IN THE WAR-INDUSTRIES AREAS

Public health-control measures are of primary importance. These have been worked out by the State Board of Health and consist of:

1. Water-supply regulatory measures.
2. Sewage-disposal measures.
3. Trailer and other housing ordinances.

The trailer regulations, along with defense-housing planning, are two important problems in which the public-health officials and planning technicians do co-operate. Trailer camps should be planned as subdivisions and health standards should be set up. Defense housing is being so planned. Additions to existing small communities should be made with caution, keeping in mind the fact that practically all the development is emergency and temporary.

In general no new legislation is needed for control of subdivisions. What is needed is vigorous application of existing legislation and an understanding by engineers and the general public of the value of planning in effecting a solution of this acute problem.

SUBURBAN SEWERAGE FACILITIES

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Forty years ago the farmer went to town to get typhoid fever. Today the city dweller goes to the country to contract the disease. Ten years from now both the city dweller and the farmer may contract the disease from the suburbs—that buffer area springing up between the cities and the farms.

In 1900, fifty-eight Hoosiers out of every 100,000 died of typhoid. In 1940, less than one per 100,000 died of the same disease. This remarkable decline in one of the world's most dread diseases is due primarily to the installation of municipal water-purification and sewerage systems, although improved milk and food sanitation and improved medical practice also deserve credit. Statistics are not available, but it is probable that typhoid or other filth-borne diseases of purely rural origin are also on the decline because of improvements in farm sanitation. The above being true, why the alarm over suburban areas?

Many suburban areas now are, and many others will become, the more insanitary areas of our state. Subdivisions around our large cities have sprung up like mushrooms in the past
few years. Some of them have been developed on a shoestring. They are almost universally tenanted by people who have gone out to escape the "high tax rate." In escaping the "high tax rate" they have also escaped the benefits of a constantly safe-guarded public water supply, public sewerage, police protection, fire protection, street maintenance, and a host of other advantages.

Water is essential to life; so each suburban dwelling must have water. Most sections of Indiana are blessed with a plentiful supply of ground water, which can usually be obtained with ease. Consequently, the logical thing to do is to drill a well for each house as the house is built. This logic often appeals to the developer, even if the public water supply is available, or if a community supply can be developed at less cost per lot than the individual supply, since there is no investment in a water supply until the lot is sold and the investment is then made by the builder of the house. Arguments for a common water supply for the area are defeated by counter arguments that there will be no one who can be held responsible for maintenance and operation once the entire development is complete.

Sewage is nothing more than used water. Hence, the provision of a water supply automatically creates a sewage disposal problem. As in the case of the water supply, the provision of individual sewage disposal systems is the most popular, since the cost of this method of disposal is carried by the individual home owner. It is only fair to developers, however, to point out that requests for a connection to a municipal sewer system are sometimes denied by city officials on the grounds that the city can have nothing to do with the fellow who has gone across the corporate line to escape taxes.

**Objections to Private Sewage Disposal**

The private sewage disposal system almost invariably consists of a septic tank which discharges into an open ditch, a drain tile, a cesspool, or an absorption system. The installation of a private sewage-treatment works creates numerous problems.

First, the owner may be establishing a means of contaminating his own water supply with his own sewage. The State Board of Health has attempted to obviate this by requiring at least 50 feet between a water well and any sewer, septic tank, etc., on FHA approved houses. Fifty feet is generally agreed to be the minimum safe distance between a source of contamination and a small water supply, although in one group of experiments fecal contamination has been recovered in ground water 230 feet from its source.

Second, the owner's sewage may contaminate his neighbor's water supply.
Third, the septic-tank effluent may find its way to the ground surface, causing a neighborhood nuisance and a health hazard. The fact that an underground absorption system is a part of the disposal system does not mean that no trouble will be experienced. The writers have personal knowledge of one community that is now experiencing considerable discomfort and trouble because the older absorption systems no longer function and sewage has broken out on the ground surface in numerous places.

