

SUMMARY AND CONCLUSIONS

INTRODUCTION

On May 10, 1968, Milwaukee County Executive John L. Doyne formally requested the Commission to undertake a comprehensive regional airport system planning program that would work toward the ultimate resolution of the growing air transportation problems of the Region. On June 4, 1968, a similar request was made by the then Secretary of the Wisconsin Department of Transportation, Mr. G. H. Bakke. These requests recognized that only within the context of a long-range, comprehensive area-wide planning effort could an adequate airport system plan be prepared to guide the development of airport facilities within the Region. In addition, these requests recognized that an airport system plan must be fully integrated with land use and surface transportation plans for the Region. Acting in response to these requests, the Commission on June 9, 1968, created a 13-member Technical Coordinating and Advisory Committee on Regional Airport Planning to assist the Commission in the study of the air transportation needs of the Region and in the preparation of the needed regional airport system plan. The Committee was so structured as to actively involve the agencies most concerned with airport development within the Region, and included those local officials directly concerned with provision of airport facilities.

In 1969 the Committee prepared a prospectus for a comprehensive, areawide airport system planning program for the Region. This prospectus identified five major factors that contribute to the need to prepare an airport system plan. These are: extensive, areawide urbanization and the consequent need to coordinate airport facility development with land use development; changes in surface transportation use and development and the consequent need to coordinate airport facility development with surface transportation facility development; rapid growth and change in air traffic demand; rapid change in aircraft size, type, and performance and related changes in airport facility requirements; and state and federal grant eligibility requirements. The prospectus outlined the scope and content of the required regional airport system planning program.

The work program outlined in the prospectus was subsequently approved by the Regional Planning Commission on December 4, 1969. Cooperative funding arrangements for the study involving the U. S. Department of Transportation, Federal Aviation Administration; the U. S. Department of Housing and Urban Development; the Wisconsin Department of Transportation, Division of Aeronautics; and the seven counties in the Region were completed in December 1970. The program itself was conducted over a four and one-half year period by the Commission staff, assisted by the consulting firm of R. Dixon Speas Associates, Inc., Manhasset, New York. Guidance to the staff and consultant was provided throughout the program by

the Technical Coordinating and Advisory Committee. The Commission staff assumed responsibility for all work elements of a general regional planning nature, and R. Dixon Speas Associates, Inc., assumed responsibility for all work of a highly specialized air transportation planning and engineering nature, including the development of the necessary demand forecasting and distribution models, the conduct of airport capacity analyses, and the preparation of alternative regional airport system plans.

Five basic principles were formulated which formed the basis for the planning process applied in the regional airport system planning program. These five principles are:

1. Airport system planning must be regional in scope, since airport service areas develop over an entire urban region without regard to corporate limit lines.
2. Airport system planning must be conducted concurrently with, and cannot be separated from, land use planning.
3. Airport and surface transportation systems must be planned together.
4. Airport facilities must be planned as an integrated system, with the function and capacity of each airport in the system carefully fitted to air travel demands.
5. Both land use and airport facility planning must recognize the existence of a limited natural resource base to which urban and rural land use as well as airport development must be properly adjusted to ensure a pleasant and habitable environment.

The major findings and recommendations of the regional airport system planning program are discussed and presented in this report. This report is intended to allow careful, critical review of the alternative plans by public officials, agency staff personnel, and citizen leaders within the Region, and to provide the basis for plan adoption and implementation by the local, areawide, state, and federal agencies of government concerned. The report can only summarize in brief fashion the information assembled in the extensive data collection, analysis, forecasting, and plan design phases of the program. Although the reproduction of all information assembled in the study in report form is impractical due to its magnitude and complexity, all of the basic data are on file in the Commission offices and are available to member units and agencies of government and to the public in general upon specific request.

INVENTORY AND ANALYSIS FINDINGS

Socioeconomic Base

The seven-county Southeastern Wisconsin Region is an interrelated complex of natural and manmade features which together form a rapidly changing environment for human life. Important manmade features of the Region include its land use pattern, its public utility networks, and its transportation system. Together with the population residing in the Region and the economic activities taking place within the Region, these features may be thought of as the socioeconomic base of the Region. Since one of the basic purposes of airport system planning is to provide for the sound development of public air transportation facilities to meet the air transportation needs of the existing and probable future resident population and of the economic activities taking place within the Region, an understanding of the socioeconomic base is essential to sound regional airport system planning.

The Region consists of a seven-county area encompassing 2,689 square miles of land and inland water area, representing about 5 percent of the total area of the State of Wisconsin. About 40 percent of the state's population, however, resides within the seven counties, which employ about 38 percent of the total work force of the state and which contain about half of all the tangible wealth of the state as measured by equalized assessed property valuation. The Region contains 154 local units of government, exclusive of school or other special purpose districts, and encompasses all or parts of 11 major watersheds.

The population of the Region has been increasing at an average rate of about 18,000 persons per year from 1960 to 1970, and totaled about 1.75 million persons in 1970 and 1.8 million persons in 1974. This rate of population growth, although higher than state and national growth rates, is considerably lower than the approximately 33,000 persons per year experienced within the Region from 1950 to 1960. The population growth within the Region has been occurring primarily in the newer outlying suburban, rural-urban fringe areas of the Region, while the populations of the older central cities and suburbs have remained relatively stable or have actually declined. The composition of the population is becoming increasingly urban, with only about 12 percent of the total regional population currently classified as rural. Moreover, of the total population only about 10 percent is classified as rural nonfarm and 2 percent as rural farm.

Personal income has generally increased at a higher rate than population, so that per capita and per household incomes have increased markedly over the last two decades. The areas of highest average household income are located in the most rapidly growing new suburban and rural urban areas of the Region, presently located in northeastern and western Milwaukee County and eastern Waukesha County. Since personal income has been found to have a major effect on the demand for air transportation services, the distribution of the higher income households is an important factor in airport system planning.

Employment opportunities in the Region have increased at a rate of approximately 9,400 jobs per year over the last decade to a 1970 level of approximately 742,000 jobs. The economic factors which promote job growth and urbanization of the Region are largely centered in and around the major urban centers of Milwaukee, Racine, and Kenosha, although a diffusion of economic activities into the outlying areas of the Region is occurring, with Waukesha County showing the largest increases in the proportion of total jobs.

Land within the Region has been undergoing a particularly rapid conversion from rural to urban use. Recent urban development within the Region has been discontinuous and highly diffused, consisting in large part of scattered, low density enclaves of residential development located away from established urban centers. The overall population density of the developed urban area of the Region, which peaked in 1920 at about 11,000 persons per square mile, steadily declined to about 4,300 persons per square mile in 1970. The highly diffused nature of recent urban development and the sharp decline in urban population density have intensified environmental problems within the Region and have created new developmental problems, including problems relating to airport system development. Current and probable future land use development patterns must be carefully considered in the development of airport system plans to effectively serve aviation demands while minimizing the adverse impact that airport facilities have upon residential land use.

Natural Resource Base

The natural resource base is a primary determinant of the development potential of a region and of its ability to provide a pleasant and habitable environment for all forms of life. Accordingly, an understanding of the natural resource base of the Region is essential to sound airport system planning. Of particular importance in this respect are those elements of the natural resource base relating to climate and to certain important land related elements of the natural resource base.

Wind direction and velocity are important considerations in airport facility siting and orientation. Winds in southeastern Wisconsin may be expected to blow from the southwest and northwest each about 20 percent of the time, and from the southeast and northeast each about 15 percent of the time. Runways oriented in these four directions accordingly may be expected to provide the most favorable wind coverage for operating aircraft. Wind velocities throughout the Region may be expected to be less than 4 knots (4.6 mph) about 12 percent of the time, between 4 and 14 knots (4.6 and 16.1 mph) about 62 percent of the time, and over 14 knots (16.1 mph) the remaining 26 percent of the time.

On an annual basis, weather conditions that permit aircraft operations under visual flight rules occur approximately 90 percent of the time, making the operation under instrument flight rules necessary only about 10 percent of the time. The most favorable visual flight rule weather

occurs under summer daylight hours. Also, the higher wind velocities occur predominantly during the visual flight rule weather.

The kind and amount of precipitation that may be expected to occur within the Region are also important considerations in airport planning, design, construction, operation, and maintenance. Airport operational problems created by various forms of precipitation include restricted visibility, atmospheric turbulence, slippery conditions on hard surface runways, nonuse of turf runways, decreased rate of climb for some aircraft, and congested terminal and air space created in and around airports because of various operational delays. With excessive quantities of freezing precipitation, operations at even air carrier airports such as General Mitchell Field can become so unbalanced as to cause flight cancellations and delays, ferrying of aircraft, terminal confusion, and inconvenience to the traveling public. The average annual total precipitation in the Region is about 30.3 inches expressed as water equivalent, with an average annual snowfall of 43.2 inches. Average total monthly precipitation ranges from 1.32 inches in February to 3.86 inches in June. About 85 percent of the snowfall occurs in the months of December, January, February, and March, with the maximum average monthly snowfall of 11.9 inches occurring in January. Maximum daily precipitation recorded in the Region was 7.58 inches of rainfall and 30.0 inches of snowfall.

Lake fog is a weather condition affecting the operation of airports located in close proximity to large water surfaces. Lake fog, primarily caused by warm moist air moving toward the colder waters of Lake Michigan, is common in the warmer months along the lake shoreline of the Region. This type of fog is extremely limited in its areal extent, normally being confined to an area over the water itself and extending only a mile or two inland from the shoreline. Thus, within the Region lake fog becomes a problem in airport siting and operation only in a one or two mile band along the shoreline of the lake itself.

Delineation of those areas of the Region in which concentrations of particularly valuable elements of the natural resource base occur produces an essentially linear pattern of narrow, elongated areas which have been termed "environmental corridors." These corridors, while encompassing only about 18 percent of the total area of the Region, contain almost all of the best remaining woodlands and wetlands, the best remaining wildlife habitat areas, almost all of the streams and lakes and associated undeveloped floodlands and shorelands, as well as many of the significant topographical, geological, and historical features remaining in the Region. Airport system planning, involving as it does not only airport and airport facility development but also urban development generated by the presence of the airport, must carefully consider the environmental corridors so as to assure their preservation. Proper airport siting can actually contribute to environmental corridor preservation by encompassing the environmental corridors within the open spaces

associated with good airport development, and by using the environmental corridors as buffer areas between airports and other types of urban development. ♣

Existing Regional Air Transportation System

The existing air transportation system within the Region consists of a combination of airport and airway facilities required to accommodate the movement of people and goods into, within, and out of the Region. The ability of the system to perform its primary function depends to a considerable extent upon the quality of the surface transportation facilities linking each airport to its respective service area. Consequently, the regional air transportation system includes the airways and associated air navigation aids, the aircraft landing areas and associated air navigation and air traffic control aids, the airport terminal facilities and appurtenant aircraft and automobile parking areas, and the ground access transportation facilities.

In order to provide definitive data on the existing regional air transportation system, an inventory was conducted of all airports, airways, air navigation facilities, and related surface transportation facilities serving the Region, as well as of the number and types of aircraft using these facilities. The primary data sources for this inventory include Federal Aviation Administration and Wisconsin Division of Aeronautics files, and a specially prepared and conducted regional airport survey wherein personal interviews were conducted with airport owners and/or managers to obtain all of the necessary facility data. These data were then compiled, analyzed, and used to assess the adequacy of existing airport facilities and the need for further airport development.

In 1971 there were 46 publicly and privately owned airports located within the Region. Each of these airports may be classified by service category as air carrier, general aviation, military, or special use airports; by availability for use as public or private; and by ownership also as public or private. Of these 46 airports, General Mitchell Field in Milwaukee County was the only air carrier airport providing commercial airline service to the general public on a regularly scheduled basis. As the Region's single air carrier airport, General Mitchell Field constitutes a major interregional transportation terminal handling relatively large volumes of passengers, mail, and cargo in large, high performance aircraft.

Of the remaining 45 airports in the Region, 43 were classified as general aviation airports which are intended to serve training, business, charter, agricultural, recreational, pleasure and air taxi aircraft. The remaining two airports in the Region were special use facilities, including one heliport and one seaplane base. There were no exclusive military use airports within the Region. However, both General Mitchell Field in Milwaukee County and the West Bend Municipal Airport in Washington County are joint use facilities providing for both civil and military aircraft operations.

Of the 43 general aviation airports in the Region, 25 were public use airports, both publicly and privately owned, with the remaining 18 constituting privately owned air-

ports for private use only. The 25 general aviation public use airports accommodate the majority of the business and pleasure aviation activity in the Region, accommodating about 79 percent of the based aircraft and about 72 percent of the aircraft operations in the Region in 1971. Consequently, these 25 existing airports are, together with General Mitchell Field, of primary interest in regional airport system planning.

Each of the Region's existing airports may be further classified by function and operational role. The airport functional classification system chosen for use in this study relates to that developed nationally for aviation planning and development purposes. The 10 airport classifications include three relating to scheduled air transportation facilities—primary, secondary, and feeder; general transport; basic transport; general utility; basic utility; STOLport; heliport; and seaplane base.¹ Of the 46 airports in the Region, one—General Mitchell Field—is presently (1975) classified as a scheduled air transportation—secondary facility; one—Racine Commercial Airport—is classified as a basic transport facility; one—the Johnson Wax Heliport in Racine—is classified as a heliport facility; one—the Edgewood Air Seaplane Base in Walworth County—is classified as a seaplane base facility; four—Kenosha Municipal, Timmerman Field, West Bend Municipal, and Waukesha County—are classified as general utility facilities; and the remaining 38 airports are classified as basic utility or lower facilities.

For purposes of airport system planning in southeastern Wisconsin, the basic utility classification was further subdivided in order to identify those airports not capable of

¹Primary scheduled air transport facilities are those airports served by commercial air carriers which together serve at least one million enplaning passengers annually; secondary scheduled air transport facilities are those airports served by commercial air carriers which together serve from 50,000 to one million enplaning passengers annually; and feeder scheduled air transport facilities are those airports served by commercial air carriers which together serve less than 50,000 enplaning passengers annually. General transport facilities are those airports capable of accommodating the heaviest multi-engine, including turbojet, aircraft in the general aviation fleet, including such aircraft as the DC-9. Basic transport facilities are those airports capable of accommodating the medium-weight multi-engine, including turbojet, aircraft in the general aviation fleet, including such aircraft as the Learjet. General utility facilities are those airports capable of accommodating the lighter weight multi-engine and single engine aircraft in the general aviation fleet, which excludes all jets. Basic utility facilities are those airports capable of accommodating the lightest aircraft in the general aviation fleet, generally including only single engine aircraft. STOLports are those aviation facilities specially designed to accommodate "short take-off and landing" aircraft. Heliports are those aviation facilities specially designed to accommodate vertical takeoff and landing aircraft. Seaplane bases are those aviation facilities specially designed to provide service to aircraft and capabilities to land and take off from water.

meeting minimum standards specified for such airports. These three subcategories were termed basic utility stage II, basic utility stage I, and less than basic utility stage I. Three of the 38 basic utility airports were subclassified into the basic utility stage II class, and three of the 38 basic utility airports were subclassified into the basic utility stage I class. The remaining 32 basic utility airports were subclassified into the less than basic utility stage I category.

As already noted, the 46 airports in the Region may be classified by ownership. Nineteen of the 46 airports are privately owned and restricted to private use. Of the 27 airports open to public use, including one air carrier airport, one seaplane base, and 25 general aviation airports, only eight are publicly owned and operated. These eight airports include Kenosha Municipal in Kenosha County, owned and operated by the City of Kenosha; General Mitchell Field and Timmerman Field in Milwaukee County, owned and operated by Milwaukee County; Burlington Municipal in Racine County, owned by the City of Burlington; East Troy Municipal in Walworth County, owned by the Village of East Troy; Hartford Municipal in Washington County, owned by the City of Hartford; West Bend Municipal in Washington County, owned by the City of West Bend; and the Waukesha County Airport in Waukesha County, owned by Waukesha County. The eight publicly owned and operated airports include one scheduled air carrier, four general utility, and three basic utility airports. All of the publicly owned airports except East Troy Municipal provide year-round use reliability with paved and lighted runways. All but the East Troy and Hartford Municipal Airports provide some form of instrument landing capability.

Data on the relationship of each airport to the regional arterial street and highway system indicate that 22 of the 46 airports are directly served by arterial streets or highways and that an additional 15 airports are located within one mile of an arterial street or highway. Furthermore, it was found that only three arterial facilities serving as airport service roads are presently carrying traffic volumes which exceed the design capacity of the road. General Mitchell Field is the only airport in the Region presently provided with direct intraurban transit service. General Mitchell Field is also served by interurban bus service, including bus service to Chicago's O'Hare Field. Local bus routes also exist in the vicinity of Timmerman Field and the Racine Commercial Airport, but these routes do not provide direct service to the airport facilities.

Basic information regarding the regional airspace and air traffic control system and aircraft activity within this system was also collected and analyzed in the study. This study of air traffic activity in the controlled airspace of southeastern Wisconsin focused upon the en route and airport related controlled airspace and air traffic control systems to determine if air traffic loadings or aircraft operational restrictions existed which could have an adverse effect upon the operation of the regional airports. The en route airspace environment of southeastern Wisconsin is only a portion of a larger regional airspace structure, including service of the Chicago metropolitan area. From analysis of this airspace structure, it was

concluded that en route air traffic density in southeastern Wisconsin is moderately heavy and will require continuing evaluation to assure that saturation is not reached during periods of heavy operation. If necessary, traffic pressure could be relieved by restructuring the en route system to provide bypass routes around the congested area.

Airport related controlled airspace, or that controlled airspace normally associated with arrival and departure patterns of aircraft operations under either visual flight rules (VFR) or instrument flight rules (IFR) within southeastern Wisconsin, was quantitatively analyzed to identify any airspace restrictions upon airport capacity which could be attributed to airspace interaction between airports in and immediately adjacent to the Region. Air traffic flow diagrams were prepared to depict close-in arrival and departure procedures of the seven IFR general aviation and one air carrier airport within the Region, plus the general aviation airports in two contiguous counties in Illinois and Wisconsin. Airport related airspace restrictions were found to exist, and act to effect some reduction in capacity for Timmerman Field, General Mitchell Field, Racine Commercial, Burlington Municipal, Kenosha Municipal, and Playboy Airports. Airspace restrictions which may affect airport capacity of these six airports can be attributed to conflicts between arrival and departure paths. It was determined, however, that these conflicts can be alleviated through changes in the approach and departure courses and/or glide slopes used in takeoff and landing.

Inventories conducted under the study revealed that there were about 1,100 aircraft permanently based at the 46 airports within the Region in 1971. Nearly 800 of these aircraft, or about 75 percent of the total, were based at the eight publicly owned and operated airports in the Region. The study also included examination of the composition of the present aircraft fleet and an assessment of the probable impact of current aircraft research and development programs on that composition. This assessment generally concluded that the aircraft likely to come into use within the Region in the foreseeable future can be expected to be somewhat faster, quieter, and have lower operating costs than at present. It is unlikely, however, that the anticipated changes in the aircraft fleet will substantially affect terminal needs.

Existing Air and Air-Related Travel Habits and Patterns

One of the central concepts underlying all transportation planning efforts is that travel is an orderly, regular, and measurable occurrence evidenced by recognizable patterns. Accordingly, an inventory was conducted under the regional airport system planning program for southeastern Wisconsin of all air and related ground transportation movements within the Region to discover those patterns and disclose those aspects which demonstrate a high degree of repetitiveness. Knowledge of existing air travel habits and patterns is essential in order to provide an understanding of the probable future demand for air transportation and related facilities. In addition to collecting and collating all pertinent existing data from secondary sources, three types of personal interview air travel surveys were conducted: a commercial enplaning passenger survey, a general aviation airport pilot survey, and a general aviation airport user survey.

The commercial enplaning passenger survey was conducted at General Mitchell Field in Milwaukee County, the Region's only air carrier airport. This inventory indicated that five certificated air carriers served the Southeastern Wisconsin Region through General Mitchell Field in 1971. These included Eastern Air Lines, Inc.; North Central Airlines, Inc.; Northwest Airlines, Inc.; Ozark Air Lines, Inc.; and United Airlines, Inc. Of these, North Central, Northwest, and United were the most important carriers in terms of routes authorized and passenger traffic carried to and from General Mitchell Field. A comparison of air carrier service and passenger demand between cities served from General Mitchell Field indicated that the quality of service provided appeared to be low in comparison to demand between Milwaukee and Kansas City, Los Angeles, Pittsburgh, and San Francisco.

A survey of total aircraft operations indicated that four airports within the Region—General Mitchell Field, Timmerman Field, Waukesha County Airport, and Kenosha Municipal Airport—together accounted for over half of the total landings and takeoffs on an average weekday, nearly 80 percent of all "touch and go" flight training operations, and about 60 percent of all total local flights, that is, flights originating and ending at a single airport. In terms of total aircraft operations, General Mitchell Field was found to be the most heavily used airport, with Timmerman Field having the highest number of "touch and go" flight training operations.

The ground travel time of enplaning passengers at General Mitchell Field was found to average 23 minutes, with 78 percent of the originating passengers traveling 30 minutes or less and over 90 percent traveling 40 minutes or less to reach the airport. The average time that pilots spent in traveling on the ground to and from the general aviation airports was found to be only 16 minutes, with 85 percent traveling 30 minutes or less to reach an airport. General aviation passengers were found to be within 13 minutes average ground travel time of the general aviation airports, and nearly 90 percent traveled 30 minutes or less. Over 90 percent of the general aviation airport users surveyed within the Region traveled 20 miles or less to reach the airport.

The surveys revealed that about 35 percent of all enplaning air carrier passengers in the Region were traveling on work and work-related business, with an additional 32 percent of the enplaning air carrier passengers traveling for social or recreational purposes. The surveys further revealed that with respect to general aviation passengers, about 30 percent were traveling for work and work-related business, with about 50 percent of general aviation passenger trips conducted solely for social or recreational purposes.

The socioeconomic characteristics of commercial air passengers and the general aviation pilots and passengers were found to be remarkably similar. Over 70 percent of the total enplaning passengers at General Mitchell Field were male, 75 percent of the passengers using general aviation transport were male, and 98 percent of the general aviation pilots were male. The median age of airline passengers, general aviation passengers, and pilots was

found to be about 41 years. The median annual household income of the air transportation system users was found to range from about \$15,700 for pilots to \$16,650 for enplaning commercial airline passengers and to \$18,650 for general aviation passengers.

The special inventories also provided important guidelines in the establishment of objectives and standards for the development of an effective and efficient air transportation system for the Region. In general, the surveys indicated that the existing air transportation system primarily serves the needs of residents of the Region, and that in order to effectively meet these needs, the regional airport system should be designed so that ground travel times and distances from user residences to airports are kept to within 30 minutes and 20 miles. This would maintain a level of service that is presently provided to approximately 85 percent of all air transportation service users within the Region.

Legal, Institutional, and Financial Resource Base

Legal, institutional, and financial resource constraints must also be considered in airport system planning, since these factors will influence the nature and timing of recommended plan implementation measures, as well as the practicability of the system plan itself. Accordingly, an inventory was conducted under the study of the existing legislative, administrative, and financial resource factors affecting airport system development. In general, these inventories found that public airport development in the Region involves a complex web of federal, state, and local activity. The local unit of government owning or desiring to sponsor airport facility development must, under the provisions of the Wisconsin Statutes, look to the Wisconsin Department of Transportation, Division of Aeronautics, as well as the U. S. Department of Transportation, Federal Aviation Administration, for both financial and technical assistance.

The Wisconsin Statutes give full authority to all counties, cities, towns, and villages to acquire, own, and operate airports; to issue bonds to finance airport development; to make reasonable rules and regulations for the use of airports; and to charge fees to pay for the operating costs thereof. Of the eight publicly owned airports currently in the Region, six are under the direct control of committees comprised entirely of elected public officials. These six airports are General Mitchell Field and Timmerman Field in Milwaukee County, Burlington Municipal Airport in Racine County, East Troy Municipal Airport in Walworth County, Hartford Municipal Airport in Washington County, and the Waukesha County Airport. The West Bend Municipal Airport in Washington County is governed by a committee comprised of elected officials and appointed citizens, and the City of Kenosha has delegated the responsibility for airport development and operation to an Airport Commission appointed by the Mayor and approved by the Council. Three of the airports—Kenosha Municipal, General Mitchell Field, and Timmerman Field—are managed and maintained directly by the governmental agencies, whereas the remaining five publicly owned airports are managed by fixed base operators under terms of lease agreements with the units of government.

Legislation governing airport development, specifically with respect to land use development near airports, clear zone protection, noise abatement, and air pollution abatement, is limited. Special airport zoning ordinances restricting the height of aeronautical hazards in the vicinity of the airport have been enacted by all of the local units of government responsible for airport operation in the Region. As yet, there are no requirements that airport operations conform to any noise or air pollution standards. The U. S. Environmental Protection Agency is, however, presently formulating standards of this type.

The Federal Airport and Airway Development Act of 1970 establishes a separate airport and airway trust fund for aviation improvement and further establishes user charges to generate revenues for the fund. Since 1972, such aids have been made available at a rate of 75 percent of eligible project cost. Under this program the amount of federal aid available for airport development in Wisconsin has more than tripled over the amount of such aid available prior to passage of the act. Wisconsin Statutes, through revenues derived from airline property taxes and aircraft registration fees, provide for a state airport development aid program limiting state aid to no more than 50 percent of the nonfederal share of costs. However, state funds available for projects have averaged only 12 percent of the total project cost during the ten-year period ending in 1971.

The eight publicly owned airports in the Southeastern Wisconsin Region together expended an average of about \$1.27 million annually for operation, maintenance, and the local share of capital expenditures during the five-year period 1966-1970, and received an average of about \$1.93 million annually as revenue from their airport operations during this same period. The amounts expended do not include an allowance for depreciation of capital investment. Only at General Mitchell Field and Timmerman Field did revenues exceed expenditures as reported in the statement for this five-year period.

AIRPORT RELATED DEVELOPMENT OBJECTIVES

The task of formulating objectives and standards to be used in plan design and evaluation is a difficult but necessary part of the planning process. Regional plan elements must advance development proposals which are physically feasible, economically sound, aesthetically pleasing, and conducive to the promotion of public health and safety. Agreement on development objectives beyond such generalities, however, becomes more difficult to achieve because the definition of specific development objectives and supporting standards inevitably involves value judgments. Nevertheless it is essential to state such objectives for the development of the regional airport system and to quantify them insofar as possible through standards in order to provide a basis for the design, test, and evaluation of alternative regional airport system plans. Moreover, in order to assure that regional airport system development will be compatible with regional land use development and with the development of other functional systems such as surface transportation and utility systems, the

regional airport system development objectives must be prepared within the context of other regional development objectives. Therefore, the regional airport system development objectives and supporting principles and standards set forth in this report were based upon previously adopted regional development objectives as established under the regional land use and transportation planning programs, supplemented as required to meet the specific needs of the regional airport system planning program.

Nine new development objectives, together with supporting principles and standards, were formulated under the regional airport system planning program. These nine new development objectives are:

1. An integrated regional airport system which will effectively serve the existing and probable future inter- and intra-regional air travel demand with appropriate types and adequate levels of service; alleviate air traffic congestion; and reduce travel times between the Region and its component parts and other regions.
2. A regional airport system which will minimize accident exposure and provide increased travel safety.
3. A regional airport system which will be compatible with the existing land use patterns and adopted land use plans.
4. A regional airport system which will be properly related to the underlying and sustaining natural resource base and which will minimize the existing and potential adverse effects upon that natural resource base.
5. A regional airport system which will promote flexibility, allowing air transportation service to be readily adapted to changes in the demands for air transportation and changes in aviation technology.
6. A regional airport system which will be properly related to and integrated with the supporting ground transportation system.
7. A regional airport system which will be properly related to the regional public utility systems, permitting efficient and economic provision of necessary public utility services to airport and airport-related land use development.
8. A regional airport system which will be located and designed to maintain a high aesthetic quality, with proper visual relation of the facilities to the landscape and cityscape.
9. A regional airport system which will be economical and efficient, meeting all other objectives at the lowest possible cost.

