

**SANITARY SEWER  
SERVICE AREA FOR THE  
CITY AND TOWN OF  
BROOKFIELD AND THE  
VILLAGE OF ELM GROVE**

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Special acknowledgement is due SEWRPC Planner Joel E. Dietl for his contribution to this report.

**COMMUNITY ASSISTANCE PLANNING REPORT  
NUMBER 109**

**SANITARY SEWER SERVICE AREA FOR THE CITY AND  
TOWN OF BROOKFIELD AND THE VILLAGE OF ELM GROVE  
WAUKESHA COUNTY, WISCONSIN**

Prepared by the  
Southeastern Wisconsin Regional Planning Commission  
P. O. Box 1607  
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November 1991

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November 11, 1991

TO: The Common Council of the City of Brookfield; the Village Board of the Village of Elm Grove; the Town Board of the Town of Brookfield; the Sanitary Sewer Board of the City of Brookfield; the Town of Brookfield Sanitary District No. 4; the Milwaukee Metropolitan Sewerage District; and the Waukesha County Park and Planning Commission

The adopted regional water quality management plan for southeastern Wisconsin identifies in a preliminary manner recommended sanitary sewer service areas tributary to each of the existing and proposed sewage treatment plants within the Region. The plan recommends that these service areas be refined and detailed through the cooperative efforts of the local units and agencies of government so that the service areas properly reflect local, as well as areawide, development objectives. This refinement and detailing is particularly important in light of provisions in the Wisconsin Administrative Code which require that the Wisconsin Department of Natural Resources with respect to public sanitary sewers, and the Wisconsin Department of Industry, Labor and Human Relations with respect to private sanitary sewers, make a finding that all proposed sanitary sewer extensions be in conformance with the adopted regional water quality management plan and the sanitary service areas identified in the plan.

These Departments, in carrying out their responsibilities in this respect, require that the Southeastern Wisconsin Regional Planning Commission, as the designated areawide water quality management planning agency for the Southeastern Wisconsin Region, review and comment on each proposed sewer extension as to its relationship to the approved plan and sewer service area. If such review can be based on a refined service area cooperatively identified by the local units of government concerned, then no conflicts concerning sanitary sewer extensions should arise, and the entire sewerage system and related land use development process can proceed in a smooth and efficient manner.

Acting in response to the recommendations made in the adopted regional water quality management plan, the City of Brookfield, on February 23, 1984, requested that the Regional Planning Commission assist the City in refining and detailing the recommended sanitary sewer service area. On April 3, 1984, and September 4, 1984, the Village of Elm Grove and the Town of Brookfield, respectively, agreed to work with the City of Brookfield in preparation of a joint sewer service area plan addressing all three communities. This report documents the results of that refinement process.

The report contains a map showing not only the recommended refined sanitary sewer service area, but also the location and extent of the environmental corridors within that area. These environmental corridors contain the best and most important elements of the natural resource base within the sewer service area. Their preservation in essentially natural, open uses is important to the maintenance of the overall quality of the environment in the area, while avoiding the creation of serious and costly developmental problems. Accordingly, urban development should not be encouraged to occur within these corridors, a factor which should be taken into consideration in the extension of sanitary sewer service.

A series of public hearings was held on July 16, 1990, and February 28, 1991, to discuss the preliminary findings and recommendations of the sewer service area refinement process and to receive the comments and suggestions of the local elected officials concerned and of interested citizens. The recommendations contained in this report reflect the pertinent comments and suggestions made at the hearing.

The sanitary sewer service area herein presented is intended to constitute a refinement of the areawide water quality management plan adopted by the Regional Planning Commission in July 1979. Accordingly, upon adoption of this report by the local units and agencies of government concerned and subsequent adoption by the Regional Planning Commission, this report will be certified to the Wisconsin Department of Natural Resources and the U. S. Environmental Protection Agency as an amendment to the adopted, areawide water quality management plan.

The sanitary sewer service area presented in this report provides a sound guide which can assist the responsible public officials in the making of sewer service-related development decisions in the City and Town of Brookfield and the Village of Elm Grove. Accordingly, careful consideration and adoption of this report by all parties concerned is respectfully urged. The Regional Planning Commission stands ready to assist the City, Town, and Village in implementing the recommendations contained in this report.

Sincerely,



Kurt W. Bauer  
Executive Director

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## Chapter I

### INTRODUCTION

#### BACKGROUND

On July 12, 1979, the Southeastern Wisconsin Regional Planning Commission formally adopted an areawide water quality management plan for southeastern Wisconsin. The plan is aimed at achieving clean and wholesome surface waters within the seven-county Region, surface waters that are "fishable and swimmable."<sup>1</sup>

The plan has five basic elements: 1) a land use element, consisting of recommendations for the location of new urban development in the Region and for the preservation of primary environmental corridors and prime agricultural lands, 2) a point source pollution abatement element, including recommendations concerning the location and extent of sanitary sewer service areas, the location, type and capacity of, and the level of treatment to be provided at, sewage treatment facilities, the location and configuration of intercommunity trunk sewers, and the abatement of pollution from sewer system overflows and from industrial wastewater discharges, 3) a nonpoint source pollution abatement element, consisting of recommendations for the control of pollutant runoff from rural and urban lands, 4) a sludge management element, consisting of recommendations for the handling and disposal of sludges from sewage treatment facilities, and 5) recommendations for the establishment of continuing water quality monitoring efforts in the Region.

The plan was formally certified over the period from July 23 to September 20, 1979, to all of the local units of government in the Region and to the concerned state and federal agencies. The plan was formally endorsed by the Wisconsin Natural Resources Board on July 25, 1979. Such endorsement is important because under Wisconsin

law and administrative rules certain actions by the Wisconsin Department of Natural Resources (DNR) must be found to be in accordance with the adopted and endorsed plan. These actions include, among others, DNR approval of waste discharge permits, DNR approval of state and federal grants for the construction of wastewater treatment and conveyance facilities, and DNR approval of locally proposed sanitary sewer extensions.

#### NEED FOR REFINEMENT AND DETAILING OF LOCAL SANITARY SEWER SERVICE AREAS

The adopted regional water quality management plan includes recommended sanitary sewer service areas attendant to each recommended sewage treatment facility (see Map 1). There were in the plan, as initially adopted, a total of 85 such identified sanitary sewer service areas. The initially recommended sanitary sewer service areas were based upon the urban land use configuration identified in the Commission-adopted regional land use plan for the year 2000.<sup>2</sup> As such, the delineation of the areas is necessarily general, and may not reflect detailed local planning considerations.

Section NR 110.08(4) and Section ILHR 82.20(4) of the Wisconsin Administrative Code requires that the Wisconsin Department of Natural Resources, with respect to public sanitary sewers, and the Wisconsin Department of Industry, Labor and Human Relations, with respect to private sanitary sewers, make a finding that all proposed sanitary sewer extensions be in conformance with adopted areawide water quality management plans and the sanitary sewer service areas identified in such plans. These Departments, in carrying out their responsibili-

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<sup>1</sup>*The adopted areawide water quality management plan is documented in SEWRPC Planning Report No. 30, A Regional Water Quality Management Plan for Southeastern Wisconsin: 2000, Volume One, Inventory Findings; Volume Two, Alternative Plans; and Volume Three, Recommended Plan.*

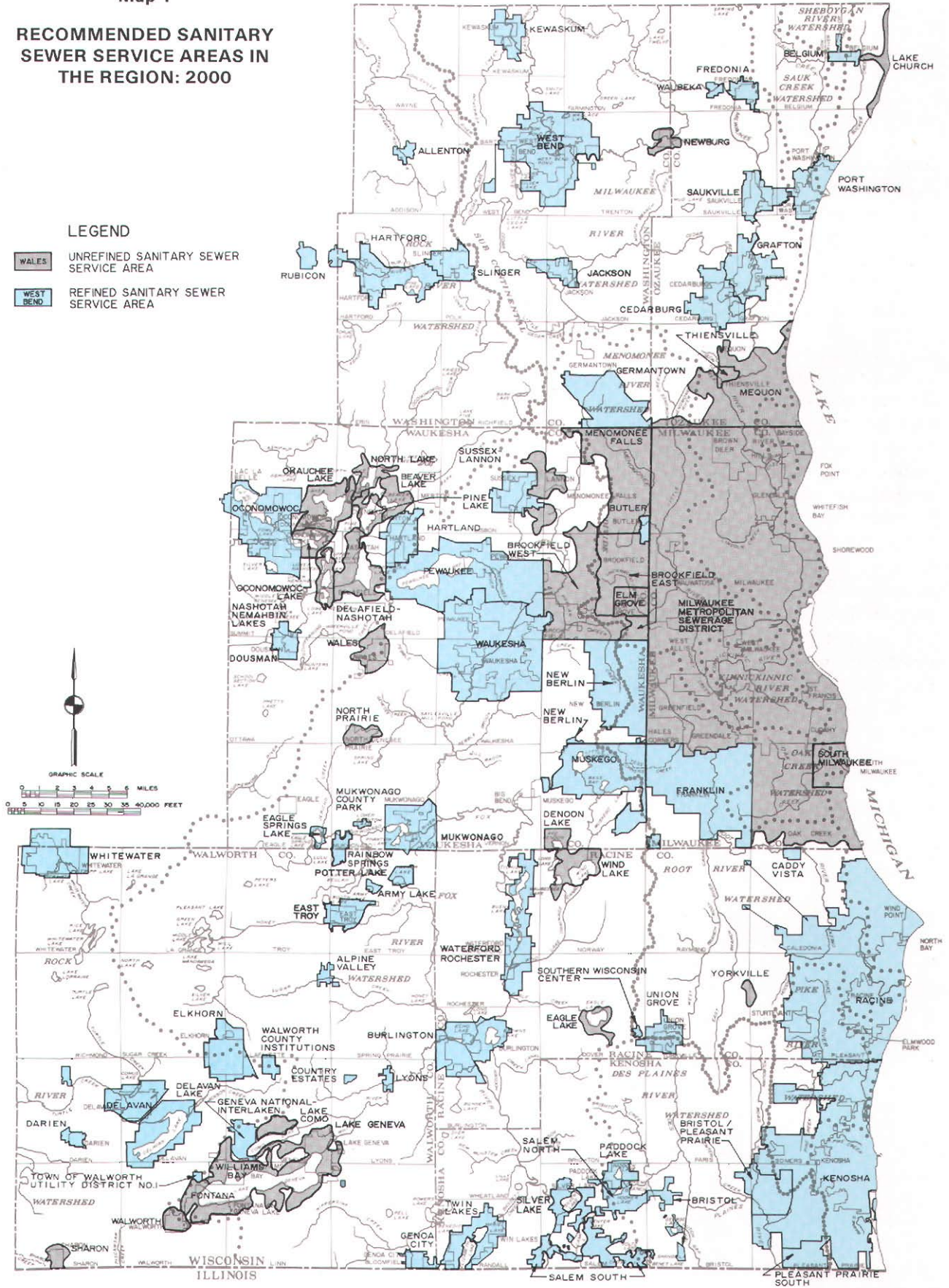
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<sup>2</sup>*See SEWRPC Planning Report No. 25, A Regional Land Use Plan and a Regional Transportation Plan for Southeastern Wisconsin: 2000, Volume One, Inventory Findings; and Volume Two, Alternative and Recommended Plans.*

Map 1

**RECOMMENDED SANITARY SEWER SERVICE AREAS IN THE REGION: 2000**

- LEGEND**
-  UNREFINED SANITARY SEWER SERVICE AREA
  -  REFINED SANITARY SEWER SERVICE AREA



Source: SEWRPC.

ties in this respect, require that the Southeastern Wisconsin Regional Planning Commission, as the designated areawide water quality management planning agency for the Southeastern Wisconsin Region, review and comment on each proposed sewer extension as to its relationship to the approved plan and sewer service areas. In order properly to reflect local, as well as area-wide, planning concerns in the execution of this review responsibility, the Regional Planning Commission in adopting the areawide water quality management plan recommended that steps be taken to refine and detail each of the sanitary sewer service areas delineated in the plan in cooperation with the local units of government concerned.

The refinement and detailing process was envisioned to consist of the following seven steps:

1. The preparation of a base map at an appropriate scale for each sanitary sewer service area identified in the adopted areawide water quality management plan.
2. The delineation on that base map of the design year 2000 sanitary sewer service area as proposed in the regional water quality management plan and consistent with the objectives set forth in the adopted regional land use plan.
3. The conduct of intergovernmental meetings involving the local or areawide unit or units of government operating the sewage treatment facility or facilities concerned and the other local units of government which are to be provided sanitary sewer service by the sewage treatment facility or facilities concerned. At these meetings, the initial sanitary sewer service area delineation is to be presented and discussed and the positions of each of the units of government concerned solicited.
4. The preparation of modifications to the initially proposed sanitary sewer service area to reflect the agreements reached at the intergovernmental meetings, meeting to the fullest extent practicable the objectives expressed both in the adopted areawide water quality management and regional land use plans and in any adopted local land use and sanitary sewerage system plans.
5. The holding of a public hearing jointly by the Commission and the local or areawide unit, or units, of government operating the treatment facility or facilities concerned to obtain public reaction to site specific sewer service area issues that might be raised by the proposed sewer service area delineation.
6. The preparation of a final sanitary sewer service area map and accompanying report.
7. Adoption of the final sewer service area map by the Commission and certification of the map to the Wisconsin Department of Natural Resources and the U. S. Environmental Protection Agency as an amendment to the adopted areawide water quality management plan. Desirably, such adoption by the Commission would follow endorsement of the map by the local or areawide unit or units of government operating the sewage treatment facility or facilities concerned, and by the governing bodies of the local units of government which are to be served by the sewage treatment facility or facilities. While such a consensus by the local governments concerned will always be sought by the Commission, it is recognized that in some cases unanimous support of the refined and detailed sanitary sewer service areas may not be achieved. In those cases, the Commission will have to weigh the positions of the parties concerned and make a final determination concerning the issues involved.

#### THE BROOKFIELD/ELM GROVE SANITARY SEWER SERVICE AREA REFINEMENT PROCESS

By letter dated February 23, 1984, the City of Brookfield requested that the Regional Planning Commission undertake the refinement and detailing of the proposed year 2000 sanitary sewer service area for the City as defined in the adopted regional water quality management plan. On April 3, 1984, and September 4, 1984, the Village of Elm Grove and the Town of Brookfield, respectively, agreed to work with the City of Brookfield in preparation of a joint sewer service area plan addressing all three communities.

A copy of the draft of this report setting forth the preliminary sanitary sewer service area was provided to the City and Town of Brookfield, the Village of Elm Grove, the Milwaukee Metropolitan Sewerage District, and the Waukesha County Park and Planning Commission for review and comment prior to a public hearing on the plan proposal. Separate public hearings were held, one on July 16, 1990, for the City of

Brookfield and the Village of Elm Grove, and one on February 28, 1991, for the Town of Brookfield. The public reaction to the proposed sanitary sewer service area, as documented in the minutes contained in Appendix A, is summarized later in this report. The final, agreed upon, refined sanitary sewer service area for the Brookfield/Elm Grove area is described in Chapter III of this report.

## Chapter II

### STUDY AREA DESCRIPTION

The study area considered in the refinement of the Brookfield/Elm Grove sanitary sewer service area is shown on Map 2. The area consists of all of the lands encompassed within the corporate limits of the City of Brookfield, the Town of Brookfield and the Village of Elm Grove. The study area encompasses 36.0 square miles, of which 26.0 square miles, or about 72 percent, lie within the City of Brookfield; 6.8 square miles, or about 19 percent, lie within the Town of Brookfield; and 3.2 square miles, or about 9 percent, lie within the Village of Elm Grove. These areas and percentages are based on 1986 civil division boundaries.

The 1985 resident population of the study area was estimated as 43,900 persons.<sup>1</sup> Of this total, about 33,200 persons, or about 76 percent, resided in the City of Brookfield; about 6,200 persons, or about 14 percent, resided in the Village of Elm Grove; and about 4,500 persons, or about 10 percent, resided in the Town of Brookfield. Of these population totals, the entire population of the Village of Elm Grove, about 32,100 persons in the City of Brookfield, and about 1,000 persons in the Town of Brookfield were provided with centralized sanitary sewer service. The remaining 4,600 persons in the City and Town of Brookfield were served by onsite soil absorption sewage disposal systems or by sewage holding tanks.

By the year 2000, up to 57,100 persons may be expected to reside in the identified study area. The areawide water quality management plan envisions that of this total, about 56,900 persons, or about 99 percent, will be provided with centralized sanitary sewer service. The remain-

ing 200 persons, or 1 percent, located primarily north of the Soo Line Railroad right-of-way (former Chicago, Milwaukee, St. Paul & Pacific Railroad right-of-way) and west of Brookfield Road, would continue to rely on onsite sewage disposal systems. Of the 56,900 persons served by sewer, about 28,600 persons, or 50 percent, would be provided sanitary sewer service extended from the Milwaukee Metropolitan Sewerage District and about 28,300 persons, or 50 percent, would be provided sanitary sewer service extended from the City of Brookfield sewage treatment facility.

It should be noted that the forecast of population levels for small geographic areas such as the study area is a difficult task, involving uncertainties and subject to periodic revision as new information becomes available. The practice that has been typically followed in forecasting future population levels for physical development planning consists of preparing a single population forecast believed to be most representative of future conditions. This traditional approach works well in periods of social and economic stability, when historic trends can be anticipated to continue relatively unchanged over the plan design period. During periods of major change in social and economic conditions, however, when there is great uncertainty as to whether historic trends will continue, alternatives to this traditional approach may be required. One such alternative approach proposed in recent years, and utilized to a limited extent at the national level for public and quasi-public planning purposes, is termed "alternative futures." Under this approach, the development, test, and evaluation of alternative plans is based not upon a single, most probable forecast of future socioeconomic conditions, but upon a number of alternative futures chosen to represent a range of future conditions which may be expected to occur over the plan design period.

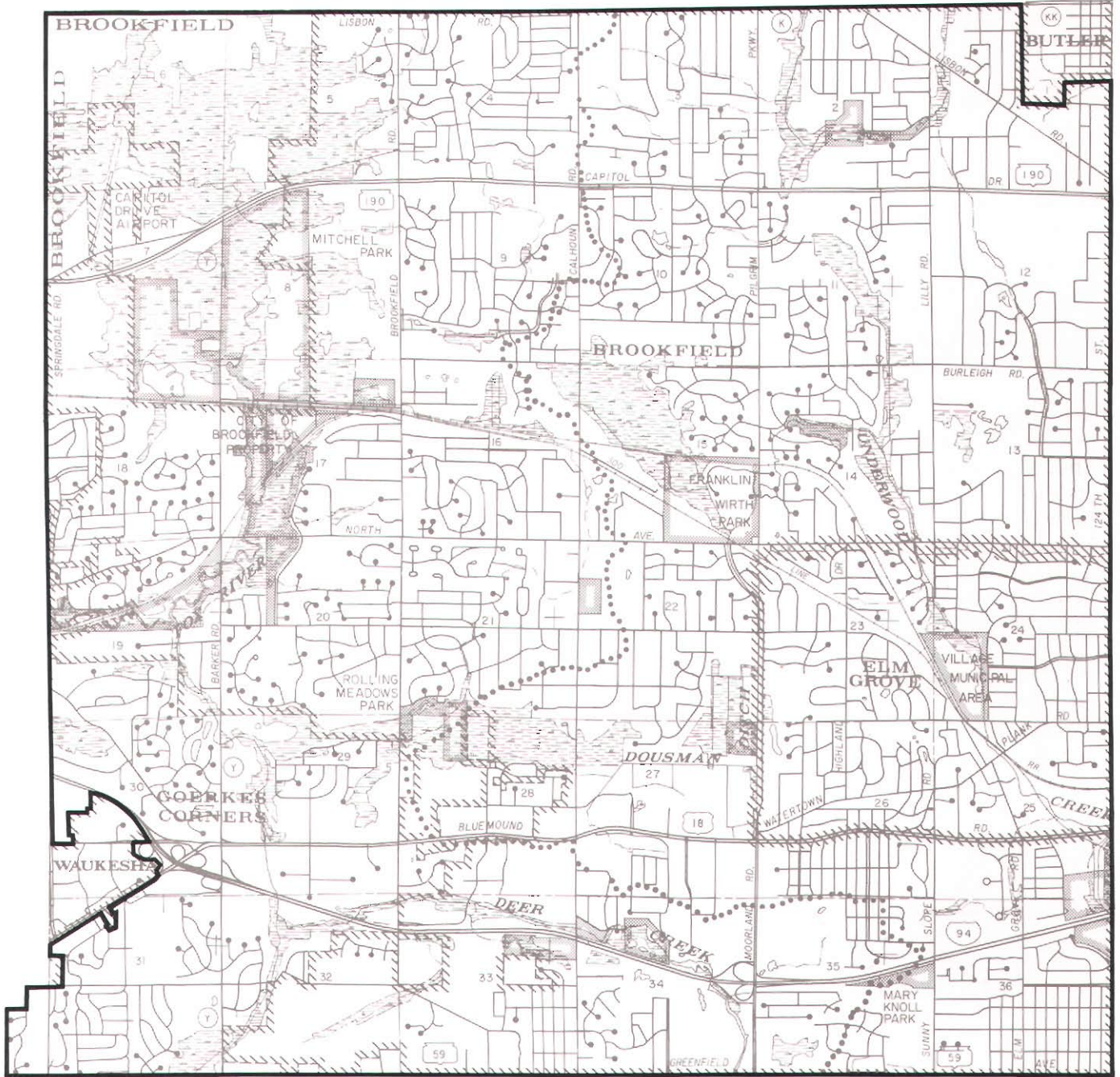
Recognizing the increasing uncertainty inherent in estimating future population levels under rapidly changing socioeconomic conditions presently existing in the United States, the Regional Planning Commission began to incorporate the alternative futures approach into its planning program in the late 1970s, the first

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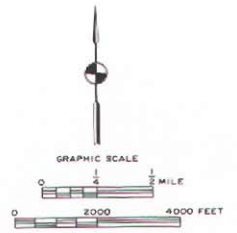
<sup>1</sup>The January 1, 1989, estimate of the resident population of the Brookfield study area, prepared by the Wisconsin Department of Administration, was 45,895 persons, of which 34,782 persons, or about 76 percent, resided in the City of Brookfield; of which 6,475 persons, or about 14 percent, resided in the Village of Elm Grove; and of which 4,638 persons, or about 10 percent, resided in the Town of Brookfield.

