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An Approach to the Decentralization of Health Care Services in Multnomah County, Oregon

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AN APPROACH TO THE DECENTRALIZATION

OF HEALTH CARE SERVICES

IN MULTNOMAH COUNTY, OREGON

by.

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and

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A report submitted in partial fulfillment of the
requirements for the degree of

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ERRATUM

All pages are intact, but following Page 57 the pagination is in error, due to omission of the number 58 in the series.

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INTRODUCTION

In the past several years, the subject of health care delivery has assumed increasing importance as a public issue. Congressional hearings, public and private commissions, and task forces have investigated the functioning of the health care system in depth, reporting that access to the system is impeded by financial barriers and by inefficiency of the delivery system. (8, p.1)¹ Medicare and Medicaid have attempted to surmount the financial barriers for some segments of the population, and more inclusive health insurance proposals are being considered in Congress. The Healthright program, under the Economic Opportunity Act, has stimulated efforts to improve the delivery system as it relates to low income persons, and some of the health insurance proposals also have the goal of improving the delivery system.

The Task Force on Organization of Community Health Services, in Health Administration and Organization in the Decade Ahead (25, p.13), briefly presents four interrelated concepts which form a framework for looking at health as a

¹ Numbers in parentheses refer to bibliography at the end of Part I.

contemporary policy issue:

1. Health is a resource for the social and economic development of the nation as a whole.

2. The health and social needs of the individual in modern society are ultimately inseparable; thus, the presence of indistinguishable poverty as an adverse influence on health progress and improvement, and equally, the condition of ill health will tend to interfere with the individual's ability to function and be productive.

3. The concept of "public health" in today's world has begun to expand markedly, moving in the direction of convergence with private medicine and voluntary efforts, these spheres being included in the broader term, "community health."

4. There exists an inescapable interdependence--community, state, and national--in the administration and organization of community health services.

Obviously, the health care system is one which has many aspects. Although these aspects--financing, manpower, service delivery--are interrelated, we intend in this report to deal specifically with one facet. This is the decentralization of health care facilities to provide comprehensive health care services at the local level.

The report is presented in two parts. The first part will examine the literature relating to the development of the comprehensive neighborhood health care center as a means for the delivery of medical care services. An attempt will be made to determine from the health literature criteria for the evaluation of medical care systems, and further review of the literature will attempt to

determine how these criteria can best be met in a decentralized medical care delivery system.

The second part of the report will examine the health needs of Multnomah County, Oregon, with the goal of providing information about these needs for use in health service planning, particularly in relation to the decentralization of health care services.

PART I

Evaluating the Health Care System

Burns (8, pp.1-2) has indicated a number of the weaknesses of the present health care system in this nation. She cites rising costs, inadequate, poorly distributed and inefficiently utilized manpower, and fragmented service delivery as major problems, and states that "The system is wasteful of resources and functions with too little regard for efficiency and economy." She points out, however, that there are four points regarding reform upon which there is widespread agreement. First, she states, "access to needed health services must not be impeded by financial barriers." Her second point is that ". . . the delivery system must be one in which comprehensive and continuous health services are everywhere available under conditions that are physically convenient, comfortable, and not destructive to the dignity or self-respect of the recipient." Third, it is essential that the health care system give "due regard to economy in the use of scarce resources," providing services with efficiency. Finally, "the system must be accountable to those who finance it, and to those who use it, and in particular, must be highly responsive to the interests of consumers."

Greenlick (18, p.756) also proposes a set of principles which can be used to evaluate the medical care system. He states, first, that ". . . all those who need medical care should have equal access to it," second,

". . . the services provided should be precisely appropriate to the patients' needs," and third, ". . . the medical care system should provide the most efficient and economical use of scarce medical resources."

For the purposes of this report, certain of these criteria will be stressed more than others. The remainder of Part I will review the literature relating to the issues of comprehensiveness of services, accessibility of services, and efficiency of services in the delivery of decentralized medical care.

The Concept of Comprehensive Health Care

As medical technology has advanced, a process of evolution has occurred in the medical and health fields. As Johnson (21, pp.361-363) states, ". . . the goal of health care in our society has evolved from relief of symptoms, to cure of disease, to existence in a potentially diseaseless state." Citing the limitations in health care resources and present technology, he continues to state that "The resulting challenge facing the American health service system is to provide each individual with the greatest possible opportunity to achieve an optimum level of physical, mental, and social well being."

He uses the term "comprehensive health care" to refer to the type of health care system which attempts to answer this challenge and fulfill the three principles of

accessibility, provision of appropriate services, and efficient use of resources. He states that a system of comprehensive health care, in order to employ the stated principles in meeting its goals, must have certain attributes:

1. Care should be readily available. Racial, organizational, economic, and psychological barriers must be removed.
2. Care should be accessible. The impediments of distance, residence, and time must be removed.
3. Care should be continuous over the life span if diseases, especially chronic, are to be controlled before they become disabling or life threatening.
4. Care should be complete, including prevention, cure, maintenance, and rehabilitation.
5. Care should be tailored to the unique physiological and psychological characteristics of the patient.
6. Care should be acceptable and therefore should be built around his social institutions which relate to the patient's way of life such as the home, school, and place of work.
7. Care should be organized and therefore should be provided in settings where responsibility for the patient has been determined, authority has been delegated, and a communication system provided.
8. Care should be coordinated, including the integration of facilities and personnel necessary for modern medical care.
9. Care should be of high quality. There should be an adequate audit of care, peer review, continuing evaluation, and research into adequacy and quality.

Ultimately, as indicated by the National Commis-

sion on Community Health Services (26, pp.16-20), the development of a system of comprehensive health care is a community wide responsibility, involving the integration of all the health care facilities and programs in the community. For the community's health care system, the paramount goals are:

1. Provision of a comprehensive range of community health services.
2. Maintenance of an adequate quantity of all required health care facilities.
3. Integration of individual units and systems of health services into a coordinated pattern of continuous care for the individual.

However, as Yarby (37, pp.71-72) indicates, the medical and health care system as it has functioned has not facilitated the delivery of comprehensive health care. Individual health care facilities themselves have not generally functioned to achieve this goal. Public health departments, in providing preventive services and such treatment activities as are involved in venereal disease or tuberculosis control, have in general avoided invading the curative domain of private medicine. This has even been the case in areas where medical care is not readily available except through hospital outpatient departments. As he suggests, most health departments have failed to provide an adequate entry point for the patient into the diagnostic and curative segments of the health care system. This may be particularly true for the poor patient, who may

be medically unsophisticated. Therefore, the past decade has seen a movement to evolve new forms of health care, and new types of health care institutions, providing comprehensive ongoing care rather than fragmented care.

The Comprehensive Neighborhood Health Center

There seems to be little dispute in the health literature that comprehensive health care, as described above, requires both an integration of previously uncoordinated health care services, bringing together into one agency what Johnson (21, p.362) referred to as ". . . the concepts of comprehensive medicine and positive health," and a geographic decentralization of service delivery. The National Commission on Community Health Services' report, Health Care Facilities, (26, p.37) suggests providing comprehensive health care services by centralizing a variety of public and private health care facilities into "health campuses." However, as Kahn (22, pp.274) states, speaking of social services in general, ". . . if the goal is to develop a service-delivery approach that improves access, facilitates feedback so as to adapt to user preference and priority, and maximizes case integration and accountability, the base of the total social service system should be in the neighborhood." Decentralization not only makes services more accessible, but allows the services to be tailored to the needs of the

area. De Diaz (14, p.3) indicates the importance of being aware of groups in the neighborhood with special health problems, such as elderly people or large families with young children. This means that it is important in planning to be aware of the demographic features of the patient population. This will be considered more thoroughly in Part II of this report.

Kahn (22, p.275) continues, however, to indicate that more than the improvement of service usage is involved in decentralization, and that decentralization of service delivery also represents part of "a general search to 'break down' cities to human scale for some purposes, on the assumption that people find it easier to relate to a neighborhood or section and to its population. . . . Thus, the organization of services at the neighborhood level has the added purpose of contributing to the search for neighborhood." He adds that this process is more relevant if there is a measure of local control over, as well as local availability of services.

Kahn indicates that decentralization is not a viable goal in some circumstances. These include situations in which the need for a particular service is too

little to justify its provision in a local unit, where skills or resources are too rare to be provided locally, or where the costs of decentralization vastly outweigh the benefits. He visualizes the ultimate emergence of a hierarchical pattern of service delivery in which certain services and responsibilities are integrated into the community at the local level. Other more specialized services relate to larger units of the community, such as combinations of neighborhoods. Very specialized services are to be delivered at city, county, state, or regional levels. This level would also be the seat of program coordination, standard protection, and evaluation, all of which call for considerable centralization for overall program administration (22, p.275). Although Kahn's model was not developed specifically for health care services, it is quite relevant and applicable to health care service delivery systems.

O'Donnell (27, p.3), reviewing the literature on service delivery and social action through neighborhood service centers, presents a list of characteristics generally desirable in neighborhood service delivery centers. First, he states that the center should be accessible. It should be in a physically convenient location, and should be open evenings and weekends as well as providing at least emergency telephone coverage

24 hours a day.

The center should also be immediate in its functioning. That is, the center must have the capacity to provide prompt efficient service, and should be able to respond to problems without long hours of waiting and many rounds of appointments.

The center's services should be comprehensive. "The center should offer a full range of usable, on-the-spot services or easy access to other resources by available transportation. It should gear itself to the needs that people have--especially poor people--and provide for the simultaneous handling of problems where possible." Services should also be integrated and coordinated, so that services can more effectively be provided.

The operation of the service center should, finally, be responsive to the needs and desires of the neighborhood. "It should provide ways in which residents can shape the program and continue to contribute to its course and development. It should be relevant and ready to respond to changing needs."

The concept of the comprehensive neighborhood health center developed by OEO (31, p.324) has been described by several writers. Yarby (37, p.73) describes it as an outpatient facility which has "certain definite characteristics:

1. Accessible to a population concentration

2. Open 24 hours a day, seven days a week
3. Family-centered care by a team of internists, pediatricians, clinical and public health nurses, and social workers
4. Availability of frequently-required specialist in such fields as psychiatry, obstetrics, gynecology, surgery
5. Continuity of doctor-patient relationship
6. Family records with social and medical summaries of relevant information about each family member
7. Basic diagnostic laboratory and x-ray facilities and drugs and biologicals available at the center
8. Direct line (by center-controlled ambulance when necessary) to a teaching hospital for diagnostic and therapeutic services requiring the facilities and personnel of the hospital
9. Patient-centered and community-oriented."