Together with the land use and transportation facility development objectives previously established under related Commission work programs, these new develop-

ment objectives and their supporting principles and standards provided the basic framework within which alternative regional airport system plans were formulated and evaluated, and a recommended regional airport system plan selected.

AIR TRANSPORTATION DEMAND FORECASTS AND ANALYSES

Forecasts of aviation demand provide a basis for determining the extent of air transportation facility needs and for the scheduling of airport facility improvements. In the regional airport system planning program for southeastern Wisconsin, forecasts were prepared of the following major components of aviation demand: commercial passenger enplanements; commercial cargo tonnage; air mail tonnage; air carrier movements; diversion to or from other modes of travel and/or geographic regions; general aviation activity; and military aviation activity. An initial set of such forecasts was prepared midway through the study which was based, in part, upon population and economic activity level forecasts prepared in 1963, which envisioned a year 1990 regional population of about 2.7 million persons, and in part upon independently prepared national forecasts of aviation activity. This set of forecasts was used in the preparation of alternative regional airport system plans and in the preparation of an initial recommended regional airport system plan. As the study was being completed, however, certain significant changes in national and regional demographic and economic conditions were becoming evident. Such changes included dramatic decreases in birthrates, rapid price inflation, sharp declines in economic activity and employment, and rapidly rising energy costs, including costs of aviation fuel, with attendant rapidly rising costs of aircraft operation. Analyses indicated that these changes would affect the original regional population and employment forecasts and the initial aviation demand forecasts.

Accordingly, and in full coordination with the regional land use-surface transportation plan reevaluation effort which was being concurrently conducted by the Commission, new forecasts of the components of aviation demand for the base year 1995 were prepared based upon new regional population and economic activity forecasts and new national forecasts of aviation activity. The new forecasts envisioned a year 2000 regional population of 2.2 million persons.²

²The new regional population forecast of about 2.2 million persons relates directly to the plan design year 2000 selected for the new regional land use and regional surface transportation plans. The revised forecast of the components of aviation demand prepared under the regional airport system planning program were for the base year 1995 in order to provide a 20-year plan implementation period from the anticipated completion year of the regional airport system plan as required Federal Aviation Administration standards. Thus, the 1995 regional population forecast to which all of the aviation demand figures relate is about 2.1 million persons.

The revised forecast of the components of aviation demand utilized in the preparation of the recommended regional airport system plan may be summarized as follows:

1. Annual air carrier passenger enplanements may be expected to increase from a 1971 level of about 980,000 to a 1995 level of about 2.8 million passengers. These totals include both originating and transferring passengers. Originating passengers are forecast to increase from a 1971 level of about 730,000 to about 2.3 million in 1995.
2. Air freight and air express cargo are forecast to increase from about 14,000 tons in 1971 to about 275,500 tons in 1995, the forecast level constituting about 1 percent of the forecast national total of air cargo movements. Air mail is forecast to continue to remain at slightly less than 1 percent of the national total, increasing from nearly 6,000 tons in 1971 to about 25,000 tons in 1995.
3. Air carrier operations are forecast to increase from about 72,000 annually in 1971 to slightly over 100,000 in 1995. These forecast operations are expected to comprise about 93,000 operations by aircraft in scheduled and nonscheduled certificated air carrier service, about 2,300 operations by aircraft in supplemental nonscheduled air carrier service, and about 4,700 other air carrier aircraft operations not in revenue service.
4. No significant change in the diversion to or from other modes of travel or other airports was assumed in the preparation of the forecasts. Continued diversion to Chicago's O'Hare Field of from 20 to 25 percent of the total air carrier passenger demand generated within the Region was thus assumed.
5. A potential demand of from 300,000 to 400,000 enplaning passengers annually is forecast for vertical and/or short takeoff and landing air carrier service. Based upon this forecast level of demand, it was concluded that the provision of a special vertical and/or short takeoff and landing airport facility in the Region would not be warranted.
6. General aviation aircraft based within the Region are forecast to increase from about 1,100 in 1971 to about 3,500 in 1995. Annual general aviation aircraft operations are forecast to increase from about 770,000 in 1971 to about 2.86 million in 1995. Accordingly, a total of about 7,800 general aviation aircraft operations can be expected to take place within the Region on an average weekday in 1995, as compared to a total of about 2,100 such operations in 1971. General aviation in the Region is expected to serve about 3.2 million passengers annually in 1995, compared with about 800,000 annually in 1971.

7. Military activity in the Region, which currently is confined to General Mitchell Field and the West Bend Municipal Airport and which comprised about 1 percent of the total aircraft activity in the Region in 1970, is expected to remain at about 15,000 annual operations through 1995.

Under the regional airport system planning program, demand distribution models were developed in order to distribute the regional air transportation demand forecasts to about 600 traffic analyses zones within the Region. Two such demand distribution models were developed, one to distribute airline passenger demand and the other to distribute general aviation demand. The data used to calibrate the air carrier passenger demand distribution model were derived primarily from the Commission's surveys of enplaning passengers at General Mitchell Field. Resident address information on regional general aviation aircraft owners was used to calibrate the general demand distribution model.

Two distributions were made in each case, one based upon assumptions that the Region would develop substantially in accord with the adopted regional land use plan, and another—for comparison purposes—based upon the assumption that the Region would develop at variance with the adopted land use plan as indicated by the unplanned land use alternative prepared under previous Commission work programs. The demand distribution under the adopted regional land use plan conditions was used to develop, test, and evaluate alternative system plans. The recommended airport system plan ultimately developed was then tested against the air transportation service demand that would be expected to occur under the unplanned alternative in order to ascertain the viability of the recommended plan under quite different land use development conditions within the Region. This test indicated that the recommended airport system plan would serve the Region equally well should a land use pattern significantly different from that planned occur.

The forecast air passenger and general aviation demands as distributed through the application of the models were then scaled against the capacity of the existing air transportation facilities in the Region in order to identify system deficiencies. The capacity of each existing airport facility was computed from the landing area configuration using accepted engineering techniques. The result of this demand-capacity comparison indicated that:

1. General Mitchell Field and the 20 public use general aviation airports in the Region have sufficient landing area capacity to accommodate operations at current demand levels without excessive delays.³

³Initially, all of the 26 existing public use airports within the Region as inventoried in 1971, not including the one public use seaplane base, were considered for potential inclusion in the alternative system plans. Subsequently, five airports were eliminated from the list—Rainbow, Hales Corners, Aero Park, Mt. Fugi, and O'Leary—because these airports either offered poor expansion potential, had already been or were expected to be purchased and converted to other uses, or were no longer available for public use.

Figure 1
PROGRAM MANAGEMENT ORGANIZATION CHART

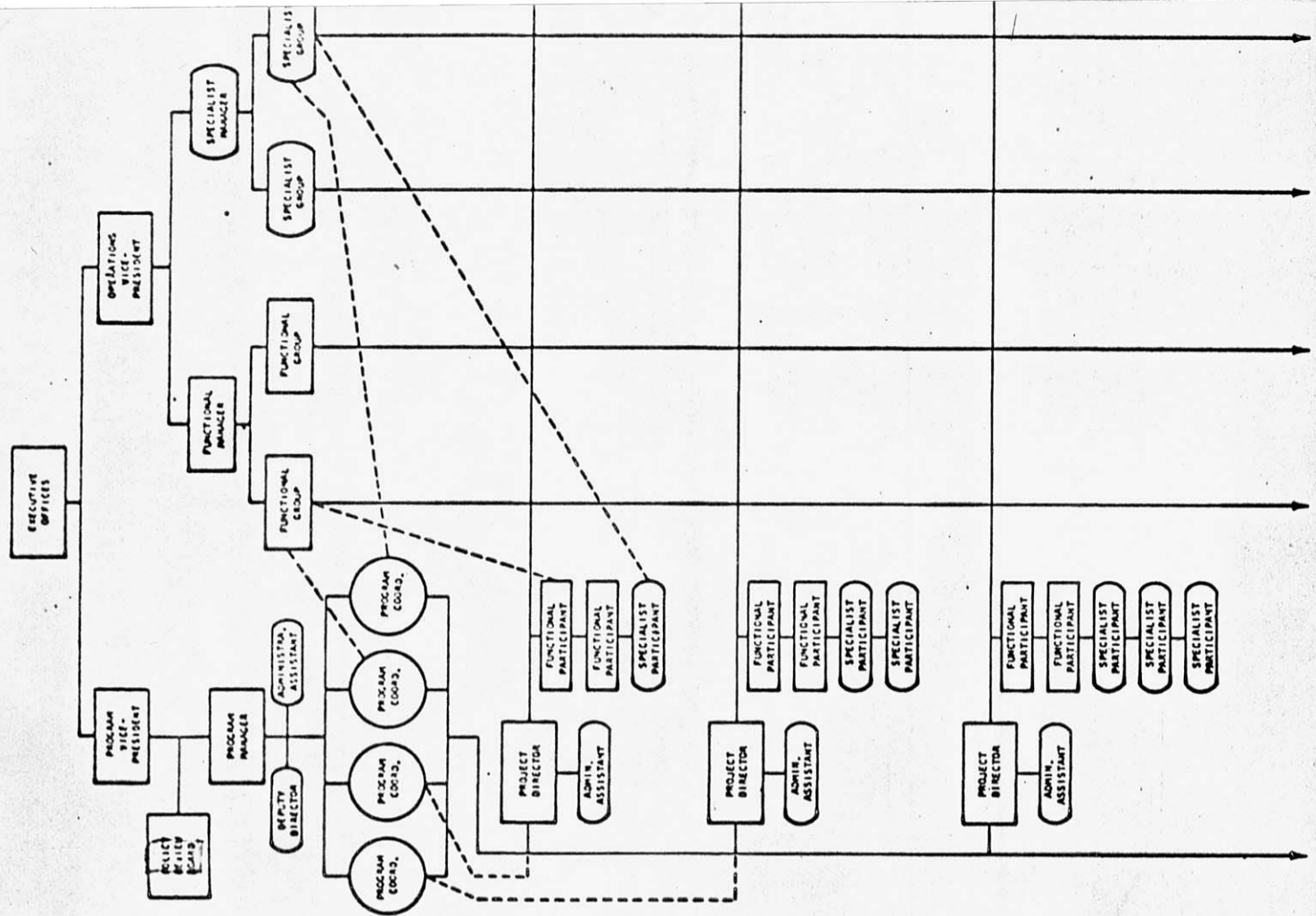
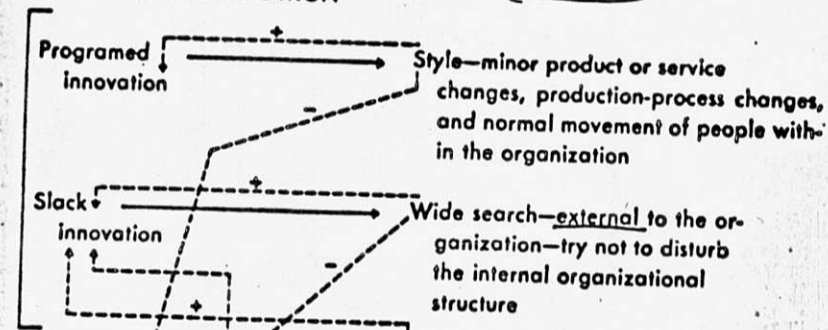


FIG. C

SUCCESSFUL ORGANIZATION



OLIN

TYPE OF INNOVATION	RADICALNESS
Products and services Production process Organizational structure People	Low Low Low Low
Products and services Production process Organizational structure People	Moderate and high Moderate and high Low Low
Products and services Production process Organizational structure People	Low Low and moderate Moderate Moderate
Products and services Production process Organizational structure People	Low, moderate, and high Moderate High High

FIG. 1.—General model of organizational search. Key: +, successful innovation; —, unsuccessful innovation

FIG. 1B

PROPOSED CAUSES AND EFFECTS

- Inputs and Outputs
- External inputs:**
Size and market structure
- Distress, relative deprivation
- Internal inputs:**
Slack
- Unprogramed goals
Subcultures, external affiliations
- Diversity in task structure
Self-actualizing personalities
Leadership style
Open communication
- Outputs:**
Product; process; structure; human
Routine; non-routine
Administrative; technical
Internal; external
Radicalness
Rate

Note.—Process is stimulus—conception—pro

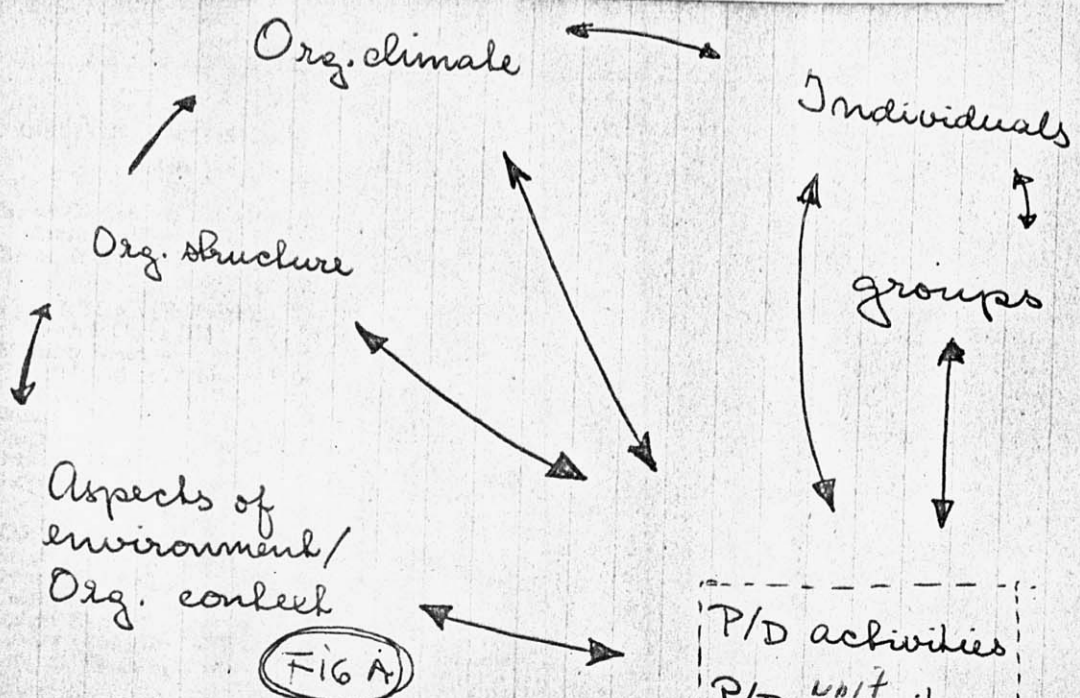


FIG. A

P/D activities
P/D unit

2. The capacity of the existing runway systems at General Mitchell Field and at five of the 20 public use general aviation airports within the Region—Waukesha County, Kenosha Municipal, Racine Commercial, Timmerman Field, and East Troy Municipal—may be expected to be exceeded by the anticipated future demand within the next 20 to 25 years.
3. The single existing air carrier airport in the Region—General Mitchell Field; the single existing basic transport airport in the Region—Racine Commercial; and the four existing general utility airports—Kenosha Municipal, Timmerman Field, West Bend Municipal, and Waukesha County—which must together accommodate the larger type of general aviation aircraft will not be spatially located within the Region to provide the airport facilities needed within the desired 30 minutes ground travel time of the residences of the owners of the larger type aircraft.
4. All of the 20 existing public use general aviation airports may be expected to be deficient with respect to paved tie-down area, hangar area, and terminal building area within the next 20 to 25 years.
5. The runway systems at 15 of the 20 public use general aviation airports within the Region have weather and seasonal-imposed operational limitations because these runway systems are not paved.

The results of the demand-capacity analyses also indicated that the probable future air carrier needs in the Region can be readily accommodated at a single air carrier airport. In addition, these analyses indicated that from six to eight basic transport airports designed to serve the business jet aircraft will be needed during the next 20 to 25 years, along with from five to seven general utility and basic utility airports designed primarily to meet the needs of the smaller propeller-driven, general aviation aircraft.

ALTERNATIVE REGIONAL AIRPORT SYSTEM PLANS

Under the regional airport system planning program for southeastern Wisconsin, a number of alternative regional airport system plans were designed, tested, and evaluated. Each of the alternative system plans was designed insofar as possible to meet the airport development objectives and supporting standards developed under the study as well as the forecast probable future demand for air transportation within the Region. Based upon the identified deficiencies in the existing airport system and an understanding of the characteristics of the unsatisfied demand, alternative regional airport system plans were identified through an evolutionary process involving successive iterations. Three complete sets and a total of 21 alternative airport system plans consisting of various combinations of airports were analyzed, including systems consisting of only existing publicly owned airports, of existing publicly and privately owned airports, of air-

ports located only within the Region, of airports located both in and beyond the Region, and of various combinations of proposed new airports in conjunction with all or some of the existing airports. Through this iterative process, alternative airport system plans were evolved which met the forecast demand at increasingly higher levels of service.

Based upon an initial review of 15 initial alternative regional airport system plans, the advisory committee selected a set of six alternative system plans for more comprehensive evaluation. These six alternatives included a "no build" system plan, prepared to evaluate the effects of not expanding the existing publicly owned airports nor developing any new publicly owned airports within the Region; and "ideal" system plan, prepared to identify a theoretically ideal configuration of airports to serve the needs of the air transportation users of the Region without regard to other considerations; an "ideal plan modified" system plan, prepared to evaluate a practical system plan closely approximating the theoretically ideal configuration; a "nonurban" system plan, prepared to evaluate the effects of locating airports in less intensely developed areas of the Region away from urban and urbanizing areas; a "no new sites" system plan, prepared to evaluate the effects of expanding only selected existing publicly and privately owned airports to accommodate the forecast demands; and a "relocated air carrier" system plan, prepared to evaluate the effects of relocating commercial air carrier service from General Mitchell Field.

The six alternative airport system plans were evaluated on the basis of their ability to satisfy the forecast demand for aviation service; on the potential impact upon the land use patterns and natural resource base of the Region; on the relationship to other regional development plan elements; and against the airport system development objectives and supporting standards. The evaluation process included extensive analyses and comparisons undertaken with respect to landing area demand/capacity relationships; direct capital, operating, and maintenance costs; user costs; environmental considerations; compatibility with other regional plan elements; and compatibility with regional airport system development objectives and supporting standards.

Because of certain policy issues raised by elected officials from within the Region during the course of the study, a separate evaluation of alternative air carrier airport locations was undertaken. Four alternative locations within and adjacent to the Region were considered for the single air carrier airport required to serve the forecast demand: General Mitchell Field, the existing regional air carrier airport; a new site located in northern Racine County west of IH 94; the site of the abandoned Richard I. Bong Air Force Base in northwestern Kenosha County; and a new site located in Jefferson County west of the Region along IH 94, the latter considered as a potential joint use facility for the Madison urban area and the Southeastern Wisconsin Region.

Initial analysis of these four alternative air carrier sites was based upon satisfaction of the originating passenger demand—the primary reason for provision of an air

carrier airport. The centroid of air carrier passenger demand expected to exist within the Region in 1990 was identified as a point in western Milwaukee County in the vicinity of the intersection of S. 114th Street and W. Layton Avenue in the City of Greenfield. An air carrier airport located on that site would minimize ground travel time and attendant costs for all originating passengers within the seven-county Region. General Mitchell Field is located less than eight miles from that regional centroid of air travel demand, while an air carrier airport located in northern Racine County would be about 15 miles from the centroid of public demand, and airports located at the abandoned Bong Air Force Base and in Jefferson County would be located 25 and 35 miles, respectively, from the centroid of demand.

Analyses of these four alternative sites further indicated that substantially increased diversion of in-Region generated air transportation demand to Chicago's O'Hare Field could be expected if the air carrier site was moved from General Mitchell Field to any of the other three sites. In addition, it was found that the total time spent in ground travel by the fewer passengers allocated to any of the three new alternative air carrier airport sites would exceed the amount of total ground travel time by passengers using General Mitchell Field. Thus, the three alternative sites to General Mitchell Field could be expected to serve a smaller portion of the Region generated air passenger demand and result in further increases in total ground travel time and associated costs than would continued use of General Mitchell Field.

The alternative airport site in Racine County was found to be the better of the three alternative sites in this respect in that it is located closest to the centroid of the demand and thus could be expected to experience lesser diversion to Chicago and would result in lesser ground travel time and cost than the other two alternatives. A major disadvantage of the abandoned Bong site is that it is not conveniently located with respect to the developing regional freeway system. A major disadvantage of the Jefferson County site is that it would be located between the two major urban areas of Madison and Milwaukee, and would thus place large concentrations of air passenger demand at the limits of desirable ground travel time to an air carrier airport. Improved high speed ground transportation to serve such isolated sites as the Jefferson County and the Bong airport sites was ruled impractical, since the provision of such transportation would require commitments of extensive financial resources to narrow transportation corridors to serve a very limited special purpose. Based upon this initial analysis, it was judged that only the Racine County site warranted further evaluation as a possible location for the regional air carrier airport.

The two remaining sites—General Mitchell Field and Racine County—were then compared in terms of landing area, demand/capacity, cost, and environmental considerations. With limited landing area improvements, General Mitchell Field, located nearer the center of regionally generated originating passenger demand, was found to have adequate capacity to meet the forecast air carrier demands under nearly all of the alternative system plans

considered. The cost to develop an alternative air carrier airport at the Racine site was estimated at about \$200 million, almost twice that found necessary to expand General Mitchell Field to accommodate the forecast passenger demands. While the analyses indicated that slightly more passengers would use General Mitchell Field than an airport located in northern Racine County because of the lesser ground travel time, the cost of ground travel to passengers using air carrier service is estimated to be about 80 percent less at General Mitchell Field than at the new air carrier site. The impact of noise from aircraft operations, however, may be expected to be more severe at General Mitchell Field than at the rural Racine County site.

RECOMMENDED REGIONAL AIRPORT SYSTEM PLAN

Based upon analyses of the many alternative regional system plans considered, a recommended regional airport system plan was developed to serve the aviation needs of southeastern Wisconsin over the next two to three decades. The recommended plan is comprised of a system of 14 airports and does not envision the development of any new airport sites within the Region. Eight of the 14 airports are currently publicly owned, with the remaining six currently privately owned and operated. The plan recommends that all eight of the Region's publicly owned airports undergo improvement during the plan design period, and further recommends that steps be taken to ensure the continued availability for public use and to improve four currently privately owned airports as important elements of the regional airport system. Two other private airports included in the system plan—the Playboy and Lake Lawn Lodge airports—were assumed to remain available for public use as private airports without any particular public action in order to accommodate the special aviation needs generated by and associated with recreational development in Walworth County.

In addition to including General Mitchell Field as the only scheduled air transport airport within the Region, the plan includes five basic transport airports—the Burlington Municipal, Kenosha Municipal, Racine Commercial, Waukesha County, and West Bend Municipal Airports; four general utility airports—Gruenwald, Hartford Municipal, Ozaukee, and Timmerman Field Airports; two basic utility airports—East Troy Municipal and Sylvania Airports; and the two basic utility-recreational airports at Playboy and Lake Lawn Lodge noted above. The recommended system of 14 airports located within the seven counties available for public use contrasts to the 26 public use airports presently located within the Region which include one scheduled air transport airport, one basic transport airport, four general utility airports, and 20 basic utility or lower airports having varying levels of service capability.

While some of the existing privately owned airports may be expected to continue to operate through the planning period and may, in fact, be expanded to serve a growing portion of the total demand for aviation service, the recommended system plan does not depend upon the

continued availability of these private airports nor does it preclude their continued operation. To the extent that these private airports remain in operation, the aviation demand at the 14 airports included in the plan may be expected to be reduced and the need for improvements delayed. The plan does define, by service capability, the minimum number of airports considered necessary to accommodate the probable future aviation demand within the Region.

Included in the plan is a description of the type and extent of airport facility development needed to improve each airport from its present operational capability to the airport classification recommended in the regional system plan in order to adequately accommodate the forecast aviation demand. Improvements are recommended, as appropriate, with respect to the land or site location, area, and configuration; the aircraft operational area, including runways, aircraft parking aprons, taxiways, lighting, and navigation aids; the terminal and hangar facilities; the supporting transportation access facilities; and the supporting utilities. In addition to identifying onsite airport improvements necessary to accommodate the aircraft demand, restrictions to aircraft operations, generalized land use plans, and height zoning restrictions in the vicinity of the airports have been recommended, all in an effort to eliminate or reduce the incompatibilities between some land uses and activities and airport and aircraft operations.

The following is a brief summary of the major airport improvement recommendations for each of the airports included in the system plan, as that plan was presented at a series of public meetings and hearings:

1. Burlington Municipal Airport—The major improvements required to expand the Burlington Airport from a basic utility to a basic transport airport include the construction of an 1,800-foot runway extension in order to provide a primary runway having a length of 5,400 feet; the construction of a paved 4,300-foot secondary crosswind runway; the construction of an associated taxiway system; the installation of an air traffic control tower, a precision instrument landing and approach lighting system and other lighting and navigation aids; and the acquisition of additional land to accommodate the airport site improvements and clear zone protection.

2. East Troy Municipal Airport—The major improvements required to expand the East Troy Municipal Airport from a less than basic utility airport classification to a proposed basic utility airport classification include the construction of a paved 3,200-foot primary runway; the construction of a paved 2,560-foot secondary crosswind runway; the installation of lighting and other navigation aids; and the acquisition of additional land to accommodate the airport site improvements and clear zone protection.

3. General Mitchell Field—The major improvements required at the only air carrier airport to serve the Region in the system plan include the construction of runway extensions; the realignment of the northeast-southwest general aviation runway; renovation and expansion of the airline passenger terminal area, including a proposed customs facility to accommodate international flights; construction of a new cargo terminal area; and the acquisition of land to accommodate runway clear zone protection and to eliminate land use conflicts in the most severe noise impact areas. In addition, the plan recommends, as a noise abatement measure, that jet aircraft not be permitted to use the proposed realigned general aviation runway until the entire fleet of general aviation jet aircraft is equipped with the new quieter types of engines. In addition, continued restrictions to turning movements until aircraft have reached a point on runway headings four or more miles beyond the airport boundaries, as well as limitations upon jet traffic in late evening and early morning hours, are recommended.

4. Gruenwald Airport—The major improvements required to expand this less than basic utility, currently privately owned airport to a proposed general utility airport classification include the construction of a 4,000-foot primary runway, construction of a 3,200-foot secondary crosswind runway and associated taxiways; the installation of an air traffic control tower, a nonprecision instrument landing system, and lighting and other navigation aids; and the acquisition of additional land to accommodate airport site improvements and clear zone protection.

5. Hartford Municipal Airport—The major improvements required to expand this existing basic utility airport to a proposed general utility airport classification include the construction of an 800-foot runway extension to provide a primary runway having a length of 3,800 feet; construction of a paved 3,000-foot secondary crosswind runway; construction of an associated taxiway system; installation of a traffic control tower, a nonprecision instrument landing approach and other lighting and navigation aids; and acquisition of additional land to accommodate the airport site improvements and clear zone protection.

6. Kenosha Municipal Airport—The major improvements required to expand this existing general utility airport to the proposed basic transport airport classification include the construction of a 7,000-foot runway; construction of a secondary runway extension; construction of an associated taxiway system; installation of an air traffic control tower, a precision instrument landing and approach lighting system, and other lighting and navigation aids; and acquisition of additional land to accommodate airport site improvements and clear zone protection.

tection. Nonstandard air traffic operational patterns are recommended to minimize the adverse impact of aircraft activity on nearby residential development.