Map 2

STUDY AREA IDENTIFIED FOR PURPOSES OF REFINING AND  
DETAILING THE BROOKFIELD/ELM GROVE SANITARY SEWER SERVICE AREA



R 19 E R 20 E



Source: SEWRPC.



known attempt to apply this approach to area-wide and local planning in the United States. In the exploration of alternative futures for the Southeastern Wisconsin Region, an attempt was made first to identify all those external factors which may be expected to affect future development conditions in the Region either directly or indirectly, together with the likely future range of prospects for these factors. Two alternative scenarios for regional growth and change, involving different assumptions regarding three major external factors, the cost and availability of energy, population lifestyles, and economic conditions, were thus defined. These scenarios represent opposite extremes of the future prospects identified for the external factors and, consequently, indicate relatively large potential differences in future population growth and in economic activity. One scenario developed postulates moderate population and economic growth, the other scenario postulates stable or declining population and employment levels in the Region.

Two alternative regional land use plans, a centralized plan and a decentralized plan, were then developed for each of the two alternative future scenarios, thus providing in effect four alternative futures as a framework for physical development planning and related demographic and economic studies.

The anticipated year 2000 population level of about 57,100 persons in the Brookfield/Elm Grove study area is based upon the moderate growth, centralized land use scenario, the scenario utilized by the Commission in the development of the areawide water quality management plan. Under the alternative futures approach, however, the population level within the study area would range from a low of about 50,400 under the stable or declining growth, centralized land use scenario, to a high of about 58,300 under the moderate growth, decentralized land use scenario.

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## Chapter III

### PROPOSED SANITARY SEWER SERVICE AREA

#### SIGNIFICANCE OF SANITARY SEWER SERVICE AREA DELINEATION

As noted earlier in this report, recent changes in the Wisconsin Department of Natural Resources (DNR) and Wisconsin Department of Industry, Labor and Human Relations (DILHR) rules governing the extension of sanitary sewers have made the delineation of local sanitary sewer service areas an important process for local units of government and private land developers. Prior to the recent rule changes, DNR and DILHR review and approval of locally proposed sanitary sewer extensions was confined primarily to engineering considerations and was intended to ensure that the sewers were properly sized and constructed. The recent rule changes significantly expanded the scope of the state review process to include water quality-oriented land use planning considerations. Before the two state agencies concerned can approve a locally proposed sanitary sewer extension, they must make a finding that the lands to be served by the proposed extension lie within an approved sanitary sewer service area. Such areas are identified in the Commission's adopted areawide water quality management plan and any subsequent amendments thereto. If a locally proposed sanitary sewer extension is designed to serve areas not recommended for sewer service in an areawide water quality management plan, the state agencies concerned must deny approval of the extension. Consequently, it is important that an intergovernmental consensus be reached in the delineation of proposed future sanitary sewer service areas.

#### PROPOSED SANITARY SEWER SERVICE AREA AS SET FORTH IN SEWRPC PLANNING REPORT NO. 30

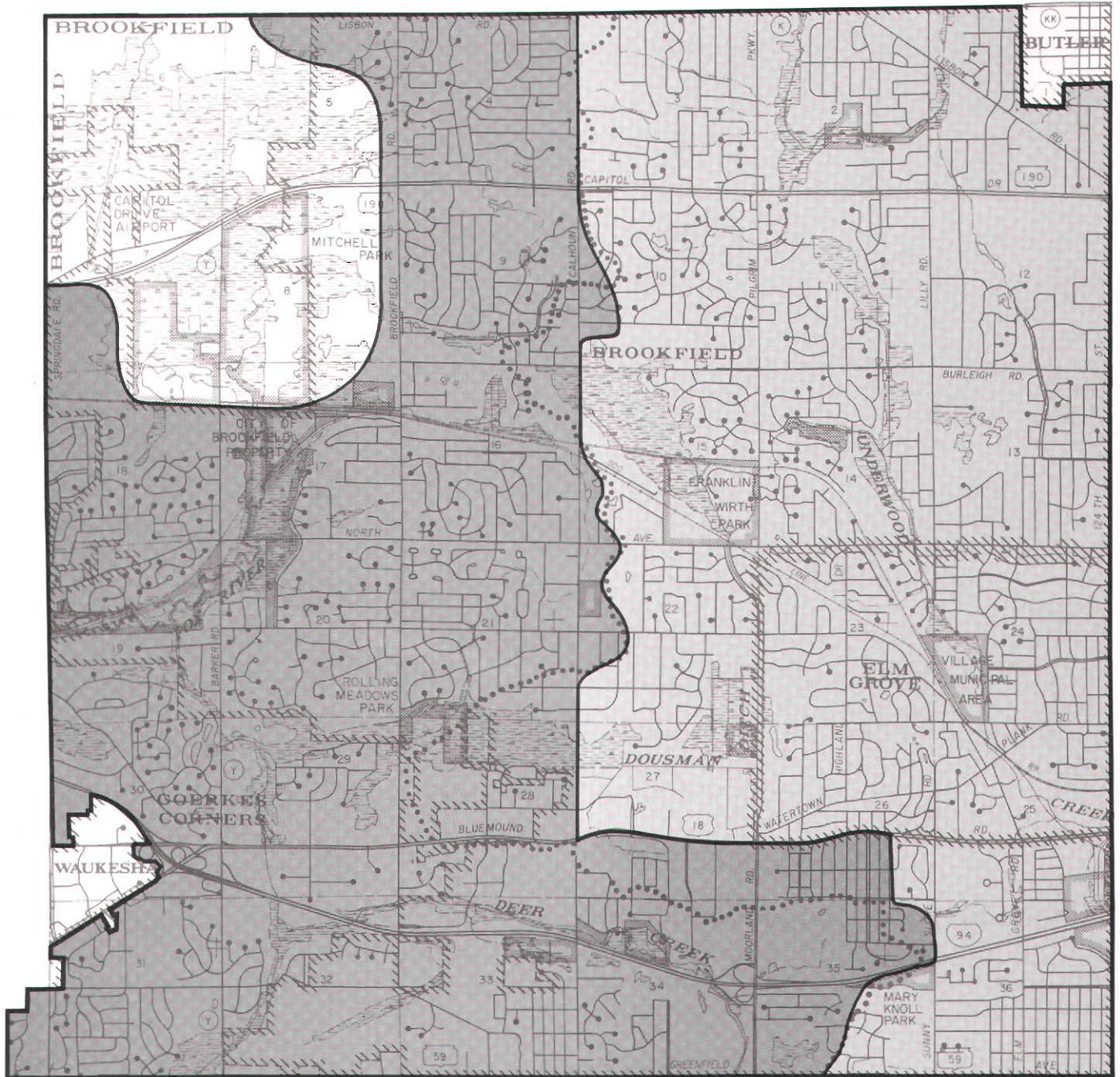
A number of important factors were taken into account in the delineation of the recommended sanitary sewer service area as set forth in SEWRPC Planning Report No. 30. These factors also comprised an important consideration in the development of the adopted regional land use plan. These factors included, among others, the location, type, and extent of existing urban land use development; the location of areas where

onsite soil absorption sewage disposal systems were known to be failing; the location and extent of gravity drainage areas tributary to major sewerage system pumping stations or to sewage treatment facilities; the location and capacity of existing and planned trunk sewers; and certain pertinent aspects of the natural resource base, including the location and extent of soils suitable for urban development, the location and extent of primary and secondary environmental corridors, and the location and extent of prime agricultural lands.

The plan year 2000 sanitary sewer service area for the City and Town of Brookfield and the Village of Elm Grove, tributary to the City of Brookfield sewage treatment facility and the Milwaukee Metropolitan Sewerage District (MMSD) treatment facilities as proposed in the adopted areawide water quality management plan, are shown on Map 3. The combined Brookfield/Elm Grove area totals about 32.8 square miles, or about 91 percent of the total study area of 36.0 square miles. As shown on Map 3, the sanitary sewer service area consists of two subareas. Subarea A, consisting of all of the Village of Elm Grove and a portion of the City of Brookfield, is located primarily east of the subcontinental divide and encompasses about 15.2 square miles, or 46 percent of the total service area. Sewer service to this area is provided through the MMSD. For convenient referencing purposes, this area shall be referred to as the Brookfield East sewer service area. Subarea B, consisting of a portion of the City and Town of Brookfield, is located primarily west of the subcontinental divide and encompasses about 17.6 square miles, or 54 percent of the total service area. Sewer service to this area is provided through the City of Brookfield sewage treatment facility. For convenient referencing purposes, this area shall be referred to as the Brookfield West sewer service area. It was envisioned in SEWRPC Planning Report No. 30 that the City of Brookfield sewage treatment facility would ultimately serve not only the City and Town of Brookfield, but also portions of the City of New Berlin, the Village of Menomonee Falls, the Sussex-Lannon areas, and the Pewaukee area. For purposes of this report, only that portion of the area tributary to the City of

Map 3

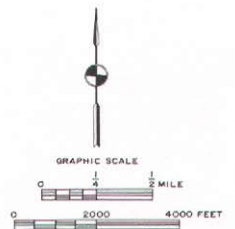
THE BROOKFIELD/ELM GROVE SANITARY SEWER SERVICE AREA AS DEFINED IN SEWRPC PLANNING REPORT NO. 30



R.19 E. R.20 E.

LEGEND

- BROOKFIELD EAST
- BROOKFIELD WEST



Source: SEWRPC.

## DETERMINATION OF ENVIRONMENTALLY SIGNIFICANT LANDS IN THE BROOKFIELD/ELM GROVE STUDY AREA

Environmental corridors are defined as linear areas in the landscape containing concentrations of natural resource and natural resource-related amenities. These corridors generally lie along the major stream valleys, around major lakes, and in the Kettle Moraine area of southeastern Wisconsin. Almost all of the remaining high-value wetlands, woodlands, wildlife habitat areas, major bodies of surface water, and delineated floodlands and shorelands are contained within these corridors. In addition, significant groundwater recharge and discharge areas, many of the most important recreational and scenic areas, and the best remaining potential park sites are located within the environmental corridors. Such environmental corridors are, in effect, a composite of the most important individual elements of the natural resource base in southeastern Wisconsin and have immeasurable environmental, ecological, and recreational value.

The land use element of the adopted regional water quality management plan recommends that lands identified as primary environmental corridors not be developed for intensive urban use. Accordingly, the plan further recommends that sanitary sewers not be extended into such corridors for the purpose of accommodating urban development in the corridors. It was, however, recognized in the plan that it would be necessary in some cases to construct sanitary sewers across and through primary environmental corridors, and that certain land uses requiring sanitary sewer service could be properly located in the corridors, including park and outdoor recreation facilities and certain institutional uses. In some cases very low density residential development on five-acre lots, compatible with the preservation of the corridors in essentially natural open uses may also be permitted to occupy corridor lands and it may be desirable to extend sewers into the corridors to serve such uses. Basically, however, the adopted regional land use plan seeks to ensure that the primary environmental corridor lands are not destroyed through conversion to intensive urban uses.

One of the first steps in refining the Brookfield/Elm Grove sanitary sewer service area was to map in detail the environmentally significant

Brookfield's sewage treatment facility which is located within the corporate limits of the City and Town of Brookfield will be addressed. Information concerning the remainder of the lands tributary to the City of Brookfield's sewage treatment facility is presented in other sanitary sewer service area reports, including SEWRPC Community Assistance Planning Report No. 84, Sanitary Sewer Service Area for the Village of Sussex, Waukesha County, Wisconsin; SEWRPC Community Assistance Planning Report No. 113, Sanitary Sewer Service Area for the Town of Pewaukee Sanitary District No. 3, Lake Pewaukee Sanitary District, and Village of Pewaukee, Waukesha County, Wisconsin; and SEWRPC Community Assistance Planning Report No. 157, Sanitary Sewer Service Area for the City of New Berlin, Waukesha County, Wisconsin.<sup>1</sup> To date, no refinement effort has been initiated for the Village of Lannon service area.

In 1985, the combined resident population of the Brookfield East and Brookfield West sewer service areas totaled 43,800 persons, of whom 22,600 persons, or 52 percent, resided in the Brookfield East sewer service area and 21,200 persons, or 48 percent, resided in the Brookfield West sewer service area.

As already noted, about 56,900 persons are expected to reside in the combined Brookfield East and Brookfield West sewer service area. This population level is based upon the moderate growth, centralized land use alternative. Of this total, about 28,600 persons are expected to reside in the Brookfield East sewer service area. About 28,300 persons are expected to reside within the Brookfield West sewer service area.

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<sup>1</sup>A refinement effort is currently underway for the Village of Menomonee Falls sanitary sewer service area which will include an identification of land within the Village which would logically and most efficiently be served by connection to the City of Brookfield's sewage treatment facility.

lands in the study area. Accordingly, Commission inventories were reviewed and updated as necessary with respect to the following elements of the natural resource base: lakes, streams, and associated shorelands and floodlands; wetlands; woodlands; wildlife habitat areas; areas of rugged terrain and high relief topography; wet, poorly drained, and organic soils; and remnant prairies. In addition, inventories were reviewed and updated as necessary with respect to such natural resource-related features as existing parks, potential park sites, sites of historic and archaeological value, areas possessing scenic vistas or viewpoints, and areas of scientific value.

Each of these natural resource and resource-related elements was mapped on 1 inch equals 400 feet scale, ratioed and rectified aerial photographs. A point system for value rating the various elements of the resource base was established (see Table 1). The primary environmental corridors were delineated using this rating system. To qualify for inclusion in a primary environmental corridor, an area must exhibit a point value of 10 or more. In addition, a primary environmental corridor must be at least 400 acres in size, be at least two miles long, and have a minimum width of 200 feet. This environmental corridor refinement process is more fully described in SEWRPC Technical Record, Volume 4, No. 2, in an article entitled, "Refining the Delineation of Environmental Corridors in Southeastern Wisconsin." The primary environmental corridors as delineated in the Brookfield/Elm Grove study area are shown on Map 4.

In addition, Map 4 identifies secondary environmental corridors. The secondary environmental corridors, while not as significant as the primary environmental corridors in terms of the overall resource values, should be considered for preservation as the process of urban development proceeds, because such corridors often provide economical drainageways, as well as needed "green space," through developing residential neighborhoods. To qualify for inclusion in a secondary environmental corridor, an area must exhibit a point value of 10 or more, with such a corridor having a minimum area of 100 acres and a minimum length of one mile.

Also identified on Map 4 are isolated natural areas. Isolated natural areas generally consist of those natural resource base elements that have "inherent natural" value such as wetlands,

Table 1

**VALUES ASSIGNED TO NATURAL RESOURCE BASE AND NATURAL RESOURCE BASE-RELATED ELEMENTS IN THE PROCESS OF DELINEATING PRIMARY AND SECONDARY ENVIRONMENTAL CORRIDORS**

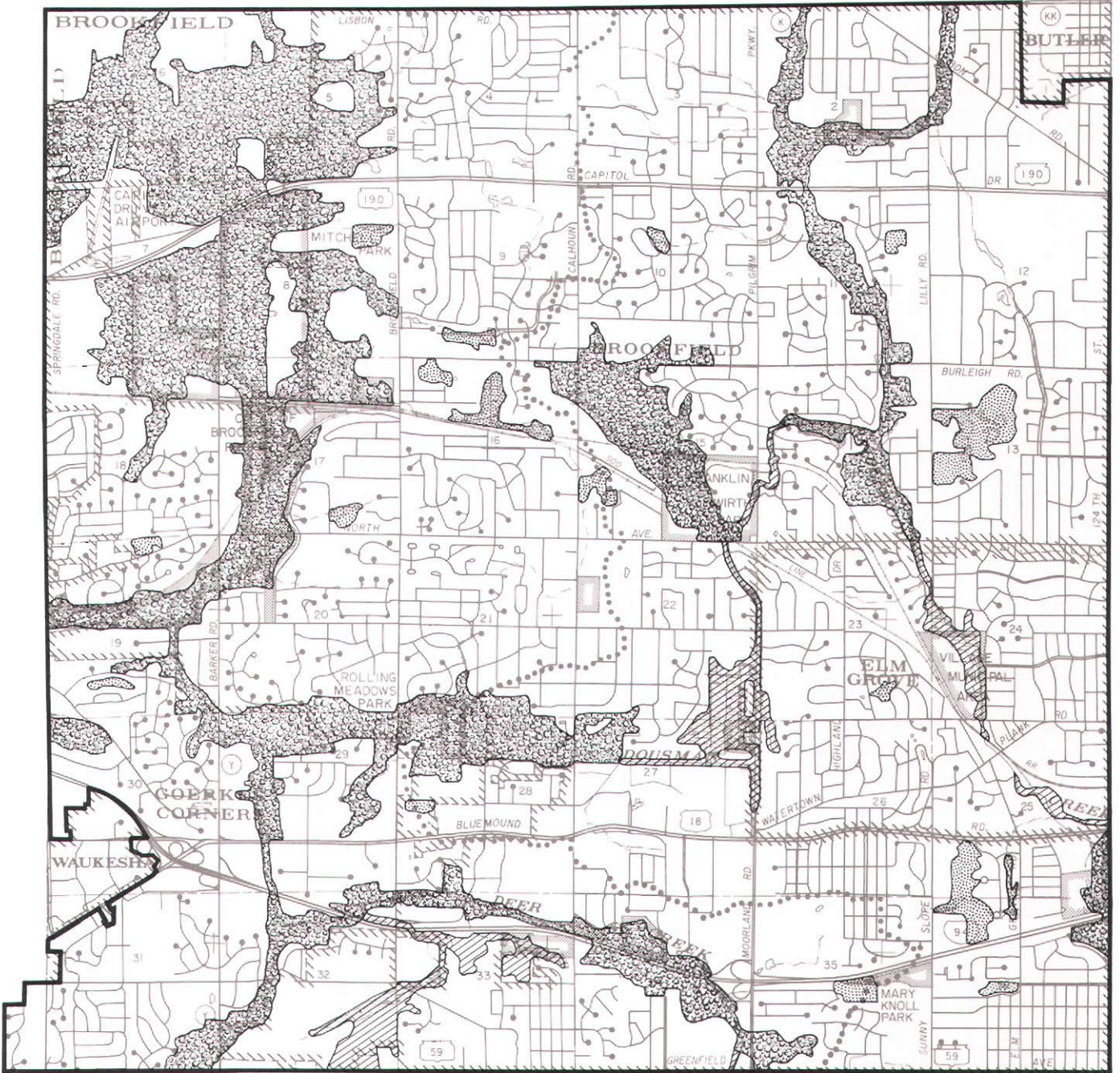
Resource Base or Related Element	Point Value
<b>Natural Resource Base</b>	
Lake	
Major (50 acres or more) . . . . .	20
Minor (5-49 acres) . . . . .	20
Rivers or Streams (perennial) . . . . .	10
Shoreland	
Lake or Perennial River or Stream . . . . .	10
Intermittent Stream . . . . .	5
Floodland (100-year recurrence interval) . . . . .	3
Wetland . . . . .	10
Wet, Poorly Drained, or Organic Soil . . . . .	5
Woodland . . . . .	10
Wildlife Habitat	
High Value . . . . .	10
Medium Value . . . . .	7
Low Value . . . . .	5
Steep Slope	
20 Percent or More . . . . .	7
13-19 Percent . . . . .	5
Prairie . . . . .	10
<b>Natural Resource Base-Related</b>	
Existing Park or Open Space Site	
Rural Open Space Site . . . . .	5
Other Park and Open Space Sites . . . . .	2
Potential Park Site	
High Value . . . . .	3
Medium Value . . . . .	2
Low Value . . . . .	1
Historic Site	
Structure . . . . .	1
Other Cultural . . . . .	1
Archaeological . . . . .	2
Scenic Viewpoint . . . . .	5
Scientific Area	
State Scientific Area . . . . .	15
State Significance . . . . .	15
County Significance . . . . .	10
Local Significance . . . . .	5

Source: SEWRPC.

woodlands, wildlife habitat areas, and surface water areas, but that are separated physically from the primary and secondary environmental corridors by intensive urban and agricultural land uses. Since isolated natural areas may provide the only available wildlife habitat in an area, provide good locations for local parks and nature study areas, and lend aesthetic character and natural diversity to an area, these areas




Map 4

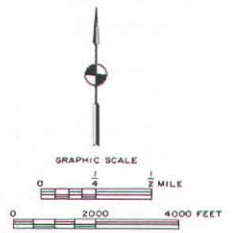
ENVIRONMENTALLY SIGNIFICANT LANDS IN THE BROOKFIELD/ELM GROVE STUDY AREA



R 19 E R 20 E

LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA



Source: SEWRPC.

should also be protected and preserved in a natural state to the extent practicable. An isolated natural area must be at least five acres in size.

