

Since the systems provide a necessary service to any and all parties on a demand basis, they are generally considered a utility, and as such the public has come to rely upon them for fully automatic service wherever they are employed.

(b) *Standards of Performance*

To be fully functional, collecting sewers must be constructed below the frost line, and at sufficient depth to allow for the drainage of basements adjacent thereto. In order to make the system as automatic as possible, the collecting sewers are laid on continually descending grades sufficient to produce self-cleansing velocities (not less than 2 feet per second when flowing one-third full) but not excessive enough to produce velocities in excess of 15 feet per second when flowing eight-tenths full which might damage the facility. In those areas where excessive depths would needlessly be encountered, it is often economically feasible to employ pumping stations to raise the level of the line to a reasonable depth. Similarly where ravines or other low areas are encountered which cannot be conveniently bridged, due to lack of clearance or for some other reason, or to prevent the sewer line from intersecting some other subsurface facility, inverted siphons are employed.

To facilitate maintenance and eliminate as many potential stoppages as possible, access to the system is provided by manholes strategically located throughout the system. The manholes, normally 4 or more feet in diameter, are spaced not more than 400 feet apart on small lines and 500 feet apart on larger lines (those over 24 inches in diameter). Manholes are also installed wherever the slope, direction or size of a line is changed, where two or more lines intersect, or at the terminus of a line.

In order to provide for the maximum service area with a minimum of pipe footage, the sanitary sewer collecting systems are normally installed in the center of streets or other public rights-of-way, being equally accessible from properties located on either side. Normally, the line or pipe from the building or other facility to be served to the sewer located in the public rights-of-way is the responsibility of the owner of the properties served and is not considered a part of the public sewer collecting system. The location of the sewers in the public domain also provides ready access to the system for purposes of maintenance and repair.

Sanitary sewer systems are normally designed to provide service for the estimated ultimate tributary population, based upon current and projected land use patterns of the area to be served for at least the next 50 years.

In those instances where economies of scale dictate a shorter design period, it should not be for a period of less than 25 years. In addition to the population requirement, adequate allowances for anticipated commercial establishment, institutions such as hospitals and nursing homes, et cetera, and industrial complexes should be taken into consideration.

Smaller sewers, those less than 24 inches in diameter, should be designed so that when they are flowing full, they provide a capacity of at least 400 gallons per day per person served, with adequate allowances for any industrial or commercial wastes and infiltration. In