The range of services in the comprehensive neighborhood health center should be as complete as possible, including preventive, diagnostic, treatment, and rehabilitative services, and should be designed to eliminate episodic and fragmented services (31, pp.324-325). Schorr and English (33, p.291) add as additional characteristics of the comprehensive neighborhood health center that it should have "intensive participation by and involvement of the population to be served, both in policy making and as employees," and that it should be fully integrated with the existing health care system. The Office of Economic Opportunity (28, p.63) stresses the potential for easing health manpower shortages by training local neighborhood residents as non-professional health aides, at the same time creating new job and career opportunities. As

Gordon (16, p.422) indicates, "Many of the outstanding problems in medical practice today revolve around effectively motivating the patient and the prospective patient to be concerned with his health. This is especially true in a deprived environment. The community health center, with its technique of consumer participation may be a way to create this cooperation effectively."

It is important to note at this point that the comprehensive neighborhood health center has as its constituency an integrated community, rather than a particular segment. It should have, as Blum and Levy (6, pp.4-5) indicate, a horizontal rather than a vertical relationship with the community. The vertical relationship, they state, is characteristic of those service organizations which approach the community only in terms of their own function. They see only their relationship with the users of their service, and assume that problems of accountability will be handled by these consumers. However, they point out, "this is not likely as a vertical approach creates dependency on the institution." Agencies in a horizontal relationship "recognize that they have both a community and a consumer to serve. The horizontal approach places the matter of accountability on a broader basis than just the involvement of the consumer." De Diaz (14, p.4) speaks of the need to "develop a 'community facility' which differs from a clinic for low income

people in that it should serve an economically integrated community. The reason for this is that a wide variation of consumers may assure a better quality of care."

The advantages of the comprehensive neighborhood health center over traditional systems of providing community health services are numerous. Hospital outpatient departments, a major traditional source of ambulatory health care for poor patients, have "been indicted for neglecting preventive health care, promoting fragmented care, and subjecting patients to degrading and impersonal conditions, to mention only a few of the major defects." (31, p.324) Another defect has been the tendency to shunt low income patients back and forth between different clinics, often at different locations and with different open hours, for different treatments or tests in regard to the same illness.(26, p.63)

The comprehensive neighborhood health programs that have been organized present a great variety of organizational patterns. One area of difference is in the emphasis placed upon making each facility comprehensive in the services it provides to the patient population. In the Montefiori Hospital Neighborhood Medical Care Demonstration program in New York City, services have been made available through a central health center and two store front satellites, "the center to be the base

of operations of family physicians and the satellite centers the bases of operations of public health nurses and neighborhood aides. The satellite centers were to provide preventive health services--immunizations, well-baby care, periodic injections--and the central health center was to provide care for 'illness'." (36, p.299)

This program was not yet fully functioning at the time it was discussed in the literature, and all services were being provided in one center. However, it would seem that the eventual program as envisioned by its planners would embody some of the defects of the current medical care system. It seems possible that coordinated administration and well developed referral procedures could insure the connection of patients with appropriate preventive and therapeutic services available in different locations. However, the barriers of time and distance between centers and frustration for the unsophisticated patient looking for the right place to go for a particular health service would appear to limit the ability of this design to provide truly comprehensive neighborhood health services. In fact, it appears to conflict with the program's own stated goal of providing a family medical care program in which preventive and therapeutic health services can be provided to all members of a family in the course of a single visit. (36, pp.301-302)

The Denver, Colorado, program, like the Montefiori

program, utilizes a hierarchy of small satellite stations and larger, more centralized facilities. It differs, however, in the comprehensiveness of the services available in the decentralized facilities. It resembles very closely the model for decentralized social service delivery developed by Kahn, which was discussed above. The small neighborhood centers, within walking distance of most of the population, have been designed to "take care of all the normal health problems of 3,000-5,000 patients--check-ups, immunizations, simple laboratory tests, and treatment and medications (dispensed by physicians) for most non-critical illness. Patients who need more specialized care are referred to backup facilities. Backup support for the stations are the two larger neighborhood health centers offering a complete range of out-patient services and three participating hospitals . . . which provide inpatient treatment and consultative services." (13, p.1028) In this program, a comprehensive range of preventive and treatment services is available throughout the decentralized system.

The Comprehensive Neighborhood Health Services Project of Kaiser Foundation Hospitals in Portland, Oregon, is similar to the Denver program in that a comprehensive range of out-patient services is provided in each of its locations, although the centers are larger and less numerous than in the Denver program. (12, p.6)

In order that a comprehensive neighborhood health care center be able to provide continuity of care, it must have arrangements for hospital services integrated into the system. Yarby (37, p.73), as quoted above, states that it is characteristic of the neighborhood health center to be directly connected with a teaching hospital. However, De Diaz (14, p.3) indicates that it may be advantageous for purposes of service delivery not to have the center affiliated with a teaching hospital. She feels that such an affiliation may lead to a situation in which policies might be determined more by the teaching needs of a medical school than by the service needs of the patient.

The National Commission on Community Health Services (25, p.69) states that such a system of comprehensive health care, integrating the services of several health and medical agencies, should utilize "as much single or unified management as possible." Neighborhood health centers have been operated under a variety of auspices, but several writers have pointed out the advantages in terms of coordinated provision of services management by the hospital of the neighborhood health center. For instance, this facilitates the keeping of unified medical records of all the care a patient has received either at the neighborhood health center or while hospitalized. (12, p.6) Furthermore, as Young (38, p.1741) points out,

direct operation of the neighborhood health center by the hospital can make available to the center expertise in some aspects of operation that might not be as readily available otherwise.

Regardless of whether the hospital and the neighborhood health center have a common administration, they must have arrived at a stringent delineation of mutual roles and responsibilities. All components of the care system must clarify and understand one another's position in the system, and agree on objectives and methods.

(26, pp.16-17, p.37) Some areas of mutual concern are referral procedures, record keeping, and mutual use of facilities. Staffing is another area of common concern. Difficulties have arisen in the past in comprehensive health care programs which were hastily planned in which all of the health center physicians did not have staff privileges at all of the backup hospitals. (29, p.21) Such a situation is unacceptable if inpatient care is to continue to be managed by the patient's health center physician and if continuity of care is to be maintained. Hospital and health center must have joint responsibility for the recruitment of physicians.

Efficient Use of Scarce Resources

Much of what has been said has stressed, at least implicitly, the need for the efficient provision of services.

There appears to be two aspects of efficiency which are discussed by writers on the subject of the comprehensive neighborhood health care center. One of these is the need to organize services to make the most efficient and economical use of scarce medical care resources. The other, closely related in reality, is the need to help the public use services in the most efficient manner.

The comprehensive neighborhood health center concept is inherently efficient in that preventive, curative, and rehabilitative health care programs are coordinated under one roof, with integrated administration. Furthermore, the emphasis on prevention, health education, and early disease detection is efficient from the standpoint of the health care system as well as beneficial to the patient. (18, p.760) However, due to the scarcity of health care personnel, the comprehensive neighborhood health center must be an arena for experimentation with new staffing patterns. The Kaiser program is indicative of the way in which health care systems must begin to operate, in that appropriate ancillary personnel are used wherever possible to perform functions that do not need to be carried out by the physician. As Seward (32, p.42) states:

Throughout our organization, there are many of the customary experiments being made-- use of specially trained nurses for well-baby care under the supervision of the pediatrician, experiments with routine prenatal care by

specially trained nurse personnel . . .
Fundamentally, our functions are such
that nothing is done by the physicians
that does not have to be done by the
physicians. The other skilled person-
nel--nurse, receptionist, the appoint-
ment center, or the clerical personnel--
are there to free him to use his
special skill.

A well known trend in the area of easing health
care manpower shortages has been the trend toward train-
ing poverty area residents as non-professional health
aides and neighborhood health workers. (28, p.63) This
has the effect of increasing manpower, and also can help
bridge the cultural gap between providers and consumers
of services. This in turn, at least theoretically,
creates a situation in which providers and consumers can
be educated to understand one another and interact more
effectively. However, a pitfall has been the tendency in
some cases to use aides as "salesmen" for the center
almost exclusively rather than using them to provide the
health care for which they were trained. (29, pp.38-39)
That is, while the aides' value in communicating with
low income patients has been recognized and stressed,
their role as health care personnel has been slighted in
many instances.

Another step which has been taken to provide services
more efficiently and effectively has been the organization
of personnel into multidisciplinary teams as a means of
providing coordinated service. Such teams generally

include physicians, nurses, social workers and outreach workers. Conceptually, they function to meet the inter-related medical and social needs of the families served. However, there are a number of barriers to the effective functioning of such teams. Some of these are heavy case-loads, the inordinate amount of time consumed by multi-problem families, the limited training and lack of interest on the part of some team members in examining aspects of problems outside their own areas of competence, and communication problems between professionals and non-professionals. (10, pp.8-10) Furthermore, as De Diaz (14, p.6) indicates, there may be a tendency for vertical departmental lines of supervision to become paramount over the team communication system, leading to conflicts in determining the roles of some team members, particularly the non-professionals. In such experiments with new staffing patterns, it is essential that lines of authority, roles and responsibilities be made explicit and that there be mechanisms for regular evaluation of functioning.

Another way in which health care service delivery can be made more efficient is to provide services during the hours when they are most needed. As recommended by Yarby (37, p.73), services can be made more accessible by making them available 24 hours a day, seven days a week. If emergency services are available around-the-clock at the neighborhood health center, the continuity of the patient's

care is maintained and an entry point into the comprehensive health care system may be made available to the patient who normally uses only emergency care in times of medical crisis. More significantly, availability of a full range of services for several hours in the evening and on weekends prevents the loss of earnings involved if the patient must take time off from work during the day for medical care. This can be an especially important consideration for low income, marginally employed patients, and can also promote the ongoing use of health services. However, it is important to keep in mind the experience of the Kaiser program in this regard. As Greenlick (19, p.10) states, "A small but significant proportion of the ambulatory care service provided for total populations are required after clinic hours and this need is apparently more pronounced for a medically indigent population. On the other hand, the bulk of all ambulatory medical care services are performed during regular clinic hours, even when services are available 24 hours a day, seven days a week."

It has been the experience of a number of neighborhood health centers that a major obstacle to efficient provision of services has been the tendency of medically indigent patients to utilize the center on a walk-in basis for episodic, crisis-oriented services rather than

to make appointments for ongoing, preventive, treatment, and rehabilitative care, and also to have a high failure to show rate for the appointments that they do make. At one center, 62.8% of appointments made were kept, while 30.7% of the patients seen were walk-in patients. Although fewer patients were actually seen by the center in this instance than the number who had made appointments, the walk-in patients required an inordinate amount of staff time for screening and referral to appropriate staff for care. (9, p.99) Another implication of the walk-in phenomenon is that services are likely to be provided to walk-in patients by other than their regularly attending physician. (19, p.12) Furthermore, when patients utilize walk-in, crisis centered care as their only form of contact with the medical care system, family centered care, the treatment of family members as a unit, is disrupted.