Lands encompassed within the primary environmental corridors of the Brookfield/Elm Grove study area in 1989 totaled about 5.6 square miles, or about 16 percent of the total study area. Lands encompassed within the secondary environmental corridors total about 0.6 square miles, or about 2 percent of the study area. Lands encompassed within isolated natural areas total about 0.4 square mile, or about 1 percent of the study area. Thus, environmentally significant lands in the Brookfield/Elm Grove study area totaled about 6.6 square miles, or about 18 percent of the study area.

While the adopted regional water quality management plan places great emphasis upon the protection of the lands identified as primary environmental corridors in essentially natural, open space uses, it also recognizes that there may be specific situations in which the objective of preserving the corridor lands directly conflicts with other legitimate regional and local development objectives. For example, the regional plan recognizes that if a community were to determine the need for a strategic arterial street extension through the primary environmental corridor lands in order to service an important local development project, the street extension may be considered to be of greater community benefit than the preservation of a small segment of the primary environmental corridor. When such conflicts in legitimate community development objectives occur, it is important that they be resolved sensitively and that any damage to the natural environment in the corridors be minimized.

It should also be noted that while almost all the delineated floodlands in the Brookfield/Elm Grove study area are contained within the environmental corridors, there are areas of the floodlands utilized for agricultural or other open space uses located outside such corridors. The Regional Planning Commission recognizes that such floodlands are generally unsuitable for intensive urban development due to poor soil conditions and periodic flood inundation. The floodland areas, however, often contain important elements of the natural resource base such as wetlands and wildlife habitat areas. The

floodlands also provide storage for floodwaters and thereby decrease downstream flood discharges and stages. In addition, it is recognized that floodlands in an urbanizing area formerly used for agricultural purposes, if left undeveloped, will generally revert to wetlands and provide flood storage and other benefits. The Commission thus recommends that, as development of lands adjacent to these floodland areas occurs, such floodland areas be preserved in essentially natural open space uses and thereby be added to the environmental corridors.

#### REFINED SANITARY SEWER SERVICE AREA

The refined year 2000 sanitary sewer service area for the Brookfield/Elm Grove area as submitted to public hearing, is shown on Map 5, together with the existing trunk sewers.

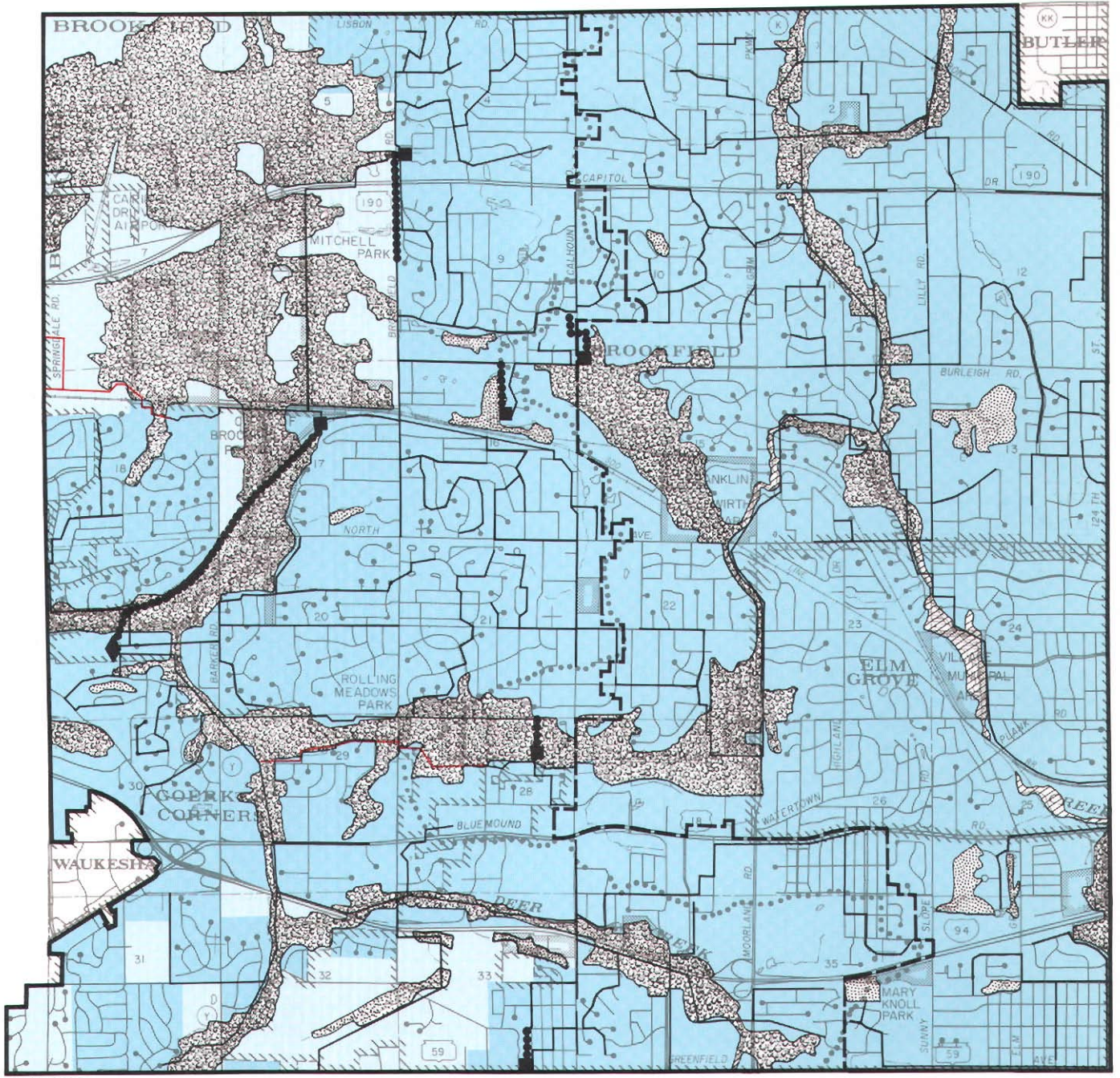
The combined gross Brookfield/Elm Grove sanitary sewer service area encompasses the entire study area, thus totaling about 36.0 square miles. Of this total area, about 15.4 square miles, or about 43 percent, is encompassed within the Brookfield East sewer service area and is tributary to the MMSD sewage treatment facilities, and about 20.6 square miles, or about 57 percent, is encompassed within the Brookfield West sewer service area tributary to the City of Brookfield sewage treatment facilities.

The combined, gross, refined sanitary sewer service area includes about 6.1 square miles of primary environmental corridors, 0.2 square mile of secondary environmental corridor, and about 0.3 square mile of isolated natural areas. Of these totals, about 1.5 square miles of primary environmental corridor, about 0.2 square mile of secondary environmental corridor, and about 0.1 square mile of isolated natural area are included in the Brookfield East refined sanitary sewer service area; and about 4.6 square miles of primary environmental corridor, and 0.2 square mile of isolated natural area are included in the Brookfield West refined sanitary sewer service area. Thus, a total of about 1.8 square miles, or 12 percent, of the Brookfield East refined sewer service area, and about 4.8 square miles, or 23 percent, of the Brookfield West refined sewer service area are in environmentally sensitive areas.















Map 5

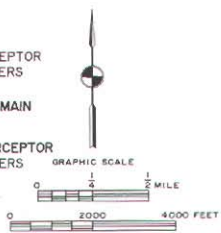
PRE-PUBLIC HEARING BROOKFIELD/ELM GROVE SANITARY SEWER SERVICE AREA



R.19 E. R.20 E.

LEGEND

- |   |  |   |  |   |                                       |
|---|--|---|--|---|---------------------------------------|
|  | PRIMARY ENVIRONMENTAL CORRIDOR             |  | BOUNDARY BETWEEN THE BROOKFIELD AND MMSD SEWAGE TREATMENT FACILITIES |  | EXISTING INTERCEPTOR AND TRUNK SEWERS |
|  | SECONDARY ENVIRONMENTAL CORRIDOR           |  | GROSS SANITARY SEWER SERVICE AREA BOUNDARY                           |  | EXISTING FORCE MAIN                   |
|  | ISOLATED NATURAL AREA                      |  | EXISTING PUBLIC SEWAGE TREATMENT FACILITY                            |  | PROPOSED INTERCEPTOR AND TRUNK SEWERS |
|  | NET SANITARY SEWER SERVICE AREA (EXISTING) |  | EXISTING LIFT STATION  |   |                                       |
|  | NET SANITARY SEWER SERVICE AREA (2000)     |   |  |   |                                       |



Source: SEWRPC.

As shown on Map 6 and indicated on Table 2, about 198 acres located within the 100-year recurrence interval flood hazard area, primarily adjacent to the Fox River and Underwood Creek, are currently undeveloped, but lie adjacent to primary environmental corridor lands. It is anticipated that, over time, these lands will be withdrawn from agricultural and open space uses and revegetated to possess the characteristics of a primary environmental corridor. In addition, 119 acres currently classified as secondary environmental corridor, together with 118 acres of adjacent floodplain, would be reclassified as primary environmental corridor. The lands concerned would accommodate the detention basins as initially recommended in SEWRPC Planning Report No. 26, A Comprehensive Plan for the Menomonee River Watershed, Volume Two; as subsequently refined in Alternate Plan 1 of the Dousman Ditch Detention Basin Study, City of Brookfield and Village of Elm Grove, Wisconsin, prepared by Donohue and Associates, Inc; and as documented in Bluemound Road-Wisconsin Avenue Development Corridor Plan, August 1987, prepared by Howard, Needles, Tammen and Bergendoff.<sup>2</sup>

In addition, 53 acres currently classified as secondary environmental corridor, composed entirely of wetlands located along an unnamed tributary to Deer Creek in the southwestern portion of the City, would be reclassified as isolated natural areas. It is anticipated that these 53 acres of isolated natural areas would be preserved while the remaining surrounding nonwetland areas would be converted to residential land uses.

As further shown on Map 6 and as indicated in Table 2, there are nine areas of primary environmental corridor encompassing about 56 acres, three areas of secondary environmental corridor

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<sup>2</sup>The configuration of planned new additional primary and secondary environmental corridors in the Brookfield area, occurring primarily as a result of floodland additions to such corridors, is subject to refinement as detailed topographic mapping, local engineering studies, and mitigation efforts are incorporated into urban design proposals adjacent to said corridors.

encompassing about 115 acres, and 13 areas of isolated natural areas encompassing about 127 acres which are anticipated to be converted to urban uses primarily based upon locally committed development proposals. Of the eight areas and 56 acres of primary environmental corridor lands anticipated to be converted to urban uses, portions of four areas, encompassing a total of eight acres, are located within wetlands. Of the three areas and 115 acres of secondary environmental corridor lands anticipated to be converted to urban uses, only one area, encompassing four acres, is located within a wetland. Of the 13 areas and 127 acres of isolated natural areas anticipated to be converted to urban uses, portions of two areas, encompassing about six acres, are located within wetlands. In addition, as shown on Map 6 and as indicated in Table 2, there are two areas adjacent to primary environmental corridor lands, encompassing about six acres, which are anticipated to remain undeveloped and be restored to natural, open space uses, thereby allowing these areas to be added to the primary environmental corridor.

The refined year 2000 Brookfield East and Brookfield West sanitary sewer service area, herein redefined as the Brookfield/Elm Grove sanitary sewer service area, would together accommodate a planned year 2000 resident population of about 57,100 persons resulting in a density of about 2.1 dwelling units per net residential acre.<sup>3</sup>

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<sup>3</sup>Net residential density in the combined, refined sewer service area is determined by dividing the total number of dwelling units in the combined sewer service area in the design year by the net residential land area anticipated in the combined sewer service area.

The total number of dwelling units anticipated in this sewer service area, 21,005, was determined by dividing the anticipated household population, 57,100, by the anticipated average household size of 2.8 persons per dwelling. In addition, a dwelling unit vacancy rate of three percent was assumed. The net residential land anticipated in this sewer service area was determined by first identifying all developable land within the service area anticipated to be

Footnote 3 Continued on Page 17

## PUBLIC REACTION TO THE PROPOSED SANITARY SEWER SERVICE AREA

Two public hearings were held to consider this matter, one held on July 16, 1990, sponsored by the City of Brookfield Sanitary Sewer Board, the Village of Elm Grove and the Southeastern Wisconsin Regional Planning Commission; the other held on February 28, 1991, sponsored by the Town of Brookfield and the Southeastern Wisconsin Regional Planning Commission.

Two substantive concerns were raised at these hearings. The first concern was expressed by a number of individuals who attended the July 16, 1990, hearing at the City of Brookfield regarding the type and intensity of development which should be permitted in the upland woods portion of the primary environmental corridor, noting that the then existing City Zoning Ordinance would permit more intensive development in the corridor. In response to these concerns, the City of Brookfield determined to amend its Zoning Ordinance and Zoning District Map to legislatively deal with the issues raised at the hearing, seeking to make the local zoning provisions consistent with the plan recommendations. On July 18, 1991, the City of Brookfield Common Council acted to adopt an upland conservancy zoning district and an upland preservation overlay district which, as applied to the upland portions of the corridor, promotes the preservation of the upland wooded resources within the corridor, while allowing limited development of

such areas for very low-density, five-acre lots to accommodate single-family residential use. The upland wooded areas where these zoning districts would be applied is shown graphically on Map 7.

The second area of concern related to the Greenmoor Venture Development proposal, located north of Greenfield Avenue and east of Moorland Road in the City of Brookfield. A representative of the developer indicated that the environmental corridors shown on Map 5 did not adequately reflect regulatory decisions already made concerning planned modification to the delineation of environmental corridor in this area. The environmentally significant lands shown on Map 7 thus reflect the regulatory approvals for certain filling of lands within the subject property and the reclassification of lands from primary environmental corridor to isolated natural area.

In addition, following the public hearing, the City of Brookfield requested an adjustment in the common sewer service area boundary line between the Brookfield East and Brookfield West sewer service areas as indicated on Map 5. The City noted that in preparing cost estimates attendant to the construction of a trunk sewer in the vicinity of Calhoun Road and Burleigh Road, it was found that, owing to soil conditions, it would be substantially more cost-effective to transfer about 30 acres of land initially identified as being within the Brookfield East sewer

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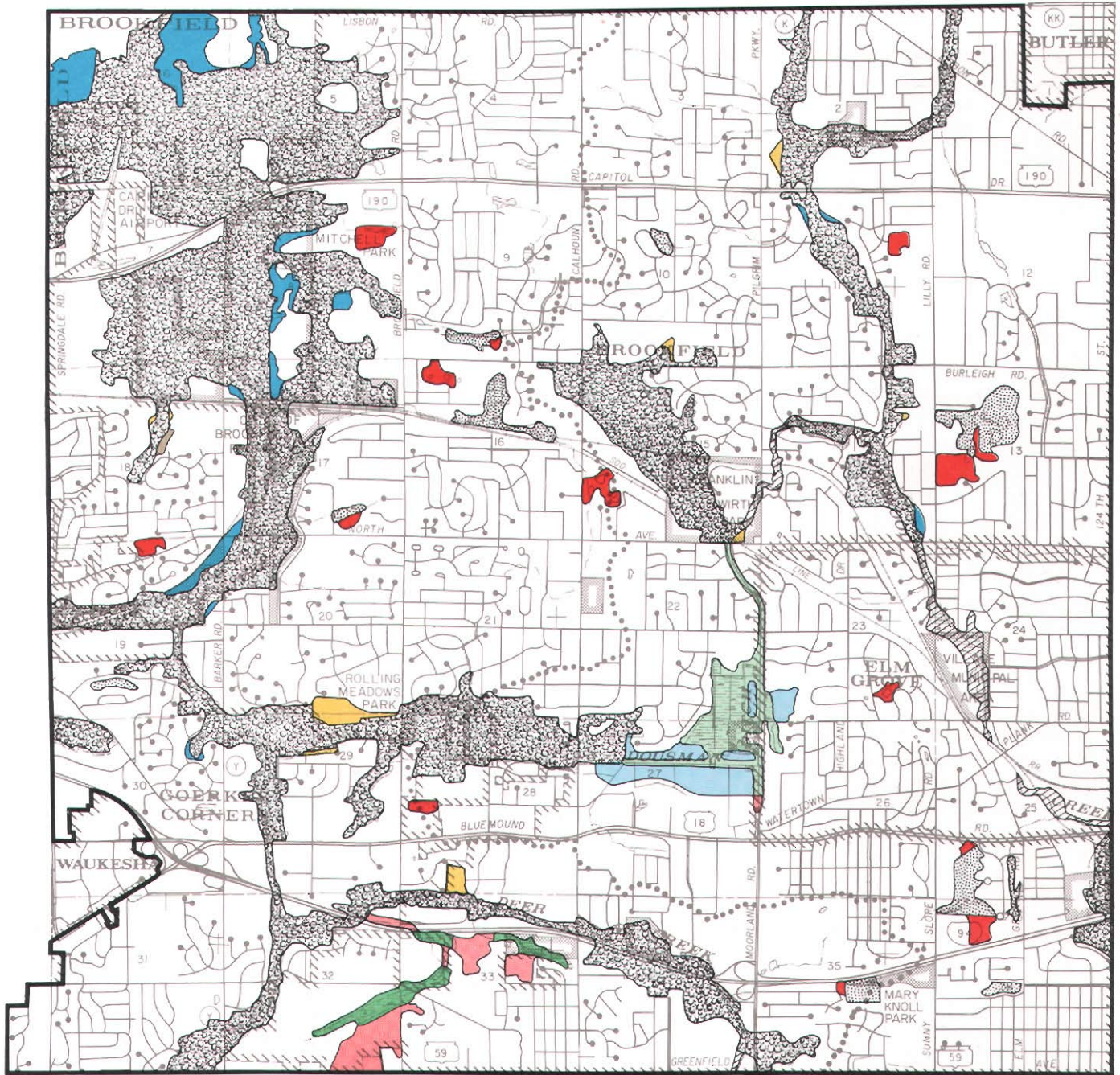
### *Footnote 3 Continued from Page 16*

*used for residential purposes. Developable land was assumed to include all undeveloped land within the proposed sewer service area except environmental corridors, isolated natural areas, floodplains, and areas covered by soils poorly suited for urban development with sewer service. Developable land in the sewer service area totaled 3,901 acres. Additional new "gross" residential land was determined by identifying the amount of developable land within the refined sewer service area which is zoned for residential development based upon the community's zoning district map. A total of 2,326 acres of additional new "gross" residential land was identified. In order to provide flexibility to the community in determining the spatial distribution of new residential development and in*












*order to facilitate operation of the urban land market, it was assumed that only 80 percent, or about 1,861 acres, of the additional new gross residential land would actually be developed for residential purposes by the design year of the plan. It was further assumed that streets would occupy 23 percent of the area, leaving the remaining 77 percent, or 1,433 acres, for "net" residential development.*

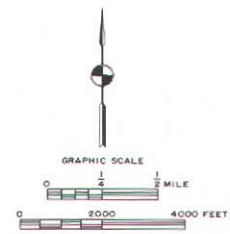
*This area added to the 8,677 acres of existing net residential land in the service area provides a total net residential area of 10,110 acres. The number of dwelling units anticipated in the sewer service area in the design year, 21,005, divided by the anticipated net residential land area, 10,110 acres, results in an overall net residential density of 2.1 dwelling units per acre.*

ANTICIPATED CHANGE IN THE ENVIRONMENTALLY SIGNIFICANT LANDS  
IN THE BROOKFIELD/ELM GROVE STUDY AREA: 1990-2000



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PORTION OF EXISTING (1990) PRIMARY ENVIRONMENTAL CORRIDOR ANTICIPATED TO BE CONVERTED TO URBAN USES BY THE YEAR 2000 (56 ACRES)
-  AREA PROPOSED TO REMAIN UNDEVELOPED AND ADDED TO THE PRIMARY ENVIRONMENTAL CORRIDOR (9 ACRES)
-  FLOODLANDS PROPOSED TO REMAIN UNDEVELOPED AND ADDED TO THE PRIMARY ENVIRONMENTAL CORRIDOR (198 ACRES)
-  PORTION OF EXISTING (1990) SECONDARY ENVIRONMENTAL CORRIDOR TO BE RECLASSIFIED AS PRIMARY ENVIRONMENTAL CORRIDOR (119 ACRES)
-  FLOODLANDS PROPOSED TO REMAIN UNDEVELOPED AND ADDED TO THE SECONDARY ENVIRONMENTAL CORRIDOR AND THEN TO BE RECLASSIFIED AS PRIMARY ENVIRONMENTAL CORRIDOR (118 ACRES)
-  PORTION OF EXISTING (1990) SECONDARY ENVIRONMENTAL CORRIDOR ANTICIPATED TO BE CONVERTED TO URBAN USES BY THE YEAR 2000 (115 ACRES)
-  PORTION OF EXISTING (1990) SECONDARY ENVIRONMENTAL CORRIDOR TO BE RECLASSIFIED AS ISOLATED NATURAL AREA (53 ACRES)
-  PORTION OF EXISTING (1990) ISOLATED NATURAL AREA ANTICIPATED TO BE CONVERTED TO URBAN USES BY THE YEAR 2000 (127 ACRES)



Source: SEWRPC.

