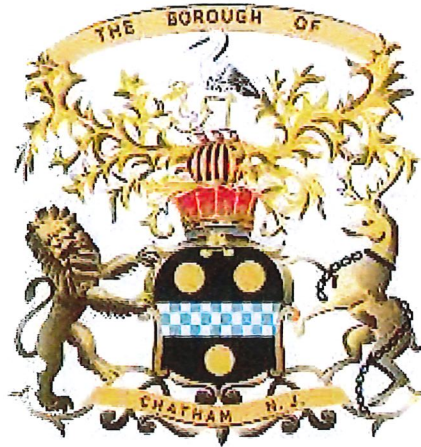


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# **COTTER STRATEGIES, LLC.**

FIRE & EMERGENCY SERVICES CONSULTING

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## **FIRE APPARATUS EVALUATION REPORT & RECOMMENDATIONS FOR CHATHAM BOROUGH**

**November 2023**

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## Executive Summary

The examination of fire apparatus for the Chatham Borough Fire Department has been completed by the evaluation team of Cotter Strategies, LLC. Our examination has resulted in the recommendations described in this report, developed after a detailed assessment process with the goal of providing guidance for the municipality in creating a programmed apparatus replacement schedule. Available data was analyzed in development of the recommendations with the focus on ensuring the fire department is furnished with the most efficient, cost effective and appropriate apparatus to carry out its mission of protecting the lives and property of the residents of the Borough. Recommendations have been made using nationally recognized fire service standards and best practices while considering the impact that existing apparatus and equipment has on firefighter safety and improvement of emergency operations.

### Recommendations

- **Recommendation:** A review of the run cards should be completed on at least an annual basis with special emphasis on identified target hazards and any new construction developments. (Page 29)
- **Recommendation:** NFPA 1911 *Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus* should guide the fire department maintenance program. (Page 31)
- **Recommendation:** Engine 2 is an 18-year-old vehicle that has been well maintained and can remain in service as a first due pumper and then transitioned to a secondary response pumper upon the replacement of Engine 3. (Page 33)
- **Recommendation:** Engine 3 is a 25-year-old vehicle and has reached the end of its service life. Acquisition of a new pumper has been added to the apparatus replacement schedule for 2023. (Page 35)
- **Recommendation:** Truck One has exceeded its anticipated service life by almost 10 years and should be replaced. It may, however, be possible to adequately maintain this apparatus so it may remain in service for a period of time to pace the necessary replacement of two vehicles over a multi-year period. Careful consideration of the cost benefit of needed repairs will be an important part of this decision. (Page 37)
- **Recommendation:** With the prospect of replacing both a pumper and rescue truck, there is an opportunity to consider purchasing a combination unit, rescue-pumper. A rescue pumper addresses the issue of limited staff availability while also providing the economy of replacement of two units with one piece of apparatus. Purchase of a rescue-pumper is recommended. (Page 39)
- **Recommendation:** To forecast apparatus replacement and balance capital expenditures, an apparatus replacement schedule should be adopted. (Page 43)

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## Introduction

The Borough of Chatham engaged Cotter Strategies, LLC to:

- Assess the existing fleet based on age, use and suitability given Chatham Borough's location and demand for services.
- Review the fire department's mutual aid agreements with surrounding communities, including equipment and personnel available through those agreements.
- Review the Borough's fiscal capacity and competing capital needs with the Chatham Borough CFO to develop parameters for spending on replacement equipment as well as maintenance of existing equipment.
- Provide a set of draft recommendations related to fleet replacement, maintenance and repair that would maximize firefighter safety, ability to respond adequately to fire events within the Borough's jurisdiction and reflect a prudent use of taxpayer dollars.
- Present recommendations to the steering committee of the Borough.

The evaluation of fire equipment requirements for a municipality can be a challenging process for any governing body or fire agency. The acquisition of new fire apparatus represents a significant capital investment for most local governments. It is not unusual for a piece of apparatus to represent one of the largest capital expenditures that a municipality may consider. A local governing body needs to balance the purchase of fire apparatus with the demands of other capital projects such as: road, facility, and general infrastructure improvements. As such, the decision to purchase new firefighting equipment should not be made lightly and only be made after completing a deliberative process that evaluates all the factors that determine the fire protection needs of the community.

Fire apparatus are unique and complex machines that are required to perform reliably under a variety of emergency situations in all kinds of weather conditions. They are also intended to remain in service for a period of twenty years or more. These specialized vehicles are available from several manufacturers in a wide variety of specifications and configurations to serve the needs of the fire department.

Understanding the vital public safety mission associated with this specialized equipment and the size of the public's financial stake in it, taxpayers are entitled to expect that fire apparatus selected for purchase by the governing body fits the needs of the local fire department and provides for the maximum protection and value to the community at the most reasonable cost.

Fire department members should also expect to be provided with the most efficient and safely designed fire apparatus that the community can afford. Sometimes, the leadership of a fire



agency may recommend specifications for the purchase of a new fire truck based on perceived needs of the department. These perceived needs may in fact be driven by the wants and desires of the fire department rather than based on the actual needs of the community. This may result in overly costly or awkwardly designed fire apparatus that may not be appropriate for the service demands of the community.

As the primary service delivery tool of the fire department, fire apparatus should be configured to fit the fire protection service demand needs of the community. Several factors drive the need for fire protection in a community. Demographic elements to be examined include the size of the area of the municipality, major topographic details, the size and density of the population, configuration of the buildings and other developed features in the built environment, and potential major developments anticipated in the future and any anticipated major changes in the use and occupancy of existing building stock. Consideration of all these elements will aid in making sound decisions.

The makeup and operations of the fire department also influences apparatus specifications. The methods and modes of operation that the fire agency employs will be affected by the type of equipment that is made available to the department. An apparatus designed for operations of a rural fire agency may prove awkward and inefficient to operate for a department serving a suburban or urban community.

The anticipated fire service demand levels of a municipality can be predicted by examining the previous response history of the fire department. The type and volume of calls for service, both emergency and non-emergency, determine the specific fire apparatus and equipment required for the fire department to carry out its mission.

Fire department leadership also needs to consider the frequency of call volume which can affect the durability and longevity of fire apparatus. Response to high frequency, low consequence incidents put considerable road mileage and wear and tear on a vehicle. Leadership must also consider the specialized apparatus and equipment demands that low frequency but high consequence incidents, such as technical rescue and motor vehicle accident extrications, put on the department.

For this study, the evaluation team examined the available data to make recommendations, including:

- Review of the Capital Improvement Plan.
- Maintenance, testing and repair records.

- Previous three years of incident history and service demand levels.
- NFPA and ISO compliance.
- Demographic characteristics of the Borough.
- Built characteristics of the Borough including buildings and other physical features of the community.

## Community Risk Profile – Chatham Borough, New Jersey

An objective analysis of the fire protection needs of a municipality would not be complete without examining the major factors that drive the fire suppression, emergency medical services, and specialized rescue requirements of a fire agency. These include the physical and demographic characteristics of the area, the service demand levels, and resulting emergency incident history of the fire department. An examination of these key factors will assist in making specific observations about the scope and complexity of the fire and rescue challenges faced daily by the fire department in a community. Such an examination will result in a community risk profile that the governing body can use to make informed and objective decisions regarding fire department staffing and organization, as well as fire apparatus, equipment, and facilities purchases. We will begin our community risk profile with an examination of the demographic and physical characteristics of the municipality.

## Community Characteristics – Chatham Borough

Chatham Borough is situated in the northern portion of New Jersey in Morris County. It is located approximately twenty miles west of New York City and is considered a suburban community. According to the 2020 U.S. census, the municipality is part of the New York metropolitan area. It has a total land area of 2.38 square miles. The borough ranks 32nd of thirty-nine municipalities in the area rank in the county, and 382nd of 564 municipalities in the state.

Native Americans occupied the area that is now Chatham Borough for thousands of years. During the 1600s, Europeans began trading with the original inhabitants who farmed, fished, and hunted in the area when it was claimed as part of New Netherlands. The community was first settled by Europeans in 1710 within Morris Township, in what was then the English Province of New Jersey. The community was settled because the site already was on the path of a well-worn Native American trail. The location of a good crossing over the Passaic River, identified by Native Americans to early European settlers, figured significantly in the colonial history of the community. A gap in the Watchung Mountains was also close by. In 1698, the small village became known as The Crossing and in 1730 began being referred to as John Day's Bridge after a



bridge was constructed across the river. The residents of the English community changed the name to Chatham in 1773 to honor a member of the British Parliament, William Pitt, the first Earl of Chatham, who was an outspoken advocate of the rights of the colonists in America.

## Geography

The borough is located on the eastern edge of Morris County. Chatham's neighboring communities are Summit to the southeast located in Union County, Millburn (and its Short Hills neighborhood) in Essex County to the northeast, while communities also located in Morris County include Chatham Township to the west, and Madison and Florham Park to the north. Much of the eastern border of the borough is bordered by the Passaic River which rises at Millington Gorge, part of the Great Swamp in Long Hill Township, the river forms the border between Morris and Union counties as it flows northward into Essex and Passaic counties before discharging into Newark Bay to the east.

## Climate

Like most of the Northeastern United States, Chatham Borough has a humid continental climate, and sees cold winters and hot, humid summers. According to the Köppen climate classification system, the community can expect episodes of extreme heat and humidity with heat index values above one hundred degrees Fahrenheit. On average, the wettest month of the year is September which corresponds to the annual peak of hurricane and tropical storm activity. During the winter months, episodes of extreme cold and wind with wind chill factors of less than 0 degrees Fahrenheit can be expected. The average yearly rainfall is 50.90 inches, The average seasonal snowfall total is 11.61 inches while the average snowiest month is March.

