

## REPORT

*by the Committee on Fringe Area Sanitation Problems  
of the American Public Health Association,  
October 19–23, 1959, Atlantic City, N.J.*

# Fringe Area Sanitation

Reflecting the changing emphasis in environmental health, the American Public Health Association in 1958 organized the Committee on Fringe Area Sanitation Problems to replace its Rural Sanitation Committee. In the first year, the new committee drew up plans for future activities. The preamble to its report (see page 310) set forth an outline of preventive action and responsibility which still forms the basis for the committee's assignments.

As indicated in the preamble, the health department plays a dual role, stimulating activities for which it does not have technical expertise or primary responsibility and taking the lead in those for which it does. For example, it should encourage adoption of a comprehensive plan, a regional water and sewerage plan, and a building code. It should actually formulate, have adopted, and enforce a subdivision control law, a minimum standards housing ordinance, a sanitary code, air and stream pollution abatement laws, and radiation protection legislation, as well as rules and regulations for the more conventional environmental health activities.

The 1959 committee proceeded to explore and define the basic underlying fringe area sanitation problems: governmental jurisdiction, legislation, subdivision standards, planning and

zoning, financing, and population. The results of this exploration, prepared by the committee, are presented here. The committee was not asked for solutions and it has suggested none, but it hopes this report may serve as a basis for solutions.

### *Financing*

Financing community sanitation facilities for fringe areas, within the framework of sound planning and economic and engineering feasibility, is said to be difficult in some situations because:

1. An adequate tax base for the financing of community facilities for fringe areas often does not exist until after a sufficient number of dwellings are constructed and occupied. Scattered groups of houses cost more to serve than the tax (or revenue) they produce for such services.
2. A developer frequently does not have sufficient funds to finance sanitation facilities in spite of anticipated revenue, or would rather spend money on improvements that can be seen.
3. Lending institutions refuse to lend money for subdivision water and sewerage systems as there is little or no resale value in these utilities, particularly if the developer or builder fails to complete his project.
4. Many developers are reluctant to assume the full financial risk involved in providing water and sewer lines for a new subdivision as they are not sure that they will be able to sell a sufficient number of dwellings or lots to pay for the utilities and realize a profit.
5. Some developers will sell only lots to avoid risks of capital outlay. Any sanitation problems resulting are shouldered by the individual deciding to build a home and eventually by the community.

---

*Joseph A. Salvato, M.C.E., director of the division of environmental hygiene, Rensselaer County Department of Health, Troy, N.Y., was chairman of the 1959 committee. Other members were Irving Grossman, M.S.E., Herbert H. Hasson, Emanuel H. Pearl, M.S., Joseph W. Price, M.P.H., Ivan F. Shull, B.S.C.E., M.P.H., and Floyd B. Taylor, M.P.H. David B. Lee, M.S., and James R. Simpson, M.S., were committee advisers.*

6. The actual cost of sanitary facilities, such as sewerage and treatment works, may be deliberately obscured by the developer for competitive and other reasons.

7. The local municipality usually does not extend water and sewer lines to serve proposed new subdivisions beyond corporate limits. Such extension would be considered an improper use of public funds for land speculation, as the community (taxpayer) stands to pay higher taxes if the project fails but cannot possibly benefit if the project is successful.

8. There is sometimes a lack of understanding or reasonable consistency as to what part of the cost the developer pays, for providing sanitation facilities to improve raw land in excess of his normal needs, and what part can be properly charged to the whole community. Regulations for prorating the cost against the surrounding areas to be benefited may not be available.

9. The fringe areas may not be within the service area of an existing governmental unit, district, or authority which has an adequate

---

### Preventive Action and Responsibility

The fringe areas of today are the communities of tomorrow. To reduce the anticipated environmental problems of the future, health department sanitary engineers must look beyond water and sewerage. To obtain and maintain a healthful living environment, and incidentally, solve very important water and sewerage fringe area problems, we must cooperate with and enlist the aid of other agencies and people who have perhaps an equal interest in our objective.