Table 2

**ANTICIPATED CHANGE IN THE ENVIRONMENTALLY SIGNIFICANT LANDS IN THE BROOKFIELD/ELM GROVE STUDY AREA:1990-2000**

Natural Resource Feature Affected			U. S. Public Land Survey Location	Comments
Corridor Type	Element	Acreage		
Unclassified	Floodplain	+198	Sections 5, 6, 8, 11, 14, 17, 19, 20, 30	Floodlands at 14 locations are proposed to remain in natural open space and are to be added to the primary corridor
Unclassified	Floodplain	+118	Sections 22, 23, 27	Floodplain proposed to remain in natural open space and added to the secondary corridor, to then be reclassified as primary corridor
Secondary Environmental Corridor	Lowland	-119/+119	Sections 22, 23, 26, 27	Proposed reclassification of secondary corridor to primary corridor
	Wetland	-53/+53	Sections 32, 33	Proposed reclassification of secondary corridor to isolated natural area
Primary Environmental Corridor	Wetland	-4	Section 2	Proposed conversion of corridor due to City-approved development proposal
	Upland	-5	Section 10	Proposed conversion of corridor due to approved Brighton Heights II subdivision plat
	Wetland	-1/+1	Section 14	Proposed conversion and restoration of corridor due to approved Bedford Downs subdivision plat
	Upland	-4	Section 15	Proposed conversion of corridor due to planned road construction in Wirth Park
	Wetland	-2	Section 18	Proposed conversion of corridor due to approved Chadwick Greens subdivision plat
	Wetland	-1	Section 18	Proposed conversion of corridor due to approved Chadwick Greens subdivision plat
	Wetland	+5	Section 18	Proposed restoration of corridor due to approved Chadwick Greens subdivision plat
	Upland	-25	Sections 20, 29	Proposed conversion of corridor to residential land uses per approved Weston Parc planned urban development
	Upland	-11	Section 28	Proposed conversion of corridor to commercial land use per approved Brookfield Lakes Corporate Center plan
	Upland	-3	Section 29	Proposed conversion of corridor due to approved Black Forest subdivision plat
Secondary Environmental Corridor	Wetland	-4	Sections 26, 27	Proposed conversion of corridor due to approved Blue Mound Road land use plan
	Upland	-71	Sections 32, 33	Proposed conversion of corridor to residential land use per approved Weston Hills subdivision plat
	Upland	-40	Section 32, 33	Proposed conversion of corridor to residential land uses
Isolated Natural Area	Upland/wetland	-10/-4	Section 8	Proposed conversion of isolated natural area to residential land use per Vincent Park development proposal
	Wetland	-2	Section 9	Proposed conversion of isolated natural area to residential land use per approved Certified Survey Map

Table 2 (continued)

Natural Resource Feature Affected			U. S. Public Land Survey Location	Comments
Corridor Type	Element	Acreage		
Isolated Natural Area (continued)	Upland	-7	Section 11	Proposed conversion of isolated natural area to residential land use
	Upland	-31	Section 13	Proposed conversion of isolated natural area to residential land use
	Upland	-16	Section 15	Proposed conversion of isolated natural area to residential land use
	Upland	-11	Section 16	Proposed conversion of isolated natural area to residential land use
	Upland	-7	Section 17	Proposed conversion of isolated natural area to residential land use
	Upland	-6	Section 19	Proposed conversion of isolated natural area to residential land use
	Upland	-9	Section 23	Proposed conversion of isolated natural area to residential land use
	Upland	-4	Section 25	Proposed conversion of isolated natural area to commercial land use per approved Bishops Woods development plan
	Upland	-8	Section 28	Proposed conversion of isolated natural area to residential land use
	Upland	-2	Section 35	Proposed conversion of isolated natural area to residential land use
	Upland	-10	Section 36	Proposed conversion of isolated natural area to commercial land use per approved Bishops Woods development plan

Source: SEWRPC.

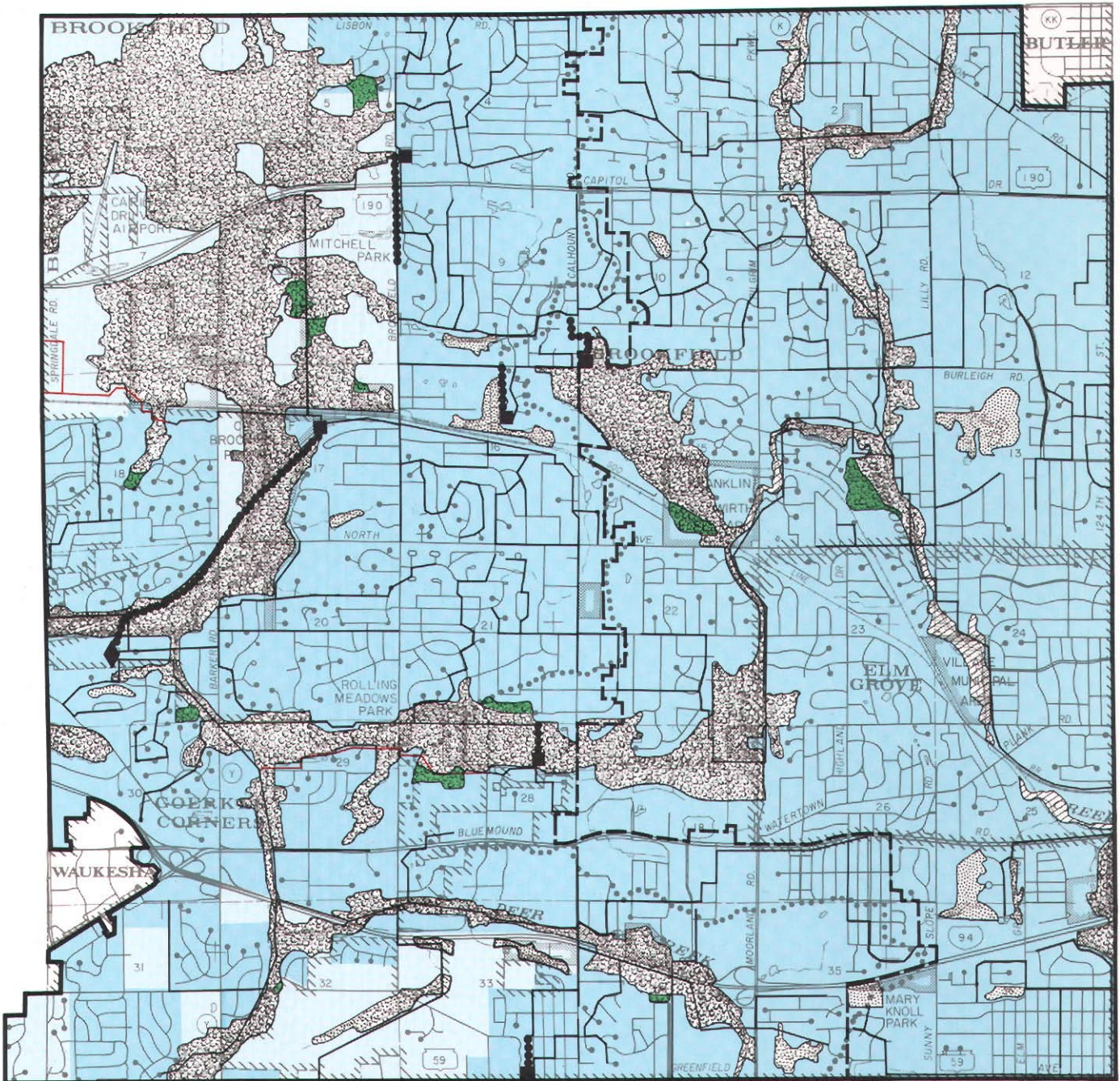
service area to the Brookfield West service area. The Commission staff reviewed the City's proposal in this respect (see Staff Memorandum reproduced in Appendix B), and concurred with the City's findings and recommendations. Map 7 has thus been adjusted to transfer approximately 30 acres of land from the Brookfield East to the Brookfield West service area.

The proposal to adjust the boundary between the Brookfield East and Brookfield West service areas was also forwarded to the MMSD. Prior to the hearing, the district had reviewed the draft sewer service area plan and generally concurred in the plan refinement proposals with respect to sewer service areas and environmental corridor determinations. Following the hearing, however, and after reviewing the Commission staff memorandum reproduced in Appendix B, the District formally objected to the proposal that would modify the limits of that portion of the Brookfield sewer service area to be served by the

District. In objecting to the proposal, the District cited the following two concerns:

1. The facilities planning undertaken by the District in reliance upon the original regional water quality management plan was based upon the service area limits in the City of Brookfield set forth in the latter plan. Since the City of Brookfield did not object at the time of the District facilities planning, the sizing of the District's sewerage facilities was based upon those plans and the constructed facilities provide capacity for the 30 acres of land now proposed to be transferred to the Brookfield West service area.
2. The proposed transfer of 30 acres of land would lessen the area available for producing revenue to the District, revenue needed by the District to finance the construction and operation of its system.

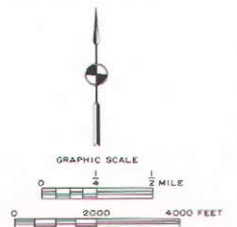
POST-PUBLIC HEARING BROOKFIELD/ELM GROVE SANITARY SEWER SERVICE AREA



R 19 E R 20 E

LEGEND

- |  |  |  |  |
|--|--|--|--|
|  | PRIMARY ENVIRONMENTAL CORRIDOR                                       |  | EXISTING LIFT STATION  |
|  | SECONDARY ENVIRONMENTAL CORRIDOR                                     |  | EXISTING INTERCEPTOR AND TRUNK SEWERS  |
|  | ISOLATED NATURAL AREA  |  | EXISTING FORCE MAIN  |
|  | NET SANITARY SEWER SERVICE AREA (EXISTING)                           |  | PROPOSED INTERCEPTOR AND TRUNK SEWERS  |
|  | NET SANITARY SEWER SERVICE AREA (2000)                               |  | UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991. |
|  | BOUNDARY BETWEEN THE BROOKFIELD AND MMSD SEWAGE TREATMENT FACILITIES |  |  |
|  | GROSS SANITARY SEWER SERVICE AREA BOUNDARY                           |  |  |
|  | EXISTING PUBLIC SEWAGE TREATMENT FACILITY                            |  |  |



Source: SEWRPC.

The Commission gave careful consideration to the position of the MMSD on this boundary issue. The Commission determined to recommend to the Wisconsin Department of Natural Resources that the boundary be changed despite the District's objections for the following reasons:

1. The 30-acre area in question was originally planned to be served within the MMSD system by the Underwood Creek relief sewer. Review of the District's own facilities planning documents indicates that the sizing of that relief sewer was determined by existing wet weather peak sewage flows and was not sensitive to planned incremental flows from the relatively small amount of proposed new urban development in the tributary area concerned. Consequently, the District would have built the same relief sewer system along Underwood Creek with or without taking into consideration the 30-acre area in question.
2. New information made available since the completion of the District's facilities plan, as documented in the Commission staff memorandum reproduced in Appendix B, indicates a substantial local trunk sewer cost-effectiveness, by a factor of 1.6 to 1.0, in favor of serving the 30-acre area in question through the western Brookfield system. Furthermore, the direct environmental impacts attendant to a western connection would be substantially less than constructing a sewer connection to the eastern Brookfield system through wetlands in the manner originally envisioned at the systems planning level. The City of Brookfield has indicated that the eastern connection would have to be aligned through wetlands because the City would not permit an alignment in adjacent Calhoun Road that would require closing that road for construction of the sewer.
3. Given the size of the entire MMSD system, any potential revenue loss associated with the transfer of the 30-acre area in question out of the District service area is insignificant. Upon full development, the subject 30-acre area is expected to accommodate 45 single-family and 50 multi-family residential units. The total value of land and improvements, based upon current average

values of houses in Brookfield, would approximate \$13.7 million. At the anticipated District capital taxing rate of \$3.12 per \$1,000 of assessed value, the annual revenue from the 30-acre area would approximate \$41,000.

Given the foregoing, Map 7 has been adjusted to reflect a recommended transfer of about 30 acres of land from the Brookfield East to the Brookfield West service area.

Detailed delineations of the final Brookfield/Elm Grove sanitary sewer service area and environmentally significant lands within that area are shown on a series of aerial photographs reproduced as Map 8 beginning on page 24 and continuing through page 34 of this report.

## IMPLEMENTING RECOMMENDATIONS

It is recommended that the following steps be taken to implement the sanitary sewer service area proposals contained in this report:

1. Formal adoption or endorsement of SEWRPC Planning Report No. 30, A Regional Water Quality Management Plan For Southeastern Wisconsin: 2000, and this SEWRPC Community Assistance Planning Report by the Common Council of the City of Brookfield and the MMSD as the operators of the sewage treatment facilities utilized by the City, by the Village Board of the Village of Elm Grove, by the Town Board of the Town of Brookfield, and by the Waukesha County Park and Planning Commission as the County agency having joint responsibilities with the Town in planning and zoning and otherwise regulating the development of lands in the unincorporated portion of the study area.
2. Formal adoption of this SEWRPC Community Assistance Planning Report by the Regional Planning Commission as an amendment to the regional water quality management plan set forth in SEWRPC Planning Report No. 30, with certification of this report as a plan amendment to all parties concerned, including the Wisconsin Natural Resources Board and the U. S. Environmental Protection Agency.



3. Review by all of the local units of government concerned of their zoning, land subdivision control, and related ordinances to ensure that the policies expressed in such ordinances reflect the urban development recommendations inherent in the final delineated Brookfield/Elm Grove sanitary sewer service area as shown on Maps 7 and 8. In particular, steps should be taken to ensure that those lands identified as being environmentally significant in this report are properly zoned to reflect a policy of retaining such lands insofar as possible in essentially natural open uses.
4. Review by the City and Town of Brookfield and the Village of Elm Grove of utility extension policies to ensure that such policies are consistent with the urban land development recommendations inherent in the delineation of the planned sanitary sewer service area.

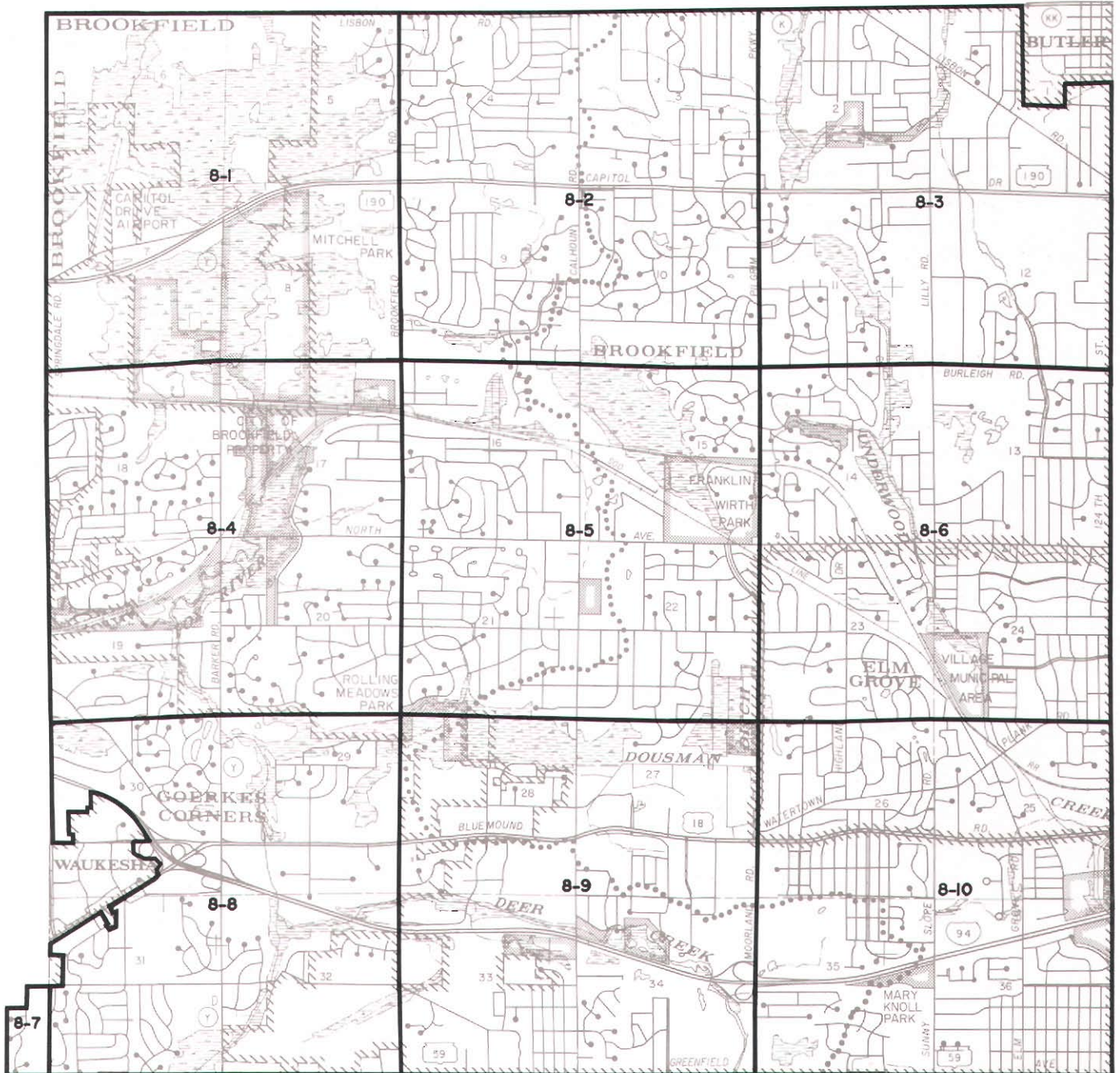
#### **SUBSEQUENT REFINEMENTS TO THE BROOKFIELD/ELM GROVE SANITARY SEWER SERVICE AREA**

This report presents a refined sewer service area for the Brookfield/Elm Grove area. The refined sewer service area was delineated cooperatively by the units and agencies of government concerned, and was subjected to review at a public hearing. It is envisioned that the delineated sewer service area will accommodate all new urban development anticipated in the Brook-

field/Elm Grove area to the year 2000. Like other long-range plans, however, this sewer service area plan should be periodically reviewed, every five years, to assure that it continues to properly reflect the urban development objectives of the communities involved, especially as such objectives may relate to the amount and spatial distribution of new urban development requiring sewer service. Should it be determined by the City or Town of Brookfield or the Village of Elm Grove, that amendments to the sewer service area plan as presented herein are necessary, the community should request the Southeastern Wisconsin Regional Planning Commission for assistance in undertaking the technical work required to properly amend the plan. Any such plan revision should be carried out in a manner similar to that utilized in the refinement effort described in this report. While plan amendment may be expedited because study area base maps have been prepared and certain inventories completed as part of the sewer service area planning documented herein, such amendment should be subject to the same analyses and intergovernmental review, and should include a public hearing to obtain the comments and suggestions of those citizens and landowners most affected by the proposed changes to the sewer service area boundary. Upon agreement on a revised sewer service area, the new plan map should be endorsed by the local unit or agency of government concerned and by the Southeastern Wisconsin Regional Planning Commission prior to certification to the Wisconsin Department of Natural Resources and the U. S. Environmental Protection Agency.