## Roadways and Highways

As of May 2010, the borough had a total of 32.16 miles of roadways, of which 26.56 miles were maintained by the municipality, 3.33 miles by Morris County and 2.27 miles by the New Jersey Department of Transportation.

Major roadways within the borough include Main Street, also known as Route 124, which runs east-west through the small central business district from the Passaic River border with Summit and the Madison Borough line. Watchung Avenue, which also runs in an east-west orientation from the Passaic River to the Chatham Township border on the west. North Passaic Avenue runs north from Main Street in the central business district to the border of Florham Park. Hillside

Avenue runs south from the central business district crossing Watchung Avenue before running into Chatham Township. River Road runs south from Watchung Avenue to the borough line with Chatham Township. Lafayette Avenue also runs south from Main Street to the Chatham Township line. Fairmount Avenue ascends Long Hill perpendicularly from Main Street in the center of town and runs south to the highest elevation of the town among the Watchung Mountains and then into Chatham Township. From there, one may see the lights of New York beyond the crest of the ridge hills of Summit and Short Hills.

New Jersey Route 24 is a multi-lane state freeway crossing the borough boundaries, though the nearest interchange is just outside the borough along the boundary of Summit and Millburn. New Jersey Route 124 is the main local road providing access to Chatham along the route that connected the area before the limited access highway was built. This local route wound its way through the area since before colonial times following the course of the Great Minisink Trail and had been designated as Route 24 until it was renumbered to Route 124 when the limited access highway was built in the late 1900s. The local communities chose to retain their historic character and opted out of plans for the multi-lane, limited access highway. The nearest interchanges with the new Route 24 are in neighboring communities, to the east in Millburn and to the west in Hanover Township.

### Public transportation

An early railroad located along the Morris and Essex Lines that had become well established by the start of the Civil War as one of America's first commuter railroads, had a stop at Chatham, which attracted many from nearby Manhattan, twenty miles to the east. The community remains a commuter town for residents who work in New York City. Today, Chatham is a pedestrian-friendly community that includes a central business district and railroad station within approximately one mile from its farthest boundary. NJ Transit stops at Chatham station to provide commuter service on the Morristown Line, with trains heading to the Hoboken Terminal and to Penn Station in Midtown Manhattan. As of 2017, the Chatham station served an average of approximately 1,600 passengers every weekday, a number that is expected to rise as the preference to commute via public transit continues to rise and demand for housing near such locations is met.

Direct bus service from Chatham to Manhattan is not provided by NJ Transit, however, it does provide various route options with bus transfers. Local bus service is provided by NJ Transit on the 873 route to the Livingston Mall and Parsippany-Troy Hills. Bus lines also connect Chatham



with the other towns along Route 24 from Newark to Morristown, mostly running parallel to the train lines.

## Demographics

As of the 2020 U.S. census, the borough's population was 9,212, an increase of 250 (+2.8%) from the 2010 census count of 8,962, which in turn reflected an increase of 502 (+5.9%) from the 8,460 counted in the 2000 census. The 2010 U.S. census counted 3,073 households, and 2,397 families in the borough. The population density was 3,776.1 per square mile. There were 3,210 housing units at an average density of 1,352.5 per square mile. The racial makeup was 91.13% (8,167) White, 0.99% (89) Black or African American, 0.20% (18) Native American, 4.85% (435) Asian, 0.00% (0) Pacific Islander, 1.00% (90) from other races, and 1.82% (163) from two or more races. Hispanic or Latino of any race were 5.10% (457) of the population.

Of the 3,073 households, 48.1% had children under the age of eighteen; 68.9% were married couples living together; 7.0% had a female householder with no husband present and 22.0% were non-families. Of all households, 18.6% were made up of individuals and 7.9% had someone living alone who was 65 years of age or older. The average household size was 2.91 and the average family size was 3.37.

33.5% of the population were under the age of 18, 3.9% from 18 to 24, 25.8% from 25 to 44, 26.7% from 45 to 64, and 10.2% were 65 years of age or older. The median age was 38.0 years. For every one hundred females, the population had 94.1 males. For every one hundred females ages 18 and older there were 89.9 males.

The borough has been ranked as one of the state's highest-income communities. In March 2018, Bloomberg ranked Chatham as the 64th highest-income place in the United States and as having the eighth-highest income in New Jersey. In the 2013–2017 American Community Survey (ACS) the borough had a median household income of \$163,026, ranking 16th in the state. The 2014–2018 ACS showed a median household income of \$169,524 in the borough versus \$111,316 in the county and \$79,363 statewide.

## Land Use

At 2.38 square miles in area, Chatham Borough was mostly built out well before the Second World War, retaining homes that sometimes display the dates of their construction during the colonial and revolutionary times. Two houses, now privately owned, have survived from colonial

times: the Paul Day House, at 24 Kings Road, and the Nathaniel Bonnell House, at 34 Watchung Avenue.

The municipality is in the densely populated northeastern portion of the state. The local topography can be described as wooded hills along the Fairmont Avenue ridge giving way to flatlands as the community stretches toward the Madison border to the west and the Passaic River to the east. The town features quiet tree-lined residential streets with single family dwellings on modest-sized lots.

### Commercial Development

Commercial development is limited to four areas within the borough:

The Main Street commercial corridor stretches about one mile from the Passaic River to an area just past the Lafayette Avenue/Van Doren Avenue intersection. The corridor is lined with low-rise shops and professional offices for much of its length. An area of Main Street with concentrated development is the central business district that is clustered around the commuter railroad station. This compact two-block area from Hillside Avenue to Fairmount Avenue is bordered by the railroad right-of-way and features three sets of attached rows of low-rise offices and mercantile occupancies. This area also includes the location of the local public library.

Two medium sized three-story office buildings hold down the eastern end of the Main Street area just over the river from Summit. The Mall at Short Hills, an upscale enclosed shopping mall with almost 1.4 million square feet of retail space and multiple tiered parking garages, is located to the immediate east of the borough line with Millburn Township in Essex County. A unique cluster development of colonial style buildings, the William Pitt Town Square, has several mercantile occupancies, personal care shops, and offices at the intersection with Roosevelt Avenue and Main Street. Two medium sized mercantile buildings, a Kings supermarket, and the Chatham Plaza shopping mall, a strip of stores that was formerly a grocery store but was redeveloped many years ago into several mercantile occupancies including a pharmacy, a dry cleaner, a physical therapist, a test prep center, a bagel shop, nail salon, bank branch, and a pizza restaurant hold down the western end of the Main Street corridor.

A second area of commercial development is located along North Passaic Avenue at the northern border with Florham Park. A large tennis and athletic club and a large self-storage building are located here along with the Madison-Chatham joint meeting wastewater treatment plant.



A third area of commercial development lies along the northern side of Watchung Avenue along the river near the bridge crossing into Summit. The area is bounded to the west by the NJ Transit railway and the Passaic River to the east. The northern section of this area is accessed via Summit Avenue and includes several low-rise commercial and light manufacturing buildings including National Building Supply, Hughes Fire & Security Systems, Chambon Electrical contractors, a fencing club, and Ashland Specialty Ingredients, a manufacturer of food and beverage additives. The southern half of this commercial area is served by Watchung Avenue and Commerce Street. Several occupancies are located on the north side of Watchung Avenue including an auto storage yard, a landscaping supply yard, an animal hospital, a lumber and hardware dealer, an auto parts store, a delicatessen, and an indoor rock-climbing center. Multiple small vehicle repair and service occupancies and small commercial business are located along the Commerce Street cul-de-sac.

A fourth area of commercial development lies on the south side of Watchung Avenue and the NJ Transit railway. River Road bisects the area as it runs south from Watchung Avenue to the NJ Transit railway overpass. Occupancies in this area include several commercial businesses including a two-story mixed use building housing a café, a brewing company, a massage therapist, and professional offices, a three-story self-storage building, a plumbing contractor, a school bus service garage, a landscaping supply yard, a paving contractor, a delicatessen, multiple auto repair and service shops, a building supply store, and a restaurant. Several one- and two-family homes are located at the southern end of the area.

A portion of this commercial area includes an area designated as the “Gateway Overlay District.” A large three-, four- and five-story high-density residential development is under construction on a former industrial site at the corner of Watchung Avenue and River Road. Named “The Ivy of Chatham,” the redevelopment will offer 245 upscale one- and two-bedroom rental apartments along with a mixture of thirty-seven affordable housing units. A large underground parking garage, fitness center, swimming pool, game room, and a golf simulator are planned for the complex.

## Residential Development

More than 80% of the borough land area is dedicated to residential development. Over 75% of the housing units in the borough are owner-occupied with the balance being rental units. According to data from the 2013 U.S. Census American Community Survey (ACS) there were 2458 (79.77%), single family housing units, 137 (4.44%) were two-family units, and 486 (15.77%) were three family or more units. There are no mobile homes or trailer living units in the borough. Many

of the residential units are single-family homes on modest-sized lots. There are a limited number of two-family homes scattered about the borough. Residential development fans out from the Main Street corridor with large tracts of single-family homes stretching north to the Florham Park border and south and west to the Chatham Township border.

