



THE FIRE INSURANCE RATING  
ORGANIZATION OF N. J.  
ENGINEERING DEPARTMENT  
NEWARK 2, N. J.

**Hawthorne Borough**  
**Passaic County, New Jersey**

FEBRUARY 15, 1951

**KEY**  
**PROTECTED FIRE ZONE:** Shown in Green.  
NOTE — Fire protection report on file in Engineering  
Department of F. I. R. O. of N. J.  
Elevations range from 40 to 551 feet above mean sea level.  
Water mains 8 inches and larger in diameter  
Water mains 6 inches in diameter  
Water mains 4 inches in diameter

Fire hydrants shown thus  
Gate valves shown thus  
Fire house shown thus  
Fire apparatus designated by symbols thus:  
Pumping engine and hose car  
Hose car  
Ladder truck  
Booster tank or tanks on above



October 31, 1946.

**HAWTHORNE BOROUGH, PASSAIC COUNTY, NEW JERSEY.****Population — 1940 Census — 12,610.**

**IN GENERAL:** Located on the north bank of the Passaic River opposite Paterson. It is a residential community with 24 manufacturing establishments employing about 800 including a textile plant and small miscellaneous industries including paint and varnish works and general manufacturing. One large textile plant formerly employing about 3,500 has been idle and was being leased by small concerns at time of inspection. Area 3.6 square miles. Elevations range from 40 to 551 feet. Central portions of the borough are comparatively level, and grades are moderate to severe in the westerly section. There are about 46 miles of public roads, of which 40 miles are improved with macadam or concrete and are in good condition. Numerous grade crossings and sectional segregation by the railroad might seriously interfere with the response and operations of the fire department.

**WATER SUPPLY:** The borough owns and operates the supply works, distribution system, and appurtenances supplying water for domestic and fire protection purposes principally within the municipal limits. System was originally installed in 1915 and redesigned as a multi-service system with additional storage during 1944. The system is under the supervision of a borough commissioner and in charge of a manager appointed by the mayor for a 4-year term. There are 11 water department employees who maintain and operate the system and perform all duties with additional laborers as needed. A consulting engineer is employed when needed. Office in pumping station. Records include an incomplete distribution map, operating data, and valve and hydrant records. No employee regularly responds to alarms of fire, but emergency equipment and employees are available on call. On second alarms one maintenance man and one pump operator respond. **Supply Works:** The entire supply is obtained from 4 driven wells 350 feet deep at the main pumping station and from one well in a field of 5 wells being developed on Wagaraw Road. Wells are operated by deep well turbines ranging in capacity from 100 to 400 g.p.m. The average and minimum yield at the main wells is 1.1 and 0.9 million gallons and the No. 2 well in use in the Wagaraw field yields 0.625 m.g.d. One new well being developed at time of inspection in the main well field, with a capacity of 350 g.p.m., will replace No. 5 well in this field at present delivering 175 g.p.m. Deep well pumps at the main field discharge to 2 concrete suction basins, only one of which with a capacity of 22,000 gallons, is normally in service. High lift pumps take suction from the basin and discharge to the distribution system with a low service reservoir acting as an equalizer. The Wagaraw well discharges directly to the distribution system. A booster pump takes suction from the low service and discharges to the high service system in the extreme northerly end of the borough with a standpipe acting as an equalizer, and to an intermediate service along the westerly limits of the borough to the south with a reservoir acting as an equalizer and affording storage for that service. **Well Stations—Main Well Field:** Well stations are all in near proximity to pumping station and consist of small masonry structures. **Well No. 1:** Consists of a 10-inch driven well 350 feet deep with a capacity of 400 g.p.m. operated by Peerless deep well turbine driven by a 10-h.p. U. S. motor. **Well No. 3:** Consists of a 6-inch well 350 feet deep with a capacity of 100 g.p.m. operated by a Peerless deep well turbine driven by a 5-h.p. U. S. motor. **Well No. 4:** Consists of a 6-inch well 350 feet deep with a capacity of 225 g.p.m. operated by a Byron Jackson deep well turbine driven by a 25-h.p. G. E. motor. **Well No. 5:** Consists of a 6-inch well 350 feet deep with a capacity of 175 g.p.m. operated by a Sterling deep well turbine driven by a 12½-h.p. U. S. motor. **Wagaraw Well:** Consists of a 6-inch well 300 feet deep with a capacity of 250 g.p.m. operated by a Peerless deep well turbine driven by a 50-h.p. U. S. motor with a Packard gasoline engine as standby. **Douglas Avenue Well:** This is a new well near the main well field being developed at time of inspection, which is expected to have a capacity of 350 g.p.m. **Pumping Station:** Main station located in Goffle Road near Goffle Hill Road as shown on map. Station is a one-story brick building with concrete floor, composition covered wood roof, electric lights, and steam heat. No exposure. Inside protection consists of two 1½-inch standpipe risers with 1½-inch hose and chemical extinguishers. Elevation of floor about 108. **Equipment:** Two 600-g.p.m. De Laval high lift centrifugal pumps each driven by a 60-h.p. Westinghouse motor. One 300-g.p.m. De Laval high lift centrifugal pump