Map 8

INDEX OF MAPS SHOWING THE ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

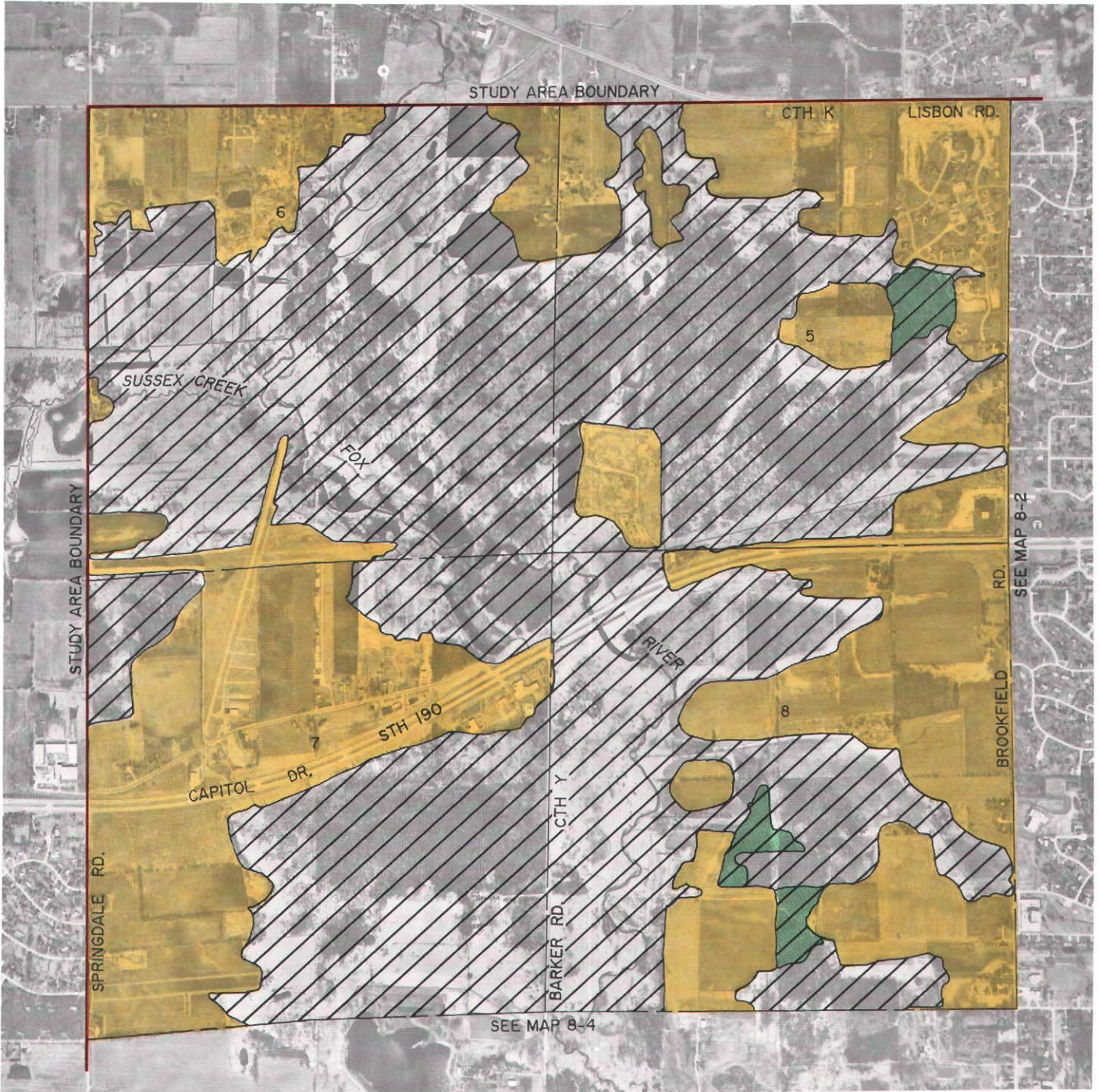


Source: SEWRPC.

Map 8-1


ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

U. S. Public Land Survey Sections 5, 6, 7, and 8  
Township 7 North, Range 20 East



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

-  UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991

NOTE: ALL SERVICE AREAS SHOWN ON THIS MAP ARE TRIBUTARY TO THE FOX RIVER WATER POLLUTION CONTROL CENTER.

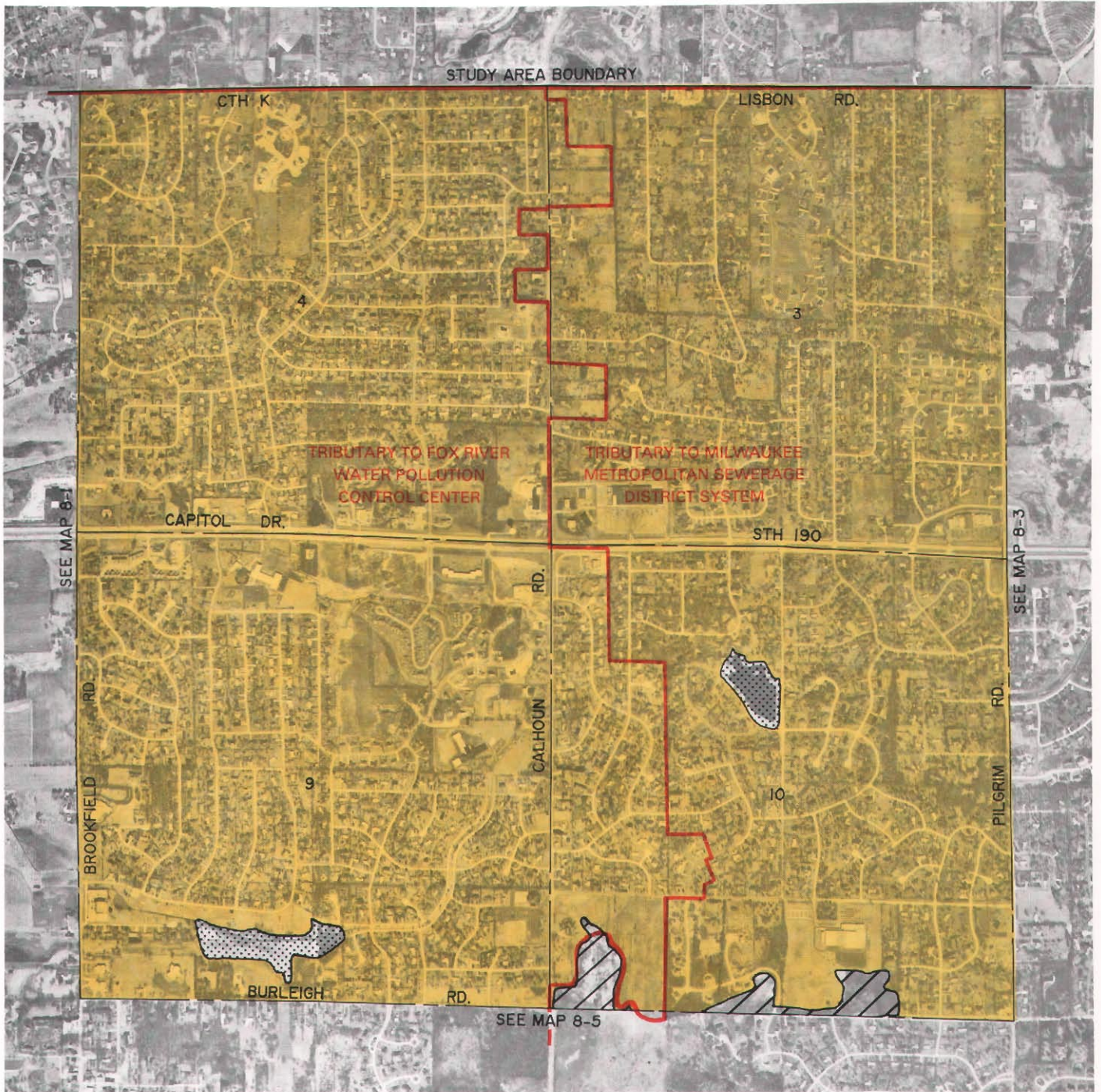


Source: SEWRPC.

Map 8-2

ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

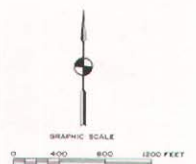
U. S. Public Land Survey Sections 3, 4, 9, and 10  
Township 7 North, Range 20 East



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

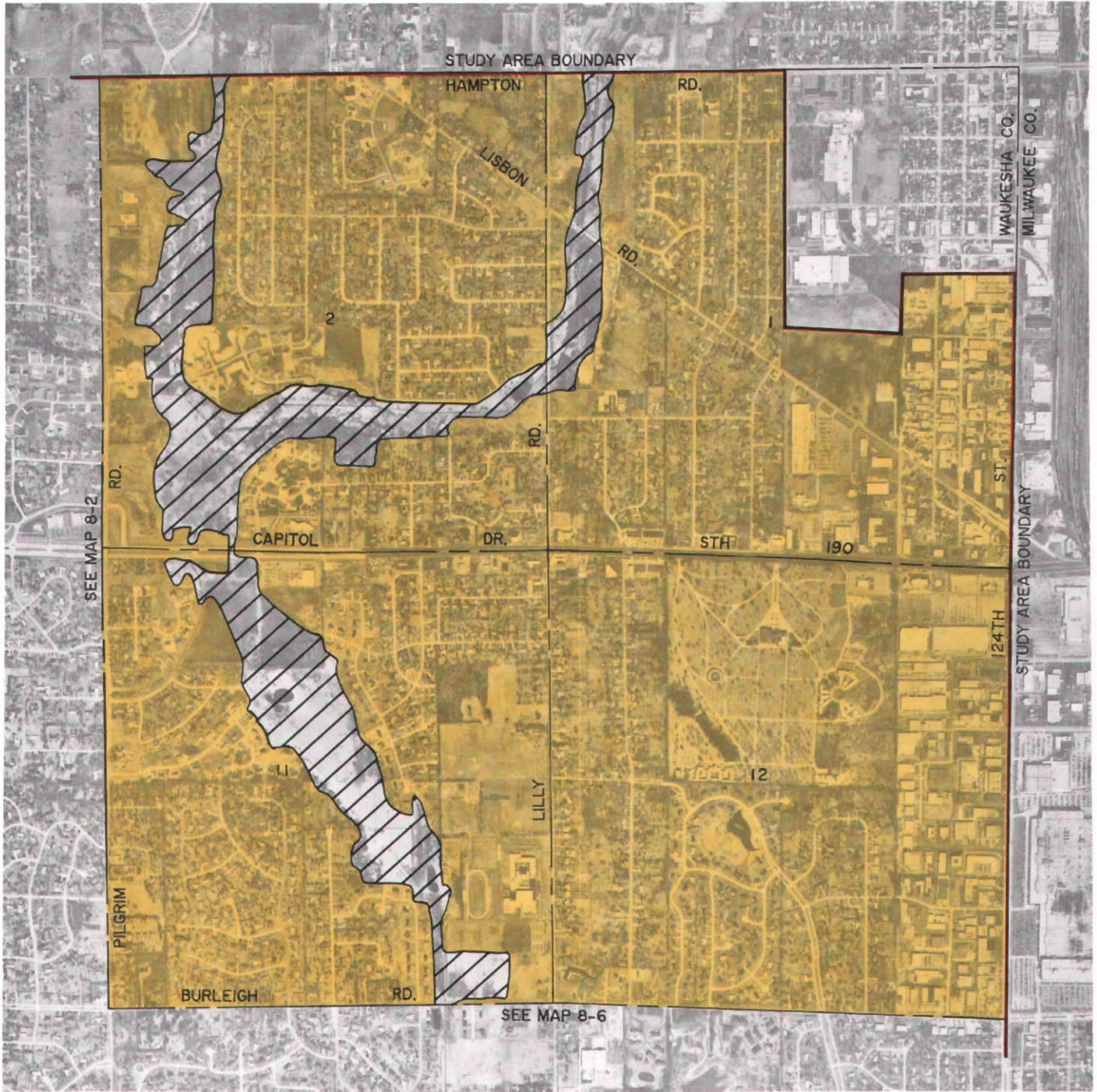
Source: SEWRPC.



Map 8-3

ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

U. S. Public Land Survey Sections 1, 2, 11, and 12  
Township 7 North, Range 20 East



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

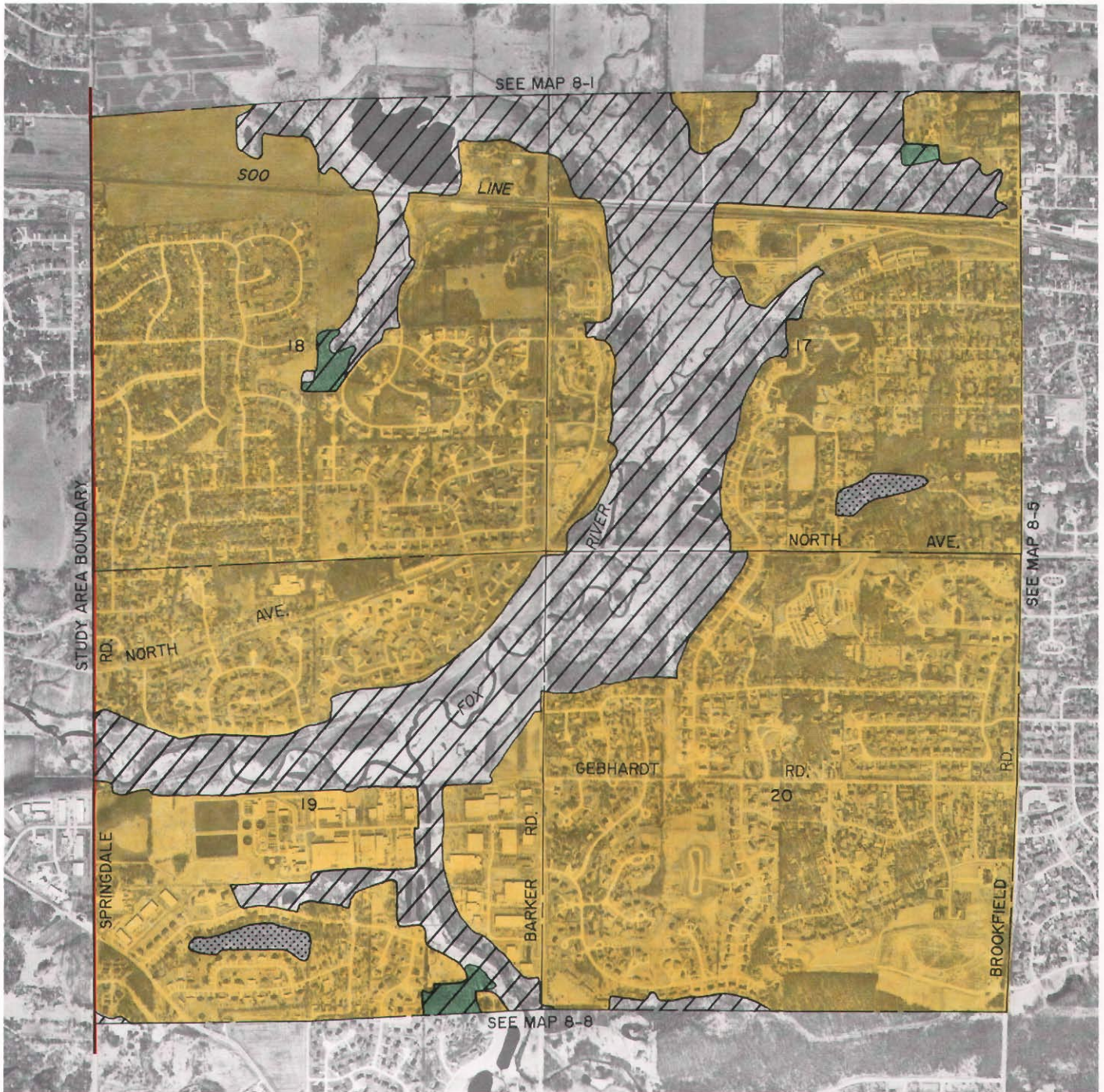
NOTE: ALL SERVICE AREAS SHOWN ON THIS MAP ARE TRIBUTARY TO THE MILWAUKEE METROPOLITAN SEWERAGE DISTRICT SYSTEM.








Source: SEWRPC.

**ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD**

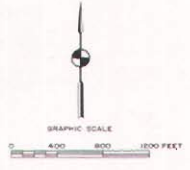
U. S. Public Land Survey Sections 17, 18, 19, and 20  
Township 7 North, Range 20 East



- LEGEND
-  PRIMARY ENVIRONMENTAL CORRIDOR
  -  ISOLATED NATURAL AREA
  -  PLANNED SANITARY SEWER SERVICE AREA
  -  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

 UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991

NOTE: ALL SERVICE AREAS SHOWN ON THIS MAP ARE TRIBUTARY TO THE FOX RIVER WATER POLLUTION CONTROL CENTER.

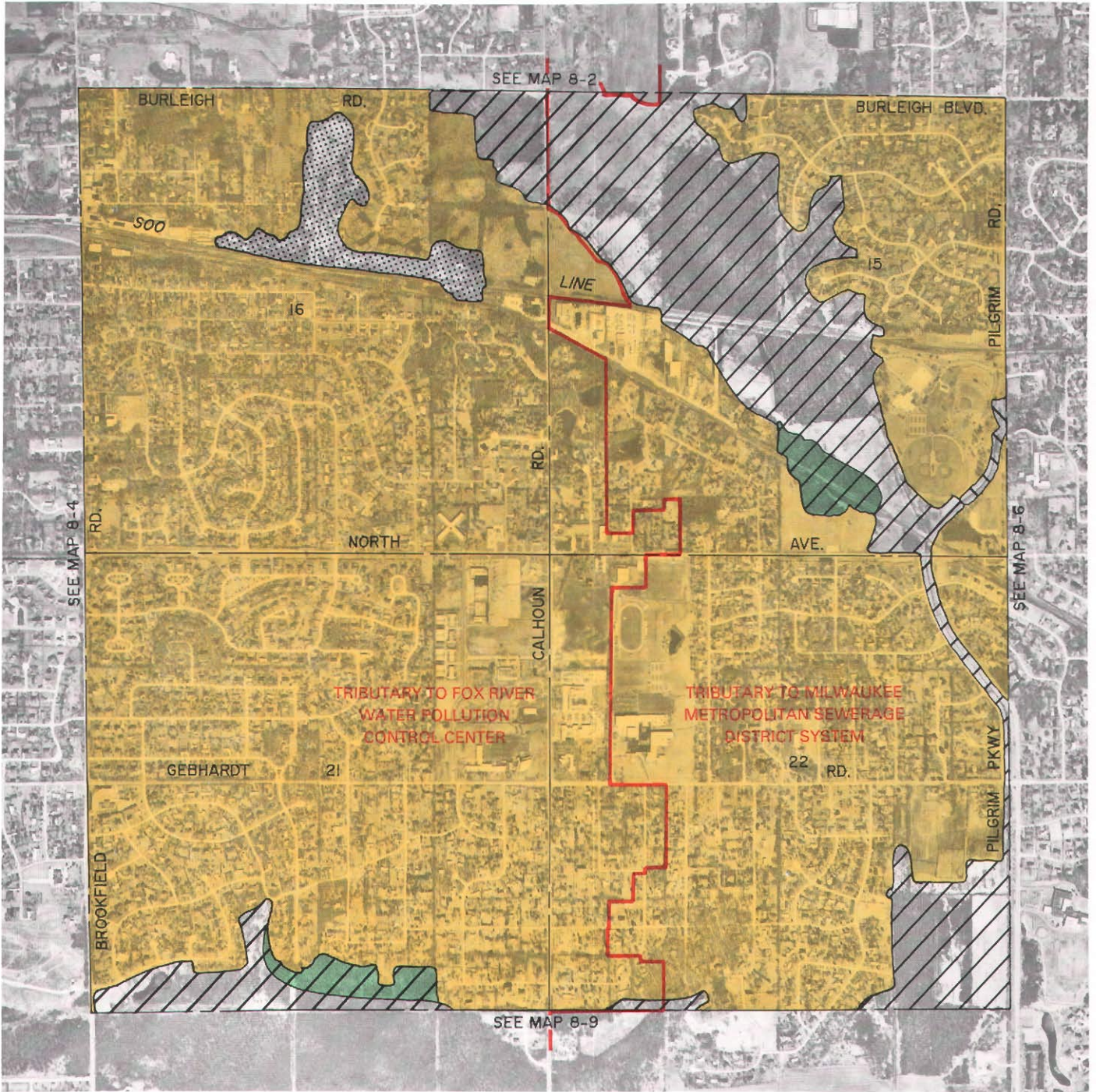


Source: SEWRPC.