The walk-in phenomenon appears to be related to differences between social classes in the style of making contact with the medical care system. As Greenlick (19, p.11) indicates, the phenomenon of greater usage of walk-in services by medically indigent patients than by others has often been attributed to a stoical attitude toward illness on the part of poor people, leading to a

greater delay in the seeking of medical care. These patients supposedly seek care only when their illness becomes intolerable, resulting in their appearing without notice to receive care. However, Greenlick's research has cast doubt on the existence of this delay in reporting symptoms of new illness and seeking care. He has found that similar percentages of medically indigent and non-medically indigent patients seek care on the same day that symptoms first appear.

While Greenlick indicates that the reasons for the greater tendency of low income patients to use walk-in services are not known, they may be related to a tendency of lower socio-economic class patients to prefer face-to-face contacts with medical personnel, possibly because such contacts are more comforting and reassuring to patients who are hypothesized to have a dependent attitude toward medical care personnel. (30, p.161)

If, as it has generally been held, the appointment system is the most efficient means of delivering comprehensive, continuing health care (9,p.100), it is necessary that educational efforts be taken to promote the use of appointments and to reduce the failure to appear rate. Educational means which have been utilized have been

interviews with walk-in patients, home visits, and group meetings, in an attempt to interpret to the patients the value of regular appointments and of continuing comprehensive care rather than episodic care. (9, p.100)

This is a function for which non-professional community workers may be better suited than other staff. However, such an educational program must be related to the genuine capacity of the health center to provide comprehensive services to its patient load on an appointment basis. It is possible otherwise for educational efforts to result in a demand for appointments at a rate which is beyond the capacity of the center to meet without unreasonably long waiting periods, continued use of the center on a walk-in basis when it becomes impossible to get an appointment, and increased patient complaints. There will, of course, always be a need and demand for acute episodic care, and the health center must be planned with the capability of meeting this need while continuing to stress and educate the patient to utilize ongoing, comprehensive, family centered care. (9,p.100)

Summary and Conclusions

In order to be adequate, any contemporary health care system must meet certain interrelated criteria. The

minimum criteria are accessibility of services to those who need them, comprehensiveness and appropriateness of services, and efficiency in the utilization of scarce health care personnel and resources. The scarcity of personnel and the need for high quality, ongoing health care services among the population demand the most efficient provision of services.

Services must be made accessible to the population. They must be geographically accessible to remove the physical barriers between people and the medical care system. They must offer their services during the hours when people can make the most use of them. As it makes little sense to concentrate services geographically where they will not be used to their fullest extent, it also is wasteful to provide services only during hours when many people are employed. This not only presents a hardship to the consumer, but wastes resources if, for instance, the unavailability of preventive services during the hours when people can use them causes a need for treatment services later on.

Health care services must be comprehensive, including prevention, treatment, and rehabilitation. Ambulatory health care facilities which are oriented exclusively toward either prevention or treatment are no longer acceptable, for they are inefficient in their use of resources and in their provision of health care to the patient.

If prevention is not stressed, treatment services that could have been avoided will be required. If prevention is the sole focus of the health care facility, sick patients who present themselves must be referred elsewhere for treatment, and such referrals may be taken as rejections or not followed through with until illness becomes unbearable.

The institution that meets these requirements is the comprehensive neighborhood health center. It is a local, decentralized outpatient facility, providing a full range of ambulatory health care services. It has a linkage to a hospital backup facility for inpatient treatment and highly specialized outpatient care.

The neighborhood health center must be a facility planned with an awareness of the needs of the consumer and community. It must have the resources to provide the services people need, where they can use them, and when they can use them. It must utilize the participation of the community to develop this awareness. Not only must the center be set up to be functional for the consumers, but efforts must be made, again with community participation, to help the consumers utilize medical care services effectively. The center must make efforts to educate the community about the value of regular health care, of preventive services, and of the use of planned

medical appointments rather than crisis centered walk-in care. The realities of the existing health care system have not taught the patient, particularly the low income patient, how to use services effectively.

The health center must also be a laboratory for experiments in easing the health care personnel shortage and coordinating care. A major difficulty in experimenting with new roles is freeing staff of old preconceptions.

Comprehensive neighborhood health care centers have been developed under a variety of auspices, including medical societies, hospitals (36, p.299), group practices (29, p.6; 12, p.7), health departments (13, p.1027) and neighborhood associations.(14) The literature indicates some values in the management of the health center by its hospital backup facility. Whatever the auspices, many administrative functions, such as program coordination, standard protection, and evaluation call for considerable centralization of administration, city-wide or county-wide. At the same time, other aspects, hours of service, for example, call for administrative functions made at more local levels. Each neighborhood center must be free to adapt its functioning to its community, through the mechanism of community participation in policy making. Obviously, the prerogatives and responsibilities of each level must be negotiated and made explicit.

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PART II

The purpose of Part II of this paper is to discuss selected specific needs of specific areas within Multnomah County. As pointed out in Part I of this paper "a neighborhood health care center must be a facility planned with an awareness of the needs of the consumer and community." Part II of this paper will show some of those specific needs.

The information for this portion of the report was obtained from throughout the following three publications:

1. Portland Metropolitan Area Population and Housing, Metropolitan Planning Commission, Portland, Oregon, June 1963
2. 1970 Census Population & Housing: Selected items by census tracts/CCD's from the first count computer tape, Columbia Region Association of Governments, June 1971
3. Multnomah County, Oregon, Environmental Survey, Early 1971

The Multnomah County, Oregon, Environmental Survey, Early 1971, is a statistical report of the activities of the entire Multnomah County Health Department during the year of 1970. The specific indices selected from this study are Mental Health, Public Health Nursing visits, Family Planning, Venereal Disease and Tuberculosis. Through the use of charts and maps one can group these specific indices to show the health needs of specific census tracts, and then the health needs of larger neighborhoods and communities.

Regrouping of areas was accomplished in the following

The Multnomah County, Oregon Environmental Survey, early 1971 is a statistical report of the activities of the entire Multnomah County Health Department during the year of 1970. The specific indices selected from this study are mental health, public health nurses' visits, family planning, venereal disease, and tuberculosis. Through the use of charts and maps, one can group these specific indices to show the health needs of specific census tracts, and then the health needs of larger neighborhoods and communities.

Regrouping of areas was accomplished in the following manner. A specific index was selected such as venereal disease or tuberculosis. The total number of cases was then determined for each census tract. Through the use of the number of cases for a given census tract and the population of that tract, a rate of incidence per 100,000 population was determined for each census tract. This was done to standardize the population difference among census tracts. The rate of incidence for each census tract was then listed by rank position on a chart. In rank positioning, any census tracts having equal rates of incidence are assigned the same rank positions. Because of the above fact, the charts will vary in length; nevertheless, each chart will include all census tracts in Multnomah County. After the census tracts have been listed according to rank, this list will be divided into

three levels of incidence. The three levels are:

1. The upper 1/4 of incidence
2. The lower 1/4 of incidence
3. The mid 1/2 of incidence

These three groupings are then used in compiling a map of Multnomah County for each specific topic. The maps are usefull in that they visually combine individual problem census tracts into larger problem neighborhoods.

The 1960 statistical information was used in a similar manner to that explained above in the development of a chart and map showing a comparison of per capita income for each census tract, and combined census tract areas.

The 1970 and 1960 statistical information was combined in a map and chart. The purpose of this map and chart is to demonstrate the age distribution in each census tract and indicate future age population trends.

When one has assessed the needs of an area and has decided to establish a clinic to serve that area, the physical location of that clinic must be considered. In order to comprehensively develop an area clinic, one should consider the present traffic system and transportation systems. The clinic should be located close enough to major arterials to give easy access from the total area being served by this clinic. At the same time, they should be far enough away from these arterials to alleviate traffic concerns and parking congestion. By traffic concerns I

mean one must consider the narrowness of streets, whether streets are one-or two-way, ingress and egress to parking facilities, cross traffic, speed of traffic, children in area, traffic lights, vision restrictions, etc.

Bus transportation should also be central in this area, as many people will find it necessary to use this form of transportation.

The future development of freeway systems should be considered so as to lessen the chance of future roads cutting off the clinic "life line."

Demographic Data

It is important to know the demographic distribution characteristics of the clientel that is to be served by localized health clinics.

A clinic which serves an area wherein the preponderance of persons are over 65 years of age may find that these people rely more on public transportation, call for more "home" services and have more chronic and debilitating types of disorders (high blood pressure, poor hearing and eyesight) than does an area of a younger population. On the other hand, this area of older residents may have little need for family planning clinics.

In order to better analyse the demographic population of each census tract, the 1970 census information was viewed and two specific categories considered. These two cate-

gories would be the percentage of population under 19 years of age and the percentage of each census tract over 65 years of age. The 1960 information for each tract was then compared with the 1970 information and a percentage of increase or decrease for each tract, in each category, computed, and a chart made. By the use of this chart one is able to view the age population distribution of census tract, and at the same time access trend. For example: let us choose census tract 6.01. We see 40-45% of the population is under 19 years of age and that only 8.2% is over 65 years of age. At the same time the percentage of youth has dropped only 1% in the last ten years, while the percentage over 65 years of age has stayed the same. With this in mind, one could infer that a clinic serving this area would be more concerned with the problems of a younger population and that this would probably be true for some time in the future. On the other hand, census tract 54 has only 2.5% of its population under 19 years of age and this has decreased by 1.5% over the last ten years, while at the same time 32-37% of the population is over 65 years of age. A clinic serving this area should be oriented toward the specific problems of the aged.

Per Capita Income by Census Tract

When considering locations for health clinics one should take the income of areas into consideration. Areas

of low income would not likely be served more by localized clinics than would areas of high income. It is likely people having a high income would prefer to be seen by a chosen, private physician than at a local clinic, where longer waits may be necessary and less personal attention given.

The 1970 income information for Multnomah County was not available at the time this report was made. The information was taken instead from the 1960 census publication. This would mean, then, that rankings on the chart may not be completely accurate. This writer feels that the areas most affected by the use of the older income information would be those tracts which have had a rapid increase in population over the past ten years. These tracts would include tracts numbered 104, 98, 97, 96 and 95. The per capita income referred to in this paper is the mean income per person, per census tract.

After the income per census tract was listed on a chart, a map was made indicating those census tracts belonging to the lower 1/4 of income for all census tracts in Multnomah County, those belonging to the upper 1/4 of income for all census tracts in Multnomah County, and those belonging to the mid 1/2 of income for all census tracts in Multnomah County.