Over one third of the borough's housing stock originates from the early 20th century, predating post-war and mid-20th century housing construction. According to the 2013 ACS, 1208 units (37.63%) were built in 1939 or earlier, 558 units (17.38%) were built from 1940 to 1949, 683 units (21.27%) were built from 1950 to 1959, 204 units (6.35%) were built from 1969 to 1969, 202 units (6.29) were built from 1970 to 1979, 82 units (2.55%) were built from 1980 to 1989, 73 units (2.27%) were built from 1990 to 1999, 71 units (2.21%) were built from 2000 to 2010. This reflects the fact that most of the land area in the borough is built out with virtually no areas of vacant property available for construction of new housing units.

Several garden-style apartment complexes are also present along the western end of Main Street. Multiple dwelling complexes (three housing units or more) are limited in number in the borough:

- Lafayette Gardens – 31-47 Lafayette Avenue – 51-unit two-story wood frame/brick garden apartment complex with nine connected building sections clustered around an interior courtyard. Two single-story individual parking garages in the rear. Built in 1945.
- Chatham Court Condominiums – 380 Main Street - 47-unit two-story wood frame/brick condominium garden apartment complex with twelve attached building sections clustered around an interior courtyard. Built in 1945.
- Wythe House Apartments - 495 Main Street - 21-unit two-story wood frame/brick garden apartment complex with three detached buildings clustered around a front courtyard. One single-story individual parking garage in the rear. Built in 1950.
- Jackson House Apartments – 515 Main Street – 35-unit two-story wood frame/brick apartment complex with nine attached building sections clustered around a central courtyard. One single-story individual parking garage in the rear. Built in 1968.
- Chatham on Main Apartment – 500 & 515 Main Street – 118-unit two-story wood frame/brick apartment complex with twenty-six attached and detached building sections straddling both sides of Main Street. Several single-story individual parking garages are in the rear. Three main sections clustered around center courtyards. Built in 1955.



- Springbrook at Chatham – 100-unit two-story wood frame/brick apartment complex with seven detached building sections clustered around a central courtyard. Four single-story individual parking garages in the rear. Built in 1957.
- A cluster community of thirty-six two-story wood frame stand-alone three-bedroom townhomes occupies a compact site along Schindler Court bordered by the NJ Transit rail line near the southern border with Chatham Township. Built in 1997, the community has been included as part of the affordable housing share for the borough.
- The Chatham Arms Apartments, a large four-story H-style brick and wood joist apartment building built in 1942 located at 49 South Passaic Avenue offers thirty-one one- and two-bedroom rental units.
- An upscale condominium apartment building is located at 45 South Passaic Avenue.
- The Ivy of Chatham, a large three, four and five-story 245-unit high-density residential apartment development is under construction on a former industrial site at the corner of Watchung Avenue and River Road.
- A redevelopment plan that includes fifteen units of affordable housing has been proposed for the site at Post Office Plaza near the Main Street central business district.

## Public Buildings

The borough shares various joint public services with Chatham Township: the recreation program, the library (since 1974), the school district (created in 1986), and medical emergency squad (since 1936).

- The Library of the Chathams occupies a large one-story building at 214 Main Street. The library offers full-service print and digital library services to area residents. The facility is anticipating construction on a building expansion to take place starting in 2023.
- The Chatham Borough Municipal Building at 54 Fairmount Avenue occupies a large two-story former school building at 54 Fairmount Avenue that houses all municipal offices including the Police Department.
- The Chatham Borough Public Works garage at 446 Main Street houses all public works vehicles and equipment.

- The Chatham Borough Fire Department occupies a four-bay fire station located at Firehouse Plaza near the central business district.
- The Chatham Emergency Squad provides basic life support (BLS) emergency medical services to both the borough and Chatham Township from two EMS stations. The primary station is located at 31 North Passaic Avenue near the central business district. A sub-station is located on Southern Boulevard in Chatham Township.

## Public and Private Schools

### Public Schools

The School District of the Chathams is a regional public school district serving students in pre-kindergarten through twelfth grade from Chatham Borough and Chatham Township. The two municipalities held elections in November 1986 to consider joining their separate school districts. This proposal was supported by the voters of both communities and since then, the two municipalities have shared a regionalized school district. Starting with the 1988–1989 school year, Chatham High School was formed by merging the former Chatham Borough High School and Chatham Township High School facilities. The Chatham Borough High School building was repurposed as the Chatham Borough Hall.

As of the 2020–21 school year, the district, comprised of six schools, had an enrollment of 3,930 students and 342.8 classroom teachers (on an FTE basis), for a student–teacher ratio of 11.5:1 (2020–21 enrollment data from the National Center for Education Statistics). Schools in the district located in the borough:

- Milton Avenue School - 16 Milton Avenue – two-story legacy Type III Ordinary construction elementary school building with 284 students in grades Pre-K–3 and 23 full-time teachers and one full-time school counselor.
- Washington Avenue School – 102 Washington Avenue – one-story Type II Non-combustible construction elementary school building with 314 students in grades K–3 and 28 full-time teachers and one full-time counselor.
- Chatham Middle School – 480 Main Street – two-story Type II Non-combustible construction middle school building with 984 students in grades 6–8 and 91 full-time teachers and four full-time counselors and staff.

Other schools in the district include Southern Boulevard School with 414 students in grades K–3, Lafayette School with 592 students in grades 4–5, and Chatham High School with 1,315 students in grades 9–12 which are all located in Chatham Township.



### **Private Schools**

- Saint Patrick School – 45 Chatham Street – two-story legacy Type III Ordinary construction elementary school building with 207 students in grades Pre-K-8 and 21 teachers and four staff members. Founded in 1872, the parochial school operates under the direction of the Roman Catholic Diocese of Paterson.
- ECLC of New Jersey Chatham School – 21 Lum Avenue – two-story legacy Type III Ordinary construction school building serving 160 students with a range of special needs, primarily autism, Down syndrome, and multiple disabilities.
- The Childrens Montessorri School of Chatham – 286 Main Street – two-story mixed construction private school with students from 2 ½ to 6 years old. Attached to the rear of Odgen Memorial Church.

### **Colleges and Universities**

There are no colleges or universities located in the Borough. Drew University is located about four miles west in Madison and Fairleigh Dickinson University has a campus in Florham Park about six miles west of the Borough.

### **Skilled Nursing, Assisted Living and Rehabilitation Centers**

- Garden Terrace Nursing Home – 361 Main Street – three-story mixed construction private 30-bed skilled nursing facility
- Sunrise of Summit, a three-story 100-bed assisted living center is located just over the Watchung Avenue bridge at 26 River Road in Summit.

### **Child Daycare Centers and Preschools**

- Little Friends of Chatham – 322 Main Street – one-story Type II Non-combustible childcare center licensed for eighty-six children.
- Little Hearts Learning Center – 400 Main Street – one-story Type V Wood Frame childcare center for children ages six weeks to six years old.

- Chatham Methodist Preschool – 460 Main Street – two-story Type II Non-combustible preschool building serving children 18 months to six years old. Located adjacent to the Chatham United Methodist Church.
- Sprout House – 200 Main Street – two-story mixed construction preschool serving children two and one-half to six years old. Located in the parish hall at St. Paul’s Episcopal Church.
- Chatham KinderCare – 45 Main Street – two-story Type V Wood Frame child daycare center serving children six weeks to five years old.

### Hotels, Inns and Motels

There are no hotels, inns, motels, or other lodgings places in the Borough. The upscale Hilton Hotel Short Hills, an eight-story Type I Fire-Resistive luxury hotel with 308 rooms is located just over the Passaic River at 41 John F. Kennedy Parkway in the Short Hills section of Millburn.

### Churches and House of Worship

- Chatham United Methodist Church – 460 Main Street – large church and two-story attached pre-school complex.
- St. Patrick’s Roman Catholic Church – 85 Washington Avenue – church and large two-story parish hall complex adjacent to St. Patrick’s School.
- St. Paul’s Episcopal Church – 200 Main Street – church and attached parish hall near the central business district.
- Ogden Memorial Church – 286 Main Street – church with attached two-story children’s Montessori school near the central business district.

### Industrial and Manufacturing Facilities

Other than a small food supplement manufacturing plant on Summit Avenue near the Passaic River, there are no industrial sites or manufacturing plants within the Borough.

### Utilities – Water, Electric, Natural Gas, Wastewater, Communications.



Public water service is provided to the public by the Borough's Water Department via a public system of three wells located within the Borough. Three water storage tanks are located near the crest of Fairmount Avenue near the border with Chatham Township. Supplemental water may be purchased from the New Jersey American Water Company.

Electric service is provided to the public by Jersey Central Power and Light. An electrical sub-station is located just over the Passaic River on Chatham Road in Summit.

Natural gas service is provided to most areas of the borough by Public Service Electric and Gas. A service yard is located about four miles away in East Summit.

Wastewater treatment is provided by the Madison-Chatham Joint Meeting wastewater treatment plant at 214 North Passaic Avenue near the border with Florham Park.

Communication services in the Borough are provided by several television and fiberoptic companies including Xfinity Cable TV, Optimum Cable TV, and Verizon Fios fiberoptic service, and Direct TV satellite service.