Map 8-5


ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

U. S. Public Land Survey Sections 15, 16, 21, and 22  
Township 7 North, Range 20 East



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

 UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991

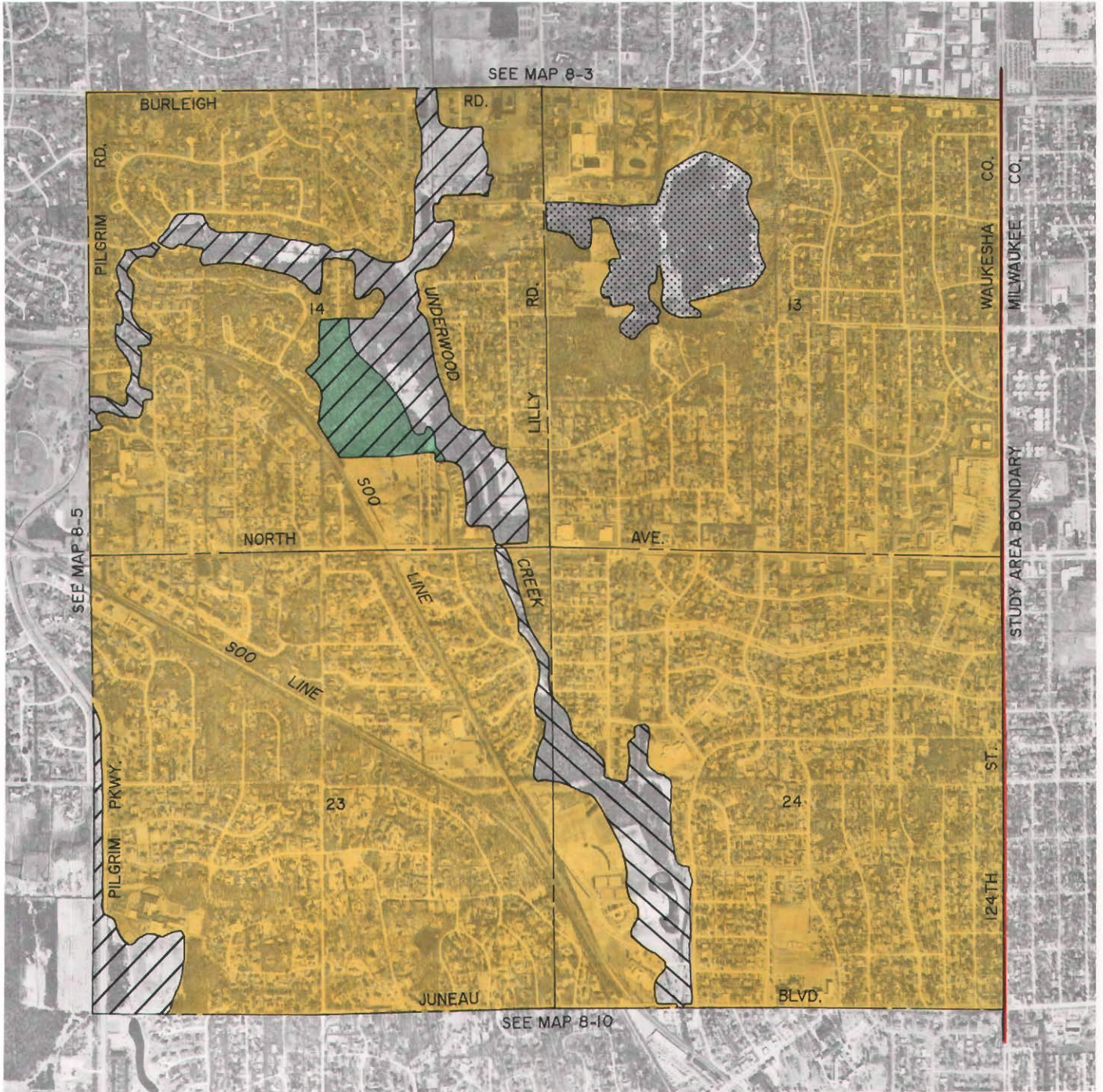


Source: SEWRPC.

Map 8-6


ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

U. S. Public Land Survey Sections 13, 14, 23, and 24  
Township 7 North, Range 20 East



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

 UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991

NOTE: ALL SERVICE AREAS SHOWN ON THIS MAP ARE TRIBUTARY TO THE MILWAUKEE METROPOLITAN SEWERAGE DISTRICT SYSTEM.



Source: SEWRPC.



Map 8-7

ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

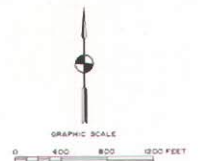
U. S. Public Land Survey Section 36  
Township 7 North, Range 19 East



LEGEND

-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

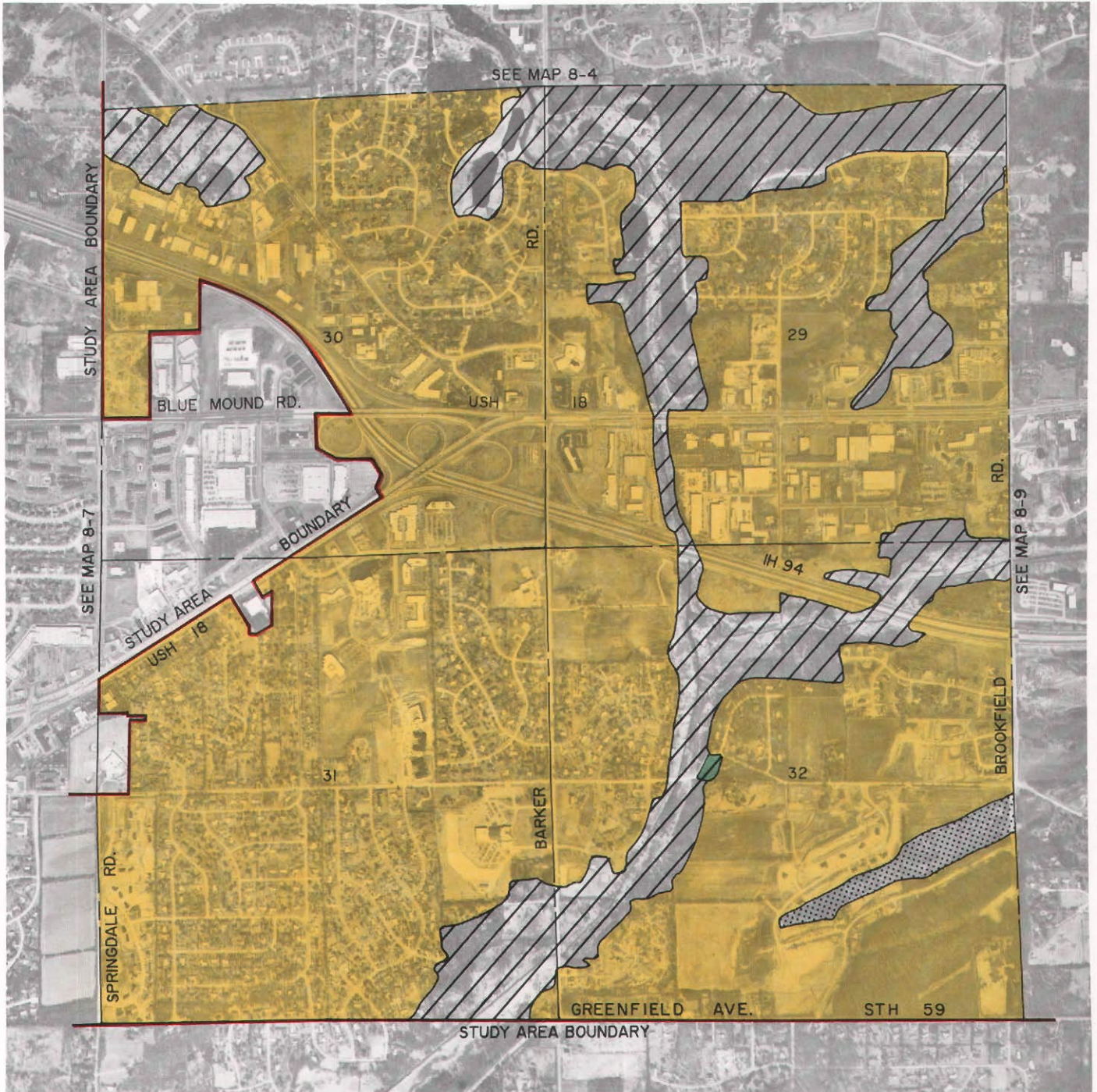
NOTE: ALL SERVICE AREAS SHOWN ON THIS MAP ARE TRIBUTARY TO THE FOX RIVER WATER POLLUTION CONTROL CENTER.







Source: SEWRPC.


**ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD**

U. S. Public Land Survey Sections 29, 30, 31, and 32  
Township 7 North, Range 20 East

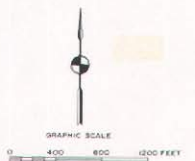


LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

 UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991

NOTE: ALL SERVICE AREAS SHOWN ON THIS MAP ARE TRIBUTARY TO THE FOX RIVER WATER POLLUTION CONTROL CENTER.

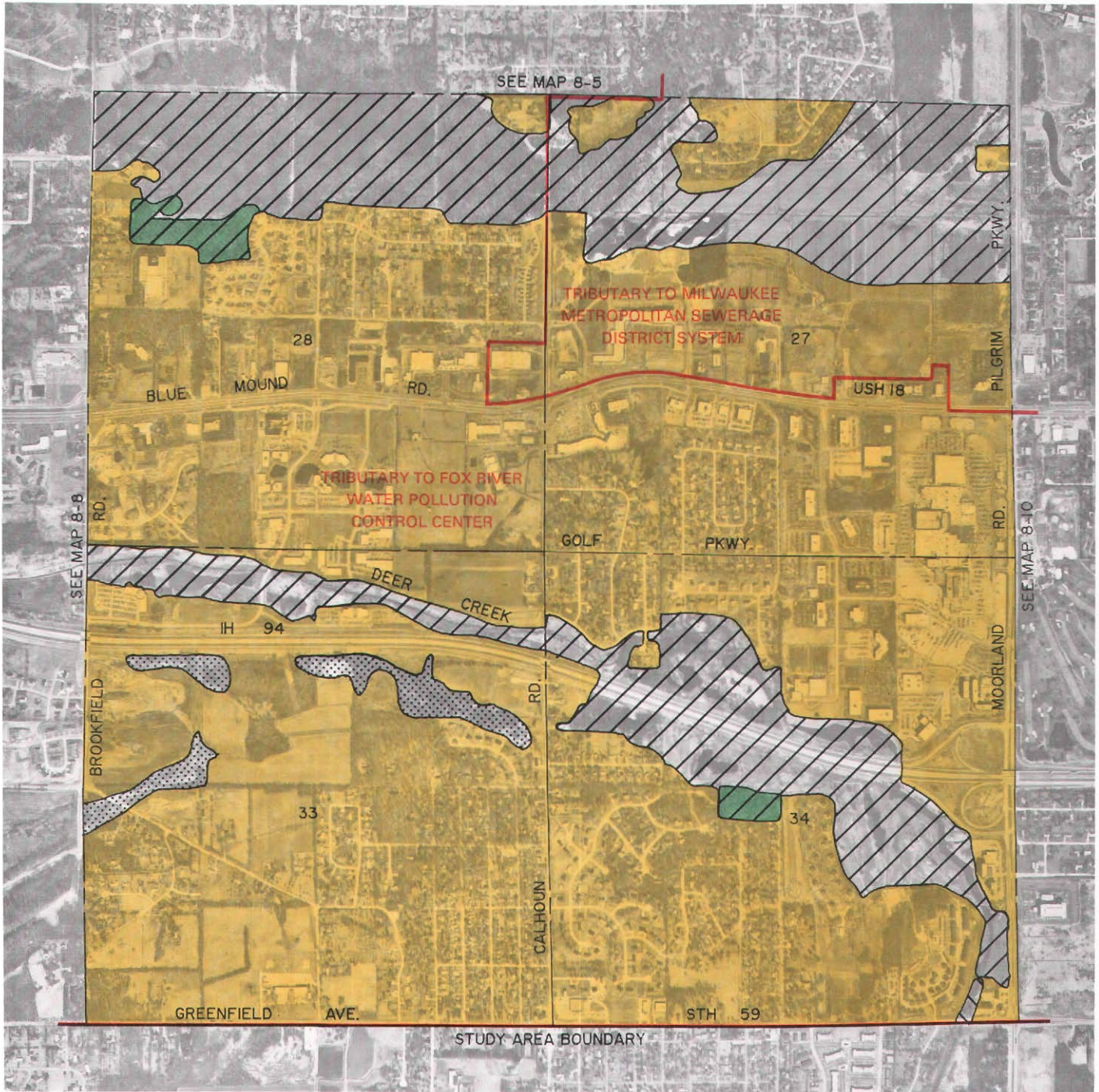


Source: SEWRPC.






Map 8-9


ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD

U. S. Public Land Survey Sections 27, 28, 33, and 34  
Township 7 North, Range 20 East



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY

 UPLAND WOODS PORTION OF THE PRIMARY ENVIRONMENTAL CORRIDOR IN THE CITY OF BROOKFIELD; SUCH LANDS ARE ELIGIBLE FOR SANITARY SEWER SERVICE IF THE DEVELOPMENT PROPOSED MEETS THE TERMS OF THE UPLAND CONSERVANCY ZONING DISTRICT OR THE UPLAND PRESERVATION OVERLAY DISTRICT IN THE CITY OF BROOKFIELD ZONING ORDINANCE AS ADOPTED BY THE COMMON COUNCIL ON JUNE 18, 1991





Source: SEWRPC.

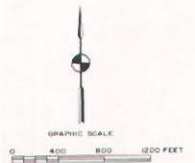
**ENVIRONMENTALLY SIGNIFICANT LANDS AND PLANNED SANITARY SEWER SERVICE AREA FOR THE CITY OF BROOKFIELD, VILLAGE OF ELM GROVE, AND TOWN OF BROOKFIELD**

**U. S. Public Land Survey Sections 25, 26, 35, and 36  
Township 7 North, Range 20 East**



LEGEND

-  PRIMARY ENVIRONMENTAL CORRIDOR
-  SECONDARY ENVIRONMENTAL CORRIDOR
-  ISOLATED NATURAL AREA
-  PLANNED SANITARY SEWER SERVICE AREA
-  GROSS SANITARY SEWER SERVICE AREA BOUNDARY



Source: SEWRPC.

## **APPENDICES**

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## Appendix A

### MINUTES OF PUBLIC HEARINGS

#### Appendix A-1

**MINUTES OF A PUBLIC HEARING ON SANITARY SEWER SERVICE AREA PLAN HELD AT BROOKFIELD CITY HALL, 2000 NORTH CALHOUN ROAD, BROOKFIELD, WISCONSIN, ON MONDAY, JULY 16, 1990**

MEMBERS PRESENT: Alderman Witte, Alderman Wenzel, Alderman Draeger and Bill Muth.

ALSO PRESENT: Steve Loth, Dave White, Jack Budde, Mark Simon, Ed Henschel, Village of Elm Grove; Phil Evenson and Bruce Rubin, SEWRPC.

Alderman Witte called the meeting to order at approximately 8:30 p.m. and introduced the Board members and staff. He stated this is the presentation of the proposed Sanitary Sewer Service Area Plan prepared by SEWRPC for the City of Brookfield and the Village of Elm Grove. This public hearing is required prior to Common Council and Village Board action on the plan.

On June 26, 1990 the City Plan Commission and the Sanitary Sewer Board adopted the sewer service area plan subject to holding this public hearing and notification being sent to those landowners of "upland woods" affected by this plan. Your comments and concerns will be entered into the minutes of tonight's hearing and will be shared with other members of the Common Council prior to any action being taken on this proposal and that action is anticipated to be August 7, 1990. The Village of Elm Grove will set their own timetable for adoption.

Alderman Witte then said he would turn the meeting over to the representatives of SEWRPC to make their presentation, after which comments and questions will be taken.

Phil Evenson introduced himself and Bruce Rubin, both on the staff at SEWRPC. Mr. Evenson stated SEWRPC started working on this project last fall and tonight would like to give a briefing as to the essence of the proposed Sewer Service Area Plan. It is a plan required by the Department of Natural Resources for every sewer community in southeastern Wisconsin and it is the Commission's responsibility to work with local governments to make these plans.

Bruce Rubin then gave a little background on the proposal. The sewer service planning process was really initiated in 1979 when the Regional Planning Commission completed their water quality management plan. As part of that plan, the Commission identified urban service areas for the operators of the 85 or so sewage treatment facilities that existed in the region at that time. The intent was to then work with each of the operators of the treatment facilities in the communities involved to refine those urban service areas and to take into account local development objectives.

Why is it important for this to be done? Current legislation requires that all extensions of both public and private sanitary sewers be approved by regulatory agencies (public sewer connections - Department of Natural Resources, private sewer connections - Department of Labor, Industry and Human Relations) These agencies must make a finding that the sewer service extension is in accordance with that water quality management plan.

The plan identifies two things. Lands within the community where sanitary sewer service should be provided and environmentally significant plans to which sewers should not be provided to accommodate any intensive urban development. Because of the anticipated growth and change in the Brookfield and Elm Grove area, it was determined that all lands that were not identified as environmentally significant should be provided with public sanitary sewer services. The Commission identified the key environmental areas as primary environmental corridors, secondary environmental corridors and isolated natural areas.

By use of maps, Mr. Rubin showed the results of this study. In the initial sewer service area plan there were portions of the Brookfield area which were not envisioned to be provided with sewer. To quantify lands within the study area which should be provided with sewer required SEWRPC to identify the key remaining natural resource features which were left. The emphasis as far as the Department of Natural Resources and the Department of Industry, Labor and Human Relations is concerned relates primarily to the primary environmental corridor. The determination as to the development of the secondary corridors and isolated natural areas would be the prerogative of the local community involved. As stated before, almost all of these corridors are currently under some form of state or federal regulation. About the only thing that is not currently regulated by state or federal agencies are the upland portions of these corridors, in many cases they are upland wooded areas.

The key concern of the meeting tonight will deal with the remaining eight or so areas of upland woods in the township of which 5 are in the City. The primary areas of concern are 10+ acres of upland woods in the northwest section of the City of Brookfield (addition to Berkshire Hills), a 10+ acre parcel south of Capitol Drive and west of Brookfield Road (Griswold) which was envisioned that the City would acquire through dedication process for park or open space purposes, a 31+ acre woodlands which is part of the Mound Zion Cemetery area envisioned to be part of the City-identified nature preserve, and a 8-10 acre parcel west of Barker Road (Gruettner), in private ownership, envisioned to be preserved through a very low density development. In these areas, development is not precluded but the City is attempting to implement a policy of preservation of these through low density estate-type developments of 5 acres each. (Ed. Note: The fifth parcel would be those lands north of Wisconsin Hills Elementary owned by the Elmbrook School District).

To summarize, Phil Evenson said the primary environmental corridors are not eligible for sewer extensions by DNR or DILHR unless they would be very low density residential developments with lots that would average about 5 acres each.



Alderman Witte stated he would like to point out he had three communications that will be entered into the record and copies will be made available with the minutes:

1. A letter, dated July 15, 1990, from Michael Losik & Associates regarding Berkshire Hills No. 5.
2. A letter, dated July 13, 1990, from Alan Marcuvitz of Weiss, Berzowski, Brady & Donahue, Attorneys at Law, regarding the Mound Zion Cemetery Association.
3. A letter, dated July 12, 1990, addressed to the Mayor and Common Council from Donald Dreske, Greenmoor Venture, regarding to Greenmoor Venture Lands at Moorland Road and Greenfield Avenue.

Alderman Witte opened the floor to questions and comments.

Pat Walzak, 1470 Independence Drive asked if a synopsis could be given of the contents of the letters.

Bill Muth said the first letter from Michael Losik & Associates is in regards to the V. K. Homes property north of Capitol Drive, off Lisbon Road. In essence the subdivider, V. K. Homes, now requests that the City and SEWRPC continue their original commitment to the subdivider and designate this area as three 4.25 acre lots. The letter from Weiss, Berzowski, Brady & Donahue signed by Attorney Marcuvitz is asking, because of the extremely short notice of this hearing, that the hearing be scheduled for another date or in the alternative, an additional date. Mr. Muth said he briefly scanned Don Dreske's letter and although his land is not associated with one of the upland woodland areas, their firm owns land on the east side of Moorland Road, south of Embassy Suites. The land was originally thought to have been removed from the floodplain by the City and evidently wasn't. They are requesting the City to take action to remove it from the floodplain which would allow the area to be served by sewers and would not be mapped as an unsewerable area.

Joe Griswold, Watertown Road, Waukesha said his father has the farm on Brookfield Road and he wanted to know if the City ever received any upland woods for parkland. Who would ever dedicate upland woods as parkland? Is it to be a gift?

Phil Evenson said he would like to clarify this. The Plan Commission, when they discussed that property in the Park and Open Space Plan which is a separate document than this proposal, suggested to the Park Commission that the land in question be discussed in the negotiation process that goes on when you submit a plan to develop your land, that there be an attempt made to secure the 8-10 acres of upland woods as land in lieu of paying any fees associated with the development. This was just a suggestion from the Plan Commission to the Park Commission.

Joe Griswold asked what the rate was for dedication to parkland, percentage-wise.

Bill Muth stated the subdivider control ordinance requires that you dedicate one acre of land for park purposes for every 15 lots created or if the City does not want any land, they take cash in lieu of it at the rate of \$6,000 per acre.

Joe Griswold said he cannot believe that the City would feel they would be willing to dedicate 10 acres of upland woods for a park.

Phil Evenson said Mr. Griswold would not have to dedicate more than the ordinance requires. He also said this sewer service plan would not require dedication. This plan deals with whether or not DNR would approve sewer service for that portion of the parcel.

Jerry Griswold, Joe's brother, asked if, to make up the 5 acre minimum, 1 acre of upland woods can be combined with 4 acres of lowland area to develop it, provided a development scheme was made to protect the natural environment. Would the City allow this?

Bill Muth said this is not regulated land so the choice right now is up to the City to decide if we want to show on our sewer plan those lands as being identified as upland woods, which is automatically going to tell the DNR that we don't want less than 5 acre lots.

Phil Evenson said that in primary environmental corridors the basic concept is you can save the corridors if you can develop them at a density of no more than 1 house per 5 acres on the average.

Alderman Witte asked if it is possible for the City to not exclude one or more of these four parcels from the sewer area.

