figure 4-10 below illustrates the major utility systems in the Township.



Figure 4-10. Utility System in the Township of Brick





4.6.3 High-Potential Loss Facilities

High-potential loss facilities include dams, levees, nuclear power plants, military installations, and hazardous materials (HAZMAT) facilities. The Township of Brick contains 5 hazardous materials storage facilities. No nuclear power plants, levees, or military installations were identified in the Township. Dams are discussed further below.

Dams/Levees

There are four dams located within the Township of Brick that are classified as High Hazard or Significant Hazard structures (OC HMP 2014). These dams are included in Table 4-12 and Figure 4-11 below. Dam failure vulnerability is examined in the Flood Profile portion of this plan.

Table 4-12. Dams in the Township of Brick

ID	Name	Owner	River	Year Completed	Dam Length (ft)	Dam Height (ft)	Hazard	EAP
NJ00925	BTMUA Reservoir Dam	Brick Township Municipal Utilities Authority	Offstream dam	N/A	5000	20	High	Yes
NJ00092	Rainbow Dam	Township of Brick	Kettle Creek	1938	700	12.5	High	Yes
NJ00036	Lake Riviera Dam	Township of Brick	Kettle Creek	N/A	1750	11	Significant	Yes
NJ00900	Route 88 Dam	JDOT	Beaverdam Creek	N/A	115	6.59	Significant	Yes

Source: National Inventory of Dams (NID) 2015

Notes:

BTMUA Brick Township Municipal Utilities Authority

EAP Emergency Action Plan

ft Feet

ID Identification (New Jersey/NID dam identifying numbers)

NJDOT New Jersey Department of Transportation

N/A Not Applicable

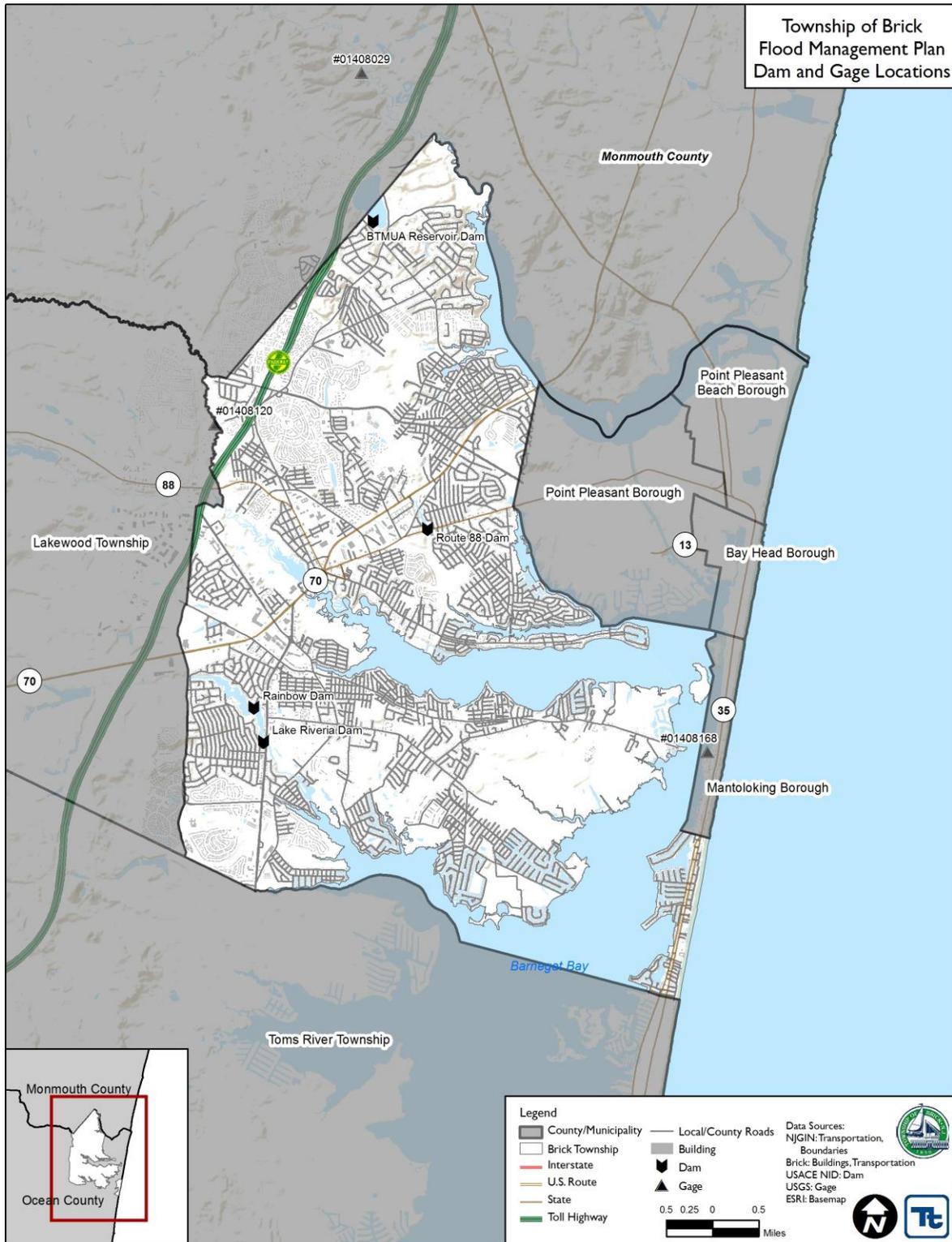
NID National Inventory of Dams

USGS Gages

USGS gages are not located within the Township however gages in the vicinity including USGS Gage #01408120 at the North Branch Metedeconk River at Lakewood, Gage #01408168 at Barnegat Bay near Mantaloking, and Gage #01408029 at the Manasquan River at Allenwood inform the Township’s flood warning and response protocols.



Figure 4-11. USGS Gages and Dams in the Township of Brick



Source: USACE 2015, USGS 2015





4.6.4 Other Facilities

The Township identified 11 additional public and government facilities as critical. These facilities include Beaverton Bridge House (# 2), Brick Library, Brick Municipal Complex, Brick Township DPW, Maint. Build, Forge Pond, Mantoloking Bridge House (#6), Ocean County Vo Tech, Post Office #1, Post Office #2, Post Office #3, and Pro Golf Shop, Forge Pond.