### **Parks, Recreational Facilities, and Open Spaces**

The Borough has several public and private recreational facilities:

- Shepard Kollock Park, located off Parrott Mill Road, offers a covered picnic shelter, an all-purpose field, baseball and softball diamonds, a kayak and canoe launch to the Passaic River, a playground, a walking trail, and an off leash fenced dog park.
- Memorial Park, located on North Passaic Avenue, offers a playground, softball diamonds, an all-purpose field, basketball, picnic tables and a swimming pool.
- Memorial Park Pool, located on North Passaic Avenue, is open to Chatham residents and area non-residents and includes child and adult pools and changing/bathroom facilities. The pool is open from Memorial Day to Labor Day.
- Lum Field, located off Lum Avenue, offers baseball and softball diamonds, an all-purpose field, a netted lacrosse practice area, an enclosed lacrosse practice wall and a small-sided soccer practice field.
- Garden Park, located off Main Street adjacent to the Chatham Middle School, offers tennis practice boards, tennis/pickleball courts, basketball, a playground, a walking path

a sand volleyball court, three soccer/lacrosse fields, two baseball/softball diamonds and a respite area.

- Stanley Park, located on River Road adjacent to the Passaic River, offers a small picnic area.
- Several playing fields and playgrounds are located adjacent to the Milton Avenue School and the Washington Avenue School.
- The Minisink Club Swim and Tennis is a private membership recreational club located on eleven acres of wooded property at 1 Princeton Street adjacent to the Passaic River and Route 24. The complex includes three swimming pools, eight tennis courts, four paddle courts, bocce and basketball courts, a snack bar, and an indoor lounge/event space.
- The Chatham Fish and Game Club is a private membership recreational club located on a compact site bounded by Fairmount Avenue, 2nd Street, South Passaic Avenue, and the NJ Transit rail line. The club offers a large outdoor swimming pool, tennis courts, paddle courts, indoor and outdoor pickleball courts, six lane bowling alley, a golf simulator, and a clubhouse/event space.
- The Centercourt Athletic Club of Chatham, a private membership recreational club located at 222 North Passaic Avenue adjacent to the border with Florham Park, offers 12 outdoor and seven indoor tennis courts, eight pickleball courts, a 25-meter junior Olympic pool, a 5,000 square foot Ninja training course, a 66,000 square foot athletic building, 5,000 square foot clubhouse and outdoor café, and member fitness and lockers rooms.
- The Gravity Vault – 40 Watchung Avenue - 15,000 square foot indoor sport rock climbing and bouldering facility.

## Open Space

Chatham Borough consists of a total of 1,533 acres. Of this total, 193 acres, or 13%, represent preserved space:

- Wuhala Woods East and West – large preserved wooded open space adjacent to the Passaic River bisected by Route 24. A walking trail traverses the eastern portion of the nature preserve. The western portion includes Kelley's Pond, a small fishing pond to the rear of the Milton Avenue School.



## Evaluation of Target Hazard Occupancies

A critical component of conducting a community risk assessment of the fire and rescue hazards located in a community is to identify specific critical facilities within the service area. These are sometimes referred to as “target hazards.” Examples of critical facilities might include:

- hospitals
- assisted living centers
- community shelters
- schools
- airports
- important government offices
- emergency operations centers
- hazardous materials sites
- major roadways
- water and sewage treatment plants
- critical communications centers

Also considered for inclusion are buildings with substantial value to the community (economic, historic, other), and other facilities that, if damaged or destroyed, would have a significant negative impact on the community. Factors to be considered when identifying target hazard occupancies include:

- number of occupants/life safety
- building construction
- impact (including economic) to the community
- number of stories
- presence of automatic fire suppression/detection systems
- overall size (square footage)
- number of fire hydrants or water sources nearby
- level of hazard
- building usage/occupancy

This study did not include a comprehensive analysis of all target hazards. However, the evaluation team did identify several occupancies in the borough that should be considered target hazard facilities with the potential to challenge the local fire agency in the event of a significant fire or other non-fire emergency:

- The Chatham Arms Apartments - 49 South Passaic Avenue - large four-story H-style Type III Ordinary construction brick and wood joist apartment building built in 1942 offers thirty-one one- and two-bedroom rental units. The un-sprinklered residential building has open stairwells, undivided public hallways, and a large combustible cockloft. The lack of in-place fire protection systems and limited fire department access places the building as a *high life hazard occupancy*.
- National Building Supply – 100 Summit Avenue – large roofing and building materials wholesaler with multiple un-sprinklered wood frame buildings and lumber storage sheds with limited fire department access. Moderate life hazard occupancy.
- Dreyer’s Lumber & Hardware - 20 Watchung Avenue – Large building supply store with multiple un-sprinklered wood frame buildings and lumber sheds with limited fire department access. *Moderate life hazard occupancy*.
- Strand Tennis Center/The Gravity Vault – 40 Watchung Avenue – large Type II Non-combustible rigid steel frame indoor tennis and fitness center with limited fire department access. The building is covered by a full NFPA 13 fire sprinkler system; however, the sheer size of the building may be a challenge to the local fire agency in the event of a fire inside the complex. A large indoor rock-climbing facility is part of the complex. The unusual configuration and layout of the rock-climbing area may challenge the local fire forces in the event of a fire, especially if a cold-smoke condition were to develop inside the occupancy. *Moderate life hazard occupancy*.
- Three public schools including Chatham Middle School, Milton Avenue School, and Washington Avenue School – all three school buildings are not protected by fire sprinkler systems, high life hazard, high value, loss of use of any of the buildings would have a significant impact on the community. *High life hazard occupancies*.
- Saint Patrick School – 45 Chatham Street – two-story legacy Type III Ordinary construction elementary school building – building not protected by a fire sprinkler system, high life hazard, high value, loss of use of the school would have a significant impact on the community. *High life hazard occupancy*.
- ECLC of New Jersey Chatham School – 21 Lum Avenue – two-story legacy Type III Ordinary construction school building serving 160 students with a range of special needs, primarily autism, Down syndrome, and multiple disabilities. The building is not protected by a fire sprinkler system. Loss of use would have a significant impact on the community and disabled students. *High life hazard occupancy*.

Several large church complexes including:

- St. Patrick's Roman Catholic Church – 85 Washington Avenue – church and large two-story parish hall complex adjacent to St. Patrick's School.
- Chatham United Methodist Church – 460 Main Street – large church and two-story attached pre-school complex.
- St. Paul's Episcopal Church – 200 Main Street – church and attached parish hall.
- Ogden Memorial Church – 286 Main Street – church with attached two-story children's Montessori school.

The church complexes are not protected by fire sprinklers and some house child daycare centers. Loss of use of any of these historic occupancies would have a significant impact, physically and culturally, on the community. *High life hazard occupancies.*

- Garden Terrace Nursing Home – 361 Main Street – three-story mixed construction private 30-bed skilled nursing facility. The building poses a significant life hazard due to the structure housing multiple individuals with limited mobility. *High life hazard occupancy.*
- Route 24 Freeway – The local fire agency covers an approximately 2.5-mile stretch of the busy two-lane east/west limited access highway. The agency regularly responds to reports of motor vehicle accidents, vehicle fires and brush fires along the highway. This places fire and rescue personnel in danger due to the high speed/heavy traffic volume nature of the roadway. The agency does have active automatic aid agreements with neighboring fire agencies to provide dual directional coverage of the highway response area. *Moderate life hazard occupancy.*
- Ivy at Chatham is a large, high-density multi-story residential apartment complex under construction on formerly industrial/commercial property on River Road at Watchung Avenue. The Type V lightweight wood frame over Type I Fire Resistive parking garage podium building is expected to be completed in the Fall of 2023. The five-story complex when complete will be the largest building both in height and floor area in the borough. The 245-unit complex features a full fire sprinkler system. Fire department access to the rear of the complex is limited. It should be noted that the borough fire marshal worked with the developer to encourage critical non-required additional fire sprinkler coverage in the combustible void areas between the floors and in the attic space. These combustible voids areas are common in this type of construction and are not required to be covered by sprinklers under the current building and life safety code. The fire marshal should be commended for his efforts to have the developer exceed the requirements under the code for fire sprinkler coverage. Although the complex will be fully sprinklered, the sheer size and height of the complex would pose a significant challenge to the local fire force in the event of fire or another emergency in the complex. *High life hazard occupancy.*



