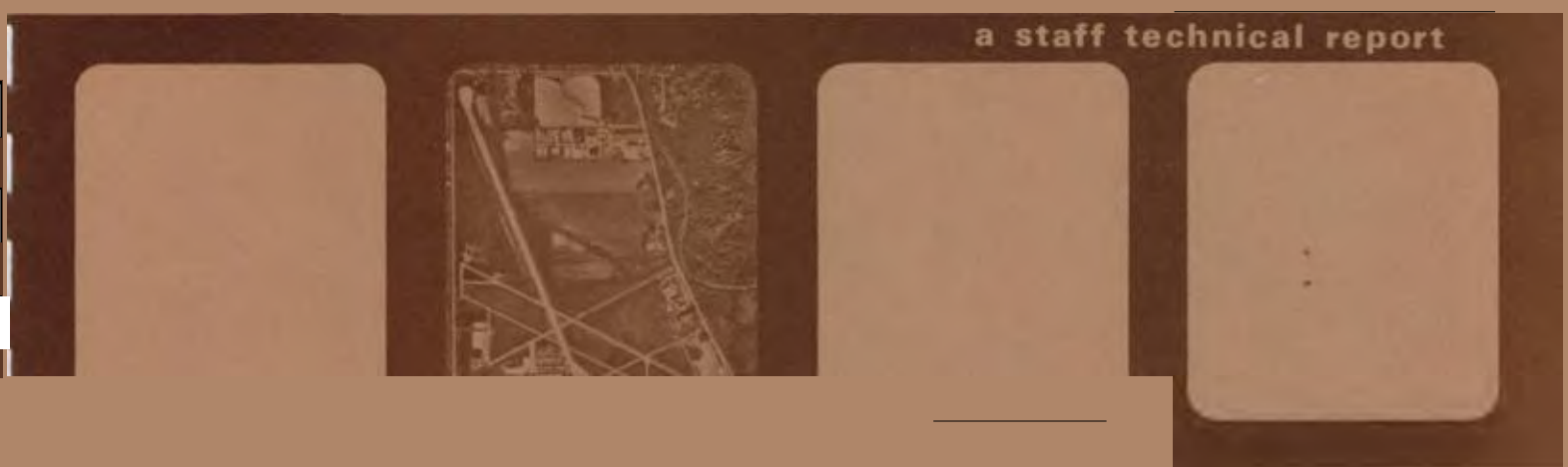
PAL-WAUKEE AIRPORT

Usage Characteristics, Importance to Neighboring Communities and Role in the Regional Airport System



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PAL–WAUKEE AIRPORT

Usage Characteristics, Importance to Neighboring Communities and Role in the Regional Airport System

a staff technical report

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October 1975

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CATS 0325-06

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PREFACE

The purpose of this report is to explain the importance of Pal-Waukee Airport. This will be accomplished in both operational terms and economic terms. The origins of this report are in the Chicago Area Transportation Study effort to design a 1995 Airport System Plan for Northeastern Illinois. In the preparation of this plan, it became apparent that most of the decision-makers dealing with the adoption of the 1995 Airport System Plan as part of the 1995 Transportation System Plan needed to know more about specific general aviation airport issues. A Northeastern Illinois Airport System Plan Implementation Study/Priority Statement was prepared as a first step toward achieving this better understanding of general aviation airports within the 1995 Plan. The 'Implementation Study', to which the 'Pal-Waukee Report' is a companion volume, recommended that Pal-Waukee and Chicagoland Airports be considered as the joint first priority for action within the Northeastern Illinois Airport System.

Therefore, this report is based on considerable study.'

It is hoped that, once the importance of Pal-Waukee can be better understood, particularly by the many local, state and federal government officials concerned about the airport, then a reasonable decision can be made as to what the future of the airport will be.

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[1] This report is based largely on 1974 information. Therefore, it may present a somewhat conservative picture due to the recent traffic increases at Pal-Waukee Airport. However, such a situation only strengthens the overall conclusions and recommendations in this report.

TABLE OF CONTENTS

TABLE OF ODNTENTS (Continued)

LIST OF FIGURES

LIST OF TABLES

LIST OF TABLES (Continued)

PART I. INTRODUCTION

GENERAL BACKGROUND

Most regular users of the Chicago area airport system are aware of the fact that reliever airports[1], like the Pal-Waukee Airport in Wheeling, are important to the function of the area's airport system as a whole. Pal-Waukee's reliever function is especially crucial because it provides air access to the same general portion of the Chicago Region as does Chicago-O'Hare International, without compelling aircraft operators to accept the delays forced upon its users. However, Pal-Waukee has become a critical issue, as a very specialized land use, in a highly developed part of the Chicago Region. It is critical not only because of its close proximity to Chicago-O'Hare International, but also because of the long history of the development of incompatible land uses adjacent to its boundaries.

HISTORY OF THE AIRPORT

Pal-Waukee Airport was founded in 1925 as Guthier's Flying Field[2]. The original field, consisting of 40 acres, was expanded to 91 acres in the 1930's and to 109 acres in the 1940's. The present operator of the airport, George J. Priester Aviation Service, Inc. began its Pal-Waukee operation in 1945. Priester Aviation Service purchased the airport from Parks Aircraft in June of 1953. At the time of the 1953 purchase the airport consisted of 109 acres with four sand and gravel runways, the longest of which was 2,600 feet. A chronicle of the development of the airport from that point to the mid-1970's is provided in Table I-1. As can be seen in this table and in Figure I-1, the airport now consists of five hard-surfaced runways. The present total airport acreage is approximately 275 acres. Other pertinent airport data is shown in Table I-2.[3]

With the development of the airport, from a small, rural field accommodating primarily single-engine aircraft to a large metropolitan, corporate reliever airport, has come many problems and realities. Since the 1950's, the rural setting in which the airport was founded has become intensely urbanized. Also, the opening of Chicago-O'Hare International to regularly scheduled air carrier traffic in 1954 brought a different aircraft operating environment to the north side of Chicago: a situation that has become increasingly complex over the years as Chicago-O'Hare International replaced Chicago-Midway Airport as "the world's busiest". The difficulties of the complex O'Hare Terminal area operational environment have also brought blessings to Pal-Waukee Airport. It is now the primary north side reliever airport for Chicago-O'Hare International, because of the airport owners' foresight in providing facilities to accommodate corporate turbine-powered traffic.

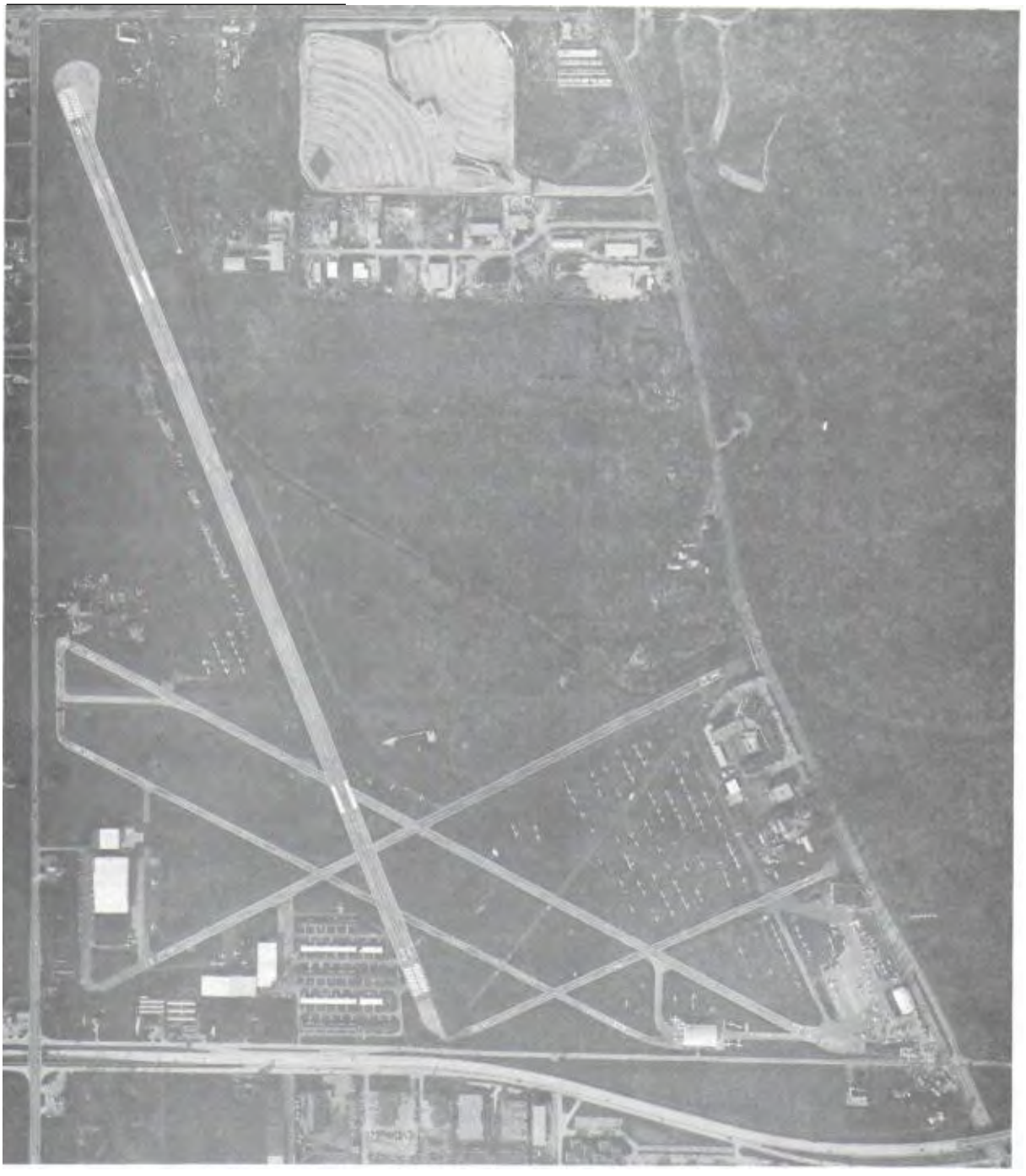

Figure I-1 AERIAL PHOTOGRAPH PAL-WAUKEE AIRPORT
1973

Source: Illinois Airport Directory, Division of Aeronautics- IDOT

TABLE I-1

The Development of PAL-WAUKEE Airport 1954-1975

YEAR	EVENTS
1954	Paving of NW-SE runway, east taxi-ramp and auto parking area; Lighting of paved runway; DC-3 hangar (100 x 160 feet).
1955	Resurfacing and extension of paved NW-SE runway.
1956	Purchase of two parcels of land (20 acres north of airport and 30 acres west of airport).
1957	Litigation with Commonwealth Edison regarding high voltage transmission lines west of airport; purchase of obstructions (trees) on land adjoining the airport.
1958	More hangar construction; paving of T-hangar taxiway and ramp areas.
1959	Parallel runway construction completed. By May of this year there were two NW-SE runways and two NE-SW runways. Also, a pilot lounge was constructed.
1961	VOR approach established for Pal-Waukee.
1964	Necessary land purchased from four owners for a new 5,000 foot runway.
1965	The new 5,000 foot runway (16-34) was completed and opened for use in this year; a new 265 feet by 168 feet corporate hangar was constructed.
1967	FAA Air Traffic Control Tower commissioned.
1969	Remodeling of restaurant and cocktail lounge.
1971	Another corporate hangar, 144 feet by 166 feet, completed.
1972	Another corporate hangar, 280 feet by 100 feet in size, was constructed.
1973	Runway maintenance; runway/taxiway lighting improvements.
1974	Construction of a 1,600 foot partial taxiway parallel to runway 16-34; beginning of ILS installation by FAA.
1975	Plans completed for the largest corporate hangar constructed so far at Pal-Waukee. Completion expected in 1976.

Source: George J. Priester Aviation Service; Inc.

TABLE 1-2

1974 Airport Data PAL-WAUKEE Airport, Wheeling Illinois

RUNWAY DATA

Direction	Length (Feet)
16-34	5,000[2]
12L-30R	4,400
12R-30L	3,300
6L-24R	3,500
6R-24L	2,200

ACTIVITY DATA

Total Based Aircraft	375
Turbine-Powerd Based Aircraft (turbo-prop, turbo-jet, turbo-fan)	35
FY 1974 Total Operations	219,445

Control/Approach Facilities

1. FAA-manned Air Traffic Control Tower; radar services handled through O'Hare Tower.

2. VOR, DME Approach; 400 foot ceiling/one mile visibility.

3. Full ILS Being Installed; Operational Minimums proposed to be 250 foot ceiling/ 3/4 mile visibility.

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[1]Physical Length only; Usable Lengths shorter in some cases because of obstructions.

[2]Does not include 100' blast pad/turnaround areas at each end of this runway.

Sources: Division of Aeronautics, Illinois Department of Transportation; Federal Aviation Administration; Priester Aviation Service, Pal-Waukee Airport.

PLANS FOR PAL-WAUKEE

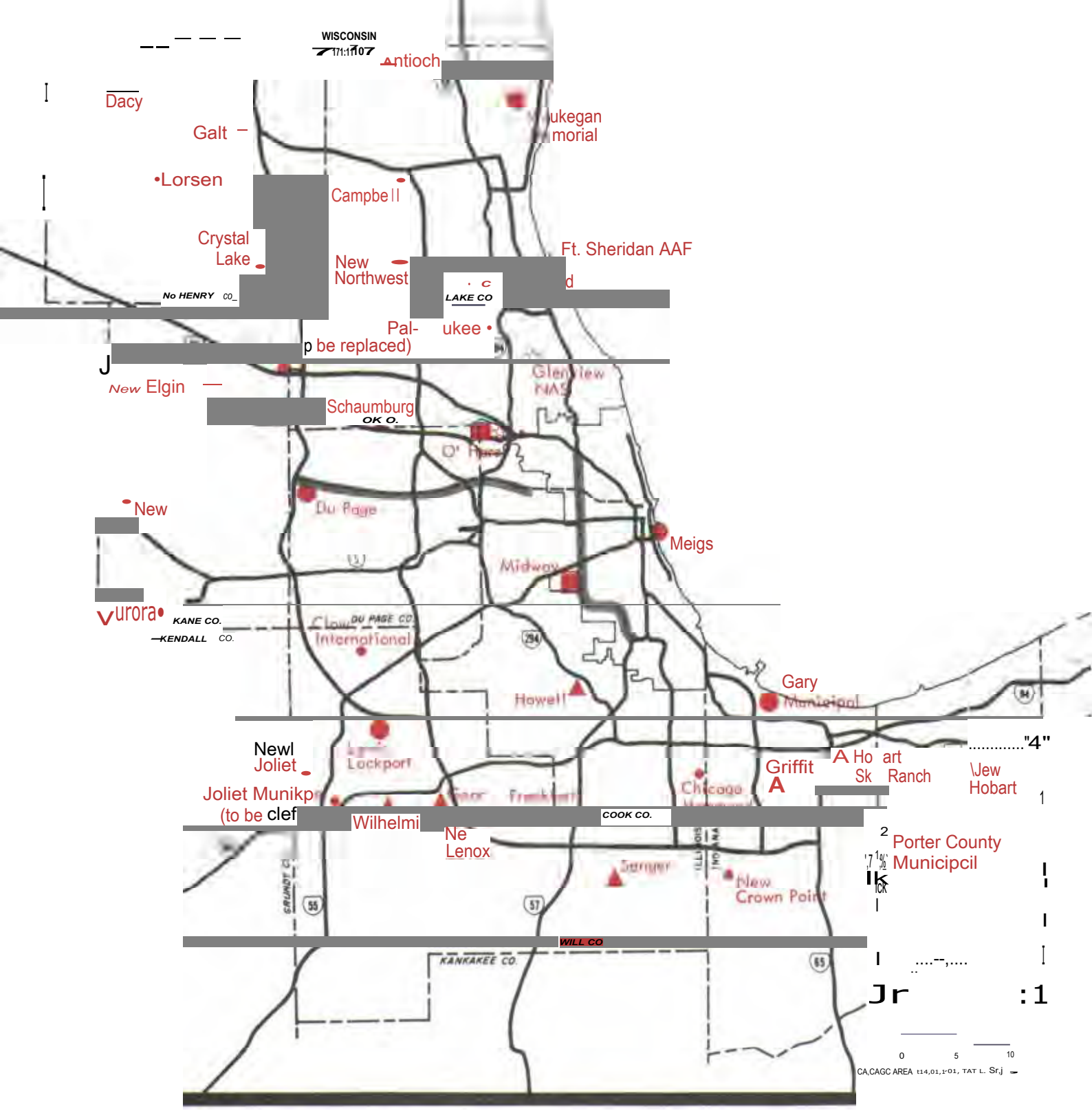
Pal-Waukee Airport's importance to the National Airport System was demonstrated by its inclusion in the Federal Aviation Administration's (FAA) 1972 National Airport System Plan (NASP)[4]. The 1972 NASP indicated that Pal-Waukee is and will be a designated reliever airport throughout the period covered by the plan. Furthermore, on page 71 of the NASP document, it is recommended that the airport be purchased. This is an improvement over the previous National Airport Plan (NAP) of 1968[5] which only included Pal-Waukee Airport, without proposing specifically what to do with the airport. This subtle change in the FAA's approach (between 1968 and 1972) regarding privately-owned airports such as Pal-Waukee possibly resulted from the greater sums of money available each year for airport development under the 1970 Airport and Airways Development Act (PL 91-258). An FAA order on the subject of the Formulation of the 1972 NASP stated the FAA's new approach to privately-owned airports in this way:

> Privately owned airports are considered a system requirement where such airports are open to the public and otherwise meet tests of federal interest. Public ownership of these facilities is encouraged, however, since it provides greater assurance that they will remain available to the system and not be diverted to other land uses.[6]

The Great Lakes Regional Office of the FAA has followed up the national recommendation with their own recommendation regarding Pal-Waukee Airport: The Great Lakes Region Aviation System Ten Year Plan 1974-1983, includes the proposed acquistion of Pal-WaukeeAirport by the end of fiscal year 1978.[7]

Regional planning documents also have reflected a recent change in thinking regarding privately-owned, public use airports such as Pal-Waukee. The Regional Transportation Interim Plan and Program of March 1971, which served as the adopted regional transportation plan until it was replaced by the 1995 Transportation System Plan, did not deal with the problem of privately-owned airports. It stated that all of these airports would come under a category entitled "No Development Recomended" .[8] This, of course, reflected the thinking behind the FAA's 1968 NAP, which was one of the key bases for the Interim Plan aviation proposals. By June 30, 1973, it was evident that this policy was to change. It was on this date that the Chicago Area Transportation Study (CATS) released its initial 1995 Transportation System Plan recommendations. The recommendations contained in this plan proposal included the public acquisition of several existing privately-owned airports, including Pal-Waukee.[9] After nearly a year of review, the CATS Policy Committee adopted the 1995 Transportation System Plan, including a 1995 Airport System Plan, on June 21, 1974. Pal-Waukee and nine other presently privately-owned, public-use airports were recommended for public acquisition in the adopted plan-[1°] The adopted 1995 Airport System plan is illustrated in Figure 1-2.

Subsequent to the adoption of the recommended plan, a follow-up study entitled Northeastern Illinois Airport System Plan Implementation Study/



- AIR CARRIER
- PUBLICLY-OWNED, INSTRUMENT LANDING **SYSTEM**

PUBLICLY-OWNED, VI SUAL FLIGHT RULES

- PRIVATELY-OWNED,P)BLIC-USE
- MILITARY AIRPORT

1995 FREEWAY SYSTE M

Figure 1-2 AIRPORT SYSTEM 1995 RECOMMENDED PLAN

Priority Statement was initiated by the CATS, and was completed in draft form in October, 1974. It is now being revised for final publication. This report singles out Pal-Waukee Airport as the top priority airport within the 1995 Airport System Plan. The report also states that Pal-Waukee must be dealt with on a joint basis with Chicagoland Airport because, alone, neither airport can handle the existing demand in the north suburban area of tne Northeastern Illinois Region.

It can be seen in the reports just reviewed that there is a growing concern for Pal-Waukee Airport specifically, and privately-owned airports generally, in the Chicago Metropolitan Area. There now seems to be a consensus of opinion on most governmental levels that Pal-Waukee Airport's situation in particular is critical. The problem remains that, because of existing federal laws, there must be local interest expressed in an airport before the federal and state financing cnannels can be opened. So far, no local government agency has stepped forward to express an interest in Pal-Waukee Airport.

REPORT APPROACH

Once the Implementation/Priority Statement draft was completed, it was decided that more work needed to be done to focus upon, and generate interest in, Pal-Waukee and Cnicagoland Airports as the two top priority airports within the 1995 Airport System Plan. A key aspect of this additional work was to acquire and report on as much airport specific data as possible. Also, where possible, local airport economic impact data were to be collected and reported on.

AS a result of this latter interest, a series of ouestionnaires were developed for distribution to based customers at Pal-Waukee Airport. These forms were reviewed and approved, after several changes, by Priester Aviation Service. Examples of these forms can be found in Appendices B. C, D and E commencing on page 75. The questionnaires were distributed to Pal-Waukee users in September 1974. The results of the questionnaire returns provide much of the basis for this report.

AS can be seen in the Table of Contents, this report is comprised of six parts. Parts II through V report on several specific aspects of the usage of Pal-Waukee Airport and, if applicable, describe some of the characteristics of this usage tnrough the special survey results. Items such as fixed based operations, overall airport activity, based aircraft, pilot usge and itinerant activity will be covered. The report will conclude with a summary of the major points covered in the report and a description of what steps can be taken to preserve the airoort.

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[1] Defined as those airports which are capable of diverting aircraft operation, usually general aviation operations, from a major air carrier airport such as O'Hare. Proximity of the reliever airport to the major airport is a key aspect of the decision to designate an airport as a "reliever" airport.

[2]Howard L. Schamehorn, Balloons to Jets: A Century of Aeronautics in Illinois, 1855-1955 (Chicago: Henry Regnery Co., 1957).

[3]Much of this section was derived from a history of Pal-Waukee Airport provided to CATS by George J. Priester Aviation Service, Inc.

[4]Federal Aviation Administration, 1972 National Airport System Plan, Great Lakes Region - Vol. AGL, (Wash., D. C.: DOT/FAA, 1973). See Pages 9 and 71.

[5]Federal Aviation Administration, 1968 National Airport Plan FY 1969-1973, (Wash., D. C.: DOT/FAA, 1968). See pages 14 and 90.

[6]Federal Aviation Administration, Order 5090.3, Formulation of 1972 National Airport System Plan (NASP), (Wash., D. C.: DOT/FAA), Feb. 6, 1972, CHG1, P. 3, Par. 7.

[7]Federal Aviation Administration, The Great Lakes Region Aviation System Ten Year Plan 1974-1983 (Des Plaines, Ill.: DOT/FAA, Aug., 1974), pp. 2-10 and 2-11.

[8]Chicago Area Transportation Study - Lake-Porter County Regional Transportation and Planning Commission, Regional Transportation Interim Plan and Program, (Chicago: CATS/LPCRTPC, March, 1971), pp. 42-47.

[9]Chicago Area Transportation Study - Lake Porter County Regional Transportation and Planning Commission, Functional and Intermodal Evaluation of Alternatives for a 1995 Transportation System in the Chicago - Gary Region, Preliminary, (Chicago: CATS/LPCRTPC, June, 1973), pp. 88-90.

loSee CATS - Northwest Indiana Regional Planning Commission, Summary Description 1995 Transportation System Plan, (Chicago: CATS/NIRPC, Nov., 1974, pp. 15-18.

PART II. A DESCRIPTION OF THE OPERATIONS BASED AT PAL-WAUKEE AIRPORT

THE FIXED BASE OPERATOR AND OTHER AIRPORT BUSINESS ACTIVITY

A large general aviation airport, such as Pal-Waukee, is far more than a place for aircraft to land and takeoff and for aircraft storage. Typically, such an airport is also the location of several business operations related to aviation. Without these business activities an airport would remain a relatively inactive airstrip incapable of serving the needs of the aviation community or the general public. Virtually all general aviation airports of any size have at least one business operation that is termed a fixed base operation. A fixed base operator (FB0) typically sells aircraft fuel, services and maintains aircraft, and offers various aviation services such as aircraft storage, flight training, aircraft rental or charter, and aircraft sales. In many ways an FB0 serves a function similar to that of a full service gasoline station for automobiles. The combination of additional aviation services provided by the operator varies from one FBO to another. At many airports, more than one FBO may be located. Space may also be made available for other companies which may or may not be directly related to aviation. These companies may serve the aviation community in some way, such as specialized maintenance or parts facilities, or may merely find the airport a convenient location to conduct their business.

The only FBO at Pal-Waukee Airport is George J. Priester Aviation Service, Inc. George J. Priester owns and maintains the airport. A full range of aviation services from aircraft servicing and storage to a complete aircraft charter operation is offered. These and the other activities engaged in by the FBO will be discussed in more detail below. In addition to Priester Aviation Service, there are five other aviation related companies currently located on the airport. In comparison with Priester Aviation Service these companies are rather small and occupy very limited space at the airport. It should be noted that further investigation into the size and nature of these companies is needed before any detailed information can be presented. One of these five companies, American Eagle Helicopter Training, operates a helicopter training program. Air Exchange is a company involved in aircraft sales. Aircraft Propeller Service specializes in the maintenance of aircraft propellers. Universal Airmotive operates an engine overhaul facility at the airport. Finally, Cooper Airmotive handles the wholesale distribution of aircraft parts. Two nonaviation businesses located on Pal-Waukee Airport property are the Clayton House (motel and restaurant) and the Pal-Waukee Center Office Building. Also located on the airport is a FAA air traffic control tower which was constructed by the airport owner, but operated by federal controllers. The FAA is also installing an ILS on the airport to improve the operating efficiency and safety of the airport during marginal weather conditions.

AIRPORT OPERATING COSTS

As previously mentioned, the owner of the FBO is also the airport owner. Therefore, unlike an FBO at a publicly owned airport, Priester Aviation Service is also responsible for the construction and maintenance of the

airport itself. For the period between 1968 and 1972, the runway and taxiway repairs, airfield maintenance, and snow removal costs at Pal-Waukee Airport have averaged nearly $72,000 per year' These costs must be paid from revenues generated by the other activities of the operator. At a publicly-owned airport, the FBO typically leases space for his operation and the use of airport facilities. While the FBO at a publicly-owned airport may serve under contract as the airport manager, revenues from the operation are not normally used to construct and maintain capital improvements at the airport. Tax revenues and State and Federal Grants-in-aid are available to supplement airport operating revenues for a publicly owned airport. In addition to the airport maintenance costs, Priester Aviation Service revenues must also go towards the payment of real estate taxes on the airport property. In the period between 1968 and 1972 these taxes have increased from approximately $39,600 to $75,000 per year.[2]

AVIATION SERVICES AT PAL-WAUKEE AIRPORT

The aviation services provided by Priester Aviation Service include aircraft storage (both outside tie-down and hangars), aircraft and aviation electronic maintenance, fuel sales and aircraft servicing, flight training, aircraft rental, and complete aircraft charter service. In addition, the FBO operates a restaurant and lounge on the airport, which provides in-flight meal catering service for aircraft departing from Pal-Waukee.

For the storage of the approximately 375 aircraft based at Pal-Waukee, Priester Aviation Service leases a total of 131 outside tie-down spaces, 70 individual "T-Hangar" units, and space in seven larger hangars with a total floor area of 145,584 square feet. Rental rates vary from $40.00 per month for a tie-down space for a single engine aircraft up to as high as $1,150.00 per month for hangar space for the largest of corporate jets? One hangar on the airport is privately owned; located on land leased to a corporation by the airport owner. Overnight storage of aircraft flown in by customers not based at the airport is also available.

Priester Aviation Service, also, operates an FAA approved repair station for aircraft, aircraft radio and electronic equipment. The maintenance facility occupies approximately 20,000 square feet in one of the large hangars. Mechanics and radio technicians are on duty seven days a week and at night in order to service the heavily utilized corporate aircraft based at Pal-Waukee. In 1974, the maintenance department performed $846,400 of repair work, $621,600 of which was for customers.[4] The remaining $224,800 was work performed on aircraft operated by Priester Aviation Service in their flight operations.

The sale of aircraft fuel and the servicing of aircraft operating in and out of an airport is one of the most important functions of a FBO. Without these services an airport would become virtually useless. The type and quality of services offered other than the sale of fuel have an important influence on how acceptable an airport will be to pilots and aircraft owners. In responses to a questionnaire sent to customers who base their aircraft at Pal-Waukee (discussed in Part rv,) many indicated that the services available at the airport had influenced their location decision.

Among the other services available are aircraft towing (from hangars to ramp area), preheating of aircraft engines in winter, and deicing of aircraft stored outside. Fuel sales at Pal-Waukcc in 1974 totaled approximately $1,385,000. This included $919,000 in jet fuel alone.[5] The remainder was aviation gasoline used in piston engine aircraft.

Flight training is an important part of any general aviation airport operation. A large percentage of the total activity at most of these airports involves various training activities. Priester Aviation Service operates an FAA approved flight school which utilizes 25 aircraft. Three of these aircraft are twin engine piston aircraft that are used jointly for charter and flight training. The remaining 22 are two or four place single engine aircraft. Approximately 300 flight students are enrolled in various flight training programs annually. Approximately 200 graduate annually with various categories of pilot's licenses and "ratings" for instrument operation of aircraft or the operation of multiengine aircraft.

A flight school involves both classroom instruction and in-flight training with a certified flight instructor. Many hours of individual practice without a flight instructor is also involved in obtaining the various licenses and ratings. In 1974, Priester Aviation Service training fleet was flown approximately 13,500 hours or more than 600 hours per aircraft .° It should be noted that these hours also include aircraft rental hours. The same aircraft used in flight training are also available to properly licensed pilots for rental. The results of a survey mailed to Priester Aviation Service flight students and rental customers (see Appendix D, Page 83) indicated that 84.6 percent of the 1467 hours logged in Priester Aviation Service aircraft by the pilots returning quesionnaires were for instructional purposes. Recreational or pleasure flying was 8.4 percent. Only 6.1 percent of the total hours logged by these flight students and rental customers were for company or personal business purposes. This relatively small sample included 45 pilots. Twenty-seven of these held student pilot's licenses (or were working toward this license) and fifteen were private pilots. Only three of the 45 included in the sample held commercial licenses. Twenty-nine of these pilots indicated that they were enrolled in a flight training program at Priester Aviation Service in order to secure a higher category of license or rating. In general, these pilots live in the same area discussed in both Part IV-4 and Part IV-5 of this report. The number is too small to try to define a service area for the flight training services at Pal-Waukee.

A major revenue producing operation of Priester Aviation Service is their aircraft charter business. Ten aircraft ranging from a single-engine piston to two Lear Jet corporate jets are available for charter to virtually any part of the country. The charter fleet also includes seven twin engine piston aircraft including two that are pressurized for high altitude comfort. In 1974, these charter aircraft and their crews flew 829 flights carrying 2,039 passengers. A total of 145 of these flights carried priority air freight only.? A questionnaire was mailed to the charter customers of Priester Aviation Service (see Appendix C, Page 79). Twenty-one customers who indicated that they had chartered 221 trips in a twelve month period responded to the questionnaire. The most trips indicated by any one customer

was 60 in the past twelve months. This response was quite interesting. The customer is a television station which uses charter aircraft to cover news stories around the state and beyond. Of the 221 trips indicated by these 21 customers; 53.4 percent were for the purpose of transporting company executives or personnel; 1.8 percent were for personal business; 17.6 percent were for the purpose of transporting parts, equipment, materials, et cerera (freight), and 27.1 percent were accounted for by the news coverage flights mentioned above. Only two of these customers indicated that charter services are used to supplement their own aircraft located in the Chicago area indicating that most charter customers do not operate their own aircraft. Three of the customers have out-of-region addresses. These customers indicated that they use Priester Aviation Service for their Chicago originated flights. Two of these customers operate their own aircraft that are based outside the region. One out-of-region customer accounted for 25 of the 39 freight flights. The reasons customers use charter services from Pal-Waukee in particular varied considerably. Generally, they indicated convenience of location and the quality of the service as primary reasons.

AIRPORT EMPLOYEES

As shown in the previous discussion in this chapter, George J. Priester Aviation Service, the FBO, is by far the most significant business operation located on the airport. According to their own figures they employ 156 full and part time employees who earn approximately $1,000,000 per year. The remaining business and aviation related operations located on the airport are estimated to employ an additional 200 people. This includes approximately 100 people who are employed by tenants of the Pal-Waukee Airport Office Building .[8] Assuming an average wage of only $5,000 per year for these 200 people, an additional $1,000,000 in wages is earned by people associated with the airport. Naturally, the closure of Pal-Waukee would more severely impact aviation-related business. Thus, the tenants of the office building are not likely to be affected unless they are in some way related to the airport operation. This, of course, deserves further attention if more detailed analysis is accomplished.