Fourth, in areas where the ground-water table is high, no type of private disposal system will function satisfactorily.

Before the FHA program, little attention was given to the development of water supply and sewerage facilities in suburban properties. Consequently, many private wells are located literally on top of sewers, and septic tanks discharge to the most convenient ditch or drain. The work done in conjunction with the FHA has brought about some improvement, although the writers are not holding this out as an example of ideal suburban sanitation.

In general, our larger cities are now surrounded by two annular rings. The first, or inner, ring includes suburban development before the FHA program, and in this area conditions are likely to be undesirable, since the development is older and since it occurred without any control. Naturally, some satisfactory development will be found in this area. The second, or outer, ring will generally be more satisfactory because it is new and because efforts have been made to protect at least some of the water supplies and to keep the sewage beneath the ground surface.

The obvious answer to these problems is the installation of a common water supply and a sewerage system. Since this paper deals with sewerage facilities, subsequent remarks will be devoted to this phase of the problem, although from the writers' standpoint the provision of a safe water supply is of equal importance.

For most practical purposes a built-up area adjacent to a city is just as much a part of that city as an area inside the corporate limits. Odors and disease are not respecters of corporate lines. In most instances it becomes logical that the sewer systems for adjacent or nearby subdivisions, or other nearby corporations for that matter, become a part of the master sewer system of the parent municipality. The parent municipality must develop an interest in the sewerage problems of the adjoining subdivision, or portions of the parent municipality will suffer as well as the subdivision. The time has past when officials of our larger cities can say, "They went out there to escape city taxes; now let them handle their own problems." Handling their own problems is bound to affect the larger municipality if sewage from the area under consideration must flow through the municipality in order to reach an outlet.
Possible Solutions

One solution to the problem is annexation of all outlying areas to the parent city, thereby enabling improvements to be financed and handled as regular city improvements. However, one has merely to consider the fundamental reasons behind development of the subdivision or outlying municipality to appreciate the practical difficulties that face any move for wholesale annexation. Some of you who have been involved in annexation proceedings for small areas adjacent to some of your municipalities will doubtless agree with the authors' conclusions that the proponent of annexation of all the suburban property that should be annexed is the kind of person who would buy the moon.

Many of the larger cities of the country have recognized the suburban sewerage problem and are permitting the use of their sewers and sewage-treatment works by outlying subdivisions and municipalities. This policy was probably not adopted until possibilities of annexation had been explored and exhausted. Examples are Milwaukee, Cleveland, Detroit, Buffalo, Columbus, and St. Louis. The procedure under which these cities operate varies. Some have metropolitan sewerage districts that have been authorized by special legislation. Most of them operate on a purely contractual basis. Contracts ordinarily take into account the parent city's original investment in intercepting sewers and treatment works, as well as the cost of maintenance and operation of the system. In some instances, the outsider pays the same rate as the resident of the parent city. In other instances, he pays slightly more. In most, payments are on a volumetric basis rather than on a footage or assessed valuation.

Existing Indiana laws will permit a solution to the majority of the problems in Indiana, provided there is disposition on the part of all parties concerned to attack the problem. It is doubtful that all problems can be solved without some additional legislation, and some additional legislation is certainly desirable. This will be discussed later.

Possibly all Indiana cities, with the exception of first- and second-class cities operating treatment works under the Department of Sanitation Law of 1917, can contract with outside municipalities, industries, or persons for the handling and disposal of sewage. Legal opinion varies concerning the right of first- and second-class cities with departments of sanitation to do this.