7. Ozauxee Airport—The major improvements required to expand this less than basic utility, currently privately owned airport to a proposed general utility airport classification include the construction of a new north-south primary runway, construction of a new east-west secondary crosswind runway and associated taxiways; the installation of an air traffic control tower, a nonprecision instrument landing system, and other lighting and navigation aids; and acquisition of additional land for airport site development and clear zone protection.
8. Racine Commercial Airport—The major improvements required to improve this currently privately owned, less than basic transport airport include the construction of parallel taxiways; the installation of an air traffic control tower, a precision instrument landing system, and lighting and other navigation aids; and the land acquisition for clear zone protection and street relocation to obtain full use of existing runways. The plan further recognizes that because of urban land uses surrounding this airport site, changes to aircraft flight patterns cannot be used effectively to reduce noise impact. However, the plan does recommend that all “touch and go” flight training activities be discouraged at this urban airport and be diverted to such nonurban airports as East Troy, Sylvania, and Gruenwald.
9. Sylvania Airport—The major improvements required to expand this currently privately owned, less than basic utility airport to a proposed basic utility airport include widening and extensions of the existing runway; construction of a paved secondary crosswind runway; and acquisition of additional land to accommodate the airport site improvements and clear zone protection. To construct a north-south runway it will be necessary to terminate the existing town road north-west of the airport.
10. Timmerman Field—This airport is recommended to remain classified as a general utility airport and, therefore, not normally used by jet aircraft. A Milwaukee County ordinance currently prohibits jet aircraft traffic at this airport. The major improvements recommended consist of widening existing paved runways and paving existing turf runways, the installation of additional lighting and navigation aids, and the acquisition of land interest for clear zone protection. Since the airport is already surrounded by intense urban development, no changes to existing air traffic operating patterns are considered to be effective to alleviate noise. However, the plan does recommend that all “touch and go” flight training activities be discouraged at this urban airport and

be diverted to such nonurban airports as the Hartford and West Bend Municipal Airports.

11. Waukesha County Airport—The major improvements required to expand this general utility airport to a proposed basic transport airport classification include the construction of a 1,400-foot runway extension to provide a primary runway length of 5,600 feet; realignment of CTH TJ to permit runway extension; construction of a 3,300-foot parallel runway; provision of an improved air traffic control tower; installation of a precision instrument landing and approach lighting system and other lighting and navigation aids; and acquisition of additional land to accommodate the airport site improvements and clear zone protection. Nonstandard air traffic operational patterns are recommended to minimize the adverse impact of aircraft activity on adjacent residential development. In addition, the plan recommends that all “touch and go” flight training activities at this urban airport be discouraged and be diverted to such nonurban airports as the Hartford Municipal and East Troy Municipal.
12. West Bend Municipal Airport—The major improvements required to expand this general utility airport to a proposed basic transport airport include the construction of a 1,600-foot extension to the primary runway to provide a runway length of 5,500 feet; widening and strengthening of other runways and taxiways; installation of an air traffic control tower, a precision instrument landing and approach lighting system, and other lighting and navigation aids; and the acquisition of additional land to accommodate the airport site improvements and clear zone protection.

The full capital cost of implementing the regional airport system plan as described herein is estimated at about \$146 million. Because the initial financial analysis indicated that it was unlikely that the local revenue requirements for full implementation of the plan could be met, the airport facility plan elements recommended at each airport were reviewed to identify potential deferrals in plan implementation that would reduce system plan costs with a minimum adverse impact upon airport system runway capacity or safety. Examples of the facility improvements considered for deferral beyond the plan implementation period to 1995 include the following:

1. Increasing the size of the terminal/airport administration buildings at the 11 general aviation airports. By initially constructing smaller terminal buildings, the total estimated capital cost of the recommended plan could be reduced by about \$3.2 million.
2. Increasing the size of the automobile parking facilities provided at the 11 general aviation airports. By initially providing fewer parking spaces, the total estimated capital cost of the recommended plan could be reduced by about \$195,000.

3. Increasing the aircraft parking apron areas at the 11 general aviation airports. By initially providing smaller apron areas, the total estimated cost of the recommended plan could be reduced by about \$1.3 million.
4. Constructing the new runway at the Kenosha Municipal Airport to 7,000 feet. Initial runway construction to 5,600 feet would provide basic transport standards, and while land for the eventual construction of this runway extension should be acquired as soon as practicable, deferral of the runway extension to 7,000 feet could reduce the total cost of the recommended plan by \$655,000.
5. Paving turf runways, widening the existing paved runways, and obtaining additional clear zone land interest at Timmerman Field. Deferral of these improvements reduced the total estimated cost of the plan by about \$2.3 million.
6. Purchasing clear zone land and the relocation of Green Bay Road in order to permit full runway use at Racine Commercial Airport. By deferring these land acquisitions, cost savings of about \$1.9 million can be effected.
7. Constructing paved secondary runways at the Gruenwald and Ozaukee Airports. While land for this runway construction should be acquired as soon as practicable, deferral of the runway improvements can effect cost savings of about \$1.0 million.

Thus, the suggested deferrals could reduce the total capital cost of the recommended plan by nearly \$10.7 million, and would bring the capital cost of the plan implementation more nearly into accord with the anticipated availability of local financing. It should be clearly understood, however, that all of the improvements listed above would be desirable and would contribute in substantial manner toward meeting the forecast air transportation demand in the Region at the recommended standards. Accordingly, should local funds become available to carry out these additional improvements as indicated, such improvements should proceed as rapidly as possible.

Assuming that the above-listed recommended facility improvements are deferred to beyond the plan implementation period to 1995, the capital cost of implementing the regional airport system plan during the next 20 years is estimated to be about \$135.6 million, including \$39.3 million for improvements considered to be self-amortizing.⁴ Thus, the average annual capital cost over the 20-year plan implementation period 1975-1995 requiring public funding is about \$4.8 mil-

⁴The self-amortizing improvements include hangars at 11 general aviation airports—\$19.8 million; automobile parking structure at General Mitchell Field—\$16.7 million; and cargo terminal area at General Mitchell Field—\$2.8 million.

lion. Of this average annual capital cost, about \$2.0 million would be eligible for federal airport development aids, and about \$400,000 for state airport development aids under the recommendations contained in the plan. The remaining \$2.4 million would represent local capital requirements. The federal funding requirements for plan implementation are within the amounts which can be expected to be made available annually for airport development in southeastern Wisconsin. However, the state funding requirements for plan implementation are beyond the anticipated amounts which can be expected to be made available annually by the State of Wisconsin for airport development in the seven-county Region. The plan recommends that the current statutory limitation of \$35,000 of state aid participation in eligible airport building projects be changed to a permissible rate of 50 percent state participation in such building projects.

The local capital funding requirement for plan implementation of about \$2.4 million annually consists of about \$280,000 per year for improvements at the 11 general aviation airports, and about \$2.1 million annually for improvements at General Mitchell Field, primarily for the expanded passenger terminal facility. It should be pointed out that General Mitchell Field does generate revenues which could serve to effectively reduce this annual cost by about \$720,500. However, the \$280,000 per year required at the 11 general aviation airports is nearly four times that spent annually for capital investment by local units of government at the seven publicly owned general aviation airports over the past decade; and the \$1.4 million total local funding requirement at General Mitchell Field approximates the amounts spent annually on capital improvements in recent years.

PUBLIC REACTION TO RECOMMENDED PLAN

As outlined in Chapter II of this report, the general approach utilized by the Commission in the selection of a recommended plan from among alternatives is to proceed through the use of advisory committees, inter-agency meetings, public informational meetings, and public hearings to a final decision and plan adoption by the Commission in accordance with the provisions of the state enabling legislation. Because plan selection and adoption necessarily involve both technical and non-technical policy determinations, such selection and adoption must involve the various governmental bodies, technical agencies, and private interest groups concerned. Such involvement is particularly important in light of the advisory role of the Commission in shaping regional development. The use of advisory committees, public informational meetings, and public hearings appears to be the most practical and effective procedure available for attaining the necessary involvement of elected and appointed public officials and interested citizens in the planning process and of eventually arriving at agreement on development plans which can be jointly adopted and cooperatively implemented.

As an integral part of the regional airport system planning program, a series of informational meetings and a formal public hearing were held within the Region. The purpose

of these meetings and hearing was to more fully inform public officials, private airport owners and operators, and interested citizens about the findings and preliminary recommendations of the regional airport system planning program, and to obtain public reaction to the regional airport system plan recommended by the staff and by the Technical Coordinating and Advisory Committee. The meetings and hearing were widely announced with letters of invitation being sent to all concerned local, state, and federal public officials; to private airport owners and operators; to interested citizen groups; and to about 2,000 individuals and organizations included on the Commission Newsletter mailing list. In addition, news releases were issued to all daily and weekly newspapers and radio and television stations serving the Region. A summary of the inventory, analysis, and forecast findings; of the airport system development objectives and standards; of the alternative airport system plans considered; and of the recommended preliminary regional airport system plan was presented in SEWRPC Newsletter Volume 15, No. 3,

which was widely disseminated throughout the Region prior to and at the meetings and hearing. A verbal briefing on the findings and preliminary recommendations of the regional airport system planning program was given at each of the informational meetings and again at the public hearing, together with data on the costs and means for implementation of the recommended preliminary plan.

The informational meetings, including one special informational meeting for public officials and private airport owners and operators and four informational meetings for the general public, and the public hearing were held in accordance with the schedule listed below; and minutes of both the informational meetings and the public hearing, together with documentation of the notification procedures utilized by the Commission, totaling 479 pages in length, were published in November 1975 and transmitted to the Technical Coordinating and Advisory Committee and the Commission for review and consideration prior to final adoption of the recommended plan.

Informational Meeting for Public Officials and Private Airport Owners and Operators

<u>Presiding Agency</u>	<u>Place of Meeting</u>	<u>Date and Time of Meeting</u>
Southeastern Wisconsin Regional Planning Commission	Milwaukee County Courthouse Milwaukee, Wisconsin	August 5, 1975 2:00 p.m. - 3:30 p.m.

Informational Meetings for General Public

<u>Presiding Agency</u>	<u>Place of Meeting</u>	<u>Date and Time of Meeting</u>
Southeastern Wisconsin Regional Planning Commission	Washington County Courthouse West Bend, Wisconsin	August 19, 1975 7:30 p.m. - 9:15 p.m.
Technical Coordinating and Advisory Committee on Regional Airport Planning	Racine County Highway and Office Building Sturtevant, Wisconsin	August 20, 1975 7:30 p.m. - 10:10 p.m.
Technical Coordinating and Advisory Committee on Regional Airport Planning	Waukesha County Courthouse Waukesha, Wisconsin	August 26, 1975 7:30 p.m. - 11:10 p.m.
Southeastern Wisconsin Regional Planning Commission	Walworth County Courthouse Elkhorn, Wisconsin	August 27, 1975 7:30 p.m. - 10:30 p.m.

Public Hearing

Southeastern Wisconsin Regional Planning Commission	Milwaukee County Courthouse Milwaukee, Wisconsin	September 3, 1975 7:30 p.m. - 10:30 p.m.
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One additional informational meeting for the general public was held at the request of local governmental officials in order to provide a more detailed briefing on the preliminary recommended plan and to give further

opportunity for citizen and public official involvement. In addition, three special intergovernmental meetings were held in response to concerns expressed at the public hearing. These additional meetings were held as follows:

Special Informational Meeting for General Public

Governmental Units

Requesting Meeting

Place of Meeting

Date and Time of Meeting

Cities of St. Francis
and Oak Creek

City Hall
St. Francis, Wisconsin

September 25, 1975
7:00 p.m. - 9:30 p.m.

Special Intergovernmental Meetings

Governmental Units and Officials

Represented at Meeting

Place of Meeting

Date and Time of Meeting

City of Burlington
Burlington Airport Commission
Town of Burlington
Town of Spring Prairie
The Honorable Cloyd A. Porter,
Representative, 43rd District
Southeastern Wisconsin
Regional Planning Commission

Burlington Municipal Airport
Burlington, Wisconsin

September 30, 1975
7:30 p.m. - 9:30 p.m.

Village of East Troy
Southeastern Wisconsin
Regional Planning Commission

Village Hall
East Troy, Wisconsin

October 27, 1975
7:30 p.m. - 11:00 p.m.

City of Waukesha Plan Commission
Southeastern Wisconsin
Regional Planning Commission

City Hall
Waukesha, Wisconsin

October 14, 1975
4:00 p.m. - 5:30 p.m.

A total of over 650 persons attended the special and general public informational meetings and the public hearing. The record of the proceedings indicates that local government and public reaction to the plan recommendations was mixed, with significant controversy developing with respect to some of the recommendations contained in the plan and with no controversy at all with respect to other recommendations contained in the plan. The preliminary plan recommendations for the Kenosha Municipal, Racine Commercial, Sylvania, Gruenwald, Timmerman Field, Lake Lawn Lodge, and Playboy Airports all met with a favorable response. Significant controversy existed with respect to the plan recommendations for Ozaukee, West Bend Municipal, Hartford Municipal, Waukesha County, General Mitchell Field, East Troy Municipal, and Burlington Municipal Airports. The following discussion summarizes the salient issues raised concerning these airports at the informational meetings and the public hearing and the Commission response with respect thereto.

Ozaukee Airport

The preliminary plan recommended that the existing privately-owned Ozaukee Airport be improved from its existing status as a less-than-basic utility airport to a proposed general utility airport. At the public informational meeting held in West Bend, the owner and operator of Grob Field, a private airport in Ozaukee County, recommended that consideration be given instead to the

construction of a new airport located on the newly-constructed IH 43 midway between the Cities of Port Washington and Sheboygan. This operator indicated that, in his opinion, the Ozaukee Airport is located too close to existing urban development and to electric power transmission lines emanating from the Port Washington power plant operated by the Wisconsin Electric Power Company. Subsequent to the West Bend informational meeting, a formal resolution was filed by the Common Council of the City of Port Washington formally endorsing the recommended preliminary plan, indicating full support for the proposed improvements at the existing Ozaukee Airport.

After careful consideration of this matter, the Technical Coordinating and Advisory Committee and the Commission determined that the plan should continue to recommend the improvement of the existing Ozaukee Airport. In its determination in this matter, the Committee and Commission noted that the existing Ozaukee Airport was well located with respect to demand, was well served by ground transportation facilities, could be readily expanded, and that the Common Council of the City of Port Washington had formally indicated its support for the proposed improvements. Moreover, the state airport system plan recommends the retention and improvement of the Sheboygan County Airport located about 16 miles north of the regional boundary, which airport is centrally located to serve all of Sheboygan County.

West Bend Municipal Airport

At the public informational meeting held in West Bend, substantial support by private aircraft operators was indicated for the plan recommendation to upgrade the West Bend Municipal Airport to basic transport status. Some opposition to the recommendation came from citizens of the Town of Trenton living in the immediate vicinity of the airport site. The aircraft operators indicated, however, that the proposed 5,500-foot principal runway was minimal for the safe operation of business jet type aircraft, and recommended that consideration be given to changing the plan recommendation to provide for a minimum runway length of 6,000 feet. Questions were also raised at this meeting by concerned citizens and public officials over the practicality of the relocation of STH 33 in order to accommodate the proposed northeast-southwest runway extension.

After careful consideration of these comments, the Technical Coordinating and Advisory Committee and the Commission determined to leave the plan recommendations stand as presented. In so doing, the Commission noted that the City of West Bend, as the existing local public airport sponsor, had recently initiated an airport master planning effort, and that since no significant controversy had developed over the basic function of the West Bend Airport in the regional airport system plan—that is, an upgrading to a basic transport status—specific questions concerning optimum runway length and orientation should be determined as part of that master planning effort. Similarly, the question of whether or not the proposed major runway extension should be effected through a relocation of STH 33, a relocation of the adjacent Milwaukee River, or a bridging of the Milwaukee River represent issues more properly decided at the master planning level. Accordingly, no change was made in the West Bend Municipal Airport improvement recommendations.

Hartford Municipal Airport

At the public informational meeting at West Bend, the Chairman of the Hartford Airport Committee requested that consideration be given to changing the recommended plan to provide for a basic transport airport at Hartford as opposed to the general utility airport recommended in the plan. Currently, the Hartford Municipal Airport is classified as a basic utility stage I airport. The chairman indicated that the Airport Committee had been conducting its own study with respect to the need, from an industrial development point of view, for a basic transport airport in Hartford, and that a relatively large number of companies responded to a survey questionnaire indicating that they would be interested in being able to utilize the Hartford Airport for business-related purposes.

In considering this matter, the Commission directed the staff to determine the additional cost that would be incurred in expanding the Hartford Municipal Airport to a basic transport classification as opposed to the recommended general utility classification. As proposed in the preliminary plan, the Hartford Municipal Airport would be upgraded to a general utility classification at

a total capital cost of \$3.8 million. For analysis of the capital cost attendant to upgrading the airport to a basic transport classification, two alternative runway alignment configurations were prepared. The first, shown on Map 79, would involve extension of the two existing runways beyond the lengths required to meet the general utility classification standards. An alternative configuration, shown conceptually on Map 80, was proposed by the Hartford Airport Committee. In the opinion of the local committee, the alternative configuration provided a better use of land, taking into account topography, soil conditions, and land ownership patterns, and provided a primary runway better aligned with the prevailing wind direction. Development of the airport to basic transport standards under either alternative would have similar capital costs for many elements, including land acquisition and terminal and hangar facility construction. To construct a new runway, however, rather than to widen, strengthen, and lengthen the existing runway, would raise the capital cost of the second alternative configuration slightly above that for the first alternative, \$6.3 million against \$6.0 million, respectively. A comparison of the cost of developing the airport as a basic transport, as opposed to a general utility, airport—based upon the first alternative runway configuration—is set forth in Table 260. The estimated total cost of expanding the Hartford Municipal Airport to a basic transport classification is \$6.0 million, an increase in capital layout of \$2.3 million, or 61 percent, over that required to achieve general utility status. The local share of the capital cost would rise from about \$840,000 under the recommended plan to about \$1.10 million under the proposed basic transport alternative, an increase of about \$260,000, or 31 percent. The land requirements would be significantly greater, rising from 30 acres of additional land required under the recommended plan to about 120 acres of additional land required under the basic transport alternative, including the acquisition of two additional existing residential units. The land required for clear zone protection would increase from about 65 acres under the recommended plan to about 165 acres under the basic transport alternative.

After careful consideration of the comments made at the public informational meeting and the additional cost estimate developed in response to the suggestion by Hartford officials, the Technical Coordinating and Advisory Committee and the Commission determined not to make a change in the airport classification of the Hartford Municipal Airport in the recommended plan, thereby continuing to recommend that the Hartford Municipal Airport be upgraded from its existing basic utility status to the proposed general utility status. In making this determination, the Commission noted that there was no compelling need to provide another basic transport airport to serve the Ozaukee-Washington County portion of the Region, that the West Bend Municipal Airport was well located with respect to demand and could well provide basic transport service in this portion of the Region, and that the relatively small number of critical aircraft anticipated to be based at a basic transport in this portion of the Region—13—did not warrant development of a second basic transport airport. Further-

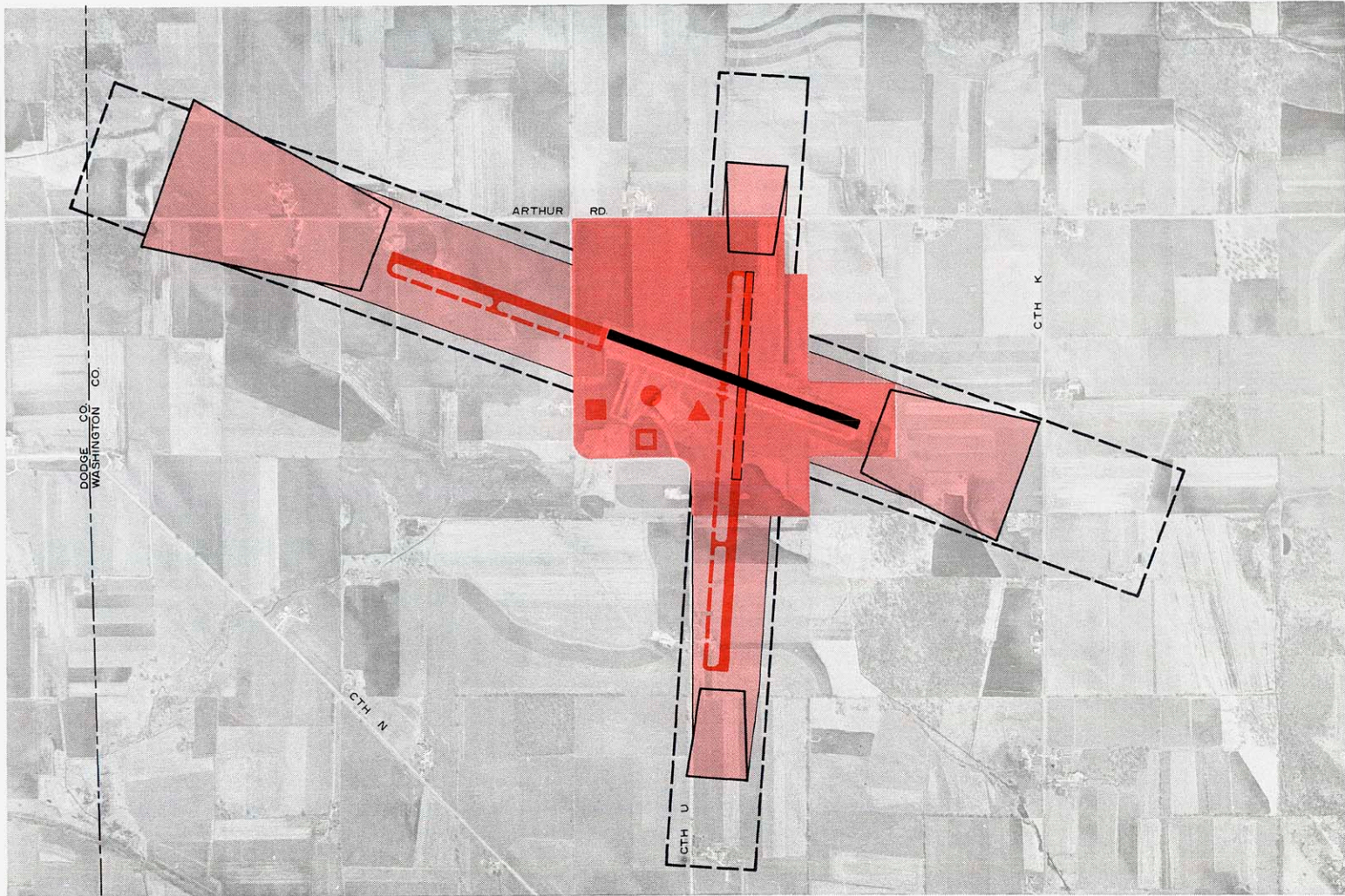
Table 260

**COMPARISON OF FACILITY REQUIREMENTS AND ESTIMATED COSTS TO EXPAND THE HARTFORD
MUNICIPAL AIRPORT TO GENERAL UTILITY AND BASIC TRANSPORT AIRPORT STANDARDS**

Facility Requirements	Alternative Airport Classification	
	General Utility	Basic Transport
Land Requirements		
Site Expansion	30 Acres	120 Acres
Clear Zone Protection	65 Acres	165 Acres
Residential Units	2	4
Total Estimated Cost	\$ 333,500	\$ 755,000
Operational Area Improvements		
Extend Runway 11/29 to 3,800 feet		
Runway: 75 feet x 800 feet	\$ 71,000	
Taxiway: 30 feet x 1,000 feet	\$ 52,000	
Develop Runway 11/29 to 5,600 feet		
Extend Runway 11/29: 100 feet x 2,600 feet		\$ 374,000
Widen and strengthen existing Runway 11/29: 25 feet x 3,000 feet		\$ 250,000
Extend Taxiway: 40 feet x 2,800 feet		\$ 175,000
Widen and strengthen Taxiway: 10 feet x 3,200 feet		\$ 80,000
Construct Runway 2/20		
Runway: 75 feet x 3,000 feet	\$ 255,000	
Runway: 100 feet x 4,500 feet		\$ 647,000
Taxiway: 40 feet x 5,000 feet		\$ 350,000
Install navigation aids		
HIRL Runway 11/29		\$ 98,000
MIRL Runway 11/29	\$ 49,000	
Runway 2/20	\$ 39,000	\$ 56,000
Taxiway Exit Lights	\$ 28,000	\$ 35,000
VASI-2	\$ 28,000	
VASI-4		\$ 38,000
Runway End Identification Lights	\$ 16,000	\$ 16,000
Construct additional paved aircraft parking area	\$ 384,000	\$ 531,000
Total Estimated Cost	\$ 923,000	\$2,650,000
Terminal Area Improvements		
Expand terminal/administration building	\$ 624,000	\$ 612,000
Expand auto parking and service roads	\$ 64,200	\$ 61,400
Utility improvements	\$ 29,000	\$ 29,000
Total Estimated Cost	\$ 717,000	\$ 702,400
Hangar Area Improvements		
Expand aircraft hangar storage and service area		
Total Estimated Cost	\$1,802,100	\$1,896,300
Total Estimated Capital Investment	\$3,775,800	\$6,003,700

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

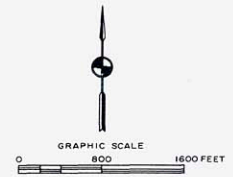
SITE IMPROVEMENT PLAN FOR THE HARTFORD MUNICIPAL AIRPORT SEWRPC BASIC TRANSPORT AIRPORT ALTERNATIVE



LEGEND

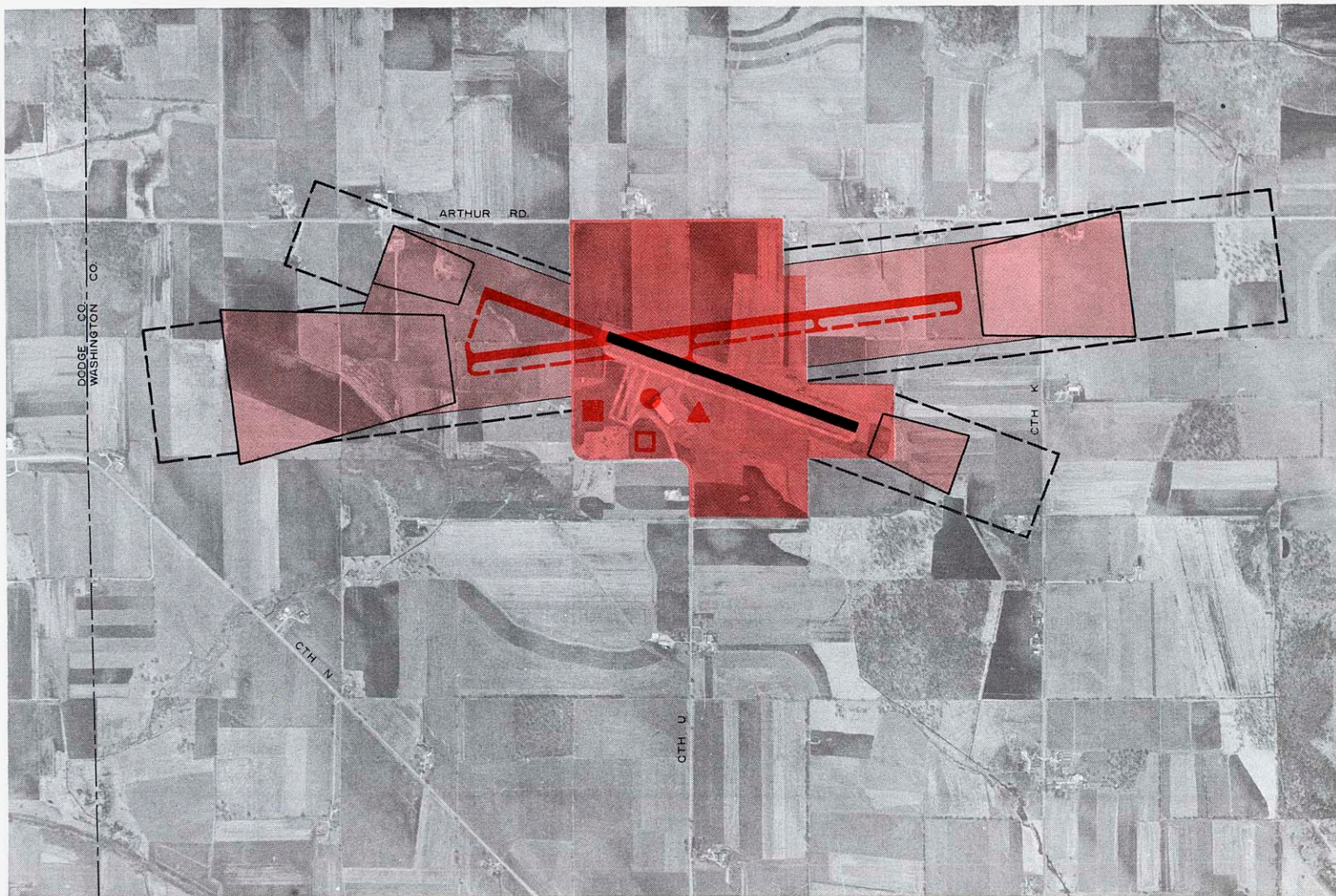
- LANDS CURRENTLY (1975) OWNED BY THE CITY OF HARTFORD FOR AIRPORT PURPOSES
- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENTS OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- EXISTING PAVED RUNWAY
- EXISTING TURF RUNWAY
- PROPOSED PAVED RUNWAY
- PROPOSED TAXIWAY

- CLEAR ZONE TRAPEZOID
- PROPOSED TERMINAL BUILDING EXPANSION
- PROPOSED AIRCRAFT PARKING APRON AREA
- PROPOSED AIRCRAFT HANGAR AREA
- PROPOSED AUTOMOBILE PARKING AREA
- AIRPORT INFLUENCE AREA - LIMIT OF AREA ELIGIBLE FOR FEDERAL AID



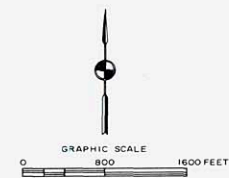
Source: SEWRPC.

