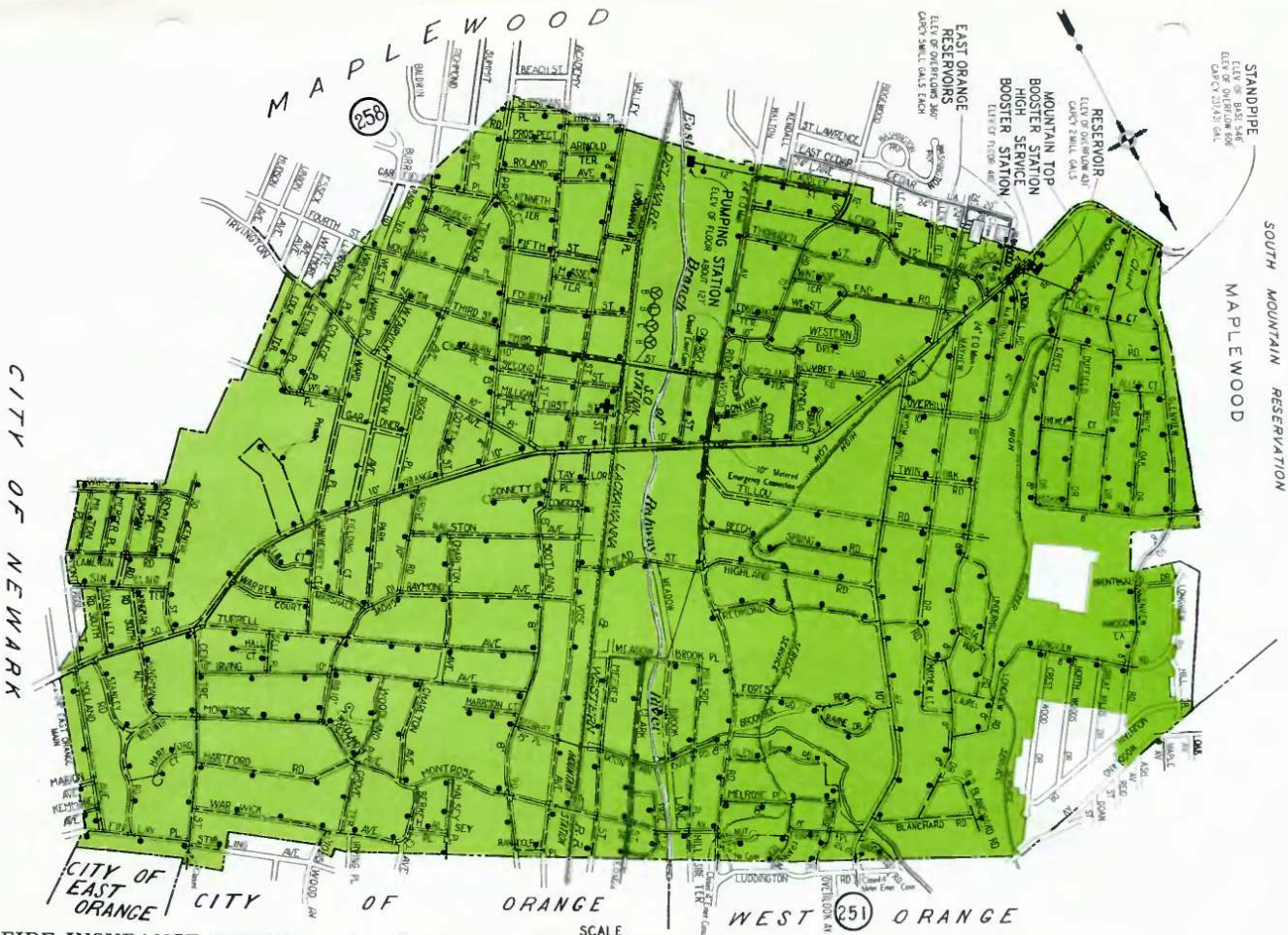

THE FIRE INSURANCE RATING ORGANIZATION OF N. J.
ENGINEERING DEPARTMENT
NEWARK 2, N. J.

South Orange Village
Essex County, New Jersey

MARCH 31, 1948

KEY

PROTECTED FIRE ZONE: Shown in Green.

NOTE. — For description of fire protection, etc., see other side.

Elevations range from 130 to 589 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:

(Y) *Pumping engine and hose car*

(L) *Ladder truck*

Booster tank or tanks on above

Chemical tank or tanks on above

Superseding Map No. 250 of January 15, 1942. Please destroy old issue.

250

VILLAGE OF SOUTH ORANGE, ESSEX COUNTY, NEW JERSEY.

Population — 1940 Census — 13,742.

