NATURAL RESOURCES DEPARTMENT

Regional Wastewater Plan

An Element of the Comprehensive General Plan for Northeastern Illinois

(Revised Edition: June 12, 1974)

northeastern illinois planning commission

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REGIONAL WASTEWATER PLAN

An Element of the Comprehensive General Plan for Northeastern Illinois

Basic Plan:

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April, 1971

TO THE CITIZENS OF NORTHEASTERN ILLINOIS:

It is now widely understood and accepted that our streams, rivers and lakes can no longer be treated as convenient conveyor belts to carry our region's wastes to some place called "away." The quality of the water that sustains our lives and serves our living together in this urban region is such that unprecedented decisions have been made toward pollution abatement. Given the determination to bring our water quality back to acceptable levels, the next question was how to engineer the wastewater collection and treatment system at the least cost and with the most benefits.

The Commission has determined that wastewater facilities are more than a means of collection and treatment. It is well understood by local government and private developers alike that sewer accessibility is a critical factor in shaping urban growth. Since NIPC is committed to giving positive direction to the growth of northeastern Illinois, the planning of wastewater facilities is viewed as part of a larger planning effort to deal with the total natural and man-made environment. One small illustration of this point should suffice. Construction of a sewer in an area identified as being unsuitable for suburban development, or perhaps more suitable for preservation as open space, could easily stimulate improper land development.

This plan also gives attention to the administration and financial changes that are needed to accomplish the overall plan objectives. Such recommendations are no less a part of the plan than the size and location of treatment plants and intercepting sewers.

What are the alternatives to the proposed plan? A continuation of present trends in wastewater operations is seen as the most expensive and least satisfactory solution. Put simply, this plan is offered to the citizens and public officials of northeastern Illinois as the best means of dealing with the water pollution problem within the means of present technology and within the context of the total environmental objectives for this region.

Lee M. Burkey
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FOREWORD

The Regional Wastewater Plan, adopted by the Commission on March 3, 1971, is the first in a series of plans dealing with the management of the water resource in northeastern Illinois. Other plans in this series include water supply and flood control. Taken together, they comprise the Regional Water Resource Management Plan, an implementing element of the Comprehensive General Plan which sets forth overall development goals and policies for the six-county area.

With the adoption of the Wastewater Plan, certain Federal planning requirements have been met which are tied to the approval of Federal grants for wastewater facilities. This plan document will serve as the frame of reference for Federal grant applications from local governments which are subject to review by the Commission as the metropolitan clearinghouse for northeastern Illinois.

The Regional Wastewater Plan and supporting studies were guided from their inceptions by a Water Resource Technical Advisory Committee whose members include many of the most knowledgeable local experts on this subject. The Committee met frequently and reviewed in detail the plan itself and the basic background research. The Commission acknowledges, with gratitude, the Committee's efforts and many valuable contributions at all stages of this project. The Committee members are listed on the inside front cover.

The Plan is the product of more than two years of work. Background materials and studies, including analyses of alternative plan proposals, are contained in a more detailed technical supplement available from the Commission.

As a companion piece to the long-range plan presented here, the Commission maintains a short-range program which outlines priorities, phasing and costs of the needed facilities over the ensuing five-to-ten year period. This latter document is subject to annual review and updating.

M. L. Rockwell

Matthew L. Rockwell
Executive Director

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CHAPTER I
INTRODUCTION

PURPOSE

The rapidly expanding metropolitan area of northeastern Illinois has experienced a continuing deterioration in the quality of its surface and ground waters. Streams, rivers and lakes have been transformed from popular recreation sites into offensive and even dangerous components of the natural environment. A considerable investment has been made in efforts to preserve and enhance the quality of the region's waters through the construction of treatment plants, the partial protection of Lake Michigan by the reversal of the Chicago River, and the enactment of regulations controlling pollutants which may be introduced into the streams and rivers or into the wastewater systems themselves. However, past efforts have not been adequate to provide the quality of water which is now in demand for purposes of public safety and enjoyment.

In the attempt to accelerate the fight against water pollution, new standards of water quality have been established, and new sources of funds made available, principally from the federal government. A further step has been the requirement that areawide, comprehensive planning for wastewater facilities be a pre-requisite to qualify for federal matching funds in the construction of wastewater facilities, in order to insure that the limited resources available to combat pollution will be used in the most rational and economical manner.

The State of Illinois has also influenced the decision to prepare a regional wastewater plan for the six counties in northeastern Illinois. The Northeastern Illinois Planning Commission was created by the Illinois legislature in 1957, for the purpose of preparing advisory plans to assist in the orderly development of the metropolitan counties area. Section 21 of the act creating the Commission specified sewage disposal planning to be within its scope of authority. Recently, the Governor of Illinois announced that the plan adopted by the Commission will be considered the official areawide wastewater and pollution abatement plan, as required by the Federal Water Quality Office of the Environmental Protection Agency.

Since in many respects, the Chicago area extends into northwest Indiana, it is appropriate to consider this plan as one part of an eight-county effort.

The Lake-Porter County Regional Transportation and Planning Commission is in the process of completing a companion wastewater plan for the two adjoining counties in Indiana. The two documents combined will serve as the official areawide wastewater plan for the eight-county region.

The Northeastern Illinois Planning Commission has approached the task of areawide wastewater planning from its own unique vantage point of having a broad-based concern for the natural environment as it is affected by the urban development process. The Commission has already adopted "The Comprehensive General Plan" for the development of the region, which serves as a broad context for wastewater planning. This wastewater plan will become part of the regional plan, adding specifics to the more general goals and policies presented therein.

SCOPE AND CONTENT

The proper context of an areawide plan for wastewater facilities is considered to be that of a total water resource management effort which, in turn, constitutes part of an even more comprehensive plan for future urbanization within the total natural environment. The wastewater plan presented herein must be understood as only one of a series of areawide, functional plans including water supply, stormwater (flood control), open space and recreation, transportation, solid waste disposal, and land use. Unfortunately, not all of these functional plans have reached the same point of development. In particular, the areawide plans for water supply and stormwater have been delayed for lack of funds to the detriment of this wastewater planning effort.

In addition to the obvious purpose of improving water quality through the construction of wastewater treatment systems, this plan takes recognition of the equally important purpose of insuring a positive developmental impact of such systems on the region's urbanization process. It is easy to see that the mere presence or absence of public sewer systems can be a powerful positive or negative inducement to the construction of subdivisions, industrial parks and shopping centers. Consequently, the wastewater plan must recognize a responsibility not to promote development where, for other reasons, growth is not considered desirable. Conversely, wastewater systems should be programmed into areas where growth is considered both plausible and desirable. In making these evaluations, the Commission has referred to the Comprehensive General Plan, the areawide functional plans already completed or in process (including open space, and transportation) and the urban growth forecasts prepared by the Commission on the basis of adopted developmental policies.

The following statements are intended to define the scope of this wastewater plan as presented in the following chapters:

1. As a guiding principle, the plan must be comprehensive in the sense that it concerns itself with the entire cycle of wastewater production and disposal; it deals with present and future problems and needs; and it is properly related to other aspects of water, land and air resources management and to the entire urban development process. This principle means that the wastewater system should be planned and constructed in a way that will help achieve all possible regional objectives as well as handle wastewater loads.

2. The plan must be concerned with the origins of wastewater and the means for dealing with the problems at their sources. It should recommend ways through which the volume of wastewater can be reduced through water conservation practices and through restrictions on the introduction of polluting materials.

3. The plan must provide facilities for the collection and treatment of wastewater at such times and locations and of sizes required to meet future wastewater loads and water quality standards consistent with sound engineering and economic principles and with comprehensive planning goals.

4. The plan should consider the disposal of the liquid and solid by-products of the wastewater treatment process in such a way as to maximize their reuse potential, minimize their negative effects and facilitate their reassimilation into the natural environment.

5. The plan must suggest means for the administrative organization and financing of the wastewater system and other methods of implementation.

6. The plan must provide the basis for the development of short-term (5-year) programs for wastewater improvements which will establish priorities and schedules for individual projects, and identify costs and sources of funding responsibilities.

The wastewater plan consists of two complementary documents: the one presented here and a technical report. Much of the necessary technical information, including detailed descriptions of existing conditions and the discussion of methods and alternatives considered in arriving at the recommended plan, are included in the technical report. The present document contains, first of all, a series of Commission objectives on the subject of wastewater against which all future related projects will be judged. These objectives are set forth in Chapters II and IV. In Chapter III, a series of facility and service area recommendations are made which give further substance to the objectives. These recommended improvements are judged by the Commission to be the best method of achieving the wastewater objectives of this plan. Chapter IV also describes the steps necessary to implement the recommended plan.

Subsequent to the formal adoption by this Commission of the areawide wastewater plan in consultation with affected agencies, a short-range programming process will be initiated for wastewater facilities. This process will establish, on the basis of priorities, developmental impact, and availability of funds, which of the long-range improvements are recommended for construction during the next five years and how they will be financed.

PROBLEMS

This region has the full gamut of problems found anywhere, ranging all the way from those associated with the treatment and discharge of wastes from heavily urbanized areas, to those related to agriculture and live stock operations. In many instances, the full impacts of the pollution loads themselves on the receiving waterways have not been quantified. Similarly, the effluent standards required by current laws or regulations may not in themselves provide the required enhancement to the lakes and streams in our area. Thus, further corrective actions may be required in the future if the conservative approaches now authorized prove unsuccessful. With these general statements as background, the list that follows highlights the principal problems recognized in the preparation of this wastewater plan --- problems for which it has not been possible to recommend solutions in some instances.

1. The recognition that many treatment plants are now overloaded and do not meet effluent standards.

2. The requirement to meet federal-state stream water quality standards.

3. The necessity for wastewater treatment plant effluents to be upgraded to meet state effluent guidelines.

4. The necessity to accommodate future population growth.

5. The protection of ground water supplies.

6. The profusion of independent treatment plants and systems operating without benefit of scale economies.

7. The lack of coordination in the construction or expansion of wastewater systems, thus generating competing pressures and higher individual costs.

8. The demands on tax revenues by other public services, and the bonding limitations imposed on municipal governments.

9. The uncertainties of federal grants.

10. The shortage of skilled treatment plant operators and technicians, particularly in the light of the higher effluent standards being called for by state regulations.

11. The critically short lead time now remaining within which to meet the established effluent standards.

12. The existence of unsatisfactory septic tank installations, which constitute threats to public health and which contribute pollutional loads to the nearby streams and lakes.

13. The existence of combined sewers, which in times of heavy rains bypass treatment facilities, discharging directly into the waterways.

14. The accelerated eutrophication (aging of lakes) represented by excessive algae growths which results from the introduction of nutrients in effluents from treatment plants, surface seepage from septic tanks and runoffs from agricultural areas.

15. The generally unknown pollutional impact of natural runoffs of rainwaters falling on cultivated areas and on areas where concentrated livestock populations are located.

16. Backups of sewers, particularly those carrying combined municipal wastes and storm waters, but also of wastewater sewers having excessively high infiltration of ground waters.

17. The poor condition of a number of sewers, particularly in the less urbanized portion of the region, where initial, faulty construction or lack of maintenance cause excessively high infiltration of ground waters.

18. Disposal of sludge, given the large volumes now generated in the major plants of the region, the still larger quantities which will be produced by certain advanced treatment methods to be required in the future, and the general inability to find suitable outlets or constructive end-uses of the product, not withstanding its well known positive attributes as a soil conditioner.

19. The pressures generated by housing developers and land speculators who purchase low cost lands at distances from urbanized areas, who then arrange for extensions from existing municipal systems, or who provide their own on-site treatment plants.

The most immediate problem to be faced in reaching water quality objectives for this region is that of obtaining the funds necessary for needed wastewater facilities. The magnitude of costs for the work outlined in this plan is expected to run about $3.0 billion, depending on decisions regarding the tunnel plan finally adopted for solving the combined sewer overflow problems in and around the City of Chicago. Based on present local funding capabilities, together with forecasts of funds available from state and federal sources, there may be a substantial shortage to overcome (see Chapter IV). These costs recognize the sizeable population growth forecast for the region.

In addition to costs there is the related problem of organizing to build and operate the wastewater systems proposed in this plan. The present system of county, municipal, and sanitary district responsibilities in wastewater collection and treatment is not conducive to the development of a coordinated wastewater treatment system with economies of scale and equity in the allocation of costs. Recommendations on this point are found in Chapters II and III.

It must be recognized as well that the technological approaches to water quality improvement are undergoing intensive research and development. Wastewater treatment processes represents one, and probably the most well-researched, method of improving water quality. A number of other methods are discussed in this Commission's report "The Water Resource, Planning Its Use." These other methods, including low-flow augmentation, have received some attention, but plans have not yet been prepared whereby they can contribute in a wide-spread fashion to the improvement of this region's water resources. As to wastewater treatment itself, it is necessary that further research be given to the proper processing of particularly troublesome elements such as nutrients and viruses, and to the control of wastewater emanating from special sources such as livestock concentrations. It must be recognized however, that the proposed wastewater treatment systems are at this moment the best available methods for moving immediately to improve the quality of the region's water resource.

CHAPTER II
PLANNING OBJECTIVES

This chapter sets forth some of the basic planning objectives and principles which provide the basis for the recommended wastewater systems. Similar statements of objectives and principles relating to administrative organization and financing are included in Chapter IV. These objectives and principles provide an expression of the Commission's philosophy of wastewater planning and as such constitute a critical element in the regional Wastewater Plan.

WATER QUALITY STANDARDS

One obvious objective of an areawide wastewater plan is that of agreed upon standards of water quality both for treatment plant effluents and for lakes and streams. Such standards are currently in force and changes are also being considered.

In instances where a local unit of government is responsible for constructing wastewater facilities and wishes to achieve higher standards not prescribed by state or federal requirements, such standards will be recognized in the areawide plan for the local agency's jurisdiction.

The fact that water quality standards may change from time to time is one of a number of reasons why the areawide wastewater plan must be periodically reviewed and revised as necessary. The Commission recognizes its responsibility to keep this plan up-dated and in step with changing conditions and technologies.

OBJECTIVE NO. 1

ALL PLANNING AND PROGRAMMING FOR WASTEWATER FACILITIES MUST, AS A MINIMUM, BE IN ACCORD WITH THE STANDARDS AND RECOMMENDATIONS OF THE FEDERAL GOVERNMENT AND THE STATE OF ILLINOIS, AS WELL AS FEDERAL ENFORCEMENT CONFERENCE REQUIREMENTS.

SOURCE CONTROL

The first line of defense against the loss or degradation of our water resources through pollution comes in the regulation of that which might be introduced into a wastewater system or directly into the streams, rivers, and lakes. Recognizing that pollutants may reach the natural water bodies by a variety of means and that present technology does not provide practical methods

for dealing with all pollutants, it is necessary to consider source controls. One example is water pollution through the introduction of excessive amounts of phosphates. Phosphate removal can be achieved at treatment plants but only through expensive processes. Source control may offer an additional solution. The introduction of excessive amounts of phosphates into the wastewater systems could, for example, be limited through restrictions on the sale of consumer products containing high concentrations of phosphates which are likely to create pollution problems.

Certain materials can, if introduced into a wastewater system, cause damage to the system itself. Corrosive materials can cause damage to metal components of the plant while certain toxic concentrations and materials can destroy the natural biological processes which are important to the treatment process.

Direct sources of water pollution (not ordinarily subject to treatment techniques) include contaminants carried by surface runoff, uncontrolled ground water recharge, storm sewer discharges, combined storm and sanitary sewers with overflow bypasses and the dumping of contaminated solid wastes into the region's waters. Not all of the above direct sources are readily subject to control. Ground water aquifers can be protected through careful land use planning--especially planning for locations of sanitary landfills and controlling the disposal of concentrated animal wastes. The practice of dumping contaminating solid wastes which adversely affect the region's waters should be prohibited.

Water pollution originating from natural drainage, infiltration, or storm and combined sewers is perhaps the most difficult type of pollution to deal with. A partial solution to the combined sewer problem in Chicago and nearby suburbs lies in the proposed tunnel-reservoir plan for eastern Cook County discussed in Chapter III. The Illinois Institute for Environmental Quality and other appropriate state and federal agencies should initiate studies to determine the necessity and feasibility of treating storm waters prior to their discharge into receiving water bodies. Federal and state regulations now call for separate storm and sanitary sewer systems in all new developments.

The answer to pollution from agricultural sources must include a variety of techniques including regulation of fertilizers, soil conservation practices, careful choice of sites for feed lots, poultry farms and other intensive sources of pollutants, and, in some cases, use of special treatment facilities. Appropriate state and federal agencies should at the earliest possible date determine the impact of these pollutants and of suitable methods for dealing with them.

In addition to the problem of dealing with the pollutants themselves, the sanitary engineer is faced with the problem of handling vast quantities of water. Wastewater plants may be reduced by separating combined storm and sanitary

sewers, by improving the efficiency of plumbing facilities in homes and other buildings, and by eliminating excessive infiltration into sewers. A further conservation of water (and reduction of wastewater flows) could be achieved through the use of metering as a basis for charging the costs to users and by an equitable cost recovery system applicable to industrial wastes. A variety of water conservation techniques are described more fully in the Commission's report "The Water Resource: Planning Its Use."

OBJECTIVE NO. 2

ONLY WASTES WHICH CAN BE ADEQUATELY TREATED BY AVAILABLE WASTEWATER FACILITIES AND WHICH DO NOT ADVERSELY AFFECT THE WASTEWATER SYSTEMS SHOULD BE ALLOWED TO BE INTRODUCED INTO THE WASTEWATER SYSTEMS.

OBJECTIVE NO. 3

ALL PRACTICAL MEANS SHOULD BE USED TO REDUCE WASTEWATER VOLUMES.

COMPREHENSIVE PLANNING

The introduction to this document pointed out that a regional wastewater plan must be considered as an integral part of comprehensive regional planning. In northeastern Illinois, comprehensive planning has three basic components: (1) the Comprehensive General Plan adopted by the Northeastern Illinois Planning Commission in 1968; (2) related forecasts of population, employment and land use, and (3) a series of functional "systems plans" for regional services and facilities based on the first two components and designed to be mutually consistent.

The Regional Wastewater Plan is especially relevant to the development policies contained in the Comprehensive General Plan and to the areawide Open Space Plan. The Comprehensive General Plan provides the development policies intended to result in a pattern of urban growth judged to be most consistent with the attainment of regional goals. The effect of these policies would be that:

> ". . .most new suburban growth would occur in development corridors consisting of land with convenient access to adequate systems of mass transportation, water supply, sewage disposal and other essential facilities and services."

> "Open lands such as major recreation parks, golf courses, cemeteries, agricultural and large lot residential areas would be the predominant land uses in the spaces between the development corridors."

The most significant form of mass transportation now available in suburban areas is the commuter rail service provided by a number of railroads. Their service has been long established and has helped shape the form of suburban expansion. While other public services and facilities can be extended to any part of the region, commuter rail service is virtually fixed according to the present pattern of rail lines. For this reason, the existing system has taken on a special significance in defining the location of future development corridors.