Phil Evenson said the plan has to be clear. There may be some portions of these woodlands where a determination could be made that, if developed at a density greater than 1 house per 5 acres, they would not have an adverse quality impact. He also stated that the DNR will not buy a map that doesn't include at least steeply sloped land leading down to the wetlands. He said it is important not to mix up the technique chosen to isolate these woodlands with the isolated natural areas which are isolated because they are not connected up with any other resources.

Bill Muth asked if the City can adopt a sewer service area and exclude those four or five isolated woodlands.

Phil Evenson answered yes but it would not be approved by the DNR because they would require that at least the steeply sloped portions of those lands be included.

Jerry Griswold said only about 2% of their total area has a steep slope. Where the wetland area starts there is a slope that is perhaps 10%.

Sanitary Sewer Service Area Plan Public Hearing  
July 16, 1990  
Page Five

Bill Muth said his follow-up question is that if these four isolated areas end up on the map and it goes to DNR and DNR approves it, in fact they will not approve sewer extensions unless for 5 acre lots, what are the real chances of having that reversed.

Phil Evenson answered it would be virtually none and once they are on the map, it would be 5 acre lots on a gross basis.

Harry Mierow, 2405 Memorial Drive asked for a definition of urban sprawl.

Phil Evenson said that, basically, urban sprawl is urban land development that doesn't occur in a reasonably compact and contiguous way but scatters out over the landscape and consumes more land than needed to accommodate growth. Along with it brings greater costs for the provision of sewer, water and roads.

Jerry Griswold said their wooded area is the most valuable part of the farm and they are very much against taking this area out of the sewer service area.

Ellen Genrich, 2065 Donmar Lane said the City may have to purchase that kind of a valuable parcel if they want to abide by this plan. Since the City sent out a poll last year asking what the majority of the residents wanted in the City and 85% said they wanted green space - they want part of Brookfield to be undeveloped, this plans gives us an opportunity, finally, to actually say no to the developers. She said she thinks the City would be serving the majority of the citizens of Brookfield if you would recommend to the Common Council to adopt this plan. Ms. Genrich stated the state stewardship fund will contribute half of the matching dollars to buy that land, provided it is in a plan.

Ellen Griswold, N18 W22736 Watertown Road, Waukesha said she has already given the City one park and she will not give another one.

John Spheeris, 114 Lisbon Road, Oconomowoc stated he cannot speak for Mound Zion Cemetery but he objects to the upland woodland zoning because they have an offer pending on a parcel in this area.

Jill Pitterle, 15430 Oak Lane said she is very much in favor of keeping green space in the City of Brookfield and feels that some of the woodlands are very special woodlands.

Jerry Griswold stated they would be willing to go the route of planned unit development if there is more density. He said they would probably have to hire an attorney to consider the regulations and also the moves SEWRPC has made.

Don Dreske, 14700 Juneau Boulevard, Elm Grove, representing Greenmoor Venture, said he took their land along Moorland Road and south of Embassy Suites out of the wetlands and did an off-site and on-site mitigation process. He said he dedicated the eastern 220 feet along Moorland Road and left that in wetlands and also created another 2 acres of wetlands along Greenfield Avenue. For some reason this remaining parcel of land was not taken out of the floodplain. It has now come to their attention that it still has to be taken out of floodplain, which they thought had been done already. He has all the necessary permits and wants this parcel taken out of the floodplain.

Sanitary Sewer Service Area Plan Public Hearing  
July 16, 1990  
Page Six

Phil Evenson stated the City cannot take it out of the floodplain until the land is filled and ready for development.

Pat Walzak, representing the League of Women Voters, stated she would like to go on public record saying the League supports the policies which encourage acquisition of undeveloped areas for conservation and recreation, with the primary purpose of leaving them in their natural state.

Alderman Witte said the Mound Zion Cemetery Association has asked for an additional public hearing which the City does not have to power to do but he will ask the staff to contact them and ensure them they will be given every opportunity to express their opinion and to receive any information they feel they need.

Phil Evenson stated he would like to make two suggestions: (1) leave the record of the hearing open for 10 days to allow Mound Zion Cemetery to enter into the record any information they wish and (2) at the end of the ten day period, SEWRPC would suggest the Sewer Board send this matter back to City staff with direction to meet with them to go over each one of these parcels and look in detail at some of the questions raised. SEWRPC would then get back to the City with their recommendations.

Alderman Witte said he would direct the record to remain open for any comment that wishes to be directed for the next 10 days and staff will contact SEWRPC to discuss the individual parcels.

Alderman Witte thanked everyone for attending and adjourned the meeting at 9:18 p.m.

THE FOLLOWING LETTERS ARE TO BE ENTERED INTO THE MINUTES BY REFERENCE.



July 15, 1990

Mr. Steven D. Loth, P.E., L.S.  
Engineering Administrator  
2000 North Calhoun Road  
Brookfield, WI. 53005

Re: Berkshire Hills No. 5  
Brookfield, WI.

Dear Mr. Loth :

Pursuant to your letter of July 10, 1990 to V.K. Homes, Inc. regarding the 5 acre minimum lot size proposed for the wooded high land area of the "Berkshire Hills" project, we herein wish to state the following :

1. The City approved a Preliminary Plat for the subdivision in 1983 for the project, which plat contained 3-4.25 acre parcels for that area.
2. Our firm prepared a Final Plat for the 3 lots in September, 1986 (a copy being hereunto attached), submitted it to the City, but the Subdivider did not complete the processing.
3. S.E.W.R.P.C. reviewed the 1983 Preliminary Plat and accepted the 3-4.25 acre lot as proper planning for the wooded high land area.

The Subdivider now requests that the City and S.E.W.R.P.C. continue their original commitments to the Subdivider and designate this area as 3-4.25 acre lots.

The Subdivider further requests that this letter (including attachment) be read into the record of the Public Hearing to be held this evening at the City, and concerning the "Sanitary Sewer Service Area Plan for the City of Brookfield" as prepared by S.E.W.R.P.C..

Sincerely,

A handwritten signature in black ink, appearing to read "Michael J. Losik", with a long horizontal line extending to the right.

Michael J. Losik, P.E., L.S.  
President

MJL/mnl

attachment

cc: V.K. Homes, Inc.

Michael J. Losik & Assoc., Inc.

Consulting Engineering, Land Surveying & Land Planning

Regency Plaza Office Center • 240 Regency Court • Suite 301 • Waukesha, Wisconsin • 53186

(414) 784-7999 • FAX 784-8387

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Weiss

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Berzowski

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Brady &

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Donahue

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ATTORNEYS AT LAW

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F. Patrick Matthews  
Thomas L. Skalmoski  
Amy R. Seibel  
Debra A. Slater  
Janet M. Neal

David J. Roettgers  
John A. Sikora  
Michael A. Gral  
Andrea Roschke  
Gregory A. Grobe  
Philip J. Miller  
Timothy R. Brady  
Robert W. Snyder

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Of Counsel:  
Bruce D. Glaser  
Alan Marcuvitz

July 13, 1990

City of Brookfield  
Mayor Kathryn C. Bloomberg  
2000 North Calhoun Road  
Brookfield, WI 53005

Dear Mayor Bloomberg

I am writing to you in my capacity as counsel for the Mound Zion Cemetery Association.

On July 12, 1990, my client received a notice of an important public hearing to be held on July 16.

Unfortunately, because of the extremely short notice, neither my client nor I will have an opportunity to review the report and map or to appear on July 16. Mr. Schenbaum, the President of the Association, is out of the City and I have a previous commitment for Monday evening.

We would appreciate if this matter would be scheduled for another date or, in the alternative, an additional date.

Mound Zion would like to have the opportunity to inform the City of their plans for their property, on which they have been working for the last several years.

Very truly yours,



Alan Marcuvitz

AM: jm

cc: Steven D. Loth  
Marvin Schenbaum

July 12, 1990

Mayor and Common Council  
City of Brookfield  
2000 North Calhoun Road  
Brookfield, WI 53005

Re: Greenmoor Venture Lands at Moorland Road and Greenfield Avenue  
Tax Key No. BRC 1147-993

Ladies and Gentlemen:

Apparently there is a misunderstanding as to the zoning of my lands on Moorland Road and Greenfield Avenue. It is my understanding that these lands are not zoned for flood plain or flood fringe. As evidence of this fact I enclose a copy of minutes of a public hearing dated June 5, 1984 wherein it states on Page 2 that "The property runs approximately 700 feet deep along Moorland Road between Hockberry and Greenfield excluding the parcel with the Standard Station on it. There is approximately 1500 feet of frontage on Moorland."

To substantiate the above I also enclose a copy of an article in the Brookfield News dated September 19, 1985 wherein it is stated that the parcel of land at Moorland and Greenfield (the aforementioned Standard Station property) was removed from the flood plain on Monday, September 16, 1985 and that "Commission members were told that the rest of the area had been removed previously. This parcel was overlooked because it was under different ownership."

Subsequent to these actions, Greenmoor Investment Venture filed an application to remove these lands from wetland. This application was eventually approved by the U.S. Army Corps of Engineers and the Wisconsin Department of Natural Resources (DNR). Enclosed is a copy of the "sign off" by the DNR. Obviously if these lands were in the flood plain, the DNR would have objected to the removal of these lands from the wetland classifications.

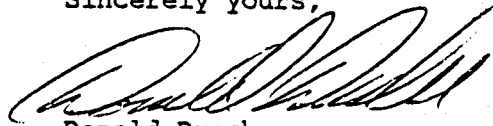
Another indication that this land is not in the flood plain is the issuance of a fill permit by the City of Brookfield under the signature of Clark Wangerin dated July 14, 1988 (copy enclosed).

To clarify any misunderstanding regarding this property, we respectfully request that the Common Council reaffirm that our land known as Tax Key No. BRC 1147.993 is not classified as flood plain. We enclose a drawing by our engineer Jahnke & Jahnke Associates Inc., dated July 5, 1984 and last revised June 12, 1987. We realize that the layout shown on the drawing is schematic and not necessarily in conformance with recent layouts prepared by the Brookfield Planning staff. We enclose this drawing simply to detail our property and request that all lands owned by us that is not designated as wetland (6.9 acres) be shown as not being in flood plain.



In addition to the above, your planning staff has requested that we consider rezoning Parcel D (8.65 acres) of the aforementioned Jahnke & Jahnke Associates Inc. drawing from Regional Business to Office and Limited Business. We have no objection to this request as we feel that the Office and Limited Business zoning category would be consistent with our development plans for the area.

Sincerely yours,



Donald Dreske  
Greenmoor Venture  
14700 Juneau Boulevard  
Elm Grove, WI 53122

Enclosures

Copies to: Dan Ertl, Planner  
William Muth, Director of Public Works  
Jerome G. Wegner, Jahnke & Jahnke Associates Inc.

July 24, 1990

Mr. Phillip Evenson  
Southeastern Wisconsin Regional Planning Commission  
P.O. Box 1607  
Waukesha, WI 53187-1607

Mr. William Muth  
Director of Public Works  
City of Brookfield  
2000 North Calhoun Road  
Brookfield, WI 53005-9650

Re: Griswold Farm  
7 Acre Upland Woods Located  
Adjacent To Mitchell Park

Gentlemen:

My family requests your cooperation in helping us accomplish the following items:

1. Removal of the 7 acre woods from the primary environmental corridor.
2. Removal of the woods from the park and open space plan.
3. Inclusion of the woods on the Year 2000 Sanitary Sewer Service Plan.
4. Installation of a fence and berm buffering our woods from the festival grounds.

Our reasons are summarized as follows:

My parents have worked the farm since 1931 and have owned the farm for the last 43 years. The beautiful woods exists because they did not cut down the trees for more crop land as many other land owners did. My parents also chose to not fill any of the surrounding wetlands, even though they had many opportunities to acquire the fill material. The natural beauty of the woods exists because they let it exist.

Raw unwooded land in Brookfield is currently selling for \$35,000 per acre. This upland woods is without a doubt worth at least \$50,000 per acre. SEWRPC and the City must consider whether a meager seven acre addition to Mitchell Park is worth the tremendous expense. Mitchell Park already has 533 acres with much of it wooded. If the 7 acre woods were placed on the accepted park plan, current ordinances would allow Brookfield's park commission to acquire this property by dedication from a future developer. This seems utterly absurd when the park dedication ordinance would allow other developers to pay \$6000 per acre in lieu of the dedication. The ordinance makes no provision for having the property appraised and having the City pay the difference between the appraised value and the \$6000 per acre. Almost all localities in this part of the

July 24 1990

state would require the municipality to make up the difference.

Water quality and erosive runoff should not be a concern. The woods has no slopes exceeding 12%. The greatest slope is about 9% which exists on one small hill and occupies only a small percentage of the entire area. We suggest that SEWRPC rather consider the effect on water quality by the proposed festival site in Mitchell Park. The proposed festival site is located just west of the woods' west line. Runoff from the large parking area and park buildings will no doubt carry salt and exhaust pollutants into the adjacent wetland areas. The runoff and non-point pollution will be far greater on the festival site than it would be from 1/2 acre wooded lots if they were created in the 7 acre woods.

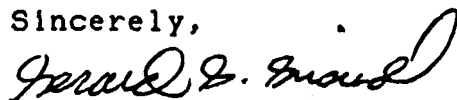
I also request that the City install a berm on their side of the property line to insulate this active recreational site from our property. The berm should be about 6 to 8 feet high with 4 to 1 side slopes and should be planted with spruce and pine trees. Such a berm would buffer the noise from our land and would block the glare from auto headlights and other lights. I am sure that the city would require any commercial developer to create such a buffer. The festival site is similar to a commercial development.

Mr. Evenson stated that SEWRPC was interested in efficient development. It was suggested at a recent sewer meeting that we should consider a planned unit development in order to create a more efficient development and to utilize the woods as open space. The property is currently zoned for 22,500 square foot lots with a minimum width of 130 feet. Brookfield zoning ordinances will allow PUD's to only be considered in the more restrictive zoning categories. I have also learned that the City would not allow us to utilize any wet land area to create the 5 acre parcels. Almost any other locality in this part of the State would allow the wetland to be used in the lot size calculation provided at least the 22,500 feet were upland area and provided no filling or disturbance took place in the wetland.

Brookfield's laws are already super restrictive and seem to be getting tougher by the day. When considering these highly restrictive regulations, SEWRPC's recent recommendations are not reasonable.

Your cooperation and support helping us accomplish our four goals would be greatly appreciated.

Sincerely,



Gerard G. Griswold P.E.

cc: Alderman Kenneth Merkel  
Alderman Norm Draeger  
Eugene Griswold  
Kenneth Griswold  
Sharon Armao

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Weiss

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Berzowski

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Brady &

---

Donahue

---

ATTORNEYS AT LAW

Robert M. Weiss  
Michael M. Berzowski  
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Timothy R. Brady  
Robert W. Snyder

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Of Counsel:  
Bruce D. Glaser  
Alan Marcuvitz

July 26, 1990

Mr. William A. Muth, Jr. P.E.  
Director of Public Works  
City of Brookfield  
200 North Calhoun Road  
Brookfield, WI 53006

RE: Sanitary Sewer Service Area Plan

Dear Mr. Muth:

Please express the appreciation of Mound Zion Cemetery Association and this office to the Council for affording an opportunity to supplement the public hearing record of July 16.

Thank you again for accomodating our request for an opportunity to meet with you on July 25 and for providing us with a copy of the minutes of the July 16 public hearing.

It is the purpose of this letter to summarize those matters which we called to your attention during the meeting on July 25.

Mound Zion is opposed to any action which would deny the extension of sanitary sewer service to its lands to permit development under the current zoning.

Mound Zion has decided to place a large section of its land into single family home development and, to that end, has entered into a preliminary agreement with Viking Partners.

Viking has earned an enviable reputation for quality development. The company is currently engaged in major developments in Lake Forest, Illinois. We enclose some information about Viking.

Mound Zion intends to participate directly in the planning and development of its property.

In order to illustrate the type of development intended, we enclose a copy of a current plan which we are considering.

Please advise us when action is taken on the pending proposal.

Very truly yours,

*Alan Marcuvitz/jjm*

Alan Marcuvitz

Appendix A-2

MINUTES OF A PUBLIC HEARING ON SANITARY SEWER SERVICE  
AREA PLAN HELD AT BROOKFIELD TOWN HALL MEETING ROOM, 645 NORTH  
JANACEK ROAD, WAUKESHA, WISCONSIN, ON THURSDAY, FEBRUARY 28, 1991

A Joint Public Hearing, with the Town of Brookfield and Southeastern Wisconsin Regional Planning Commission, was held on Thursday, February 28, 1991 beginning at 7:30 p.m. in the Town Hall Meeting Room, 645 N. Janacek Road, Waukesha, Wisconsin.

Chairman Russell Frisby called the meeting to order with Supervisors Harry Behrens and Robert Walkoe present; also, Plan Commissioner Elvin Atkinson, Building Inspector Erich Gnant, Chief Land Use Planner from Southeastern Wisconsin Regional Planning Commission Bruce Reuben and the Town Clerk to record the minutes.

Chairman Frisby stated that the purpose of the Public Hearing was to receive comments and questions regarding the proposed City and Town of Brookfield and Village of Elm Grove Sanitary Sewer Service Area.

Mr. Rueben stated that in 1979 SEWRPC prepared plans and identified sewer service areas. In 1984 the Town of Brookfield, City of Brookfield and Village of Elm Grove requested sewer service plans for all three communities for the purpose of identifying all the lands within a sewer service area and also the lands NOT to be serviced.

Mr. Rueben said that of the approximate 6 to 8 square miles of the Town of Brookfield, 1.8 miles of that is "environmentally significant land", or land that cannot be sewerred.

Supervisor Behrens questioned how it would affect the areas that it is not economically feasible to provide with sewer service if the Town Board passes the proposed resolution which designates all areas of the Town as being included in the service area. Mr. Rueben stated that the Town just would not provide sewer service to such areas.

Supervisor Walkoe questioned if there are any areas that are "significant lands" included in the sewer service area as designated by maps #4, #5 and #6 included with the preliminary draft of the Community Assistance Planning Report Number 109. Mr. Rueben said that the significant lands are on the north side of Town, but, it is his feeling, that not ALL of the lands on the north side are significant lands.

Chairman Frisby questioned who must pass the ordinance accepting the sewer service area, the Town Board or both the Town Board and Town of Brookfield Sanitary District #4. Mr. Rueben replied that the Town Board approval would be sufficient.

There being no further questions or comments, Chairman Frisby declared the Public Hearing closed at 7:55 p.m.

Respectfully submitted  
Barbara A. Hartung/Town Clerk

## Appendix B

### SEWRPC STAFF MEMORANDUM

#### REFINEMENT OF BOUNDARY LINE BETWEEN THE BROOKFIELD EAST AND BROOKFIELD WEST SEWER SERVICE AREAS

In a letter dated April 12, 1991, the City of Brookfield requested that the Southeastern Wisconsin Regional Planning Commission change the Brookfield sewer service area plan by adjusting the boundary between that portion of the sewer service area tributary to the Milwaukee Metropolitan Sewerage District sewage treatment plant, the Brookfield East service area, and that portion of the service area tributary to the Fox River Water Pollution Control Center facility, the Brookfield West service area. In making this request, the City noted that it had prepared cost estimates attendant to the construction of a trunk sewer in the vicinity of Calhoun Road and Burleigh Road, and has found that, owing to soil conditions, the cost of constructing the trunk sewer is such that an alternate plan involving a permanent sewage pumping station and force main would be more cost-effective. This option for conveying sewage from the area in the vicinity of Calhoun Road and Burleigh Road would require an adjustment of the aforementioned boundary.

The purpose of this section of the service area report is to provide the basis for the Commission's response to the request by the City. In preparing this response, the Commission must apply the cost-effectiveness analysis guidelines promulgated by the U. S. Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (DNR). In preparing this memorandum, the Commission staff independently evaluated the merits of the City of Brookfield's request. In so doing, the Commission drew upon, as appropriate, information relating to the costs of four sewerage system alternatives prepared by the City and by the firm of Michael J. Losik and Associates, Inc., for the City.

The study area for the analysis conducted, as shown on Map B-1, is about 240 acres in size. This area is in the vicinity of Calhoun Road and Burleigh Road and is irregularly shaped to account for the existing and potential future sewer system configuration. Of the 240-acre study area, about 40 acres are included in lands designated as primary environmental corridor. The remaining lands are currently in residential and institutional use and are open lands proposed for residential development. As shown on Map B-1, the initially proposed sewer service area envisioned about 200 acres, or about 83 percent of the study area to be tributary to the Brookfield West sewer service area and about 40 acres, or about 17 percent of the study area, to be tributary to the Brookfield East sewer service area.