IN GENERAL: Located on the D., L. & W. R. R. about 6 miles west of Newark. It is chiefly a residential community with about 13 small industries normally employing about 300. Area is 2 7 square miles. Elevations range from 130 to 589 feet. All roads are paved and in fair to good condition. There are no railroad grade crossings, but some steep grades might delay the response of fire apparatus during icy weather

WATER SUPPLY: The village owns and operates the supply works, transmission mains, and distribution system and supplies water for domestic and fire protection purposes to the village only. **Organization:** Department is under Civil Service and includes a chief engineer and 4 pump operators in charge of supply works and pumping station and a superintendent, one foreman, one assistant foreman, 2 meter readers, and one laborer in charge of the distribution system. A well-equipped truck is provided. One of the department employees usually responds to alarms of fire. Records are incomplete and consist chiefly of a distribution map and valve location cards which have not been brought up to date for about 7 years, and detailed tabulations of pumpage **Supply Works:** Built in 1913 and added to in recent years. Supply is obtained from 10 deep wells alongs the East Branch of the Rahway River. The Walton Avenue well field consists of 7 air lift wells in the vicinity of the pumping station. Of these wells, three are 8-inch with an average depth of 300 feet and a total yield of .763 m.g.d , three are 8-inch with an average depth of 275 feet and a total yield of .86 m.g.d., and one is 12-inch, 344 feet deep, yielding .74 m.g.d. One 8-inch well located at Meadow Brook Place and Meadow Brook Lane is 301 feet deep and has a yield of .75 m.g.d It is equipped with a 650-g.p.m. Peerless deep well pump driven by a 20-h.p. U. S. electric motor. Two 12-inch wells near Mead Street are 382 feet and 349 feet deep with respective yields of .288 and .720 m.g.d. The former is equipped with a 200-g.p.m. Peerless deep well pump driven by a 10-h.p. U. S. electric motor and the latter is equipped with a 500-g.p.m. Peerless deep well pump driven by a 15-h.p. U S. electric motor. The latter three wells discharge through a 10-inch and 12-inch line laid in the bed of the East Branch of the Rahway River to a 50,000-gallon raw water basin at the pumping station Air lift wells discharge through a single 8-inch header into the same raw water basin. Water from the raw water basin is pumped through water softeners of 1.296-m.g.d. capacity into a 37,000 gallon underground soft water basin Water softener may be bypassed and the raw and soft water basins may be interconnected. Two 1,000-g.p.m. De Laval centrifugal pumps each driven by a 125-h.p. G E. electric motor take suction from the soft water basin and discharge through a 12-inch transmission main into the reservoir on South Orange Avenue. In addition to these two pumps there is one 550-g.p.m. De Laval centrifugal pump driven by a 75-h.p. G. E. electric motor which is used in case of excessive demand. Water from the low service reservoir is delivered by gravity to the low service, pumped to a high service, and repumped to a booster service. There are closed emergency connections with East Orange transmission mains in Ridgewood Road and in South Orange Avenue west of Ridgewood Road. There are also closed emergency connections with the City of Orange on Centre Street and with the Commonwealth Water Company on Ridgewood Road and on Wyoming Avenue. **Pumping Station:** Located in the Walton Avenue well field as shown on map. The station was erected in 1912 as a steam pumping station, electrified in 1927, and the water softeners installed in 1929 Building is a high one-story structure with brick faced hollow tile walls, concrete floor, tile roof, electric lights, and hot air heat. No exposures. Wiring in conduit. Housekeeping good. Elevation of pump room floor about 127 feet. **Equipment:** Consists of two 410-cubic-foot-per-minute Ingersoll Rand air compressors each driven by a 100-h.p. G. E. electric motor, two 1,000-g.p.m. De Laval centrifugal pumps each driven by a 125-h.p. G. E. electric motor, and one 550-g.p.m. De Laval centrifugal pump driven by a 75-h.p. G. E. electric motor. **High Service Booster Station: Located in