As mentioned in the introduction, sewer access is considered to be a critical factor in the region's developmental process. It follows, therefore, that extensions of public sewer systems should generally be confined to those lands which have convenient access to existing or potential commuter rail services. As a rule of thumb, such access is considered adequate if the service area of a sewer lies primarily within three miles of a commuter rail line.

In addition to the "development corridor" concept, the Comprehensive General Plan calls for the expansion of the satellite cities of Joliet, Aurora, Elgin and Waukegan. Accordingly, sewer service expansions will also be appropriate for these cities.

Other policies contained in the Comprehensive General Plan have led to the development of the areawide open space plan. The purposes of major public open spaces have been determined to include meeting recreation space needs, conserving natural resources, and directing the shape of the regional development pattern. Land of prime suitability for open space preservation is often subject to development pressures and may be lost to urbanization before public agencies can act. The extension of sewer lines into prime open space areas will increase development pressures and raise the cost of public land acquisition.

An essential step toward achieving the coordination of the various public service and facilities plans is the recognition of a common set of growth forecasts. Too often public agencies have worked at cross purposes by assuming different future development patterns as a basis for extending their services. The provision of public services and facilities will have a powerful impact on the future pattern of development.

This commission has prepared both short and long range forecasts of development by small areas. These forecasts reflect the development policies of the Comprehensive General Plan. They recognize a total regional growth rate considered most likely to occur. In allocating future regional growth throughout the six county area consideration was given to those factors known to attract development and to the plans and policies of local governments.

Such forecasts must obviously be subject to constant re-evaluation on the basis of actual events and changing outlooks. Nevertheless, these forecasts must also remain consistent with official areawide goals and development policies which are also subject to periodic re-evaluation.

To the extent that existing state legislation hampers the achievement of these comprehensive planning objectives, corrective action by the Legislature will be required.

OBJECTIVE NO. 4

PLANNING AND PROGRAMMING OF WASTEWATER FACILITIES SHOULD BE BASED UPON THE COMPREHENSIVE AREAWIDE GOALS AND DEVELOPMENT POLICIES CONTAINED IN THE COMPREHENSIVE GENERAL PLAN. IMPLIED THEREIN IS GENERAL CONSISTENCY BETWEEN THE WASTEWATER SYSTEM AND (1) THE ASSOCIATED FORECAST OF FUTURE DEVELOPMENT AND (2) THE OFFICIAL PLANS AND PROGRAMS FOR ALL OTHER AREAWIDE SYSTEMS.

DESIGN PRINCIPLES

The areawide wastewater systems should be designed so as to minimize costs, at the same time maximize their flexibility to allow for changing technologies. The wastewater systems should also provide for the optimum utilization of natural resources. In striving for these objectives, the uniform application of engineering design principles can, in some instances, result in contradictions. The resolution of such contradictions should be on the basis of optimizing a system's design in keeping with the larger objectives already identified, and should include consideration of these design principles:

Densities supporting sanitary sewer service

According to the U. S. Public Health Service, sanitary sewer systems are, as a general rule, considered economically feasible for population densities of 1,500 to 2,500 persons per square mile. As population densities become lower the per capita cost of extending sanitary sewer service increases sharply while on-site treatment through septic tanks becomes practical in terms of required minimum lot sizes. Sanitary sewer service should also be provided to areas which are already developed but lacking suitable conditions for the continued use of septic systems.

Natural drainage boundaries

In the design of public wastewater facilities, natural drainage boundaries are commonly recognized as logical dividing lines between service areas in order to take maximum advantage of gravity flow. Exceptions may arise when, due to relatively flat topography, a drainage divide can be crossed without requiring pumping stations or where it may prove more economical to cross drainage divides with or without pumping stations rather than to establish additional systems.

Design Periods

Wastewater treatment plants and certain related facilities such as pumping stations, which can be readily expanded at a later date, will usually be constructed to meet the requirements of the next 15 to 20 years. This design flexibility permits the staging of plant expansions in accordance with changing capacity requirements.

Wastewater facilities which cannot be readily enlarged, such as interceptor sewers, will ordinarily have an initial capacity sufficient to handle the forecasted need of not less than 25 to 30 years in the future, and preferably 40 to 50 years.

Economies of Scale

It is a well documented fact that larger treatment plants can process wastewater at less cost per unit volume (considering both construction and operating costs) than a smaller plant. These savings, however, must be balanced against the larger initial investments required for interceptor and trunk sewers. In instances where one or more smaller systems are still in operation, their replacement by a larger system must consider the value of facilities to be abandoned. "Cost Effectiveness" analysis, described further below, will help determine how optimum scale economies may be realized.

In comparing alternative proposals for wastewater systems on the basis of cost, it is important to recognize that each system is likely to vary both in terms of its cost and its benefits. Since some of these costs and benefits will be difficult to measure in a quantitative fashion, it is even more difficult to determine which alternative has produced the highest ratio of benefits to cost. Within this type of analysis, however, it is possible to make a partial funding through "cost effectiveness" analysis in which the alternatives are compared in terms of the measurable dollar costs of obtaining a single set of results, e.g., meeting the standards described in the Illinois Pollution Control Board regulations.

Definitions of costs, however, must be uniformily accepted in order to reach agreement regarding facility plans. It is important, first of all, to calculate costs for alternative systems of facilities on the basis of service areas that are of substantial size (preferably an entire watershed). The danger of defining benefits for a narrowly prescribed service area is that opportunities to reduce costs in other parts of the watershed will be overlooked in pursuit of local advantages. In some cases a service area may be expanded beyond the watershed, where significant economies can be demonstrated.

Cost calculations should include expenditures for constructing new treatment facilities and upgrading and expanding existing plants incorporated into the system. In addition, there are the costs of the sewer systems, including the basic intercepting sewers, force mains, pumping facilities and ultimate disposal of sludge. Additional charges must be added for engineering, contingencies, legal fees, land acquisition, and easements. Costs of maintenance and operation must also be considered, as well as all other necessary costs such as financing or carrying charges. Monetary costs should be considered on a common time reference, with proper discounting of future expenditures.

Water Reuse

Wastewater must be regarded as a valuable potential natural resource. In the past the effluent from sewage treatment plants has been regarded largely as a nuisance to be disposed of. Since the adoption of stringent treatment requirements however, the potential for reuse of these effluents has been greatly increased. Moreover, considering the costs of producing high quality effluent for purposes including recreation, it is important that these costs be recaptured in the form of water resource utilization. The liklihood is that standards for treating sewage effluent will continue to go higher with advances in water treatment technology and in response to growing public pressures for cleaner water. The greatest potential would appear to be for high quality effluent to be used in maintaining stream levels and stream quality so that recreation needs can be met. Industrial cooling and irrigation benefits may also be realized. In any given service area, conforming to a natural drainage basin, a single, large downstream treatment plant offers less water reuse potential than would a series of plants. If low-flow augmentation of the stream is an objective, this design principle must be considered.

Treatment Technology

The wastewater facilities plan presented in Chapter III assumes the continued use of conventional technology for the treatment of domestic and industrial wastes through public sewer systems. These systems do not deal with all sources of waste nor are they the only methods of treatment. Many residents of northeastern Illinois rely on septic tanks for on-site disposal of wastewater. As mentioned earlier, some pollutants totally bypass the public wastewater system. New methods of coping with water pollution are urgently needed if stream and lake water quality standards are to be fully met. At the present time it is necessary to recognize that both public sewer systems and septic systems do not offer a complete solution. For example, conventional treatment plants do not remove all the viruses which exist in wastewater. Septic tanks present an even more serious problem, especially if wrongly located or improperly designed. The specific wastewater facility recommendations contained in this plan are not intended to preclude the introduction, on an experimental basis, of innovative techniques which might produce more benefits.

Sewage disposal by means of individual septic tank systems has been a mixed success in suburban and rural areas of northeastern Illinois. In some areas, septic tanks have been used as interim sewage disposal facilities when it was not feasible to install a wastewater collection and treatment system during initial development. When a sewer system is constructed in the area, the septic tank and tile fields are abandoned and connections made to the sewer system.

Proposed residential, commercial, industrial or other urban developments in which septic systems are indicated as only a short-term method of satisfactory waste treatment should be analyzed in terms of the future feasibility of installing public wastewater systems or on-site biological systems.

Septic tank systems do have a place in the total wastewater plan for the northeastern Illinois area where wastewater collection and treatment systems cannot be economically constructed. However, septic tanks cannot be located indiscriminately, and they are not suitable for certain areas. Failures of septic systems have been caused by one or more of the following conditions:

1. Lot size too small to provide adequate tile field.
2. Soil not sufficiently permeable for septic tank drainage.
3. Ground water level too high or seasonal flooding problems exist.
4. Inadequately sized septic system provided.

OBJECTIVE NO. 5

THE AREAWIDE WASTEWATER SYSTEM SHOULD BE DESIGNED IN ACCORDANCE WITH ENGINEERING PRINCIPLES WHICH WILL LEAD TOWARD THE OBJECTIVES OF MINIMIZING THE COST OF THE SYSTEM, MAXIMIZING ITS FLEXIBILITY TO ALLOW FOR CHANGING TECHNOLOGIES AND THE OPTIMUM UTILIZATION OF THE REGION'S LAND AND WATER RESOURCES.

WASTEWATER TREATMENT BY-PRODUCTS

This Commission's Report, "Managing the Air Resource," pointed out the significant additions to air pollution made by the improper burning of sludge generated as by-products of wastewater treatment. Other treatment activities can also cause obnoxious odors if improperly designed and operated. With respect to the Metropolitan Sanitary District of Greater Chicago (MSDGC) sludge disposal activities, the exportation of its sludge to outlying areas for land enrichment is strongly recommended. All wastewater treatment facilities should, in any case, be subject to strict air pollution control regulations as adopted at the local, state or federal level.

CONCLUSION

Given the series of objectives and principles set forth above, it then

becomes possible to prepare recommendations for specific wastewater facilities. Each of the recommendations for facility construction presented in the next chapter have been found to fit these objectives and principles more effectively than did the known alternatives. In cases where one objective led to a result in conflict with another, a resolution was made on the basis of an analysis of relative costs and benefits.

In a number of instances, the wastewater facilities recommended were initially proposed in plans previously prepared by counties, municipalities, or sanitary districts. Where such plans existed, they were evaluated against the objectives and principles presented in this chapter. Alternatives were developed in those cases where a closer alignment with these recommendations was considered feasible.

CHAPTER III
RECOMMENDED WASTEWATER SYSTEMS

AREAWIDE SYSTEM

Included in this chapter are maps (Figures 2 thru 7) and Tables (1 through 6) which present the future wastewater systems and the major facility improvements needed within each of the six counties. These facilities are in keeping with the policies of the Commission as set forth in the preceding chapter.

Also included is Figure 8, which covers the entire six county region. This map shows the major regional facilities that will make up the wastewater treatment system when the plan has been achieved. Local facility improvements, (i.e., local lateral and small interceptor sewers) are not shown. They will be considered consistent with the plan if they meet the policies outlined in the previous chapter. Consideration will also be given to municipal type wastewater service in areas not depicted by this plan if existing population densities are found to require it or local problems dictate this service.

COOK COUNTY SYSTEM

The principal pollution abatement problem in Cook County is the adverse impact on the streams, and at times on Lake Michigan itself, caused by the overflows from combined sewers during periods of heavy rains. Another problem concerns the condition of the streams themselves, reflecting the adverse impact of these overflows as well as the treated effluents. In connection with the latter point, upgrading of the existing treatment plants is called for. Another problem is the existence of unsatisfactory septic tank systems which pose local health threats and contribute to the pollution of waterways. The pressures of urbanization are real, demanding more capacity than is available in existing plants. Finally there are a number of industries discharging effluents directly into the waterways or into municipal type sewers, with or without pretreatment. Several of these either involve very large quantities of water, or solid (suspended) wastes generated by sophisticated manufacturing processes.

The MSDGC has developed a plan called "Ten Year Clean-Up and Flood Control Program" which is designed to handle projected wastewater loads in most of suburban Cook County at the time of its ultimate urbanization. That document serves as the basis for most of the recommended facilities presented here. However, several important differences should be noted. Modifications to the MSDGC proposal have been made in those instances where the District's future land use and population assumptions were contrary to the more recently enacted development

policies and population forecasts of the Comprehensive General Plan adopted by the Northeastern Illinois Planning Commission. One major exception is in the southeastern corner of Cook County in the general vicinity of East Chicago Heights. The Comprehensive General Plan for Northeastern Illinois, supplemented by the Regional Open Space Plan and the population forecasts supporting these plans, indicates substantial preservation of permanent open space and other nonintensive use of land in that area.

The Regional Wastewater Plan recommends rebuilding the East Chicago Heights treatment plant instead of conveying wastes in a new sewer system to the Calumet plant as proposed by the Metropolitan Sanitary District. In this area, the Wastewater Plan also recommends sewer and plant capacities for a smaller population than is foreseen in the MSDGC proposal.

A second exception to the Ten-Year Program concerns the Poplar Creek basin in northwestern Cook County. The wastewater system initially recommended by that Program has been modified. Service for the basin, restricted to the area generally south of the Northwest Tollway, will be provided at the Sanitary District of Elgin Main plant through a contractual arrangement between the two sanitary districts.

There now exists a small area in the extreme northeastern portion of the Poplar Creek drainage basin, north of the East-West Tollway, which was annexed to the MSDGC by the State Legislature in past years. However, wastewater service to that area and to any other areas north of the East-West Tollway which may be annexed in the future will not be provided interceptor sewer service by the Poplar Creek system.

In the extreme northwest corner of Cook County (see Figure 2), the MSDGC service area boundary is a north-south line located about two and one-half miles east of the Kane-Cook County line. In that vicinity, a portion of the Poplar Creek drainage basin lies outside the MSDGC area. Further west, the present Sanitary District of Elgin service area boundary extends into Cook County and even into the Poplar Creek basin. Because of the proximity of these two district boundaries, it is not possible at this time to prescribe a common interface. Accordingly, Figure 2 shows question marks in this unassigned area. The understanding is that the sanitary district which is first able and authorized to provide service will do so. At that time, service area boundaries will again be adjusted.

Other exceptions to the District's proposals concern the size of sewers in areas where their design capacities are greater than would be required to serve the population forecasts of the Comprehensive General Plan for the region, or the placement of wastewater facilities in areas identified with high priority for open space acquisition in the Regional Open Space Plan.

Finally, it should be noted that there will very likely be differences with the MSDGC proposals as to when improvements or expansions should be made. The principle espoused by the Plan is that sewer improvements should be timed to coincide closely with new urban growth. Almost certainly this will mean that some of the improvements proposed in the MSDGC Ten-Year Program should be deferred beyond that time. Incorporation of any improvement in this Regional Wastewater Plan merely means that it will be needed when the area is fully urbanized. The question of when within that period the improvements should be built will have to be answered when priorities and construction schedules are established in the short-term programming process that will follow.

A tunnel system has been determined to be the best solution for solving the overflow problems caused by combined sewers in the 375 square mile area within and adjacent to the City of Chicago. (See Figure 2A and Table 1B.) This Regional Wastewater Plan recognized the desirability of constructing these tunnels approximately two hundred feet below the surface, generally aligned under the waterways of the North Shore Channel, the Chicago River, and Des Plaines River, the Chicago Sanitary and Ship Canal, the Cal Sag Channel, the Calumet River and Little Calumet River. This Plan also recognizes the need for three surface reservoirs.

A component element of the plan for controlling the combined sewer overflow problems will be the necessity for upgrading and expanding treatment plants, interceptor sewer extensions, water dredging, sludge disposal, and the provision of stormwater storage facilities in separately sewered areas, all by the MSDGC. These items are over and above the tunnel system described above.

And, it should be emphasized that the Tunnel-Reservoir system will only provide the main conveyance system. It will still be the responsibility of each community in the affected areas to construct its own local sewers to carry its wastes to the drop shafts and tunnels of the system. Construction of these local facilities will help reduce sewer backups and local stormwater drainage problems. The required local systems and costs are not included in the Tunnel-Reservoir Plan.

The depiction of the tunnel system shown in Figure 2A must be considered very generalized, since engineering of the various component parts is not yet completed. The construction of such a massive project in a highly urbanized area has the potential for significant environmental impacts. These would result in part from such matters as reuse or disposal of excavated materials, interface with abutting local sewer systems, multiple uses of land acquired for the project and impacts on groundwater supplies. These and other potential impacts must be considered as the location and design details of system components are studied.

The Regional Wastewater Plan recognizes the advantages and desirability of having the Sanitary District of Bloom Township provide wastewater service in portions of Bloom Township and in northern Will County, generally in the Thorn and Deer Creek areas. Attention is invited to the aggressive construction which is going on in those areas, related to the development of the new town of Park Forest South, the new Governor's State University and industrial development located along the Illinois Central Railroad tracks. Wastewater service is now being extended by local developers to portions of those areas. The Regional Wastewater Plan calls for all service to be provided by the Sanitary District of Bloom Township at its present plant in Chicago Heights, which is to be expanded, and at a new plant to be constructed on Deer Creek, in the southwestern quadrant of the service area. Construction of interceptor and trunk sewers will be necessary. Chicago Heights, South Chicago Heights, Park Forest, Park Forest South, Governor's State University, Steger, Monee and Crete are all to be included in the SDBT service area. All other communities in Bloom Township which now still maintain and operate their own independent wastewater treatment plants should be served by the MSDGC, except for Homewood. As an interim facility, recognition is given to the capacity and present condition of the village's plant. Ultimately the best interests of the people can be served through the consolidation of all systems with the MSDGC.

Specific plant and sewer recommendations for Cook County are listed in Table 1 and illustrated on Figure 2. Each facility shown on Figure 2 is identified in Table 1A. Also included are facilities at water treatment plants in the county for the elimination of backwash and solids discharge to Lake Michigan.

DUPAGE COUNTY SYSTEM

The recent rapid growth in DuPage County has caused the proliferation of a large number of small, independent wastewater facilities, the capacities of many now being exceeded. The resultant problems caused by inadequately treated effluent discharges continue to affect the quality of the water in the county's streams. Recognizing the pressures of continuing growth and the economies of scale which can be generated through consolidation into a small number of larger systems, this Plan calls for a county-wide wastewater operation to be implemented through nine subregional service areas. (See Fig. 3.) Each facility shown on Figure 3 is identified in Table 2A.

Most of the existing plants need upgrading to meet the new effluent standards. A number of them now receive excess flows in times of wet weather, a situation caused, in some instances, by the presence of combined sewers and in others by excessive groundwater infiltration. To correct these conditions, plants need to be expanded and upgraded, sewers repaired or bypass facilities installed at the treatment plant sites so as to provide preliminary treatment and chlorination to the surplus flows before they are discharged into the streams. In other areas,

septic tank problems exist which need to be corrected by the provision of municipal type wastewater service. Recently, a number of dolomite wells have reacted positively to tests of MBAS (Methylene Blue Active Substances). These are indicative of the presence of detergents, most probably introduced by septic tank effluents. Since the county is dependent on groundwater supplies, controlling this pollution is necessary so as not to endanger the availability at reasonable costs of this vital resource.