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[1] George J. Priester Aviation Service.

[2] Ibid.

[3] Chicago Area Transportation Study, Airport Facilities Questionnaire, completed by airport management on July 30, 1974.

[4] George J. Priester Aviation Service.

[5] lbid.

[6] Ibid.

[7] Ibid.

[8] Ibid.

PART III. PAST, PRESENT, AND FUTURE AIRPORT ACTIVITY[1]

A direct means of establishing the importance of Pal-Waukee Airport within the Regional Airport System is to compare measures of its activity to measures of activity at other airports in the Region. This chapter summarizes several types of aircraft activity for Pal-Waukee, including total operations,[2] local operations, instrument operations and itinerant operations. More importantly, the nature of each type of activity will be covered, with an emphasis upon pointing out any unique characteristics of each type of activity at Pal-Waukee. Next, forecasts of aircraft operations will be presented and compared to estimates of the airport's capacity. The discussion of Pal-Waukee's activity characteristics will conclude with an analysis of the consequences of closing Pal-Waukee, from an aircraft operations perspective.

TOTAL OPERATIONS

In fiscal year 1974, Pal-Waukee Airport experienced one of the busiest 12-month activity periods in its history. According to statistics provided by the air traffic control tower operated by the FAA, 219,445 aircraft operations were handled by the tower in that period. Of these, 132,044 were local and 87,401 were itinerant, or out-of-area, operations (60.2 percent and 39.8 percent, respectively). Also, 22,706 of the 219,445 operations were instrument, 636 being handled for Chicagoland Airport This represents 10.3 percent of total operations, including the Chicagoland figure. Pal-Waukee's total operations figure placed it tenth in a ranking of 63 tower-controlled airports in the FAA's Great Lakes Region (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin). It was the third busiest in Illinois and the Chicago area, behind only Chicago-O'Hare International (the world's busiest) and DuPage County Airport (number two in the Great Lakes Region). Table III-1 depicts Pal-Waukee's position compared to all airports in the Chicago Area having FY 1974 operations figures.

Pal-Waukee's total operations in previous years are shown in Table 111-2. The FAA Tbwer began operation in 1967 (fiscal year 1968). It should be pointed out that methods for counting total operations changed in 1970, thus reducing operations totals slightly. Also, it should be mentioned that the Tower is in operation only 16-hours-per day. Therefore, it is theorized that Pal-Waukee's actual 24-hour operations count is some 5 to 10 percent higher than the tower count because of missed operations.

LOCAL AIRPORT OPERATIONS

Local operations at an airport are those which occur within sight of the airport, or are gone no longer than 30 minutes from the airport. An important aspect of local operations at most airports are the "touch-and-go" ma-

neuvers used to train new pilots, or allow out-of-practice pilots to take off and land in a single maneuver. Local operations at Pal-Waukee accounted for 60.2 percent of total operations in 1974 figures. Therefore, in terms of quantity, local operations make up an important part of Pal-Waukee's operative picture. Most are performed by single-engine training aircraft piloted by student or private-rated pilots, and are directly related to the

TABLE III-1

FY 74 Total Airport Operations Activity at Chicago-Northwest Indiana Airports

RANK	AIRPORT	TOTAL OPERATIONS
1.	Chicago-O'Hare International	680,763[1]
2.	DuPage County	294,066[1]
3.	PAL-WAUKEE	219,445'
4.	Chicago-Midway	179,202'
5.	Waukegan Memorial	136,934[2]
6.	Aurora Municipal	119,284[2]
7.	Schaumburg	80,190[3]
8.	Joliet Municipal	74,108[2]
9.	Chicago-Meigs Field	66,071[1]
10.	Gary Municipal	61,918[4]

'FAA Tower Count

[2]Based on a one-week manual count taken by FAA's Air Traffic Division.

[3]Based on a one-week manual and machine count taken by CATS and Howard Needles Tammen Bergendoff.

[4]Non-FAA Tower Count.

NOTE: Several airports in the region have not had the benefit of a manual operations count and would probably rank high on this list if one was prepared. Such high potential airports include Chicagoland, Lewis-Lockport, and Porter County Municipal (Indiana).

TABLE III-2

Total Operations PAL-WAUKEE Airport 1967-1974

	FISCAL YEAR		CALENDAR YEAR	
FY	Operations	Percent Growth	Operations	Percent Growth[1]
1968	214,230		209,719	
1969	220,484		223,245	
1970	213,726		195,532	
1971	184,844		194,104	
1972	207,191	+12.1	201,196	+3.7
1973	207,186	No Change	215,159	+6.9
1974	219,445	+5.9	233,580	+8.6

[1] Percent growth figured only from 1971 on because of the change in counting procedures in 1970.

SOURCE: Federal Aviation Administration, Pal-Waukee Air Traffic Control Tower, Leo J. Ullsperger, Tower Chief.

health of any airport's business in that new pilots are the life blood of the aviation business. Pal-Waukee's runway system, with two sets of parallel runways, is ideal for accommodating a large number of general aviation local operations. Because of this advantage (no other airport in the state exceeds this provision of parallel training runways), it is expected that Pal-Waukee's local operations level will remain proportionately high compared to total operations. The factors that could affect this category in the future would be a significant increase in corporate jet operations, a reduction in fuel allocation to Pal-Waukee, or a tightening of airspace rules because of Pal-Waukee's proximity to Chicago-O'Hare International and Glenview Naval Air Station.

INSTRUMENT OPERATIONS

As mentioned on page 13 , instrument operations accounted for approximately 10.3 percent of the total operations handled by Pal-Waukee Tower in FY 74. The proportions and totals in previous years are shown in Table III-3. So, in the years leading up to FY 73 there was a steady increase in both the number of instrument operations and the proportion of such operations as compared to the total operations figures. There was however, a slowing down of the growth in instrument operations handled by Pal-Waukee Tower starting in FY 1973. This was partially due to the closing of Sky Harbor Airport, for which Pal-Waukee Tower handled instrument departures.

The importance of instrument operations stems from the basic need to travel every day of the year, regardless of weather. An airport with operations capability during bad weather is of far more utility than one with no such capability. Access during all types of weather is therefore crucial, particularly to business and corporate aircraft. Such operators do not pay large sums of money in the purchase of an aircraft to see their aircraft sit on the ground.

The FAA has criteria within which they grant approval to various types of instrument operations at an airport. The basic form involves the approval of the nonprecision instrument approach. Pal-Waukee has such an approach approved by the FAA. It allows aircraft to land at Pal-Waukee when the cloud ceiling is 400 feet and forward visibility is one mile. Once such an approach procedure achieves usage at a rate greater than 700 times a year, the airport can become a candidate for a precision approach ILS. Long ago, Pal-Waukee qualified for such a system and the FAA has been working on its installation since mid-1974.

There are many advantages to an ILS, not the least of which is a greater margin of safety for the aircraft approaching Pal-Waukee in bad weather. The ILS furnishes this greater margin of safety by furnishing both vertical and horizontal flight guidance information to pilots using aircraft with the proper on-board equipment. With its greater margins of safety, the ILS system will allow approaches to Pal-Waukee at somewhat lower weather "minimums", as low as a 250-foot ceiling and three-quarter mile forward visibility. A related benefit in using the ILS will be a greater flexibility on the part of all pilots to maintain a constant glide path to the runway. This ability, due to the definitive glide path data available in a pilot's cockpit from the ILS, will slightly reduce the noise annoyance factor from jet operations at Pal-Waukee.

In terms of Pal-Waukee's role in serving instrument operations as compared to other airports in the region, Table 111-4 presents FY 1974 instrument approach data for airports in the Chicago-Northwest Indiana Region. Instrument approaches are, of course, only one aspect of total instrument operations. However, these figures are indicative of the overall magnitude of year-round, all-weather activity that Pal-Waukee handles compared to other regional airports. *As* can be seen from the table, Pal-Waukee ranks third in the region in the instrument approach category. Interestingly enough, it has received this level of usage without the benefit of having any precision

TABLE III-3

Instrument Operations at PAL-WAUKEE Airport 1968-1974

	FISCAL YEAR		CALENDAR YEAR	
FY	Instrument Operations	Percent of Total Operations	Instrument Operations	Percent of Tbtal Operations
1968	5,760	2.7	7,148	3.4
1969	9,203	4.2	11,481	5.1
1970	11,965	5.6	12,990	6.6
1971	14,178	7.7	15,072	7.8
1972	17,742	8.7	21,151	10.5
1973	22,630	11.6	23,351	10.9
1974	22,706	10.3	22,909	9.8

Note: For primary (Pal-Waukee) and secondary (Sky Harbor and Chicagoland) airports.

Source: Federal Aviation Administration, Pal-Waukee Air Traffic Control Tower.

TABLE III-4

Annual Instrument Approaches, FY-74 Chicago-Northwest Indiana Airports

			PERCENT OF TOTAL OPERATIONS
1.	Chicago-O'Hare International (primary)	53,886	7.9
2.	Chicago - Midway	8,166	4.6
3.	PAL-WAUKEE	3,061	1.4
4.	DuPage County	1,646	.6
5.	Porter County	512	N.A.
6.	Elgin	411	N.A.
7.	Gary Municipal	280	.5
8.	Aurora Municipal	193	N.A.
9.	Joliet Municipal	170	N.A.
10.	Waukegan Memorial	51	N.A.
11.	Griffith	40	N.A.
12.	Glenview Naval Air Station	35	N.A.
13.	Crystal Lake	1	N.A.

N.A. = Total Operations figure not available for Non-Towered Airports.

SOURCE: Federal Aviation Administration, Great Lakes Region Air TraffioActivity, Fiscal Year 1974, (Des Plaines: DOT/FAA, 9/15/74), pp. 23-26.

approach capability (e.g., a full or partial ILS). This indicates that a high level of demand is present for Pal-Waukee Airport, even on bad weather days.

ITINERANT OPERATIONS

Although this discussion appears last in the descriptions of the various types of aircraft activity at Pal-Waukee, it is not because it is the least important. TO the contrary, itinerant operations are a key type of activity and are crucial to the evaluation of the importance of a facility as Pal-Waukee. The reason behind this importance is that itinerant operations are usually intercity aircraft operations, bound for or returning from places outside the Chicago area. These operations therefore, represent the main transportation service offered by the airport.

There can be many different kinds of itinerant operations and the mission undertaken on such flights necessarily varies with each trip taken. For example, many different aircraft types are used on such flights. However, it can be assumed that most twin-engine piston and all turboprop and jet aircraft are used primarily for itinerant operations. Such aircraft are business tools and are used to meet transportation needs peculiar to the owner. Many itinerant operations are also devoted to training. These would be cross-country solo flights in many types of aircraft. Finally, many itinerant operations occuring at Pal-Waukee can be attributed to transit aircraft or aircraft not based there.

The Pal-Waukee role in relieving Chicago-O'Hare International of these itinerant operations can not be understated. In FY 1974 Pal-Waukee handled 86,386 general aviation itinerant operations while Chicago-O'Hare International handled 44,122. Clearly, the latter can not afford to take on much more general aviation activity of any type, especially not three times the amount of general aviation itinerant traffic it now handles.

In October 1972, the CATS conducted a survey at Pal-Waukee Airport in order to research the travel characteristics of the occupants (pilots and passengers) aboard Pal-Waukee's itinerant flights. The 170 flights surveyed in the two day period (approximately 34 percent of all itinerant flights on the two days) had 582 occupants aboard. Of the 582 occupants aboard the flights surveyed, over 200 passengers were interviewed directly. In the two-day survey period, several out-of-area locations showed up as major passenger destinations. Table 111-5 shows the top ten Pal-Waukee passenger destinations based on responses to the survey.

The significance of these figures is not just in the listing of faraway places. It is that the overall utility of the airport as a transportation facility within the National Airport System and the National Transportation System has been identified. After all, if the 3.42 occupants per itinerant flight figure derived from this survey were multiplied by the number of annual itinerant operations occuring in FY 1973, the result would amount to over 312,400 annual occupants This admittedly very crude estimate of occupants does not account for those persons aboard air taxi or diverted

TABLE III-5

1972 PAL-WAUKEE Passenger Survey Results Major Destinations

RANK	PLACE NAME	NUMBER OF PASSENGERS
1.	Cleveland, Ohio	10
2.	Muskegon, Michigan	9
3.	Iowa (all)	8
	Washington County, Michigan (West Bend)	8
5.	Alpena County, Michigan	7
6.	St. Louis, Missouri	6
	Indianapolis, Indiana	6
	Detroit, Michigan	6
	Springfield, Illinois	6
10.	Philadelphia, Pennsylvania; Kentucky (all)	
	North Dakota (all); North Carolina (all)	5

SOURCE: Chicago Area Transportation Study, Survey of Pilots and Passengers, Pal-Waukee Airport, October 18, 1972.

TABLE III-6

General Aviation Itinerant Operations Chicago-Northwest Indiana Airports FY 74

RANK	AIRPORT	OPERATIONS
1.	Chicago-Midway	123,331
2.	DuPage County	104,885
3.	PAL-WAUKEE	86,386
4.	Chicago-Meigs	52,139
5.	Chicago-O'Hare International	44,122
6.	Gary Municipal (non-Federal Tower)	27,107

Source: Federal Aviation Administration, Great Lakes Region Air Traffic Activity FY-74 (Des Plaines: DOT/FAA, 9/15/74), pp. 2 and 12.

commuter airline flights landing at Pal-Waukee. The implication of these data are obvious: Pal-Waukee Airport is not just a local training facility. It is a full service airport, offering a wide range of aviation services to pilots, local aircraft owners, transient aircraft operations, and a significant air passenger market -[5]

As a final step in illustrating the importance of the general aviation itinerant operations at Pal-Waukee Airport, Table 111-6 was assembled to compare Pal-Waukee's operations in this category with other airports in the area. Clearly, Pal-Waukee's role in handling general aviation itinerant operations is quite important. AS the third-ranked airport (in this operations), category among those with control towers, Pal-Waukee handles more general aviation itinerant operations than Chicago-O'Hare International Airport. After looking at these figures a little more closely, it is also clear that each airport in the table fills an important role geographically in serving general aviation itinerant flights. Pal-Waukee, for example, is the only airport to the north of Chicago-O'Hare International that appears in the table. Without Pal-Waukee, many of those itinerant flights would naturally be attracted to Chicago-O'Hare International as the nearest airport with long-runway capability. The effects of such a diversion of activity is the subject of the next, and final, portion of this chapter.

THE EFFECTS ON AIRPORT OPERATIONS OF CLOSING PAL-WAUKEE[6]

The intent of this section is to consider some of the operations questions, if Pal-Waukee Airport was to close. Aside from some of the special aircraft operations questions already discussed, there is a larger factor to be considered: airport operations capacity. Pal-Waukee Airport's annual operations capacity is estimated by the FAA to be 250,000.[7] Its present operations level, therefore, leaves little room for growth. More critical is the question of what happens to the airport system without this capacity. At the region-wide level, Pal-Waukee accounts for approximately 8.2 percent of all general aviation airport capacity in northeastern Illinois (not including Chicago-O'Hare International). In Cook County and all of Lake County, Pal-Waukee accounts for 37.9 percent of all general aviation airport capacity. Without Pal-Waukee, it is clear that the present aircraft operations situation in northeastern Illinois will become chaotic. And, of course, none of these percentages have identified the "quality" of airport capacity available at Pal-Waukee versus airports that would accept diverted operations. For example, very few airports in the region can handle jet traffic. In addition many regional airports, that would accept the diverted operations, are privately owned. Since they are similar to Pal-Waukee in their present situations, their future existence can not be assured. This applies especially to Chicagoland Airport, the closest general aviation airport to Pal-Waukee. Thus, it really is no long-term solution to transfer operations from one privately-owned airport to another, unless the long term survival of the remaining airport(s) can somehow be assured.

The entire question of forecasted, or future, aircraft operations must also be considered. Table 111-7 lists the forecasted FY-1984 operations along with operations capacity information for five "North Area" airports.