**SITE IMPROVEMENT PLAN FOR THE HARTFORD MUNICIPAL AIRPORT
LOCAL AIRPORT COMMITTEE BASIC TRANSPORT AIRPORT ALTERNATIVE**



LEGEND

- | | | | |
|---|--|--|---|
|  | LANDS CURRENTLY (1975) OWNED BY THE CITY OF HARTFORD FOR AIRPORT PURPOSES |  | PROPOSED TERMINAL BUILDING EXPANSION |
|  | LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENTS OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT |  | PROPOSED AIRCRAFT PARKING APRON AREA |
|  | EXISTING PAVED RUNWAY |  | PROPOSED AIRCRAFT HANGAR AREA |
|  | PROPOSED PAVED RUNWAY |  | PROPOSED AUTOMOBILE PARKING AREA |
|  | PROPOSED TAXIWAY |  | AIRPORT INFLUENCE AREA - LIMIT OF AREA ELIGIBLE FOR FEDERAL AID |
|  | CLEAR ZONE TRAPEZOID | | |



more, nearly all of Ozaukee and Washington Counties lie within 30 minutes travel time to the West Bend Airport and, thus, within the standards recommended in the plan for ground travel time to a basic transport airport. The Commission did recognize, however, that alternative runway configurations and runway extensions beyond that proposed in the regional plan but still within the general utility classification to accommodate certain critical type D aircraft that the local airport sponsor may desire to accommodate could properly be considered in the preparation of a master plan for airport expansion. Therefore, no change to the recommended plan was made with respect to the recommended function of the Hartford Municipal Airport in the regional airport system. It was recommended, however, that alternative runway configurations, with the length of the primary runway extending to 4,200 feet, be considered in the master planning stage.

Waukesha County Airport

The record of the informational meetings and public hearing indicates that great controversy exists among the various segments of the public over the particular function proposed for the Waukesha County Airport in the preliminary regional airport system plan. The viewpoints expressed on this matter may be summarized as follows:

1. Property owners living in proximity to the airport expressed concern about potential land-takings for airport expansion and about the adverse impact of the danger, noise, air pollution, and general nuisance from aircraft operations as observed to exist currently and as perceived to exist under future conditions if the airport were expanded and operated in accordance with the preliminary plan recommendations. These property owners, therefore, strongly opposed the proposed classification of the Waukesha County Airport as a basic transport airport and the attendant proposed facility expansion and improvements.
2. Owners and operators of smaller aircraft who fly primarily for pleasure and who group themselves under the term "sport pilots" expressed concern over the potential impact of the increased operational controls which would accompany installation of a permanent air traffic control tower and landing system instrumentation; of the increased costs of improved aircraft instrumentation; and of the potential increase in user fees which might be required to pay the capital cost of improved facilities and the increased operation and maintenance costs associated with an expanded airport that this segment of the aviation community neither wants nor needs. These pilots and aircraft owners, therefore, also strongly opposed the proposed classification and attendant improvements and expansion of the airport, recommending instead the development of from one to three new basic utility or general utility airports to serve the Milwaukee urbanized area, together with improvements in such appurtenant facilities as

tie-down areas and hangars at the Waukesha County Airport.

3. Executives of, and pilots for, business enterprises that use high performance, general aviation aircraft as a business resource expressed the need for improved airport control and navigation facilities to provide a safer, all-weather operational capability and, therefore, strongly supported the proposed airport classification and improvements and expansion—particularly the proposed longer and stronger runways—in order to accommodate high performance and greater load carrying capacity aircraft for business use; provision of a permanent control tower and installation of a precision instrument landing system; while emphasizing the importance of the recommended airport improvements to the economic base of the "greater Waukesha area."
4. The Waukesha community at large expressed concern over the potential adverse impact of the public airport expansion upon the property tax base; the need to allocate increasingly limited local tax monies to other public purposes having a higher priority than airport improvement; the apparent high risk associated with the proposed large public investment in facility expansion on the basis of a forecast of a comparatively limited number of critical aircraft and attendant operations; and the desirability of converting the airport site to alternative urban land uses.

Questions were raised at the public meetings and hearing that related indirectly to the standards incorporated in the plan, particularly those relating to ground travel time and the number of operations by critical or "design" aircraft to determine airport classification, location, and operational control.

Before considering the specific response to this public reaction, it is useful to briefly review the basis on which the Waukesha County Airport was designated as a basic transport airport in the preliminary plan. The Waukesha County Airport, together with four other airports within the Region—West Bend Municipal, Racine Commercial, Kenosha Municipal, and Burlington Municipal—were recommended to be classified as basic transport airports in order to accommodate the operations of local and itinerant type C aircraft—the higher performance turbojet aircraft and the larger carrying capacity piston-powered and turbo-powered propeller-driven general aviation aircraft—that may be expected to operate within the Region to the plan design year. At present, there are 23 such aircraft registered in the Region—11 multiple-engine piston-powered aircraft and 12 turbojet-powered aircraft. Two airports can presently accommodate operations by the type C aircraft—General Mitchell Field and Racine Commercial Airport. Turbojet operations do occur at the West Bend Municipal Airport and at the Waukesha County Airport, both of which are currently classified as general utility airports. Turbojet operations at these airports, however, take place only under desirable weather conditions and with the aircraft not fully loaded.

The forecasts prepared under the regional airport system planning program indicate about 32 type C aircraft may be expected to be based within the Region by 1985 and about 62 by 1995. Type C aircraft include both turbo-prop and turbojet aircraft. Examples of type C turbo-prop aircraft in the general aviation fleet are the Convair 580 and the Fairchild Hiller F27; and examples of type C turbojet aircraft in the general aviation fleet are the Learjet, the Saber Liner, and the Falcon Fan Jet.

Among the basic issues to be addressed by the regional airport system planning program are such questions as: is it reasonable to expect that all operations by these type C aircraft—both based and itinerant—be accommodated at General Mitchell Field and Racine Commercial Airport; should additional landing system capability be provided elsewhere in the Region to accommodate these operations; and, if so, where should such additional capability be located? Generally, the type C high performance heavy general aviation aircraft are owned and operated by businesses that perceive the use of such aircraft as an important function in the conduct of their normal daily business activity.

One of the regional airport system development objectives formulated under the regional airport system planning program calls for development of an integrated regional airport system which will effectively serve the existing and probable future inter- and intra-regional air travel demand with appropriate types and adequate levels of service; alleviate air traffic congestion; and reduce travel times between the Region, its component parts, and other regions. Standards prepared to guide system development and to permit an evaluation of the ability of alternative systems to achieve this objective include ground travel time between an airport and its service area, a threshold number of itinerant aircraft operations of the critical aircraft type for which the airport is being designed, and the desire to locate reliever general utility or basic transport airports within 30 minutes ground travel time from an air carrier airport.

Another objective formulated under the regional airport system planning program calls for a regional airport system which will be compatible with existing land use patterns and adopted land use plans. Supporting standards prepared for this objective quantify the impact of aircraft operations upon surrounding land use activities as an aid in the development of land use plans for the vicinity of airports, and recommend the advance acquisition of land for airport expansion and the enactment of a coordinated set of local land use controls to prevent the encroachment of incompatible land uses.

In response to forecast demands and system development objectives, alternative system plans were prepared and a preliminary recommended plan selected for public presentation and reaction. This preliminary plan includes the upgrading of existing sites to provide basic transport capability at general aviation airports in each of the three recognized urbanized areas of the Region—at the Kenosha Municipal Airport, the Racine Commercial Airport, and the Waukesha County Airport—the latter supplementing General Mitchell Field in the Milwaukee

urbanized area, thus providing full service general aviation capability in areas of probable concentrated demand. In addition, the plan recommended similar service capabilities to accommodate demand expected in the remaining rural-urban fringe areas of the Region through provision of a basic transport airport at West Bend in the northern portion of the Region and at Burlington in the southwestern portion of the Region. The total number of type C aircraft forecast in the design year were assigned to the basic transport airports as follows: 19 to General Mitchell Field, 13 to Waukesha County, 9 to Burlington Municipal, 6 to Kenosha Municipal, 13 to West Bend Municipal, and 2 to Racine Commercial. As described later in this section, upon reappraisal following the public informational meetings and public hearing, the recommended classification of the Burlington Municipal Airport was changed from a basic transport airport to a basic utility airport. The nine type C aircraft expected to be located within the Burlington service area would be reallocated to adjacent basic transport airports.

The preliminary recommended system plan would have placed all type C aircraft owners within 30 minutes ground travel time of the airport. The travel time service area map presented with the recommended plan in Chapter XII of this report identifies those portions of the Region located beyond 30 minutes ground travel time from General Mitchell Field and Racine Commercial Airports, the only two existing airports presently capable of accommodating the needs of type C aircraft (see Map 47). These two airports accommodate the needs, in this respect, of the urbanized areas of the Region, but do not accommodate the needs of owners who might reside or whose place of business might be located beyond these urbanized areas.

As noted, upon reappraisal, it is now recommended that the Burlington Municipal Airport be classified to remain a basic utility airport and not be upgraded to a basic transport airport. From the travel time service area map in Chapter XII (see Map 47), it can be seen that the Kenosha Municipal Airport could accommodate much of the demand within the Burlington Municipal Airport service area within 30 minutes ground travel time. Some portions of Walworth County would, however, be located beyond a 30-minute ground travel time of a basic transport airport. A basic transport airport in the West Bend area will nearly accommodate all of the needs generated by the owners of type C aircraft living or operating within Washington or Ozaukee County within the established ground travel time standard. While much of the urbanized area of Waukesha County is located within 30 minutes ground travel time of General Mitchell Field, there are large portions of Waukesha County, including the City of Waukesha, located beyond this ground travel time standard. Reanalysis indicates that 16 owners of the forecast 62 type C aircraft may be expected to be located more than 30 minutes ground travel time away from an airport capable of accommodating their aircraft if neither the Waukesha County nor the Burlington Municipal Airports are classified as basic transport airports.

The preliminary system plan was carefully designed to provide airport classification, location, and capacity

to accommodate the forecast needs. If certain airports are not improved to the standards recommended to accommodate some aircraft types, those aircraft may be assumed to be diverted to adjacent airports having adequate capabilities and, therefore, the impact of such diversion upon airport capacity must be evaluated. Such evaluations indicate that General Mitchell Field could accommodate the operations of all type C aircraft that would be diverted to that airport from Waukesha County Airport. It was also determined that the operations of both type C and D aircraft could be diverted from the Burlington Municipal Airport without causing adjacent airports at Gruenwald capable of accommodating type D aircraft, or Kenosha capable of accommodating both type C and type D aircraft, to exceed the proposed landing system capabilities. Thus, if a basic transport capability is not provided at Burlington or Waukesha, the needs of the affected type C owners and operators can be met at adjacent airports but at the expense of some increased ground travel times for such aircraft operators and users.

Four alternative courses of action appear possible with respect to resolving the issues raised at the public hearings with respect to the Waukesha County Airport: 1) leave the airport classified as a general utility airport, providing such improvements as are necessary to meet forecast demand for all but the type C aircraft; 2) raise the airport classification to basic transport as recommended in the preliminary system plan; 3) abandon the present airport site and relocate the airport as a basic transport airport at an alternative site; and 4) modify the preliminary plan recommendation to continue to recommend basic transport status for the Waukesha Airport, but not construct a parallel east-west runway to accommodate all forecast demands with respect to type E aircraft. Each of these alternatives has an attendant set of advantages and disadvantages; and in a situation involving conflicting interests, it may be expected that none of these solutions will be fully acceptable to all parties concerned.

If the airport is continued to be classified as a general utility airport, it could continue to serve turboprop and piston-powered aircraft under 12,500 pounds gross weight. This would include all of the types of corporate aircraft presently based at the airport, but would exclude the larger type C aircraft. Under this alternative, annual operations could be expected to increase from a 1971 level of about 117,000 to a 1995 level of about 313,000, while based aircraft—types D and E—could be expected to increase from a 1971 level of 167 to a 1995 forecast level of 384.

The improvements at the Waukesha County Airport necessary to accommodate the anticipated demand under this alternative are identified in Table 261 and Map 81. These include the construction of a new 3,300-foot east-west runway, navigation aids, and aircraft parking apron areas, estimated to cost about \$1.1 million. Terminal area improvements, including onsite roads, automobile parking areas, and terminal buildings under this alternative would be expected to cost \$547,000, while hangar area improvements would be expected to cost a total of nearly \$1.8 million. A total of 17 acres of additional land would be

required, including 10 acres for airport site expansion and seven acres for clear zone protection. The cost of acquiring this land is estimated at about \$71,000. In total, then, as shown in Table 261, the cost of improving the Waukesha County Airport as a general utility airport is estimated at nearly \$3.5 million.

The major advantages of this alternative relate to the accommodation of all anticipated demand generated by type D and type E aircraft, including sport and recreational flying and some business related flying. This alternative would require less land for site expansion and clear zone protection than a basic transport airport on the site. Under this alternative, however, Waukesha County would be left without a basic transport airport and would not be capable of accommodating any future demands for basing type C business aircraft in the county. This could affect future economic development in Waukesha County. The construction of the parallel east-west runway and the general expansion of aircraft operations under this alternative would, like the basic transport alternative, contribute to increasing conflicts between airport users and residents of neighborhoods in the vicinity of the airport. The construction of parallel runways in this case forces the establishment of air traffic patterns that will contribute to increased air activity over those Waukesha neighborhoods lying to the south and west of the airport. Under this alternative, the airport could continue to serve the sport and recreation element of general aviation that would choose to operate under tower control. Even without accommodating type C aircraft, the greater amount of general aviation activity from type D and type E aircraft may be expected to require continuation of tower control in order to provide a safer aircraft operating environment.

In summary, then, the apparent advantages of keeping Waukesha County Airport as a general utility airport, as opposed to a basic transport airport, are the more limited requirements for additional land and capital cost for expansion, absence of impact from noise of jet traffic, and no requirement for high risk investment based on forecast needs of a limited segment of the total aircraft fleet. The disadvantages of continuing to classify the Waukesha County Airport as a general utility airport relate mainly to the impact such a decision might have on the industrial and economic base of this subarea of the Region; the continued and increased nuisance from general aviation operations in an urban area; the continued expenditure of public funds primarily to meet training, sport, and recreation flying demands; and, unless curtailed, the continued use of the airport by jet traffic in a comparatively unsafe operating pattern. In addition, the regional airport system would not have the added flexibility provided by the location of a basic transport reliever airport in the Milwaukee urbanized area.

The second alternative—namely, that of continuing to plan for the establishment of a basic transport airport at Waukesha—is identical to that presented at the public informational meetings and hearing. This alternative is summarized in Table 262. Under this alternative, the airport would be able to serve all type C, D, and E aircraft. Annual operations could be expected to increase

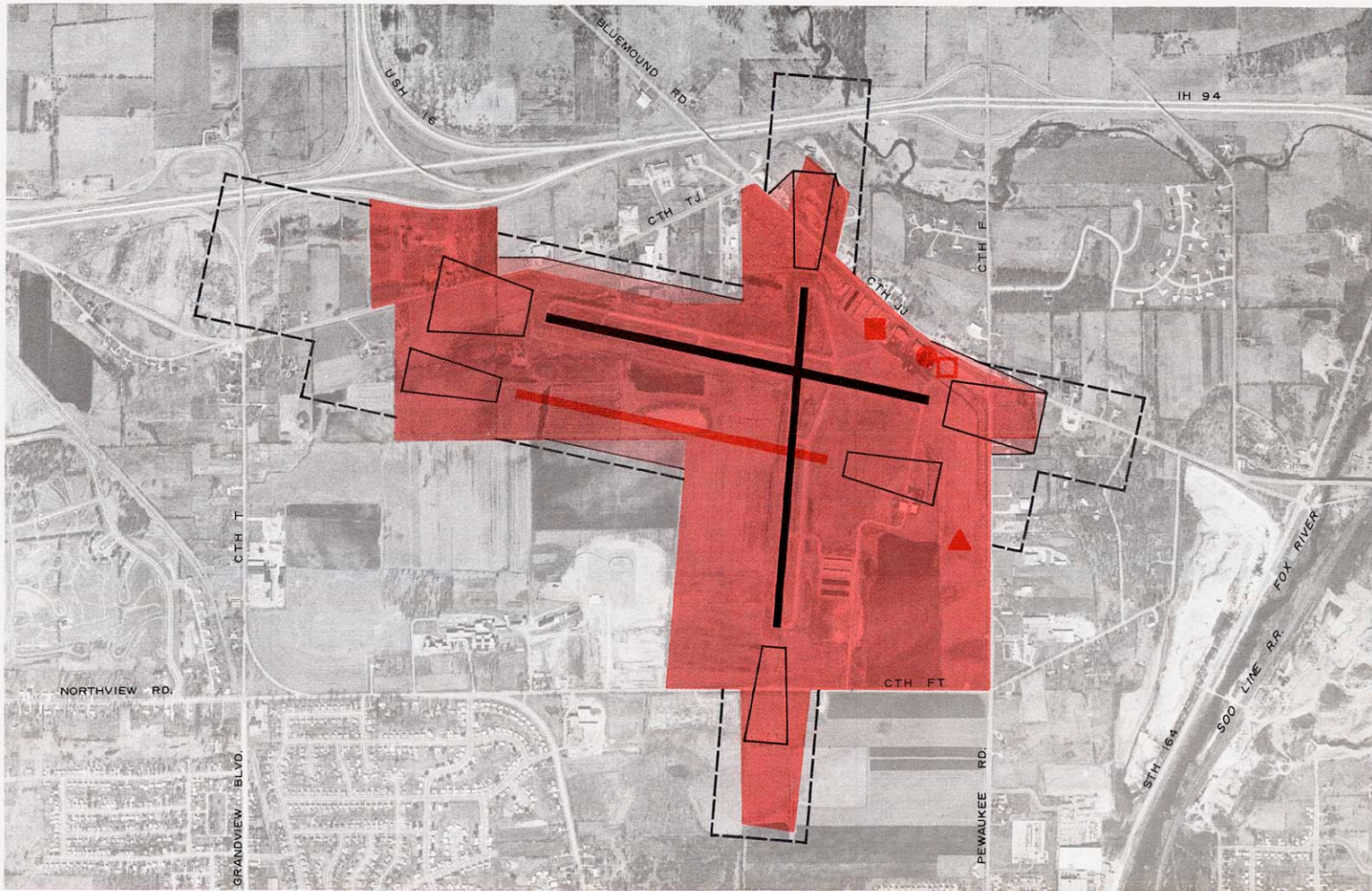
Table 261

SITE REQUIREMENTS FOR THE WAUKESHA COUNTY AIRPORT
GENERAL UTILITY AIRPORT ALTERNATIVE

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p> <p>FAA Designation.</p>	<p>Existing—General Utility Proposed—General Utility</p> <p>1971 Inventory—117,400 1995 Forecast—313,000 1971 Inventory—167 1995 Forecast—384 Existing—284,000 Proposed—337,600 Nonprecision Instrument Approach Reliever Airport to General Mitchell Field</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Total Estimated Cost</p>	<p>10 7 \$ 71,000</p>
<p>Operational Area Improvements</p> <p>Construct Runway 10R/28L: 75 feet x 3,300 feet</p> <p>Construct additional paved aircraft parking apron: 73,000 square yards</p> <p>Install navigation aids</p> <p>MIRL Runway 10L/28R</p> <p>MIRL Runway 18/36</p> <p>Taxiway Exit Lights—Both Runways</p> <p>VASI-2 Runway 10L/28R, 10L End</p> <p>REILS—All Runways, Both Ends</p> <p>Install nonprecision instrument landing system approach to Runway 10</p> <p>Total Estimated Cost</p>	<p>\$1,086,300</p>
<p>Terminal Area Improvements</p> <p>Expand terminal/administration building: 7,800 square feet</p> <p>Expand auto parking and service roads: 8,800 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 547,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 23,800 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,794,500</p>
<p>Total Estimated Capital Investment</p>	<p>\$3,498,800</p>

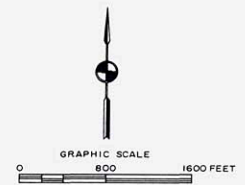
Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

SITE IMPROVEMENT PLAN FOR THE WAUKESHA COUNTY AIRPORT GENERAL UTILITY AIRPORT ALTERNATIVE



LEGEND

- LANDS CURRENTLY (1975) OWNED BY WAUKESHA COUNTY FOR AIRPORT PURPOSES
- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENTS OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- EXISTING PAVED RUNWAY
- PROPOSED PAVED RUNWAY
- CLEAR ZONE TRAPEZOID
- PROPOSED TERMINAL BUILDING
- PROPOSED AIRCRAFT PARKING APRON AREA
- PROPOSED AIRCRAFT HANGAR AREA
- PROPOSED AUTOMOBILE PARKING AREA
- AIRPORT INFLUENCE AREA—LIMIT OF AREA ELIGIBLE FOR FEDERAL AID



Source: SEWRPC.



Table 262

SITE REQUIREMENTS FOR THE WAUKESHA COUNTY AIRPORT: BASIC TRANSPORT AIRPORT ALTERNATIVE

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP)</p> <p>IFR Capability</p> <p>FAA Designation</p>	<p>Existing—General Utility Proposed—Basic Transport</p> <p>1971 Inventory—117,400 1995 Forecast—322,000 1971 Inventory—167 1995 Forecast—397 Existing—284,000 Proposed—337,600 Precision Instrument Approach Reliever Airport to General Mitchell Field</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential Units</p> <p>Commercial Units</p> <p>Total Estimated Cost</p>	<p>20 120 12 8 \$1,535,000</p>
<p>Operational Area Improvements</p> <p>Extend Runway 10L/28R to 5,600 feet Runway: 100 feet x 1,600 feet Taxiway: 40 feet x 1,800 feet Construct Runway 10R/28L: 75 feet x 3,300 feet Strengthen runways and taxiways to accommodate 60,000 pounds gross weight aircraft Runway 10L/28R—3 1/2 inch overlay: 100 feet x 4,000 feet Runway 18L/36R—2 1/2 inch overlay: 75 feet x 3,400 feet Taxiway 10L/28R—3 1/2 inch overlay: 40 feet x 4,000 feet Taxiway 18L/36R—2 inch overlay: 40 feet x 3,900 feet Construct additional paved aircraft parking aprons: 77,400 square yards Install lighting and visual aids MIRL Runway 18L/36R: 3,400 feet HIRL Runway 10L/28R: 5,600 feet Taxiway Exit Lights—Both Runways VASI-4 Runway 10L/28R, 10L End REILS Runway 10L/28R, 28R End Runway 18L/36R, 36R End Runway 10L/28R, Relocate 10L, End Replace air traffic control tower Install precision instrument landing and approach lighting system on approach to Runway 10</p> <p>Total Estimated Cost</p>	<p>\$2,123,300</p>
<p>Terminal Area Improvements</p> <p>Expand terminal building: 8,100 square feet Expand auto parking and service roads: 9,100 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 648,900</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 26,800 square yards</p> <p>Total Estimated Cost</p>	<p>\$2,020,700</p>
<p>Ground Access Facilities</p> <p>Relocate CTH TJ to permit runway extension</p> <p>Total Estimated Cost</p>	<p>\$ 187,000</p>
<p>Utility Services</p> <p>Airport within proposed service area—cost of connections considered nominal</p> <p>Total Estimated Capital Investment</p>	<p>\$6,514,900</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

from a 1971 level of about 117,000 to a 1995 level of 322,000, while based aircraft—types C, D, and E—would increase from a 1971 level of 167 to a 1995 forecast level of 397.

As shown in Table 262, the improvements at the Waukesha County Airport necessary to accommodate the anticipated demand under this alternative include extension of the existing east-west runway and taxiway to 5,600 feet and strengthening and widening of the existing east-west runway and taxiway to accommodate 60,000-pound gross aircraft weight, the construction of a new 3,300-foot east-west runway, navigation aids, and airport parking apron areas, all estimated to cost about \$2.1 million. Terminal airport improvements, including onsite roads, automobile parking areas, and terminal buildings would be expected to cost \$649,000, while hangar area improvements would be expected to cost a total of about \$2.0 million. A total of 140 acres of additional land would be required, including 20 acres for airport site expansion and 120 acres for clear zone protection. The cost of acquiring this land is estimated at about \$1.5 million. Surface transportation improvements—namely, the realignment of CTH TJ to permit the existing east-west runway extension—would cost about \$187,000. In total, then, as shown in Table 262, the cost of improving the Waukesha County Airport as a basic transport airport is estimated at about \$6.5 million.

The major advantages of this alternative relate to the accommodation of all anticipated demand generated by types C, D, and E aircraft, including training, sport, and recreational flying and all business-related flying. This alternative would, however, be more costly and require more land for site expansion and clear zone protection than the continued development of a general utility airport on the site. This alternative would fully meet the probable future demand for based type C business aircraft in the county, and would ensure that the lack of a basic transport airport in the county would not adversely affect the economic development of the county. The construction of the parallel east-west runway and the consequent general expansion of general aviation activity under this alternative would, like the general utility alternative, contribute to increasing conflicts between airport users and residents of neighborhoods in the vicinity of the airport. As in the case of the general utility airport alternative, the construction of parallel runways forces the establishment of air traffic patterns that will contribute to increased air activity over those Waukesha neighborhoods lying to the south and west of the airport. The accommodation of all anticipated aviation activity from types C, D, and E aircraft must include the continuation of tower control in order to provide a safe operating environment.

In summary, then, the major advantage of expanding the Waukesha County Airport to basic transport status relates to the capability of accommodating future demand for the basing and operation of business jets at an airport in Waukesha County, and the effect that such a decision would have on the industrial and economic base of this subarea of the Region. The establishment of a basic

transport airport as proposed would, however, be more costly and require more land than the continued improvement of the airport as a general utility airport. Like the general utility alternative, the basic transport alternative shares the disadvantages of providing for a continued and increased nuisance from general aviation operations in the urban area because of the need for parallel runways.