The prevention and solution of environmental problems is hampered by the multiplicity of local governments and the strong desire for local autonomy. But community growth causes reactions which extend beyond fixed boundaries and are therefore beyond the control of individual municipalities. The basic elements, to promote a more healthful living environment, which affect fringe area sanitation, as well as other phases of environmental sanitation, include:

a. A regional or county planning board, with health department representation, and a comprehensive plan. The responsibility of the planning board should include regional or drainage area planning for sewerage, water supply, and subdivision control, as well as drainage, transportation facilities, land use, etc.

b. Full-time local health services, including an adequate professional sanitary engineering and sanitarian staff and a comprehensive modern sanitary code.

c. Adequate legislation to permit formation, financing, and construction of regional water and sewerage services.

d. A State and county or regional subdivision control law designed to protect the public health, prevent installation of substandard water and sewerage facilities, and enforced by an adequate, qualified staff.

e. A sound building code, plumbing code, and zoning ordinance with competent direction and strict control over variances. County or regional administration is advised where practicable.

f. Delineation of areas suitable for development with public sewers and water supply, and with individual drilled wells and/or septic tank systems.

g. An urban and suburban renewal program including planning, clearance, housing rehabilitation and conservation, and redevelopment of the "infected" urban and fringe areas based on the comprehensive plan.

h. A minimum standards housing ordinance directed to the external living environment as well as dwelling occupancy, supplied facilities, and maintenance, adapted from the APHA Proposed Housing Ordinance.

In order to secure these basic elements for a healthful living environment, it is necessary to utilize fully the combinations indicated by local conditions, and the talents and resources available in a properly staffed health department. It is the duty of all health department personnel to encourage and stimulate action in each area of activity and need.

—Preamble to the report by the 1958 Committee on Fringe Area Sanitation Problems of the American Public Health Association.

existing or potential tax base to support the extension of water and sewer lines.

10. Where fringe areas are within a service area with an adequate tax base, bonding or tax limitations may hinder or prevent financing of sanitation facilities, unless the developer pays the major cost.

11. The construction of new schools to serve the increasing population and the construction of new central schools to replace existing inadequate small schools have captured a large share of the tax dollar, thereby making more difficult the financing of other essential community services.

12. The common practice of placing revenue from a public water supply into the "general fund" makes it difficult for a water department to plan for and make extensions or improvements.

13. Water rates in some communities are unrealistically low, thereby discouraging extensions under present-day costs.

#### *Government*

Recognition of the existing governmental relationships on a Federal, State, and local level, and the administration provided, can help explain the existing and emerging fringe area sanitation problems.

1. Most local governments have not adjusted their administrative machinery to cope with the new and changing needs of their people.

2. Many State and local governments have failed to provide the leadership and enabling legislation to make it possible for local governments to alter their structure to cope more adequately with the new and changing needs of their people.

3. Sectional jealousies discourage cooperation and the often less expensive regional or cooperative solutions to sanitation problems.

4. Fringe area sanitation problems are part of a larger total complex problem, the solution of which is dependent on informed political action.

5. There is no one form of government which can be applied as a panacea in solving all sanitation problems.

6. Although the sanitary engineer in public health is not usually in a position to shape political circumstances, he should be thoroughly

acquainted with the governmental phases affecting his work at whatever level he operates in order to know how to work through existing governmental arrangements.

7. Failure to provide (a) full-time, adequately staffed local health services, including competent sanitary engineering direction of the environmental sanitation services, and (b) a modern sanitary code aids and abets the development of fringe area sanitation problems. This makes prevention, cure, and control more difficult and distant.

8. Resources and leadership from the Federal, State, and local governments, where available, should be fully utilized to accomplish cooperatively mutual objectives.

9. Continuing governmental study of fringe area, urban, and metropolitan problems and periodic suggestions for new and revised legislation are needed. Expert governmental consulting advice should be available to municipalities needing help to prevent and solve municipal problems caused by population growth, and these services should be used by more municipalities.

10. Although the geographic dividing line between corporate limits of a city and a suburb is clear on a map, it is often indistinguishable to the casual observer passing through.

#### *Legislation*

There is usually a lag between recognition of the existence, or emergence, of problems and the adoption of legislation to control and prevent problems. Some reasons for and consequences of this phenomenon are given below.

1. Political expediency can hamper adoption or enforcement of control legislation to solve and prevent fringe area sanitation and other metropolitan problems.

2. Public apathy supports political expediency.

3. Political courage and political leadership are scarce commodities. The courageous political leader is more often a dead statistic; less frequently, a surviving hero.

4. Inadequacy or lack of subdivision regulations, zoning regulations, building codes, and plumbing codes compounds the fringe area sanitation problems.

5. The sanitary engineer in public health

may often be influential in obtaining passage of legislation, and he should be familiar with all auxiliary legislation affecting his field, such as subdivision regulations, zoning acts, and building codes.