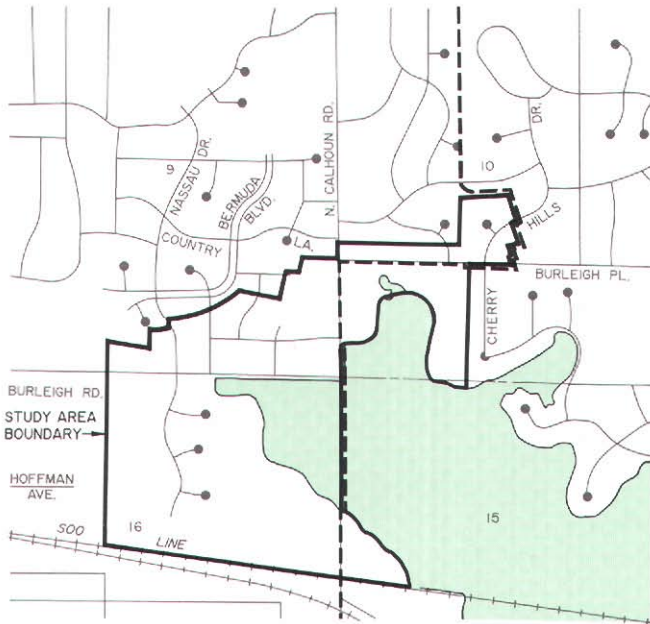
The only issue in this matter is a determination of the most cost-effective way in which to provide for the collection and conveyance of sewage from the study area. For purposes of this analysis, it was concluded that there would be no significant impact on the sewage treatment plants involved since the sewage flow in the study area is expected to be about 150,000 gallons per day, or less than 2 percent of the current design flow of the Brookfield Water Pollution Control Center facility and less than 0.2 percent of the treatment capacity of the Milwaukee Metropolitan Sewerage District sewage treatment plants.

Four alternative sewerage system plans were evaluated in considering this matter. Table B-1 summarizes the findings of the economic analyses of the four alternatives considered.

Under Alternative 1, sewage from the entire study area would be conveyed by gravity to an existing 18-inch-diameter trunk sewer located east of Calhoun Road and south of the Soo Line Railroad, as shown on Map B-2. The two existing pumping stations and associated force mains currently serving the study area would be abandoned. As shown on Table B-1, the total capital cost of this alternative is estimated to be \$2,030,000. The average annual operation and maintenance cost over a 20-year design period is estimated at \$1,700. The equivalent annual cost is estimated to be \$130,500.

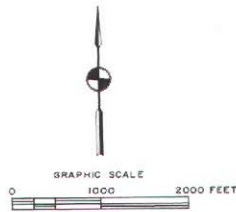
Map B-1

**BROOKFIELD/ELM GROVE STUDY AREA**



**LEGEND**

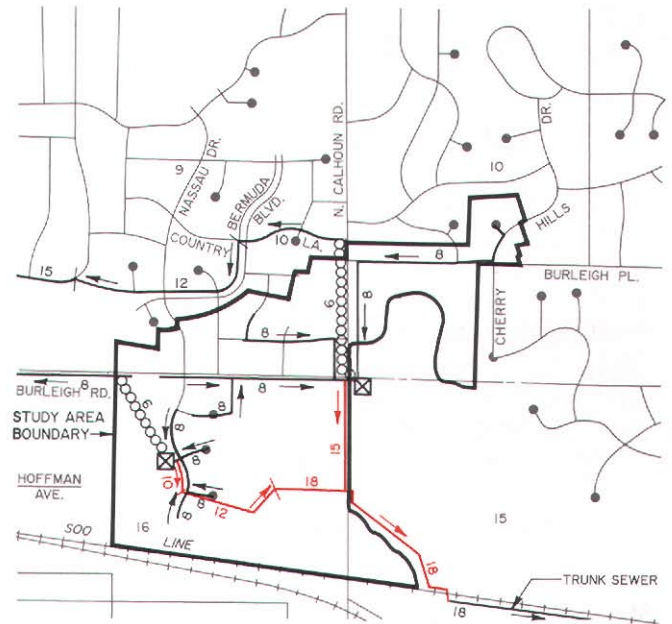
- PRIMARY ENVIRONMENTAL CORRIDOR
- CURRENT BOUNDARY BETWEEN BROOKFIELD EAST AND BROOKFIELD WEST SEWER SERVICE AREAS PER DRAFT OF SEWRPC COMMUNITY ASSISTANCE PLANNING REPORT NO. 109 DATED JULY 1990



Source: City of Brookfield and SEWRPC.

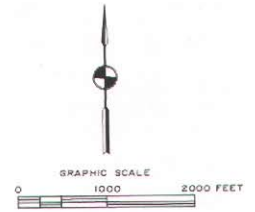
Map B-2

**ALTERNATIVE 1: GRAVITY CONVEYANCE TO BROOKFIELD EAST SEWERAGE SYSTEM**



**LEGEND**

- 8 EXISTING GRAVITY SEWER, SIZE IN INCHES, AND DIRECTION OF FLOW
- EXISTING PUMPING STATION TO BE ABANDONED
- EXISTING FORCE MAIN TO BE ABANDONED
- 18 PROPOSED GRAVITY SEWER, SIZE IN INCHES, AND DIRECTION OF FLOW



Source: City of Brookfield and SEWRPC.

Under Alternative 2, sewage from the portion of the study area located south of Burleigh Road would be conveyed by gravity to the existing 18-inch-diameter trunk sewer located east of Calhoun Road and south of the Soo Line Railroad, as shown on Map B-3. The existing pumping station and associated force main currently serving that portion of the study area would be abandoned. Sewage from the portion of the study area north of Burleigh Road would be conveyed to the existing site of the pumping station located at the intersection of Calhoun Road and Burleigh Road. That pumping station would be reconstructed and would pump sewage through a new force main to an existing gravity sewer located in Burleigh Road west of Nassau Drive. As shown on Table B-1, the total capital cost of this alternative is estimated to be \$2,306,000. The average annual operation and maintenance cost over a 20-year design period is estimated at \$12,300. The equivalent annual cost is estimated to be \$95,800.

Under Alternative 3, sewage from the entire study area, except for an eight-acre area east of Calhoun Road and north of the Soo Line Railroad, would be conveyed to the current location of the existing pumping station at the intersection of Calhoun Road and Burleigh Road, as shown on Map B-4. That pumping station would be reconstructed and would convey sewage west through a force main to a 21-inch-diameter gravity sewer in Brookfield Road. The eight-acre remainder of the study area would



Table B-1

**ECONOMIC ANALYSIS COST ESTIMATES OF ALTERNATIVE SEWERAGE SYSTEM PLANS FOR THE BROOKFIELD SEWER SYSTEM AT CALHOUN ROAD AND BURLEIGH ROAD**

Alternatives and Components	Operation and Initial Capital Cost	Maintenance Cost 1991-2011	Present Worth: 1991-2041 <sup>a</sup>			Equivalent Annual Cost: 1991-2041 <sup>a</sup>		
			Construction	Operation and Maintenance	Total	Construction	Operation and Maintenance	Total
<b>Alternative 1—Gravity Conveyance to Brookfield East Sewerage System</b>								
Gravity Sewer System . . . . .	\$1,970,000	\$ 1,700	\$1,970,000	\$ 27,000	\$1,997,000	\$125,000	\$ 1,700	\$126,700
Existing Facility Abandonment . . . . .	60,000	--	60,000	--	60,000	3,800	--	3,800
<b>Total</b>	<b>\$2,030,000</b>	<b>\$ 1,700</b>	<b>\$2,030,000</b>	<b>\$ 27,000</b>	<b>\$2,057,000</b>	<b>\$128,800</b>	<b>\$ 1,700</b>	<b>\$130,500</b>
<b>Alternative 2—Combination</b>								
Gravity Conveyance System to Brookfield East Sewerage System . . . . .	\$1,036,000	\$ 1,300	\$1,036,000	\$ 20,500	\$1,056,500	\$ 65,700	\$ 1,300	\$ 67,000
Existing Facility Abandonment . . . . .	42,000	--	42,000	--	42,000	3,000	--	3,000
Pumping Station and Force Main to West Sewerage System . . . . .	228,000	11,000	234,000	173,000	407,000	14,800	11,000	25,800
<b>Total</b>	<b>\$1,306,000</b>	<b>\$ 12,300</b>	<b>\$1,312,000</b>	<b>\$193,500</b>	<b>\$1,505,500</b>	<b>\$ 83,500</b>	<b>\$12,300</b>	<b>\$ 95,800</b>
<b>Alternative 3—Pumping Conveyance to Brookfield West Sewerage System with Limited Gravity Conveyance to Brookfield East Sewerage System</b>								
Gravity Collection Sewer . . . . .	\$ 655,000	\$ 1,300	\$ 655,000	\$ 20,500	\$ 675,500	\$ 41,600	\$ 1,300	\$ 42,900
Existing Facility Abandonment . . . . .	42,000	--	42,000	--	42,000	3,000	--	3,000
Pumping Station and Force Main to Brookfield West Sewerage System . . . . .	360,000	12,000	366,000	189,000	555,000	23,200	12,000	35,200
Gravity Sewer to Brookfield East Sewerage System . . . . .	173,000	200	173,000	3,200	176,200	11,000	200	11,200
<b>Total</b>	<b>\$1,230,000</b>	<b>\$13,500</b>	<b>\$1,236,000</b>	<b>\$212,700</b>	<b>\$1,448,700</b>	<b>\$ 78,800</b>	<b>\$13,500</b>	<b>\$ 92,300</b>
<b>Alternative 4—Pumping Conveyance to Brookfield West Sewerage System</b>								
Gravity Collection Sewer . . . . .	\$ 655,000	\$ 1,300	\$ 655,000	\$ 20,500	\$ 675,500	\$ 41,600	\$ 1,300	\$ 42,900
Existing Facility Abandonment . . . . .	42,000	--	42,000	--	42,000	3,000	--	3,000
Pumping Station and Force Main . . . . .	360,000	12,300	366,000	193,800	559,800	23,200	12,300	35,500
<b>Total</b>	<b>\$1,057,000</b>	<b>\$13,600</b>	<b>\$1,063,000</b>	<b>\$214,300</b>	<b>\$1,277,300</b>	<b>\$ 67,800</b>	<b>\$13,600</b>	<b>\$ 81,400</b>

<sup>a</sup>The economic analysis was conducted assuming a 50-year analysis period and a 6 percent interest rate.

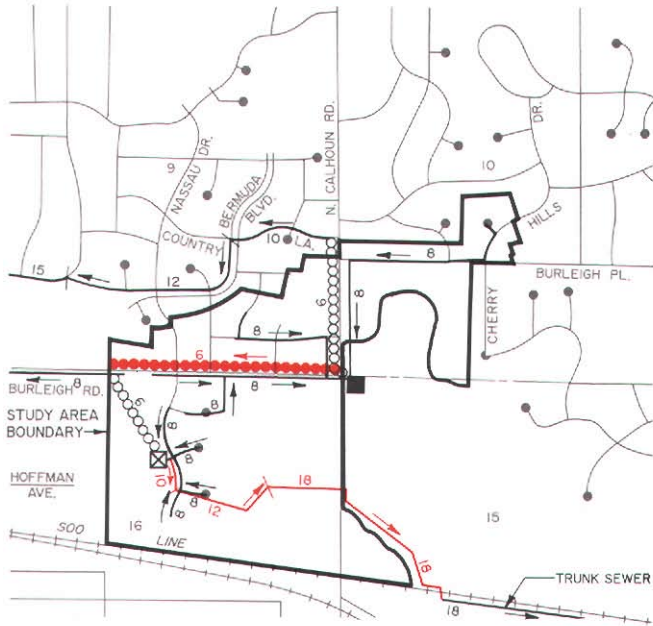
Source: SEWRPC.

be connected to the existing 18-inch-diameter trunk sewer located east of Calhoun Road and south of the Soo Line trunk sewer located east of Calhoun Road and south of the Soo Line Railroad. The existing pumping station located near the intersection of Nassau Drive and Prince George Court and associated force main would be abandoned. As shown on Table B-1, the total capital cost of this alternative is estimated to be \$1,230,000. The average annual operation and maintenance cost over a 20-year design period is estimated at \$13,500. The equivalent annual cost is estimated to be \$92,300.

Under Alternative 4, sewage from the entire study area would be collected at the location of the existing pumping station at the intersection of Calhoun Road and Burleigh Road, as shown on Map B-5. That pumping station would be reconstructed and would convey the sewage west through a force main to the existing 21-inch-diameter gravity sewer in Brookfield Road. The existing pumping station and associated force main located near the intersection of Nassau Drive and Prince George

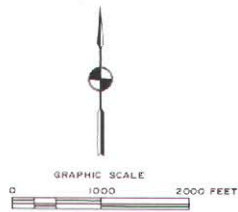
Map B-3

**ALTERNATIVE 2: COMBINATION GRAVITY CONVEYANCE TO BROOKFIELD EAST AND PUMPING TO BROOKFIELD WEST SEWERAGE SYSTEMS**



**LEGEND**

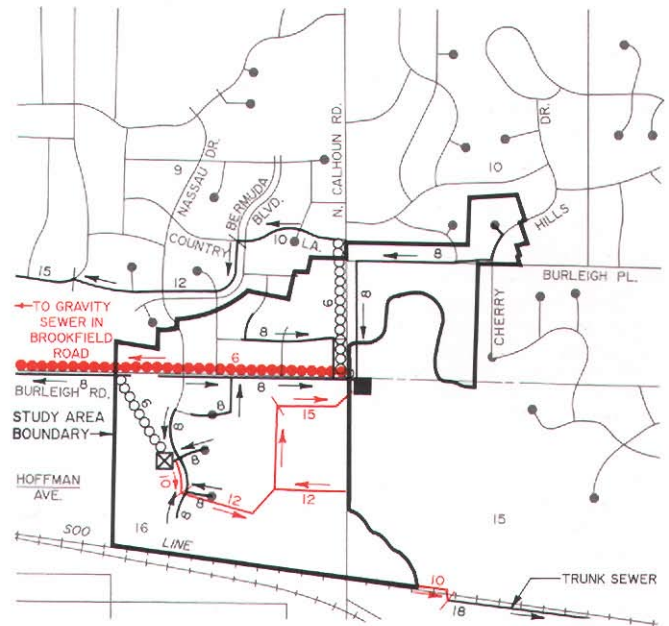
- EXISTING GRAVITY SEWER, SIZE IN INCHES AND DIRECTION OF FLOW
- EXISTING PUMPING STATION TO BE ABANDONED
- EXISTING PUMPING STATION TO BE REPLACED
- EXISTING FORCE MAIN TO BE ABANDONED
- PROPOSED GRAVITY SEWER, SIZE IN INCHES, AND DIRECTION OF FLOW
- PROPOSED FORCE MAIN, SIZE IN INCHES, AND DIRECTION OF FLOW



Source: City of Brookfield and SEWRPC.

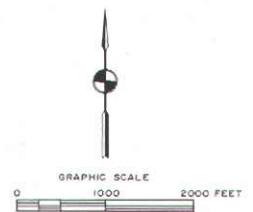
Map B-4

**ALTERNATIVE 3: PUMPING CONVEYANCE TO BROOKFIELD WEST SEWERAGE SYSTEM WITH LIMITED GRAVITY CONVEYANCE TO BROOKFIELD EAST SEWERAGE SYSTEM**



**LEGEND**

- EXISTING GRAVITY SEWER, SIZE IN INCHES AND DIRECTION OF FLOW
- EXISTING PUMPING STATION TO BE ABANDONED
- EXISTING PUMPING STATION TO BE REPLACED
- EXISTING FORCE MAIN TO BE ABANDONED
- PROPOSED GRAVITY SEWER, SIZE IN INCHES, AND DIRECTION OF FLOW
- PROPOSED FORCE MAIN, SIZE IN INCHES, AND DIRECTION OF FLOW



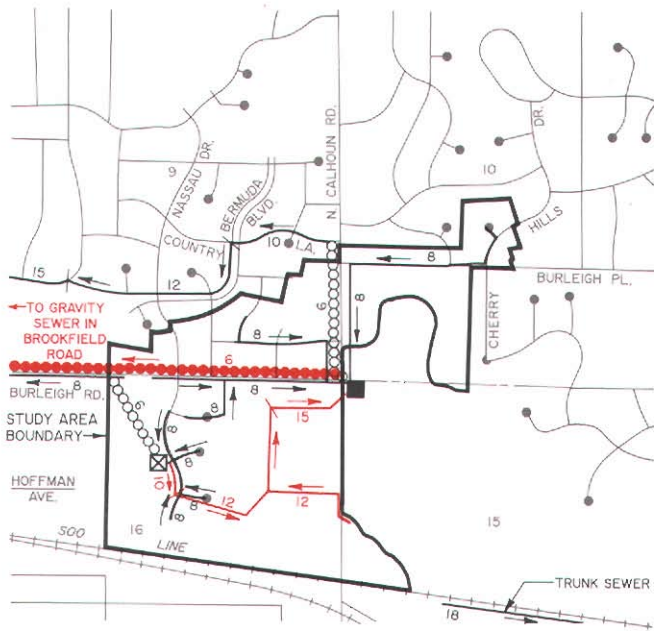
Source: City of Brookfield and SEWRPC.

Court would be abandoned. As shown on Table B-1, the total capital cost of this alternative is estimated to be \$1,057,000. The average annual operation and maintenance cost over a 20-year design period is estimated at \$13,600. The equivalent annual cost is estimated to be \$81,400.

The foregoing analysis indicates that the alternative providing for conveyance of the entire Calhoun Road-Burleigh Road study area to the Brookfield West sewer service area is about 12 percent less costly on an equivalent annual cost basis than any other alternative. In preparing the regional water quality management plan, the Commission conducted a number of economic analyses of alternative sewerage system configurations throughout the Region. In comparing alternatives, the guidelines used by the Commission, which were endorsed by the technical advisory committees concerned, indicated

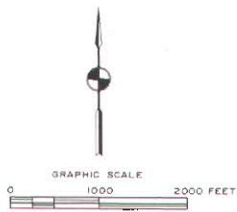
Map B-5

**ALTERNATIVE 4: PUMPING CONVEYANCE TO BROOKFIELD WEST SEWERAGE SYSTEM**



**LEGEND**

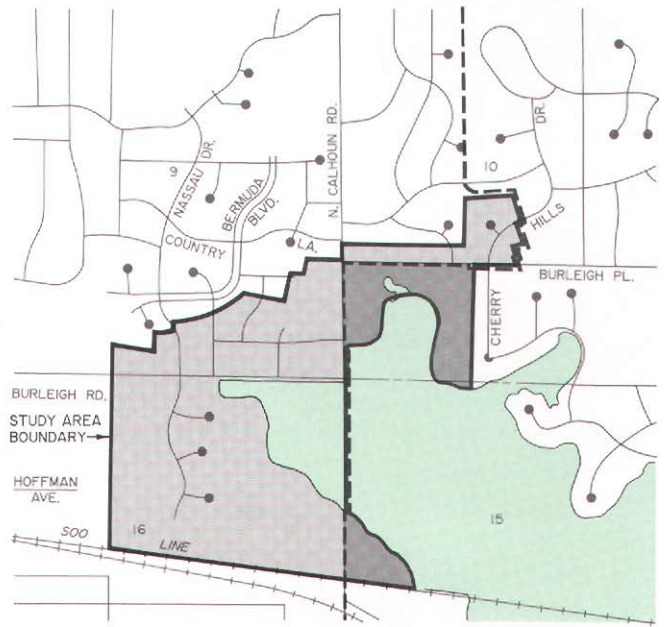
- EXISTING GRAVITY SEWER, SIZE IN INCHES AND DIRECTION OF FLOW
- EXISTING PUMPING STATION TO BE ABANDONED
- EXISTING PUMPING STATION TO BE REPLACED
- EXISTING FORCE MAIN TO BE ABANDONED
- PROPOSED GRAVITY SEWER, SIZE IN INCHES, AND DIRECTION OF FLOW
- PROPOSED FORCE MAIN, SIZE IN INCHES, AND DIRECTION OF FLOW



Source: City of Brookfield and SEWRPC.

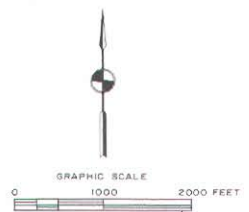
Map B-6

**RECOMMENDED ADJUSTMENT OF THE BROOKFIELD/ELM GROVE SEWER SERVICE BOUNDARY LINE**



**LEGEND**

- PRIMARY ENVIRONMENTAL CORRIDOR
- CURRENT BOUNDARY BETWEEN BROOKFIELD EAST AND BROOKFIELD WEST SEWER SERVICE AREAS PER DRAFT OF SEWRPC COMMUNITY ASSISTANCE PLANNING REPORT NO. 109 DATED JULY 1990
- AREA PROPOSED TO REMAIN IN THE BROOKFIELD WEST SEWER SERVICE AREA
- AREA PROPOSED TO BE ADDED TO THE BROOKFIELD WEST SEWER SERVICE AREA AND DELETED FROM THE BROOKFIELD EAST SEWER SERVICE AREA



Source: City of Brookfield and SEWRPC.

that, if two compared alternatives were found to have equivalent annual costs greater than 10 percent of one another, then the least-cost alternative would, absent any overriding environmental considerations, conclusively be determined to be the most cost-effective alternative. The differences in costs in the above comparisons somewhat exceed 10 percent. In addition, there do not appear to be any overriding environmental considerations which would favor any of the alternatives. Accordingly, it is determined that Alternative 1, which provides for conveyance of sewage from the study area to the Brookfield West sewer service area is the most cost-effective option.

The recommended service area refinements are shown on Map B-6. These refinements are incorporated into the final sewer service area map as described in the subsequent section of the report.