The third alternative would consist of abandoning the existing Waukesha County Airport and establishing a new airport at an alternate site near the Waukesha urban area. One possible such site is located in Sections 6 and 7, T6N, R19E, in the Town of Waukesha and Sections 1 and 12, T6N, R18E in the Town of Genesee, an area lying nearly midway between the City of Waukesha and the Village of Wales. Under this alternative, the new airport would be a basic transport airport capable of serving all type C, D, and E aircraft. Annual operations in 1995 could be expected to reach a level of 322,000, while based aircraft—types C, D, and E—could be expected to reach 397 by 1995.

The improvements necessary to accommodate the anticipated demand under this alternative are identified in Table 263 and Map 82. Such improvements include the construction of a 5,600-foot primary east-west runway and taxiway, a 3,300-foot parallel east-west runway, a 4,500-foot secondary north-south runway and taxiway, navigation aids, and aircraft parking apron areas, all estimated to cost about \$5.8 million. About \$1.5 million of this estimated cost is required to overcome the severe limitations of the soil conditions for airport construction and to overcome difficult drainage problems at this site. Terminal area improvements, including the construction of onsite roads, automobile parking areas, and a new administration/terminal building, would be expected to cost about \$882,000; while hangar area improvements would be expected to cost a total of about \$3.2 million. A total of about 800 acres of land would be required at the site for the airport site and for associated clear zone protection. The cost of acquiring this land is estimated at about \$1.5 million. In total, then, as shown in Table 263, the cost of establishing a new basic transport airport southwest of the City of Waukesha is estimated at about \$11.4 million. This total cost could be partially offset by the proceeds that could be obtained from selling the approximately 440 acre existing airport site for urban development, estimated at about \$2.0 million. Thus, the net cost of establishing a new Waukesha County Airport would be about \$9.4 million. The Federal Aviation Administration (FAA) has indicated that net proceeds from the sale of an existing airport must be reinvested in a new airport before additional federal funds can be applied toward development of an airport at the new site. Moreover, if the FAA and Wisconsin Department of Transportation determine that the existing site is expandable to meet forecast demands and the airport sponsor still desires to relocate the airport, in kind replacement of the existing facility entirely at local cost is required before additional federal and state funds can be applied toward expansion of the airport in a new location. In the case of a relocated Waukesha County Airport, this would require development of a relocated airport to

Table 263

**SITE REQUIREMENTS FOR THE WAUKESHA COUNTY AIRPORT
BASIC TRANSPORT AIRPORT ON NEW SITE
IN THE TOWNS OF GENESEE AND WAUKESHA**

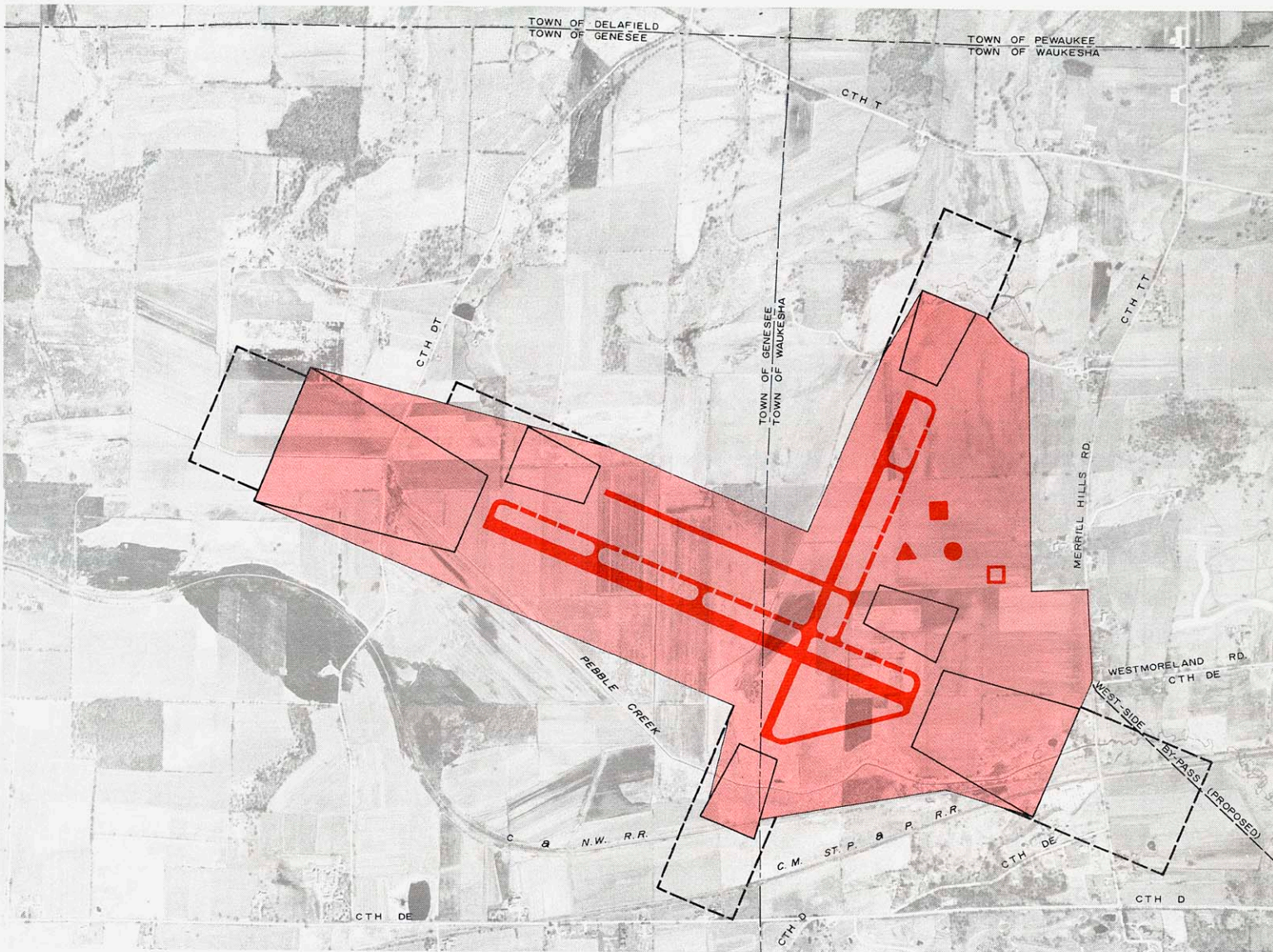
General Conditions Airport Classification Aviation Demand ^a Annual Operations Based Aircraft Runway System Capacity (PANCAP). IFR Capability	Existing—No Airport Proposed—Basic Transport 1995 Forecast—322,000 1995 Forecast—397 Proposed—337,600 Precision Instrument Approach
Land Requirements Site, including Clear Zone Protection (Acres) Residential Units Total Estimated Cost	800 1 \$ 1,500,000
Operational Area Improvements Construct East/West Primary Runway: 150 feet x 5,600 feet Construct East/West Primary Taxiway: 50 feet x 6,200 feet Construct North/South Secondary Runway: 100 feet x 4,500 feet Construct North/South Secondary Taxiway: 40 feet x 5,000 feet Construct East/West Basic Utility Runway: 75 feet x 3,300 feet Construct aircraft parking apron: 77,000 square yards Peat removal and drainage improvements to construct runways Install navigation aids HIRL East/West Primary Runway MIRL North/West Runway Taxiway Exit Lights VASI-4 East/West Runway, West End REILS Primary and Secondary Runways Total Estimated Cost	\$ 6,261,000
Terminal Area Improvements Construct administration/terminal building: 10,600 square feet Construct auto parking and service roads: 28,000 square yards Total Estimated Cost	\$ 882,000
Hangar Area Improvements Construct aircraft hangar storage and service area: 42,800 square yards Total Estimated Cost	\$ 3,225,000
Total Estimated Capital Investment	\$11,368,000

^a Assumed equal to demand forecast for existing Waukesha County Airport.

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

SITE IMPROVEMENT PLAN FOR THE WAUKESHA COUNTY AIRPORT
BASIC TRANSPORT AIRPORT ON NEW SITE IN THE TOWNS OF GENESEE AND WAUKESHA

480



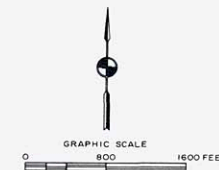
LEGEND

- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENT OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- PROPOSED PAVED RUNWAY
- PROPOSED TAXIWAY

- CLEAR ZONE TRAPEZOID
- PROPOSED TERMINAL BUILDING
- PROPOSED AIRCRAFT PARKING APRON AREA

- PROPOSED AIRCRAFT HANGAR AREA
- PROPOSED AUTOMOBILE PARKING AREA
- AIRPORT INFLUENCE AREA—LIMIT OF AREA ELIGIBLE FOR FEDERAL AID

Source: SEWRPC.



general utility standards, the existing airport classification, at local expense before federal and state funds would become available for expanding the airport to basic transport standards. This development is estimated to cost \$6 million.

The major disadvantages of this alternative include its high cost, especially the local share, relative to the other alternatives considered, including the abandonment of the capital investment in the existing airport; the realization that the establishment of a new pattern of air traffic in the Waukesha area, while solving the airport-neighboring land use conflicts that exist at the present site, would only serve to create new airport-land use conflicts at a new site; and the failure of the new site to resolve the basic conflicts between the sport flyers and the users and operators of corporate aircraft that exist at the present site. The only important advantages of establishing a new airport at an alternate site would be the resolution of existing airport-neighboring land use conflicts at the present site and the freeing of the land for urban development. With respect to the latter, the site is particularly well located for industrial development, having good freeway access, utility service, and good topographic and soil conditions for such development.

In considering this alternative, the Technical Coordinating and Advisory Committee and the Commission agreed that any decision to abandon the capital investment at the existing Waukesha County Airport would only be justified if such a decision would resolve other airport-related problems. Since the establishment of a new Waukesha County Airport at an alternate site would not resolve the basic problems inherent at the existing site, this alternative was considered to be unacceptable.

In considering the foregoing three alternatives, a fourth alternative became apparent. This alternative would involve improving and reclassifying the Waukesha County Airport as a basic transport airport, but not providing all of the improvements necessary to meet the anticipated 1995 demand. Under this alternative, which is summarized in Table 264 and shown on Map 83, the existing east-west runway would be lengthened and strengthened as proposed under the basic transport alternative discussed above, but the proposed parallel east-west runway would not be constructed. This would mean that the airport would not be capable of accommodating all of the anticipated general aviation demand, particularly with respect to that portion of the demand generated by type E aircraft.

As shown in Table 264, the improvements necessary under this alternative include extension of the existing east-west runway and taxiway to 5,600 feet and strengthening and widening the existing east-west runway and taxiway, navigation aids, and airport parking apron areas, estimated to cost about \$1.6 million. Terminal area improvements, including onsite roads, automobile parking areas, and terminal buildings would be expected to cost \$378,000, while hangar area improvements would be expected to cost about \$1.3 million. A total of 137 acres of additional land would be required, including 17 acres

for airport site expansion and 120 acres for clear zone protection. The cost of acquiring this land is estimated at about \$1.5 million. The realignment of CTH TJ to permit extension of the existing east-west runway would cost about \$187,000. In total, then, the cost of improving the Waukesha County Airport as a modified basic transport airport is estimated at nearly \$5.0 million.

The major advantage of this alternative over the previous basic transport alternative relates to the anticipated reduction in conflicts between airport users and airport area neighborhoods due to not constructing the parallel east-west runway and forcing air traffic patterns over residential neighborhoods to the south, east, and west of the airport site. With proper operational controls, the modified basic transport airport as proposed in this alternative could accommodate most of the anticipated general aviation activity, including all type C and type D aircraft activity, and do so utilizing air traffic patterns that extend predominantly over open and industrial lands to the north and east of the airport site. Thus, a major plan objective—that of minimizing conflicts between airport users and airport area land uses—could be achieved, while at the same time accommodating the anticipated demand for business jet activity in Waukesha County and thereby not comprising the industrial development objectives of Waukesha County communities. In addition, this alternative would provide flexibility by permitting future expansion of capacity beyond that herein recommended without additional land takings, should local officials in the future so desire.

The major disadvantage of this alternative relates to the need to reallocate about 96 type D and E aircraft to other airports in the regional system. Evaluation of such a reallocation indicates that these 96 based aircraft would generate about 77,500 annual operations and that such operations could be readily accommodated at the East Troy, Hartford, Sylvania, Timmerman, and Burlington airports. Further analysis indicates that those aircraft owners at the fringe of the Waukesha County Airport service area lie well within the 30-minute ground travel time standard of other airports in the system. It should be noted in this respect, however, that the modified basic transport facility would still accommodate a relatively large increase in based type E aircraft above those based at the airport today.

After carefully considering the foregoing alternatives and the public hearing record with respect to the preliminary plan recommendations for the Waukesha County Airport, the Commission, upon recommendations of the Technical Coordinating and Advisory Committee, determined to change the recommended regional airport system plan to provide for a modified basic transport airport at the Waukesha County site (see Map 83). A revised area land use plan corresponding to the modified site improvement plan for the Waukesha County Airport is shown on Map 84, while revised airport airspace protection recommendations are identified on Figure 86. In so doing, the Commission recognized that all of the competing and conflicting interests with respect to the Waukesha County Airport situation would not be satisfied with the com-

Table 264

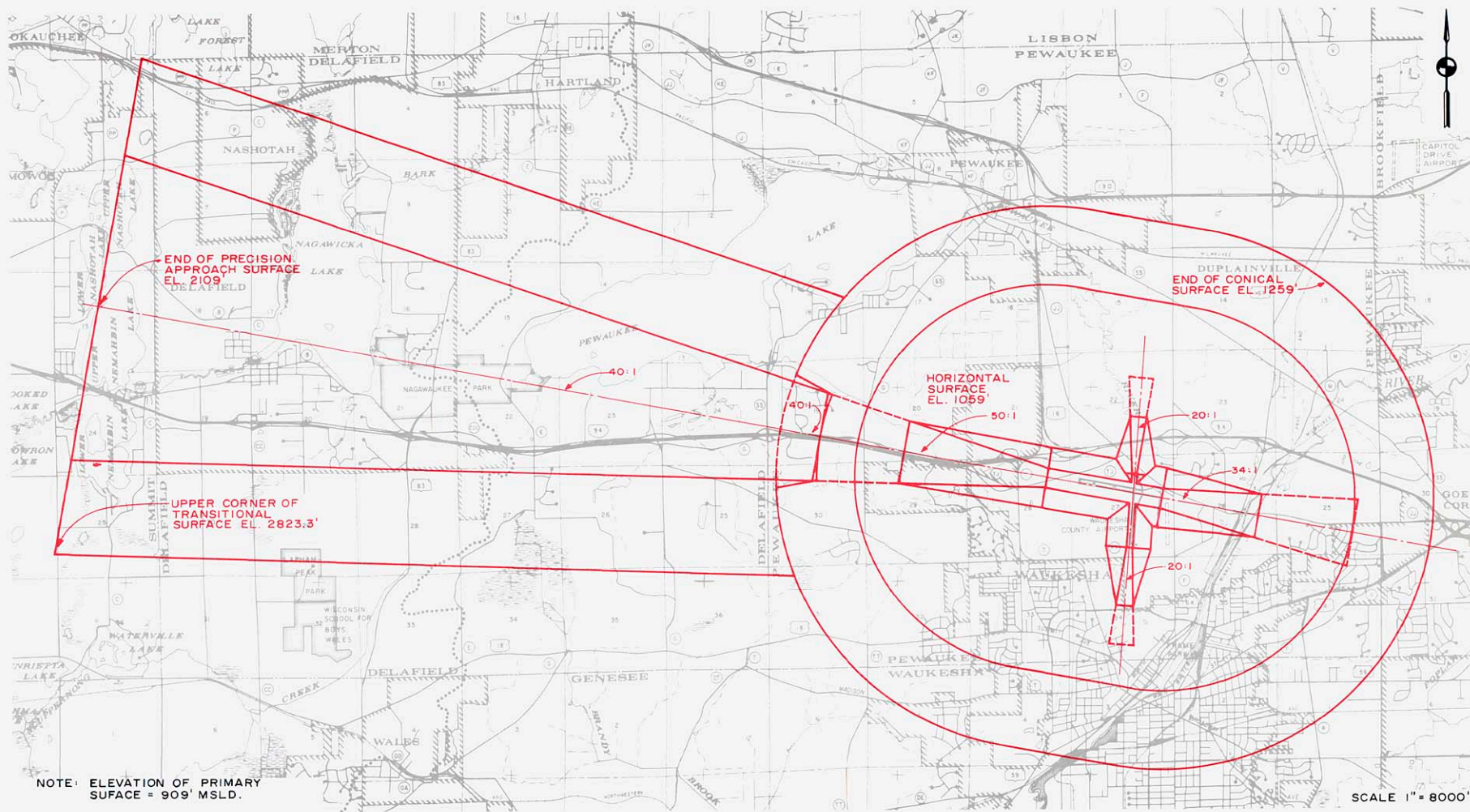
**SITE REQUIREMENTS FOR THE WAUKESHA COUNTY AIRPORT
MODIFIED BASIC TRANSPORT AIRPORT ALTERNATIVE**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP)</p> <p>IFR Capability</p> <p>FAA Designation</p>	<p>Existing—General Utility Proposed—Basic Transport</p> <p>1971 Inventory—117,400 1995 Forecast—244,500 1971 Inventory—167 1995 Forecast—301 Existing—284,000 Proposed—253,300 Precision Instrument Approach Reliever Airport to General Mitchell Field</p>
<p>Land Requirements</p> <p>Clear Zone Protection (Acres)</p> <p>Site Expansion (Acres)</p> <p>Residential Units</p> <p>Commercial Units</p> <p>Total Estimated Cost</p>	<p>120 17 12 8 \$1,531,000</p>
<p>Operational Area Improvements</p> <p>Extend Runway 10/28 to 5,600 feet Runway: 100 feet x 1,600 feet Taxiway: 40 feet x 1,800 feet</p> <p>Strengthen runways and taxiways to accommodate 60,000 pounds gross weight aircraft Runway 10/28—3 1/2 inch Overlay: 100 feet x 4,000 feet Runway 18L/36R—2 1/2 inch Overlay: 75 feet x 3,400 feet Taxiway 10/28—3 1/2 inch Overlay: 40 feet x 4,000 feet Taxiway 18L/36 R—2 inch Overlay: 40 feet x 3,900 feet</p> <p>Construct additional paved aircraft parking aprons: 51,200 square yards</p> <p>Install navigation aids MIRL Runway 18/36: 3,400 feet HIRL Runway 10/28: 5,600 feet Taxiway Exit Lights—Both Runways VASI-4 Runway 10/28, 10 End REILS Runway 10/28, 28 End Runway 18/36, 36 End Runway 10/28, Relocate 10 End</p> <p>Install precision instrument landing system approach to Runway 10</p> <p>Total Estimated Cost</p>	<p>\$1,544,000</p>
<p>Terminal Area Improvements</p> <p>Expand terminal building: 5,500 square feet Expand auto parking and service roads: 4,300 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 432,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 16,350 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,232,800</p>
<p>Ground Access Facilities</p> <p>Realign CTH TJ to permit runway extension</p> <p>Total Estimated Cost</p>	<p>\$ 187,000</p>
<p>Utility Services</p> <p>Airport within proposed service area—cost of connections considered nominal</p> <p>Total Estimated Capital Investment</p>	<p>\$4,926,800</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Figure 86

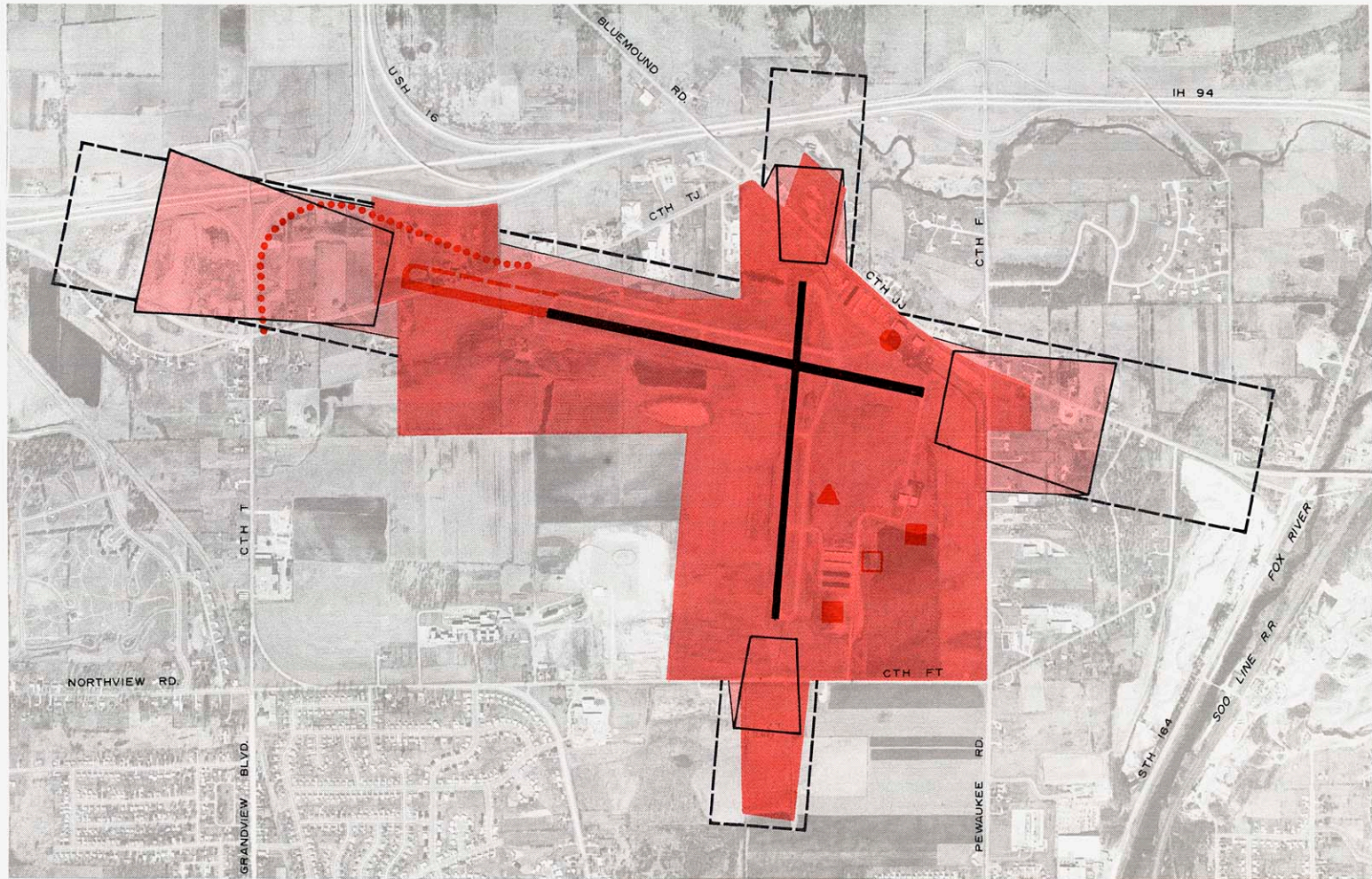
WAUKESHA COUNTY AIRPORT AIRSPACE RECOMMENDED TO BE MAINTAINED OBSTRUCTION FREE THROUGH HEIGHT RESTRICTION ZONING: MODIFIED BASIC TRANSPORT AIRPORT ALTERNATIVE



Source: SEWRPC.

SITE IMPROVEMENT PLAN FOR THE WAUKESHA COUNTY AIRPORT
 MODIFIED BASIC TRANSPORT AIRPORT ALTERNATIVE

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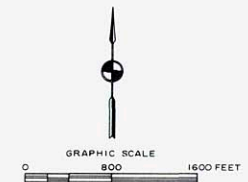


LEGEND

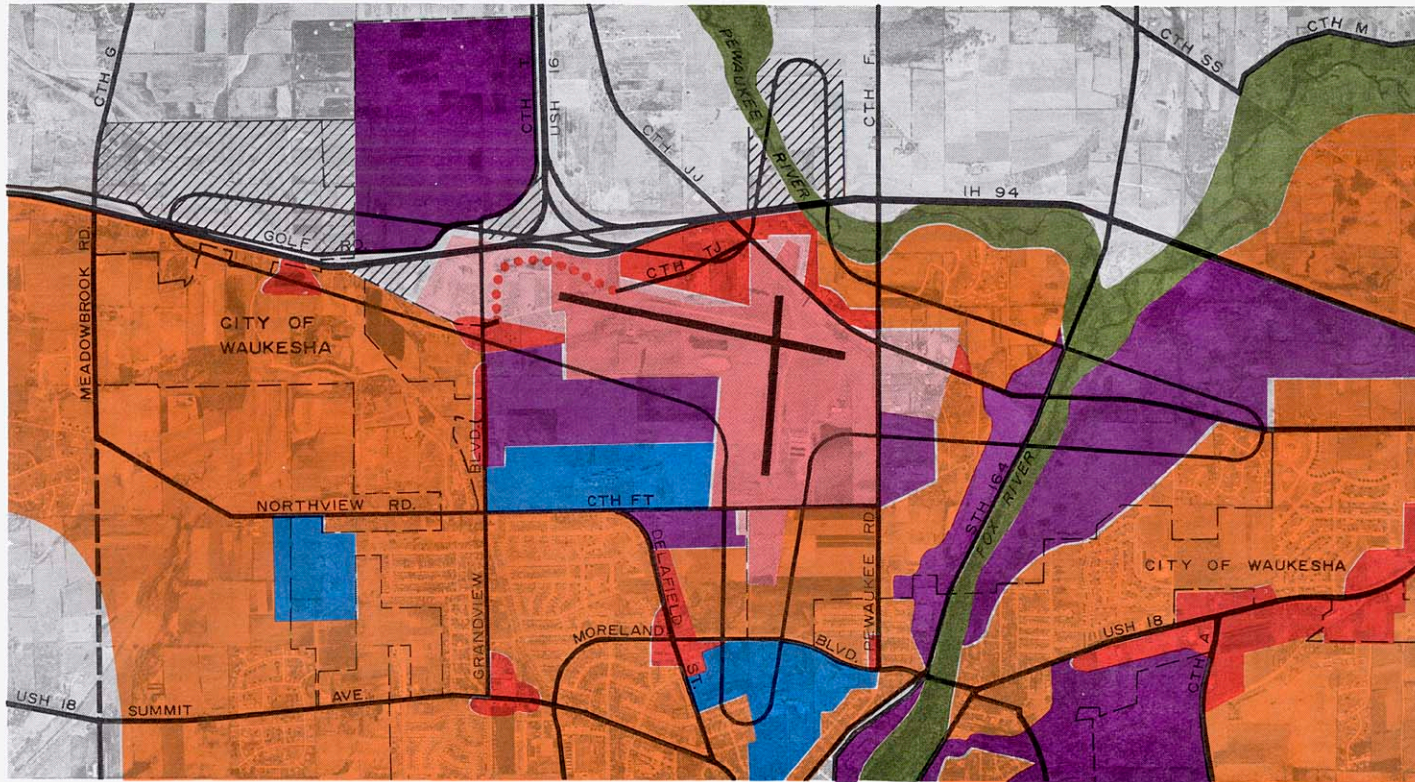
- LANDS CURRENTLY (1975) OWNED BY WAUKESHA COUNTY FOR AIRPORT PURPOSES
- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENTS OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- EXISTING PAVED RUNWAY
- PROPOSED PAVED RUNWAY
- PROPOSED TAXIWAY
- CLEAR ZONE TRAPEZOID

- PROPOSED TERMINAL BUILDING EXPANSION
- PROPOSED AIRCRAFT PARKING APRON AREA
- PROPOSED AIRCRAFT HANGAR AREA
- PROPOSED AUTOMOBILE PARKING AREA
- PROPOSED ROAD REALIGNMENT
- AIRPORT INFLUENCE AREA—LIMIT OF AREA ELIGIBLE FOR FEDERAL AID

Source: SEWRPC.