TABLE III-7

Comparison of Current and Forecasted Annual Operations with Operational Capacity for Airports in North Cook and Lake County

AIRPORT	OPERATIONS FIGURE	CAPACITY (PANCAP)[2]	FORECASTED FY 84[3] OPERATIONS
Antioch	1,200	60,000	2,200
Campbell's	62,000	120,000	117,000
Chicagoland	207,000	110,000	218,000
PAL-WAUKEE	219,445	250,000	324,000
Waukegan Memorial	136,934	120,000	256,000
TOTALS	626,579	660,000	918,200
Without Pal-Waukee: (Capacity only)		410,000	

[1] Various sources including: FAA Form 5010 (Antioch, Campbell's); FAA's Great Lakes Region Ten Year Plan 1974-1983, (Chicagoland); FAA Tower Count (Pal-Waukee); FAA Air Traffic Division Manual Count (Waukegan).

[2] Practical Annual Capacity: Capacity figures from FAA Great Lakes Region Ten Year Plan, 1974-1983 (Chicagoland, Pal-Waukee and Waukegan) and CATS estimates (Antioch and Campbell's).

[3] From FAA, Terminal Area Forecast, 1974-1984, Oct. 1972, except for Antioch which was estimated by CATS.

With most of the airports operating at or above capacity today, the future would be quite grim without Pal-Waukee. And, those airports with excess capacity today (Antioch and Campbell's) would have to be improved extensively in order to handle traffic at their theoretical capacity levels. The reason is, today both airports have quite limited facilities in terms of runway

pavement and aircraft parking. This table also shows that, without Pal-Waukee, total operations demand would exceed capacity by more than 100 percent by 1984. Of course, if this situation would ever occur it is understood that much of this demand would be discouraged and would either not occur or would divert to less congested airports (e.g., McHenry County, and southeastern Wisconsin). Nonetheless, Pal-Waukee's crucial role in providing needed airport capacity has been demonstrated.

Based aircraft are also generally considered to be a measure of airport activity. This subject is covered in the next chapter.

[2]An aircraft operation is a landing, a take-off or a "touch-and-go" training maneuver. The touch-and-go combines the landing and take-off of an aircraft into one movement, without stopping the aircraft.

[3]Pal-Waukee Tower handles departures from Chicagoland Airport when instrument conditions, or bad weather, is present. Arrivals to Chicagoland are handled by O'Hare Tower, although aircraft must report to Pal-Waukee Tower when they they are on their final approach.

[4]Remember, the term occupants <u>includes</u> pilots as well as passengers.

[5]For more data on the out-of-area aircraft operations at Pal-Waukee, please refer to the following chapter on based aircraft.

[6]Much of this discussion is drawn from another CATS report entitled, Northeastern Illinois 1995 Airport System Plan Implementation Study/Priority Statement, preliminary, (Chicago: CATS, October, 1974).

[7]Federal Aviation Daministration, <u>Great Lakes Region Aviation System,</u> Ten Year Plan, 1974-1983, (Des Plaines: FAA/DOT, August, 1974), p. 2-10.

PART IV. BASED AIRCRAFT AND THEIR USERS

NUMBER OF BASED AIRCRAFT

It is estimated that a total of 375 aircraft are presently based at Pal-Waukee Airport) This number represents almost 12 percent of the total estimated to be based at the 26 airports and 73 restricted landing areas in the six county northeastern Illinois region. Table IV-1 summarizes the 11 airports ranking first to tenth in the region in terms of the number of based aircraft. Two airports tie for the tenth position with an estimated 100 based aircraft each. Pal-Waukee ranks second behind DuPage County Airport, a publicly owned facility. The number of aircraft based at Pal-Waukee, at any one time, fluctuates considerably but, generally, has been increasing annually since 1953 when there were 52 based aircraft. In December 1974, 38 of the 375 aircraft were operated by the airport owner and FBO, George J. Priester, Priester Aviation Service. The estimated 337 remaining aircraft are based by companies and private individuals renting tie-down or hanger space fran the airport operator. Many of these aircraft are based in privately owned hangers that have been constructed on land leased fran the airport.

In order to determine how the aircraft based at Pal-Waukee are used, a questionnaire was developed and mailed to the based aircraft customers of Priester Aviation Service with the September 1974 monthly billings. A sample of this Based Aircraft Tenants Questionnaire requesting information regarding the aircraft ownership, its usage and the importance of Pal-Waukee to the aircraft operator, is included in the Appendix B, Page 75 of this report. A total of 164, of approximately 325 questionnaires sent out were returned. The majority were received before the end of December 1974. A December 1, 1974 based customer list plus several returns from customers not included on this list account for a known total of 320 customer based aircraft and the 38 aircraft based by the airport operator.[2] The number of based aircraft for three customers was not included on the list. At least one of these customers bases several aircraft, but the exact number fluctuates and is not known. Since responses to the questionnaire were not received from these customers, the response rates and any factoring of the results will be based on the total of 320 identifiable customer aircraft. These 320 plus the 38 operated by Priester Aviation Service account for 358 of the estimated 375 total based aircraft. Table IV-2 indicates how the 358 identifiable aircraft break down by aircraft type.

RESPONSE TO BASED AIRCRAFT TENANT QUESTIONNAIRE

The returned questionnaires identified 174 of the 320 customer aircraft for an overall response rate of 54.4 percent. This rate varied considerably by aircraft type. Table IV-3 indicates the response rate for each

TABLE IV-1

Top Ten Ranking Airports in the Northeastern Illinois Region
in Terms of Number of Based Aircraft 1974

RAW	AIRPORT	ESTIMATED NUMBER' OF BASED AIRCRAFT
1	DuPage County	479
2	PAL-WAUKEE	375
3	Chicago-Midway	304
4	Lewis - Lockport	240
5	Chicagoland	180
6	Waukegan Memorial	166
7	Aurora Municipal	156
8	Schaumbrug	118
9	Dacy	104
10	Crestwood - Howell	100
	Chicago - Hammond	100

[1] Latest estimated from airport management or CATS staff.

TABLE IV-2

Identifiable Aircraft Based at PAL-WAUKEE Airport

Aircraft Type	AIRCRAFT Based Customer	Priester Aviation	Total
Turbojet/Turbofan	16	2	18
Turboprop	17	0	17
Multi-engine Piston	83	4	87
Single-Engine Piston	202	32	234
Helicopter	1	0	1
Unknown	1	0	1
TOTAL	320	38	358

SOURCE: December 1, 1974 Based Customer List from Priester Aviation Service and returned questionnaires.

type of aircraft. As shown in this table, the response rate was best for the turbojet/turbofan or "corporate jet" type while the single based helicopter was not included in a response. The response rate for single-engine piston aircraft was 48 percent, the most numerous type at Pal-Waukee.

TABLE IV-3

Response Rate by Aircraft Type (Based Aircraft Customer Questionnaire)

Aircraft Type	Total Number of Type	Number of Type Included in Responses	Response Rate Percent
Turbojet/Turoofan	16	15	93.8
Turooprop	17	9	52.9
:qulti-engine Piston	83	52	62.7
Single-engine Piston	202	97	48.0
Helicopter	1	0	0.0
Unknown	1	1	Not Applicable
TOTAL	320	174	54.4

SOURCE: December 1, 1974 Based Customer List from Priester Aviation Service and returned questionnaires.

OWNERSHIP OF BASED AIRCRAFT

From the based customer list and the returned questionnaires it is estimated that 165 of the 320 total customer aircraft are owned by companies (including corporations, private companies, institutions, et cetera). It is further estimated that these 165 are owned and operated by a total of 156, companies, reflecting the multiple aircraft ownership of some. The remaining 155 are assumed to be owned by individuals. These are only estimates because the class of ownership is known only for the 174 included on a returned questionnaire. From the based customer list it is not possible to determine with certainty who, in fact, owns an aircraft. Some listed under a company name may actually be owned by an individual and vice versa. The breakdown of ownership class by aircraft type is presented in Table IV-4 for those aircraft included on questionnaire returns. The dominant type for private ownership is single engine piston and the dominant type for company ownership is multi-engine piston. All turbine powered aircraft are company owned.

LOCATION OF BASED AIRCRAFT CUSTOMERS

From the based aircraft customer list provided by the airport operator and the returned questionnaires, the municipal addresses of those persons and companies basing aircraft at Pal-Waukee have been summarized. Figure IV-1 graphically depicts the total number of aircraft based at Pal-Waukee by customers from each municipality. As can readily be seen on this map, the users of Pal-Waukee Airport are by no means limited to the communities immediately adjacent to or very near the airport. Customers from as 'for away as' Waukegan on the north, Elgin on the west, and Hinsdale on the south base

NOTE: Aircraft Not Shown on the Map GARY, Indiana 2 (I)

Figure 1V-1 DISTRIBUTION OF BASED CUSTOMERS OF PAL-WAUKEE AIRPORT BY MUNICIPALITY (September 1974)

I 7TOTAL NUMBER

(5) NUMBER OF TURBINE POWERED

PAL-WAUKEE AIRPORT LOCATION

TABLE IV-4

Aircraft Ownership by Aircraft Type for Questionnaire Responses

Aircraft Type	Privately Owned	Company Owned
Turbojet/Turbofan	0	15
Turboprop	0	9
Multi-Engine Piston	9	43
Single Engine Piston	62	35
Unknown	0	1
TOTAL	71	103

SOURCE: Pal-Waukee Airport Based Aircraft TEnants Questionnaire, August 1974.

aircraft at the airport. In fact, one company whose facilities are located in Gary, Indiana bases its corporate jet at Pal-Waukee.

Aircraft owners with Chicago addresses have 91-aircraft based at Pal-Waukee. Twenty-nine aircraft are based by Loop-area customers. Wheeling has the second largest number of customer-based aircraft with 24. In addition there are the 38 aircraft based by the airport operator who also has a Wheeling address. Table IV-5 identifies the top ten communities in terms of the number of aircraft based by companies or individuals located in the community. It can be seen from Table IV-5 and Figure Iv-1 that all incorporated communities within a five mile radius of Pal-Waukee are included in these top ten communities. For the customers in three of the four remaining communities (Skokie, Evanston and Park Ridge) and many of those in the Chicago, Pal-Waukee airport is the nearest general aviation airport. The based aircraft customers located in the top ten communities listed in Table IV-5 account for 229 or 71.6 percent of the 320 customer-based aircraft. The six incorporated communities within five miles of the airport account for 106 of these aircraft or 33.1 percent of the total. In all, customers located in 48 communities base aircraft at Pal-Waukee. Thirty of these communities accounting for 292 or 91.3 percent of the customer-based aircraft are located entirely or predominantly in Cook County.

A further discussion of Pal-Waukee Airport user location is contained in the next chapter on pilot users.

USAGE OF AIRCRAFT BASED AT PAL-WAUKEE

Two questions on the Based Aircraft Tenants Questionnaire (see Appendix B, Page 75) relate to usage of the aircraft that are based at Pal-Waukee Airport. In question 2, each tenant was asked to identify the percentage

TABLE IV-5

Number of Aircraft Based by Companies Individuals Located in a Community
(Top Ten Communities)

Owner Municipal Address	NUMBER OF AIRCRAFT Turbojet/ Turbofan	Turboprop	Multi-Engine Piston	Single Engine Piston	Heli.	Total
Chicago	8	12	32	39	0	91
(Loop)	(3)	(7)	(11)	(8)	(0)	(29)
Wheeling	0	0	8	15	1	24
Des Plaines	0	0	4	16	0	20
Mount Prospect	0	0	2	17	0	19
Northbrook	0	0	2	14	0	16
Glenview	0	0	1	13	0	14
Arlington Heights	0	0	2	11	0	13
Skokie	1	0	4	8	0	13
Evanston	1	0	0	10	0	11
Park Ridge	0	0	5	3	0	8
TcfrAL,	10	12	60	146	1	229

SOURCE: December 1, 1974 Based Customer List from Priester Aviation Service and returned questionnaires.

of the total use of their aircraft for each of six usage/categories. These categories are: 1. Corporate and Private Business, 2. Personal/Recreational, 3. Instructional, 4. Charter/Commercial, 5. Government, and 6. Aerial Application. Each of these categories will be discussed below. Question 4 requested information on the percentage of the total trips to or from points outside the State of Illinois that were made in a tenant's aircraft.

The purpose of this section is to give a profile of the use of aircraft based at Pal-Waukee. The results of the questionnaire that are presented below are unfactored responses unless otherwise indicated. Knowledge of those not responding to the questionnaire is insufficient to determine if there is any significant bias presented by those that did respond. As indicated in a previous section, responses were received from a total of 164 tenants basing 174 aircraft. This represents 54.4 percent of the 320 customer-based aircraft at Pal-Waukee. It has further been estimated that the response rate was approximately 46 percent for privately-owned aircraft and approximately 62 percent for company-owned aircraft. These response rates should be kept in mind when interpreting the results discussed below.

The usage of the 38 aircraft operated by the airport's FBO (Priester Aviation Service), is considered elsewhere in this report.

1. Corporate and Private Business

Originally, in developing the questionnaire, it was intended that Corporate and Private Business Use of aircraft be separately identified and discussed. In examining the returned questionnaires, however, it was apparent that there was some confusion over the meaning of the two terms. They were apparently interpreted somewhat differently by various customers, especially for the privately-owned aircraft. This distinction between the two terms is rather vague and leads to confusion. It would have been desirable to include a definition of each category on the questionnaire, but this was overlooked. In future surveys, this addition will be made. Corporate Business Use is considered to be the use of aircraft owned and operated by a corporation for executive or corporate transportation, usually flown by professional pilots. The Private Business Use category was intended as an improvement over the term "Other Business Use" which is used by the FAA in some statistics to identify the use of aircraft owned and piloted by individuals in connection with their occupation or business.[3]

Even with these definitions, it appears that there are many cases which would not fit either category exactly. Therefore, in the following discussion of aircraft use, both of these categories have been combined into one "Business Use" category. For this discussion, "Business Use" includes the use of aircraft by individuals or companies in the course of their occupation or business with the exception of the operation of aircraft for compensation or hire.

In a subsequent analysis of the number of persons employed by companies that operate aircraft, only those that indicated their aircraft is used for corporate business are considered. This is an unavoidable inconsistency resulting from the wording of the particular question. It should not, however, present a serious problem of interpretation. There are only ten company owned aircraft indicating private business, use, but actually, are corporate business use. Several of these aircraft are owned by incorporated flying clubs or aircraft holding companies which are not true companies in terms of employing people.

Based on the results of the questionnaire, Business Use is, by far, the dominant usage category for the aircraft based at Pal-Waukee. Of the 174 aircraft included on responses to the questionnaire, Business Use accounts for 50 percent or more of the total use for 123 or 70.7 percent of of them. Of the 103 company owned aircraft represented, 85.4 percent are used for business purposes, 50 percent or more of the time. Even for privately-owned aircraft, Business Use is the dominant category for 35 of the 71 aircraft. Only 19 of the 174 aircraft are not used at lease partially for business purposes while 52 aircraft or 29.9 percent of the total are used 100 percent of the time for Business.

Table IV-6 provides a breakdown of the number of aircraft operated in various percentage of Business Use categories. The breakdown indicates the number in each category by aircraft type and ownership class.

As can be seen in this table, all of the 24 turbine powered aircraft,

with the exception of one turboprop for which the percentage of use was not indicated, are used 90 percent or more for business purposes. The aircraft category showing the least business use are the single engine piston aircraft. Eighteen of the 19 aircraft which are not used at all for business are single engine.

2. Personal/Recreational

Personal/Recreational Use of aircraft is the category with the second highest usage indicated in the questionnaire returns. This category may be defined as the use of aircraft for personal reasons not associated with a business or profession. A large portion is presumed to be fundamentally recreational or pleasure flying while the remainder is personal transportation. Fifty-eight of the 174 aircraft included in responses are used 50 percent or more of the time for Personal/Recreational purposes. This is 32.8 percent of the total compared with the 70.7 percent that are used half or more of the time for Business Use. These percentage add up to more than 100 percent because 13 aircraft are indicated to be used exactly 50 percent of the time for both Business and Personal/Recreational Use and are therefore included in both categories as dominant use.

As would be expected, a far greater number of privately-owned aircraft are used predominantly for Personal/Recreational Use. Forty-four of the 58 aircraft that are used one-half or more of the time for this category are privately-owned. These 44 represent 62.0 percent of the privately-owned aircraft. Only 14 of the 103 company-owned aircraft are used 50 percent or more of the time for Personal/Recreational flying. A total of only 12 aircraft, all of them privately-owned, single engine, are used 100 percent of the time for Personal/ Recreational purposes. This compares to the 52 aircraft that are used exclusively for Business. A breakdown of the Personal/ Recreational usage of the aircraft included in the questionnaire responses is provided in Table IV-7.