The Plan calls for the phase construction of the system shown on Figure 3 and described further in Table 2. Essentially, it will involve the retention, upgrading and expansion of the West Chicago, Wheaton, Glen Ellyn, Downers Grove, Woodridge and Hinsdale plants, as well as both the Addison South and Addison North plants; the consolidation of the Elmhurst and Salt Creek Drainage Basin Sanitary District plants, together with their upgrading and expansion; and the construction of a new plant at the confluence of Springbrook Creek with the DuPage River (in Will County) to service the Naperville area.

Within the general West Chicago service area, a sub-service area has been established for those portions of the communities of Bartlett and Hanover which are located in DuPage County. A new plant will be constructed in Bartlett and existing plants in that area will be phased out of service.

KANE COUNTY SYSTEM

The principal pollution problems in the county are associated with the Fox River, its use and abuse. The transport of pollutants from upstream areas, together with the introduction of other contaminants from local sources, have combined to threaten the aesthetic and recreational values of the Fox River. Existing treatment plants need upgrading to meet effluent standards and expansion to accommodate continued growth in the area. Several plants now receive excess flows in times of wet weather, a condition caused principally by the presence of combined sewers. To correct this condition, sewers must be separated or facilities installed so that excess waters may at least receive primary treatment and chlorination before discharge. The problems generated by algae growths call for the removal of phosphates from the wastewater effluents before they are discharged into the Fox River. There are several unquantified pollution problems in the county centered around agricultural and animal wastes. These need to be identified before

definitive corrective actions can be taken. These are areas served by unsatisfactory septic tank systems. These need to be serviced by municipal type wastewater systems so as to protect environmental health, per se, and the aquifers on which the county is dependent for its water supplies.

In Dundee Township, which is located in the extreme northeast corner of the County, separate service areas have been depicted for Carpentersville and West Dundee, with the latter also scheduled to provide wastewater service to the village of Sleepy Hollow when local sewers are installed. (See Figure 4.) Each facility shown on Figure 4 is identified in Table 3A. The East and West Dundee wastewater treatment plants, now located on opposite sides of the Fox River and operating without benefit of economies of scale to either community, should be consolidated into an expanded West Dundee plant, with service being provided by a contractual arrangement. While no other consolidations were found to be economically feasible at this time, the option to do so should remain open in order to accommodate changed conditions.

A separate sector is depicted in the extreme northern part of Dundee Township, to be serviced by the village of Algonquin which is actually located a short distance further north, in McHenry County. And, in the southern portion of that township, the Sanitary District of Elgin will provide the required service in that area and in other more extensive areas located further south.

Within Dundee Township, allocation of responsibility for servicing the Hill property has not yet been resolved. Thus, the area in question has been outlined separately and is identified by a question mark.

An expanded service area is recommended for the Sanitary District of Elgin, with that district also providing wastewater service in its Main plant for the MSDGC residents of the Poplar Creek area in Cook County. This service will be based on a contractual arrangement between the two sanitary districts. The MSDGC will finance, construct and operate the interceptor sewers which convey wastes to the Elgin Main plant. The MSDGC will reimburse SDE for plant capacities and facilities reserved and made available to the MSDGC. Both districts will share operating and maintenance costs for the treatment of their wastes based on relative volumes and strengths processed for each.

In the extreme northwest corner of Cook County (see Figure 2), the MSDGC service area boundary is a north-south line located about two and one-half miles east of the Kane-Cook County line. In that vicinity, a portion of the Poplar Creek drainage basin lies outside the MSDGC area. Further west, the present Sanitary District of Elgin service area boundary extends into Cook County and even into the Poplar Creek basin. Because of the proximity of these two district boundaries, it is not possible at this

time to prescribe a common interface. Accordingly, Figure 2 shows question marks in this unassigned area. The understanding is that the sanitary district which is first able and authorized to provide service will do so. At that time, service area boundaries will again be adjusted.

The Tri-City communities of St. Charles, Geneva and Batavia warrant continued independent service for their respective communities. However, here again a unified service area is recommended as shown in Figure 4. Future detailed studies may indicate the desirability of consolidating the Geneva and Batavia plants, particularly if expansion of the former is restricted by the nonavailability of adequate space. One other feature that needs more detailed study is the use of Batavia's secondary effluent by the National Accelerator Laboratory at Weston. Current plans call for the NAL to use Fox River water, withdrawn during periods of high flows and stored for year round industrial cooling. This Plan calls for the NAL to use the Batavia effluent. If the difference in pretreatment costs between Fox River water and the Batavia secondary effluent is not significant, modest savings can be generated. This is particularly so since phosphates will not need to be removed from the effluent prior to use by NAL. On the other hand, wastewaters discharged into the Fox River will have to have these nutrients reduced as directed by state regulations.

The general limits of an expanded service area for the Aurora Sanitary District (within Kane County) are also shown in Figure 4. If responsibility is assumed now for all wastewater service in the prescribed area, it will eliminate the random

construction of treatment plants, normally associated with speculative and uncontrolled land development policies. Because of fluctuating interest and changing plans, the proposed interceptor sewer shown in Figure 4 as servicing the Sugar Grove area is excluded from this Plan at this time, pending the resolution of a number of factors. It is visualized that in the remainder of the county the existing plants will remain independent, municipal systems. The status of Plant No. 14, St. Charles Skyline Estates Sewer and Water Company, remains undefined at this time, given the absence of projected growth in the area. A new treatment plant is recognized for the Wasco Sanitary District.

Tabular data on the systems are shown in Table 3.

LAKE COUNTY SYSTEM

The principal pollution problems in eastern Lake County are caused by the discharge of effluents into Lake Michigan. Five small treatment plants operated by the North Shore Sanitary District, located on the Lake front, provide primary treatment only and thus produce low quality effluents. Fort Sheridan and the U.S. Naval Training Center, Great Lakes, also discharge effluents into Lake Michigan, as do two major industries. More stringent effluent standards necessitate the upgrading of existing facilities. In times of wet weather, excessive infiltration in municipal systems introduces flows which exceed plant capacities and thus require by-passing and the discharge of partially or untreated (combined) sewage into Lake Michigan. The removal of phosphates from effluents discharged into Lake Michigan is another new requirement. There are the problems of inadequate capacities to accommodate growth or to serve urbanized areas now on septic tanks which are proving unsatisfactory. The over-riding problem has been the discharge of effluents into Lake Michigan which has given cause for alarm in connection with water supply and recreational use of that body of water.

In the central and western portions of the county, water pollution problems are generated by a number of factors. Urbanization is scattered and has caused a number of small and inefficient wastewater treatment plants to be constructed. In some areas, excessively heavy groundwater infiltration into existing sewers has caused treatment plants to receive far more flows in wet weather than they can accommodate. In localities where treatment plants are lacking, septic tanks have been installed.

Because of poor soil conditions, high water tables and the dense concentration of homes on small lots around attractive lakes, nuisances and health problems have been generated. The drainage patterns in most of the central and western portions of the county involve a large number of lakes connected by sluggish or intermittent streams. This causes the effluents of one community to become the

sequential problems of other downstream villages and cities. Nutrients in the wastewaters have contributed to the heavy algae growths of the Chain of Lakes, creating a condition called eutrophication, or aging. Thus, the viability of this prime recreational area for northeastern Illinois is now seriously threatened. Effluent standards, including the requirement for phosphate removal before discharge into the Fox River, call for extensive plant improvements. And, the pressures of continued growth require increased capacities or the construction of new facilities.

The Plan calls for the abandonment of the Lake Bluff, Lake Forest, Park Avenue, Ravine Drive and Cary Avenue plants, all on the lakefront. The existing North Chicago and Waukegan plants, also on the lakefront, will be retained and modified for service as noted below. The existing Clavey Road plant, located in Highland Park, will be expanded and its effluent discharged into the Skokie River. A new plant will be constructed in the vicinity of Gurnee to treat local wastes as well as those from areas to the east, including those from the North Chicago plant, which will become a satellite of the proposed Gurnee plant. The Waukegan plant will be expanded and upgraded to provide tertiary treatment with effluents piped to the Des Plaines River, about five miles west. While arrangements are not yet formalized, wastes from Fort Sheridan and the U.S. Naval Training Center are expected to be treated by the NSSD.

Since the expansion of the Clavey Road plant is limited to 18 MGD, wastewater loads in excess of that amount will be treated in a plant located near the Lake-Cook county line, just west of Milwaukee Avenue. At the present time, the Lake County Department of Public Works operates a small plant here, which is to be expanded to accommodate both the Lake County requirements and NSSD needs.

The most critical water pollution problem in northeastern Illinois is in the northwestern part of Lake County. This judgment is based upon pollution in the Chain of Lakes, together with concurrent eutrophication, the health hazards from malfunctioning septic tanks, and the inadequacies of existing wastewater treatment plants.

In the Northwest Sector of Lake County, this Plan calls for the County to construct a subregional interceptor sewer system designed to phase out existing treatment plants, and to provide service to unsewered areas. The Village of Fox Lake will construct a new plant in the vicinity of its present facility, where all Sector wastes will be treated. Contractual arrangements will be negotiated between the County and the local communities and sanitary districts for sewer service charges, and between the County and the Village of Fox Lake for the treatment of wastes in the latter's plant. The outfall of the Fox Lake plant will be in Pistakee Lake, with its terminus

near the mouth of the Fox River, unless final design shows another location which is equally cost effective. Service to the Sunnyside area of McHenry County (see Figure 6) may be extended at a later date if local citizens so desire and mutually satisfactory arrangements can be worked out with the Lake County Department of Public Works officials. A formal Plan revision will be processed at that time.

In the Southwest Sector, the construction of a new plant on the Fox River, about one mile north of Illinois Highway 22, is contemplated. The Barrington plant will be retained until sometime after 1980. The Wauconda plant will remain independent, and will be expanded and upgraded.

In the northeastern sector of West Lake County, the Plan calls for the retention, expansion and upgrading of the present, small Lindenhurst and Grandwood Park plants. The low existing and forecast populations in that area do not warrant centralization of treatment facilities.

In the Northeast Central Sector, an interceptor sewer leading from Highland Lake, eastward through Grayslake and Gages Lake, will be constructed eliminating the existing plants at these last two mentioned localities. The sewer will continue further east, terminating at the site of the NSSD Gurnee plant where treatment will be provided by the NSSD on a contractual basis.

In the Southeast Central Sector, the Plan calls for the existing Mundelein and Libertyville plants, together with a proposed satellite Mundelein plant which is to be located adjacent to and due south of the Libertyville plant, to form the focus of a coordinated system for the major part of the Sector. An interceptor sewer running south from the existing Countryside Manor plant (which is to be phased out of operation) to the Libertyville plant is also planned. This decision was based on information which indicated that Libertyville itself needed to construct a similar relief sewer within its area of responsibility. This sewer could be readily expanded in size and lengthened to phase out the Countryside Manor plant. If detailed studies show that this sewer is not feasible, the Countryside Manor plant can be relocated as an independent facility to serve the northern part of the sector. Small independent plants are called for at Vickory Manor, Sylvan Lake and Indian Creek. Distances, low population densities and the high cost of interceptor sewers all mitigated against consolidation.

In the Southeast Sector, the existing county-owned plant, located just north of the Lake-Cook county line and west of Milwaukee Avenue (U. S. Highway 45), will be used as the site of a subregional plant to be owned and operated by the county. Interceptor sewers will be constructed as shown on Figure 5. The only other independent system will be the Lake Zurich Southeast plant. Each facility shown on Figure 5 is identified on Table 4A.

Deerfield will continue to operate, expand and upgrade its plant, providing service to the village itself and to adjacent areas as depicted on Figure 5.

Wastewaters excess to the capacity of the NSSD Clavey Road plant will be conveyed to the County's Des Plaines plant described above and treated under a contractual agreement to be worked out between the County of Lake and the NSSD.

Facilities for the elimination of backwash and solids discharge from water treatment plants to Lake Michigan are included.

Finally, while the Plan recognizes the important interim role for the North Shore Sanitary District, it also recommends that the long run interests of the North Shore area and entire County could be better served through an eventual merging of the District into the County, or as an alternative, the expansion of the NSSD to serve the entire County.

MCHENRY COUNTY SYSTEM

Pollution problems in McHenry County stem from a variety of factors. Existing plants need upgrading to meet new effluent standards. For a number of these, phosphate removal will be required to reduce eutrophication, or aging, of the receiving water bodies. A number of plants now receive excess flows in times of wet weather, a condition caused principally by deficiencies in the sewers. To correct this, plants need to be expanded, the sewers corrected, or facilities installed at the treatment plant to provide preliminary treatment and chlorination to the surplus flows before discharge. In other areas, septic tank problems exist which need to be corrected by the provision of municipal type wastewater service. And, several lakes which have recreational and aesthetic values are being threatened by pollution or eutrophication. Problems associated with the disposal of animal wastes from feedlots and concentrated poultry operations have not yet been specifically quantified. Since the county is dependent on groundwater supplies, control of this potential pollution source is necessary.

Figure 6 and Table 5 show the recommended wastewater improvements. Each facility shown on Figure 6 is identified in Table 5A.

The concentrations of population, the number of wastewater treatment facilities, existing pollution problems and the viability of the area for continued growth, all focused attention to the southeastern area of McHenry County. Consideration was given to combining all or selected areas into a centralized system. Given the higher concentrations of growth in the upper reaches

of the drainage areas, together with the distances separating the communities, no economic benefits could be developed by any such consolidations. However, it was determined that if the communities involved were served by a centralized wastewater agency which would maintain, operate and expand (as required) the treatment plants, modest savings could result to the local citizens by reduced administrative, technical and professional costs. This concept takes on added significance in the light of the new effluent standards which will require increased laboratory and operational skills in the plants, which themselves must be upgraded to meet new water quality standards.

In connection with the above study consideration was also given to the program of municipal type wastewater service to the Oakwood Hills-East Gary area, located due north of Fox River Grove, but outside the service area depicted on Figure 6. It was found that because of ground slope and other factors, service, when required, could best be provided by the subregional plant proposal by the Lake County Department of Public Works in the Lake Barrington area.

It is visualized that in the remainder of the county the existing plants, and those to be constructed in the future, will remain independent municipal systems. However, opportunities exist for professional and technical guidance to be provided by a department in the county level of government, thus reducing costs.

Service to the Sunnyside area of McHenry County may be extended at a later date by the Lake County Department of Public Works, with treatment to be performed at the Village of Fox Lake wastewater treatment plant. This extension of service will be dependent upon the desires of local citizens and upon the completion of mutually satisfactory financial arrangements with Lake County. A formal Plan revision will be processed at that time. Further extension of service to the Nippersink Creek drainage basin by Lake County was studied but was not found to be cost effective.

In the preparation of this Plan, consideration was given to the commendable efforts underway at the county level to investigate agricultural and feedlot pollution sources, and in the preliminary attempts to find closed, natural systems which would not call for treatment plant effluents to be discharged into the waterways. However, these local studies are just getting underway. Accordingly, the plans for McHenry County may be revised in the future if viable alternative solutions are developed and accepted by the taxpayers.

WILL COUNTY SYSTEM

Pollution problems in Will County are caused by a variety of factors. The large number of small, independent, undersized plants in the Greater Joliet area at times causes difficulties by discharging unsatisfactory effluents. The larger plants in that area provide primary treatment only, with the Joliet and Lockport plants now being upgraded to provide secondary treatment. In the Fairmont area, between Lockport and Joliet, municipal type wastewater service and even septic installations are lacking. Several incorporated municipalities still rely on septic tanks which, in a number of instances, have created nuisances and health problems. Among these, only Braidwood has any plan to correct the situation. There are several sizable industries in the county which discharge large quantities of wastewaters direct into the receiving waterways.

Where municipal type service is provided, the older communities have areas serviced by combined sewers, which in times of wet weather cause discharges of untreated wastes to be made direct into the waterways. The pressures of growth, particularly in the Greater Joliet Area, have caused existing plants to be overloaded and require expansion. The terrain is much more incised here than in most of the other parts of northeastern Illinois. This factor, together with bedrock being found close to the surface in a number of urbanized areas, have created construction and operating problems related to sewers and pumping stations. Because of political attitudes in certain larger communities, extension of wastewater service beyond corporate limits is not looked upon with favor. Agricultural and animal wastes are now being identified as pollutants and must be considered in the overall evaluation of stream water quality.

Improvements recommended for Will County are shown in Figure 7 and Table 6. Each facility shown on Figure 7 is identified in Table 6A. The dispersed patterns of growth within the county, together with the long distances separating communities, both mitigate against consolidation of wastewater facilities into large, centralized systems at the present time.

The City of Joliet has the largest wastewater collection and treatment system in the county. However, its service area limits coincide with the city limits, since the present policy is not to provide wastewater service to new areas unless they are annexed. The expansion of the Joliet wastewater system into new areas is hampered when the people to be served do not desire annexation. This is particularly true of adjacent, established municipalities which wish to retain their individual identities.

Joliet has adopted a plan for serving the western portion of the city and adjacent areas by a new west side intercepting sewer system and wastewater treatment plant as shown on Figure 7. The principal reason for this new construction is the inability of the existing Joliet sewer system to adequately serve this area. Consequently, it is planned to divert a portion of the wastewater in the western area away from the existing sewer system and East Side treatment plant to the new West Side system. It is worthy to note that the upstream end of the proposed new West Side interceptor will terminate near the recently constructed Crest Hill wastewater treatment plant. This Plan calls for the Joliet West Side plant to provide service to the Crest Hill area, as well as areas to the northwest in the direction of Plainfield, as shown in Figure 7. Given the presence of rock close to the surface which results in high sewer costs, it may be that future detailed studies will show it to be more economical to retain and expand the Crest Hill plant and continue its use under the jurisdiction of a subregional wastewater authority.

The main sewer leading to the proposed West Side Area treatment plant would extend through a substantial amount of land not forecasted for development over the next 25 years. The intent of this sewer is to convey wastes for treatment at the new plant located on the Des Plaines River. The additional sewer construction, while it may obviate the need for tertiary treatment, would provide an impetus to scattered development. Steps should be taken which would limit the access to that trunk sewer for the next two decades in areas not ready for urban development.

The next most favorable direction in which the City of Joliet may expand is eastward, generally along Hickory Creek. At present, the city's Hickory Creek interceptor sewer ends near the Elmhurst Cemetery. However, the city boundary has been extended three miles further eastward in a narrow strip along the north side of Hickory Creek to Higginbotham Woods, which are within the city limits. Between the terminus of the Hickory Creek interceptor and Higginbotham Woods, there are five miscellaneous treatment plants along with the Oak Highlands-Ingalls Park Sanitary District plant. About one mile east of Higginbotham Woods is the New Lenox wastewater treatment plant. There also are three miscellaneous and one

industrial treatment plant further east of New Lenox as well as other treatment plants serving Arbury Hills, Mokena, Frankfort and Prestwick.

While service in this Hickory Creek Area appeared to be logical as an extension of the Joliet System, political realities, necessity for immediate action and other factors as well are all combined to result in the service provided by three, independent systems: the Mokena-Frankfort system at the eastern most extreme end of the area, the New Lenox and the Oak Highland-Ingalls Park areas. Service north of Joliet, into a portion of the Fairmont area is also visualized.

The Lockport wastewater system can serve as the nucleus for an expanded area focusing on that city as the hub. Included in such an expansion will be wastewater service to the northern portion of the Fairmont area.