In viewing the map it can be seen that the low income area seems to follow along the west side of the Willamette

River the full length of Multnomah County. A second low income area follows the south edge of the Columbia, from the northwest corner of Multnomah County, easterly to 148 St. A third problem area seems to be on the east bank of the Willamette River, with the Union Pacific Railroad being about the center of this tract. The extreme southeast corner of Multnomah County appears to be a low income area, but as this area has had rapid growth in the last ten years, this could be erroneous.

Mental Health

The first specific indice to be selected from the Multnomah County environmental survey of early 1971, and to be considered in this paper, is that of Mental Health.

At the present, for mental health purposes, Multnomah County is divided into five catchment areas with a mental health clinic in each area. These clinics are: Model Cities, Delaunay, Ankeny Street Office, Hansen Health Building, and Southeast Clinic.

All mental health clinics kept statistical information on all patients visiting their clinics, this included the address of the patient. These addresses were then listed upon the appropriate census tract. Each census tract was then ranked on a chart according to the number of mental health patients who reside in that census tract attending any of the above listed mental health clinics. This chart

was then divided into the proper quartiles. These quartiles were used to develop an appropriate Multnomah County mental health map. It is then possible by looking at the mental health map to determine which areas have the largest use of County mental health facilities. Not included in this would be the number of people visiting private psychiatrists and private mental health clinics.

When the map is viewed it can be seen that there appears to be four general areas in which the number of mental health clinic visits seem to be the highest. The four areas would be as follows:

1. West from Gresham to Cherry Blossom Drive, with Burnside and the Columbia River Highway serving as the northern boundary.
2. From 82nd Avenue, west to 20th Street, with the railroad being the north boundary.
3. The east bank of the Columbia River from the Clackamas County line, north to Division Street.
4. The northwest corner of Multnomah County from Delaware Street to Richmond, with Columbia Blvd. being the north boundary.

If one compares this map to the income map, it can be seen that most of the census tracts having high visitations to public mental health clinics are in the low and mid income grouping. Only three of the 25 tracts listed as having high mental health visitations are in the 1960 high income areas.

Family Planning

Family Planning, like Mental Health, is an indice of use. The person, in order to have been included in this study, would have to have used a family planning clinic facilities of some type. It differs from the mental health study in that it includes statistics from both public and private clinics.

The information for the rank order chart and map of family planning was obtained by combining the number of individuals seen at the three Multnomah County Family Planning Clinics with those seen at the Planned Parenthood Association Clinics. The three Multnomah County Family Planning Clinics are Southwest 5th, Columbia Villa and Hansen Health Building Clinic. This information was then assessed to determine how many people from each census tract had obtained family planning services. A rank order chart was then made. This chart was again divided to show the census tracts having the highest quartile of incidence of use, lowest quartile of incidence of use, mid 1/2 of incidence of use, and a map was prepared from this information.

The census tracts belonging to the highest quartile of use appear to be more scattered on this map than was true of either the map of mental health clinic usage or of the map showing per capita income. There does seem to be three distinct areas of usage. They would be:

1. Southwest Portland south of the intersec-

tion of Burnside and the Willamette River.

2. Southeast Portland south of the railroad and along the Willamette River.
3. Northeast Portland between Mississippi and 24th Street; the north boundary being Columbia Blvd.

Public Health Nursing Visits

Public Health nursing visits include all visits to the homes of clients by Public Health Nurses. This shows visits to a family for any purpose such as tuberculosis, heating, maternity, mental and emotional conditions, etc. These statistics were coded according to the major focus of the visit. It does not indicate the number of homes or families visited or individuals visited more than once in the same program. It does give some indication by comparison of the amount of medical problems in each census tract.

Again the map shows a scatter pattern of problem areas, although there appears to be a grouping of high usage census tracts in the extreme southeast part of the County. Other areas having many nursing contacts are:

1. The south-central County on each side of 82nd Avenue, from Clackamas County, north to Division.
2. Near east side, around Prescott and Mississippi.
3. Downtown Burnside on both sides of the river.

Venereal Disease

The information used to tabulate the venereal disease chart includes all the combined cases of gonorrhoea and syphilis reported by both public and private physicians during 1970. There were 3,602 cases of gonorrhoea reported during 1970, while only 17 cases of syphilis were reported.

A chart was prepared and an attempt was made to determine whether venereal disease was more prevalent in areas of high or low proportion of youth. This was done by determining a mean percentage for the population of residents under 19 years of age (34.5%). A mean rate per 100,000 population was also determined for the occurrence of venereal disease. This was set at 390 cases. Areas having a population in which less than 34.5% were under 19 years of age were called low youth, above this percentage, high youth. The same was true of the occurrence of venereal disease per census tract. If the rate was computed as more than 390 cases per 100,000 it was called high venereal disease; if less than this figure, low venereal disease. It was found that in Multnomah County there seems to be a positive association ($\chi^2=18.16$) between low youth and high venereal disease and high youth and low venereal disease.

Rank order list of all census tracts was then made. This was done by finding the rate per 100,000 population of venereal disease for all census tracts in the County.

These were then listed from high to low (greatest to least) in a rank order. The listing was then divided into upper and lower 1/4's and listed on the Multnomah County map.

The areas of high venereal disease seems to group themselves in a very tight area along both sides of the Willamette River with Burnside Street being about the center of this grouping. This area would appear to be an ideal spot for the development of a localized venereal disease clinic.

Tuberculosis

In this report the tuberculosis cases referred to include all these cases on tuberculosis follow-up rather than just new cases. According to the Multnomah County Health Survey of early 1971, this would include all cases reported over the last three years. The total number of tuberculosis cases used in this study was 666. This included 128 new cases.

A rate per 100,000 of tuberculosis for each census tract was then computed and the census tracts listed by rank order. The high quartile and low quartile were then recorded on a Multnomah County map. Two general areas having a high incidence of tuberculosis are indicated. They are:

1. Both sides of the Willamette River

with Burnside about the center.

2. The extreme Northeast corner of the County.

By comparing the tuberculosis and venereal disease maps one can see that the downtown areas of high incidence are almost identical on each map. This would indicate that it would be of value to establish a clinic in this area that would provide both tuberculosis and venereal disease services.

These charts and maps are useful in giving indications for the type and placement of local health clinics throughout the Multnomah County area. A comparison of the maps helps one to decide whether to provide a multi-service clinic or specific type of clinic. As stated in Part I of this paper, services should have both treatment and prevention components.

As has been stated "a neighborhood health care center must be a facility planned with an awareness of the needs of the consumer and the community." Part II of this report has been an attempt to indicate and clarify some of these community needs. This has been done through selection of specific problems. These indices were then visually recorded through the use of maps and charts. One can assess the degree of importance of certain concerns to specific areas by comparing the charts and maps. From this one can

decide which area needs which clinic--or indeed, if they need a clinic at all. However, further factors should be considered. These include:

- a. The amount of funds available.
- b. What is the percentage of people in each census tract that would actually use such clinics?
- c. What is the community's feelings regarding particular clinics? Would this decrease the effectiveness of these clinics?

Demographic Population Change 1960 to 1970

48

Census Tract	% of Pop. Under 19 Yrs. 1970	% Change 1960-70	% of Pop. Over 65 Yrs. 1970	% Change 1960-70
1	31.9	-1.2	17.1	+0.1
2	27.2	-2.7	21.5	+6.8
3.01	36.6	-2.2	12.7	+3.5
3.02	37.1	+1.9	11.1	-0.4
4.01	31.1	-4.1	14.4	+2.9
4.02	32.1	-3.9	13.7	+2.4
5.01	35.6	-0.8	12.4	-0.2
5.02	35.1	-2.3	13.3	+1.2
6.01	40.5	-1.0	8.2	-0.2
6.02	39.4	-0.1	10.3	-0.6
7.01	27.5	-7.6	14.9	+5.6
7.02	36.1	+0.1	12.1	-0.7
8.01	32.6	-2.2	14.0	+1.0
8.02	32.1	-2.9	12.7	-0.3
9.01	34.2	-1.8	12.4	+0.6
9.02	29.4	-2.4	12.8	+0.3
10	31.2	-1.4	14.0	-1.7
11.01	18.2	+2.5	19.7	-2.3
11.02	24.1	-5.9	18.6	+2.9
12.01	22.6	-1.7	16.9	-4.1
12.02	31.0	+1.1	18.2	-0.5
13.01	29.5	+0.8	20.8	+0.4
13.02	33.1	+0.8	19.7	+0.4
14	32.3	+1.5	18.5	-0.8
15	32.9	+1.6	16.5	-1.3
16.01	33.2	-2.8	13.1	+1.2
16.02	35.6	-3.9	9.8	+2.4
17.01	31.0	-3.3	16.1	+2.1
17.02	37.0	-1.5	8.5	+0.2
18.01	26.4	-5.0	15.7	+1.9
18.02	25.6	-5.8	18.5	+4.7

Demographic Population Change 1960 to 1970

49

(Cont'd)

Census Tract	% of Pop. Under 19 Yrs. 1970	% Change 1960-70	% of Pop. Over 65 Yrs. 1970	% Change 1960-70
19	38.9	+2.9	14.1	-2.4
20	22.3	-1.3	20.6	+1.8
21	22.7	+0.8	19.4	-3.6
22.01	35.6	-2.7	11.2	+0.5
22.02	29.0	-1.8	11.9	-2.9
23.01	35.6	-0.3	15.4	+2.4
23.02	26.0	-3.7	24.5	+9.7
24.01	41.0	+6.1	12.3	-3.1
24.02	16.3	-8.0	32.0	+9.9
25.01	38.1	+1.3	14.0	-0.1
25.02	23.7	-3.1	21.1	+0.2
26	34.3	+2.5	18.6	+1.9
27.01	37.0	+2.9	15.5	-0.1
27.02	24.9	-4.4	30.4	+9.8
28.01	33.7	+1.9	18.7	+0.9
28.02	30.6	-1.0	15.6	+3.1
29.01	30.4	-3.8	14.2	+2.4
29.02	30.7	-3.2	14.6	+3.9
30	29.0	-4.8	16.2	+5.1
31	35.5	+3.0	16.0	+0.1
32	37.0	+4.8	14.8	-1.3
33.01	39.5	+4.5	13.0	-2.0
33.02	36.8	+0.6	13.8	-0.2
34.01	38.6	+1.6	11.7	000
34.02	40.0	+3.2	9.2	-2.6
35.01	30.4	-0.7	17.5	+3.5
35.02	34.4	000	14.0	-1.3
36.01				
36.02	35.7	-0.4	13.2	+3.2
36.03	30.1	-4.2	14.9	-6.7
37.01	34.2	+2.8	15.2	+1.9

Demographic Population Change 1960 to 1970

50

(Cont'd)