3. Instructional

The two categories of use that have been discussed so far, Corporate and Private Business, and Personal/Recreational, when considered together, account for 100 percent of the use of 154 aircraft or 88.5 percent of the total included on questionnaire returns. Of the four categories of use remaining on the questionnaire, Instructional Use, is indicated for the greatest number of aircraft. Instructional Use is "any use of an aircraft for purposes of formal instruction, either with the instructor aboard or when the student is flying solo, but is carrying out maneuvers according to the instructor's specifications".[4] There are only 13 aircraft among the 174 under consideration that are used some percentage of the time for Instructional Use. It should be emphasized that this does not include any of the 38 aircraft based by Priester Aviation Service, the airport operator. At least 30 of these aircraft are also used for instruction in the operator's flight school. Of the 13 customer-based aircraft used for student training,

TABLE IV-6

Number of Aircraft by Percentage of Use Category-Business Use (Combined Corporate and Private Business)

Percentage Category	PRIVATELY-OWNED AIRCRAFT			ODMPANY -OWNED AIRCRAFT					
	Multi-Engine Piston	Single Engine Piston	Sub-Total	Turbojet/ Turbofan	Turboprop	Multi-Engine Piston	Single Engine Piston	Sub-total	DJTAL
No Business Use	0	15	15	0	0	1	3	4	19
1- 9	0	3	3	0	0	0	1	1	4
10-19	0	2	2	0	0	0	1	1	3
20-29	0	12	12	0	0	1	2	3	15
30-39	1	1	2	0	0	0	1	1	3
40-49	0	2	2	0	0	2	1	3	5
50-59	2	8	10	0	0	2	2	4	14
60-69	1	4	5	0	0	1	0	1	6
70-79	1	5	6	0	0	1	4	5	11
80-89	1	5	6	0	0	2	2	5 *	11*
90-99	3	3	6	4	2	10	8	24	30
100	0	2	2	11	6	23	10	50	52
Percentage Not Indicated	0	0	0	0	1	0	0	1	1
Total	9	62	71	15	9	43	35	103	174

* Includes 1 unknown type aircraft.

SOURCE: Pal-Waukee Airport Based Aircraft Tenants Questionnaire, August 1974.

TABLE IV-7

Number of Aircraft by Percentage of Use Category-Personal/Recreational Use

	PRIVATELY-OWNED AIRCRAFT			COMPANY-OWNED AIRCRAFT					
Percentage Category	Multi-Engine Piston	Single Engine Piston	Sub-total	Turbojet/ Turbofan	Turboprop	Multi-Engine Piston	Single Engine Piston	Sub-total	TOTAL
No Personal/ Recreational Use	0	2	2	11	8	25	13	57	59
1- 9	1	1	2	3	1	5	2	11	13
10-19	3	4	7	1	0	5	5	12*	19*
20-29	0	9	9	0	0	1	2	3	12
30-39	1	2	3	0	0	3	2	5	8
40-49	1	3	4	0	0	1	0	1	5
50-59	2	9	11	0	0	2	2	4	15
60-69	1	1	2	0	0	0	4	4	6
70-79	0	6	6	0	0	0	3	3	9
80-89	0	7	7	0	0	1	0	1	8
90-99	0	6	6	0	0	0	2	2	8
100	0	12	12	0	0	0	0	0	12
Total	9	62	71	15	9	43	35	103	174

* Includes 1 unknown type aircraft.

SOURCE: Pal-Waukee Airport Based Aircraft Tenants Questionnaire, August 1974.

as indicated on questionnaire responses, seven are owned by companies (including incorporated flying clubs) and six are privately owned. One of these aircraft is a multiengine piston and the remaining 12 are single engine. Only one aircraft, a privately-owned, single engine, is used 100 percent of the time for instruction. The other aircraft range from 5 percent to 70 percent Instructional Use.

4. Charter/Commercial

This usage category includes the operation of aircraft for hire, e.g., charter transportation of people or goods and aircraft leasing. Again, it should be noted that many of the aircraft operated by Priester Aviation Service are used for charter or "air-taxi" flights as they are often termed. These aircraft are considered elsewhere. Of the 174 customer-based aircraft included on questionnaire responses, only three were indicated as being used for Charter/ Commercial Use. One privately-owned, single-engine aircraft is included in this category for 50 percent of its use and two company-owned, multiengine piston aircraft are used 60-70 percent of the time for Charter/ Commercial Use.

5. Government

The use of aircraft based at Pal-Waukee Airport for conducting government business is not significant according to the questionnaire responses. No government-owned aircraft were noted on the based aircraft customer list and the use of privately-owned or company-owned aircraft for government business is very limited. Two aircraft, a turboprop and a multi-engine piston, both company owned, were indicated as being flown for Government Use two percent of the time. One additional turboprop aircraft indicated for Government Use, but the percentage of use was not given. These instances may represent corporate business related to government contracts; if this is the case, it is likely that other aircraft use indicated as Corporate Business Use may be similar.

6. Aerial Application

This category was inadequately defined on the questionnaire. Aerial Application is primarily the use of aircraft for agricultural spraying. It was intended that this category also include "Industrial" uses of aircraft which includes their application for aerial photography and surveying, highway and pipeline patrol, aerial advertising, et cetera.[5] Only one aircraft, a company-owned, single engine was included in this category for 10 percent of its use. Had this category been more adequately defined on the questionnarie, other aircraft might have been included. For example, one company involved primarily in aerial photography operates two aircraft based at Pal-Waukee. Their use was included in the business category. Regardless of the possible omissions, this is a relatively insignificant category of general aviation in terms of total hours flown and number of aircraft involved .°

7. Out-of-State Usage

Incorporation of Pal-Waukee Airport into the NASP[7] implies that, in addition to any local or regional interest, there is a national interest in this airport. In an attempt to determine how much of the aircraft usage based at Pal-Waukee is related to interstate transportation, each tenant was asked to estimate the percentage of trips made in their aircraft which were to or from points outside the State of Illinois. This information will help to identify the national interest to some degree in this airport.

It was found that, of the 171 aircraft for which this question was answered, 85.4 percent are used for out-of-state trips one-half or more of the time. For 36.8 percent of these aircraft, 90 percent or more of the trips were out-of-state. The percentage of out-of-state trips varies considerably within each ownership class and aircraft type. Table TV-8 provides a breakdown of these various percentages of out-of-state use. For company-owned aircraft, 90.3 percent were flown out-of-state for 50 percent or more of their total trips, while 46.6 percent were flown 90 percent or more out-of-state. Those in the 90 percent or more category include all but one of the 24-turbine powered aircraft. Privately-owned aircraft are flown out-of-state somewhat less than the company-owned aircraft as a group. Only 22.1 percent of the privately-owned aircraft are operated to or from points outside Illinois 90 percent or more of the time.

Unfortunately, this information can not be related directly to the percentage of total operations at Pal-Waukee that are involved in interstate transportation. These figures merely provide an indication of how individual aircraft based at Pal-Waukee are used. The total number of trips by these aircraft is not known. In addition, it must be kept in mind that this information is only for the aircraft that are based at Pal-Waukee. Aircraft (not based at the airport) are responsible for a large, but unknown percentage of the total itinerant operation.

FACTORS AFFECTING AIRPORT CHOICE

The operators of aircraft based at Pal-Waukee were also asked to describe "how the use of Pal-Waukee Airport benefits [their] activities or those of [their] company". This question was envisioned as a way of determining why aircraft are operated by these individuals and companies. In many cases it was answered in this manner. However, in the majority of responses the answer to this question indicated the reasons Pal-Waukee was specifically chosen over other airports in the region for basing the aircraft. Regardless of the varied interpretation of this question, some interesting information was provided. It is difficult to summarize the results of an essay-type question such as this, therefore the responses will be discussed in general.

The overwhelming majority of those answering indicated that they base their aircraft at Pal-Waukee, because it is the most convenient airport to their home and/or office location. Many of these, especially for company owned aircraft, qualified this statement by indicating that Pal-Waukee is

TABLE IV-8

Number of Aircraft by Percentage of Trips Made Out-of-State

Percent Out-of-State Operations	PRIVATELY-OWNED AIRCRAFT			COMPANY-OWNED AIRCRAFT					
	Multi-Engine Piston	Single Engine Piston	Sub-total	Turbojet/ Turbofan	Turboprop	Multi-Engine Piston	Single Engine Piston	Sub-total	Total
0-9	0	1	1	0	0	1	0	1	2
10-19	0	5	5	0	0	1	0	1	6
20-29	1	2	3	0	0	0	0	0	3
30-39	0	5	5	0	0	1	4	5	10
40-49	0	1	1	0	0	0	3	3	4
50-59	1	13	14	0	0	2	5	8*	22*
60-69	1	3	4	0	0	4	4	8	12
70-79	2	10	12	0	0	6	6	12	24
80-89	1	7	8	0	1	9	7	17	25
90-99	3	12	15	11	6	18	5	40	55
100	0	0	0	4	2	1	1	8	8
No Response	0	3	3	0	0	0	0	0	3
TOTAL	9	62	71	15	9	43	35	103	174

*Includes one unknown type aircraft.

SOURCE: Pal-Waukee Airport Based Aircraft Tenants Questionnaire, August, 1974.

the most convenient airport with the facilities they require or desire for their operation. The facilitiesmost often identified were the control tower, the long runway, and an instrument approach.

Several operators identified Pal-Waukee as the only airport within a reasonable travel time that meets their needs, with the exception of Chicago-O'Hare International. Most of these operators who, operate turbine aircraft, ruled Chicago-O'Hare International out because of the extreme congestion and unacceptable delays. The services that are available at Pal-Waukee Airport were also identified by many, basing aircraft, as one of the reasons they have chosen the airport. Services, such as maintenance, hangar space, and ramp servicing were rated very highly by many. The relatively small number of responses that identified why they use aircraft predominantly, indicated that the aircraft allows them to serve a larger area with more flexibility. Several specified that the use of their own aircraft allowed them to serve or do business in smaller towns not served by the airlines.

A wide variety of responses were included in the returned questionnaires. Many responses were combinations of all of the above factors. Several indicated at this point that their business activities would be adversely affected if Pal-Waukee Airport were forced to close. A summary of responses such as this can not convey the full meaning of the many, varied answers that were provided. Only a complete reading of these responses can convey this meaning.

EMPLOYMENT BY COMPANIES BASING AIRCRAFT AT PAL-WAUKEE

1. Total Employees. In order to estimate the relative importance to the local and regional economy of the companies that base aircraft at Pal-Waukee, each company was asked to indicate the total number of persons employed in the Chicago Metropolitan Region. This total employment is a rough indication of the importance of these firms to the regional economy. Specifically, this question was asked only of those companies that indicated some amount of Corporate Business Use for an aircraft. AS discussed previously, there is a minor inconsistency resulting from the possible misinterpretation of the two Business Use categories. Ten company-owned aircraft were indicated as being used for Private Business but not for Corporate Business. In addition, some company-owned aircraft were used for other purposes, but not Corporate Business. Employment figures were not requested for companies operating aircraft solely for Private Business and other uses.

Of the 93 companies that returned questionnaires, 81 (or 87 percent) indicated that their aircraft are used at least partially for Corporate Business. If this percentage is applied to the estimated total of 156 companies basing aircraft at Pal-Waukee, a total of 136 companies using aircraft for Corporate Business is indicated. Only 69 of the 81 companies tnat returned questionnaires and indicated Corporate Business Use answered this particular question on employment. These 69 companies employ a total of 71,324 persons in their Chicago area facilities, according to their responses. Two of these companies, alone, account for 45,000 of these employees. In order to factor this employment figure up to the estimated total

number of companies operating aircraft for corporate business, an average employment per company figure is necessary. It was decided that the two extremely large companies should be removed from the calculation of the average in order to be reasonable. The 67 remaining companies employ an average of 393 persons each. If this average is applied to the estimated 67 companies using aircraft for Corporate Business that did not return a questionnaire, or did not answer this particular question, an additional 26,331 employees is indicated. The total number of persons employed by companies basing aircraft at Pal-Waukee for Corporate Business Use is therefore estimated to be 97,655. This is considered a conservative estimate because several of the companies not responding to this question are quite large.

This level of employment is highly significant to the regional economy. For comparison, the total employment in the six county Chicago Standard Metropolitan Statistical Area in 1970 was 3,185,000. Employment in Cook County, which is the location of 91 percent of the based customers at Pal-Waukee, totaled 2,700,300 in 1970, of which 1,864,000 was in the City of Chicago. Nine northern Cook County townships, in which the operators of 194 of the 201 aircraft based by suburban Cook County operators are located, have a total employment figure of 426,050.[8] These employment figures are for all types of employment including government, services, retail trade, et cetera; not just production-oriented employment. From these examples, it can be concluded that the companies basing aircraft at Pal-Waukee constitute a major portion of the economy of the northern Cook County area served by the airport. It should be emphasized that the companies considered in this section are only those that base aircraft at Pal-Waukee. Many additional companies employing people in the same general area use Pal-Waukee frequently with aircraft based elsewhere.[9]

2. Aviation Dependent Employees. In the above discussion of total employment by companies basing aircraft at Pal-Waukee, it is in no way presumed that the jobs of these nearly 100,000 people are dependent upon or directly attributable to the existence of the airport. It is, however, presumed that the airport provides an important transportation facility to the companies that employ them. In addition, some of these employees are, in some way, dependent on tneir company's aviation activities for theTTF jobs. Many of these companies employ professional flight crews to operate their aircraft. These employees are obviously dependent upon aviation activities for their jobs. If the company did not own and operate an aircraft, other jobs might not exist. For some, their level of business activity and, therefore, their number of employees might not be as high without the use of aircraft. In the case of a few companies, the entire business may depend on the use of aircraft.

In an attempt to quantify this aviation dependence, each company operating aircraft for Corporate Business was asked to indicate how many of their total employees depend directly upon the company's aviation activities for employment. The results suggest that all of the above cases exist among the companies basing aircraft at Pal-Waukee. Of the 81 companies responding to the questionnaire that use their aircraft for corporate business, 57 responded to this question. The total number of aviation-dependent employees

indicated by these 57 companies is 627. Thirteen companies indicated that no employees are dependent on their aviation activities. At the other extreme, two companies account for 400 of the total number of aviation-dependent employees. Several small companies indicated that all of their employees are, in some way, dependent on aviation activities for their jobs.

If the two companies with a very large number are removed from the calculation, (the average number of aviation-dependent employees per company) is 4.1. Applying this average to the remainder of the estimated 136 companies that use aircraft based at Pal-Waukee for corporate business, results in an estimated 949 employees dependent on aviation activities. Again, this is considered a conservative estimate, because other companies could very likely have a similar number of such employees as the two companies removed from the average.

An estimate of the salaries earned by these aviation-dependent employees were also requested on the questionaire. The annual salaries were estimated for 129 of the 627 employees. The average salary for these 129 employees is $19,690.[10] If this average is applied to all 949 of the estimated employees, approximately $18,700,000 is earned annually by aviation-dependent employees of companies basing aircraft at Pal-Waukee. It is likely that the average annual salary of the 400 persons employed by the two companies is somewhat lower. Even if a much lower figure of $12,000 per year is assumed for these employees, the total annual salaries of aviation dependent employees is still approximately $15,600,000.

EFFECTS OF PAL-WAUKEE AIRPORT CLOSURE ON BASED CUSTOMERS

Because Pal-Waukee Airport is a privately-owned airport and, therefore not exempt from real estate taxes or eligible for State and Federal Grants-in-Aid, it is in a difficult financial situation. As land development pressures increase (as is occurring in the Pal-Waukee area), land values and real estate taxes soar to levels that make it increasingly difficult to maintain and operate a privately-owned airport at a profitable level. This factor and many others make the possibility of the closure of privately-owned airports very real. This is quite evident from the closure of three such airports in the Chicago Area in 1972 (Sky Harbor, Mitchell Field, and Hinsdale Airport). The possibility of the closure of Pal-Waukee Airport must be taken very seriously, especially considering the large number of aircraft based at the airport and its role as a primary general aviation reliever airport for Chicago-O'Hare International.

In order to determine what would happen to the aircraft based at Pal-Waukee if the airport was, infact, forced to close, each based aircraft tenant was asked how their aircraft operations would be effected. Five choices were provided on the questionnaire for their response (see copy of questionnaire in the Appendix B, Page 76). These responses are summarized in Table IV-9. The number of aircraft by aircraft type and ownership that would be moved to various other airports or be sold are indicated in this table. This information is for the 174 aircraft included on returned questionnaires. It is assumed that these figures are representative of what

would happen to the remaining 146 customer based aircraft that have been identified but not included in a response.