The most practicable time to consider this outside sewage problem is when the intercepting sewers and sewage-treatment works of the parent municipality are under design and construction. Most of the newer sewage-treatment plants are financed by revenue bonds which are amortized by a monthly service charge levied on all users. In these cases it becomes a simple matter to establish an equitable rate for the outside
user at the time the whole rate scheduled is being considered. Cases arising after the treatment works are in operation can be handled by using established rates as a basis for negotiations. If the parent city has no sewage-treatment works or if the treatment plant has been financed by taxation bonds, it is still possible to enter into a contract with an outside agency for the handling and disposition of sewage and waste. It is the opinion of the writers that the most practicable means of doing this is through the establishment of an equitable rate based on volume. Naturally, this rate must take into consideration the investment of the parent city or at least the outstanding portion of the investment in the works to be used by the outside agency. The fee may be paid monthly, semi-annually, or at any other time satisfactory to the contracting parties. It can be raised by the outside agency in any manner satisfactory to it.

It is unfortunate that the entire suburban sewerage problem is not as easily solved as the discussion above might indicate. Possible legal complications in certain first- and second-class cities have already been mentioned. The reasoning of the paragraphs above has also been predicated upon the outside agency's bringing its sewage to a trunk sewer of the parent municipality large enough to handle the additional sewage.

Many of the suburban areas causing the most trouble do not have sewers, and under existing conditions it is impossible for them to raise money to construct sewers. The State of Ohio has had, for years, a law that enables county commissioners to issue special assessment bonds for the construction of sewer systems in unincorporated areas. The law established a procedure quite similar to Indiana drainage procedure. It has worked successfully in Ohio; and since it furnishes one additional tool for the construction of sewer systems, the authors favor enactment of a similar law here.

There are cases in Indiana municipalities where it is impossible to take additional sewage into a sewer system without elaborate and expensive revamping of a large portion of that sewer system. Perhaps someone should be accused of short-sighted planning in the case of these bottlenecks; but we have them and we might as well recognize them. In other cases in our large municipal sewer systems, engineers who had their early experience with combined sewers (all our large cities have combined systems) may cry "wolf, wolf" as soon as there is a suggestion that some outside sewage be brought into the existing system. The day of the combined system is past, or should be past, on all sewerage development for new areas. The strictly sanitary sewage flow from a community of 500 to 1,000 people is small and even at peak loads won't be found in some sewers which on first thought you would say could not handle the additional flow. Requests for connections to existing trunk sewers should be studied carefully before conclusions are reached.
NEED FOR COMPREHENSIVE ENGINEERING STUDY

It is the feeling of the authors that the time has come for a comprehensive and thorough study of the sewer systems of some of our larger municipalities. It seems particularly timely that the job be considered now, when public-works construction is more or less at a standstill but when we are involved in the planning of a public-works reserve. The study should be made by men experienced in the type of work, and it should include the parent municipality and its environs. From it should evolve a master sewerage plan that can be used with minor revisions for fifty years to come.

Any comprehensive engineering study of the sewerage problems of any of our larger municipalities and environs will show the desirability and the necessity for a metropolitan sewerage district. Indiana needs a law that will enable the creation of such districts throughout the state. Such a law should be broad enough to cover any existing situation.

As the writers understand the zoning and planning authority of cities under existing law, the city has certain jurisdiction over land use and development within five miles of existing corporate limits. However, existing authority is not sufficient to permit a city planning commission to say to the developer of a subdivision, “You must build a sewer system” or “You must build a water system in this area.” If the type of problems discussed in this paper are ever completely and satisfactorily solved, such authority must be vested in some agency. Presumably, a joint city-county agency represents the most democratic approach.

SUMMARY

The suburban sewerage problem in Indiana can be satisfactorily solved by the following:

1. Realization on the part of municipal officials that the problem is one of joint concern and that a certain element of give-and-take must enter its solution. The same attitude must prevail on the part of the outside agency, whether this be another municipal corporation, a realtor, or an individual home owner.
2. Enactment and use of a metropolitan sewerage district law.
3. Replanning now of some of our larger sewer systems.
4. Enactment, and subsequent enforcement, of more drastic zoning and planning regulations.
5. Enactment of a law to permit the financing of sewer systems in unincorporated areas.