Census Tract	% of Pop. Under 19 Yrs. 1970	% Change 1960-70	% of Pop. Over 65 Yrs. 1970	% Change 1960-70
37.02	40.9	+3.9	12.2	-1.1
38.01	30.8	-1.1	15.1	+2.9
38.02	27.5	-3.5	18.0	+4.6
38.03	28.2	-3.2	19.2	+5.4
39.01	37.6	-1.3	10.0	+1.7
39.02	29.6	-0.3	17.7	+2.9
40.01	43.8	-1.1	8.4	+1.3
40.02	35.3	-2.1	11.5	+2.0
41.01	39.7	-1.1	9.0	+1.1
41.02	34.6	-1.9	12.0	+0.3
42	33.1	+1.9	11.3	-1.6
43	34.7	-7.2	10.5	+3.1
44	11.3	+8.4	18.3	+15.4
45	33.9	+0.7	11.0	-0.6
46.01	25.01	-2.2	19.3	+3.8
46.02	33.2	+5.9	12.6	-2.9
47	16.1	000	21.1	+0.1
48	10.3	-2.6	30.2	+5.9
49	13.8	+1.3	25.2	+0.9
50	14.1	-2.6	20.4	-1.2
51	1.2	-3.9	25.7	+0.7
52	4.7	-6.1	35.1	+4.8
53	8.9	+4.9	31.4	-3.0
54	2.5	-1.5	32.7	-1.7
55	13.1	-1.7	11.5	-12.1
56	19.8	+9.3	22.7	-4.7
57	7.1	-10.2	18.9	-8.8
58	24.0	-4.1	16.1	+5.5
59	32.2	+2.5	14.2	+0.6
60.01	26.4	-9.5	13.2	+5.0
60.02	32.8	-3.1	8.9	+0.7

Demographic Population Change 1960 to 1970

51

(Cont'd)

Census Tract	% of Pop. Under 19 Yrs. 1970	% Change 1960-70	% of Pop. Over 65 Yrs. 1970	% Change 1960-70
61	35.5	-5.8	8.5	+3.9
62	32.8	-3.9	11.0	+1.8
63	41.4	-0.4	7.3	-1.0
64	38.2	-2.2	7.2	+0.4
65.01	38.3	-0.2	6.7	-2.0
65.02	32.9	-5.6	9.6	+0.9
66.01	39.1	+1.3	8.8	-0.3
66.02	31.9	-5.9	9.7	+0.6
67.01	32.7	-7.1	14.5	+7.2
67.02	33.1	-6.7	8.3	+1.0
68.01	36.5	-6.6	4.9	+0.1
68.02	38.8	-4.3	5.4	+0.6
69	35.4	-4.1	8.0	+2.3
70	40.0	-2.3	6.8	-0.6
71	35.9	-4.8	7.2	+0.5
72	25.5	-8.8	8.2	+1.1
73	34.6	-3.9	9.1	+2.5
74	31.3	-6.3	10.5	+2.4
75	32.9	-4.2	12.9	+3.7
76	33.6	-5.2	8.5	+2.1
77	37.0	-1.0	6.9	+0.5
78	30.9	-1.0	12.0	+2.1
79	32.5	-5.6	8.7	+1.0
80.01	35.8	-8.1	5.7	+1.2
80.02	39.1	-8.1	7.6	+1.2
81	31.5	-7.6	10.8	+2.1
82.01	40.3	-2.3	6.4	+0.8
82.02	39.2	-2.3	6.5	+0.8
83	35.7	-3.4	12.0	+3.1
84	40.2	-1.8	7.3	+1.6
85	41.3	-0.6	7.6	-0.9

Demographic Population Change 1960 to 1970

(Cont'd)

Census Tract	% of Pop. Under 19 Yrs. 1970	% Change 1960-70	% of Pop. Over 65 Yrs. 1970	% Change 1960-70
86	36.8	-0.4	10.3	-0.8
87	35.1	-0.2	12.8	-0.6
88	37.9	-3.5	9.7	+0.4
89	39.1	-2.6	11.3	+0.8
90	39.1	-2.8	9.9	+1.7
91	41.3	-1.1	6.9	-0.5
92.01	37.9	-6.4	7.9	+3.5
92.02	43.3	-2.0	4.2	-0.2
93	37.2	-5.9	7.7	+1.4
94	42.9	-3.9	4.6	+1.9
95	41.4	-3.2	3.4	+3.3
96.01	43.2	-2.1	3.8	-1.4
96.02	41.9	-3.4	4.4	-0.8
97.01	43.9	-4.0	4.0	+1.2
97.02	43.2	-4.7	5.4	+2.6
98.01	37.7	-10.7	11.1	+7.1
98.02	45.7	-2.7	5.1	+1.1
99	42.0	+0.4	8.1	-1.6
100	37.8	+5.6	13.3	-3.4
101	41.7	+0.7	5.9	-2.0
102	34.5	-3.4	7.4	-1.9
103	36.0	-0.1	14.0	+3.7
104.01	41.7	+0.4	6.3	-4.9
104.02	41.7	+0.4	8.7	-2.5
105	41.2	+1.0	7.6	+1.5
Note: The average under 19 years = 32.3%			The average above 65 years = 13.0%	
Taken from U.S. Census	figures 1970		and 1960	

Ranking of Per Capita Income by Census Tract

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
1	69 *	19	65	37	32	53	2	69	74	87	12.01
2	46	20	27.01	38	97	54	96	70	17.01	88	14
3	60	21	15	39	12.02	55	4.01	71	90	89	49
4	58	22	16.01	40	78	56	75	72	103	90	72
5	68	23	7.01	41	28.01 *	57	79	73	7.02	91	73
6	61	24	66	42	31	58	38.02	74	6.01	92	43
7	3.02	25	93	43	25.01	59	41.02	75	24.02	93	87
8	25.01	26	82	44	18	60	85	76	101	94	35.02
9	67	27	29.03	45	98	61	39.01	77	9.02	95	105
10	63	28	36.02	46	37	62	99	78	76	96	1
11	19	29	30	47	38.03	63	41.01, 36.01	79	100	97	52
12	62	30	25.02	48	17.02			80	38.01	98	86
13	26	31	80	49	16.02, 92, 27.02	64	4.02, 83	81	45	99	71
14	94	32	24.01					82	42 **	100	1
15	36.03	33	81			65	84	83	88	101	5.01
16	39.02	34	70	50	89	66	35.01	84	59	102	10
17	64	35	91	51	9.01	67	77	85	47	103	33.01
18	30	36	40.01	52	8.01	68	8.02	86	5.02	104	104

* High ½

** Low ½

Ranking of Per Capita Income by Census Tract
(Cont'd)

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
105	40.01	<u>122</u>	<u>57</u> **								
106	6.02										
107	13										
108	11.02, 23.02										
109	33.02										
110	55										
111	34.01										
112	48										
113	21										
114	56										
115	50										
116	34.02										
117	11.01										
118	22.02										
119	23.01										
120	53										
121	22.01										

** Low $\frac{1}{4}$

Note: Information taken from 1960 U.S. Census

Total Number of Mental Health Visits
Ranked by Census Tract, High to Low

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
1	39.1 *	12	18.2,	22	78,	29	87, 76,	---	---	46	68.2,
2	92.2,	---	18.1 *	---	38.1,	---	73	37	**	---	68.1,
	92.1	13	37.1,	---	19,	30	85, 38.2,	---	45, 29.2	---	33.1, 30
3	97.2,		37.2,		16.2,		27.1, 26		24.2	47	104.2,
	97.1		21		16.1,		8.2	38	102, 62,		33.2
4	100	14	80.2,	23	84,	31	94, 79,		35.2,	48	105, 43 **
5	13.2,		80.1,		25.1,		59, 15,		29.1,	---	---
	13.1,	15	36.2	24	3.2	32	4.2	39	9.2	---	---
	12.1	16	52	25	65.1,	33	103, 89,	40	101, 28.1		
6	96.2,		40.2,		65.2,		17.2		99, 72,		
	96.1	17	9.1	26	35.1	34	34.1,	41	63,		
7	82.2,	18	83, 12.2	27	25, 48,		23.1,	42	60.1,		
	82.1,	19	14	28	39.2,		11.2	43	60.2, 42		
	40.1	20	93, 81,	29	6.1		86, 66.1	44	22.01		
8	98.2,		53, 49,	30	91, 8.1,		66.2, 64	45	77, 74,		
	98.1		38.3	31	4.1		50, 55,	46	61, 57		
9	20,	21	90,	32	51,		7.1,	47	36.3,		
	17.1		24.1,	33	67.2,		3.1	48	23.2		
10	47, 10,		6.2	34	67.1,		104.1,	49	70		
	1		11.1	35	41.1		46.1,	50	32, 31		
11	41.2			36	88, 34.2,		46.2	51	71, 44,		
					25.02,		69, 54,	52	28.2,		
					5.2, 5.1		50, 27.2	53	22.02		

* High ½

** Low ½

Visits to Family Planning Clinics
Ranked by Census Tract, High to Low

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
1	36.1 *	18	39.1	34	42	46	96.1	57	64, 62, 36.3, 25.2	67	98.1, 26, 12.2
2	56	19	32	35	17.1, 4.1	47	80.1				
3	40.1	20	47 *	36	66.1, 22.1	48	49, 8.1, 7.2, 7.1	58	74, 65.2, 50, 39.2, 29.1	68	15, 6.1
4	34.1	21	23.1, 11.1	37	78, 36.2 2	49	19			69	85, 82.2, 69
5	48	22	33.2	38	90, 60.2	50	9.1			70	61, 43
6	59, 12.1	23	97.2, 1		60.1, 35.2	51	17.2	59	65.1, 6.2	71	101, 86, 84, 28.2
7	20	24	37.2, 37.1	39	63, 25.1	52	68.2, 57, 16.2, 14, 11.2	60	79, 27.1	72	76
8	55	25	52	40	105, 92.1			61	98.1 **	73	13.1
9	34.2	26	89	41	97.1, 35.1	53	91, 75, 68.1	62	67.2, 67.1	74	51, 72
10	10	27	3.2	42	73, 42, 29.2, 23.2	54	38.1, 4.2	63	82.1, 27.2	75	104.1, 96.2, 88, 70
11	3.1	28	9.2	43	41.1, 5.1	55	38.3	64	94, 87	76	99, 92.2, 77
12	58	29	8.2	44	66.2	56	83, 16.1	65	28.1	77	103
13	93, 21	30	100, 31	45	81, 45, 5.2			66	38.2	78	95, 80.2, 18.1
14	24.1, 13.2	31	18.2								
15	33.1	32	30, 24.2								
16	53	33	40.2								
17	46.1, 46.2										

* High ½

** Low ½

Visits to Family Planning Clinics
(Cont'd)

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
79	54										
80	44										
81	104.2, 102, 71										
-----	**										