From Table IV-9, it can be seen that 126 of the 174 aircraft included on a returned questionnaire will be moved to another airport if Pal-Waukee is closed. This is 72.4 percent of the total which implies that approximately 232 of the 320 customer based aircraft could be expected to be moved to alternative airports. It is significant to note that the owners of 35 of the 126 aircraft that are indicated to be moved do not know which airport they would choose. Because of this large number of unknown airport responses it is difficult to estimate the number of aircraft that can be expected to relocate to any one airport.

Of those expressing a choice, Chicagoland Airport was identified for the greatest number of relocated aircraft with 23. Using the overall response rate to factor this number, approximately 42 aircraft could be expected to relocate to Chicagoland. Assuming that many of the aircraft for which the alternative airport is unknown would eventually relocate to Chicagoland, 50 or more aircraft might logically be expected at that already crowded airport. It must be emphasized that Chicagoland and three other alternative airports identified by customers are also privately-owned and, therefore, are not guaranteed to remain in existence. Of those aircraft for which an alternative airport is identified, 35 or 37.4 percent are to be moved to other privately-owned airports. Waukegan Memorial, Chicago-O'Hare International, and Chicago-Midway Airports are identified as the alternative airport for the bulk of the remaining aircraft. All of those indicating Chicago-O'Hare International as the preferred alternative are company-owned aircraft. Owners of 14 aircraft including five turbojet or turbofan type indicated Chicago-O'Hare International as their perferred alternative. Factoring this figure implies that owners of 26 or more aircraft could be expected to prefer to relocate their aircraft there. Considering its current congestion and its limited capacity for basing general aviation aircraft, it is doubtful if this influx could be accommodated.

A somewhat surprising result indicated in response to this question is that the owners of 39 of the 174 aircraft, or 22.4 percent, intend to sell their aircraft if Pal-Waukee Airport is forced to close. This implies that as many as 72 of the 320 customer based aircraft might be sold if Pal-Waukee closed. By ownership, the results indicate that 23 percent of the company-owned aircraft would be sold as would 35 percent of the privately-owned aircraft. Owners of 23 of the 39 aircraft to be sold intend to quit flying altogether. The remainder will either rent or charter aircraft as required or rely on scheduled airlines for their air transportation needs.

According to their questionnaire returns, 20 companies are intending to sell their aircraft. Ten of these companies intend to cease flying. The remaining 10 companies will rent or charter aircraft or rely on the airlines. A total of 91 aviation dependent employees are estimated to be employed by these 20 companies (intending to sell their aircraft if Pal-Waukee closes). Thirty of these employees work for companies indicating they will cease flying. Expanding these figures to include the companies

TABLE IV-9

Future Location of Based Aircraft if PAL-WAUKEE Forced to Close

	PRIVATELY-OWNED AIRPORT			COMPANY-OWNED AIRCRAFT					
Action if Airport Closed	Multi-Engine Piston	Single Engine Piston	Sub-total	Turbojet/ Turbofan	Turboprop	Multi-Engine Piston	Single Engine Piston	Sub-total	TOTAL
Move Aircraft To:									
Campbell's	0	2	2	G	0	0	0	0	2
Chicagoland	0	12	12	0	0	2	9	11	23
Crystal Lake	0	2	2	0	0	2	1	3	5
DuPage County	0	2	2	0	1	3	1	5	7
Elgin	0	4	4	0	0	1	0	1	5
Gary Municipal	1	0	1	1	0	0	0	1	2
Midway	0	2	2	3	2	3	1	10*	12*
Chicago-O'Hare International	0	0	0	5	3	4	2	14	14
Waukegan Memorial	3	5	8	3	1	3	5	12	20
Out-of-Region	0	1	1	0	0	0	0	0	1
Unknown Airport	3	15	18	1	1	9	6	17	35
Subtotal: Move Aircraft	7	45	52	13	8	27	25	74*	126*
Purchase Smaller Aircraft and Move	0	0	0	0	0	0	0	0	0
Sell Aircraft, Cease Flying	0	11	11	0	0	6	6	12	23
Sell Aircraft, Rent as Required	0	2	2	1	0	3	1	5	7
Sell Aircraft, Rely on Airlines	2	2	4	0	0	3	2	5	9
Subtotal: Sell Aircraft	2	15	17	1	0	12	9	22	39
Other or No Response	0	2	2	1	1	4	1	7	9
TOTAL	9	62	71	15	9	43	35	103*	174*

* Includes one unknown type aircraft.

SOURCE: Pal-Waukee Airport Based Aircraft Tenants Questionnaire August, 1974.

TABLE IV-10

Generalized Responses to Question Ten of Based Aircraft Tenants Questionnaire - Companies Using Aircraft for Corporate Business:

"If Pal-Waukee Airport were forced to close, what would be the effect on the company's facilities in the Chicago Area"?

Generalized Response	Number of Companies	ESTIMATED EMPLOYEES Total	Aviation-Dependent
1. "No effect" or "negligible"	11	16,870	316
2. "NO effect if alternative airport facilities available"	2	30,393	14
3. "Inconvenience to company resulting from increased travel time, reduced efficiency and/or productivity"	21	11,993	154
4. "Very inconvenient to company" or "Serious inconvenience"	7	6,405	49

NOTES:

Unfactored; Responses for 81 companies only.

For companies not responding to number of employees, average number of total employees (393) and aviation dependent employees (4.1) applied.

that did not respond to the questionnaire implies that an additional 14 companies employing 57 additional aviation-dependent employees may sell their aircraft. This brings the number of aviation dependent employees to 140, working for companies that may sell their aircraft. These employees earn an estimated $2.9-million per year.

Companies that operate their aircraft for corporate business were asked to describe the effect a Pal-Waukee Airport closure would have on their facilities and operations in the Chicago Area. Their responses, which are in short essay form, varied considerably. Many companies indicated that such a closure would have virtually no effect on their operations while others described effects ranging from inconvenience to the

creation of a hardship for the company. In a few cases, closure of Pal-Waukee Airport could result in the relocation of the business. The responses represent the possible effects of a cross-section of the companies that base aircraft at Pal-Waukee. Similar effects might be assumed for the companies that operate aircraft at Pal-Waukee frequently, but base them elsewhere. For interpretation, the essay responses have been generalized into four categories. The number of companies making a response that fits within each category is summarized in Table TV-10. The total number of persons estimated to be employed by these companies and the number estimated estimated to be dependent on aviation activities are also summarized. It would be difficult to factor this information up to the total number of companies with any reliability. Therefore, only the direct survey responses are presented.

Chicago Area Transportation Study, Airport Facilities Questionnaire, completed by airport manager July 30, 1974.

[2]The fact that some of the returned questionnaires are from customers not included on the December 1, 1974 list reflects the fact that the number of based aircraft fluctuates. A complete based customer list for the mailing date was not available.

[3]Much of this discussion of the business use categories and their drawbacks is drawn from p. 14 of Public Policy Toward General Aviation by Jeremy J. Warford, published by the Brookings Institution, 1971.

[4]Jeremy J. Warford, Public Policy Toward General Aviation, The Brookings Institution, 1971, p. 19.

[5]Ibid., pp. 18-19.

[6]Ibid.

[7]Federal Aviation Administration, 1972 National Airport System Plan, op. cit.

[8]Northeastern Illinois Planning Commission, Northeastern Illinois Regional Data Center Bulletin No. 5, General Employment Trends, Northeastern Illinois Region, 1960-1970, April 16, 1975, Table A-1, p. 10.

[9]This conclusion based on discussions with the airport management.

[10]This calculation does not include any of the employees from the two companies which estimated a total of 400 employees. There was no salary estimated on the questionnaires for these employees.

PART V. PILOT USAGE OF PAL-WAUKEE AIRPORT

This chapter utilizes CATS survey data to outline the significance of the pilot usage of Pal-Waukee Airport. Among the several significant indicators to be presented are comparisons of Pal-Waukee usage with airport usage in the remainder of the region. Also, a service area, or user source area, will be described for Pal-Waukee based on the pilot survey data. Finally, some conclusions will be drawn as to the possible impact of closing Pal-Waukee on the distribution of pilots in the Northeastern Illinois Region.

THE CATS GENERAL AVIATION USER SURVEYS

In 1969 and again in 1973, the CATS conducted mail surveys of pilots and aircraft owners residing in northeastern Illinois. Both surveys asked a series of questions related to the magnitude and type of aviation activity in which these registered pilots and aircraft owners participated. The key question in both surveys from an airport usage analysis viewpoint was the one that asked, "Out of what airfield do you generally operate?" The responses to this question from the 1969 survey have been analyzed) The 1973 pilot data have only recently been made available, with the aircraft owner data to be available this summer.

The data from these surveys provide a very specific data base from which the Pal-Waukee usage can be analyzed. The fact that two surveys have been run will allow for a comparison of usage in two different time periods. In addition, the fact that Sky Harbor Airport closed in 1973, just prior to the second survey, allows for the impacts of this closure on Pal-Waukee Pilot Usage to be very clearly depicted by comparing the 1969 and 1973 results.

PILOT USAGE AT PAL-WAUKEE AIRPORT, 1969 AND 1973

The 1969 Pilot Survey responses indicated that 325 pilots (unfactored or raw data) selected Pal-Waukee Airport as their "most frequently used" airport. *As* indicated in Table V-1, Pal-Waukee ranked third in the region in terms of overall pilot-user responses. The 325 responses amounted to 9.6 percent of total region-wide responses in 1969. Thus, it can be seen that Pal-Waukee's importance to the regional airport system had been clearly established by 1969 with nearly 10 percent of the pilots responding choosing Pal-Waukee as their primary airport.

By 1973 this importance was restated in even more significant terms. The 1973 CATS Pilot Survey results indicated that 492 pilots had selected Pal-Waukee as their primary airport. These 492 represent 12.8 percent of all those responding in 1973. In addition, as shown in Table V-2, Pal-Waukee moved up to second ranking in the region in terms of overall responses.

TABLE V-1

Chicago Area Transportation Study 1969 Pilot Survey Responses
(Top Ten Airports)

	AIRPORT	NUMBER OF RESPONSES
1.	DuPage County*	363
2.	Chicago-Midway*	332
3.	PAL-WAUKEE	325
4.	Sky Harbor (closed 2-1-73)	321
5.	Hinsdale (closed 7-1-73)	209
6.	Chicagoland	176
7.	Waukegan Memorial*	160
8.	Mitchell-Lombard (closed 7-1-73)	154
9.	Aurora Municipal*	130
10.	Chicago-O'Hare International*	118

NOTE: The 2,288 responses from the top ten airports in this table represents 67.4 percent of the total usable responses and 35.2 percent of the total pilots surveyed.

* Denotes a publicly-owned airport. The remainder are privately-owned, but open for public-use.

SOURCE: Unfactored survey data, Chicago Area Transportation Study.

TABLE V-2

Chicago Area Transportation Study 1973 Pilot Survey Responses
(Top Ten Airports)

	AIRPORT	NUMBER OF RESPONSES
1.	DuPage County*	532
2.	PAL-WAUKEE	492
3.	Chicago-Midway*	459
4.	Chicagoland	260
5.	Lewis-Lockport	207
6.	Waukegan Memorial*	197
7.	Aurora Municipal*	173
8.	Elgin	135
9.	Schaumburg	123
10.	Crestwood-Howell	103

NOTE: The 2,681 responses from the top ten airports listed in this table represents 69.5 percent of the total usuable responses and 34.2 percent of the total pilots surveyed.

* Denotes a publicly-owned airport. The remainder are privately-owned, open for for public-use.

SOURCE: Unfactored Survey Data, Chicago Area Transportation Study.

The increase from 325 pilots in 1969 to 492 in 1973 amounts to a 51.4 percent increase in pilot-users in four years. In that same period, total pilots in the region increased by 20.4 percent, from 6,506 to 7,830 (total pilots surveyed).[2] Thus, pilot responses increased at Pal-Waukee at a rate ahead of the region-wide increase of total pilots.[3]

However, it would be misleading to assume that this high growth rate in Pal-Waukee pilot-users was due only to increases in the numbers of pilots in the area. Table V-3 reflects some of the changes in airport usage which affected Pal-Waukee Airport. These data were drawn from special questions built into the 1973 Pilot Survey. The first column reflects the airport location of former Pal-Waukee users. The second column reflects the previous airport location of current Pal-Waukee users. This column shows that 215 current Pal-Waukee users (or 43.7 of the 492 total) recently used another airport. Furthermore, 158 of the 215 (or 32.1 percent of the 492 total Pal-Waukee users) were from Sky Harbor Airport. The table also indicates that there was an interchange of users among several other airports and Pal-Waukee. This is certainly an outgrowth of a free market condition and reflects the competitive environment in which Pal-Waukee Airport operates. Furthermore, this data establishes that a large number of former Sky Harbor users are now flying from Pal-Waukee Airport.

TABLE V-3

Changes in Airport Usage Present and Former Pilot-Users of PAL-WAUKEE Airport 1973

AIRPORT	PILOTS FROM PAL-WAUKEE (Former Users)	PILOTS TO PAL-WAUKEE (Present Users)
Chicago-Midway	17	7
Chicago-O'Hare International		1
Mitchell		3
Sky Harbor		158
Chicago - Hammond	1	1
Schaumburg	1	5
Chicagoland	15	9
Lewis - Lockport	1	1
DuPage County	11	7
Elgin	8	1
Campbell's	4	
Waukegan Memorial	12	1
Crystal Lake		2
Aurora Municipal	1	
Galt	1	
Glenview NAS	4	1
Others	6	18
TOTALS	82	215

SOURCE: Unfactored Survey Data, 1973 Pilot Survey, Chicago Area Transportation Study.

FACTORS AFFECTING AIRPORT USAGE

There are many factors which affect a pilot's choice of an airport in a metropolitan area. Unpublished research done jointly at Northwestern University and CATS[4] provides an analysis of such factors based on the previously mentioned 1969 CATS Pilot Survey. This analysis was considered the first steps toward a better understanding of the usage of Chicago area general aviation airports. Sane of the conclusions reached indicated that:

1. The airports chosen most often will generally have a moderately long runway (regional average = 3,345 feet for 22 general aviation airports included in the analysis);

2. The airports selected most often will have a large number of based aircraft;

3. The airports chosen most often will be moderately close to the Loop (the average distance being 39.5 miles for the 22 airports in the study);

4. The airports chosen most often will be dominated by private rated pilots;

5. If the airports selected most frequently by regional pilots are relatively near the Loop, these airports will generally cost more to use;

6. The airports selected most frequently tend to have increasing usage fees as the number of aircraft at each airport increases; and,

7. The airports selected most frequently by Chicago Area pilots also tend to have increasing numbers of based aircraft as their runway lengths increase.[5]

Pal-Waukee fits into these generalized conclusions very well. *As* a long runway (5,000 feet) airport, Pal-Waukee has attracted both a large number of pilots and a large number of based aircraft. Also, Pal-Waukee is located approximately 27-highway miles from the Loop and, supporting the general conclusion, is used by pilots at an above average rate. Of course, this "factor" (Loop-Airport Distance) is merely a substitute for the larger factor of population density and the resultant demand for airport services. This demand is reflected in the relatively high cost of basing aircraft at Pal-Waukee, Which is well above the 1973 regional mean of $25.00-per month for an outside tie-down space.

The ratings of Pal-Waukee's pilot-users show that 62.2 percent of the 1969 total held private ratings. This figure is slightly below the average for the region, thus pointing out that the usual "dominance" of private-rated pilots is not present at Pal-Waukee. Interestingly enough, 24.0 percent of the total held commercial or air transport ratings which, in part, reflects the presence of business and corporate pilots who fly some of the more sophisticated aircraft based there.

Pal-Waukee, then, is the choice of a large number of pilots for a combination of reasons. For many north side city of Chicago pilots, Pal-Waukee is simply the closest airport. But, it also provides a long runway as well as a full range of general aviation pilot training and aircraft-related services. It is clear that, with the closure of Sky Harbor, other area airports offer little alternative to north Cook County pilot-users in terms of the convenience and services now present at Pal-Waukee.