fire-resistive gate house at reservoir as shown on map. Elevation of floor about 410 feet Equipment:** Two 400-g.p.m. De Laval centrifugal pumps each driven by a 30-h.p. G E electric motor. Pumps are automatically controlled and operate on a 5-foot variation of standpipe level. **Mountain Top Booster Station:** Located near standpipe on Crest Drive south of Foster Court as shown on map Building is a 1-story brick structure with slate roof, concrete floor, electric lights, and hot air heat. Exposures are negligible. Wiring in conduit. Housekeeping good. Elevation of floor about 546 feet **Equipment:** Consists of one 500-g.p.m. De Laval centrifugal pump driven by a 15-h.p Westinghouse electric motor, two 100-g.p.m. De Laval centrifugal pumps each driven by a 5-h.p. Westinghouse electric motor, one 200-g.p.m. De Laval centrifugal pump driven by a 5-h p. Buda 4-cylinder gasoline engine, and one 500-g.p.m. De Laval centrifugal pump driven by a 10-h.p. Buda 4-cylinder gasoline engine The two gasoline driven pumps are standby units and operate automatically in case of power failure. The 100-g.p m. pumps alternate in service and are operated automatically by pressure changes. The 500-g.p.m. electrically driven pump is also automatic and operates in case of emergency. **Distribution System: Supply from** the pumping station is through a 12-inch main to the reservoir on South Orange Avenue System is in three services separated by a series of closed valves. See map. The low service, which includes about 80% of the distribution system, is supplied directly by gravity from the reservoir through a 10-inch main in South Orange Avenue and serves the territory southeast of Wyoming Avenue The high service is supplied by the high service booster station which takes suction from the low service reservoir and discharges to the system between Wyoming Avenue and Crest Drive with the standpipe acting as an equalizer. The booster service is supplied by pumps which take suction from the standpipe and discharge directly into the section of the system on the ridge northwest of Crest Drive. System is fairly well gridironed, but has a high percentage of 4-inch mains, and arteries are incomplete and poorly located and generally of small diameter. **Storage Units—Low Service Reservoir:** Located on South Orange Avenue west of Harding Drive as shown on map. It is underground, of substantial concrete construction in two sections with a total capacity of 2.0 million gallons. Elevation of overflow about 431 feet **High Service Standpipe:** Located on **Crest Drive south of Foster Court as shown on map. It is a steel unit 24** feet in diameter by 60 feet high with a capacity of 237,400 gallons Elevation of base is about 546 feet. Elevation of overflow about 606 feet. **Consumption:** The average and maximum pumpage during 1946 were 1.319 and 1.766 million gallons respectively. To date there are approximately 3,700 live services, all of which are metered. **Pipe:** All pipe is cast iron, tar coated, bell and spigot joint, laid with about a 4-foot cover Total length 230,475 feet; 2.1% 12-inch, 13.6% 10-inch, 10.4% 8-inch, 45.7% 6-inch, and 28 2% 4-inch. No trouble has been reported from freezing or electrolysis. **Gate Valves:** There are 555 valves, mostly of Rensselaer make set with iron boxes at grade All operate in the same direction. They are said to be inspected once or twice a year. **Hydrants:** There are 418 hydrants of various makes of standard type with 4-inch and 6-inch branches, all but two or three of which are gated Nearly all the hydrants have two 2½-inch outlets and it is said that about 70% have an additional 4½-inch outlet Hose outlets have 3-inch outside diameter and 8 threads per inch and steamer outlets have National Standard threads. Hydrants are said to be inspected quarterly, but those operated during inspection were found to be in poor condition **Pressures:** Readings taken at 20 hydrants well distributed throughout the village showed pressures ranging from 37.5 to 125 pounds with an average of 85 pounds. **Fire Flow Tests:** Probable supply available for fire protection purposes was measured on November 20, 1947 by means of Pitot tube Location of hydrant, discharge in gallons per minute, pressure before flow, and pressure during flow were as follows:

Low Service—
- South Orange Ave. and Valley St., 1,540—100—48 5
- Third and Sloan Sts., 760—120—94.
- Walton Ave S of Edgewood Ter., 390—105.5—101.
- Wyoming and Lenox Aves., 570—51.5—27.5.
- Melrose Pl and Ridgewood Rd , 390—99—17.
- Meeker St. S. of Mountain House Rd , 350—115—38.
- Charlton and Irving Aves., 370—71—40
- Warwick Ave. E. of Mosswood Ave., 80—78—45.
- Hamilton Rd. S. of Finlay Pl., 500—87—30.

Booster Service—
- Great Hills Dr. and Longview Rd , 410—37.5—6 5

High Service—
- Longview Rd W. of Harding Dr., 520—56—22.5.
- Blanchard Rd. and Wyoming Ave., 650—125—114

FIRE DEPARTMENT: A full-paid department consisting of a chief, deputy chief, 2 captains, and 14 men. Men serve on a 2-platoon system. Appointments and promotions of men are from eligible lists furnished by the State Civil Service Commission. **Company:** Located at First and Sloan Streets as shown on map. Building is a 2½-story joisted brick structure with slate roof, concrete apparatus floor, steam heat, electric lights, disused hose tower, telephone, and air whistle. **Equipment:** A 1924 Stutz 750-g.p.m. triple combination pumping engine. A service test performed on this apparatus on December 3, 1947 indicated that the pump was not in operating condition and that it would not pump at draft. The engine carries a 35-gallon chemical tank, 250 feet of chemical hose, 1,000 feet of 2½-inch hose, 200 feet of 1-inch hose, one 600-watt portable electric generator, 3 portable spot lights, 1 salvage cover, 1 all-purpose gas mask, 2 short ladders, and meager minor equipment. A 1929 Seagrave 500-g.p m triple combination pumping engine carrying a 100-gallon booster tank, 500 feet of booster hose, 900 feet of 2½-inch hose, 2 all-purpose gas masks, 1 oxygen mask, 1 salvage cover, 2 short ladders, and fair minor equipment. A 1935 Seagrave 65-foot aerial ladder truck carrying 10 ground ladders ranging from 10 to 50 feet and totaling 258 feet, a 100-gallon booster tank, 250 feet of booster hose, 1 ladder pipe, 3 salvage covers, 2 oxygen masks, 1 all-purpose gas mask, and good minor equipment A 1942 American La France 750-g.p.m. triple combination pumping engine carrying a 100-gallon booster tank, 250 feet of booster hose, 1,100 feet of 2½-inch hose, 1 salvage cover, 1 all-purpose gas mask, a distributor nozzle, 2 short ladders, and fair minor equipment. In addition there is a 1941 Chevrolet chief's car equipped with an all-purpose gas mask and extinguishers. **Hose:** All 2½-inch hose is C R.L. with threaded couplings having an outside diameter of 3 inches and 8 threads per inch. It is shifted and tested quarterly at about 200 pounds pressure and dried on the apparatus floor, the hose tower not being used. A detailed card record of the age, condition, and tests of hose is being set up at the present time. There is a total supply of 4,200 feet, 1,200 feet being kept in reserve. About 2,400 feet is over five years old **Operations:** Department is governed by village ordinance. Chief is responsible for apparatus and operation of the department. Motors are started weekly. All members are trained to operate apparatus. **Drills and Training:** Drills are held under the supervision of the chief at least semi-monthly, totaling 30 a year. They consist of ladder raising, pump operation, hose laying, and use of equipment **Fire Methods:** Booster and chemical lines are used on incipient fires, reinforced by 2½-inch lines with shut-off nozzles and one or two lengths of 1-inch extension hose. Department is provided with 5 gas masks, 4 one-hour oxygen masks, 1 Scott Air-Pak, one 600-watt portable electric generator, 3 portable spot lights, 6 salvage covers, 1 distributor nozzle, and one ladder pipe. **Response to Alarms:** One pumper and the aerial ladder truck respond to all alarms with the entire platoon except one desk man. The off duty platoon reports to the scene of the fire with the exception of the driver who reports to fire house and awaits second call Aid may be secured through mutual agreement with the paid departments of the surrounding municipalities. **Building Inspection:** Former inspections of buildings have been discontinued and no inspections are made at the present time **Records and Reports:** Records showing box location, time, location of fire, owner, attendance, etc. are maintained, and monthly and annual reports are submitted to the chairman of the fire committee. **Fire Alarms:** System is under the supervision of the fire chief and is maintained by a fireman with electrical experience. Fire Alarm headquarters is located in fire house. Apparatus consists of 3 public boxes and one private box at the railroad yard, a gong at police headquarters, and gong, transmitter and air whistle at fire house. Current is supplied by a rectifier with a battery of 32 cells floating mounted on glass rods on porcelain knobs on wood rack on the second floor of the fire house Boxes are of Gamewell make of non-succession type and sound the diaphone directly. System consists of a single circuit about 3 miles long of No 10 hard drawn copper wire, triple braided weatherproof, carried on utility company poles below power wires. There is a Gamewell 3-circuit slate operating board located in a room adjacent to the battery room on the second floor of the fire house. There are no regular tests of boxes, but the system is tested twice daily by time signals. In addition to the 4 box locations there are 35 phantom locations. Telephone alarms are received at the fire house and are sounded on the diaphone as coded signals

POLICE DEPARTMENT: Consists of a chief, 1 captain, 3 lieutenants, 4 sergeants, and 28 patrolmen working in 8-hour shifts. There are 16 police call boxes and 4 patrol cars equipped with three-way radios. There are also 3 motorcycles. Police respond to all alarms of fire and report unauthorized building construction to the building department.

BUILDING LAWS: A code adopted April 15, 1929 and subsequently amended provides for the appointment of a competent building inspector and requires that plans and specifications be submitted and permit obtained before work may be started. Code establishes adequate fire limits, restricts frame construction within the fire limits and prohibits wood shingled roofs in the entire village with the exception that it permits 100% replacement of existing wood shingled roofs. Code has fairly adequate requirements as to wall thickness, fire stops, heights and areas and in general follows the code recommended by the National Board of Fire Underwriters.

FIRE PREVENTION LAWS: There are no fire prevention ordinances, but a section of the building code provides that a permit for the storage and sale of flammable liquids be obtained from the fire chief. The building code also regulates the installation of oil burning equipment and requires that installations be inspected by the building inspector. **State laws adequately** cover the storage and shipment of explosives, the transportation of flammables, and the construction of motion picture booths. They also restrict the discharge of fireworks to responsible bonded parties.

ZONING ORDINANCE: Adopted March 18, 1929.