** Low ¼

Total Number of Public Health Nursing Visits
Ranked by Census Tracts, High to Low

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
1	97.1 *	18	86, 99	33	49	49	7.1, 79	65	17.2	80	25.2
2	51	19	7.2	34	66.1, 76	50	84	66	15, 40.2, 50	81	29.1
3	34.2	20	12.2, 20	35	17.1, 80,1	51	16.1	67	35.2, 55	82	25.1, 71
4	98.1	21	6.2, 36.2	36	38, 94	52	2, 14	68	41.2	83	26
5	40.1	22	88	37	32	53	29.2, 42, 75	69	28.1	84	63
6	54	23	8.2	38	31	54	5.4, 38.1	70	22.2	85	39.2
7	34.1	24	33.2, 92.1	39	65.2, 89	55	103	71	64	86	43
8	21	25	11.2 *	40	11.1	56	16.2, 105	72	23.2, 24.1	87	19, 27.1
9	96.1	26	1	41	41.1	57	8.1	73	101	88	38.2, 62
10	23.1	27	33.1	42	22.1	58	53	74	9.1, 67.1	89	36.3, 44
11	6.1	28	10, 24.2	43	48	59	35.1	75	38.3	90	46.1, 46.2
12	90	29	87	44	59	60	27.2	76	72, 74, 77 **	91	58
13	83, 93	30	91	45	4.2	61	9.2	77	30	92	60.1
14	104.1	31	39.1	46	37.1	62	12.1	78	95	93	57
15	5.1, 82	32	45	47	4.1, 78	63	73	79	3.2, 56	94	28.2, 61
16	13.1, 100			48	47, 52	64	18.1			95	68.1, 69
17	85										

* High ½

** Low ½

Total Number of Public Health Nursing Visits

(Cont'd)

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
96	3.1, 13.2, 70										
97	102										
98	18.2, 37.2, 60.2, 65.1, 66.2, 67.2, 68.2, 80.2, 82.2, 92.2, 96.2, 97.2, 98.2, 104.2 **										

** Low $\frac{1}{2}$

Ranking of V. D. Cases According to Census Tracts 61
By High and Low Youth Ratio

A median of 34.5 was determined. Any tract having greater than 34.5% of population under 19 years of age = High.

Any tract having less than 34.5% of population under 19 years = Low.

Any tract having rate less than 390 = Low

Any tract having rate more than 390 = High

YOUTH

LOW

HIGH

L O W	1, 2, 4.02, 18.01, 18.02, 34.3, 28.01, 28.02, 29.02, 36.03, 54, 60.01, 60.02, 62, 66.02, 72, 74, 75, 76, 78, 79, 81, 102, 65, 12.02 (25)	3.02, 7.02, 17.02, 19, 25.01, 27.01, 41.02, 41.01, 63, 64, 65.01, 66.01, 68.01, 68.02, 70, 71, 77, 80.01, 80.02, 82.01, 82.02, 83, 84, 85, 86, 87, 88, 90, 91, 92.02, 92.01, 93, 94, 96.01, 96.02, 97.01, 97.02, 98.01, 98.02, 99, 100, 101, 103, 104.02, 105, 65.01, 104.01 (47)
H I G H	4.01, 7.01, 8.01, 8.02, 9.01, 9.02, 10, 11.01, 24.1, 12.01, 13.01, 13.2, 14, 15, 16.01, 17.01, 20, 21, 22.02, 23.02, 24.02, 25.02, 27.02, 29.01, 30, 35.01, 35.02, 34.02, 38.01, 38.02, 38.3, 39.02, 42, 44, 45, 46.01, 46.02, 47, 48, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 67.01, 67.02, 73, 95 (53)	3.01, 5.01, 5.02, 6.01, 16.02, 24.01, 23.01, 22.01, 31, 32, 33.01, 33.02, 34.01, 34.02, 36.02, 37.02, 39.01, 40.01, 40.02, 43, 61, 69, 89 (23)

V.D.

Ranking of V.D. by Rate Per 100,000 By Census Tract

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
1	22.02	21	56	40	9.02	58	16.02	74	75	90	64	107	26
2	34.02	22	45	41	10	59	9.02	75	78	91	54 **	108	61
3	23.01	23	35.02	42	25.02	60	6.02	76	68.02	92	4.02	109	87
4	33.02	24	49	43	11.02	61	5.01	77	2	93	94	110	90
5	50	25	52	44	67.02, 67.01	62	14	78	82.02, 82.01, 25.01, 29.02	94	97.02, 97.01, 41.02	111	76
6	22.01	26	20			63	40.02					112	91
7	44	27	48	45	4.01	64	38.02			95	63	113	62
8	33.01	28	17.01	46	5.02	65	30	79	83, 74	96	96.02, 96.01	114	71
9	55	29	47	47	42	66	38.03	80	28.01			115	85, 36.03
10	34.01	30	37.01 *	48	58	67	29.01	81	19	97	92.01, 92.02	116	80.02 80.01
11	53	31	12.01	49	16.01	68	8.01	82	1				
12	23.02	32	37.02	50	6.01	69	39.02, 15, 8.02	83	17.02	98	98.02, 98.01	117	101
13	24.01	33	89	51	46.02, 46.01			84	28.02	99	77	118	99
14	57	34	43			70	65.02, 65.01, 12.2	85	79	100	3.02	119	95
15	21	35	13.2, 13.1	52	69			86	93	101	79	120	104.01
16	24.02			53	7.01			87	100, 68.01, 66.02	102	86	121	105, 104.02, 103, 102
17	11.01	36	36.02	54	31	71	7.02			103	72		
18	51	37	40.01	55	39.01	72	41.01	88	81	104	84		
19	59	38	27.02	56	3.01	73	18.02, 18.01	89	60.02, 60.01	105	27.01		
20	32	39	35.01	57	38.01					106	88		

*High ½

**Low ½

Rank Order Tuberculosis Cases by Rate Per 100,000
Ranked by Census Tract, High to Low

Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
1	51 *	20	34.01	35	41.1	52	5.01	68	8.01	79	96.01,
2	54	21	13.02,	36	20	53	36.03,	69	90		96.02,
3	21		13.01,	37	38.02		66, 31,	70	40.02		43,
4	22.02		12.01	38	52		39.2				68.01,
5	53	22	33.02 *	39	37.1	54	19	71	8.02 **		68.02
6	11.01	23	6.01	40	39.1	55	7.01	72	38.02	80	89, 58,
7	52	24	10	41	15	56	25.01	73	67.02,		98.01,
8	23.01	25	12.2,	42	16.2	57	26		67.01		98.02
9	50	26	3.1	43	72,	58	86	74	70,	81	94, 4.01
10	22.01	27	45	44	41.2	59	16.01		9.02,		92.02,
11	57	28	24.02	45	17.2	60	69	75	71	82	92.01
12	49	29	28.01	46	56	61	9.01,	76	100, 87	83	79
13	33.1	30	59	47	17.1	62	14		30, 83	84	65.02,
14	102	31	35.02	48	18.2	63	3.02	77	97.01,		65.01, 78
15	48	32	35.01	49	18.1	64	55, 1	78	97.02	85	66.02,
16	23.2		32,	50	40.1	65	85		91	86	66.01
17	34.02		27.2,	51	7.2	66	38.03		103, 93,	87	82.2, 82.1
18	11.02	33	24.1		2,	67	36.02,		79,	88	84
19	47	34	37.2		46.01,		28.2		104.01,		105
			62		46.02		29.01		104.02		29.02
											88, 99,
											101

* High ½

** Low ½

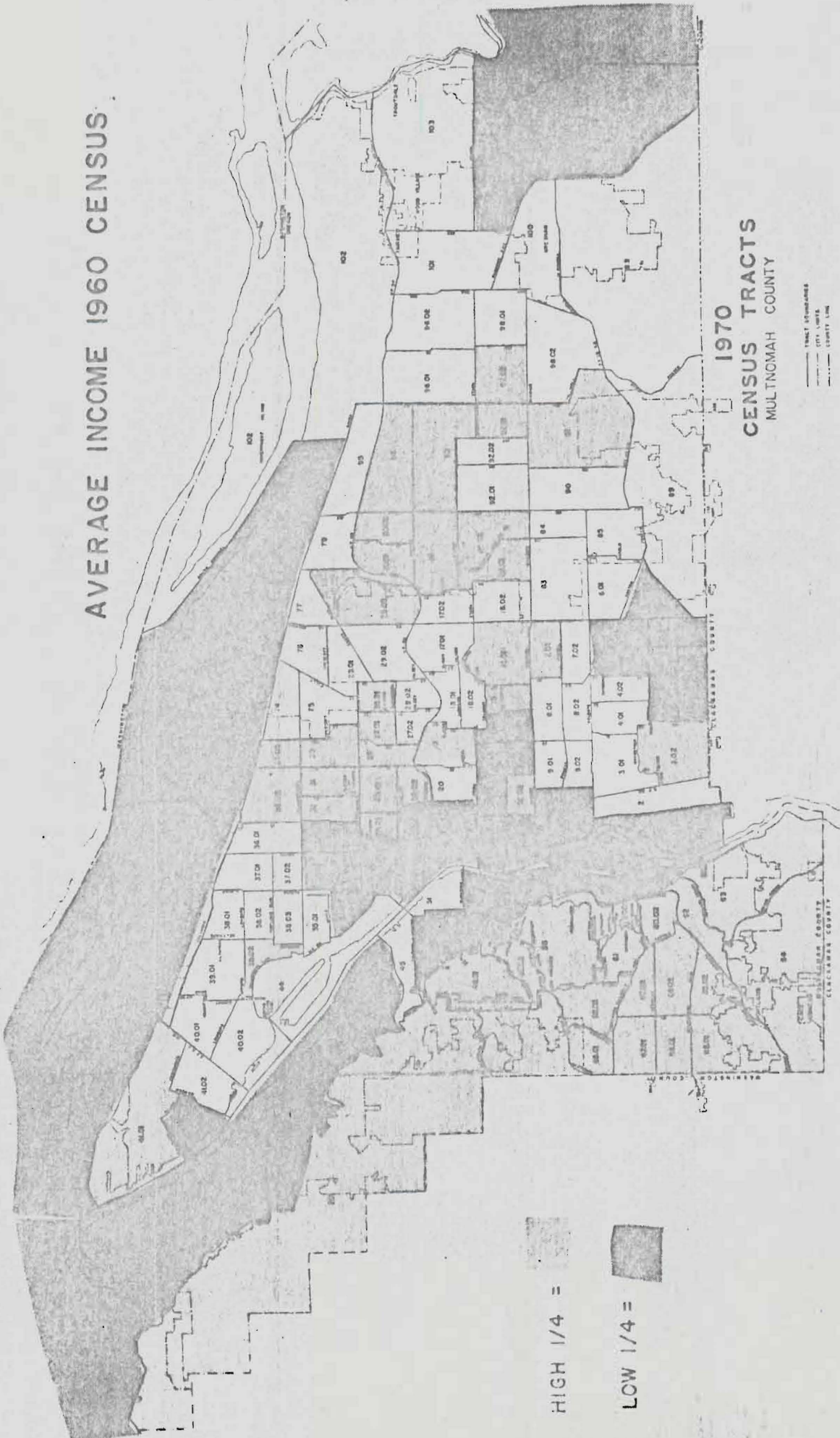
Rank Order Tuberculosis Cases by Rate Per 100,000