THE AIRPORT MARKET - PAL-WAUKEE PILOT DISTRIBUTIONS

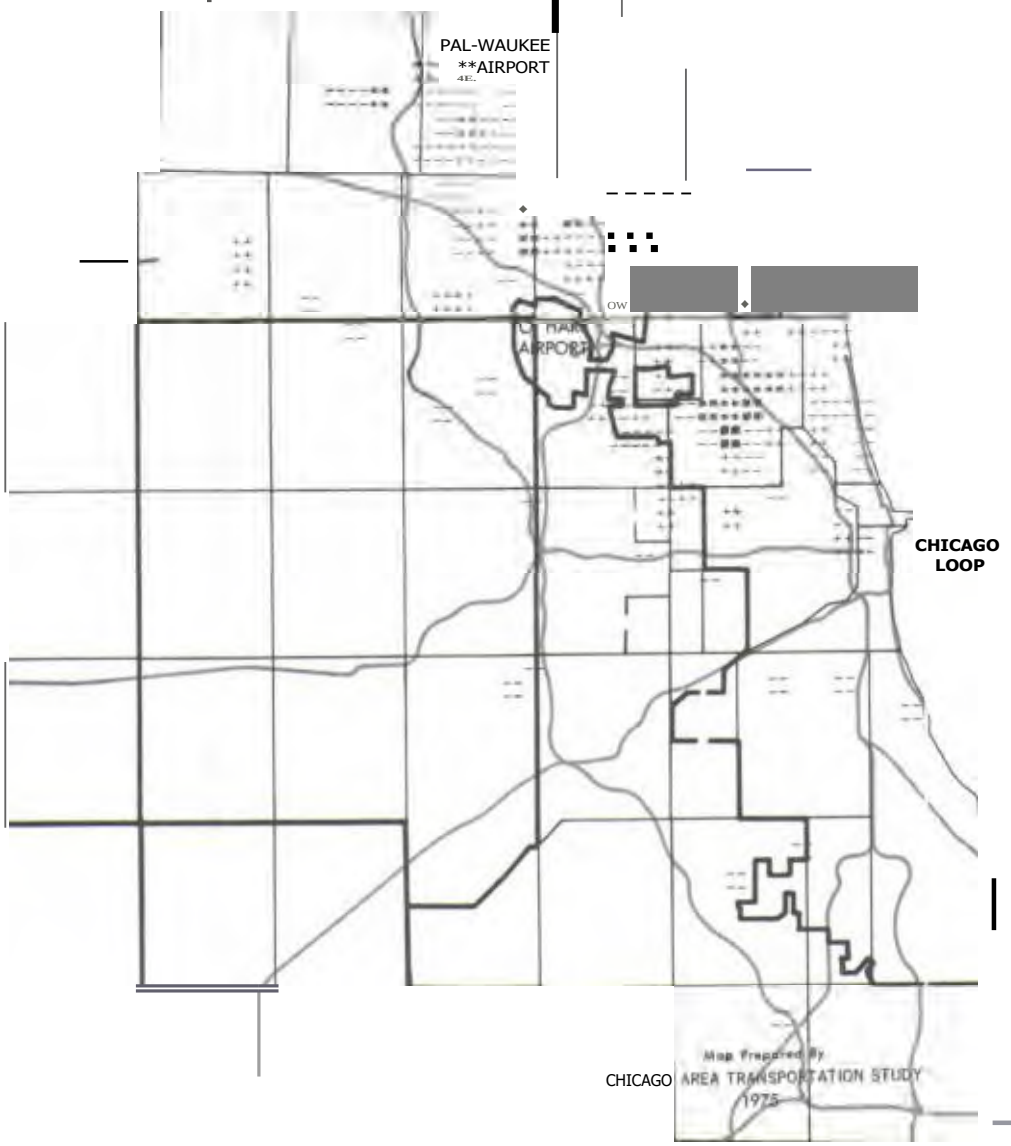
It is possible to map the geographic distribution of Pal-Waukee's pilot-users (based on home address), because of the format of data collected in the 1969 and 1973 pilot surveys. Figure V-1 depicts the 1969 pilot distribution for Pal-Waukee by square mile. Figure V-2 depicts the 1973 distribution by square mile.

Comparison of the two maps reveals a strengthening of the concentrations of Pal-Waukee users in several areas of the region between 1969 and 1973. For example, the 1969 distribution reveals fairly dense concentrations of pilots on the northwest side of Chicago, in Rogers Park, in the O'Hare suburban area (DesPlaines, Arlington Heights, Mount Prospect), and Northbrook. In 1973 these densities are strengthened and there is considerable "filling in" between the areas, particularly along the Lake Shore. In addition, new areas of pilot concentrations begin to show up on the near north side of Chicago, in Wilmette, and in Palatine. While much of the growth shown in comparing the 1969 and 1973 distributions can be attributed to the previously mentioned Sky Harbor Airport closing, the dense areas in the northwest suburbs can be attributed to more natural market growth forces (e.g., an increase in total pilots and population).

The changes in pilot user concentrations can be further examined by studying the distributions of the municipal locations of Pal-Waukee pilot users in 1969 and 1973. Table V-4 and Table V-5 list the Top Ten "Municipal Contributors" of Pilot-Users to Pal-Waukee in 1969 and 1973 respectively. The dominance of Chicago-address pilots is obvious in both years. Interestingly enough, Deerfield, Glenview, Mount Propect, Palatine, Wilmette, and Wheeling more than doubled their contribution of pilot-users to Pal-Waukee in 1973 over 1969. In addition, Chicago, Des Plaines, Northbrook and Park Ridge all posted significant increases in pilot-user contributions (30 percent or better) in 1973.

Taking this analysis a step further, an effort to create an airport service area, or "user source area", for Pal-Waukee was initiated based on the municipal address locations. The measure used in selecting a municipality for inclusion in the Pal-Waukee service area was, simply, that the municipality" contribute" at least 20 percent of its pilots (based on responses only) to Pal-Waukee. Generally, if this measure was achieved, Pal-Waukee was also the airport selected by the greatest number of pilot-users within that municipality.

– continued on page 53 -



- ONE
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Figure V-1 1969 PAL-WAUKEE AIRPORT PILOT DISTRIBUTUON
Source: 1969 CATS Pilot Survey

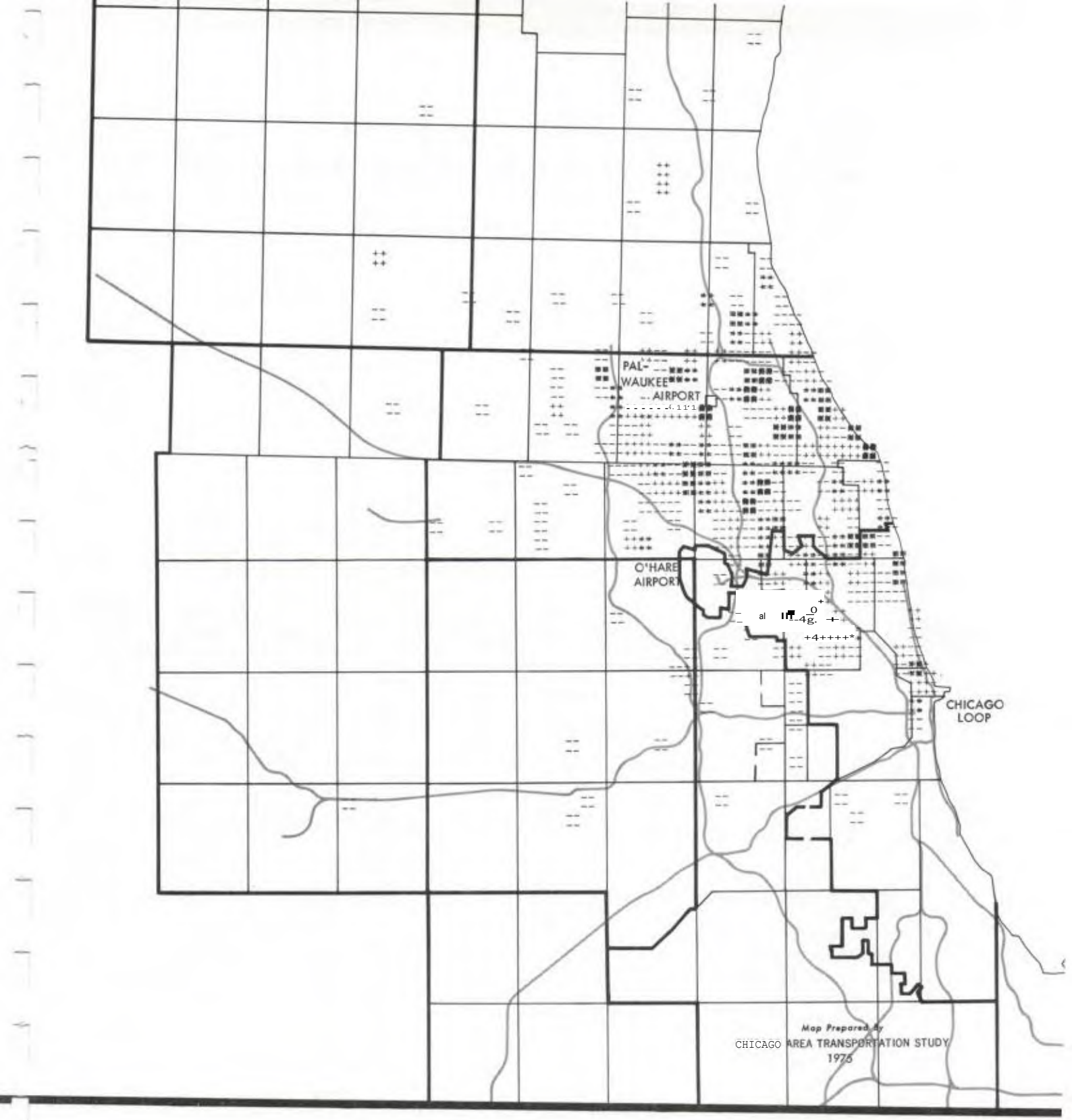

Figure V-2 1973 PAL-WAUKEE AIRPORT PILOT DISTRIBUTION
Source: 1973 CATS Pilot Survey

TABLE V-4

Top Ten Municipal Contributors of Pilot-Users To PAL-WAUKEE Airport, 1969

	MUNICIPALITY	NUMBER OF PILOTS
1.	Chicago	68
2.	Des Plaines	25
3.	Arlington Heights	20
4.	Northbrook	19
5.	Skokie	17
6.	Glenview	16
7.	Park Ridge	13
8.	Mount Prospect	11
9.	Winnetka	10
10.	Evanston	9
	Highland Park	9
	Wilmette	9
		226*

* Accounts for 69.5 percent of the total 1969 Pal-Waukee user responses (unfactored).

SOURCE: Unfactored Survey Data, 1969 Pilot Survey, Chicago Area Transportation Study. (Since these data are based on a 50 percent response rate, doubling the above figures will give the approximate number of pilots from each municipality who use Pal-Waukee).

TABLE V-5

Top Ten Municipal Contributors of Pilot-Users To PAL-WAUKEE Airport, 1973

	MUNICIPALITY	NUMBER OF PILOTS
1.	Chicago	101
2.	Des Plaines	35
3.	Glenview	33
4.	Northbrook	30
5.	Mount Prospect	25
6.	Park Ridge	22
7.	Wilmette	18
8.	Arlington Heights	17
9.	Palatine	17
10.	Deerfield	16
	Wheeling	16
		330

* Accounts for 67.1 percent of the total 1973 Pal-Waukee user responses (unfactofed.)

SOURCE: Unfactored Survey Data, 1973 Pilot Survey, Chicago Area Transportation Study. (Since these data are based on a 50 percent response rate, doubling the above numbers will give the approximate number of pilots from each municipality who use Pal-Waucee.)

It is clear from this effort that all the municipalities in the northeastern portion of Cook County, plus the far northern and northwest parts of Chicago, and the northwest Cook suburban area (along the Northwest Line of the Chicago and North Western Railway) would be included in such a Pal-Waukee "Service Area". In addition, a small portion of southeastern Lake County (the Deerfield/Highland Park area) should at least be included partially. In 1969 the area generally described here provided approximately 225 pilot-users, or 69.2 percent of the total Pal-Waukee user group .° In 1973 the same area provided approximately 360 pilot-users to Pal-Waukee, or 73.2 percent. Again, the primary reason for the increase in contributions of pilot-users in 1973 was the closure of Sky Harbor Airport. However, in some cases, the municipalities contained in this service area for Pal-Waukee suffered decreases in total pilots registered with the State of Illinois. Thus, in these cases, the increased 1973 pilot-user figures for Pal-Waukee reflect a redistribution of pilots occuring simultaneously with a loss of overall pilot-users. It can be inferred from example municipality distributions that the lack of airport facilities (through the closure of Sky Harbor and the subsequent crowding of Pal-Waukee and Chicagoland) has begun to stagnate or to constrain the growth in aviation in this part of the region.

THE EFFECT W PILOT USAGE OF CLOSING PAL-WAUKEE

In order to evaluate the impact of future changes in the regional airport system, a question was built into the 1973 Pilot Survey concerning possible future airport closures. It asked: "If the airport or RLA (restricted landing area) you presently operate from was to close or for some reason become unacceptable to you, where would you most likely operate from"? Of the 492 pilots responding that they used Pal-Waukee Airport in 1973, 386 pilots answered this question. Table V-6 lists the results of these answers.

It can be seen easily from Table V-6 that Chicagoland would receive the greatest number of pilots from a Pal-Waukee closure. Chicagoland, of course, is the next closest airport to Pal-Waukee, and distance from the pilot's home was no doubt a key reason for the overwhelming percentage of pilots making this selection. Next in order of perference were three "long-runway" (4,000 feet or longer) airports, Chicago-Midway, DuPage County and Waukegan Memorial. This, in part, reflects the choice of corporate and business pilots for an airport with comparable facilities to Pal-Waukee. Finally, Campbell's, Elgin and Schaumburg would receive the next highest numbers of pilots. These airports represent facilities which can handle single-engine and smaller twin-engin aircraft much like Chicagoland. A choice for these airports was probably made by pilots on the fringes of Pal-Waukee "Market Area". Also, the pilots who felt that Chicagoland, Chicago-Midway, DuPage County and Waukegan Memorial might be too congested to fit their needs, would make this choice of a smaller, less busy alternative.

Congestion, in fact, is not only a factor in a pilots choice of an airport, it also will be an impact of Pal-Waukee closing. Chicagoland, for example, is already the home base for 260 pilots according to the 1973 survey. Assuming the number of pilots is an indicator of activity, adding 182

TABLE V-6

Pal-Waukee Pilots Choice of an Airport If PAL-WAUKEE were to Close·

AIRPORT	NUMBER OF PILOTS	PERCENT
Chicago-Midway	33	6.7
Chicago-O'Hare International	11	2.2
PAL-WAUKEE	2	.4
Sky Harbor	2	.4
Schaumburg	14	2.9
Chicagoland	182	37.0
DuPage County	43	8.7
Clow International	1	.2
Elgin	18	3.7
Campbell's	20	4.1
Joliet Municipal	1	.2
Waukegan Memorial	44	8.9
Crystal Lake	4	.8
Aurora Municipal	1	.2
Larson-Woodstock	1	.2
Other	9	1.8
Unlisted or Unknown	106	21.6
TOTAL	492	100.0

SOURCE: Unfactored Survey Data 1973 Pilot Survey, Chicago Area Transportation Study.

pilots to Chicagoland's present activity structure will certainly congest this already busy airport. The other problem is that Chicagoland may not remain in use as an airport much longer, thus it may not be there as an alternative to Pal-Waukee users. These 260 pilots, plus the 182 Pal-Waukee users who thought that they might get into Chicagoland, would have to look for an alternate airport. Similarly, many of the next highebt preference airports are already very busy. This would apply particularly to Chicago-Midway and DuPage County Airports.

As all of these airports began to take on more pilots from Pal-Waukee (if it were to close), they would begin to approach or exceed their theoretical operations capacities. *As* this happened, additional delays would occur for aircraft operating fram these airports. Thus, the cost of operating from alternative airports would begin to rise in terms of the additional fuel and time lost by pilots and passengers due to delays. The impact of additional costs due to delays would, in particular have to be examined for Chicago-O'Hare International and Chicago-Midway Airports. The former, as the world's busiest airport, can not affort to accept much more traffic of any kind due to significant delays already present. The latter

is obviously not as busy, but does serve a rather high level of itinerant general aviation operationsi Additionally, it has some air carrier operations and it is planned[8] that Chicago-Midway resume a higher level of air carrier operations by 1980 in order to relieve Chicago-O'Hare International. Finally, local "touch•-and--go" operations are not permitted at Chicago-Midway, which does somewhat constrain general aviation training operations there.