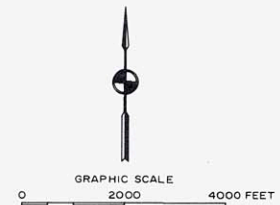
AREA LAND USE PLAN FOR THE WAUKESHA COUNTY AIRPORT
MODIFIED BASIC TRANSPORT AIRPORT ALTERNATIVE



LEGEND

- LANDS CURRENTLY OWNED BY WAUKESHA COUNTY FOR AIRPORT PURPOSES
- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENT OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- LANDS ADJACENT TO AIRPORT PROPOSED TO REMAIN IN AGRICULTURE OR OTHER OPEN SPACE LAND USES, OR TO BE UTILIZED FOR NON-RESIDENTIAL URBAN LAND USES COMPATIBLE WITH AIRPORT ACTIVITY
- MEDIUM DENSITY RESIDENTIAL AND RELATED (7.3-22.8 PERSONS PER NET RESIDENTIAL ACRE)
- COMMERCIAL
- INDUSTRIAL
- GOVERNMENT AND INSTITUTIONAL
- PRIMARY ENVIRONMENTAL CORRIDOR
- AGRICULTURAL

- PROPOSED ROAD REALIGNMENT
- MUNICIPAL LIMITS-1975
- 100 CNR NOISE RATING ISOPLETH
- ARTERIAL STREET OR HIGHWAY
- EXISTING
- PROPOSED



Source: SEWRPC.

promise solution. Particularly, the Commission was aware that those included within the sport pilot category would not agree with the decision, particularly because of the recommended reallocation of about 86 type E aircraft from Waukesha County to other airports in the system. The Commission deemed, however, that the perceived need to accommodate the demand for business related corporate jet activity and to not in any way compromise industrial development potential in the county outweigh the admittedly adverse impact upon the sport flying community members.

With respect to the concerns raised by those individuals whose lands would be directly affected by the expansion requirements of the Waukesha Airport, the Commission recommends that Waukesha County, in developing the required airport master plan, carefully analyze each individual situation with a view toward staging any needed airport improvements in such a manner so as to ensure that all individuals that now reside on lands to be acquired may continue to reside throughout their individual lives. The Commission urged in this respect that any taking that becomes necessary to accommodate airport expansion include due consideration of such techniques as the granting, at the owners' option, of life tenancies to those now residing on affected properties, purchasing of development rights, and acquiring easements. The Commission further recommends that Waukesha County as part of its master planning effort take steps to ensure the imposition of operational controls so as to minimize the adverse affect of aircraft operations on adjacent land uses. Operational controls relating to establishment of a right hand rather than the normal left hand pattern departing runway 28 can be initiated at present to provide immediate noise nuisance relief to residential development south of the airport. Finally, the Commission recommends that the City and County work together in the master planning effort to identify those areas in the immediate vicinity of the airport which could be safely and properly developed for industrial and commercial land uses compatible with aircraft operations.

General Mitchell Field

The record of the public hearing and the subsequent informational meeting held in the City of St. Francis indicates that the major concerns on the part of the public officials and residents of the area surrounding General Mitchell Field relate to the impact of aircraft operations on nearby residential land uses. Significantly, no support was voiced for the relocation of Mitchell Field, although alternatives to Mitchell Field as the Region's single air carrier airport were considered in the regional airport system planning program and presented at the hearings. Of particular concern to area residents was the timetable for the acquisition of about 90 homes located in the City of St. Francis immediately north of General Mitchell Field. These 90 homes lie within the clear zone associated with the proposed north-south air carrier runway immediately east of the present air carrier runway. Extension of this runway has been proposed for several years, and Milwaukee County has indicated its willingness to purchase the impacted properties. Land acquisition has been delayed, however, until all planning,

including airport master plans and environmental impact assessments, is completed and approved so that the runway extension project can be initiated.

In considering the matter of the impact of aircraft operations at General Mitchell Field upon surrounding land uses and activities, both under current and forecast conditions—whether the airport is expanded or not—the Commission noted that Milwaukee County is undertaking the preparation of a master plan designed to refine and detail system plan recommendations and that it was essential that the concerns expressed at the public meetings be specifically addressed as part of that master planning effort. The Commission has been retained by the Wisconsin Division of Aeronautics and Milwaukee County to prepare the offsite land use element of the General Mitchell Field master planning study and, in so doing, has worked with the surrounding communities in an effort to develop an offsite land use plan that would help to resolve the serious conflicts in land use and airport development which surround this major air carrier airport.

East Troy Municipal Airport

Following the public informational meeting held at Elkhorn, the Village Board of the Village of East Troy filed a resolution with the Commission objecting to the preliminary airport system plan with respect to the proposed improvements recommended for the East Troy Municipal Airport. In particular, the Village Board indicated its concern over the ability of the Village to finance the proposed improvements and over the proposed taking of additional land to accommodate the improvements.

In response to this communication, the Commission scheduled an intergovernmental meeting on October 27, 1975, with the Village Board to discuss this matter. Representatives of the Walworth County Board, the Town of East Troy, the East Troy Development Association, and the East Troy Plan Commission were invited to, and also did, attend the meeting. The record of that meeting reflects a consensus that the East Troy Municipal Airport should continue to function as a basic utility airport. That consensus, however, did not extend to all of the proposed site improvements included in the preliminary recommended regional airport system plan. Since many of the users of the airport may be expected to reside outside of the Village, the Board expressed support for the recommendation contained in the plan that Walworth County become the local public airport sponsor of the East Troy Airport, particularly if, at some future date, the demand reached a level where all of the airport site improvements recommended in the preliminary plan were required.

Following that intergovernmental meeting, the Village Board of the Village of East Troy filed a second resolution reaffirming its opposition to inclusion of the East Troy Municipal Airport in the recommended regional system plan as a basic utility airport. The Board indicated that it favored continued operation of the airport as it exists today and continued to express objection to the specific site improvements recommended in the plan for the East Troy Municipal Airport.

In considering the foregoing, the Commission, after careful deliberation, determined to continue to include the East Troy Municipal Airport in the recommended regional airport system plan as a basic utility airport. In so doing, the Commission noted that the system plan recommends that the local public airport sponsor retain full control over the timing and scope of future airport site improvements, if any, and that the local sponsor initiate the preparation of airport master plans as a first step toward the more precise identification of any improvements that may be needed. The Commission further noted that the site improvements identified for the East Troy Municipal Airport in the airport system plan were based upon forecast demand, and that the decisions concerning the need for and staging of these improvements would be made only as the actual demand developed either in accordance with or at variance to the forecasts, the decisions resting with the local sponsor. Accordingly, although the Village Board continued to express opposition to the airport system plan, the Commission believed that it would be important to maintain the option of undertaking site improvements at the East Troy Airport with federal and state aid. Removing the airport from the system plan would preclude future state and federal aid projects at the airport. On the other hand, inclusion of the airport in the system plan would ensure that improvements would be eligible for federal and state funding should, at some future date, the local sponsor determine on its own volition to proceed with site improvements or, in the alternative, relinquish control of the airport to another public sponsor who would then be responsible for needed site improvements.

Burlington Municipal Airport

The record of the public informational meetings at Sturtevant and Elkhorn reflects widely-based opposition to the proposed future function of the Burlington Municipal Airport in the regional airport system. The plan, as presented at the public meetings, included a recommendation that the Burlington Airport be upgraded from its present status as a basic utility stage II airport to a proposed status as a basic transport airport. The Burlington Airport was, thus, envisioned as being the single basic transport airport serving all of Walworth County and western Racine and Kenosha Counties. The forecast upon which the recommended preliminary plan was based envisioned a need to base about nine business jet and heavier twin-engine type aircraft at the Burlington Airport.

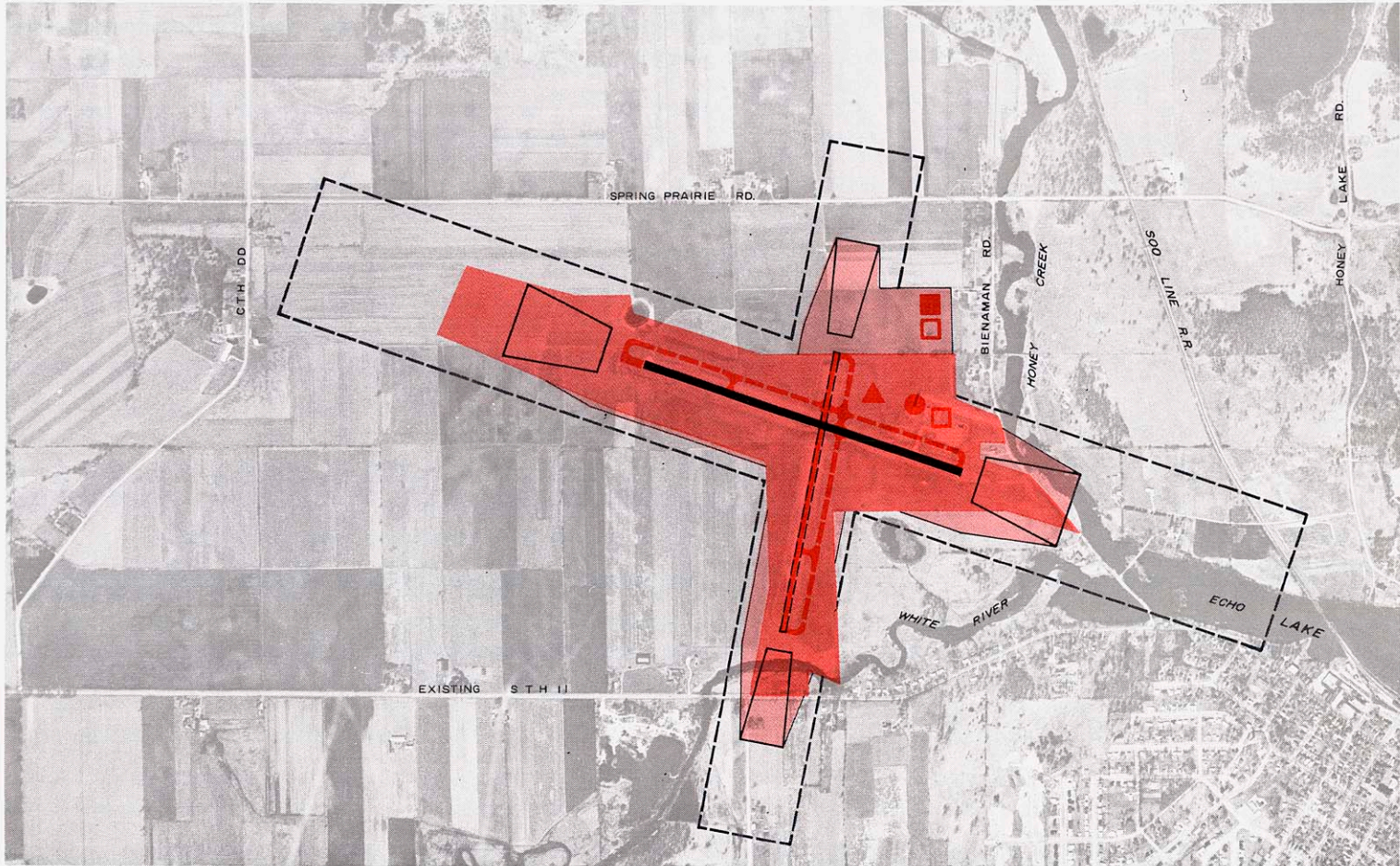
The preliminary plan recommendations were opposed by nearly all parties concerned, including the sport flying community, the Towns of Burlington and Spring Prairie, and the City of Burlington itself as the local public airport sponsor. The recreation aviation community was particularly concerned over the plan recommendation to provide greater landing system capacity and to provide a control tower to regulate aviation activity. The Towns of Burlington and Spring Prairie and their residents were particularly concerned about the increased amount of land needed to accommodate the proposed airport improvements. The City of Burlington indicated that it

did not believe the provision of a basic transport airport was important to its industrial development program. Not a single industrial or business representative evidenced support for the development of a basic transport airport at Burlington at any of the public informational meetings or the public hearing.

In response to this overwhelming reaction, the Commission held a special intergovernmental meeting on September 30, 1975, with all concerned local parties in order to arrive at a consensus as to what adjustments should be made in the system plan in light of the near unanimity of opinion opposing the preliminary plan recommendations. At that intergovernmental meeting, the Commission staff presented two additional alternatives with respect to the Burlington Municipal Airport, one which would provide improvements that would upgrade the airport from a basic utility to a general utility airport, and the other which would continue to classify the Burlington Municipal Airport as a basic utility airport. The site improvements required to upgrade the airport to a general utility airport are shown on Map 85 and are listed in Table 265. The site improvements required as a basic utility airport are shown on Map 86 and are listed in Table 266. The record of that special intergovernmental meeting indicates unanimous support by all parties concerned for retention of the Burlington Municipal Airport as a basic utility airport. The record further reveals that a consensus was achieved with respect to including in the recommended plan the following specific site improvements at the Burlington Municipal Airport: resurfacing existing Runway 11/29 and construction of a taxiway parallel to Runway 11/29.

Based upon the foregoing, the Commission determined to adjust the recommended regional airport system plan to provide for a basic utility airport at Burlington (see Map 86) as opposed to the initial recommendation to upgrade the Burlington Airport to a basic transport status. A revised area land use plan corresponding to the revised site improvement plan for the Burlington Municipal Airport is shown on Map 87, while revised airport airspace protection recommendations are identified on Figure 87. In so doing, the Commission noted that the system plan, as thus revised, does not provide a basic transport airport in western Racine and Kenosha Counties or in Walworth County and that, accordingly, any demand for basing corporate jet aircraft on the part of businesses and industrial concerns in this portion of the Region will have to be satisfied by basing such aircraft either at the Kenosha Municipal Airport, Racine Commercial Airport, or General Mitchell Field in Milwaukee County. Because of the small number of type C and D aircraft involved, the relocation of such aircraft and attendant operations are not expected to significantly affect airport capacity at any of these alternative sites. Since the ground travel time from Elkhorn to each of these three airports is about 40, 55, and 50 minutes, respectively, this change in the system plan means that the ground travel time standard of 30 minutes for the higher-performance business jet aircraft, whose owners might reside in this part of the Region, will not be met.

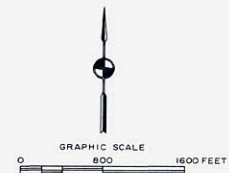
**SITE IMPROVEMENT PLAN FOR THE BURLINGTON MUNICIPAL AIRPORT
GENERAL UTILITY AIRPORT ALTERNATIVE**



LEGEND

- LANDS CURRENTLY (1975) OWNED BY THE CITY OF BURLINGTON FOR AIRPORT PURPOSES
- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENTS OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- EXISTING PAVED RUNWAY
- EXISTING TURF RUNWAY
- PROPOSED PAVED RUNWAY
- PROPOSED TAXIWAY

- CLEAR ZONE TRAPEZOID
- PROPOSED TERMINAL BUILDING EXPANSION
- PROPOSED AIRCRAFT PARKING APRON AREA
- PROPOSED AIRCRAFT HANGAR AREA
- PROPOSED AUTOMOBILE PARKING AREA
- AIRPORT INFLUENCE AREA—LIMIT OF AREA ELIGIBLE FOR FEDERAL AID



Source: SEWRPC.

Table 265

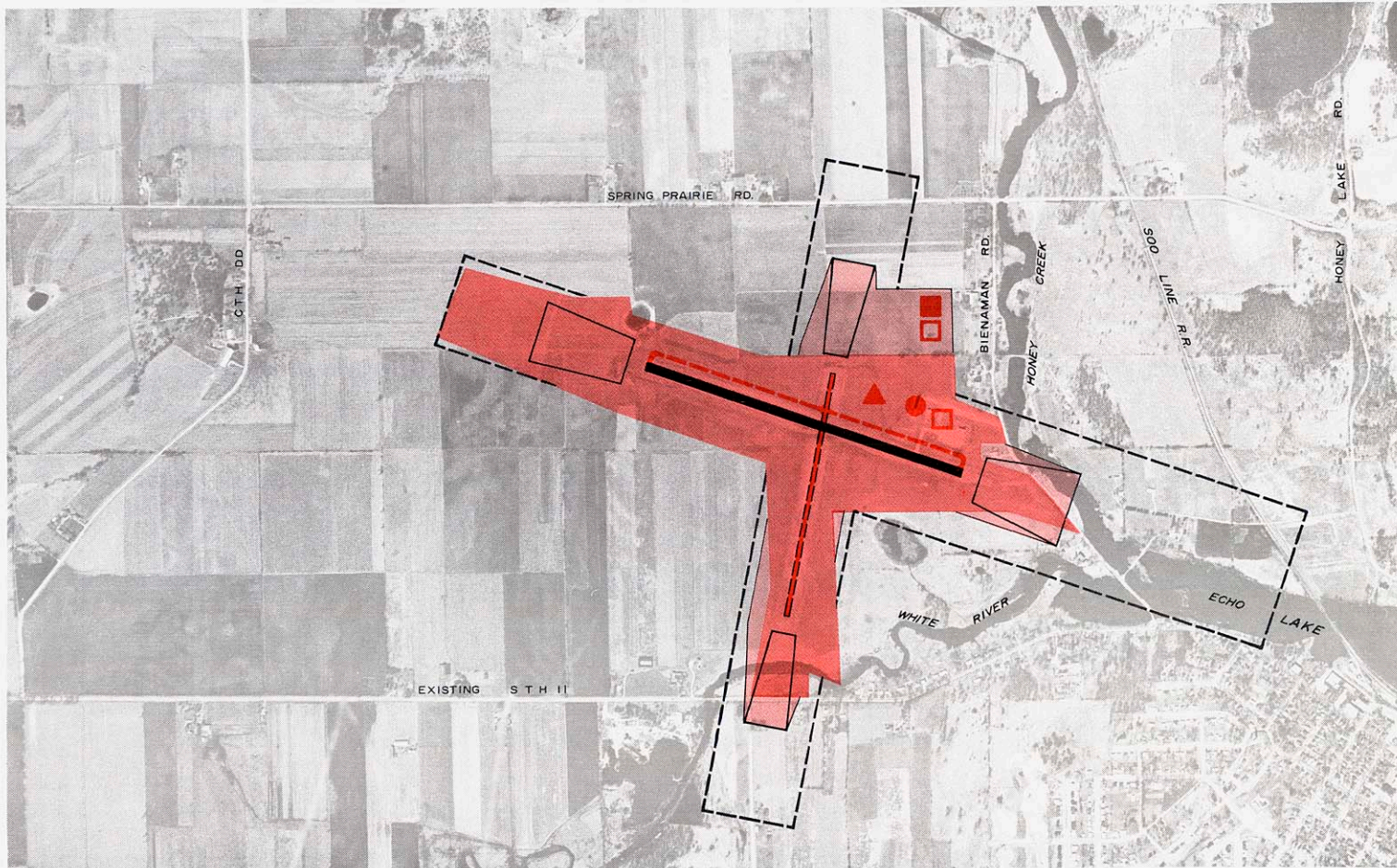
**SITE REQUIREMENTS FOR THE BURLINGTON MUNICIPAL AIRPORT
GENERAL UTILITY AIRPORT ALTERNATIVE**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity</p> <p>IFR Capability</p>	<p>Existing—Basic Utility II Proposed—General Utility</p> <p>1971 Inventory—8,000 1995 Forecast—182,000</p> <p>1971 Inventory—38 1995 Forecast—222</p> <p>Existing—133,000 Proposed—306,000</p> <p>Nonprecision Instrument Approach</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential Units</p> <p>Total Estimated Cost</p>	<p>40</p> <p>37</p> <p>2</p> <p>\$ 225,000</p>
<p>Operational Area Improvements</p> <p>Extend Runway 11/29 to 3,800 feet</p> <p>Pave Runway 1/19: 75 feet x 3,000 feet</p> <p>Construct parallel taxiways</p> <p>Resurface Runway 11/29</p> <p>Construct additional paved aircraft parking apron area: 30,000 square yards</p> <p>Install navigation aids</p> <p>MIRL, Both Runways: 6,800 feet</p> <p>Taxiway Exit Lights, Both Runways</p> <p>VASI-2, Runway 11</p> <p>REILS, Both Runways, Both Ends</p> <p>Provide air traffic control tower and install nonprecision instrument landing system on approach to Runway 11 when number and type of aircraft operations justify</p> <p>Total Estimated Cost</p>	<p>\$1,299,000</p>
<p>Terminal Area Improvements</p> <p>Expand administration/terminal building: 6,300 square feet</p> <p>Expand auto parking and onsite service roads: 12,600 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 465,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 21,000 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,583,000</p>
<p>Ground Access Facilities</p> <p>Improve Bieneman Road between terminal area and STH 11</p> <p>Total Estimated Cost</p>	<p>\$ 75,000</p>
<p>Total Estimated Capital Investment</p>	<p>\$3,647,000</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

**SITE IMPROVEMENT PLAN FOR THE BURLINGTON MUNICIPAL AIRPORT
BASIC UTILITY AIRPORT ALTERNATIVE**

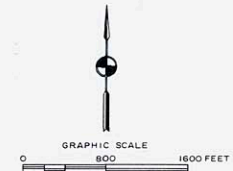
490



LEGEND

- LANDS CURRENTLY (1975) OWNED BY THE CITY OF BURLINGTON FOR AIRPORT PURPOSES
- LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENTS OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
- EXISTING PAVED RUNWAY
- EXISTING TURF RUNWAY
- PROPOSED PAVED RUNWAY
- PROPOSED TAXIWAY













- CLEAR ZONE TRAPEZOID
- PROPOSED TERMINAL BUILDING EXPANSION
- PROPOSED AIRCRAFT PARKING APRON AREA
- PROPOSED AIRCRAFT HANGAR AREA
- PROPOSED AUTOMOBILE PARKING AREA
- AIRPORT INFLUENCE AREA—LIMIT OF AREA ELIGIBLE FOR FEDERAL AID



Source: SEWRPC.

AREA LAND USE PLAN FOR THE BURLINGTON MUNICIPAL AIRPORT
BASIC UTILITY AIRPORT ALTERNATIVE

LEGEND

-  LANDS CURRENTLY (1975) OWNED BY THE CITY OF BURLINGTON FOR AIRPORT PURPOSES
 -  LANDS PROPOSED TO BE ACQUIRED FOR AIRPORT SITE IMPROVEMENT OR PROTECTED THROUGH EASEMENTS PROHIBITING INCOMPATIBLE LAND USE DEVELOPMENT
 -  LANDS ADJACENT TO AIRPORT PROPOSED TO REMAIN IN AGRICULTURAL OR OTHER OPEN SPACE LAND USES, OR BE UTILIZED FOR NON-RESIDENTIAL URBAN LAND USES COMPATIBLE WITH AIRPORT ACTIVITY
 -  MEDIUM DENSITY RESIDENTIAL AND RELATED (7.3-22.8 PERSONS PER NET RESIDENTIAL ACRE)
 -  COMMERCIAL
 -  INDUSTRIAL
 -  PRIMARY ENVIRONMENTAL CORRIDOR
 -  AGRICULTURAL
 -  MUNICIPAL LIMITS-1975
 -  ARTERIAL STREET OR HIGHWAY
 -  EXISTING
 -  PROPOSED
- NOTE: THE FORECAST LEVEL OF AVIATION ACTIVITY AT THIS AIRPORT DOES NOT GENERATE A 100 CNR NOISE RATING ISOPLETH

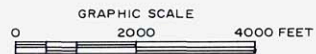
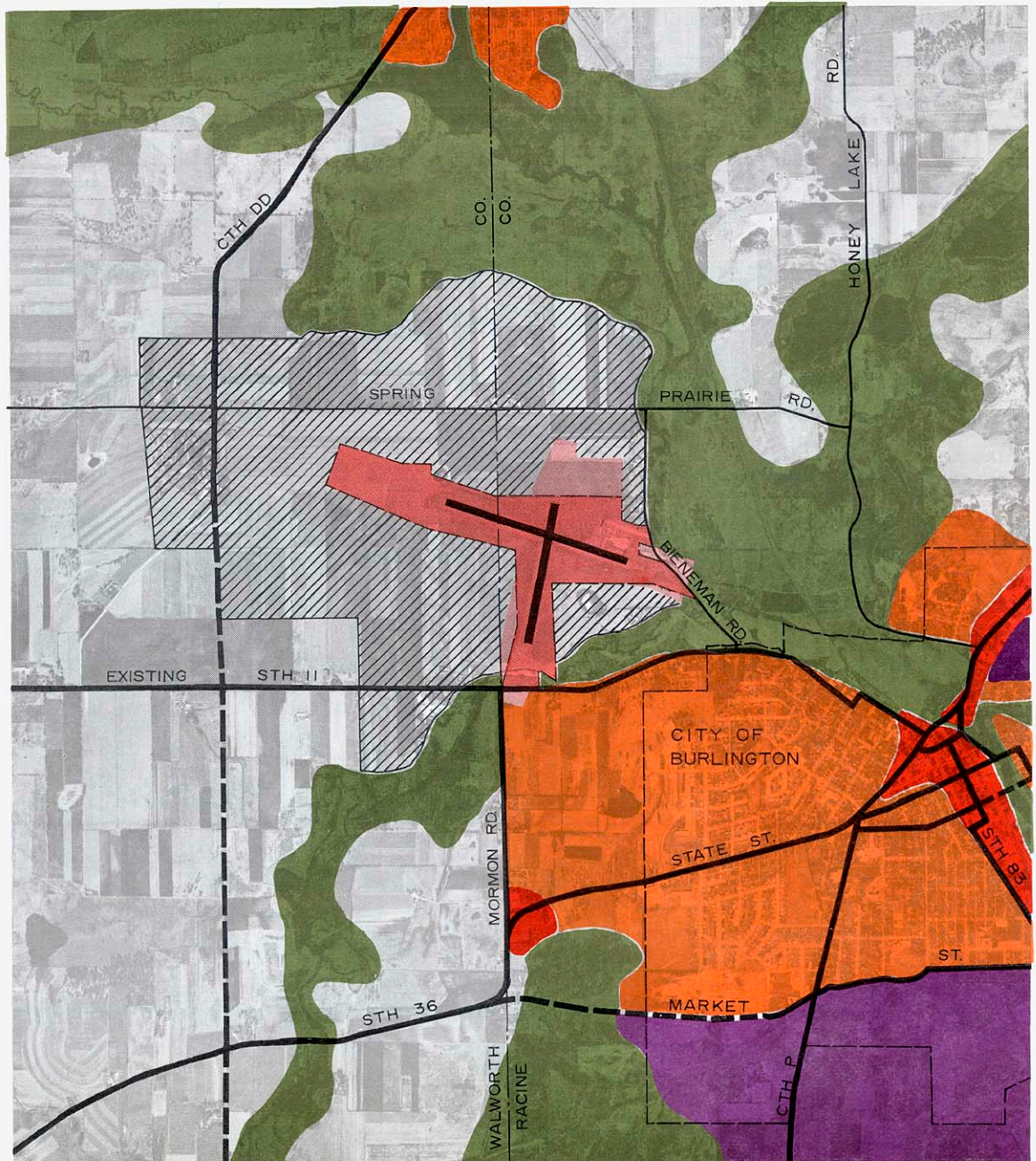


Table 266

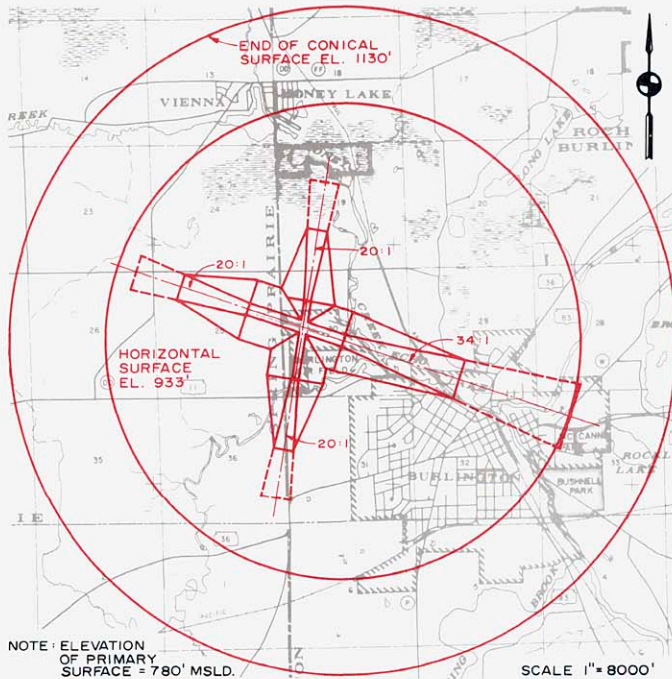
**SITE REQUIREMENTS FOR THE BURLINGTON MUNICIPAL AIRPORT
BASIC UTILITY AIRPORT ALTERNATIVE**

General Conditions Airport Classification	Existing—Basic Utility II Proposed—Basic Utility II
Aviation Demand Annual Operations	1971 Inventory—8,000 1995 Forecast—160,900
Based Aircraft	1971 Inventory—38 1995 Forecast—200
Runway System Capacity (PANCAP).	Existing—133,000 Proposed—319,000
IFR Capability	Existing Nonprecision Instrument Approach
Land Requirements Site Expansion (Acres)	21
Clear Zone Protection (Acres)	33
Residential Units	2
Total Estimated Cost	\$ 200,000
Operational Area Improvements Resurface Runway 11/29 Pave Runway 1/19: 60 feet x 2,600 feet Construct Taxiway 11/29: 30 feet x 4,000 feet Construct additional paved aircraft parking apron: 24,900 square yards Install navigation aids MIRL Runway 1/19: 2,600 feet MIRL Runway 11/29: 3,800 feet Taxiway Exit Lights VASI-2 Runway 11/29, 11 End REILS Both Runways, Both Ends Total Estimated Cost	\$ 752,000
Terminal Area Improvements Expand administration/terminal building: 6,000 square feet Expand auto parking and service roads: 11,400 square yards Total Estimated Cost	\$ 444,000
Hangar Area Improvements Expand aircraft hangar storage and service area: 17,000 square yards Total Estimated Cost	\$1,277,000
Ground Access Facilities Improve Bieneman Road between terminal area and STH 11 Total Estimated Cost	\$ 75,000
Utility Services Airport terminal within proposed service area—cost of connections considered nominal	
Total Estimated Capital Investment	\$2,748,000

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Figure 87

**BURLINGTON MUNICIPAL AIRPORT AIRSPACE
RECOMMENDED TO BE MAINTAINED OBSTRUCTION
FREE THROUGH HEIGHT RESTRICTION ZONING
BASIC UTILITY AIRPORT ALTERNATIVE**



Source: SEWRPC.