(Cont'd)

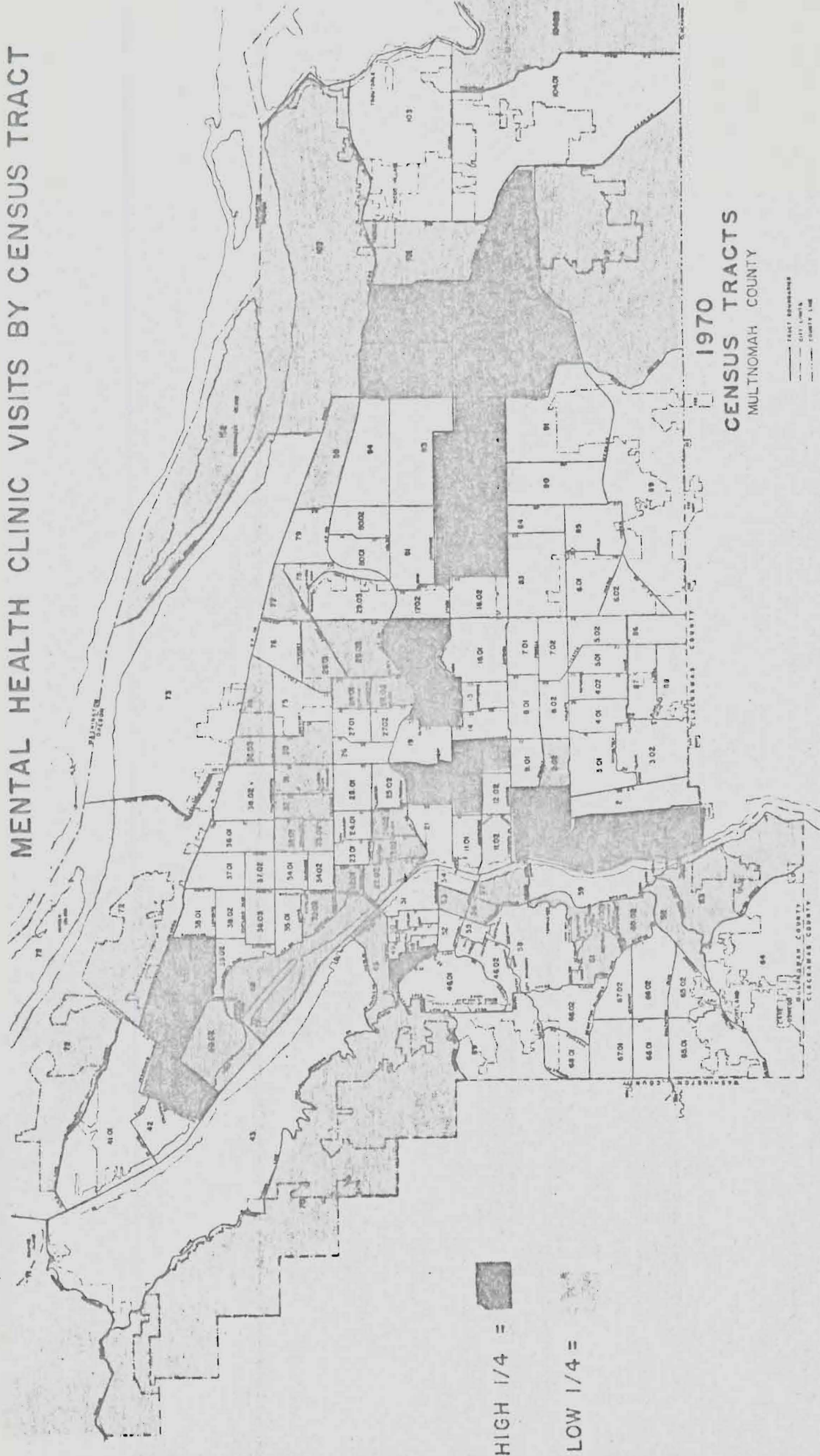
Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract	Rank	Tract
89	95										
90	64										
91	81, 80.01 80.02										
92	63, 61, 60.01, 60.02, 44, 27.01, 25.02, 4.02 **										

** Low 1/2

AVERAGE INCOME 1960 CENSUS



MENTAL HEALTH CLINIC VISITS BY CENSUS TRACT

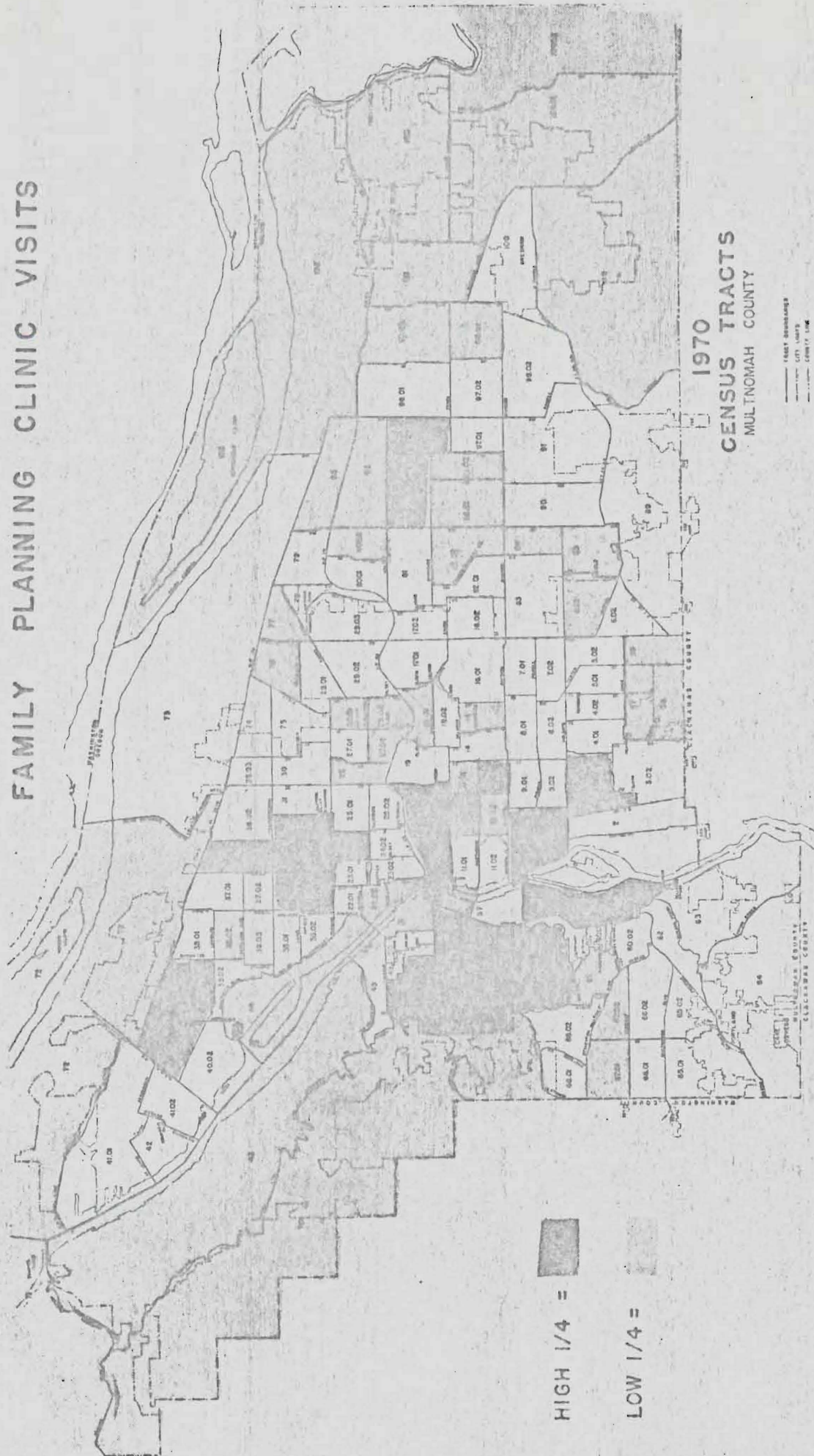


1970
CENSUS TRACTS
MULTNOMAH COUNTY

TRACT BOUNDARIES
CITY LIMITS
COUNTY LINE

HIGH 1/4 = [shaded box]
LOW 1/4 = [unshaded box]