## Service Demand Levels & Emergency Incident History

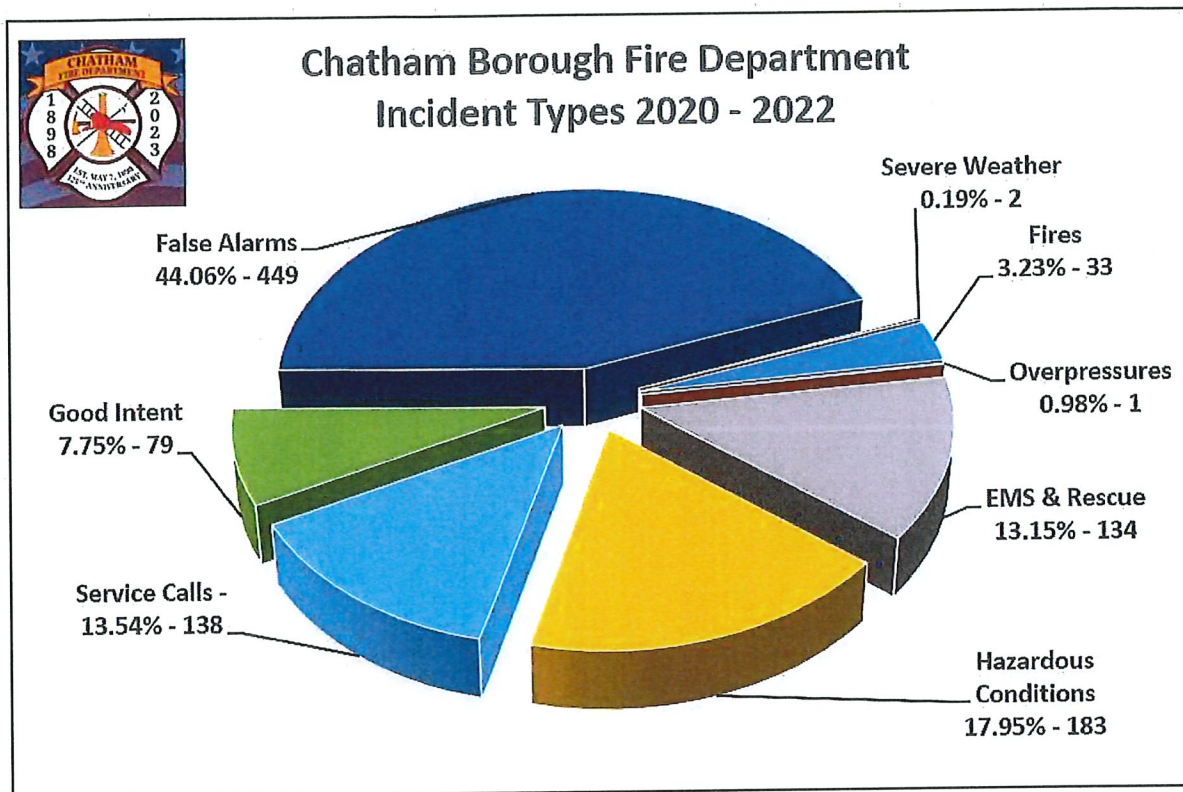
Among the key factors that should be examined in evaluating the fire protection needs of a community are the type and frequency of fire and rescue incidents that occur in the coverage district. The types of emergencies that a fire agency is called to respond to determine the type of apparatus and equipment that the fire department will need to control the situation, while the volume of emergencies determines the number of fire and rescue vehicles and personnel that the agency must deploy to successfully counter multiple and/or simultaneously occurring incidents.

While previous incident history serves as an excellent predictor of the type and frequency of fire and rescue incidents, municipalities should also consider the potential for new building developments and significant changes in existing occupancies when evaluating the fire and rescue protection requirements of a community. For example, the Ivy of Chatham development, consisting of several three, four, and five-story sections of high-density residential buildings housing 245 upscale apartment units under construction on River Road at Watchung Avenue, can be expected add to the community's current level of fire and rescue service demands. The potential also exists for a limited amount of additional housing to be developed within the community as part of the borough's affordable housing requirement.

Fire departments provide valuable services to communities throughout the nation. They respond to a wide variety of emergencies involving fires, explosions, hazardous conditions, and natural and human-caused disasters. They also respond to nonemergency service calls as determined by local policy. Often, what is described by an emergency caller to 9-1-1 dispatchers does not accurately reflect the demands of the actual incident. Nevertheless, fire departments are trained and prepared to respond to a broad array of situations. It is the responsibility of the governing body to ensure that the local fire agency is prepared, staffed, and equipped to carry out this mission at the level of expectation of the residents and taxpayers.

The Chatham Borough Fire Department participates in the National Fire Incident Reporting System (NFIRS), a system established by the United States Fire Administration with the intent to provide local fire agencies with an incident data analysis tool to help communities gather and determine the local fire and emergency service demand levels. The system is coordinated in New Jersey by the Division of Fire Safety, part of the New Jersey Department of Community Affairs. Chatham has participated in the program for several years and the staff of the fire department has provided access to three years of NFIRS incident data covering response history

from January 1, 2020, to December 31, 2022, to assist in preparing this report and recommendations.



NFIRS data for a total of 1,019 fire and emergency incidents that were responded to during this period was used for this analysis. The yearly number of incidents ranged from a high of 361 incidents in 2022 to a low of 317 incidents in 2020. This yields an average yearly incident volume of 339 incidents.

Total fire department responses for the three-year time period were broken down into the following categories:

**False Alarm or False Calls (449 incidents – 44.06%)** – This category accounted for the largest portion of fire department responses during the analysis period. This category includes: all types of emergency responses to investigate activations of fire, smoke, and carbon monoxide detection systems; and fire alarm and fire sprinkler system activations where no fire, smoke or carbon monoxide was found. This percentage of incidents is in line with national trends as the proliferation of fire detection and suppression systems are increasingly mandated in new and

renovated structures. An affluent suburban community such as Chatham Borough with many upscale private residences can expect that alarm system activations may account for as much as one-half of all fire incident responses. While the ratio of actual fires that are detected and/or suppressed by these systems compared to the number of activations caused by unintentional activations or system malfunctions is quite small, each fire alarm activation must be treated by the responding fire department as an actual fire until the source of the activation has been investigated.

**Hazardous Conditions (183 incidents – 17.95%)** – This category includes all types of emergency responses that require the fire department to take actions to protect life and property from hazards other than fire. These include natural gas, LPG, and steam leaks; electrical hazards; structural collapse hazards; flammable liquid and hazardous material releases; biological, radiological, and explosive hazards; smoke and odor removal; and all other types of imminent hazards to the public and property other than fire.

**Service Calls (138 incidents – 13.54%)** – This category covers all types of service-related emergencies and non-emergencies that the fire department responds to including: in-station standbys; aircraft medical evacuation standbys; mutual aid station coverage; water or steam leaks; non-emergency lockouts; animal rescues; and other non-emergency public service type calls.

**Rescue and Emergency Medical Services (134 incidents – 13.15%)** – This category includes: all types of emergency medical and rescue responses including rendering basic first medical aid and assisting local EMS providers; all types of personal rescues such as motor vehicle accidents with injuries, motor vehicle accident extrications, and extrication of persons trapped in building collapses; trench/below grade rescues; confined space rescues; water rescues; emergency lock-ins; high angle rescues; and extrication of victims entrapped in machinery.

**Good Intent Calls (79 incidents – 7.75%)** – This category includes: calls dispatched and cancelled prior to fire unit arrival; wrong location or no incident found; steam or other gas mistaken for smoke; honest mistakes; and all other types of non-malicious calls for the fire department to investigate.

**Fires (33 incidents – 3.23%)** – Fires accounted for a small percentage of fire department responses during the analysis period. This category includes: all types of fires including fires in structures; motor vehicle fires; and all types of outside fires occurring in brush, grass, trash, and rubbish. This category is further broken down into the following subcategories:



**Fires in structures (8 incidents – 24.24%)** - This subcategory includes all types of fires occurring in structures other than cooking fires confined to the cooking vessel. This percentage of structural fire incidents is in line with the statistics reported by the Division of Fire Safety in their annual NFIRS analysis report entitled "Fire in New Jersey" which states that while actual fires in structures account for a small percentage of the activity of fire departments, these incidents are the cause of 80% of the reported property damage by fire in the state. Historically, fires in structures are low frequency but high impact events for affluent suburban communities. The low overall number of structural fires is in line with other communities with similar demographics as Chatham Borough.

**Cooking fires confined to container (2 incidents – 6.06%)** – This subcategory includes all fires involving cooking activities where the fire was contained to the cooking vessel. National statistics show that almost one-half of all fires occurring in homes are caused by cooking, especially unattended cooking.

**Natural vegetation fires, other (9 incidents – 27.27%)** – This subcategory includes all types of outside fires involving brush, grass, and mulch. Most of these incidents are of a very minor nature and cause little or no damage to property.

**Mobile property (vehicle) fires – (7 incidents – 21.21%)** – This subcategory includes fires involving all types of motor vehicles such as passenger cars, trucks, construction vehicles, mobile agricultural vehicles, and recreational vehicles.

**Fires, other (1 incidents – 3.03%)** – This subcategory includes all other types of unclassified fires occurring inside buildings and other special structures.

**Trash or Rubbish Fires – (5 incidents – 15.15%)** – This subcategory includes fires involving all types of outside refuse fires including dumpster and compactor fires.

**Special outside fires, other - (1 incidents – 3.03%)** – This subcategory includes all other types of unclassified fires occurring outside buildings and other special structures.

**Overpressures, Ruptures, Explosion, Overheat (No Fire) – (1 incident – 0.98%)** – This category includes: all types of overpressure events from steam, air or gases, and chemical reactions; all types of explosions including bombs, munitions, fireworks, and dust; and ruptures caused by excessive heat where no ensuing fire is found.

**Severe Weather & Natural Disasters (2 incident – 0.19%)** – This category includes: calls for the fire department to assess damages to property because of earthquakes, floods, and windstorms including hurricanes and tornados; lightning strikes; and other natural disasters. The category excludes incidents where other services, such as rescue, firefighting, and damage control other than damage assessment are performed.

**Special Type of Incident (0 incidents – 0%)** – This category includes all other types of incidents that are reported to and are investigated by the fire department including all types of citizen complaints of code or ordinance violations.

## NFPA and ISO Compliance

The Insurance Services Office, Inc. (ISO) collects information useful in many aspects of insurance underwriting. That information includes evaluations of public fire protection through the Public Protection Classification (PPC) program.

A community's investment in fire mitigation is a proven and reliable predictor of future fire losses. Insurance companies use PPC information to help establish fair premiums for fire insurance — generally offering lower premiums in communities with better protection. Many communities use the PPC as a benchmark for measuring the effectiveness of their fire-protection services. The PPC program is also a tool that helps communities plan for, budget, and justify improvements.