As noted earlier, the wastewater treatment plant for the Naperville area in DuPage County will be located at the confluence of Springbrook Creek and the DuPage River, in Will County.

Service for the rapidly developing northeastern portion of the county, in the Thorn and Deer Creek areas, will be by the Sanitary District of Bloom Township. Proposed facilities are shown in Figure 7, and should be considered along with related information which appears in the discussion for Cook County. Facilities in this area, along the Illinois Central Railroad, would encourage development consistent with the corridor concept of the Regional Plan.

Other wastewater planning areas include Romeoville and Plainfield, the latter being forecasted by NIPC to become contiguous to an expanding Joliet by 1995. Each of these would seem to warrant its own separate system on the basis of drainage patterns.

Other smaller municipalities should each be provided with public sewer service as necessary in order to protect the public health in keeping with projected growth. Population forecasts for these small facilities and estimated costs have not been completed, given their small sizes and many unknowns influencing their growth patterns.

CHAPTER IV
STEPS TOWARD ACCOMPLISHMENT

The areawide wastewater systems presented in the preceding chapter can, in themselves, accomplish many things. First, they are designed to assure that the effluents released into the streams, rivers, and lakes of northeastern Illinois will be of a quality which will meet current state and federal standards. Also, the proper location, sizing and phasing of the various links in the system will help to achieve the regional goals and policies set forth in the Comprehensive General Plan. The limitations of the Plan must also be recognized. Chapter II noted some sources of pollution which are not subject to treatment by municipal and industrial wastewater facilities. Contaminated storm sewer dischargers are a case in point. Also, there is the inability of present day wastewater treatment plant technology to deal with all pollutants including, for example, certain harmful viruses.

Recognition is also given to the fact that the design of a regional wastewater system cannot by itself bring about a more desirable regional development pattern. Other public works activities and governmental policies, especially those relating to land use and open space preservation, must be coordinated to achieve the desired result.

Despite the limitations, the proposed wastewater Plan can be considered to represent a major positive step toward a better environment and worth the cost of implementation. That cost will involve both a financial commitment and a commitment to a reorganization of governmental responsibilities.

COSTS AND METHODS OF FINANCING

The facilities recommended in Chapter III will require an estimated initial expenditure of $728 million and an additional subsequent cost of $2.3 billion. These amounts must be compared to present and projected fund availability from all sources in order to determine a strategy of financing.

Local expenditures for wastewater facilities derive from county, municipal and sanitary district revenues, bonds, grants and loans. Within certain prescribed statutory and constitutional limits each has the authority to issue both revenue and general obligation bonds, to charge fees for services rendered, and to draw on its general tax revenue for the construction and operation of wastewater facilities.

Federal and state funds are also available and will need to be used in order to supplement insufficient local dollar resources.

One of the problems facing local governments in their attempt to finance wastewater facilities is the difficulty of assigning costs on an equitable basis. This problem has proved especially difficult for county governments and large sanitary districts since they must tax over their total jurisdiction to pay for an improvement benefiting only part of the jurisdiction. An equitable allocation of costs is also difficult to achieve between areas already served and those seeking service, or between those whose demands on the system are above or below average.

Finally, the relative responsibilities of local, state and federal governments for funding wastewater systems imply not only that local funds are insufficient but also that pollution abatement in northeastern Illinois will benefit the state and the nation. However, since state and federal funds are typically granted on a matching basis, they do not solve the problem of local inequities.

Among the techniques available for assigning costs in an equitable manner are a variety of user charges including special charges to industries which produce extra-ordinary pollution loads. Counties and large sanitary districts should be allowed to create sub-jurisdictional service areas within which revenue could be raised for the exclusive purpose of paying the cost of wastewater facilities in the respective service areas.

OBJECTIVE NO. 6

THE COST OF CONSTRUCTING AND OPERATING THE WASTEWATER SYSTEM SHOULD BE ASSIGNED PRIMARILY TO THOSE WHO GENERATE THE DEMAND FOR SERVICE.

ADMINISTRATIVE ORGANIZATION

The previous chapter presented a wastewater system which establishes a number of relatively large service areas. It then becomes necessary to adjust governmental jurisdictions in recognition of those boundaries. Additional points to consider include the following:

1. The need to coordinate the financing, construction and operation of the wastewater system with other regional and sub-regional development activities such as water management, open space preservation, transportation, and comprehensive planning.

2. The need to hire and train operating staffs. A wide range of skills is required including engineering, administrative, legal and scientific.

3. The need to finance costly improvements, including the treatment plants and interceptors plus sophisticated equipment for testing,

monitoring, and operating a wastewater system.

4. The desirability of standardization in design features and specifications for purposes of maintenance and repair.

5. The need to coordinate the collection and treatment of wastewater throughout the region.

6. The need to maintain local control of wastewater services where it does not run counter to the regional interest.

On the basis of the above considerations, the Commission recommends that the principal responsibilities for constructing and operating the major components of the areawide wastewater system be established at the county scale and preferably by the general county government. This recommendation is based on the principle that larger operations allow specialization of activities, represent greater financial strength, make possible greater coordination and achieve economies of scale.

Other levels of government would retain the kinds of responsibility already available to them. Municipalities and/or local sanitary districts should retain responsibility for the "retailing" of public sewer service to the consumer through construction and maintenance of local sewers. The planning or major wastewater facilities should be a cooperative responsibility at all levels of government with the results put forth in a regional plan such as represented here.

Recognizing that the organization policies described above cannot be put into effect immediately, certain interim arrangements must be accepted. This applies especially to the larger sanitary district and municipal systems recognized in Chapter III.

In the case of county-wide sanitary districts, provision should be made for close coordination with the county government in order that wastewater facilities may be provided in a manner consistent with county zoning, subdivision regulations and open space preservation and other public works activities. This can be achieved through an arrangement similar to that now existing between local county governments and forest preserve districts with identical board memberships, or by providing for county approval of a district's capital expenditure budget.

OBJECTIVE NO. 7

ESTABLISH GOVERNMENTAL RESPONSIBILITIES FOR MAJOR WASTEWATER FACILITIES AT THE COUNTY-WIDE SCALE PREFERABLY WITH THE COUNTY GOVERNMENT, AND PROVIDE FOR THE COORDINATION BETWEEN WASTEWATER FACILITY CONSTRUCTION AND OTHER DEVELOPMENTAL ACTIVITIES OF COUNTY GOVERNMENT.

PRIORITIES AND TIMING

The term "priorities" suggests that among the many wastewater facilities recommended as parts of this plan, some are more vital than others in terms of pollution abatement and should have first claim to limited financial resources. Even if financial resources were available now to construct major portions of the wastewater system, it would be advisable to phase the construction effort over a number of years to correspond with the expanding urban area and increasing wastewater loads. These considerations will be used in the development of a short-range program for wastewater facilities following the adoption of the long-range wastewater plan presented here.

Certain wastewater facilities already in place and others which may have to be constructed to meet present needs are not recognized as part of the long-range wastewater plan. The phasing out of some existing wastewater facilities must, of course, be scheduled in accordance with the timetable for construction of the new systems which will take their place. During this interim period, it may be necessary to construct temporary facilities or to enlarge those which are later to be phased out. The costs of this policy must be borne in order to meet current standards and yet achieve a greater savings through the eventual establishment of the recommended system.

In developing the short-range program for wastewater facilities and in reviewing federal grant applications, NIPC will give first priority to projects designed predominately to meet immediate wastewater problems and lower priority to projects designed substantially to meet forecasted future demands. Within the first priority category, additional recognition will be given to projects which eliminate immediate health hazards.

Certain projects may be found as necessary interim solutions to a wastewater problem even if they are not identified as part of the long-range wastewater plan. This type of project can be more readily identified upon completion of the first short-range program for wastewater facilities and will be given proper recognition in review for federal grants.

THE CONTINUING PLANNING PROCESS

It should be understood that this proposed plan represents only one more step in a long series of wastewater planning efforts, many of which have led to significant accomplishments. In two important ways, however, this plan supercedes its predecessors: (1) this is the first plan of regional scope for dealing with what we now recognize to be a regional problem and (2) this is the first plan in which the relationships have been established between wastewater facilities and planning in other areas of public concern.

The planning process will be continued not only through subsequent research and the programming of immediate actions, but through the periodic updating of the contents of this document. Such an updating will become appropriate as new knowledge of waste treatment and abatement pollution becomes available, as the region continues to grow and change, and as public goals and policies are altered with the passage of time. The forthcoming plans for water supply and storm water will also lead to a re-evaluation of the recommendations contained herein.

Even with the recognition that time will change some of the findings of this plan, it is more important to recognize that for the region to continue toward the future without such planning is to guarantee that many region-wide problems will remain unsolved.

WATER TREATMENT PLANT WASTES

Plants which treat raw water for human consumption or industrial purposes produce turbid effluents in their filter backwash processes. They also generate sludges in their settling basins by reason of the natural and chemical processes which remove dissolved and suspended solids, bacteria and other contaminants.

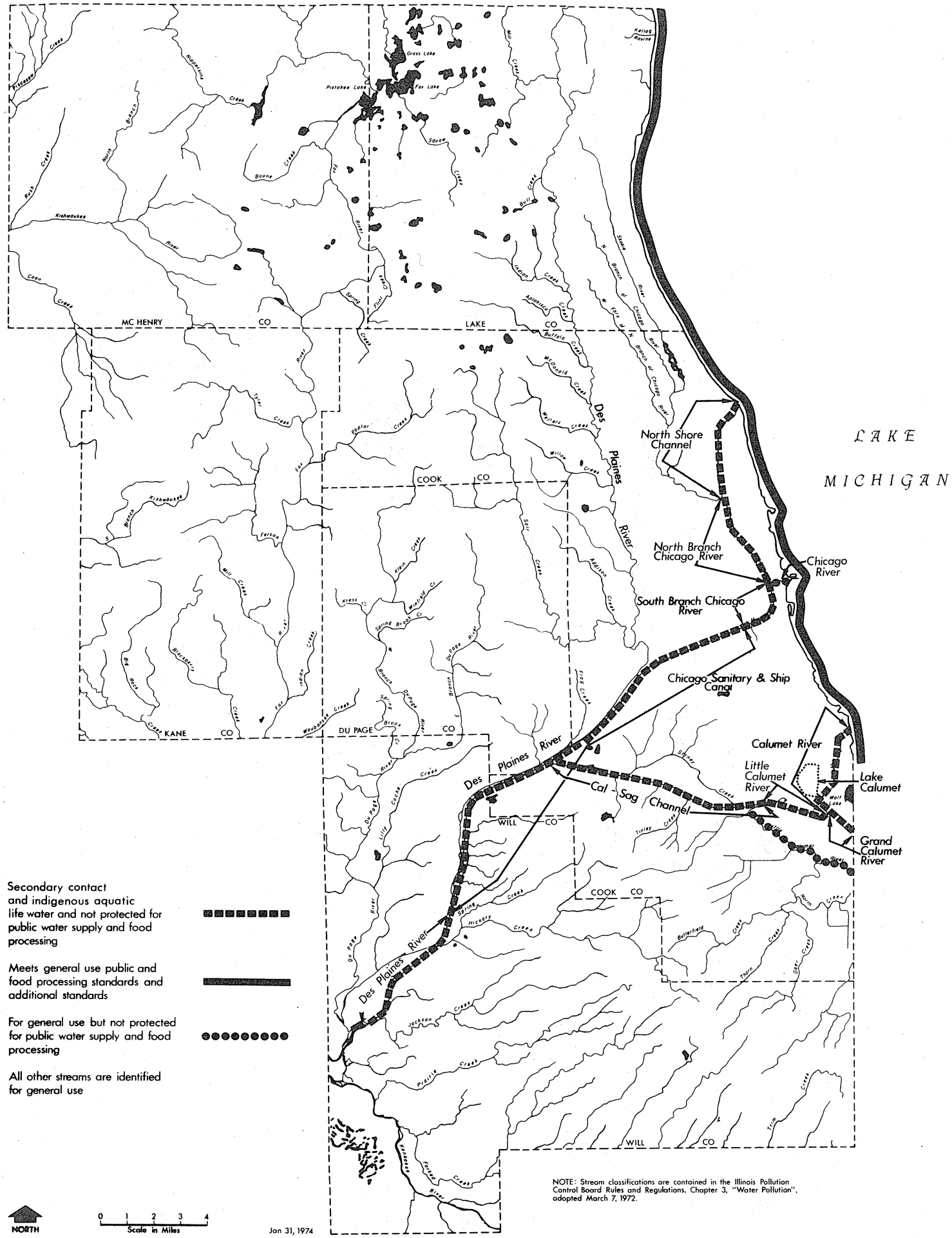
The return of these waste products to the State's water bodies is controlled by appropriate effluent standards which limit concentrations. In actual practice, they cannot be returned directly to the lake or stream without additional treatment.

One method is to handle these products on-site by appropriate plant and processes. Another approach is to discharge them into conventional sewers where the waste products are conveyed to wastewater treatment plants for processing along with all other waterborne wastes. Even this last method will require the construction at the water treatment plant of certain supplementary settling and storage basins, as well as pumps and pipelines.

OBJECTIVE NO. 8

IN ORDER TO MEET STATE EFFLUENT STANDARDS, FEATURES WHICH NEED TO BE CONSTRUCTED AT OR IN CONNECTION WITH WATER TREATMENT PLANTS TO ELIMINATE THE ENTRY OR REENTRY OF TURBID WATERS, FILTER BACKWASH WATERS OR SLUDGES INTO THE STATE'S LAKES AND STREAMS ARE DEEMED TO BE PROJECTS DESIGNED TO PROTECT AND ENHANCE THE STATE'S WATERS. ACCORDINGLY, THEIR CONSTRUCTION IS HELD TO BE NECESSARY AND CONSISTENT WITH THIS REGIONAL WASTEWATER PLAN.

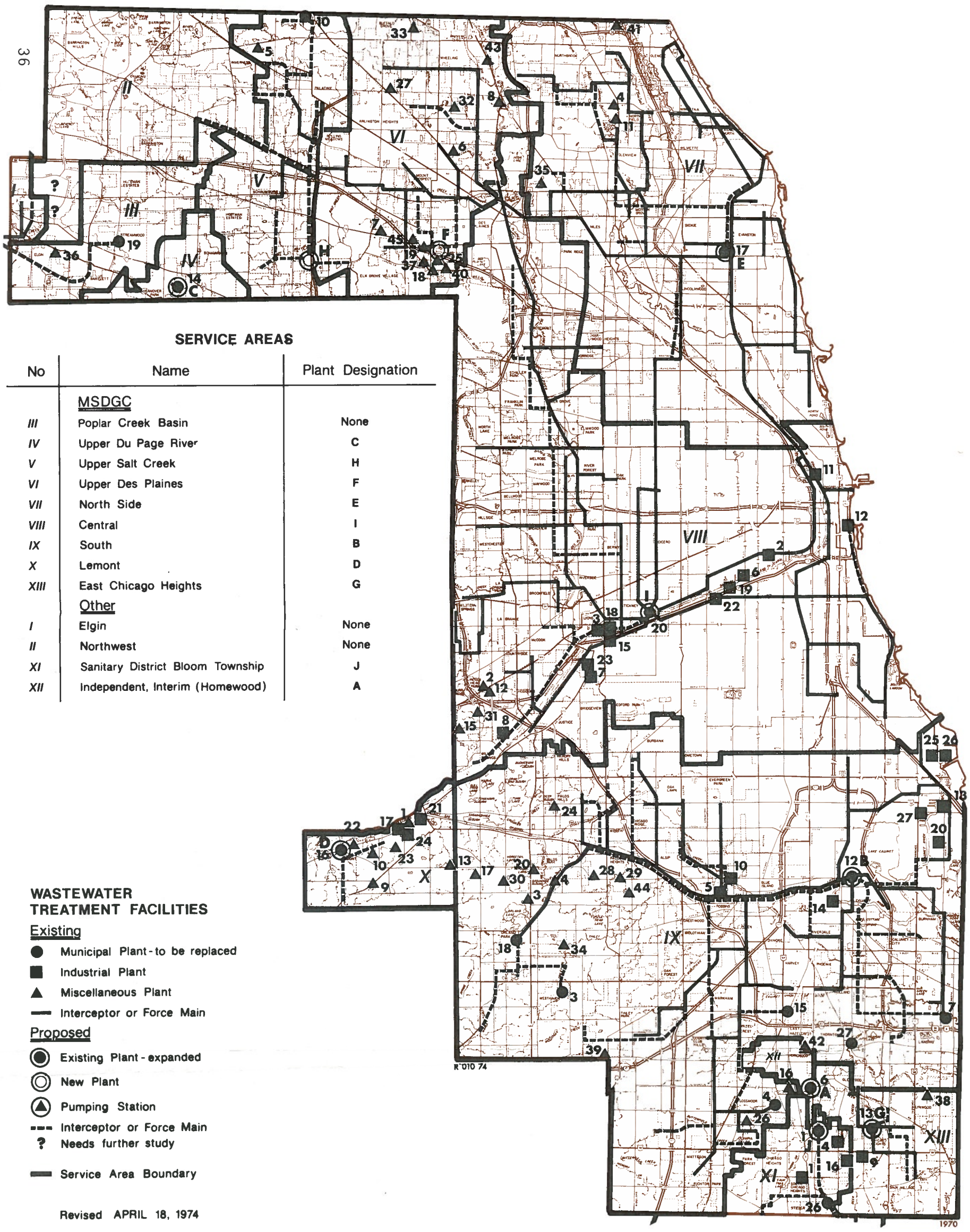
Figure 1: STREAM USE CLASSIFICATION



NOTE: Stream classifications are contained in the Illinois Pollution Control Board Rules and Regulations, Chapter 3, "Water Pollution", adopted March 7, 1972.

