

In measuring growth, by number of facilities, a conservative picture of the industry is presented since as urban complexes have evolved, existing independent sewer systems have been integrated into larger consolidated systems. Therefore the number of systems reported at any specific time, is not the sum of all systems constructed prior to the time in question, but the number of identifiable systems in service at that time. No precise data are available regarding the number of new systems built, systems incorporated or consolidated into other systems, or portions of systems that have been abandoned.

(b) Ownership Patterns

Similarly, no data have been amassed regarding the ownership of sewer collecting systems, since they have normally been regarded as a function of local government. Private, proprietary type systems, though, have been employed for sewage collection where no governmental agency, or cooperative group was available to undertake the activity. Due to the large capital investment and low returns thereon, and the inability to restrict service for nonpayment of service charges, the proprietary systems have tended to relinquish their franchise to governmental bodies wherever possible, through sale or other disposal methods.

Cooperative systems also have been established where governmental agencies have not been able to provide the service. Subdivisions located in rural or semirural counties have accounted for a majority of this type of ownership. On the basis of information collected by the Federal Housing Administration, approximately 5 percent of their caseload of new housing mortgages in 1960 were provided sewer collection service by cooperative or other nonprofit type corporations. By 1965 the number of such mortgages had decreased to less than 1 percent. Applying these figures nationally to sewer collection systems in general, there could be as many as 500 nongovernment owned systems. Considering this indirect method of estimating, it is conceivable that the number has decreased to less than 100, and will continue to decrease as local governments continue to expand their services and consolidate independent systems.

B. COSTS AND USER CHARGES

1. CONSTRUCTION COSTS

The costs of sewer collecting systems consist of the initial capital cost for construction, and the recurring costs of operating and maintaining the system. The initial construction cost is by far the larger and least determinate cost of the two. Due to the subterranean construction involved in sewer collecting systems, the cost of a given element of a system varies widely geographically, and even within the confines of a single system. As an example, the material cost for 8-inch pipe, which is the smallest size allowed by most jurisdictions, can range from as little as \$0.60 per foot to as much as \$2.50 per foot, depending upon the material from which it is made. The type of soil, ground water level in which the pipe is to be laid, depth of excavation, and method of placement of the pipe also materially affect the cost of the facility. On a total systems basis, the national average price per foot of pipe when equated to a specific project or