FAMILY PLANNING CLINIC VISITS



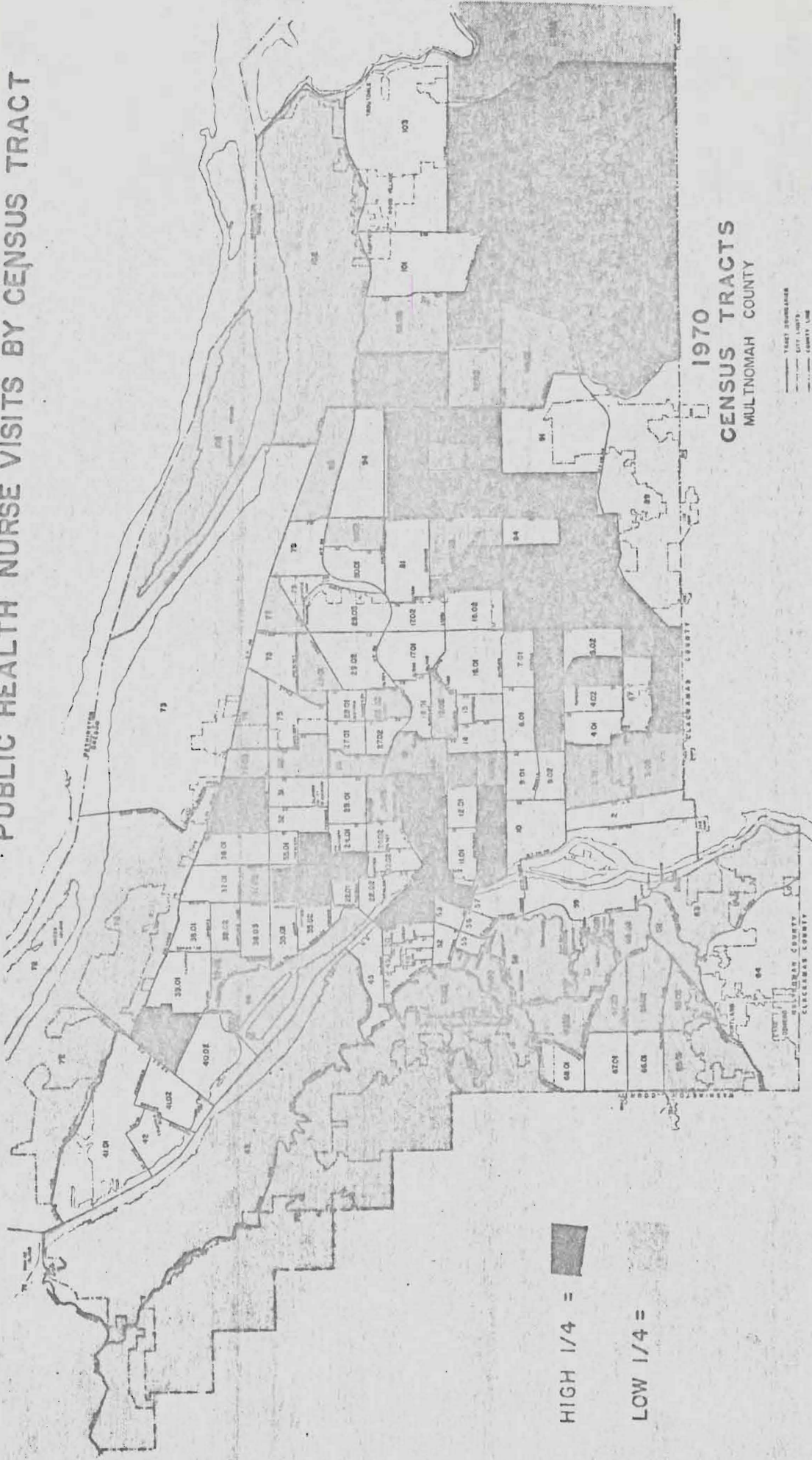
1970
CENSUS TRACTS
 MULTNOMAH COUNTY

FACT BOUNDARY
 CITY LIMITS
 COUNTY LINE

HIGH 1/4 = [Dark Square]

LOW 1/4 = [Light Square]

PUBLIC HEALTH NURSE VISITS BY CENSUS TRACT



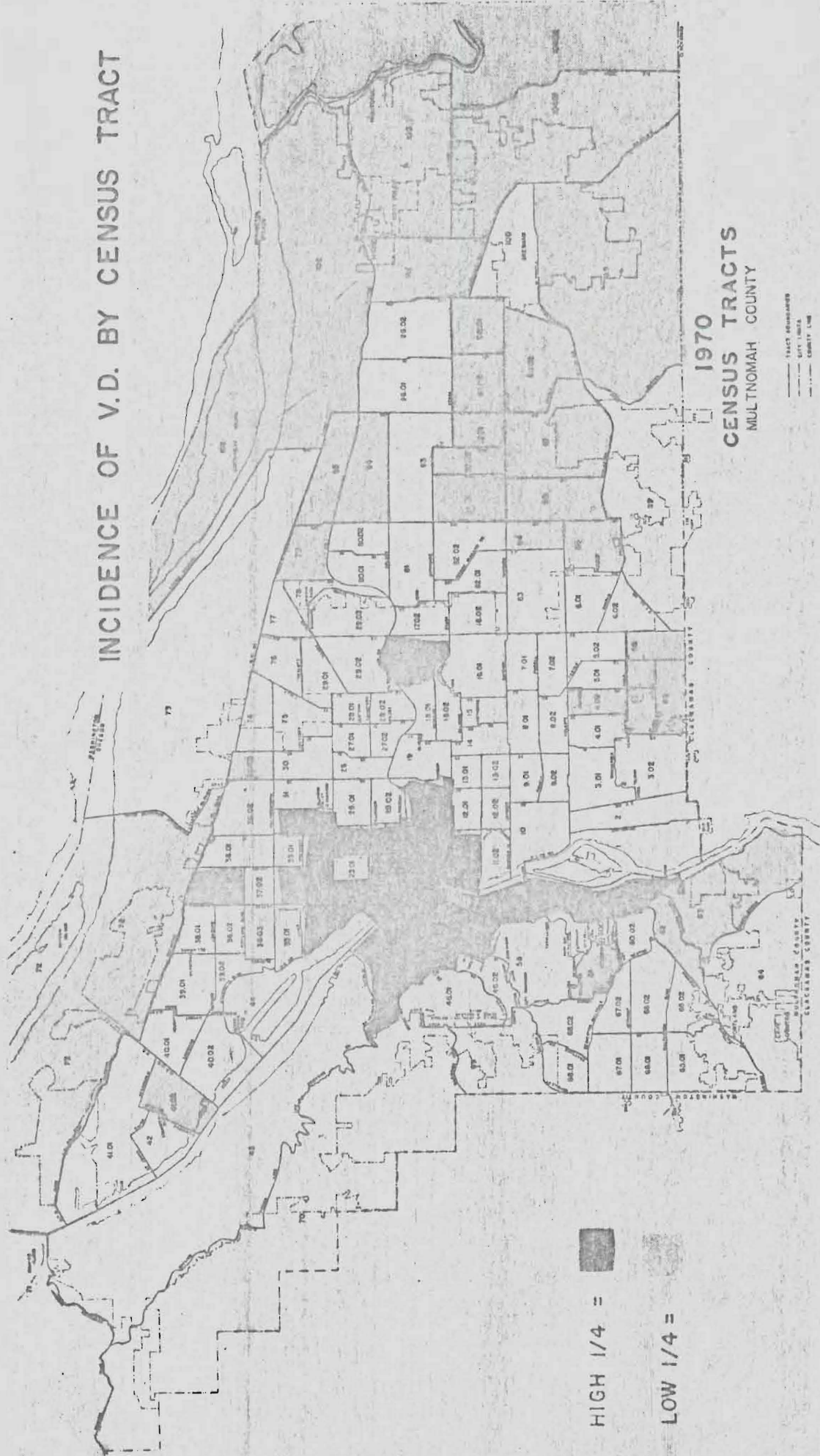
1970
CENSUS TRACTS
MULTNOMAH COUNTY

TRACT BOUNDARIES
CITY LIMITS
COUNTY LINE

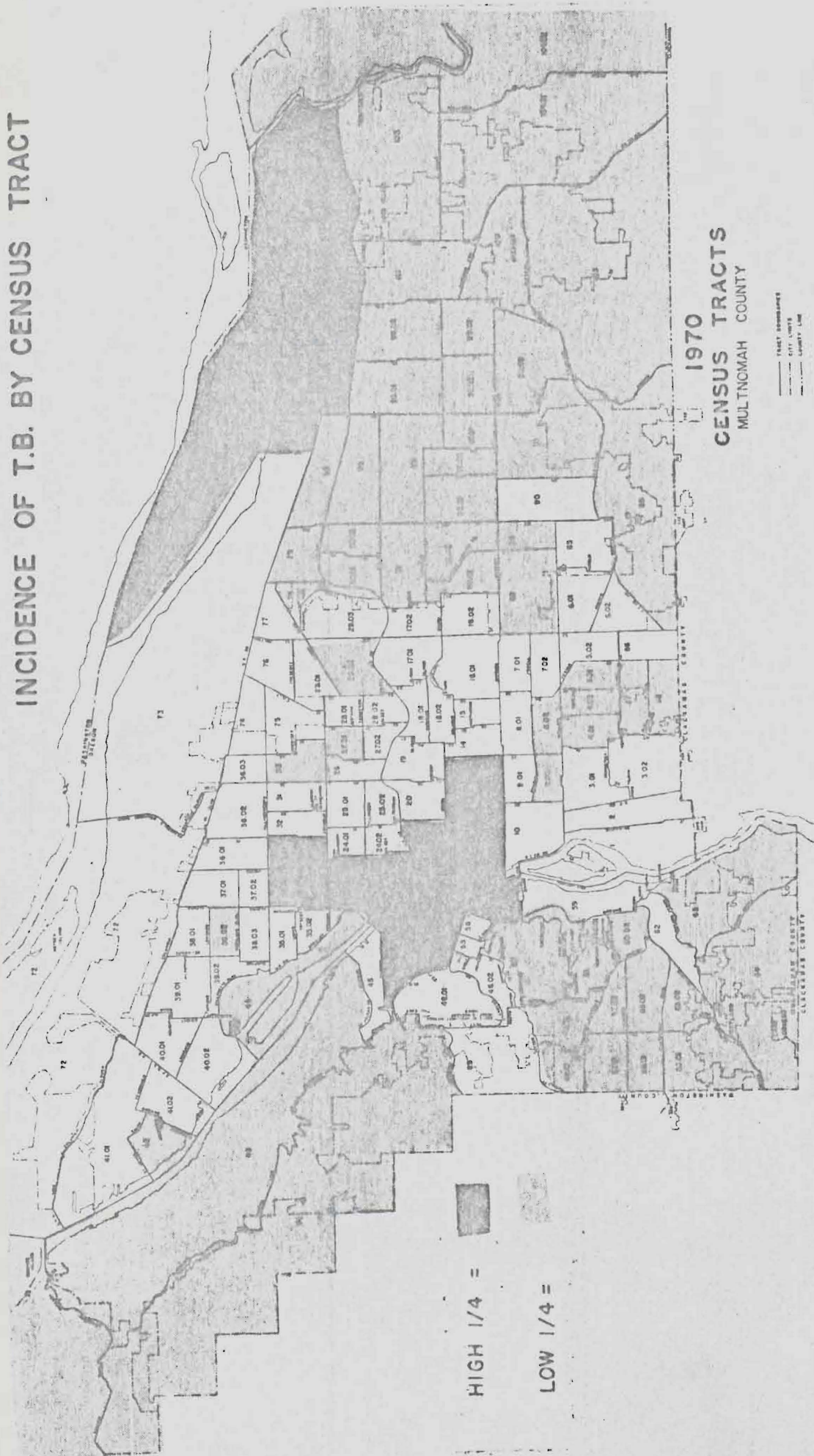
HIGH 1/4 = [Dark Shaded Box]

LOW 1/4 = [Light Shaded Box]

INCIDENCE OF V.D. BY CENSUS TRACT



INCIDENCE OF T.B. BY CENSUS TRACT



HIGH 1/4 = [shaded box]
 LOW 1/4 = [unshaded box]

1970
 CENSUS TRACTS
 MULTNOMAH COUNTY

TRACT BOUNDARIES
 CITY LIMITS
 COUNTY LINE