Figure 2

COOK COUNTY
WASTEWATER PLAN



SERVICE AREAS

No	Name	Plant Designation
	MSDGC	
III	Poplar Creek Basin	None
IV	Upper Du Page River	C
V	Upper Salt Creek	H
VI	Upper Des Plaines	F
VII	North Side	E
VIII	Central	I
IX	South	B
X	Lemont	D
XIII	East Chicago Heights	G
	Other	
I	Elgin	None
II	Northwest	None
XI	Sanitary District Bloom Township	J
XII	Independent, Interim (Homewood)	A

WASTEWATER TREATMENT FACILITIES

Existing

- Municipal Plant - to be replaced
- Industrial Plant
- Miscellaneous Plant
- Interceptor or Force Main

Proposed

- Existing Plant - expanded
- New Plant
- Pumping Station
- Interceptor or Force Main
- ? Needs further study
- Service Area Boundary

Revised APRIL 18, 1974

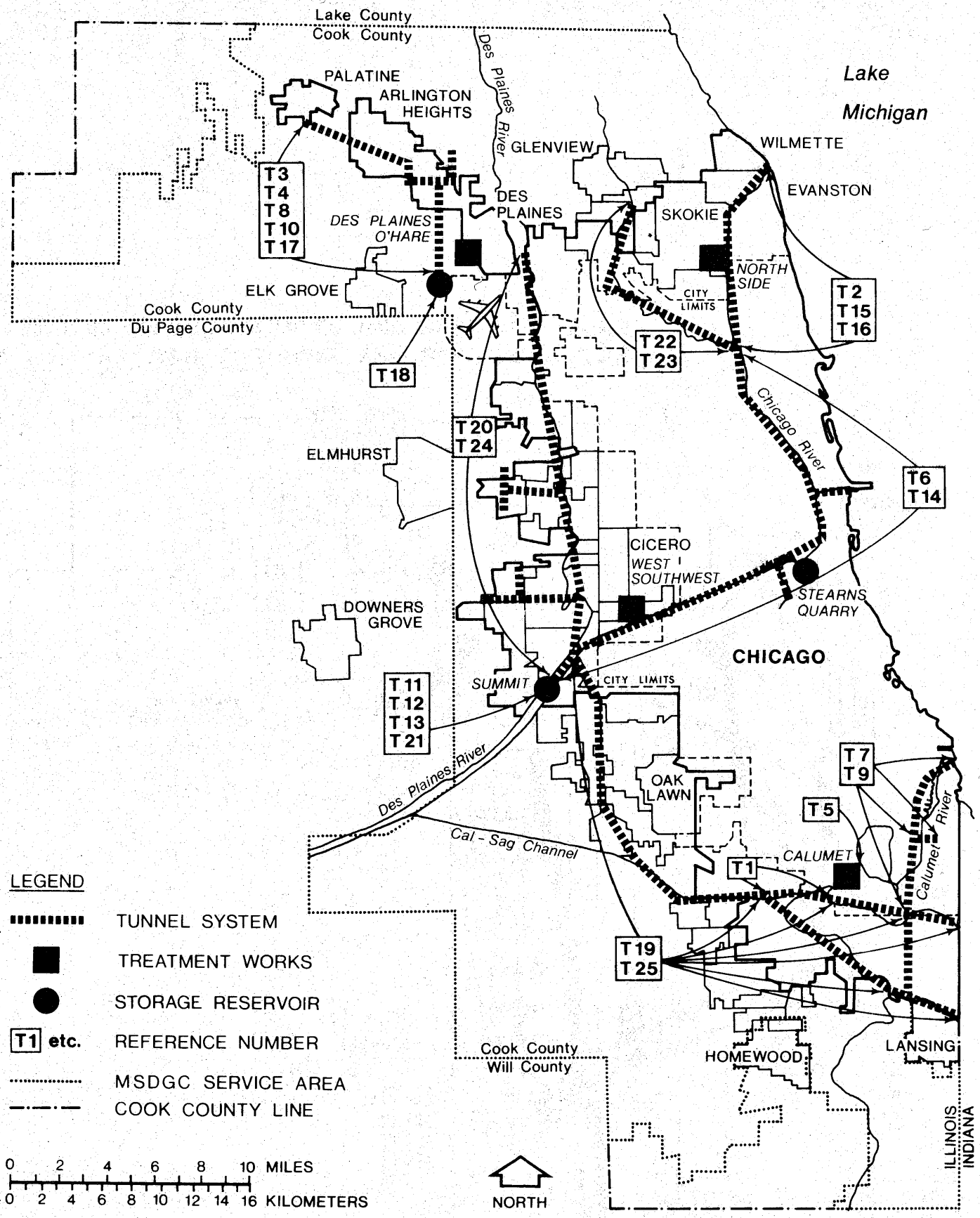
NORTHEASTERN ILLINOIS PLANNING COMMISSION

NORTH

0 2 4 6 8 10 MILES

0 2 4 6 8 10 12 14 16 KILOMETERS

Figure 2a **MSDGC TUNNEL AND RESERVOIR PLAN**



April 18, 1974

LEVEL OF TREATMENT
SEC SECONDARY
TERT TERTIARY
N R NUTRIENT REMOVAL

WASTEWATER DATA

COOK COUNTY

TABLE 1

LINE	SERVICE AREA COMMUNITY OR PLANT		LEVEL OF TREATMENT			POPULATION SERVED (Thousands)			WASTEWATER LOADS			CONSTRUCTION COSTS ($ Millions)		
(1)	NAME (2)	MAP CODE (3)	SEC (4)	TERT (5)	NR (6)	YR/NO (7)	YR/NO (8)	YR/NO (9)	YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	INITIAL (13)	FUTURE (14)	TOTAL (15)
1	MSDGC											(*1)	(*1)	(*1)
2	Calumet	B		X	(*2)		1995/(*13) 1,750.0		(*4) 219.0	1985/(*5) 278.0	2015/(*5) 475.0	$ 23.5	$ 151.9	$ 175.4
3	Hanover	C		X	(*2)	1970/(*6) 32.3	1995/(*6) 50.0	2000/(*6) 95.1	(*4) 2.0	1975/(*6) 6.0		4.7		4.7
4	Lemont	D		X	(*2)	1970/(*6) 13.0	1975/(*6) 17.4	1995/(*13) 45.0	(*4) 0.6	(*8) 1.2	2015/(*5) 16.0	5.6		5.6
5	Northside	E		X	(*2)		1985/(*7) 1,468.0	1995/(*13) 1,600.0	(*4) 333.0		2015/(*5) 660.0	26.3	71.3	97.6
6	O'Hare	F		X	(*2)	1970/(*7) 175.0	1985/(*7) 290.0	2000/(*7) 380.0		1985/(*7) 48.0	2015/(*7) 75.0	42.0		42.0
7	Poplar Creek	Area III	At Elgin Main Plant			1971/ 20.0	1995/(*14) 56.0	2005/(*14) 165.0	1971/ 1.65	1995/(*14) 8.5	2005/(*14) 24.5	18.0	(*3) 6.5	24.5
8	Salt Creek	H		X	(*2)	1970/(*6) 73.0	1995/(*15) 160.0	2010/(*6) 279.0			2010/(*6) 50.0	53.8	3.8	57.6
9	West South West	I		X	(*2)		1995/(*13) 3,100.0		(*4) 900.0	1985/(*5) 916.0	2005/(*5) 1,800.0	86.3	301.8	388.1
10	East Chicago Heights	G		X	(*2)	1968/(*10) 12.0	1995/(*10) 60.0		(*4) 2.4	1995/(*10) 7.8		(*10)(*11) 8.5		8.5
11	OTHER MSDGC									Subtotal		$ 268.7	$ 535.3	$ 804.0
12	Land Reclamation											43.2		43.2
13	Land Purchases											33.5	27.0	60.5
14	Professional Services											23.0		23.0
15	Tunnel-Reservoir Plan												(*16) 1,480.0	(*16) 1,480.0
16	Flood Control											25.3	153.2	178.5
17	OTHER SYSTEMS													
18	San. Dist. of Bloom Twp.	(*12) J	X	X		1970/(*7) 91.8	1990/(*7) 182.7	2010/(*7) 252.5	1970/(*7) 10.8	1990/(*7) 26.7	2010/(*7) 38.6	(*7) 4.2	(*7) 13.9	(*7) 18.1
19	Homewood	A	X	X		1968/ 16.0			(*4) 3.5					
											TOTAL	$ 397.9	$2,209.4	$2,607.3

(*14) - NIPC forecast, for entire Poplar Creek drainage basin.

(*15) - NIPC forecast; same forecast shown in recent application for Federal grant for year 1985.

(*16) - Base costs of $1.11 billion escalated to $1.48 billion during prolonged construction period and are not discounted to present worth values. (See Table 1B for breakdown.)

REMARKS

(*1) - All MSDGC costs from "Ten Year Clean Up Program" unless otherwise noted. Future costs of Ten Year Program not discounted to present worth values.

(*2) - Advanced treatment.

(*3) - NIPC estimate. Future costs discounted to present worth values.

(*4) - Present plant capacity.

(*5) - NIPC "Preliminary Wastewater Plan for the Inner Area."

(*6) - From recent application, request for federal grant.

(*7) - From consultant's report. Future costs discounted to present worth.

(*8) - Current expansion.

(*9) - Omitted.

(*10) - NIPC forecast is for subservice area naturally tributary to this plant which according to MSDGC plans is to be phased out of operation upon completion of new interceptor sewer, and wastes conveyed to Calumet plant for treatment.

(*11) - Based on NIPC concept.

(*12) - Also see Will County map for Deer Creek plant.

(*13) - NIPC forecast. For service areas which include portions of City of Chicago, Department of Development and Planning projections are incorporated.

Revised April 19, 1974

TABLE 1

LEVEL OF TREATMENT
SEC. SECONDARY
TERT. TERTIARY
N.R. NUTRIENT REMOVAL

WASTEWATER DATA

COOK COUNTY

LINE	SERVICE AREA COMMUNITY OR PLANT		LEVEL OF TREATMENT			POPULATION SERVED (Thousands)			WASTEWATER LOADS			CONSTRUCTION COSTS ($ Millions)			REMARKS
(1)	NAME (2)	MAP CODE (3)	SEC. (4)	TERT. (5)	N.R. (6)	YR/NO (7)	YR/NO (8)	YR/NO (9)	YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	INITIAL (13)	FUTURE (14)	TOTAL (15)	
	Add the following:														
1.	City of Chicago Water Filtration Plants														
	a. Backwash disposal systems(*)					1971/ 4522	2000/ 6105		1972/ 1.3	2000/ 1.7		1.300			(*) NIPC 71-336: Favorably endorsed February 2, 1972. Work is located at Central and South filtration plants serving 72 suburban communities as well as the City proper.
	b. Backwash reclamation facilities(*)					1971/ 4522	2000/ 6105		1972/ 20	2000/ 27		11.590			(*) NIPC 72-045: Favorably endorsed April 5, 1972. Work is located at Central and South filtration plants.
2.	City of Evanston Water Filtration Plant														
	a. Settling basins and conveyance system(*)					1970/ 148	1990/ 191		1970/ 0.386	1990/ 0.510		0.544			(*) NIPC 72-118: Favorably endorsed June 7, 1972. Population includes Skokie.
3.	Village of Kenilworth Water Filtration Plant														
	a. Retention tanks and conveyance system(*)					1970/ 3	(**)		1970/ 0.014	(**)		0.110			(*) NIPC 71-251: Favorably endorsed November 3, 1971. (**) Additional population growth is not anticipated.

Added October 5, 1972

TABLE 1A: WASTEWATER TREATMENT FACILITIES - COOK COUNTY

EXISTING MUNICIPAL

1	Bloom Township, Sanitary District of
3	Fernway
4	Flossmoor
6	Homewood
7	Lansing
10	MSDGC-Barrington Woods
12	MSDGC-Calumet
13	MSDGC-East Chicago Heights
14	MSDGC-Hanover
15	MSDGC-Hazel Crest
16	MSDGC-Lemont
17	MSDGC-North Side
18	MSDGC-Orland Park
19	MSDGC-Streamwood
20	MSDGC-West-Southwest
26	Steger
27	Thornton

PROPOSED MUNICIPAL

F	MSDGC-O'Hare
H	MSDGC-Salt Creek

EXISTING INDUSTRIAL

1	Alco Products, Inc.
2	American Brake Shoe
3	American Oil
4	Armour Agricultural Chem. Co.
5	Clark Oil Refining
6	Connelly, Inc.
7	Corn Products
8	Fisher Body Works
9	Ford Motor Co.
10	Gilbert & Bennett
11	Greyhound Bus Lines
12	Illinois Central RR
13	Interlake Steel (104th & Burley)
14	Interlake Steel (135th & Perry)
15	Lake River Terminals
16	Midwest Forging
17	North American Tank Car
18	Pure Oil Company
19	R. Lavin & Sons
20	Republic Steel
21	Richardson Chemical
22	Santa Fe RR Yards
23	Trumbull Asphalt
24	U.B.S. Chemical
25	U.S. Steel Company (Cal. Harbor)
26	U.S. Steel Company (89th St.)
27	Wisconsin Steel

EXISTING MISCELLANEOUS

1	Alexander Chemical
2	Blackhawk Motel
3	Carl Sandburg High School
4	Community Center Foundation
5	Dozier Bee Nursing Home
6	Ehler Wenborg Shopping Center
7	Elk Grove Mobile Home Park
8	Flamingo Motel
9	Fournier Institute
10	Franciscan Sisters
11	Glenview Mobile Homes
12	Green Acres Trailer Court
13	Holy Family Villa
14	Holy Spirit Convent
15	House of Correction
16	Idlewild Country Club
17	Kennedy School
18	Lehmans Trailer Park
19	Lift Parts
20	Matterhorn Supper Club
21	McAllisters Convalescent Home
22	Mineral Industries
23	Mt. Assissi Academy
24	Oak Ridge School
25	Oasis Drive In Theater & Trailer Park
26	Olympia Fields Country Club
27	Out Post Motel
28	Palos Community Consolidated School
29	Palos Heights Elem. School
30	Palos West Elem. School
31	Pleasantdale School
32	St. Alphonsus School
33	St. Mary's School
34	Silver Lake Country Club
35	Sister of Sacred Heart
36	Spring Lakes Trailer Court
37	Standard Oil Tank Farm
38	Sunnybrook School
39	Tinley Park State Hospital
40	Touhy Mobile Trailer Park
41	Villa Moderne Motel
42	Washington Park Race Track
43	Wheeling Trailer Park
44	Westgate Country Club
45	Willoway Terrace Mobile Homes

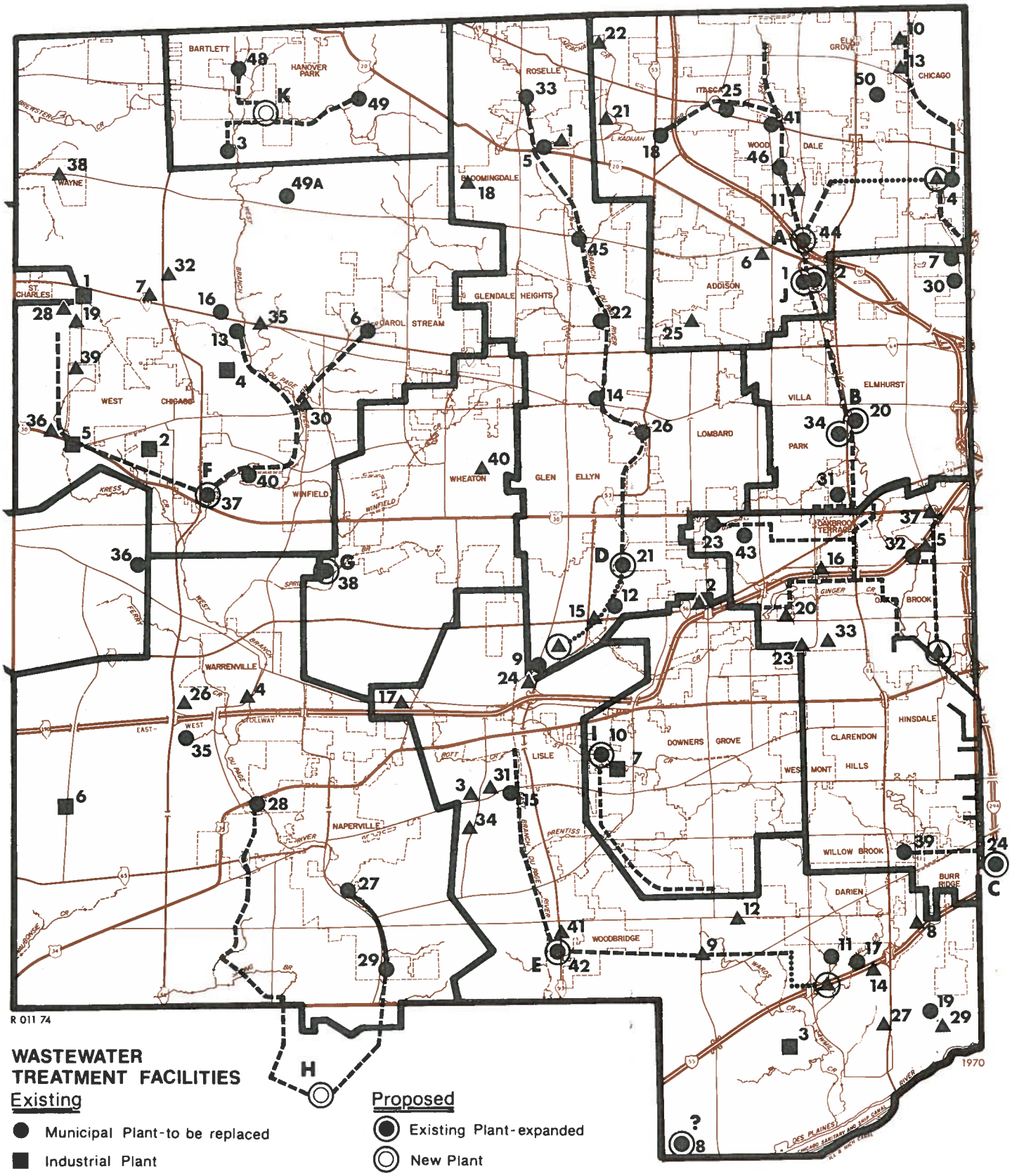
TABLE 1B: METROPOLITAN SANITARY DISTRICT OF GREATER CHICAGO, TUNNEL AND RESERVOIR PLAN

Map Ref. No.*	Project Name	Estimated Cost**
T 1	Calumet Tun. & Shft. Crawford-Cal Plant	$ 32,000
T 2	Mainstream-Tun. & Shft. Lawrence-Wilmette	29,900
T 3	Upper DesPlaines Tun. & Shft.	22,200
T 4	Upper DesPlaines Tun. & Shft.	7,900
T 5	Calumet Pump Sta. and Dis. Cond.	6,600
T 6	Mainstream-Tun. & Shft. Summit-Lawrence	274,600
T 7	Calumet-Tun. & Shft.-Phase 1	36,800
T 8	Upper DesPlaines Tun.	5,700
T 9	Calumet-Connection Structures	2,580
T10	Upper DesPlaines Connect	600
T11	Mainstream-Summit Storage Reservoir 1 Phase	98,220
T12	Calumet-Calumet Storage Reservoir	86,400
T13	Mainstream-Pump Sta. And Dis. Cond. Summit Res.	33,000
T14	Mainstream-Conn. Str. Summit-Lawrence	34,200
T15	Mainstream-Conn. Str. Howard-Wilmette	3,600
T16	Mainstream-Conn. Str. Lawrence-Howard	2,560
T17	Upper DesPlaines NW-Tun. & Shft. & Con. Structures	16,200
T18	Upper DesPlaines NW-O'Hare Reservoir	44,500
T19	Calumet-Tunnels And Shafts-Phase 2	116,000
T20	DesPlaines-Tunnels And Shafts	103,600
T21	Mainstream-Summit Storage Reservoir 2 Phase	101,600
T22	Mainstream-Tun. & Shft. No. Br. Chicago River	28,600
T23	Mainstream-Conn. Str. No. Br. Chicago River	5,050
T24	DesPlaines-Connection Structures	12,200
T25	Calumet-Connection Structures	8,800
	Total Cost	$ 1,113,410

* See Figure 2A **In thousand dollars

Figure 3

DU PAGE COUNTY WASTEWATER PLAN



WASTEWATER TREATMENT FACILITIES

Existing

- ● Municipal Plant-to be replaced
- ■ Industrial Plant
- ▲ Miscellaneous Plant
- — Interceptor or Force Main