The Fire Suppression Rating Schedule (FSRS) is a manual containing the criteria ISO uses in reviewing the fire prevention and fire suppression capabilities of individual communities or fire protection areas. The schedule measures the major elements of a community's fire protection system and develops a numerical grading called a Public Protection Classification (PPC™).

The FSRS lists many items (facilities and practices) that a community should have to fight fires effectively. The schedule is performance based and assigns credit points for each item. Using the credit points and various formulas, ISO calculates a total score on a scale of 0 to 105.5.

Three primary areas of a community's fire suppression system are considered for the FSRS: emergency communications, fire department (including operational considerations), and water supply. In addition, the schedule includes a Community Risk Reduction section that recognizes community efforts to reduce losses through fire prevention, public fire safety education, and fire investigation.

ISO analyzes the data obtained during the survey process and assigns a Public Protection Classification from 1 to 10. Class 1 generally represents superior property fire protection, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria. Insurance underwriters use the grade ratings in their consideration of risk from property damage caused by structural fires while setting commercial and residential fire insurance premiums for municipalities. Communities with lower PPC ratings will generally enjoy lower commercial and residential property insurance premiums. Notably, ISO is only concerned with the protection of structures from fire damage and does not consider other capabilities of the local fire department such as technical rescue, emergency medical, hazardous materials response, disaster mitigation services, among others.

The fire suppression rating factors in Chatham Borough were last surveyed in a report created in September 2021, by representatives from ISO and received at that time a total credit of 70.15 points, ranking the borough as a Class 3 rated municipality.

The PPC number assigned to the community will depend on the community's score on a 100-point scale:

<b><u>PPC</u></b>	<b><u>Points</u></b>
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

In the most recent ISO evaluation, the Fire Department received a score of 3.97 of a possible six points for having two engine companies in service. With no reserve pumper in the fleet, there was a reduction of only 0.5 points. Credit for ladder service resulted in 3.8 out of four points. The credit for reserve ladder and service trucks was 0.18 out of a possible 0.5 points. Based on our analysis, we do not anticipate a change in the ISO rating based on the proposed apparatus replacement schedule included in this report.



## Mutual Aid Agreements

The Chatham Fire Department is a member of the Morris County Fire Mutual Aid System based in the Morris County Communications Center (MCCC). This is a regional consolidated communications center that provides emergency police, fire, and emergency medical dispatching services, and 9-1-1 answering point services, to the residents and first responders of Morris County.

One of the familiar challenges during multi-agency incidents can be the ability for different agencies to communicate. The MCCC has a robust fire communications system capable of handling interoperability with the host agency, mutual aid partners, the Morris County Fire Coordinator and Deputy Coordinators.

The Morris County Fire Mutual Aid Plan is periodically reviewed, revised, and approved by the Morris County Alliance of Active Fire Chiefs. The Morris County Fire Coordinator works with each Morris County fire chief to develop a run card (assigning specific resources) for each alarm that meets the requirements set forth in the New Jersey Fire Service Resource Emergency Deployment Act.

The role of the fire coordinators during an emergency is to support the local incident commander. If requested, a coordinator may be assigned to staff an unfilled position within the Incident Command System and may also be assigned to the communication center to support the deployment of resources.

Each run card includes units for response to the incident location and units to provide engine companies and ladder companies for station coverage. The run cards list detailed instructions for rapid intervention teams, firefighter rehabilitation, and specialized units to refill self-contained breathing apparatus bottles.

The use of mutual aid has been in place for many years to supplement a community's fire resources once local resources are exhausted. Typically, mutual aid is requested after local fire resources arrive on the incident scene and determine that local resources are not sufficient to mitigate the emergency. This method has a built-in delay in the arrival of mutual aid resources.

The Chatham Borough Fire Department is to be commended for establishing automatic aid agreements with neighboring fire departments. The critical factor in automatic aid agreements is the automatic aid resources are dispatched at the same time as the local agency. The simultaneous dispatch reduces response times and adds personnel and equipment to the initial response. The agreements are reciprocal, with automatic aid agreements in place with Chatham Township, Madison, and New Vernon Fire Departments.

The Chatham Borough, Florham Park, and Madison Fire Departments have a joint automatic aid response to incidents reported on the limited access section of Route 24 to enhance response times, ensure adequate resources, and improve first responder safety.

The traditional role of the fire service has evolved over the years to include specialized rescue and building collapse. These types of low frequency high risk responses are labor intensive and require significant hours of initial and refresher training. Meeting the training requirements is a challenge for most volunteer and career fire departments. Most agencies depend on a regional response agreement to address these types of incidents. Morris County employs such an approach using both in-county and out-of-county assets.

Morris County is designated as one of the Urban Areas Security Initiative (UASI) counties in New Jersey. Federal UASI funds are used to purchase equipment and train firefighters as part of a Metro Strike Force to respond to these specialized types of incidents. The nearest Metro Strike Force asset is based in the Morristown Fire Department and staffed by members of the Morristown and Millburn Fire Departments.

Chatham Fire Department relies on the hazardous material response teams from Morris County to assist in mitigating hazardous materials incidents occurring in the community. The Madison Fire Department is an additional resource with specialized training and equipment available for response to confined space and trench rescue incidents that occur in Chatham.

Our team performed a thorough review of the Chatham Fire Department Run Cards and found them to be comprehensive and well done.

- **Recommendation:** A review of the run cards should be completed on at least an annual basis with special emphasis on identified target hazards and any new construction developments.

## Complement of Fire Apparatus

Based on the community risk profile, service demand level and mutual aid and automatic aid available, the existing complement of fire apparatus is appropriate for the borough

## Fiscal Considerations

The purchase of fire apparatus is increasingly expensive. Some apparatus manufacturers implemented cost increases of 10% in 2022. To effectively budget for and appropriately pace the replacement of such costly vehicles, municipalities should develop a long-term apparatus replacement schedule.

Chatham Borough has wisely developed a multi-year capital improvement plan projecting anticipated annual spending for a variety of projects and equipment costs through the year 2031. The plan reveals capital spending to range from approximately \$1.1 million to \$1.7 million each year.

A plan to manage debt is equally important for a community to effectively pay for capital projects and equipment in a way that balances the needs of the community and the goal of fiscal responsibility. Chatham Borough has developed a debt plan that envisions maintaining approximately \$1 million annually in debt.

Although replacement of fire apparatus is not currently included in the capital plan, approximately \$700,000 is reserved for that purpose.

Although many communities choose to bond the cost of fire apparatus, some have now decided to enter into a lease agreement instead. Following a series of annual lease payments, the municipality will own the apparatus. A contemporary example from a neighboring community is illustrated in the table below:

Fire Apparatus Lease Example	
Cost of New Pumper (2023)	\$740,000
Term of Lease	10 Years
Interest Rate	4.99%
Annual Lease Payment	\$95,805
Total Cost After 10 Years	\$958,054



Leasing has become attractive for municipalities that may want to limit debt associated with capital improvements. Leasing is also attractive for some communities that may need to replace fire apparatus on a more frequent basis.

It is likely that Chatham Borough would receive a more favorable interest rate in the municipal bond marketplace; however, leasing is an option that may be considered.

Beginning in 2024, revenue from a major development in the Borough is anticipated and at least some of the proceeds are intended to be used to fund replacement of fire apparatus. Whether the Borough decides to lease or bond, the new development revenue will help offset the cost associated with replacing fire apparatus.

## Apparatus Maintenance and Testing

One of the most useful tools to extend the life of fire apparatus and ensure its reliability is to implement an annual preventative maintenance program. Such a program should include at minimum: chassis, pump, foam, generator, and ladder service. A preventative maintenance program will identify minor vehicle issues prior to an apparatus breakdown or malfunction during a fire department response.

While the fire department has a long history of using a comprehensive preventative maintenance program, it should be reviewed to assure it complies with NFPA 1911 *Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus* which sets the minimum requirements for establishing periodic inspection, maintenance, and testing program for in-service apparatus.

- **Recommendation:** NFPA 1911 *Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus* should guide the fire department maintenance program.

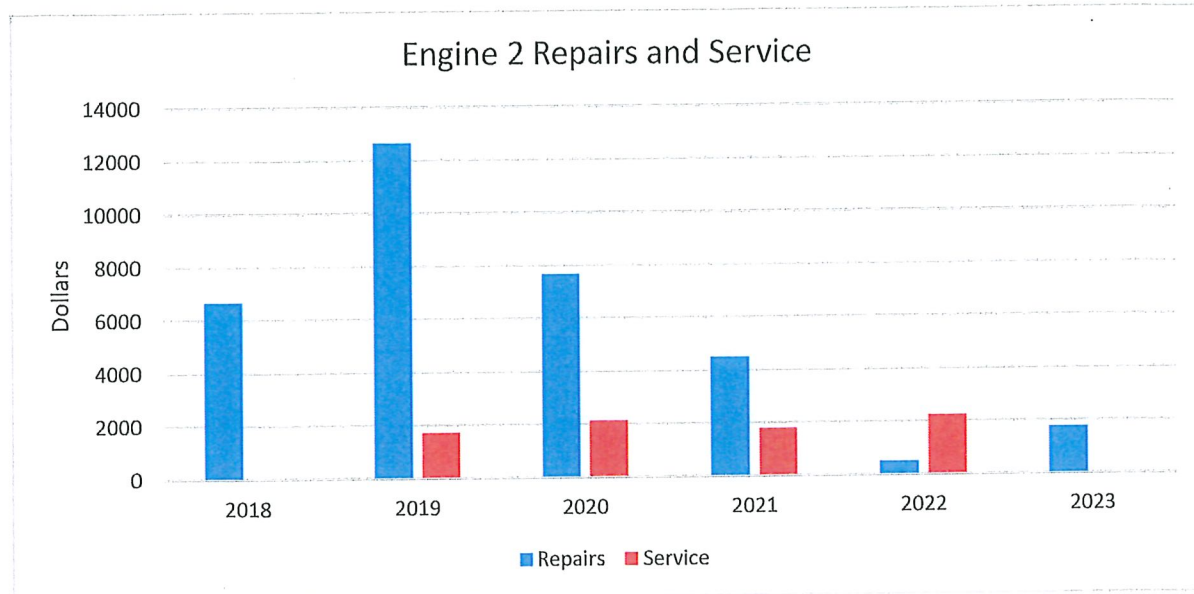
The study team reviewed the apparatus preventative maintenance and repair records performed during the period 2018-2023 for each fire apparatus, however, some of the data from 2022 and 2023 was incomplete. A description of each apparatus including a graph displaying maintenance and repair costs as well as recommendations of the disposition of each vehicle follows:



**Engine Two**

Vehicle Information	
Fire Department ID	Engine Two
Make	Pierce Dash Pumper
Pump	Waterous Two Stage
Pump Capacity	1500
Booster Tank Water/Foam	750/30
Year Acquired	2005
Vin#	4P1CD01S05A004897
Mileage	14,462
Engine Hours	2,276.3
Pump Hours	222.8
Gross Vehicle Weight	46,500
Front	19,500
Rear	27,000





This vehicle is 18 years old and serves as the primary response pumper for the fire department. It has been well maintained and is a reliable piece of fire apparatus. It is suitable to continue serving as a first due pumper and then transitioned to secondary response pumper upon the replacement of Engine Three.

As noted earlier in this report, several factors impact decisions on when to replace fire apparatus. Typically, fire apparatus can serve reliably for a period of 15-20 years based on proper care, regular maintenance, the quality of the manufacturer and the frequency, extent, and type of use.

Like other vehicles, fire apparatus depreciates over time. As repair costs begin to exceed the value of the vehicle, the costs in effect begin to shift capital expenses to operating expenses. The repair costs for this apparatus from 2018-2023 amounted to \$33,747.22.

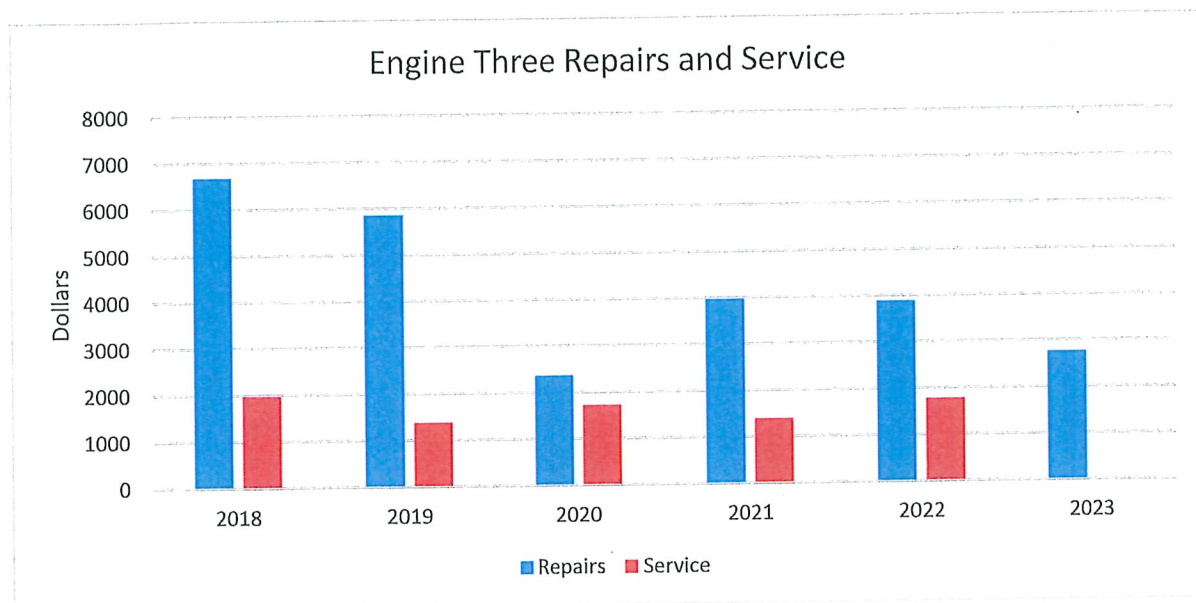
- **Recommendation:** Engine 2 is an 18-year-old vehicle that has been well maintained and can remain in service as a first due pumper and then transitioned to a secondary response pumper upon the replacement of Engine 3.





**Engine Three**

Vehicle Information	
Fire Department ID	Engine Three
Make	Pierce Dash Pumper
Pump	Waterous Two Stage
Pump Capacity	2000
Booster Tank	750
Year Acquired	1998
Vin#	4P1CT02S3XA000958
Mileage	Odometer OOS
Engine Hours	2,436.9
Pump Hours	313.3
Gross Vehicle Weight	45,740
Front	18,740
Rear	27,000



This vehicle is 25 years old and while well maintained, it should be considered for replacement. It is suitable to serve as a second due pumper until its replacement is delivered.

As noted earlier in this report, several factors impact decisions on when to replace fire apparatus. Typically, fire apparatus can serve reliably for a period of 15-20 years based on proper care, regular maintenance, the quality of the manufacturer and the frequency, extent, and type of use. This vehicle has exceeded its anticipated service life of 20 years.

Like other vehicles, fire apparatus depreciates over time. As repair costs begin to exceed the value of the vehicle, the costs in effect begin to shift capital expenses to operating expenses. The repair costs for this apparatus from 2018-2023 amounted to \$25,525.62.

- **Recommendation:** Engine 3 is a 25-year-old vehicle and has reached the end of its service life. Acquisition of a new pumper has been added to the apparatus replacement schedule for 2023.

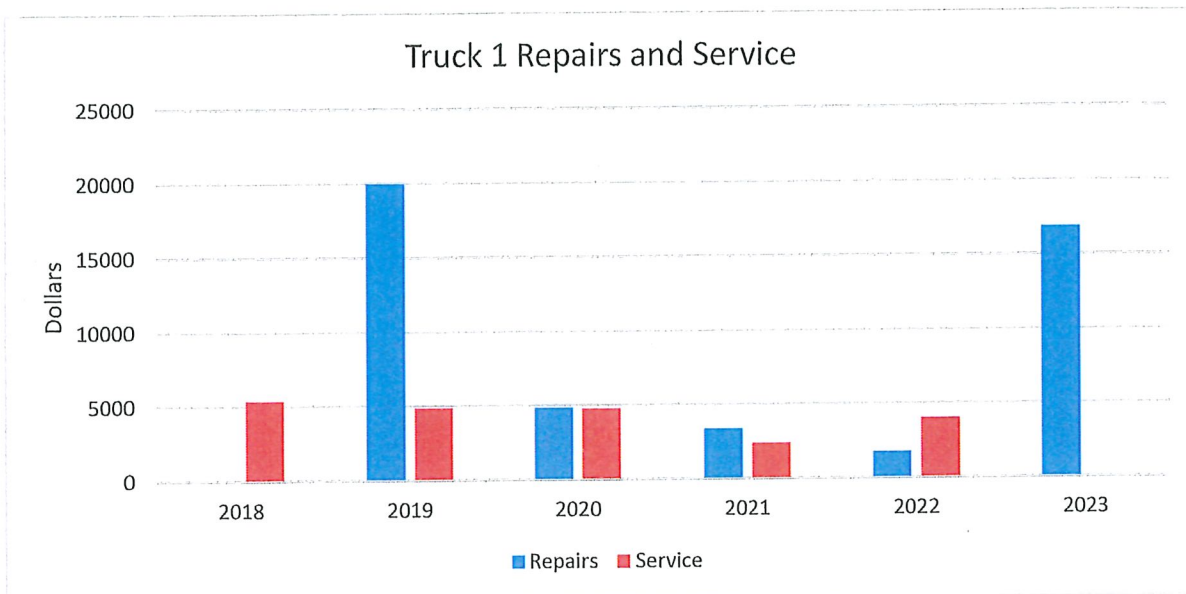




**Truck One**

Vehicle Information	
Fire Department ID	Truck One
Make	Pierce Lance Rear Mt Ladder
Pump	Waterous Two Stage
Pump Capacity	1500
Booster Tank	300
Year Acquired	1994
Vin#	
Mileage	15,414.0
Engine Hours	3,046.5
Pump Hours	N/A
Aerial Hours	764.2
Gross Vehicle Weight	69,000
Front	21,000
Intermediate	24,000
Rear	48,000





This vehicle is a 29-year-old vehicle and should be considered for replacement as soon as possible. To prioritize replacement of various apparatus and avoid replacement of multiple apparatus in a single year, we recommend replacement of Engine 3 before Truck 1.

Like other vehicles, fire apparatus depreciates over time. As repair costs begin to exceed the value of the vehicle, the costs in effect begin to shift capital expenses to operating expenses. The repair costs for this apparatus from 2018-2023 amounted to \$46,788.36.