Other Concerns Expressed at Meetings and Hearing

The record of the public meetings reflects one additional series of comments not covered in the above discussion. This relates to the recommendations made by representatives of the recreational aviation community to provide one or more new basic utility airports in the Milwaukee urbanized area. In considering this recommendation, the Commission noted that the Technical Coordinating and Advisory Committee had evaluated the feasibility of establishing new airports on the fringe of the Milwaukee urbanized area, and had rejected these alternatives in favor of a plan that would make maximum use of the existing public capital investment in airport facilities and the existing established patterns of general aviation activity. The Commission considered that recommendation to be well founded, particularly in light of the evidenced capability of accommodating all forecast aviation activity at the 14 airports included in the system plan and, furthermore, the avoidance thereby of the creation of new aviation-land use development conflicts, particularly in the rapidly developing suburban fringe of the Milwaukee urbanized area. In addition, the Commission recognized the continued potential of a large number of small privately-owned airfields that are available to meet the needs of the sport or recreation aviation community. Accordingly, the Commission determined not to change the recommended system plan to include any new general aviation airport sites in the Milwaukee urbanized area.

Concluding Remarks—Public Reaction

In summary, it may be concluded that public reaction to the preliminary regional airport system plan recommendations was mixed, with significant controversy developing with respect to several of the airports included in the system plan and with no controversy at all with respect to other airports included in the system plan. In addition, little public response was obtained regarding alternative system plans or alternative jurisdictional plans and the recommendation that system plan airports become the responsibility of the counties. In reviewing all of the comments, opinions, and data presented at all of the meetings and the hearing held concerning the plan recommendations, the Commission, after consultation with the Technical Coordinating and Advisory Committee, determined to change the preliminary plan recommendations in only two significant respects. The Commission acted to modify the preliminary plan by changing the scope of proposed improvements at the Waukesha County Airport, thereby reducing its capacity and causing the reallocation of about 96 based aircraft to other airports in the system. The Commission further acted to change the recommended function of the Burlington Municipal Airport from a basic transport status to a basic utility status, thereby leaving all of Walworth County and western Racine and Kenosha Counties unserved with respect to corporate jet activity. Since the expected demand from the corporate jet portion of the total aviation community in Walworth County and in western Racine and Kenosha Counties can be accommodated at other airports included in the regional airport system plan, without seriously compromising the ground travel time standard, and since the reallocated aircraft at the Waukesha airport can be accommodated at other airports without causing capacity problems, such changes to the preliminary plan may be termed minor, with respect to the integrity of the regional airport system.

**POST-PUBLIC HEARING RECOMMENDED
REGIONAL AIRPORT SYSTEM PLAN**

The recommended regional airport system plan as initially prepared was refined as a result of a new forecast of aviation activity undertaken during the regional airport system planning process and was presented for public review and comment. As documented in the previous section of this chapter, the Technical Coordinating and Advisory Committee and the Commission carefully considered the information and comments presented at the public informational meetings and public hearing on the plan, and in accordance with the information and comments made modifications to the preliminary system plan as that plan concerned the Waukesha County and Burlington Municipal Airports. Although these changes were considered minor with respect to the potential effect on, and integrity of, the regional airport system plan, the changes will influence the allocation of aircraft based within the Region and thereby affect aircraft operations and airport facility requirements. Accordingly, the Commission reallocated aircraft to the modified system in order to determine any changes in airport facility needs at each system airport which may have resulted from the

plan changes made in response to the public reaction to the preliminary plan. Table 267 sets forth a comparison of airport classification and capacity, distribution of based aircraft by type, and number of annual operations developed for the preliminary recommended system plan and for the final recommended system plan. The final recommended system plan is graphically summarized on Map 88, while the approximate future service areas of the system airports with respect to types C, D, and E aircraft are identified on Maps 89, 90, and 91, respectively.

Based upon the reallocation of based aircraft and the changes in airport facilities—particularly in the runway-taxiway systems—made in response to public comment, a new series of tables setting forth site requirements at each system airport was prepared to refine and detail the final plan recommendations. For the most part, the adjustments to airport facilities affected only aircraft parking apron, terminal, hangar, and automobile parking facilities, reflecting the changes in the number of based aircraft. It was only necessary to modify recommended land acquisition requirements and runway facilities and associated costs at the Hartford Municipal Airport, the Waukesha County Airport, and the Burlington Municipal Airport. The site requirements at each airport as recommended in the final plan, along with attendant capital costs, are shown in Tables 268 through 279. A summary of total system development costs by airport is provided in Table 280. Total final system plan costs vary only slightly from those estimated for the preliminary system plan. The changes at Hartford, Waukesha, and Burlington resulted in a \$3.7 million decrease in total estimated system plan costs, or about two percent less than the estimated cost of the preliminary recommended system plan.

PLAN IMPLEMENTATION

The legal and governmental framework existing in the Southeastern Wisconsin Region is such that the existing local, county, and state units and agencies of government can readily implement all of the major recommendations contained in the regional airport system plan. In Chapter XIII of this report, a comprehensive, cooperative, intergovernmental plan implementation program is set forth which indicates the specific actions which will be required at each level, agency, and unit of government if the recommended regional airport system plan is to be fully implemented.

Consideration was given in formulating plan implementation responsibilities to simply continuing to use the existing institutional structure for plan implementation, a structure that consists of a mix of public and private ownership. Given the magnitude of capital improvements required, it was considered unlikely that the private owners, except perhaps the private operator of the Racine Commercial Airport, would be able to fully implement the system plan recommendations. Accordingly, it was considered necessary to investigate alternative public airport institutional structures in order to select a recommended public strategy for plan implementation. Five basic public airport institutional structures were considered: continuing existing major public sponsors and seeking new local public sponsors, primarily cities and villages; seeking county sponsorship of all public airport facilities; seeking county and multi-county sponsorship of all public airport facilities; seeking establishment of a regional airport authority; and seeking state ownership and operation of all public airport facilities.

Table 267

COMPARISON OF AVIATION ACTIVITY ALLOCATED TO SYSTEM AIRPORTS IN THE SOUTHEASTERN WISCONSIN REGION UNDER THE PRELIMINARY AND FINAL RECOMMENDED SYSTEM PLANS: 1995

Airport	Preliminary System Plan								Final System Plan							
	Classification	Capacity	1995 Operations	Demand as a Percent of Capacity	Based Aircraft				Classification	Capacity	1995 Operations	Demand as a Percent of Capacity	Based Aircraft			
					C	D	E	Total					C	D	E	Total
Kenosha Municipal	BT	337,600	232,800	69	6	47	233	286	BT	337,600	238,000	70	14	43	237	294
General Mitchell Field . . .	SAT	400,000	300,900 ^b	75	19	192	--	211	SAT	400,000	318,000 ^c	80	22	210	--	232
Timmerman Field	GU	501,700	341,500	68	--	62	357	419	GU	501,700	363,800	73	--	62	390	452
Ozaukee County	GU	306,300	200,000	65	--	42	230	272	GU	306,300	219,700	72	--	47	222	269
Burlington Municipal	BT	253,300	188,500	74	9	50	172	231	BU	319,000	160,900	50	--	--	200	200
Racine Commercial	BT	253,300	138,200	55	2	18	150	170	BT	253,300	133,700	53	2	20	143	165
Sylvania	BU	319,000	165,400	52	--	--	206	206	BU	319,000	166,000	52	--	--	206	206
East Troy Municipal	BU	319,000	203,800	64	--	--	253	253	BU	319,000	211,600	66	--	--	268	268
Gruenwald	GU	306,300	147,400	48	--	46	134	180	GU	306,300	163,800	53	--	79	118	197
Hartford Municipal	GU	306,300	205,100	67	--	72	177	249	GU	306,300	227,400	74	--	75	206	281
West Bend Municipal	BT	253,300	236,300	93	13	50	233	296	BT	253,300	234,400	93	10	47	232	289
Waukesha County	BT	337,600	322,000	95	13	60	324	397	BT-Modified	253,300	244,500	97	14	50	237	301
Airports Beyond Region	--	--	--	--	--	32	262	294	--	--	--	--	--	38	269	307
Playboy ^a	BUR	--	15,800	--	--	--	20	20	BUR	--	18,400	--	--	--	23	23
Lake Lawn Lodge ^a	BUR	--	13,100	--	--	--	16	16	BUR	--	13,100	--	--	--	16	16
Total	--	--	--	--	62	671	2,767	3,500	--	--	--	--	62	671	2,767	3,500

^a Private airports assumed to service a limited amount of general aviation demand.





^b Includes forecast of 181,200 general aviation, 104,600 air carrier, and 15,100 military operations.

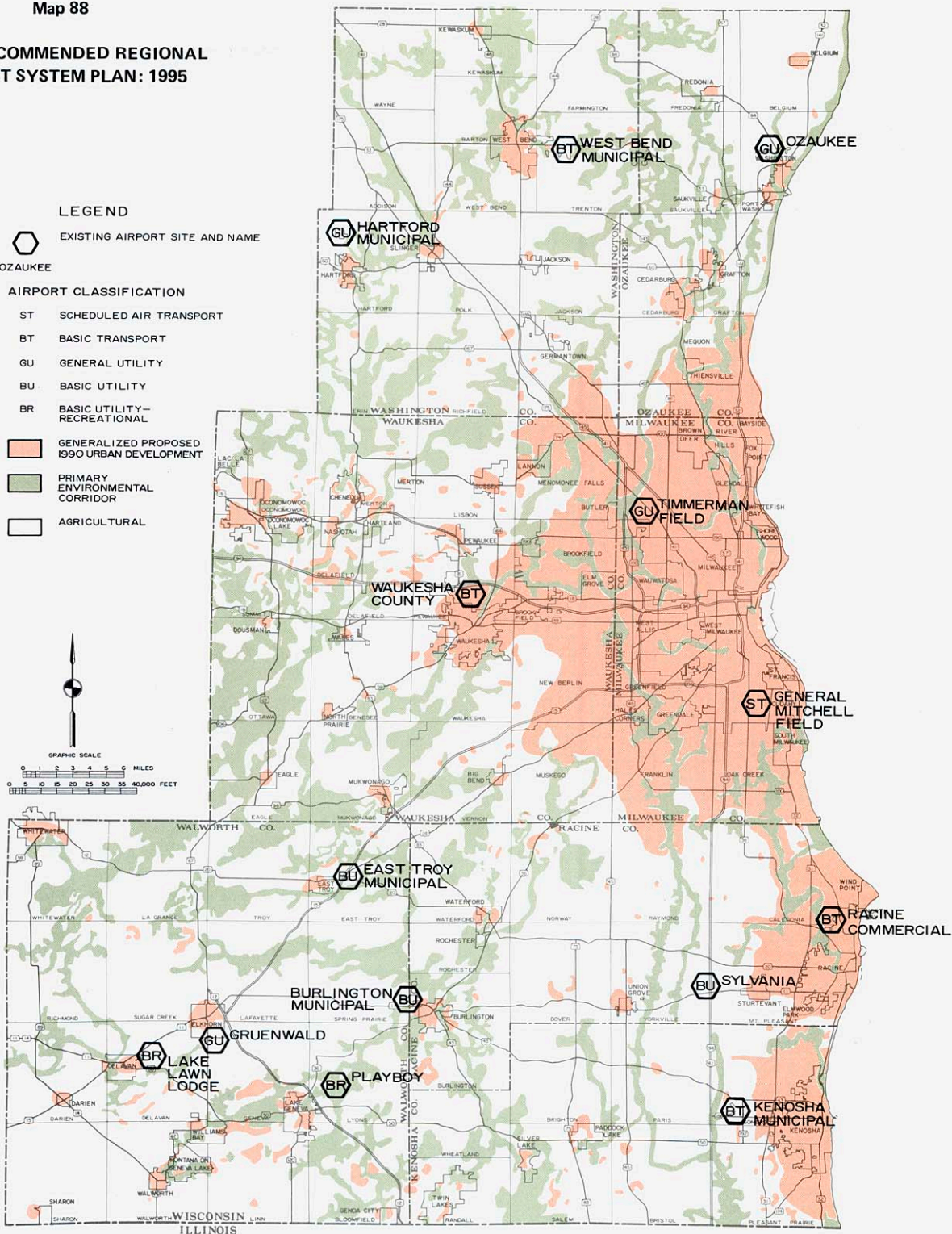
^c Includes forecast of 198,300 general aviation, 104,600 air carrier, and 15,100 military operations.

Source: R. Dixon Speas Associates, Inc., and SEWRPC.

Map 88

FINAL RECOMMENDED REGIONAL AIRPORT SYSTEM PLAN: 1995

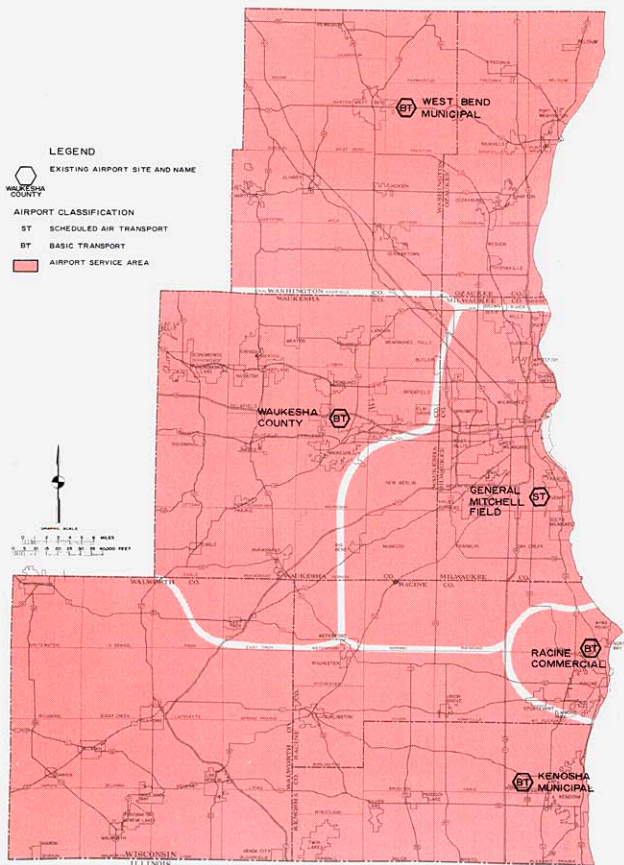
- LEGEND**
-  EXISTING AIRPORT SITE AND NAME
 - OZAUKEE**
 - AIRPORT CLASSIFICATION**
 - ST SCHEDULED AIR TRANSPORT
 - BT BASIC TRANSPORT
 - GU GENERAL UTILITY
 - BU BASIC UTILITY
 - BR BASIC UTILITY-RECREATIONAL
 -  GENERALIZED PROPOSED 1990 URBAN DEVELOPMENT
 -  PRIMARY ENVIRONMENTAL CORRIDOR
 -  AGRICULTURAL



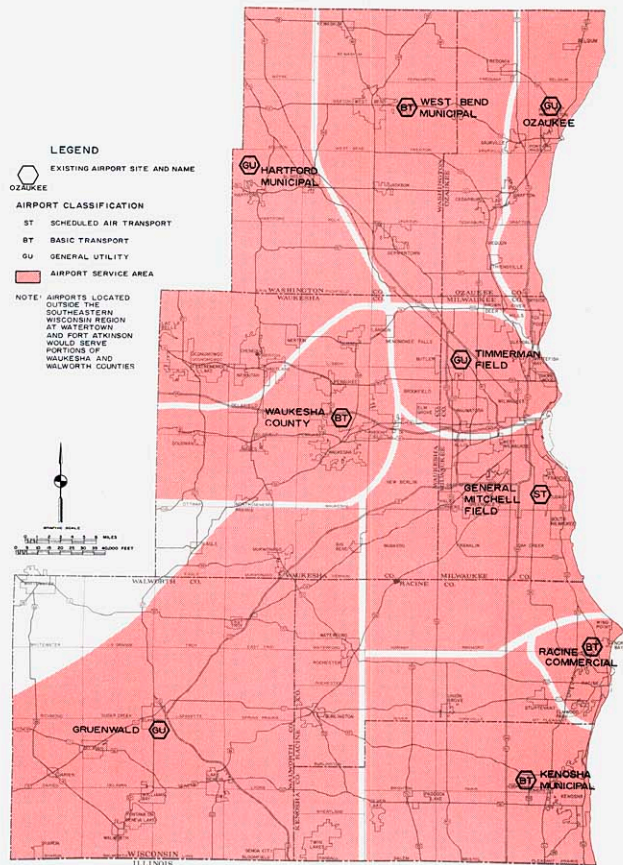
Following a series of public informational meetings and a public hearing on the preliminary recommended regional airport system plan shown on Map 45, adjustments were made in the plan in light of public response. The preliminary recommended plan provided for a basic transport airport classification at the Burlington Municipal Airport. Following the public hearings, this recommendation was modified to provide for a basic utility classification for the Burlington Municipal Airport. Runway system adjustments were also made at the Hartford Municipal Airport—lengthening the primary runway—and the Waukesha County Airport—eliminating the parallel basic utility runway—to achieve system plan objectives. Thus, the final recommended regional airport system plan contains 14 public use airports, including one air carrier airport, three basic transport airports, one modified basic transport airport, four general utility airports, three basic utility airports, and two basic utility-recreation airports.

Source: R. Dixon Speas Associates, Inc. and SEWRPC.

**AIRPORT SERVICE AREAS IN THE REGION
FOR TYPE "C" AIRCRAFT: 1995**



**AIRPORT SERVICE AREAS IN THE REGION
FOR TYPE "D" AIRCRAFT: 1995**



The change in the proposed classification of the Burlington Municipal Airport from a basic transport to a basic utility airport required reallocation of type C aircraft to General Mitchell Field and to four basic transport airports within the Region capable of accommodating the heavier and higher performance type general aviation aircraft. This reallocation results in larger airport service areas for this aircraft type than previously anticipated at General Mitchell Field, Waukesha County, and particularly the Kenosha Municipal Airport. In addition, some type C aircraft owners, particularly in Walworth County, may be expected to reside more than 30 minutes driving time from the Kenosha Municipal Airport.

Source: R. Dixon Speas Associates, Inc. and SEWRPC.

Changes in the proposed classification of the Burlington Municipal Airport from a basic transport to a basic utility airport, together with a reduction in the proposed capacity of the Waukesha County Airport, required reallocation of type D aircraft to General Mitchell Field, to the four basic transport airports, and to the four general utility airports capable of accommodating the intermediate weight, high performance, nonturbojet type general aviation aircraft. This reallocation results in larger airport service areas for this aircraft type than previously anticipated at General Mitchell Field, Kenosha Municipal Airport, and Gruenwald Airport, and in minor changes in the facilities required.

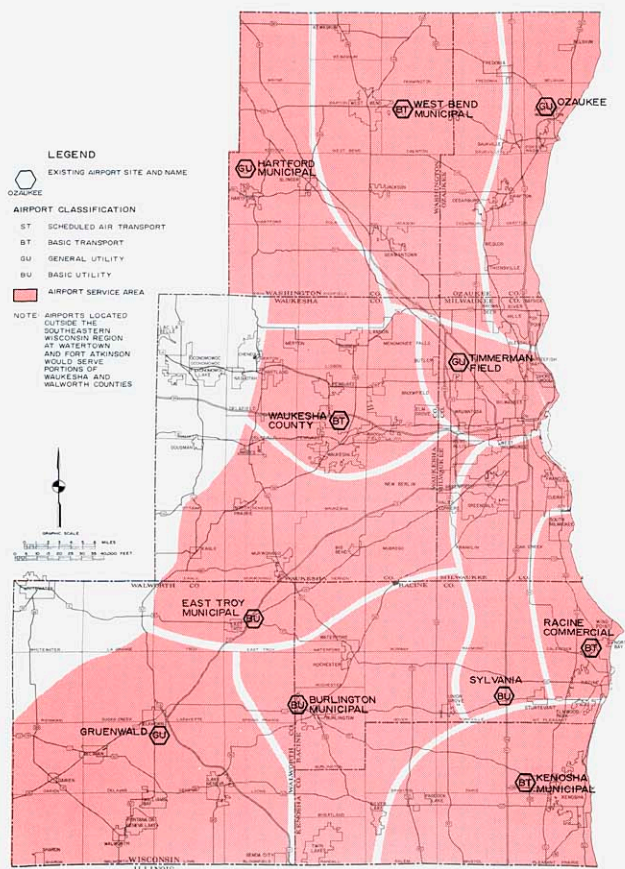
Source: R. Dixon Speas Associates, Inc. and SEWRPC.

Consideration of these alternatives led to a recommendation that county sponsorship be sought for all public airport facilities included in the recommended system plan. This recommendation was based upon the following major factors:

1. Three of the largest and most important airports included in the system plan are already owned and operated by counties—General Mitchell and Timmerman Fields by Milwaukee County and the Waukesha County Airport by Waukesha County.
2. The remaining nine airports included in the recommended system plan are either privately owned or owned by cities or villages. Given the

areawide nature of all of the facilities included in the recommended plan, and further given the required capital investment necessary to implement the plan, it is inappropriate to consider either continued private ownership or city, village, or town ownership and operation of these nine airport facilities, the single exception being perhaps continued private ownership of the Racine Commercial Airport facility. Per capita costs at the local level would tend to be quite high, resulting in an inequitable distribution of costs among the Region's residents. Hence, the county level of government is more appropriate than the city, village, or town level of government for ownership and operation of these airport facilities.

AIRPORT SERVICE AREAS IN THE REGION FOR TYPE "E" AIRCRAFT: 1995



A reallocation of type E aircraft to all 11 general-purpose public-use general aviation airports comprising the recommended regional airport system was required following the public hearings on the initial plan recommendations. These reallocations were necessitated by the reclassification of the Burlington Municipal Airport from a basic transport to a basic utility airport and by a reduction in proposed capacity at the urban Waukesha County Airport, and resulted in changes in the airport service areas for the type E aircraft from those previously anticipated. The most significant change in this respect is the increased size of the anticipated service area for the East Troy Municipal Airport.

Source: R. Dixon Speas Associates, Inc. and SEWRPC.

3. The likelihood of establishing airport functional responsibility at the county level in the five individual counties is judged to be higher than the likelihood of establishing multi-county authorities or commissions for those same five counties.
4. The provision of the airport function at the county level of government results in a relatively equitable distribution of costs on a per capita basis throughout the Region, although it is recognized that such distribution is not as equitable as it would be if the recommendation were to be made to create a regional airport authority.

In addition to recommending a county level public institutional structure for plan implementation, the plan also recommends that airport master planning efforts be undertaken for each of the 12 major airports included in the recommended system plan; that a state revolving fund for aircraft hangar construction be established; that the local public authorities involved take appropriate action to amend local zoning and/or height control ordinances to provide for proper airport airspace protection; and that the local public authorities involved undertake more precise and detailed land use planning to assist in assuring a proper relationship between airport site development and airport area land development.

CONCLUSION

The regional airport system plan provides another important element of the evolving comprehensive plan for the physical development of the seven-county Southeastern Wisconsin Region. Together with the regional transportation plan for highways and transit, the regional airport system plan provides the Region, its public officials, and its citizens with a sound, coordinated guide to transportation facility development. The plan is based upon extensive inventories and analyses of the existing regional air transportation system, and has been carefully selected from among many alternatives considered. The plan has been endorsed by an advisory committee comprised of knowledgeable and experienced public works engineers, airport operators, and other individuals representing aviation interests throughout the Region. The recommended plan and the alternatives thereto were, moreover, subject to extensive public review at informational meetings and a formal public hearing, the results of which are documented in a published transcript.

The regional airport system plan includes definitive recommendations for airport facility construction and operation, including recommendations for runway, taxiway, navigational aid, and associated terminal facility improvements as well as the imposition of nonstandard air traffic patterns and aircraft activity restrictions; airport airspace protection; and airport area land use for the immediate area surrounding each of the airports included in the airport system plan. Within the context of the overall regional planning program, the recommended regional airport plan should meet all applicable federal and state planning requirements for system level planning. As such it should provide a sound basis for the preparation of airport facility master plans and for the approval of state and federal grants-in-aid.

The plan, as refined on the basis of local financial resource analyses and information obtained through a series of public informational meetings and a public hearing, should provide a sound basis for future public capital investment in airport and airport-related facilities. The plan makes maximum use of existing, available airport facilities to the point where no new airport sites have been recommended. Importantly, the plan was initially prepared for a regional population now thought to be in substantial excess of that anticipated to occur over the next two to three decades. Accordingly, the plan should serve the Region well, being capable of meeting aviation demands in the Region at least until the turn of the century.