Proposed

- ◉ Existing Plant-expanded
- ◎ New Plant
- ⓐ Pumping Station
- ---- Interceptor
- ····· Force Main

- ▬ Service Area Boundary
- ? Needs further study

Revised JAN. 20, 1972

NORTHEASTERN ILLINOIS PLANNING COMMISSION

NORTH

0 1 2 3 4 5 MILES

0 1 2 3 4 5 6 7 8 KILOMETERS

LEVEL OF TREATMENT
SEC SECONDARY
TERT TERTIARY
N R NUTRIENT REMOVAL

WASTEWATER DATA

DU PAGE COUNTY

TABLE 2

LINE	SERVICE AREA COMMUNITY OR PLANT		LEVEL OF TREATMENT			POPULATION SERVED (Thousands)			WASTEWATER LOADS			CONSTRUCTION COSTS ($ Millions)		
(1)	NAME (2)	MAP CODE (3)	SEC. (4)	TERT (5)	N R (6)	YR/NO (7)	YR/NO (8)	YR/NO (9)	YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	INITIAL (13)	FUTURE (14)	TOTAL (15)
1	NINE SERVICE AREA SYSTEM					1970/(*1)	1985/	2005/	1970/(*2)	1985/	2005/	(*3)	(*4)	
2	Addison	A,J	X	X		32.0	130.0	176.0	4.1	14.4	19.0	$15.10	1.80	$16.90
3	Elmhurst-Salt Creek S.D.	B	X	X		63.8	85.0	88.0	9.5	9.2	9.2	2.60	0.10	2.70
4	Glen Ellyn	D	X	X		21.0	111.0	147.0	2.1	11.5	15.0	12.40	1.68	14.08
5	Hinsdale	C	X	X		28.0	83.0	87.0	4.8	12.9	13.3	13.77	0.80	14.57
6	Naperville	H	X	X		(*5) 21.0	75.0(*9)	90.0	3.5	10.0(*9)	12.0	9.00(*6)	0.42	9.42
7	West Chicago	F	X	X		7.2	30.0	90.0	2.9	4.9	11.0	8.52	2.53	11.05
8	Bartlett-Hanover	K	X	X		(*7) 1.4	18.1	42.0	0.2	1.9	4.2	3.10	1.40	4.50
9	Wheaton	G	X	X		28.9	65.0	100.0	2.9	6.9	10.4	2.76	1.50	4.26
10	Woodridge	E	X	X		10.0	62.0	116.0	2.0	7.6	13.2	10.95	1.12	12.07
11	Downers Grove	I	X	X		28.0	90.0	108.0	3.5	9.3	11.1	5.97	0.32	6.29
12										Subtotal-------		$ 84.17	$ 11.67	$ 95.84
13														(*8) 9.50
14										TOTAL				$ 105.34
15														
16														
17														
18														
19														
20														
21														
22														

REMARKS

(*1) - Except as noted for Naperville, and Bartlett-Hanover area, figures represent populations served by existing plants which are to be retained, expanded and upgraded.

(*2) - Figures represent current design capacity @ 100 gpcpd.

(*3) - To accommodate estimated 1985 wastewater loads.

(*4) - Construction in 1985 to accommodate wastewater loads to 2005. Future costs discounted to present worth values.

(*5) - Figures represent connected populations to 3 existing Naperville plants.

(*6) - Include $0.5M for interceptor sewer from Central to South plant and $0.2M, land acquisition.

(*7) - Bartlett population in described service area.

(*8) - $9.50 million to be added to total costs for existing plant acquisitions.

(*9) - 1990 population.

Revised January 20, 1972

TABLE 2A: WASTEWATER TREATMENT FACILITIES - DUPAGE COUNTY

EXISTING MUNICIPAL

2	Addison South
3	Apple Orchard U.C.
4	Bensenville
5	Bloomingdale
6	Carol Stream
7	Citizens-Country Club Highlands
8	Citizens-Santa Fe
9	Citizens-Valley View
10	Downers Grove S.D.
11	DCDPW-Brookhaven
12	Citizens-Butterfield
13	DCDPW-Cascade
14	DCDPW-Glen Ellyn Heights
15	DCDPW-Lisle
16	DCDPW-Maddox
17	DCDPW-Marion Brook
18	DCDPW-Nordic Park
19	DCDPW-Space Valley
20	Elmhurst
21	Glen Ellyn
22	Glendale Heights
23	Highland Hills S.D.
24	Hinsdale S.D.
25	Itasca
26	Lombard
27	Naperville-Central
28	Naperville-North
29	Naperville-South
30	North Elmhurst S.D.
31	Oakbrook Terrace
32	Oak Brook U.C.
33	Roselle
34	Salt Creek Drainage Basin S.D.
35	Utilities, Inc.-Scots Plains
36	Utilities, Inc.-Westfield
37	West Chicago
38	Wheaton S.D.
39	Willowbrook Ridge Estates
40	Winfield
41	Wood Dale
42	Woodridge (DCDPW)
43	York Center Coop. Housing
44	Addison North
45	Bloomingdale South
46	Wood Dale South
48	Bartlett North
49	Hanover Park #1
49A	Hanover Park #2
50	Bensenville North

EXISTING MISCELLANEOUS

1	Area Redi Mix
2	Arleys Restaurant
3	Benet Academy
4	Bower Jr. High School
5	Boy Scouts - Oakbrook
6	Brookwood Country Club
7	Christ the King Seminary
8	Craftwood Inn
9	Curran Chemical Company
10	Devon O'Hare Ind. Park
11	Elmhurst Country Club
12	Fairview Manor Home
13	Flick Reedy Corp.
14	Gene Motel
15	Glen Briar Recreation Center
16	Illinois Tollway Adm. Building
17	Illinois Tollway - Naperville
18	Indian Lake Country Club
19	Masonite Bert Mills
20	Mayslake Manor
21	Medinah Country Club
22	Medinah North School
23	Midwest Golf Club
24	Morton Arboretum
25	Nike Site - Lombard
26	Northern Illinois Gas Company
27	Oaks Nursing Home
28	Owens Illinois Glass Company
29	Palisades School
30	Pleasant Ridge Trailer Court
31	Sacred Heart Academy
32	St. Andrews Country Club
33	St. Josephs Seminary
34	St. Procopius College
35	Sidwell Studio
36	Star Center Bowl
37	Walls Trailer Park
38	Wayne Elementary School
39	Western Electric Company
40	Wheaton College
41	Woodbine Restaurant

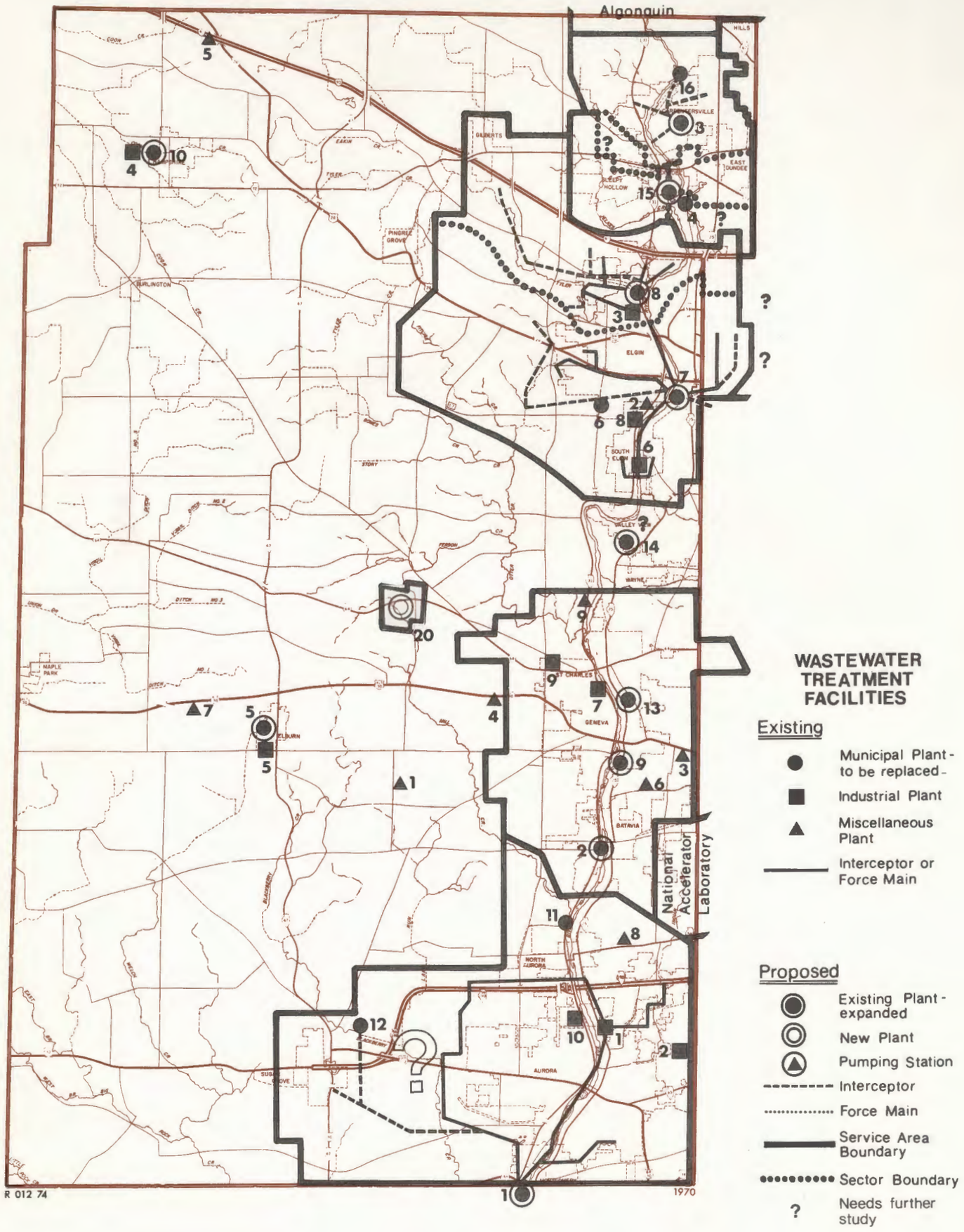
EXISTING INDUSTRIAL

1	Amax Aluminum Prod. Inc.
2	American Potash Co.
3	Argonne National Lab.
4	Campbell Soup Co.
5	High Lake Poultry
6	Reber Preserving Co.
7	Shafer Bearing Division

PROPOSED MUNICIPAL

H	Springbrook
K	Bartlett

Figure 4: WASTEWATER PLAN **KANE COUNTY**



LEVEL OF TREATMENT
SEC. SECONDARY
TERT TERTIARY
N.R. NUTRIENT REMOVAL

WASTEWATER DATA

KANE COUNTY

TABLE 3

LINE (1)	SERVICE AREA COMMUNITY OR PLANT NAME (2)	MAP CODE (3)	LEVEL OF TREATMENT SEC (4)	TERT (5)	NR (6)	POPULATION SERVED (Thousands) YR/NO (7)	YR/NO (8)	YR/NO (9)	WASTEWATER LOADS YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	CONSTRUCTION COSTS ($ Millions) INITIAL (13)	FUTURE (14)	TOTAL (15)
1						1970/	1985/	1995/	1969/	1985/	1995/		(*1)	
2	ELGIN AREA													
3	Elgin S.D.-Main(*2)	7	X		X	49.0	(*7) 123.0	2005/(*8) 265.0	7.18	(*9) 21.3	2005/(*10) 42.6	(*11) $14.50	(*12) $ 8.18	$22.68
4	Elgin S.D.-North	8	X		X	1969/ 7.2	40.0	2005/ 91.7	1.16	5.00	2005/ 11.46	2.40	2.58	4.98
5	DUNDEE TOWNSHIP													
6	West Dundee(*3)	15	X		X	3.5	1983/ 9.0	13.5	1972/ 0.6	1983/ 0.9	1.4	0.40	0.29	0.69
7	Carpentersville	3	X		X	26.0	28.0	31.0	1972/ 4.5	4.75	1992/ 5.0	3.54	N/A	3.54
8	TRI-CITY AREA													
9	Batavia(*4)	2	X			7.5	19.6	32.5	1.80	4.22	6.79	2.81	1.09	3.90
10	Geneva	9	X		X	10.0	12.3	30.7	1.90	2.15	5.37	1.11	1.46	2.57
11	St. Charles	13	X		X	13.0	1992/ 31.0	2005/ 36.8	1970/ 3.2	1992/ 8.0	2005/ 8.6	1.28	N/A	1.28
12	AURORA S.D.	1	X		X	85.0	(*5) 141.2	(*5) 244.0	16.90	(*5) 27.34	(*5) 44.80	1.44	4.25	5.69
13	REMAINDER OF COUNTY													
14	Elburn	5	X			1.0	7.5	31.0	0.10	0.75	3.10	0.88	1.06	1.94
15	Hampshire	10	X			1.6	3.0	7.0	0.16	0.30	0.70	0.39	0.24	0.63
16	Wasco S.D.	20	X			1972/ 0.2	1990/ 0.4	2005/ 0.4	1972/ 0.025	1990/ 0.05	2005/ 0.05	0.22	----	0.22
17										TOTAL		$28.97	$19.15	$48.12
18														
19	East Dundee(*6)	4				3.0	8.0	12.0	0.4	0.8	1.2	N/A	N/A	N/A
20														
21														
22														

REMARKS

Note: Data in columns (7) through (12) for years shown in column headings unless otherwise noted.

(*1) - Future costs discounted to present worth values.

(*2) - Also serves MSDGC Poplar Creek area.

(*3) - Does not include data for East Dundee.

(*4) - Includes wastewater service to NAL, with all effluent used as industrial water supply at NAL.

(*5) - Exclusive of area served in Kendall County.

(*6) - East Dundee loads to be treated under contractual arrangements in West Dundee plant.

(*7) - Includes 43,000 for MSDGC.

(*8) - Includes 165,000 for MSDGC.

(*9) - Includes 6.5 MGD for MSDGC.

(*10) - Includes 24.8 MGD for MSDGC.

(*11) - For 8.4 MGD expansion to 17.0 MGD. MSDGC share: $5.2M.

(*12) - For incremental expansions to 42.5 MGD to meet 2005 loads. MSDGC share: $6.52M.

Revised April 18, 1974

TABLE 3A: WASTEWATER TREATMENT FACILITIES - KANE COUNTY

EXISTING MUNICIPAL

1 Aurora S.D.
2 Batavia
3 Carpentersville
4 East Dundee
5 Elburn
6 Elgin Estates
7 Elgin, S.D. of - Main
8 Elgin, S.D. of - North
9 Geneva
10 Hampshire
11 Mooseheart
12 Prestbury Utility
13 St. Charles
14 St. Charles Skyline Estates Sewer & Water Co.
15 West Dundee
16 Carpentersville (Kimball Hill)

PROPOSED MUNICIPAL

20 Wasco

EXISTING MISCELLANEOUS

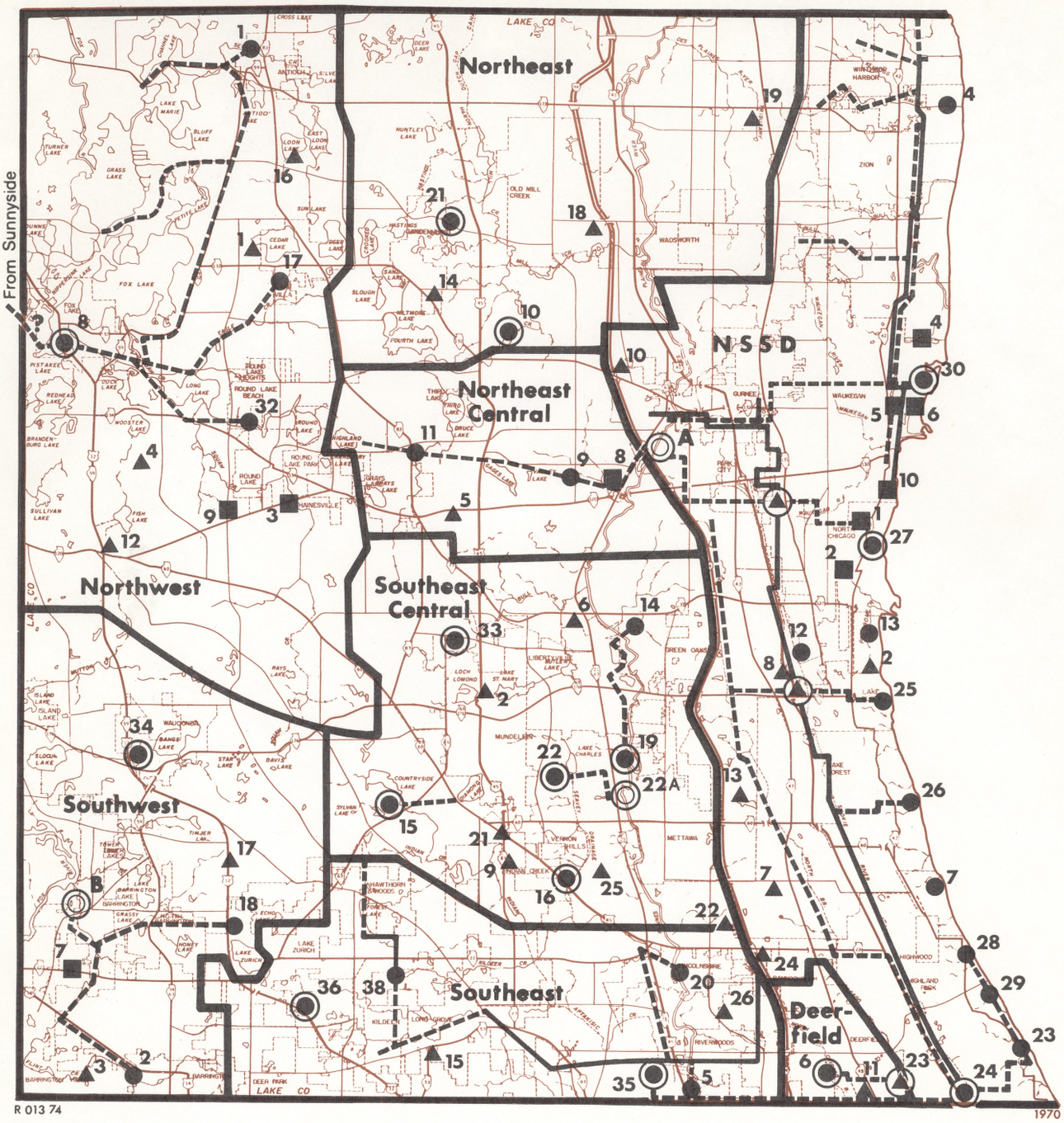
1 Broadview Academy
2 Elgin State Hospital
3 Geneva Motel
4 Illinois State Boys School - St. Charles
5 Illinois Tollway - Hampshire
6 Kane County Home
7 Kaneland Senior High School
8 Marmion Military Academy
9 River Grange Lakes

EXISTING INDUSTRIAL

1 Aluminum Process
2 CB&Q Railroad Oil Removal Lagoon
3 Chicago Rawhide Co.
4 Country Delight Dairy Co.
5 Elburn Pack. Co.
6 Fox Valley Grease Blending Co.
7 Howell Co.
8 Kerber Pack. Co.
9 Moline Malleable Iron
10 Wm. Jobbins Co.