6. Prohibiting operation of sewerage systems and sewage treatment works by corporations in some States has hampered solution of the sewage disposal problem.

7. In some States legislation is needed to consolidate and establish multipurpose metropolitan districts, federation of local units, and county districts.

### *Subdivision Regulation*

In some cases the lack of effective subdivision regulations has resulted in poorly laid out subdivisions with overflowing septic tank leaching systems and polluted private wells and inadequately planned and operated community facilities, such as water and sewerage systems, which contribute to premature neighborhood deterioration.

1. Many communities have failed to control subdivisions through planning, zoning, health, and building regulations.

2. Many health departments have failed in a traditional area of responsibility by default.

3. Dwellings have been built in subdivisions where the soil is unsuitable for sewage disposal.

4. Large developments have been built with individual wells and sewage disposal systems in place of community sewerage and water systems because of the lack of predevelopment surveys and investigations and sanitary engineering interpretation of basic data.

5. A model subdivision regulation is needed which recognizes the sanitary engineering factors that can prevent the common sewage disposal and water supply fringe area sanitation and related problems.

6. The design of sewerage systems and treatment plants to serve subdivisions, without regard to future regional or area sewerage system trunkline invert elevations, makes integration of existing small treatment plants and sewerage systems difficult and expensive.

7. Water systems for subdivisions usually do not provide for future expansion, extensions, peak hourly flows, or fire protection.

8. Local health departments could benefit by

the use of scientific information on soils. Federal agencies could help make available better and more usable soil information.

9. Health departments could give more assistance to the developer in showing the economic, engineering, and governmental feasibility of community sewerage.

### *Planning and Zoning*

Lack of comprehensive planning and zoning encourages chaotic community growth, thereby making more difficult and expensive the solution of fringe area water supply, sewerage, and other community problems.

1. Small lots or large lots and poor soil make sewage overflow a foregone conclusion when public sewers are not available.

2. Unsuitable living areas set the stage for rapid property devaluation and substandard housing.

3. Residential construction has taken place with septic tank systems and private wells in places where public water and sewerage should have been required.

4. Permitting smaller lots, and a larger number, with public water supply and sewerage, and large lots (1.0 to 2.5 acres) with private wells and septic tank systems has not been fully exploited to help control the fringe area sanitation problems.

5. Although Federal assistance is available to communities under 25,000 population and to metropolitan areas for comprehensive planning to the extent of 50 percent of the cost, a relatively small number of communities have taken advantage of the outright grant.

6. More communities should take advantage of interest-free loans from the Community Facilities Administration of the Housing and Home Finance Agency for planning specific public works projects including the cost of engineering and architectural surveys, designs, plans, estimates, working drawings, specifications, and other data essential to construction, such as water supply and sewerage, before such facilities become critical. Repayment is not required until construction is undertaken.

7. Too many communities are faced with almost catastrophic expenses for the extension or rehabilitation of community facilities because of failure to make planned capital improve-

ments gradually on a year-to-year basis in accordance with a long-range plan.

8. "Ribbon" development and "spatter" subdivision development, with no regard to the availability of public water supply and sewerage, compound the difficulty of achieving orderly and economic solution to the fringe area sanitation problems.

9. New and improved highways encourage "ribbon" and "spatter" developments. Greater cooperation is needed between highway planners and community planners.

### Population

The population of the United States continues to increase and migrate to the suburbs. The population pressures are not "passing fancies" but continuing dynamic forces to be seriously considered. Some pertinent observations follow.

1. The census estimates in many instances have proved to be conservative.

2. The 1950 census shows that the population of metropolitan areas increased 22 percent between 1940 and 1950, whereas the other areas increased by only 6 percent. However, the population increase in metropolitan areas took place in the urban fringe areas not necessarily within any single existing governmental service area.

3. A census study of civilian population of the United States—March 1950 and April 1956—showed that within the standard metropolitan areas the outlying parts grew about six times as rapidly as the central cities, or 29.3 percent as against 4.7 percent (1956 population, 164,308,000). More than half the increase in the population of metropolitan areas (55.8 percent) occurred in territory classified as rural in the 1950 census. Undoubtedly much of this increase was in newly developed suburban areas which will be classified as urban in the 1960 census. The rural population increased from approximately 54 million in 1950 to 61 million in 1956.

4. The large population growth in many areas has caught municipalities unprepared to provide essential services.

5. Population has increased in many areas formerly rural without corresponding adjust-

ment in local governmental administration to cope with and control the resulting problems.