Table 268

**SITE REQUIREMENT RECOMMENDATIONS FOR THE BURLINGTON MUNICIPAL AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Basic Utility II Proposed—Basic Utility II</p> <p>1971 Inventory—8,000 1995 Forecast—160,900</p> <p>1971 Inventory—38 1995 Forecast—200</p> <p>Existing—133,000 Proposed—319,000</p> <p>Existing Nonprecision Instrument Approach</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential Units</p> <p>Total Estimated Cost</p>	<p>21</p> <p>33</p> <p>2</p> <p>\$ 200,000</p>
<p>Operational Area Improvements</p> <p>Resurface Runway 11/29</p> <p>Pave Runway 1/19: 60 feet x 2,600 feet</p> <p>Construct Taxiway 11/29: 30 feet x 4,000 feet</p> <p>Construct additional paved aircraft parking apron: 24,900 square yards</p> <p>Install navigation aids</p> <p>MIRL Runway 1/19: 2,600 feet</p> <p>MIRL Runway 11/29: 3,800 feet</p> <p>Taxiway Exit Lights</p> <p>VASI-2 Runway 11/29, 11 End</p> <p>REILS Both Runways, Both Ends</p> <p>Total Estimated Cost</p>	<p>\$ 752,000</p>
<p>Terminal Area Improvements</p> <p>Expand administration/terminal building: 6,000 square feet</p> <p>Expand auto parking and service roads: 11,400 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 444,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 17,000 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,277,000</p>
<p>Ground Access Facilities</p> <p>Improve Bieneman Road between terminal area and STH 11</p> <p>Total Estimated Cost</p>	<p>\$ 75,000</p>
<p>Utility Services</p> <p>Airport terminal within proposed service area—cost of connections considered nominal</p> <p>Total Estimated Capital Investment</p>	<p>\$2,748,000</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 269

**SITE REQUIREMENT RECOMMENDATIONS FOR THE EAST TROY MUNICIPAL AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Less Than Basic Utility I Proposed—Basic Utility II</p> <p>1971 Inventory—5,700 1995 Forecast—211,600</p> <p>1971 Inventory—18 1995 Forecast—268</p> <p>Existing—8,600 Proposed—319,000 None (VFR)</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential and Commercial Units.</p> <p>Total Estimated Cost</p>	<p>70 50 1</p> <p>\$ 194,000</p>
<p>Operational Area Improvements</p> <p>Pave Runway 9/27: 60 feet x 3,200 feet</p> <p>Pave Runway 18/36: 60 feet x 2,560 feet</p> <p>Construct additional paved aircraft parking apron: 37,170 square yards</p> <p>Install navigation aids</p> <p>MIRL Runway 9/27</p> <p>MIRL Runway 18/36</p> <p>VASI-2 Runway 9/27, 27 End</p> <p>REILS Both Runways, Both Ends</p> <p>Total Estimated Cost</p>	<p>\$ 925,700</p>
<p>Terminal Area Improvements</p> <p>Construct new administration/terminal building: 7,700 square feet</p> <p>Expand auto parking and service roads: 13,100 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 562,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 19,700 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,486,000</p>
<p>Ground Access Facilities</p> <p>No additional facilities required</p>	
<p>Utility Services</p> <p>Airport terminal is within proposed service area—cost of connections considered nominal</p>	
<p>Total Estimated Capital Investment</p>	<p>\$3,167,700</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 270

**SITE REQUIREMENT RECOMMENDATIONS FOR GENERAL MITCHELL FIELD
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Total</p> <p>Air Carrier</p> <p>Military</p> <p>General Aviation</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP)</p> <p>IFR Capability</p>	<p>Existing—Scheduled Air Transport Proposed—Scheduled Air Transport</p> <p>1971 Inventory—230,810 1995 Forecast—318,000</p> <p>1971 Inventory—78,550 1995 Forecast—104,600</p> <p>1971 Inventory—14,000 1995 Forecast—15,100</p> <p>1971 Inventory—138,260 1995 Forecast—198,300</p> <p>1971 Inventory—183 1995 Forecast—232</p> <p>Existing—341,000 Proposed—400,000 Precision Instrument Approach</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Noise Impact Elimination (Acres)</p> <p>Residential and Commercial Units</p> <p>Total Estimated Cost</p>	<p>0 35 35 30</p> <p>\$ 2,060,000</p>
<p>Operational Area Improvements</p> <p>Resurface Runways 1L/19R and 7R/25L</p> <p>Resurface Taxiways 1L/19R and 7R/25L</p> <p>Extend Runway 1L/19R to 11,500 feet</p> <p>Runway: 200 feet x 1,584 feet</p> <p>Taxiway: 75 feet x 2,000 feet</p> <p>Extend Runway 1R/19L to 7,000 feet</p> <p>Runway: 150 feet x 2,800 feet</p> <p>Taxiway: 75 feet x 2,875 feet</p> <p>Extend Runway 7R/25L to 9,000 feet</p> <p>Runway: 150 feet x 1,000 feet</p> <p>Taxiway: 75 feet x 1,288 feet</p> <p>Realign and Extend Runway 7L/25R to 5,000 feet</p> <p>Runway: 100 feet x 5,000 feet</p> <p>Mark and light or remove obstructions</p> <p>Total Estimated Cost</p>	<p>\$22,800,000</p>
<p>Terminal Area Improvements</p> <p>Expand airline passenger terminal and auto parking facilities</p> <p>Construct cargo terminal area</p> <p>Construct maintenance yard and shop and firehouse</p> <p>Expand general aviation terminal facilities</p> <p>Total Estimated Cost</p>	<p>\$59,780,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 14,800 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 1,215,600</p>
<p>Ground Access Facilities</p> <p>Airport Spur Freeway recommended as state trunk highway under jurisdictional highway system plan for Milwaukee County</p>	
<p>Utility Services</p> <p>Airport is within existing utility service area</p>	
<p>Total Estimated Capital Investment</p>	<p>\$85,855,600</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 271

**SITE REQUIREMENT RECOMMENDATIONS FOR THE GRUENWALD AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Basic Utility I Proposed—General Utility</p> <p>1971 Inventory—1,600 1995 Forecast—163,800</p> <p>1971 Inventory—4 1995 Forecast—197</p> <p>Existing—95,000 Proposed—306,300</p> <p>Nonprecision Instrument Approach</p>
<p>Land Requirements</p> <p>Acquire existing privately-owned airport (90 acres) and improvements</p> <p>Total Estimated Cost</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres).</p> <p>Residential Unit.</p> <p>Total Estimated Cost</p>	<p>\$ 169,000</p> <p>150</p> <p>65</p> <p>1</p> <p>\$ 280,800</p>
<p>Operational Area Improvements</p> <p>Construct new northeast/southwest primary runway: 75 feet x 4,000 feet</p> <p>Construct new northwest/southeast secondary runway: 75 feet x 3,200 feet</p> <p>Construct taxiway parallel to northeast/southwest runway: 40 feet x 4,400 feet</p> <p>Construct taxiway parallel to northwest/southeast runway: 40 feet x 3,600 feet</p> <p>Construct connecting and crossover taxiways</p> <p>Install navigation aids</p> <p>MIRL Northwest/Southeast Runway</p> <p>MIRL Northeast/Southwest Runway</p> <p>Taxiway Exit Lights</p> <p>VASI-2 Northeast/Southwest Runway, Southwest End</p> <p>REILS Both Runways, Both Ends</p> <p>Construct additional aircraft parking apron: 42,300 square yards</p> <p>Construct air traffic control tower</p> <p>Install nonprecision instrument landing system approach to southwest end of primary runway</p> <p>Total Estimated Cost</p>	<p>\$1,591,900</p>
<p>Terminal Area Improvements</p> <p>Construct new administration/terminal building: 7,500 square feet</p> <p>Construct auto parking and service road: 13,700 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 552,200</p>
<p>Hangar Area Improvements</p> <p>Construct new aircraft hangar storage area: 24,400 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,839,800</p>
<p>Ground Access Facilities</p> <p>No additional facilities necessary</p>	
<p>Utility Services</p> <p>Extend utility service from City of Elkhorn service area</p> <p>Total Estimated Cost</p>	<p>\$ 18,000</p>
<p>Total Estimated Capital Investment</p>	<p>\$4,451,700</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 272

SITE REQUIREMENT RECOMMENDATIONS FOR THE HARTFORD MUNICIPAL AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Basic Utility I Proposed—General Utility</p> <p>1971 Inventory—57,600 1995 Forecast—227,400 1971 Inventory—53 1995 Forecast—281 Existing—211,000 Proposed—306,300 Nonprecision Instrument Approach</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential Units</p> <p>Total Estimated Cost</p>	<p>65 30 2</p> <p>\$ 333,500</p>
<p>Operational Area Improvements</p> <p>Extend Runway 11/29 to 4,200 feet Runway: 75 feet x 1,200 feet Taxiway: 30 feet x 1,400 feet</p> <p>Construct Runway 2/20 Runway: 75 feet x 3,000</p> <p>Construct additional paved aircraft parking apron: 50,000 square yards</p> <p>Install lighting and visual aids MIRL Both Runways: 7,200 feet Taxiway Exit Lights—Runway 11/29 VASI-2 Runway 11/29, 29 End REILS Both Runways, Both Ends</p> <p>Construct air traffic control tower</p> <p>Install nonprecision instrument landing system approach to Runway 11</p> <p>Total Estimated Cost</p>	<p>\$1,006,300</p>
<p>Terminal Area Improvements</p> <p>Construct new administration/terminal building: 8,800 square feet</p> <p>Expand auto parking and service roads: 15,200 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 643,500</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 27,700 square yards</p> <p>Total Estimated Cost</p>	<p>\$2,088,600</p>
<p>Ground Access Facilities</p> <p>Terminal access road recommended as county trunk highway under jurisdictional highway system plan for Washington County</p>	
<p>Utility Services</p> <p>Extend utility services from proposed City of Hartford sewer service area</p> <p>Total Estimated Cost</p>	<p>\$ 29,000</p>
<p>Total Estimated Capital Investment</p>	<p>\$4,100,900</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 273

**SITE REQUIREMENT RECOMMENDATIONS FOR THE KENOSHA MUNICIPAL AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP)</p> <p>IFR Capability</p>	<p>Existing—General Utility Proposed—Basic Transport</p> <p>1971 Inventory—64,500 1995 Forecast—238,000 1971 Inventory—82 1995 Forecast—294 Existing—181,000 Proposed—337,600 Precision Instrument Approach</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential Unit</p> <p>Total Estimated Cost</p>	<p>315 185 24 \$1,782,000</p>
<p>Operational Area Improvements</p> <p>Construct new parallel Runway 6L/24R Runway: 150 feet x 7,000 feet Taxiway: 50 feet x 8,100 feet</p> <p>Extend Runway 14/32 to 4,500 feet Runway: 100 feet x 300 feet Taxiway: 40 feet x 500 feet</p> <p>Widen runways Runway 14/32: 25 feet x 4,200 feet</p> <p>Strengthen runways and taxiways to accommodate 60,000 pounds gross weight aircraft Runway 6R/24L—3 1/2 inch Overlay: 75 feet x 3,300 feet Runway 14/32—1 1/2 inch Overlay: 75 feet x 4,200 feet Taxiway 6R/24L—3 1/2 inch Overlay: 40 feet x 3,400 feet Taxiway 14/32—3 1/2 inch Overlay: 40 feet x 1,900 feet 3 1/4 inch Overlay: 40 feet x 1,500 feet 1 1/2 inch Overlay: 40 feet x 1,350 feet</p> <p>Construct additional paved aircraft parking apron: 35,800 square yards</p> <p>Install lighting and visual aids MIRL Runway 14/32 Extension: 300 feet Relocation: 4,200 feet HIRL Runway 6L/24R: 7,000 feet Taxiway Exit Lights Runway 6L/24R Runway 6R/24L Runway 14/32 VASI-4 Runway 14/32, 14 End REILS 3 Runways, Both Ends VASI-4 Runway 6L/24R, Both Ends</p> <p>Construct air traffic control tower. Install precision instrument landing and approach lighting system on approach to Runway 6</p> <p>Total Estimated Cost</p>	<p>\$4,589,700</p>
<p>Terminal Area Improvements</p> <p>Construct new terminal building: 8,500 square feet Expand auto parking and service roads: 13,400 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 698,400</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 24,300 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,832,200</p>
<p>Ground Access Facilities</p> <p>No additional facilities required</p>	
<p>Utility Services</p> <p>Airport within proposed service area—cost of connections considered nominal</p> <p>Total Estimated Capital Investment</p>	<p>\$8,902,300</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 274

**SITE REQUIREMENT RECOMMENDATIONS FOR THE OZAUKEE AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Less Than Basic Utility I Proposed—General Utility</p> <p>1971 Inventory—3,500 1995 Forecast—219,700</p> <p>1971 Inventory—3 1995 Forecast—269</p> <p>Existing—91,000 Proposed—306,300</p> <p>Nonprecision Instrument Approach</p>
<p>Land Requirements</p> <p>Acquire existing privately-owned airport (90 acres) and improvements</p> <p>Total Estimated Cost</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Total Estimated Cost</p>	<p>\$ 135,000</p> <p>150</p> <p>80</p> <p>\$ 299,000</p>
<p>Operational Area Improvements</p> <p>Construct new north/south primary runway: 75 feet x 4,000 feet</p> <p>Construct new east/west secondary runway: 75 feet x 3,200 feet</p> <p>Construct taxiway parallel to north/south runway: 40 feet x 4,400 feet</p> <p>Construct taxiway parallel to east/west runway: 40 feet x 3,600 feet</p> <p>Construct connecting taxiways and crossover taxiways</p> <p>Install lighting and visual aids</p> <p>MIRL East/West Runway</p> <p>MIRL North/South Runway</p> <p>Taxiway Exit Lights</p> <p>VASI-2 North/South Runway, North End</p> <p>REILS Both Runways, Both Ends</p> <p>Construct aircraft parking apron: 46,860 square yards</p> <p>Construct air traffic control tower</p> <p>Install precision instrument landing system approach to north end of primary runway</p> <p>Total Estimated Cost</p>	<p>\$1,632,200</p>
<p>Terminal Area Improvements</p> <p>Construct new administration/terminal building: 8,500 square feet</p> <p>Construct auto parking and service roads: 15,500 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 625,600</p>
<p>Hangar Area Improvements</p> <p>Construct new aircraft hangar storage and service area: 27,600 square yards</p> <p>Total Estimated Cost</p>	<p>\$2,081,000</p>
<p>Ground Access Facilities</p> <p>No additional facilities necessary</p>	
<p>Utility Services</p> <p>Extend utility service from proposed Port Washington sewer service area</p> <p>Total Estimated Cost</p>	<p>\$ 29,000</p>
<p>Total Estimated Capital Investment</p>	<p>\$4,801,800</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 275

**SITE REQUIREMENT RECOMMENDATIONS FOR THE RACINE COMMERCIAL AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Basic Transport (Limited) Proposed—Basic Transport</p> <p>1971 Inventory—35,000 1995 Forecast—133,700</p> <p>1971 Inventory—34 1995 Forecast—165</p> <p>Existing—145,000 Proposed—253,300</p> <p>Precision Instrument Approach</p>
<p>Land Requirements</p> <p>Acquire existing privately-owned airport (490 acres) and improvements (runways, taxiways, and apron)</p> <p>Total Estimated Cost</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential and Commercial Units.</p> <p>Total Estimated Cost</p>	<p>\$3,250,000</p> <p>45</p> <p>130</p> <p>51</p> <p>\$2,494,000</p>
<p>Operational Area Improvements</p> <p>Strengthen runways to accommodate 60,000 pound gross weight aircraft</p> <p>Runway 4/22—4 inch Overlay: 100 feet x 5,800 feet</p> <p>Runway 14/32—4 inch Overlay: 100 feet x 4,600 feet</p> <p>Construct parallel taxiways</p> <p>Taxiway 4/22: 40 feet x 5,500 feet</p> <p>Taxiway 14/32: 40 feet x 3,100 feet</p> <p>Construct additional paved aircraft parking apron: 19,300 square yards</p> <p>Install lighting and visual aids</p> <p>MIRL Runway 14/32</p> <p>HIRL Runway 4/22</p> <p>Taxiway Exit Lights</p> <p>VASI-4 Runway 4/22, 22 End</p> <p>REILS</p> <p>Mark and light obstructions</p> <p>Relocate hangars</p> <p>Construct air traffic control tower</p> <p>Install precision instrument landing system on approach to Runway 22 22</p> <p>Total Estimated Cost</p>	<p>\$1,415,500</p>
<p>Terminal Area Improvements</p> <p>Construct administration/terminal building: 7,100 square feet</p> <p>Construct auto parking facilities: 12,900 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 590,900</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 12,700 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 957,600</p>
<p>Ground Access Facilities</p> <p>Realign Green Bay Road</p>	<p>\$ 200,000</p>
<p>Utility Services</p> <p>Airport is within existing utility service area</p>	
<p>Total Estimated Capital Investment</p>	<p>\$8,908,000</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 276

**SITE REQUIREMENT RECOMMENDATIONS FOR THE SYLVANIA AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p>	<p>Existing—Less Than Basic Utility I Proposed—Basic Utility II</p> <p>1971 Inventory—12,000 1995 Forecast—166,000</p> <p>1971 Inventory—38 1995 Forecast—206</p> <p>Existing—172,000 Proposed—319,000</p> <p>None (VFR)</p>
<p>Land Requirements</p> <p>Acquire existing privately-owned airport (34 acres) and improvements</p> <p>Total Estimated Cost</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Total Estimated Cost</p>	<p>\$ 299,000</p> <p>78</p> <p>30</p> <p>\$ 175,500</p>
<p>Operational Area Improvements</p> <p>Construct new north/south secondary runway: 60 feet x 2,560 feet</p> <p>Extend and widen existing runway: 60 feet x 3,200 feet</p> <p>Construct additional paved aircraft parking apron: 28,800 square yards</p> <p>Install navigation aids</p> <p>VASI-2 East/West Runway, West End</p> <p>MIRL on Both Runways: 5,760 feet</p> <p>REILS Both Runways, Both Ends</p> <p>Total Estimated Cost</p>	<p>\$ 858,600</p>
<p>Terminal Area Improvements</p> <p>Construct new administration/terminal building: 7,250 square feet</p> <p>Construct new auto parking and service road: 13,260 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 533,800</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 17,300 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,304,700</p>
<p>Ground Access Facilities</p> <p>No additional facilities required</p>	
<p>Utility Services</p> <p>Airport is beyond proposed service areas. Continued use of onsite facilities</p> <p>Total Estimated Cost</p>	<p>\$ 18,000</p>
<p>Total Estimated Capital Investment</p>	<p>\$3,189,600</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 277

**SITE REQUIREMENT RECOMMENDATIONS FOR TIMMERMAN FIELD
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP)</p> <p>IFR Capability</p> <p>FAA Designation</p>	<p>Existing—General Utility Proposed—General Utility</p> <p>1971 Inventory—173,900 1995 Forecast—363,800 1971 Inventory—180 1995 Forecast—452 Existing—302,000 Proposed—501,700 Nonprecision Instrument Approach Reliever Airport to General Mitchell Field</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential and Commercial Units</p> <p>Total Estimated Cost</p>	<p>0 33 50 \$1,540,000</p>
<p>Operational Area Improvements</p> <p>Pave existing turf Runway 15R/33L: 75 feet x 3,150 feet</p> <p>Pave existing turf Runway 4R/22L: 75 feet x 3,000 feet</p> <p>Widen existing Runway 15L/33R: 25 feet x 4,100 feet</p> <p>Widen existing Runway 4L/22R: 25 feet x 3,200 feet</p> <p>Install lighting and visual aids</p> <p> VASI-2 Runway 15L/33R, Both Ends Runway 4L/22R, Both Ends</p> <p> REILS Runway 15L/33R, 33R End Runway 4L/22R, Both Ends</p> <p>Construct additional paved aircraft parking apron: 55,190 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,297,700</p>
<p>Terminal Area Improvements</p> <p>Expand administration/terminal building: 10,700 square feet</p> <p>Expand auto parking and service roads: 13,800 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 760,500</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 28,500 square yards</p> <p>Total Estimated Cost</p>	<p>\$2,148,900</p>
<p>Ground Access Facilities</p> <p>No additional facilities required</p>	
<p>Utility Services</p> <p>Airport is within present utility service area</p>	
<p>Total Estimated Capital Investment</p>	<p>\$5,747,100</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 278

SITE REQUIREMENT RECOMMENDATIONS FOR THE WAUKESHA COUNTY AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN

<p>General Conditions</p> <p>Airport Classification</p> <p>Aviation Demand</p> <p>Annual Operations</p> <p>Based Aircraft</p> <p>Runway System Capacity (PANCAP).</p> <p>IFR Capability</p> <p>FAA Designation</p>	<p>Existing—General Utility Proposed—Basic Transport</p> <p>1971 Inventory—117,400 1995 Forecast—244,500</p> <p>1971 Inventory—167 1995 Forecast—301</p> <p>Existing—284,000 Proposed—253,300</p> <p>Precision Instrument Approach Reliever Airport to General Mitchell Field</p>
<p>Land Requirements</p> <p>Site Expansion (Acres)</p> <p>Clear Zone Protection (Acres)</p> <p>Residential Units</p> <p>Commercial Units</p> <p>Total Estimated Cost</p>	<p>17 120 12 8</p> <p>\$1,531,000</p>
<p>Operational Area Improvements</p> <p>Extend Runway 10/28 to 5,600 feet</p> <p>Runway: 100 feet x 1,600 feet</p> <p>Taxiway: 40 feet x 1,800 feet</p> <p>Strengthen runways and taxiways to accommodate 60,000 pounds gross weight aircraft</p> <p>Runway 10/28—3 1/2 inch Overlay: 100 feet x 4,000 feet</p> <p>Runway 18L/36R—2 1/2 inch Overlay: 75 feet x 3,400 feet</p> <p>Taxiway 10/28—3 1/2 inch Overlay: 40 feet x 4,000 feet</p> <p>Taxiway 18L/36R—2 inch Overlay: 40 feet x 3,900 feet</p> <p>Construct additional paved aircraft parking aprons: 51,200 square yards</p> <p>Install navigation aids</p> <p>MIRL Runway 18/36: 3,400 feet</p> <p>HIRL Runway 10/28: 5,600 feet</p> <p>Taxiway Exit Lights—Both Runways</p> <p>VASI-4 Runway 10/28, 10 End</p> <p>REILS Runway 10/28, 28 End</p> <p>Runway 18/36, 36 End</p> <p>Runway 10/28, Relocate 10 End</p> <p>Install precision instrument landing system approach to Runway 10</p> <p>Total Estimated Cost</p>	<p>\$1,544,000</p>
<p>Terminal Area Improvements</p> <p>Expand terminal building: 5,500 square feet</p> <p>Expand auto parking and service roads: 4,300 square yards</p> <p>Total Estimated Cost</p>	<p>\$ 432,000</p>
<p>Hangar Area Improvements</p> <p>Expand aircraft hangar storage and service area: 16,350 square yards</p> <p>Total Estimated Cost</p>	<p>\$1,232,800</p>
<p>Ground Access Facilities</p> <p>Realign CTH TJ to permit runway extension</p> <p>Total Estimated Cost</p>	<p>\$ 187,000</p>
<p>Utility Services</p> <p>Airport within proposed service area—cost of connections considered nominal</p> <p>Total Estimated Capital Investment</p>	<p>\$4,926,800</p>

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 279

**SITE REQUIREMENT RECOMMENDATIONS FOR THE WEST BEND MUNICIPAL AIRPORT
UNDER THE FINAL REGIONAL AIRPORT SYSTEM PLAN**

General Conditions	
Airport Classification	Existing—General Utility Proposed—Basic Transport
Aviation Demand	
Annual Operations	1971 Inventory—71,200 1995 Forecast—234,400
Based Aircraft	1971 Inventory—92 1995 Forecast—289
Runway System Capacity (PANCAP)	Existing—175,000 Proposed—253,300
IFR Capability	Precision Instrument Approach
Land Requirements	
Site Expansion (Acres)	67
Clear Zone Protection (Acres)	148
Residential Units	5
Total Estimated Cost	\$ 542,100
Operational Area Improvements	
Extend Runway 6/24 to 5,500 feet	
Runway: 100 feet x 1,600 feet	
Taxiway: 40 feet x 1,800 feet	
Relocate or encase oil pipe line	
Remove obstruction, 24 End	
Extend Taxiway 13/31	
13 End: 40 feet x 600 feet	
31 End: 40 feet x 900 feet	
Widen runways and taxiways	
Runway 6/24: 25 feet x 3,900 feet	
Runway 13/31: 25 feet x 4,500 feet	
Taxiway 6/24: 10 feet x 2,900 feet	
Taxiway 13/31: 10 feet x 3,850 feet	
Strengthen runways and taxiways to accommodate 60,000 pounds gross weight aircraft	
Runway 6/24—3 3/4 inch Overlay: 75 feet x 3,900 feet	
Runway 13/31—2 inch Overlay: 75 feet x 4,500 feet	
Runway 6/24—3 3/4 Inch Overlay: 30 feet x 2,900 feet	
Runway 13/31—2 inch Overlay: 30 feet x 3,850 feet	
Construct additional paved aircraft parking apron: 55,900 square yards	
Install navigation aids	
MIRL Runway 13/31: 4,500 feet	
HIRL Runway 6/24: 5,500 feet	
Taxiway Exit Lights—Both Runways	
VASI-4 Runway 6/24, 24 End	
REILS Runway 6/24, Both Ends	
Relocate REILS Runway 13/31, Both Ends	
Construct air traffic control tower	
Install precision instrument landing system approach to Runway 24	
Total Estimated Cost	\$2,197,600
Terminal Area Improvements	
Construct new administration/terminal building: 8,400 square feet	
Expand auto parking and service roads: 11,400 square yards	
Total Estimated Cost	\$ 681,900
Hangar Area Improvements	
Expand aircraft hangar storage and service area: 23,190 square yards	
Total Estimated Cost	\$1,748,500
Ground Access Facilities	
Realign STH 33 to permit runway extension	
Total Estimated Cost	\$ 519,000
Utility Services	
Extend utility services from proposed City of West Bend sewer service area	
Total Estimated Cost	\$ 29,000
Total Estimated Capital Investment	\$5,718,100

Source: Wisconsin Department of Transportation, Division of Aeronautics; R. Dixon Speas Associates, Inc.; and SEWRPC.

Table 280

**COST ESTIMATE SUMMARY FOR THE FINAL RECOMMENDED
AIRPORT SYSTEM PLAN FOR THE SOUTHEASTERN WISCONSIN REGION**

Airport	Land Requirements		Operational Area Improvement Costs	Terminal Area Improvements		Auto Parking and Onsite Road Improvements		Hangar Improvements		Off-Site Surface Transportation Costs	Utility Service Costs	Total Estimated Capital Investment
	Acres	Cost		Square Feet	Cost	Number of Stalls	Cost	Square Yards	Cost			
Kenosha Municipal . . .	500	\$ 1,782,000	\$ 4,589,700	8,500	\$ 637,500	390	\$ 60,900	24,300	\$ 1,832,200	--	--	\$ 8,902,300
General Mitchell Field .	70	20,060,000	22,800,000	--	43,090,000	4,800	16,690,000	14,800	1,215,600	--	--	85,855,600
Timmerman Field	33	1,540,000	1,297,700	10,700	695,500	400	65,000	28,500	2,148,900	--	--	5,747,100
Ozaukee County	320	434,000	1,632,200	8,500	552,500	450	73,100	27,600	2,081,000	--	29,000	4,801,800
Burlington Municipal . .	64	200,000	752,000	6,000	390,000	330	54,000	17,000	1,277,000	75,000	--	2,748,000
Racine Commercial	665	5,744,000	1,415,500	7,100	532,500	375	58,400	12,700	957,600	200,000	--	8,908,000
Sylvania	142	474,500	858,600	7,250	471,300	385	62,500	17,300	1,304,700	--	18,000	3,189,600
East Troy Municipal . . .	120	194,000	925,700	7,700	500,000	380	62,000	19,700	1,486,600	--	--	3,167,700
Gruenwald	306	449,800	1,591,900	7,500	487,500	400	64,700	24,400	1,839,800	--	18,000	4,451,700
Hartford Municipal	95	333,500	1,006,300	8,800	572,000	440	71,500	27,700	2,088,600	--	29,000	4,100,900
West Bend Municipal	215	542,100	2,197,600	8,400	630,000	330	51,900	23,190	1,748,500	519,000	29,000	5,718,100
Waukesha County	137	1,531,000	1,544,000	5,500	412,500	125	19,500	16,350	1,232,800	187,000	--	4,926,800
Total	--	\$15,284,900	\$40,611,200	--	\$48,971,300	--	\$17,333,500	--	\$19,212,700	\$981,000	\$123,000	\$142,517,600

Source: R. Dixon Speas Associates, Inc., and SEWRPC.