Figure 5

LAKE COUNTY
WASTEWATER PLAN



WASTEWATER TREATMENT FACILITIES

Existing

- ● Municipal Plant - to be replaced
- ■ Industrial Plant
- ▲ Miscellaneous Plant
- ▬ Interceptor or Force Main

Proposed

- ◉ Existing Plant - expanded
- ◎ New Plant
- ▲ Pumping Station
- ▬ Interceptor
- ▬ Force Main
- ? Needs further study

▬ Service Area Boundary

Revised June 12 1974

0 1 2 3 4 5 MILES

0 1 2 3 4 5 6 7 8 KILOMETERS

NORTH

NORTHEASTERN ILLINOIS PLANNING COMMISSION

LEVEL OF TREATMENT
SEC SECONDARY
TERT TERTIARY
N R NUTRIENT REMOVAL

WASTEWATER DATA

LAKE COUNTY

TABLE 4

LINE	SERVICE AREA COMMUNITY OR PLANT		LEVEL OF TREATMENT			POPULATION SERVED (Thousands)			WASTEWATER LOADS			CONSTRUCTION COSTS ($ Millions)		
(1)	NAME (2)	MAP CODE (3)	SEC (4)	TERT (5)	NR (6)	YR/NO (7)	YR/NO (8)	YR/NO (9)	YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	INITIAL (13)	FUTURE (14)	TOTAL (15)
1						1970/	1990/	2010/	1980/	1990/	2010/			
2	NSSD Area					189.5 (1)	346.7 (2)	417.6 (3)						
3	Waukegan (4)	30	X	X	X (5)	92.3	142.3	161.3	21.21	25.41	28.27	36.43		36.43
4	Clavey Road (6)	24	X	X	X (5)	71.2	165.4	210.3	12.19	17.80 (7)	17.80 (7)	41.00 (8)		41.00
5	Gurnee	A	X	X	X (5)	10.9 (9) 10.2	21.3 (9) 18.3	74.5 (9) 25.2	2.47 (9) 14.95 (10)	4.17 (9) 17.25 (10)	9.49 (9) 18.61 (10)	20.61 (11) 4.40 (12)		20.61 4.40
6	North Chicago	27	X		X	15.8	20.7	20.8	4.21	4.26	4.43	1.76		1.76
7	Sludge Handling Facilities											9.33 (11) 3.47 (14)		9.33 3.47
8											Totals	109.13 (11) 7.87 (27)		109.13 7.87
9									Grand Total NSSD Area (28)			117.00		117.00
10	West Lake Area													
11	Northwest Sector (Fox Lake Plant)	8	X		X (5)	3.2	75.0	145.0	6.00	12.00	19.00	12.91	14.33 (29)	27.24
12	Southwest Sector					16.5	37.8	77.5	3.02	5.24	8.22	8.99	2.02	11.01
13	Fox River Plant	B	X		X		(28.2)	(62.1)		(3.52)		(6.06)		(6.06)
14	Wauconda Plant	34	X	X	X		(9.6)	(15.4)		(1.72)		(1.49) (16)		(1.49)
15	Barrington Plant	2	X	X	X		(3.0) (15)	(6.1) (15)	1.06			(1.44) (17)	(2.02) (18)	(3.46) (17)
16	Northeast Sector					2.5	8.9	25.9	0.77	0.89	5.15	1.57		1.57
17	Grandwood Park Plant	10	X	X			(4.5)	(20.3)		(0.45)		(0.79) (19)		(0.79) (19)
18	Lindenhurst Plant	21	X	X			(4.4)	(5.6)		(0.44)		(0.78) (20)		(0.78) (20)
19	Northeast Central Sector (21)					10	21.3	74.5	2.47	4.17	9.49	3.60 (21)		3.60 (21)
20	Southeast Central Sector					30.3	88.9	167.9	8.17	16.05	24.5	18.66		18.66
21	Libertyville	19	X	X	X (5)	(11.7) (13)	(53.6)	(86.3)		(7.13)	(10.4)	(7.90) (22)	N/A	(7.90) (22)
22	Mundelein	22/22a	X	X	X (5)	(16.1) (18)	(23.1)	(50.8)		(4.60)	(7.4)	(4.10) (23)	N/A	(4.10) (23)

REMARKS

(*1) - Does not include 10,900 people in North East Central Sector, serviced by Gurnee plant.

(*2) - Does not include 21,300 people in North East Central Sector, serviced by Gurnee plant.

(*3) - Does not include 74,500 people in North East Central Sector, serviced by Gurnee plant.

(*4) - Discharges into Des Plaines River.

(*5) - Includes ammonia removal.

(*6) - Discharges into Skokie River.

(*7) - Capacity limited to 18.0 MGD. All excess flows diverted to the new Des Plaines River plant.

(*8) - Includes lakefront, Skokie Valley and Middle Fork facilities. Cost of trunk sewer and pumping station conveying wastes to LCDPW Des Plaines plant deleted from this line entry on Oct. 18, 1973 and is included in totals for Des Plaines plant, Page 2 of 3.

(*9) - From North East Central Lake County Sector.

(*10) - Includes wastes from North Chicago treatment plant.

(*11) - NSSD's share.

(*12) - North East Central Lake County share, treatment plant only.

(*13) - 1970 Census, corporate limits.

Revised June 12, 1974

LEVEL OF TREATMENT
SEC SECONDARY
TERT TERTIARY
N R NUTRIENT REMOVAL

WASTEWATER DATA

LAKE COUNTY

TABLE 4

LINE	SERVICE AREA COMMUNITY OR PLANT NAME (2)	MAP CODE (3)	LEVEL OF TREATMENT SEC (4)	TERT (5)	NR (6)	POPULATION SERVED (Thousands) YR/NO (7)	YR/NO (8)	YR/NO (9)	WASTEWATER LOADS YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	CONSTRUCTION COSTS ($ Millions) INITIAL (13)	FUTURE (14)	TOTAL (15)
1						1970/	1990/	2010/	1980/	1990/	2010/			
2	Southeast Central Sector (Cont'd)													
3	Vickery Manor	33	X	X	X(5)	(0.2)	(9.5)	(21.2)		(3.9)	(5.0)	(6.09)(24)	N/A	(6.09)(24)
4	Sylvan Lake	15	X	X		(1.6)	(2.0)	(7.2)	0.10	(0.30)	(0.7)	(0.57)(25)	N/A	(0.57)(25)
5	LCDPW Vernon Hills	16	X	X		(0.7)	(0.7)	(2.4)	0.12	(0.12)	(1.0)	(0.00)	N/A	(0.00)
6	Southeast Sector											4.37	35.44	39.81
7	Lake Zurich SE	36	X	X		1972/ 2.3	1985/ 6.6	1995/ 9.2	1972/ 0.2	1987/ 1.0	1995/ 1.4	(0.65)	(0.50)	(1.15)
8	LCDPW Des Plaines	35	X	X	X(5)	1973/ 4.6								
9	West Lake						25.8	56.2	N/A	1984/ 7.9	11.0	(3.72)	(3.60)	(7.32)
10	NSSD Clavey Road(26)						N/A	N/A	1980/ 6.9	11.7	18.3		(31.34)(11)	(31.34)
11	West Lake Sludge Handling Facilities												13.00	13.00
12									Total - West Lake Area			50.10	64.79	114.89
13	Deerfield	6	X	X	X(5)	1973/ 19.4	25.0	27.5	1973/ 2.8	3.0	3.0	3.91		3.91
14									GRAND TOTALS - LAKE COUNTY			171.01	64.79	235.80
15														
16														
17														
18														
19														
20														
21														
22														

(*24) - Does not include any allowance for existing plant.

(*25) - Includes interceptor sewers from Diamond Lake.

(*26) - Clavey Road excess wastewater loads.

(*27) - West Lake share.

(*28) - See Footnote 26 for NSSD costs to handle excess Clavey Road loads at LCDPW Des Plaines plant. NSSD costs, lines 4 and 8, page 1, revised Oct. 18, 1973 to show all costs for handling excess Clavey Road wastewater load costs in line 10, page 2 of 3.

(*29) - Exclusive of $1.71 million in interim, local improvements.

REMARKS

(*14)-West Lake County's share, joint facilities.

(*15)-Included in the Fox River plant and South West Sector totals.

(*16)-Includes $0.44M as value of existing 0.8 MGD Wauconda plant.

(*17)-Includes $1.23M as value of existing 1.20 MGD Barrington plant, which will be phased out of service sometime after 1980

(*18)-Construction of South Branch sewer to phase out Barrington plant.

(*19)-Includes $0.25M as value of existing 0.20 MGD Grandwood Park plant.

(*20)-Includes $0.30M as value of existing 0.25 MGD Lindenhurst plant.

(*21)-Cost of interceptor sewers only, with treatment at Gurnee plant. For pro rata plant costs, see Line 5, Column 13.

(*22)-Includes $1.54M as value of existing 2.0 MGD Libertyville plant.

(*23)-Includes $0.90M as value of existing 2.2 MGD Mundelein plant and $0.53M for trunk sewer to satellite plant, to be located in the vicinity of the Des Plaines River.

LEVEL OF TREATMENT
SEC SECONDARY
TERT TERTIARY
N R NUTRIENT REMOVAL

WASTEWATER DATA

LAKE COUNTY

TABLE 4

LINE	SERVICE AREA COMMUNITY OR PLANT		LEVEL OF TREATMENT			POPULATION SERVED (Thousands)			WASTEWATER LOADS			CONSTRUCTION COSTS ($ Millions)			REMARKS
(1)	NAME (2)	MAP CODE (3)	SEC (4)	TERT (5)	NR (6)	YR/NO (7)	YR/NO (8)	YR/NO (9)	YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	INITIAL (13)	FUTURE (14)	TOTAL (15)	
	Add the following:														
1.	Highland Park Water Treatment Plant														
	a. Pumping station, holding tank and sewer*					1972/ 52**	1990/ 65**		1972/ 0.200			0.220			* NIPC 71-045: Favorably endorsed April 7, 1971. ** Provides service to Village of Deerfield.
2.	Lake Forest Water Treatment Plant														
	a. Plant improvements and conveyance system*					1972/ 25**	2010/ 70**		1972/ 0.075			0.028			* NIPC 71-140: Favorably endorsed July 7, 1971. ** Includes Lake Bluff and some unincorporated areas.
3.	Waukegan Water Filtration Plant														
	a. Underground basin, pumping station and force main*					1970/ 76	2020/ 160		1972/ 0.300	2020/ 0.600		0.420			* NIPC 72-168: Favorably endorsed July 12, 1972. Backwash approximately 3% of water treated.

Added October 5, 1972

TABLE 4A: WASTEWATER TREATMENT FACILITIES - LAKE COUNTY

EXISTING MUNICIPAL

1 Antioch
2 Barrington
3 Buffalo Grove
4 Camp Logan
5 Chevy Chase Sewer and Water Co.
6 Deerfield
7 Fort Sheridan
8 Fox Lake
9 Gages Lake S.D.
10 Grandwood Park U. C.
11 Grayslake
12 Great Lakes Naval Training Center Green Bay
13 Great Lakes Naval Training Center Lake Front
14 LCPWD-Countryside Manor
15 LCPWD-Sylvan Lake
16 LCPWD-Vernon Hills
17 Lake Villa
18 Lake Zurich
19 Libertyville
20 Lincolnshire
21 Lindenhurst Water Co.
22 Mundelein
23 NSSD-Cary Ave.
24 NSSD-Clavey Rd.
25 NSSD-Lake Bluff
26 NSSD-Lake Forest
27 NSSD-No. Chicago
28 NSSD-Park Ave.
29 NSSD-Ravine Dr.
30 NSSD-Waukegan
31 Riverwoods Sewer and Water Co.
32 Round Lake S.D.
33 Vickory Manor Service Corp.
34 Wauconda
35 LCPWD-Des Plaines
36 Lake Zurich Southeast
38 LCPWD-Ela

EXISTING MISCELLANEOUS

1 Allendale Farm School
2 Arden Shores Camp
3 Barrington Hills Country Club
4 Camp Hickory
5 Country Squire Restaurant
6 Earl Young Motel
7 Everett Grade School
8 Hansen Actuaries
9 Hilgers STP
10 Illinois Tollway-Waukegan
11 Kleinschmidt Lab.
12 Koenemann Sausage Company
13 Lake Forest Academy
14 Linden Plaza Shopping Center
15 Maple Hill Home
16 Moody Youth Camp
17 Mt. St. Joseph Home
18 Regis Hall
19 Rosecrans Motel
20 St. Mary of the Lake Seminary
21 Tarnesy Restaurant
22 Thompson Day Camp
23 Tractomotive Corp.
24 Trinity College
25 Vernon Hills Nike
26 Voisard Day School

EXISTING INDUSTRIAL

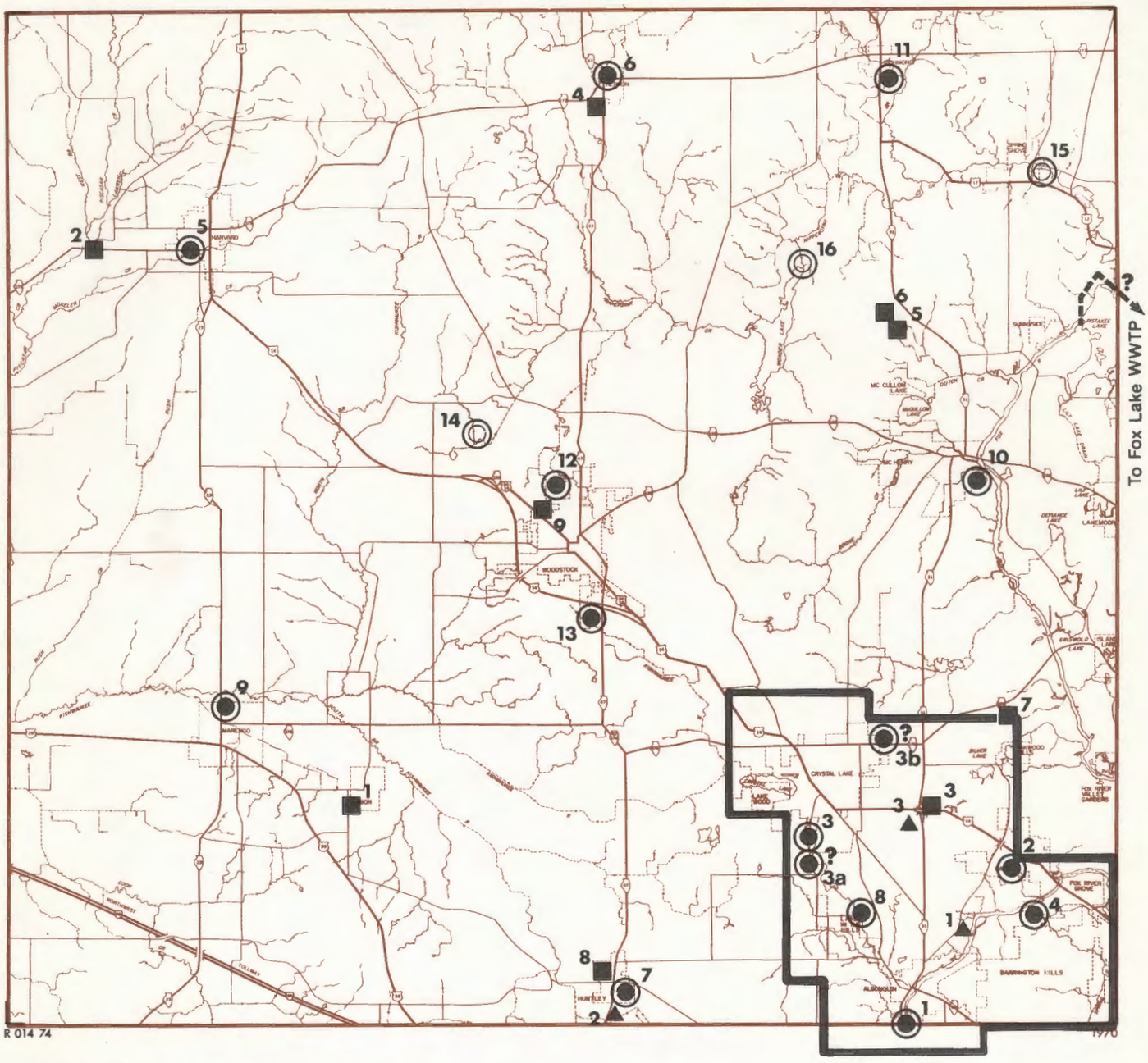
1 Abbott Laboratories
2 Fansteel Metal Corp
3 Heppner Mfg. Co.
4 Johns-Manville
5 Johnson Motors
6 Outboard Marine Corp.
7 Quaker Oats Co.
8 Spinney Run Farms
9 Travenol Lab.
10 U. S. Steel-Waukegan

PROPOSED MUNICIPAL

A NSSD-Gurnee
B LCPWD-Fox River
22A Mundelein

Figure 6

MC HENRY COUNTY WASTEWATER PLAN



WASTEWATER TREATMENT FACILITIES

Existing

- ● Municipal Plant - to be replaced
- ■ Industrial Plant
- ▲ Miscellaneous Plant
- —— Interceptor or Force Main

Proposed

- ◉ Existing Plant - expanded
- ◎ New Plant
- ▲ Pumping Station
- - - - - - Interceptor
- ? Needs further study