driven by a 30-h.p. Westinghouse motor. Station is automatically operated between 18.8-foot and 22-foot reservoir levels. Manager is on duty at this station during the day and station is operated by two operators from 8 p. m. to 8 a. m. **Booster Station:** Located on Goffle Hill Road about ¼-mile north of Goffle Road as shown on map. Building is a small area 1-story brick structure with concrete floor, non-combustible roof, and electric lights. Elevation of floor about 251. **Equipment:** One 250-g.p.m. Gould centrifugal pump driven by a 40-h.p. G. E. motor. At time of inspection one 300-g.p.m. De Laval centrifugal booster pump driven by a 15-h.p. U. S. motor was being installed to supply the intermediate service, and one 250-g.p.m. De Laval centrifugal pump driven by a 20-h.p. U. S. motor was being installed to supply the high service area. **Reservoirs—Reserve Low Service Reservoir:** This reservoir at a higher gradient than that normally carried is held in reserve. It is located to the west of Goffle Hill Road about ¾ of a mile northwest of the pumping station as shown on map. It is a reinforced concrete structure in two sections with a capacity of 446,350 gallons. Elevation of bottom 351.6. Elevation of overflow 374.0. **Low Service Reservoir:** Located to the west of Goffle Hill Road below the reserve low service reservoir as shown on map. It is a steel tank with a capacity of 1,000,000 gallons. Elevation of bottom 290 feet. Elevation of overflow 315 feet. **Intermediate Service Reservoir:** Located on the ridge west of Goffle Hill Road opposite the extension of Diamond Bridge Road as shown on map. It is a steel tank with a capacity of 250,000 gallons. Elevation of bottom 420.5 feet. Elevation of overflow 428.5 feet. **High Service Standpipe:** Located to the west of Goffle Hill Road near Fairview Avenue as shown on map. It is steel, 15 feet in diameter by 58 feet high, with a capacity of 76,000 gallons. Elevation of base 551 feet. Elevation of overflow 609 feet. **Distribution System:** In three services consisting primarily of a low service with a 16-inch artery extending north and south and 8-inch and 12-inch secondary arteries well gridironed with 6-inch distribution mains. The intermediate service consists of a 10-inch supply main running in a southerly direction along the ridge, reducing to 8-inch connecting with the reservoir and continuing to supply incomplete 6-inch and 8-inch gridiron in the southwesterly part of the borough. The high service consists of an 8-inch line from the booster station with a 6-inch extension serving the area in the extreme northwesterly corner of the borough and extending into Wyckoff Township to supply a sanatorium beyond the municipal limits. See map and description above. **Consumption:** The average and maximum daily pumpage during the 12-month period ending April 30th, 1946 was 0.747 and 1.2 million gallons. At time of inspection there were about 3,300 services, all of which were metered. **Pipe:** Mainly cast iron, tar coated, bell and spigot joint, except that new extensions and replacements are Transite and some of the installations are McWane and Universal Joint. All pipe is laid with a 4-foot cover and no serious trouble has been reported from frozen mains or electrolysis. Total length in distribution system within the borough, 224,025 feet; 1.6% 14-inch, 5.8% 12-inch, 2.8% 10-inch, 14.2% 8-inch, and 75.6% 6-inch. **Gate Valves:** There are 553 on the system mainly of Darling make set with valve boxes at grade. Direction of operation is uniform. Valves are inspected and operated occasionally and a complete valve survey was made in 1943. **Hydrants:** There are 405 public hydrants and 3 private hydrants on the system within the municipal limits, mainly of Darling make of standard type with two 2½-inch outlets except that a few have one additional 2½-inch or an additional 4½-inch outlet. All hydrant threads are National Standard. All hydrants have 6-inch gated branches. They are inspected semi-annually and were in good condition at time of inspection. **Pressures:** Direct reading pressure gauge in pumping station showed 82 pounds on the low service at time of inspection. Readings taken at 19 well distributed hydrants showed pressures ranging from 20 to 114 pounds with an average of 74.7 pounds. **Fire Flow Tests:** Probable supply available for fire protection purposes was measured on May 10th, 1946 by means of Pitot tube. Location of hydrant, discharge in gallons per minute, pressure before flow, and pressure during flow were as follows:

Lee Ave. N/W of Sherman Ave., 360—57—7.  
Rea and 10th Aves., 940—72—35.  
Central and Park Aves., 860—82—65.  
Lafayette and Rea Aves., 1,030—84—67.  
Diamond Bridge and Lafayette Aves., 940—95—78.