6. The line of demarcation between the urban suburb in a metropolitan area and the rural area is fluid.

7. Many areas classified as rural in the 1950 census are already eligible for inclusion in a metropolitan area.

8. The highest percentage population increase is still taking place in the rural-suburban belt.

9. "The rural-nonfarm population includes all persons living outside urban areas who do not live on farms. In 1940 and earlier, persons living in the suburbs of cities constituted a large proportion of the rural-nonfarm population. The effect of the new urban-rural definition has been to change the classification of a considerable number of such persons to urban. The rural-nonfarm population is, therefore, somewhat more homogeneous than under the old definition. It still comprises, however, persons living in a variety of residences such as isolated nonfarm homes in the open country, villages and hamlets of fewer than 2,500 inhabitants, and some of the fringe areas surrounding the smaller incorporated places." (U.S. census of population: 1950, Vol. II, Characteristics of the population, Part 1, United States summary, p. 35.) This change in definition, although convenient for certain purposes, tends to obscure the magnitude of the fringe area sanitation problem and the number of people affected.

10. The 1950 census shows that 54,229,675 people (36 percent) live in rural areas. Also, 27,218,538 people reside in urban areas of 2,500 or more population located outside the 157 urbanized areas, which have a population of 69,249,148. Therefore, the total number of people outside the 157 urbanized areas in 1950 was 81,448,213, or 54 percent of the total population.

11. The population has been expanding at an increasing rate, as noted by the following figures:

Year	Total U.S. population	Average annual increase	
		Number	Percent
1930-----	122, 775, 000	----	----
1940-----	131, 669, 000	889, 400	0. 72
1950-----	150, 697, 000	1, 902, 280	1. 44
1958-----	<sup>1</sup> 175, 000, 000	3, 037, 800	2. 01

<sup>1</sup> December estimate.

12. A "wave" of new families, that is, marriages from the "baby boom" of the middle 1940's, can be expected beginning in the middle 1960's, with resultant increased demands for housing and community services. Each succeeding generation "wave" promises to grow even larger.

13. The migrating population—from one region to another, from farm to city, from city to suburb—compounds the problems in certain areas.

#### *Other*

The desire for a "home in the country," the changing pattern of work and living, increased leisure, larger families, higher taxes, demand for more governmental services, and many other factors have led to interesting situations. Some of these are:

1. Rural areas become part of a "standard metropolitan area" before the public realizes what has happened.

2. When people begin to demand the services normally considered "city services," it finally and reluctantly dawns upon them that they are part of a metropolitan area. It may then take a generation for these same people to accept the responsibilities that accompany urbanization.

3. Until the citizens actually understand what is happening, and the need for a regional or metropolitan administrative organization, and are willing to give up some of their privileges, little will be accomplished economically to solve existing problems and eliminate future problems. In other words, the welfare of the community must in some instances supersede that of the individual to assure his security.

4. The people, the elected officials, and all public health workers must be educated to recognize the fringe area sanitation problem and to stimulate corrective community action.

5. Some public health associations, as well as individuals, have been unwitting accomplices

to the fringe area sanitation problem by failing to strongly recommend sanitary engineering direction of environmental health programs. The number of sanitary engineers, sanitarians, and sanitary inspectors or technicians depends not only on population but also on population changes, comprehensiveness of the environmental health program in effect, and specific health needs of the people.

6. Studies show that only a small percentage of city and county health departments have sanitary engineers. In addition, 73, or 40 percent, of the 185 standard metropolitan statistical areas have incomplete local health department coverage, principally in the fringes. Also, 40 percent of the 207 counties containing cities of 25,000 to 50,000, which are potential standard metropolitan statistical areas, have no local health departments.

7. A large percentage of new homeowners were first-time homeowners who were not aware of problems encountered in fringe areas.

8. The public demand for individual homes is so compelling that it may temporarily continue to overshadow the potential sanitation problems.

#### *Recommendation*

There is a serious and pressing need for a general guide for the prevention and solution of fringe area sanitation problems. Such a guide, to be of value, must have the endorsement of the American Public Health Association and the active support of the Public Health Service, Housing and Home Finance Agency, Association of State and Territorial Health Officers, Conference of State Sanitary Engineers, and the Conference of Municipal Public Health Engineers. It is believed that this report incorporates the framework for "a guide for the prevention and solution of fringe area sanitation problems."