- ····· Force Main
- ▬▬ Service Area Boundary

Revised June 12, 1974

NORTHEASTERN ILLINOIS PLANNING COMMISSION

NORTH

0 1 2 3 4 5 MILES

0 1 2 3 4 5 6 7 8 KILOMETERS

LEVEL OF TREATMENT
SEC: SECONDARY
TERT: TERTIARY
N.R.: NUTRIENT REMOVAL

WASTEWATER DATA

MC HENRY COUNTY

TABLE 5

LINE	SERVICE AREA COMMUNITY OR PLANT		LEVEL OF TREATMENT			POPULATION SERVED (Thousands)			WASTEWATER LOADS			CONSTRUCTION COSTS ($ Millions)			REMARKS
(1)	NAME (2)	MAP CODE (3)	SEC (4)	TERT (5)	N.R. (6)	YR/NO (7)	YR/NO (8)	YR/NO (9)	YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	INITIAL (13)	FUTURE (14)	TOTAL (15)	
1	SOUTHEAST MC HENRY COUNTY					1969/	1985/	2005/	1969/	1985/	2005/	(*1)	(*2)		(*1) - To accommodate estimated 1985 wastewater loads.
2	Algonquin	1	X		X	2.7	8.5	26.7	0.50	1.17	3.34	$1.30	$ 1.06	$ 2.36	(*2) - Construction in 1985 to accommodate wastewater loads to 2005. Future costs discounted to present worth values.
3	Cary	2	X		X	3.5	21.8	34.9	0.45	2.62	4.23	1.41	0.76	2.17	
4	Crystal Lake	3	X	X	X	11.5	21.4	36.0	1.65	2.78	4.68	1.57	0.94	2.51	
5	Fox River Grove	4	X		X	1.6	2.4	2.5	0.58	0.51	0.52	0.19	0	0.19	(*3) - Now under construction
6	Lake in the Hills S.D.	8	X		X	3.2	4.8	5.8	0.28	0.53	0.63	0.68	0.06	0.74	(*4) - Cost estimates based on expanding North plant to serve entire Woodstock Area.
7	EXISTING PLANTS - REMAINDER OF COUNTY											(*1)	(*2)		
8	Harvard	5	X			4.5	7.3	18.0	0.45	0.73	1.80	0.09	0.56	0.65	(*5) - Not estimated.
9	Hebron	6	X		X	0.7	1.3	5.0	0.07	0.13	0.50	0.22	0.25	0.47	NOTE: All computations by NIPC
10	Huntley	7	X			1.0	2.7	10.0	0.10	0.27	1.00	0.34	0.42	0.76	
11	Marengo	9	X			3.2	8.8	20.0	0.32	0.88	2.00	0.94	0.58	1.52	
12	McHenry	10	X		X	4.5	9.1	15.5	0.45	0.91	1.55	0.06	0.36	0.42	
13	Richmond	11	X		X	0.8	2.3	5.0	0.08	0.23	0.50	0.37	0.17	0.54	
14	Woodstock - North	12	X		X	8.8	17.1	38.0	0.88	1.71	3.80	0.16	1.57	1.73	
15	Woodstock - South	13	X	X		(*3)	5.0	12.0	(*3)	0.50	1.20	0	0.36	0.36	
16	NEW PLANTS REMAINDER OF COUNTY											(*1)	(*2)		
17	Hartland	14	X		X		1.5	8.5		0.15	0.85	0.19	0.45	0.64	
18	Spring Grove	15	X		X		0.5	8.0		0.05	0.80	0.06	0.43	0.49	
19	Wonder Lake	16	X		X		9.0	12.0		0.90	1.20	0.98	0.16	1.14	
20										TOTALS		8.56	8.13	16.69	
21															
22															

TABLE 5A: WASTEWATER TREATMENT FACILITIES - MCHENRY COUNTY

EXISTING MUNICIPAL

1	Algonquin
2	Cary
3	Crystal Lake
3a	Crystal Lake
3b	Crystal Lake
4	Fox River Grove
5	Harvard
6	Hebron
7	Huntley
8	Lake in the Hills S.D.
9	Marengo
10	McHenry
11	Richmond
12	Woodstock
13	Woodstock South

PROPOSED MUNICIPAL

14	Hartland
15	Spring Grove
16	Wonder Lake

EXISTING MISCELLANEOUS

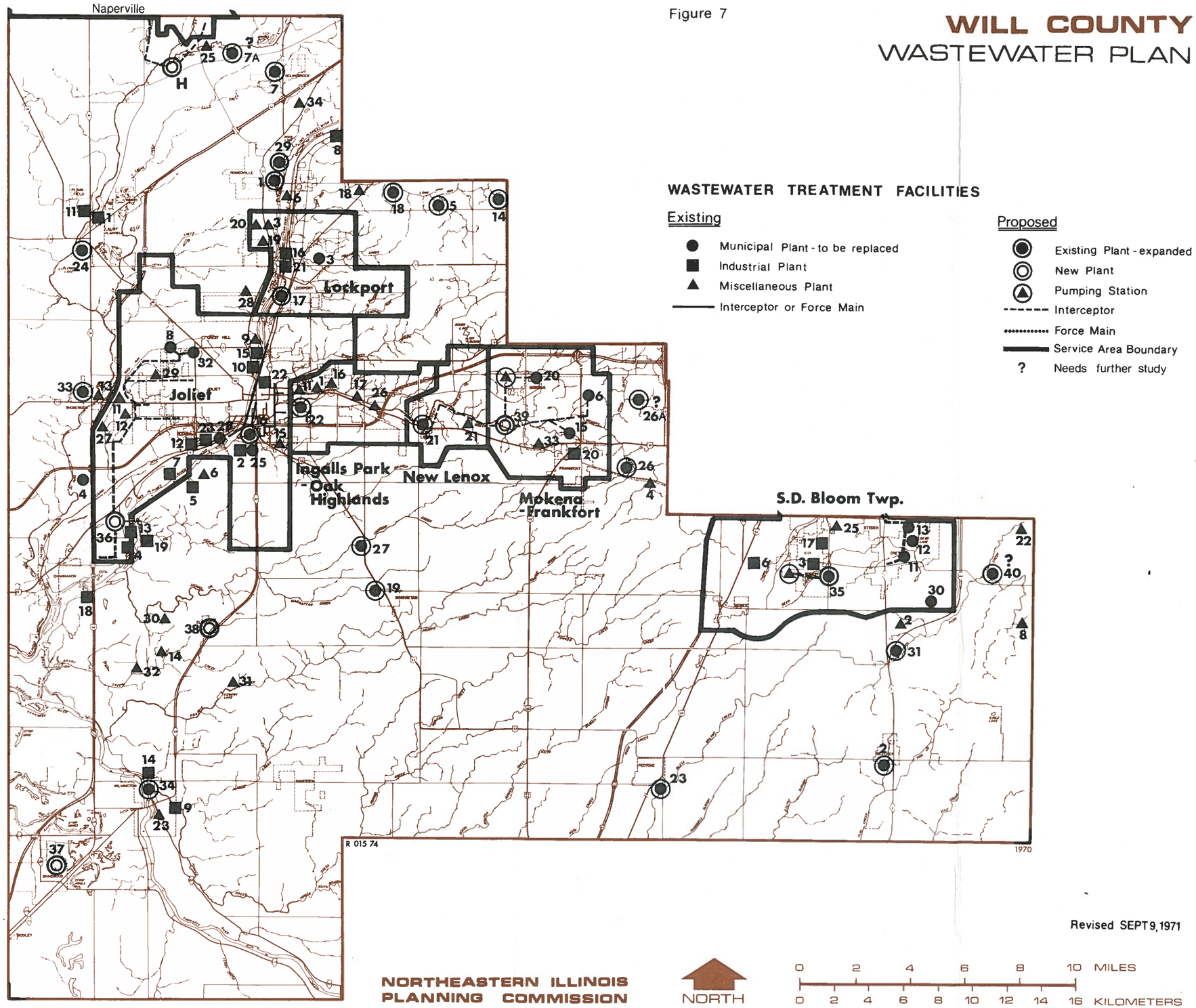
1	Camp Algonquin
2	Dean Milk Co. - Huntley
3	Lake Manor Motel

EXISTING INDUSTRIAL

1	Aubrey Manufacturing Co.
2	Dean Milk Co. - Chemung
3	Dodge Trophies, Inc.
4	Hebron Packing
5	Modine Manufacturing Co.
6	Morton Chemical Co.
7	Sun Electric Corp.
8	Union Special Co.
9	Woodstock Die Cast

Figure 7

WILL COUNTY
WASTEWATER PLAN



Revised SEPT 9, 1971

NORTHEASTERN ILLINOIS PLANNING COMMISSION

LEVEL OF TREATMENT
SEC: SECONDARY
TERT: TERTIARY
N.R.: NUTRIENT REMOVAL

WASTEWATER DATA

WILL COUNTY

TABLE 6

LINE (1)	SERVICE AREA COMMUNITY OR PLANT NAME (2)	MAP CODE (3)	LEVEL OF TREATMENT SEC. (4)	TERT (5)	N.R. (6)	POPULATION SERVED (Thousands) YR/NO (7)	YR/NO (8)	YR/NO (9)	WASTEWATER LOADS YR/MGD (10)	YR/MGD (11)	YR/MGD (12)	CONSTRUCTION COSTS ($ Millions) INITIAL (13)	FUTURE (14)	TOTAL (15)
1	JOLIET AREA					1970/	1980/	1995/	1970/	1980/	1995/			
2	West Side	36	X			(*1) 22.0	(*2) 43.0	(*3) 99.6	(*4) 1.2	(*5) 6.5	(*6) 15.0	(*7) 10.94	(*8) 1.98	12.92
3	East Side	16	X			71.0	N/A	116.8	15.0	(*9) 22.5	(*9) 22.5			
4	Mokena-Frankfort	39	X	X		1970/(*10) 4.0	1985/ 17.7	2005/ 38.1	1970/ 0.75	1985/ 1.77	2005/ 3.81	3.43	0.99	4.42
5	New Lenox	21	X	X		1970/ 2.8	1985/ 7.4	2005/ 21.2	1970/ 0.28	1985/ 0.74	2005/ 2.12	1.41	0.75	2.16
6	Ingalls Park-Oak Highlands	24	X	X		1970/ 1.0	1985/ 20.9	2005/ 27.8	1970/ 0.10	1985/ 2.09	2005/ 2.78	1.73	0.33	2.06
7	EXISTING PLANTS-REMAINDER OF COUNTY					1970/	1985/	2005/	1970/	1985/	2005/	(*11)	(*12)	
8	Beecher	2	X	X		1.8	2.0	2.5	0.18	0.20	0.25	0.05	0	0.05
9	Bolingbrook	7	X	X		5.0	8.2	11.0	0.50	0.80	1.10	0.18	0.17	0.35
10	Lockport	17	X			10.0	(*13) 40.0	(*14) 55.0	2.00	3.80	(*14) 5.50	2.64	1.72	4.36
11	Manhattan	19	X	X		1.5	3.0	6.5	0.15	0.30	0.65	0.44	0.24	0.68
12	Peotone	23	X	X		2.1	3.0	9.0	0.21	0.30	0.90	0.44	0.38	0.82
13	Plainfield	24	X	X		4.0	10.5	21.0	0.40	1.05	2.10	0.89	0.56	1.45
14	Romeoville	29	X	X		9.0	14.0	36.0	0.90	1.40	3.60	0.46	1.07	1.53
15	Wilmington	34	X	X		4.2	5.5	7.0	0.42	0.55	0.70	0.73	0.10	0.83
16	NEW PLANTS-REMAINDER OF COUNTY													
17	Braidwood	37	X				2.5	3.5		0.25	0.35	0.31	0.07	0.38
18	Elwood	38	X				2.9	4.3		0.29	0.43	0.36	0.09	0.45
19											TOTALS	$24.01	$8.45	$32.46
20														
21														
22														

(*13) - As estimated by consultant for a proposed small service area extending beyond current city limits.

(*14) - 1995 forecast by NIPC for service area on this Plan.

REMARKS

(*1) - Per consultants' report, includes 8000 people now served by East Side plant.

(*2) - As estimated by Joliet's consultant for smaller service area.

(*3) - As estimated by NIPC for service area shown in this plan.

(*4) - For 8000 people who will be disconnected from East Side plant.

(*5) - As estimated for limited service area based on 150 gpcd.

(*6) - As estimated by NIPC for 1995, for service area shown in this Plan, based on 150 gpcd.

(*7) - To accommodate estimated 1985 wastewater loads.

(*8) - Construction in 1980 o accommodate wastewater loads to 1995. Future costs discounted to present worth values.

(*9) - Plant now being expanded to 22.5 MGD.

(*10) - Now connected to existing Mokena and Frankfort plants.

(*11) - To accommodate 1985 loads.

(*12) - Construction in 1985 to accommodate wastewater loads to 2005. Future costs discounted to present worth values.

Revised March 3, 1971

TABLE 6A: WASTEWATER TREATMENT FACILITIES - WILL COUNTY

EXISTING MUNICIPAL

1 Alexander U.C.
2 Beecher
3 Bonnie Brae-Forest Manor S.D.
4 Camelot Utilities, Inc.
5 Chickasaw Hill U.C.

6 Citizens-Arbury Hills
7 Citizens-West Suburban
7a Citizens-West Suburban #2
8 Crest Hill-East
9 Crest Hill-Paramount
10 Crest Hill-West

11 Crete
12 Crete-Greenbriar
13 Crete-Swiss Valley
14 Derby Meadows U.C.
15 Frankfort

16 Joliet
17 Lockport
18 Lockport Heights S.D.
19 Manhattan
20 Mokena

21 New Lenox
22 Oak Highlands-Ingalls Park S.D.
23 Peotone
24 Plainfield
25 Preston U.C.

26 Prestwick U.C.
26a Utilities, Inc.-Frankfort Square
27 Ranch Oaks Service Assn.
28 Rockdale
29 Romeoville
30 Selym U.C.

31 Township U.C.
32 Westfield
33 Will County Water Co.
34 Wilmington
35 Park Forest South

40 Willowbrook U.C.

PROPOSED MUNICIPAL

36 Joliet West Side
37 Braidwood
38 Elwood
39 Mokena-Frankfort
H Naperville-Springbrook

EXISTING MISCELLANEOUS

1 Bajts Mobile Court
2 Balmoral Race Track
3 Borromeo Seminary
4 Camp Manitoqua
5 Commonwealth Edison-Patterson Road

6 Commonwealth Edison-Romeoville
7 Commonwealth Edison-Route 6
8 Crete Township Rec. Area
9 General Aniline & Film

11 Hillside Court
12 Holiday Inn Motel
13 Howard Johnson Motel
14 Imperial Trailer Park
15 JAAP - Industrial

16 Joliet Country Club
17 Kings Trailer Park
18 L&W Restaurant
19 Liberty Trailer Park
20 Lewis College

21 Lincolnshire Country Club
22 Lincolnway H.S.
23 Longwood Country Club
24 Lorenzo (Bruning) School
25 Oak Grove Farm

26 Park Forest Medical Center
27 Providence H.S.
28 Rossi Motel
29 Stateville Penitentiary
30 Troy Elementary School

31 U.S. Rubber - JAAP - Brown
32 U.S. Rubber - JAAP - Elwood
33 U.S. Rubber - JAAP - Kankakee
34 Valley View Farm
35 White Fence Farm

EXISTING INDUSTRIAL

1 A.H. Kerr Glass Co.
2 American Cyanamid Co.
3 American Lock Co.
4 AMOCO Chem. Corp.
5 Blockson Chem. Works

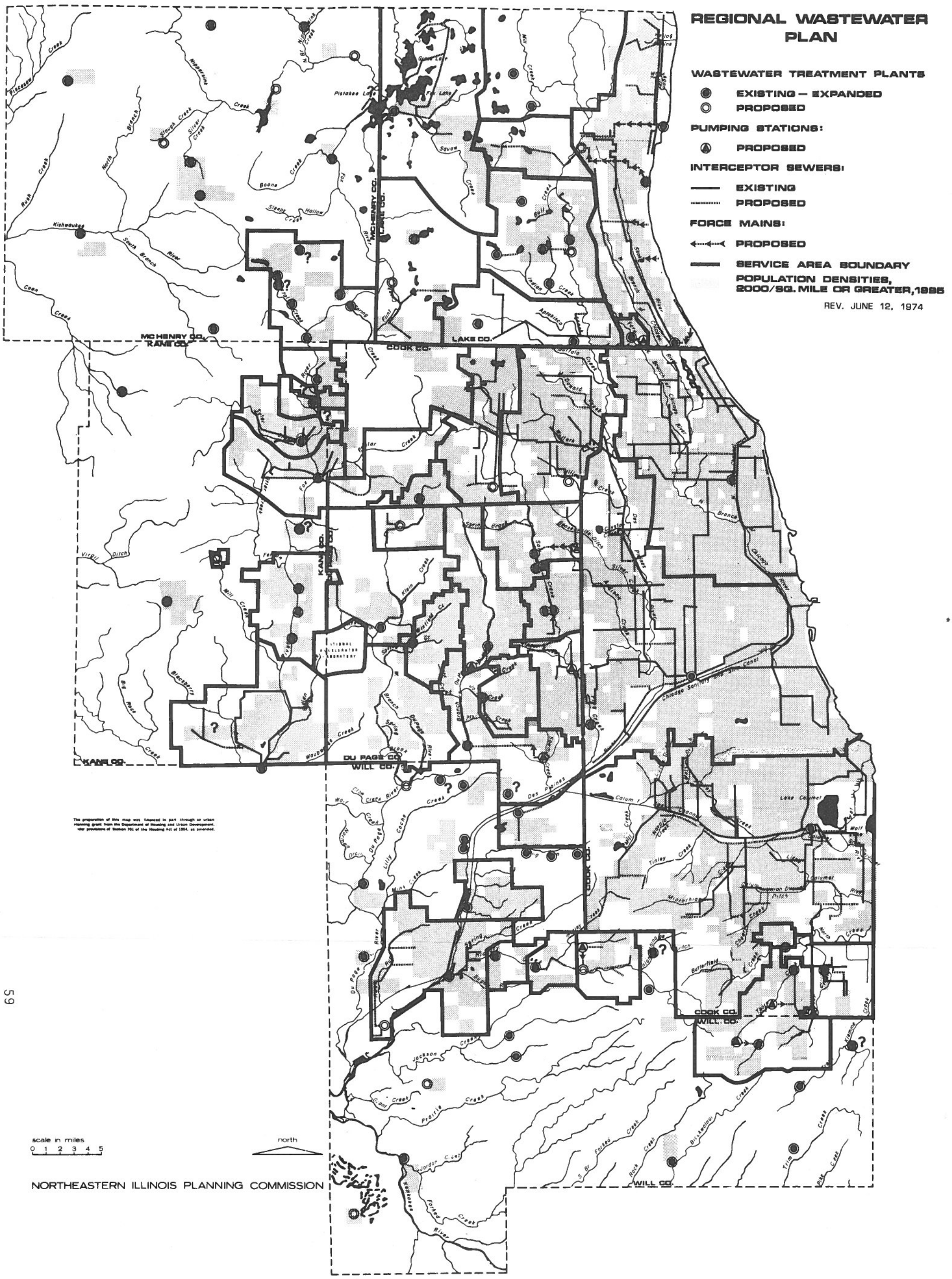
6 Cardox Div.-Monee
7 Caterpillar Tractor - Joliet
8 Ceco Steel
9 Cel-Fibe
10 Cowles Chemical Co.

11 Fleischmann Distilling Corp.
12 Kaluzny Bros., Inc.
13 Olin Kraft
14 Philip Carey Corp.
15 Phoenix Mfg. Co.

16 Pure Oil Co.
17 Remington Arms Co.
18 Rexall Chemical Co.
19 Stepan Chem. Co.
20 Superior Match Co.

21 Texaco Inc.
22 U.S. Steel - Joliet Works
23 Universal Glass Co.

Figure 8


REGIONAL WASTEWATER PLAN
WASTEWATER TREATMENT PLANTS
EXISTING — EXPANDED
PROPOSED
PUMPING STATIONS:
PROPOSED
INTERCEPTOR SEWERS:
EXISTING
PROPOSED
FORCE MAINS:
PROPOSED
SERVICE AREA BOUNDARY
POPULATION DENSITIES, 2000/SQ. MILE OR GREATER, 1995
REV. JUNE 12, 1974
MCHENRY CO.
LAKE CO.
KANE CO.
COOK CO.
DU PAGE CO.
WILL CO.
scale in miles
0 1 2 3 4 5
north
NORTHEASTERN ILLINOIS PLANNING COMMISSION

NORTHEASTERN ILLINOIS PLANNING COMMISSION

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June, 1974

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