## HAWTHORNE BOROUGH, PASSAIC COUNTY, NEW JERSEY.

*Continued.*

Wagaraw Rd. and Lincoln Ave., 860—114—29.  
Goffle Rd. and N. 8th St., 940—105—82.  
Mohawk Ave. and 17th St., 940—86—30.  
Mountain Ave. next to dead end north, 760—46—6.  
Rea Ave. extension N. of Pasadena Pl., 690—65—23.  
Goffle Hill Rd. N/W of New York Ave., 970—103—73.  
Lafayette Ave. extension 1,600 ft. N. of State Highway, 170\*—20—0.  
Lafayette Ave. extension 1,200 ft. N. of State Highway, 240—25—3.

\*Less than minimum requirement for hydrant recognition.

**FIRE DEPARTMENT:** A volunteer organization of 4 companies under the control of the borough which owns apparatus and equipment and leases fire stations from the respective fire companies, and appropriated \$14,000 for the support of the department during 1946. Officers include a chief selected by the department and appointed by the commissioners for a 4-year term, 4 assistant chiefs elected annually by the company and confirmed by borough commissioners, and in each company a captain and 2 lieutenants elected annually. The captain appoints 5 drivers for each apparatus, a mechanic for each company and 10 operators for each pumping engine. Total active membership 120 evenly divided between 4 companies, of whom a minimum of 33 members are available during the day and night response is about 80% of the membership. Candidates for membership are subject to physical requirements and must be approved by the borough commissioners. **Companies—Hose Company No. 1:** Located on Lafayette Avenue near Rea Avenue as shown on map. Building is a moderate area 1-story frame structure with composition covered wood roof, steam heat, and electric lights. Building also serves as a meeting hall for fire companies and fraternal organizations. Minimum company strength 9 members. **Equipment:** One 1936 American La France 750-g.p.m. triple combination pumping engine carrying one 100-gallon booster tank, 150 feet of booster hose, 2 short ladders, 800 feet of 2½-inch hose, 400 feet of 1½-inch hose, and some minor equipment. **Hose Company No. 2:** Located on Llewellyn Avenue between Lafayette and Susquehanna Avenues as shown on map. Building is a 1-story frame structure with composition covered wood roof, concrete apparatus floor, steam heat, and electric lights. Minimum company strength 10. **Equipment:** One 1938 American La France 45-foot city service ladder truck carrying ladders ranging from 10 to 45 feet and totaling 245 feet, 900 feet of 2½-inch hose, 600 feet of 1½-inch hose, one life net, and fair minor equipment. **Hose Company No. 3:** Located on Goffle Road near Mohawk Avenue as shown on map. Building is a 1-story and basement frame structure with composition covered wood roof, concrete apparatus floor, hot water heat and electric lights. Minimum company strength 6. **Equipment:** One 1937 American La France 750-g.p.m. triple combination pumping engine carrying one 100-gallon booster tank, 150 feet of booster hose, 2 short ladders, 800 feet of 2½-inch hose, 400 feet of 1½-inch hose, and some minor equipment. **Hose Company No. 4:** Located on Lincoln Avenue between Lorretto and Columbus Avenues as shown on map. Building is a 2-story frame structure with composition covered wood roof, concrete apparatus floor, steam heat, and electric lights. Minimum company strength 8. **Equipment:** One 1937 American La France hose and booster car equipped with one 150-g.p.m. booster pump, one 150-gallon booster tank, a deck gun, one 250-watt and two 500-watt flood lights with a 1,500-watt generator, 2 short ladders, 750 feet of 2½-inch hose, 300 feet of 1½-inch hose, and fair minor equipment. **Hose:** All 2½-inch hose is C.R.L. with National Standard screw couplings. There is a total supply of 3,250 feet carried on the apparatus in addition to which 1,700 feet is kept in reserve with 800 feet on hand at Company No. 1 and 300 feet on hand at each of the other companies. Of the total supply of hose 40% is more than 5 years old and 25% is more than 7 years old. Hose is tested in part at drills with pumping engines at pressures up to 400 pounds. **Operations:** Department is governed by fire commissioners under borough ordinance. The five chief officers comprise a board of fire commissioners which board, with an appointed clerk, supervises and regulates the department. The chief has full control of men and apparatus at fires with disciplinary action subject to the board of commissioners. **Drills and Training:** Company drills are held monthly under the direction of the chief officers. They consist of pump operation, hose and ladder work and general instruction. **Fire Methods:** Hand extinguishers and booster lines are used on incipient fires supported by hydrant and engine streams with line gates and