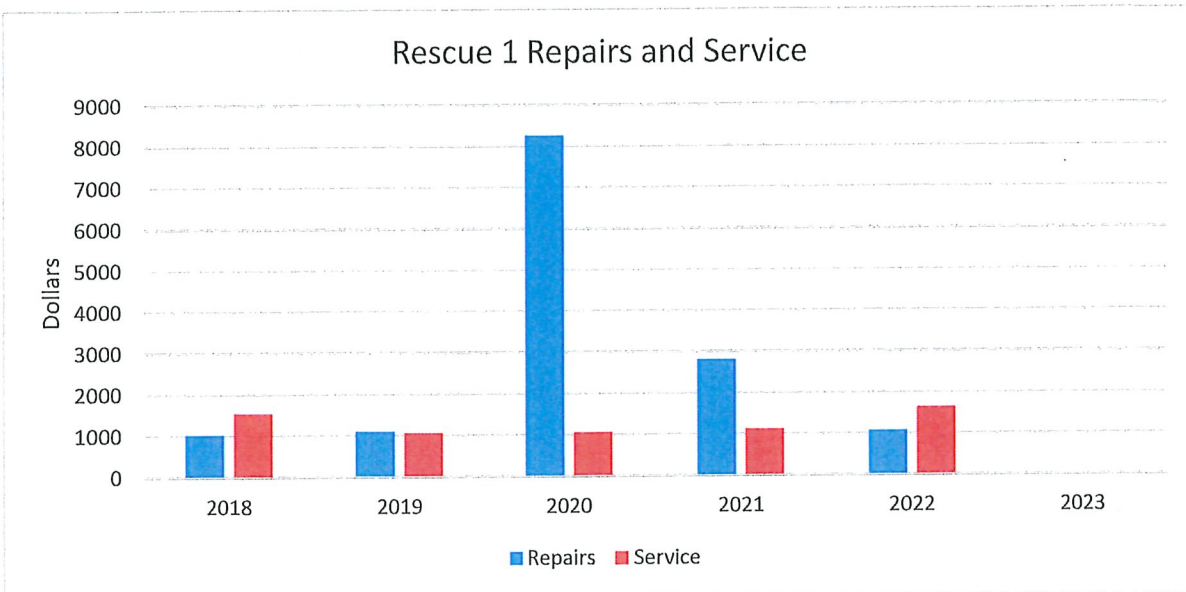
Borough fire officials have indicated a preference for a Tower Ladder design unit as a replacement for Truck 1. The fire officials noted that enhanced firefighter safety as well as the ability to easily maneuver and operate above a structure prompted their recommendation for a Tower Ladder. We support that recommendation.

- **Recommendation:** Truck One has exceeded its anticipated service life by almost 10 years and should be replaced. It may, however, be possible to adequately maintain this apparatus so it may remain in service for a period to pace the necessary replacement of two vehicles over a multi-year period. Careful consideration of the cost benefit of needed repairs will be an important part of this decision.



### Rescue One

Vehicle Information	
Fire Department ID	Rescue One
Make	Mack 600 CF
Pump	None
Year Acquired	1990
Vin#	1M2H197C2LM001096
Mileage	9,194.7
Engine Hours	2,221.7
Gross Vehicle Weight	41,000
Front	18,000
Rear	23,000



This vehicle is 33 years old and should be considered for replacement.

Like other vehicles, fire apparatus depreciates over time. As repair costs begin to exceed the value of the vehicle, the costs in effect begin to shift capital expenses to operating expenses. The repair costs for this apparatus from 2018-2023 amounted to \$14,282.44.

- **Recommendation:** With the prospect of replacing both a pumper and rescue truck, there is an opportunity to consider purchasing a combination unit, rescue-pumper. A rescue pumper addresses the issue of limited staff availability while also providing the economy of replacement of two units with one piece of apparatus. Purchase of a rescue-pumper is recommended.





**Engine One**

Vehicle Information	
Fire Department ID	Engine One
Make	American LaFrance
Year Acquired	1963
Note: This vehicle is no longer in service, it is used exclusively as a ceremonial apparatus.	

## Apparatus Replacement Schedule

The purchase of fire apparatus is a significant financial commitment for a municipality. To maintain a high quality and dependable fleet of firefighting equipment within reasonable fiscal constraints, a replacement schedule that forecasts future purchases is a useful planning tool. Ideally, a replacement schedule will pace the purchase of apparatus to avoid the need to acquire multiple units in one year.

Fire apparatus in Chatham Borough have a relatively low frequency of use. With proper care, appropriate training of all users and regular maintenance, a 20-year service life should be attainable for engine and ladder truck units. Specialized units, such as a rescue unit may have a longer service life, 25 – 30 years. Sedans and utility vehicles typically have a shorter service life, replacement should be anticipated for those vehicles on a 10 – 15-year schedule.

<b>Chatham Borough Fire Department Apparatus &amp; Vehicle Inventory</b>		
Unit	Purchase Date	Age
Engine One - American LaFrance Pumper **	1963	60 **
Engine Two - Pierce Pumper	2005	18
Engine Three - Pierce Pumper	1998	25
Truck One - Pierce Rear Mount 105 Foot Ladder	1994	29
Rescue One - Mack 600 CF Rescue	1990	33
<b>Utility Vehicles and Sedans</b>		
Car 1 (Fire Chief's Vehicle)	2019	4
Car 2 (Utility Pick Up Truck)	2001	22
Car 3 (Fire Safety Bureau)	2003	20

\*\* Vehicle is out of service; its use is strictly ceremonial.

Currently, Engine 2 is the only piece of fire apparatus less than twenty years old. The other units, although well maintained, should be scheduled for replacement. Advances in fire apparatus design since the purchase of each of these units include safety features such as: roll over stability, tire pressure indicators, seat belt warning systems, roadability including minimum accelerations and top speed limitations, enhanced step and work surface lighting, cab integrity testing, increased use of reflective striping and enhanced aerial control technologies.

With the prospect of replacing both a pumper and rescue truck, there is an opportunity to consider purchasing a combination unit, rescue-pumper. Our understanding is that the fire department has proposed such a unit. A rescue pumper addresses the issue of limited staffing availability while also providing the economy of replacement of two units with one piece of apparatus.

We recommend that a rescue pumper receive serious consideration to replace Engine 3, a 25-year-old unit and Rescue 1, a 33-year-old unit, as such a rescue pumper has been included in the proposed apparatus replacement schedule.

The schedule that follows includes two replacement cycles. Pumpers and the ladder truck are proposed for replacement based on a 20-year life span. The utility vehicle is scheduled for replacement following 20 years of service. The actual service life periods are adjusted in the replacement schedule to avoid multiple apparatus purchases in the same year as referenced in the footnotes.



Chatham Borough Fire Department Proposed Apparatus Replacement Schedule			
Unit	Purchase Date	Replacement Cycle 1	Replacement Cycle 2
Engine One - American LaFrance Pumper <sup>1</sup>	1963		
Engine Two - Pierce Pumper <sup>2</sup>	2005	2027	2047
Engine Three - Pierce Pumper <sup>3</sup>	1998	2023	2043
Truck One - Pierce Rear Mount 105 Foot <sup>4</sup> Ladder	1994	2024	2049
Rescue One - Mack 600 CF Rescue <sup>5</sup>	1990		
Utility Vehicles and Sedans			
Car 1 (Fire Chief's Vehicle) <sup>6</sup>	2019	2034	2049
Car 2 (Utility Pick Up Truck) <sup>7</sup>	2001	2024	2044
Car 3 (Fire Safety Bureau) <sup>8</sup>	2003	2025	2040

While planning and budgeting the replacement of fire apparatus it is important to consider that the timeline for design, specification and construction of fire apparatus can take 18 – 24 months from date of approval to actual delivery of the vehicle.

The replacement schedule on the following page illustrates unit replacement based on the year of the initial replacement.

<sup>1</sup> Engine 1 is a ceremonial unit only. It is not scheduled for replacement.

<sup>2</sup> Engine 2 will be 22 years old at First Replacement Cycle in order to pace apparatus replacement.

<sup>3</sup> Engine 3 will be 26 years old at First Replacement Cycle due to the current age of the vehicle. This unit will be replaced with a rescue-pumper.

<sup>4</sup> Truck 1 will be 30 years old at First Replacement Cycle due to the current age of the vehicle and to pace apparatus replacement. At the Second Replacement Cycle the vehicle will be replaced when 25 years old.

<sup>5</sup> Rescue 1 will be replaced with a Rescue/Pumper Unit along with Engine 3 in 2023.

<sup>6</sup> Chief's vehicle replacement based on a 15-year cycle.

<sup>7</sup> Utility Truck replacement based on a 20-year cycle after initial replacement.

<sup>8</sup> Fire Safety Bureau vehicle based on a 15-year cycle following initial replacement.



Chatham Borough Fire Department Proposed Apparatus Replacement Schedule By Year of Replacement			
Unit	Purchase Date	Replacement Cycle 1	Replacement Cycle 2
Engine One - American LaFrance Pumper	1963		
Engine Three - Pierce Pumper	1998	2023	2043
Truck One - Pierce Rear Mount 105 Foot Ladder	1994	2024	2049
Engine Two - Pierce Pumper	2005	2027	2047
Rescue One - Mack 600 CF Rescue	1990		
Utility Vehicles and Sedans			
Car 2 (Utility Pick Up Truck)	2001	2024	2044
Car 3 (Fire Safety Bureau)	2003	2025	2040
Car 1 (Fire Chief's Vehicle)	2019	2034	2049

- **Recommendation:** To forecast apparatus replacement and balance capital expenditures, an apparatus replacement schedule should be adopted.