shut-off nozzles. Heavy stream appliances are limited to one deck gun. No foam generating equipment is provided and only 6 salvage covers and 5 all-service gas masks are carried. **Response to Alarms:** For response purposes the borough has been divided into 4 districts and 3 companies respond to day alarms in all districts and two companies respond to night alarms in residential districts and 3 or 4 companies respond to mercantile and manufacturing areas. **Building Inspection:** A fire prevention bureau established under ordinance authorizes the inspection of buildings by the chief of the department or designated officers. Mercantile and manufacturing premises are inspected at least 4 times each year by the chief officers and some special risks are inspected twice monthly by the chief of the department. Records of inspections are fairly complete and fairly good enforcement of the municipal ordinances is apparent. **Records and Reports:** Records include complete fire reports showing attendance, nature of alarms, losses, use and condition of equipment. A monthly report of the department activities is compiled by the chief and filed with the borough commissioner. **Fire Alarm System:** A borough owned fire alarm telegraph system maintained by an appointed part-time superintendent is under the general supervision of the commissioner of public safety. Headquarters equipment is located in a small area 1-story brick structure with slate roof, concrete floor, and oil stove, located on Goffle Road except that transmitter is installed at police headquarters on Lafayette Avenue. Buildings are moderately exposed by frame dwellings. Apparatus is of Faraday-Stanley-Paterson make and consists of a 4-circuit slate switchboard with 2 circuit relays. Circuits are protected by 2.5-ampere fuses and vacuum type arresters at entrance to fire alarm headquarters. There are 2 circuits in service carrying all instruments, boxes, and two relays for transfer to the opposite circuit. Current for operation of system is supplied by 2 oxide film rectifiers serviced from 110-volt lighting circuit with 2 banks of storage batteries, of 30 cells each floating, at headquarters and 12 cells and rectifier at Station No. 3. Batteries are protected by 2-ampere fuses and are mounted on standard racks. There are 3 diaphone air horns on the circuit each at Stations 1, 2, and 3, a siren on the circuit at Station No. 4, and an air horn at fire alarm headquarters building. A punch register and gong is installed in each station and at fire alarm headquarters, and a punch register and master transmitter is installed at police headquarters. Station No. 3 is equipped with an independent fire siren. The circuits carry 54 boxes of Faraday and Gamewell makes, all of which are non-interfering succession type mounted on poles or pedestals, except that 2 are installed in school buildings. Pedestals and boxes are painted red and poles are banded, but no lights are provided. Total length of box circuits about 50 miles. Circuits are all overhead carried on utility company poles below power lines. Some excessive ground condition is noted during adverse weather conditions. Wire is hard drawn copper, triple braided, weatherproof, in fair condition with considerable replacement during 1945. Telephone alarms are transmitted to police headquarters where they are sounded by a master transmitter. Circuits are tested weekly and boxes are operated through to headquarters about twice annually. No complete records kept of tests, system maintenance, or troubles.

**POLICE DEPARTMENT:** Consists of a chief and 11 uniformed officers. One motorcycle and 2 radio equipped patrol cars are provided, and officers on duty respond to fire alarms.

**BUILDING LAWS:** Code adopted in 1916 provides for the appointment of a building inspector, requires plans and permits for building operations, and embodies the principal features of the suggested code for small municipalities except that the board of commissioners may waive restrictions on frame construction within the fire limits. Combustible roofs are prohibited within the corporate limits, but the fire limits as outlined are inadequate.

**FIRE PREVENTION LAWS:** Code adopted August 1st, 1938 closely follows the fire prevention code as recommended by the National Board of Fire Underwriters. State laws adequately cover the storage and shipment of explosives and flammables and the construction of motion picture booths. They also restrict the discharge of fireworks to responsible bonded parties. Enforcement of local regulations is delegated to the chief of the fire department.