In addition to costs associated with air travel delays, there will be the costs associated with increased ground access distance to alternate airports for the present Pal-Waukee users. This especially becomes an extremely critical issue if Chicagoland also closes. Again, the costs of fuel and pilot/passenger time are the major aspects of this sort of penalty.

An outgrowth of these added costs of airport use, that the pilots would bear (if Pal-Waukee closed) is the prospect of some pilots quitting aviation altogether. While this is not a problem for regional or local planners to consider directly, it could have an impacts on the general economic picture of the area.

SUMMARY

It is clear from this chapter that the impacts of Pal-Waukee's closure were not itemized through the use of dollar figures. Accomplishing this through the use of pilot distribution data is questionable anyway, because the "value of time" problem. Also, the lack of general aviation airport passenger enplanement information represents another drawback to calculating the full benefits of an airport operation such as Pal-Waukee. Even with these drawbacks, this chapter has shown the following:

1. There has been a recent surge of growth in Pal-Waukee pilot usage, mostly due to the closure of nearby Sky Harbor Airport in Northbrook. This, in turn, has resulted in a doubling of Pal-Waukee pilot-users coming fran several municipalities including Mount Prospect, Palatine, Wheeling and Glenview.

2. The Pal-Waukee pilot-users are spread over a wide area of northern Cook County, the north and northwest parts of the city of Chicago, and southeastern Lake County.

3. If Pal-Waukee was to close, most of its traffic (based on the pilot-users' opinions) would attempt to divert to Chicagoland, DuPage County, Chicago-Midway and Waukegan Memorial Airports. Only the last airport appears capable of taking on any significant increase in activity.

[1] See David NewMyer,"Airport Usage Analysis - The 1969 CATS Survey of Pilots and Aircraft Owners", CATS Research News, Volume 16, Number 1, (Chicago: CATS, March, 1974), pp. 1-11.

[2] It should be noted that in both 1969 and 1973, Illinois Department of Aeronautics Pilot Registration listings were used to conduct the surveys. However, in both years a midyear listing was used rather than an end-of-year listing. Thus, in both 1969 and 1973 the final Illinois Department of Transportation, Division of Aeronautics registration totals for the Northeastern Illinois Region are slightly higher (7,364 in 1969 and 8,039 in 1973).

[3] It should also be pointed out that both the 1969 and 1973 surveys achieved (approximately) a 50 percent usable response rate. Thus, the data are generally comparable from survey to survey as long as overall totals and percentages are used.

[4] David A. NewMyer, An Analysis of Factors Affecting The Usage of General Aviation Airports in the Chicago Region, unpublished M.S. thesis, Northwestern University (Transportation Center), 1974, 165 pages.

[5] NewMyer, Ibid., pp. 107-114.

[6] This part of the analysis is based on an unpublished CATS staff report by Bill Lang entitled "A Pal-Waukee Airport Study Area Based on Pilot Distributions from the 1969 CATS Survey..." (1974).

[7] Chicago-Midway is the busiest FAA Tower-controlled airport in the State of Illinois by this category.

[8] See the Chicago-Northwestern Indiana 1995 Transportation Plan. Also, refer to the FAA's Chicago-Midway Airport Study (July, 1974).

PART VI. SUMMARY AND RECOMMENDED ACTION

THE IMPORTANCE OF PAL-WAUKEE AIRPORT

This report has illustrated the importance of Pal-Waukee Airport in several different ways. For example, existing published literature has substantiated Pal-Waukee's key role at the national, midwest, and regional levels:

1. Pal-Waukee Airport is included in the FAA National Airport System Plan;

2. Pal-Waukee Airport is included in the FAA's Great Lakes Region Ten Year Plan 1974-1983;

3. The FAA's Terminal Area Forecast for FY 1984 projects 324,000 operations for Pal-Waukee, a 47.6 percent increase over FY 1974 activity; and,

4. The CATS recomends the preservation of Pal-Waukee Airport in its 1995 Airport System Plan. This is shown in the publication Summary Description 1995 Airport System Plan.

The analysis of several data sources also illustrates the operational importance of Pal-Waukee Airport:

1. Pal-Waukee Airport is the tenth busiest FAA-Tower controlled airport in the six state Great Lakes Region (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin) according to FY 1974 total operations figures. According to the same figures, Pal-Waukee is the third busiest airport in northeastern Illinois, behind only Chicago-O'Hare International and DuPage County Airports.

2. Pal-Waukee Airport has the second largest number of based aircraft at any northeastern Illinois airport. Only DuPage County, with 479, has more than Pal-Waukee's 375 aircraft.

3. Pal-Waukee Airport has an estimated 984 full and part-time pilot,. users. This is second only to DuPage County's 1,064 pilot-users, according to a 1973 CATS survey of pilots registered in the State of Illinois:

Finally, the results of a special survey of Pal-Waukee Airport's based customers illustrated the economic importance of the airport, especially to northern Cook County:

1. A total of 97,655 people are estimated to be employed by companies basing aircraft at Pal-Waukee Airport. Since the total employment of nine northern Cook County Townships (where in a majority of Pal-Waukee's based customers are located) is 426,050

persons, the companies basing aircraft at Pal-Waukee constitute a major part of the economy of the northern Cook County area.

2. A total of 949 "aviation-dependent" employees are estimated to be employed by companies basing aircraft at Pal-Waukee Airport. It is estimated that these employees earn between $15,600,000 and $18,700,000 in direct salaries annually. These salaries would, of course, be in addition to the $1,100,000 in annual salaries earned by the 156 full and part-time employees of Priester Aviation Service.

Pal-Waukee Airport, then, is a major air transportation facility in northeastern Illinois. AS such, its future is of concern to all those public agencies concerned with the air transportation field. Because of the noise generated by Pal-Waukee's operations, its future is also of concern to many local residents and their local government representatives. The following recommendations are, therefore, presented as a guideline for potential future action concerning Pal-Waukee. It is to be clearly understood that a crucial assumption behind these recommendations is that, for the airport to remain in existance, positive Local, State and Federal Government action must begin soon. And, this action must be part of a concerted inter-governmental effort to both protect the interests of local residents and the operations capability of Pal-Waukee Airport.

RECOMMENDATIONS

This report has demonstrated an important linkage between the operations activity at Pal-Waukee Airport and a major portion of the economy of northern Cook County. It is also clear from the content of this report that the benefits of the airport operations extend well beyond the immediate environs of the facility. Any recommendations must attempt to balance the regionally-distributed economic benefits with locally-destributed noise impacts, because noise generated by the airport is focused on the areas off the ends of Pal-Waukee's runways. This will not be easy, but it must be done to assure any significant measure of general public support for the airport. This factor was considered in the preparation of the following recommendations:

1. <u>An Airport Master Planning/Financial Feasibility Study of Pal-Waukee Airport is Recommended.</u>

   Such studies are eligible for federal and state funding, but require a local "sponsor", or a group of local sponsoring agencies, to carry out the study. The local sponsor funds one/six of the total cost of the study. Normally, with the advice of the FAA and the Illinois Department of Transportation, Division of Aeronautics, an airport planning consulting firm is selected to accomplish the study.

   Such an analysis is necessary before the Federal or State Governments will commit funds to the purchase or improvement

of an airport. Table VI-1 lists the major objectives of an airport master planning study for Pal-Waukee Airport.[2] More detailed examples of a scope of services for such a study are available from any of the agencies listed in the in Appendix A, page 73 of this report. It is up to the local sponsor to determine the final content of this type of analysis.

Because of the widespread nature of the benefits of Pal-Waukee's operations the naming of a single local sponsor for such a study would be impossible. There are, however, several possible combinations of potential sponsors, any of which would be acceptable:

a. Cook .County by itself.

b. Cook County in cooperation with one or more local municipalities (Wheeling, Mount Prospect, et cetera).

c. A combination of municipalities such as Wheeling, Mount Prospect, Arlington Heights and Buffalo Grove.

d. Any single municipality.

The single municipality approach is not favored by CATS unless all other alternatives for sponsorship are exhausted. This is because of the economic feasibility question: can any single municipality afford the local share of the purchase price of Pal-Waukee Airport? If, however, the single municipality approach is all there is available, then this path must be taken.

2. Regardless of the outcome of the proposal for an airport master planning study, it is recommended that the affected units of local government explore the land use implications of the continued operation of Pal-Waukee. Because the airport is likely to remain in existance for some time, it is not acceptable to continue to ignore the presence of the airport in local land use plans. Therefore, until the presence of the airport is fully recognized in the land use plans and zoning ordinances of the surrounding communities, the noise impact situation has no hope of stabilizing itself (much less improving). Cook County has already begun to take such action in that it has prepared an airport-compatible land use section within its new proposed zoning ordinance. This proposed county ordinance, or existing state laws already on the books, can be used as a guide in developing local ordinances along the same lines.

3. In order to achieve a better understanding of the airport itself, it is recommended that the management of Pal-Waukee Airport host a regular schedule of community liaison meetings. This could be done with the assistance of based customers, aviation interest groups (such as the General Aviation Manufacturers Association, the National Business Aircraft Association, et cetera) as well as governmental agencies involved in aviation (FAA, the Division of Aeronautics, the Civil Air Patrol, et cetera). The idea behind

TABLE VI-1

Recommended Objectives of the Proposed PAL-WAUKEE Airport
Master Plan/Feasibility Study

1. An Airport Land Use Study and Evaluation of the Potential for Zoning Controls (Height and Compatible Land Use) in the Airport Environs.

2. Evaluate the Economic Benefits of the Airport to Surrounding Communities (a more detailed study to supplement the findings of the CATS report).

3. Estimate Present and Future Airport Activity (recognizing such questions as future fuel availability, fuel costs, et cetera).

4. Estimate Present and Future Airport Operating Revenues and Costs.

5. Evaluate the Conformance of the Airport to Federal and State Airport Development Standards and the Costs Associated with any Upgrading of PAL-WAUKEE's Facilities to meet these Standards.

6. In Addition to the Above, Determine the Capital Improvement Needs of PAL-WAUKEE Airport (Aircraft Parking Space, Hangars, Runway and Taxiway Improvements).

7. Perform an Environmental Impact Assessment of the Present Airport Operation as well as of any Expected Future Airport Improvements.

8. Determine the Feasibility of Public Acquisition of PAL-WAUKEE Airport Combined with a Recommendation for the Best Combination of Sponsoring Public Agencies (single municipality, county, combinations of municipalities).

these meetings would be to establish a continuous dialogue with local community groups, home owner groups, and nearby residents. Through this dialogue, a better understanding of each party's problems by the other party can be sought. Issues such as the feasibility of a noise curfew for jet operations, the possibilities for improvement in the airport noise situation (engine retrofit, new aircraft types, the ILS, et cetera), and the security of the airport (keeping unauthorized persons off of the runways) can be discussed.

4. Last, but perhaps most important, it is recommended that public funding support for privately-owned airports be considered as a future regional, state and federal airport development policy. There are certain advantages to such a policy, particularly when one considers the only real policy option now available, namely: outright public acquisition. With an airport such as Pal-Waukee, one could easily foresee spending all of the State of Illinois' annual general aviation airport allocation for three or four years on this one project alone. In keeping it in the private sector, then, there is an advantage in terms of minimizing short-term public involvement. Of course, one would have to study the trade-offs of one lump-sum public investment now,versus public subsidy of the airport over a 10 to 20 year period. In the individual case of Pal-Waukee Airport it is felt that there is a case for public involvement and support, regardless of the public investment policy option followed.

A CALL FOR ACTION

As mentioned in the preface, this report was intended to be a call for action on the issue of Pal-Waukee Airport. It is the opinion of this agency that the airport is needed and, further, that action must be taken quickly to assure that some flexibility remains in tne airport's operational situation. Once the airport is encircled by residential land uses, the alternatives for its future will be significantly more limited. Therefore, it is recommended tnat immediate action be taken on the issues proposed in this report in order to assure the long-term survival of Pal-Waukee Airport.

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[1] Please note that these are "factored" survey data. Since approximately 50 percent of all pilots in northeastern Illinois responded to the survey, and 492 responded that they used Pal-Waukee most frequently, this number was doubled to estimate the overall total as if there had been a 100 percent survey response.

[2] A study similar to that outlined in Table VI-1 was proposed by the State of Illinois in May, 1975. Because of the lack of federal funds, the study was never begun.

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GLOSSARY OF AVIATION TERMS

1. Air Carrier Airports - The predominant role of these airports is to serve the CAB Certificated air carriers (Local Service, Domestic Truck, and International). The intrastate Air Carriers, Third-Level Air Carriers (scheduled air-taxis), and General Aviation is accommodated to the maximum extent feasible and consistent with this dominant role.

   No specific development characteristics are proposed for this category. The physical facilities required at these airports are determined by the type of aircraft operated or proposed to be operated from the airport and the level of demand (as determined in master planning studies). Conformance with federal standards, to the maximum extent feasible, is assumed.

2. ALP - Airport Layout Plan - A document which graphically describes the ultimate physical development of an airport. These documents are required of all airports which wish to receive federal airport development funds.

3. Approach ratio - the height restriction placed on man-made objects within the approach to an airport's runways. A standard ratio is 20:1, or at a distance of 20 feet from the end of the runway a structure no taller than 1 foot above the elevation of the end of the runway can be bult (or allowed to grow).

4. Approach surface - a surface longitudinally centered on the extended runway centerline and continuing outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end. For example: The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of, in this case, 1,250 feet for that end of a utility runway with only visual approaches.
   (Primary Surface - a surface longitudinally centered on a runway. When runway is hard surfaced, the primary surface extends 200 feet beyond each end of that runway; when runway has no hard surface, the primary surface ends at each end of that runway. The width of primary surface of a runway is determined by the most precise approach existing or planned for either end of that runway).

5. ATR - Air Transport Ratings - This is the pilot rating classification which represents those pilots with the highest level of technical competence (as judged by the FAA). Normally, ATR-rated pilots fly for the airlines or as pilots-in command of business and

corporate aircraft. There is also a large contingent of ATR pilots who serve as full-time flight instructors at many airports in the Chicago Region.

6. Based Aircraft - Aircraft which are stored, hangared, or tied-down at one particular airport, and use this airport as their primary base of operations.

7. Basic Utility – Basic utility airports have the shortest runway which the FAA considers adequate for safe lard and take off of light aircraft. This airport type is divided into two sizes:

Stage I: The minimum runway is 2,200 feet, and accommodates 75 percent of propeller aircraft of less than 12,500 pounds under the "basis conditions" of sea level elevation and 50 degrees Farenheit.

Stage II: The minimum runway is 2,700 feet, and accommodates 95 percent of propeller aircraft of less than 12,500 pounds under "basic conditions".

8. Basic Transport Airport – Airports accommodating all general aviation aircraft up to 60,000 pounds including propeller transports and business or executive jets.

9. Corporate Aircraft – Term usually referred to, to describe the aircraft used for the transportation of corporate executives and of general corporate needs. Often related to turboprop aircraft and turbofan/jet aircraft.

10. Crosswind runways - Runways constructed to allow an airport to be used when the wind is blowing perpendicular to the "main" runway. Usually the main runway is oriented in the direction from which the wind most commonly blows. A crosswind runway is built in the next most common wind direction at the airport site.

11. Displaced Threshold – An area measured from the end of a runway that is designated not to be used for landings due to inadequate obstacle clearance on approach or inadequate runway surface to handle the impact of landings. The area can be used to begin a take-off roll or complete a landing roll.

12. DME - Distance Measuring Equipment – A piece of equipment which has both on-aircraft, and on-the-ground components. The on-aircraft component is a receiver which translates a signal from the on-the-ground component, into the distance that the aircraft is from the ground component. This equipment is used as part of aerial navigation, particularly on instrument landing system (ILS) approches to airports. Basically, it tells the pilot how far he is from the end of a runway or from a particular navigational aid location.

13. FAA - Federal Aviation Administration - The 50,000 man (plus) federal

agency responsible for maintaining the nation's airport and airways systems. In the Chicago Region they operate out of the Great Lakes Region Office in Des Plaines.

14. FBO - Fixed Base Operator - The FBO on a public-use airport is in business to provide the basic aviation services such as fueling aircraft, pilot instruction, aircraft rental, air charter (fly-for-hire) and aircraft storage/maintenance. There can be more than one FBO on an airport. Also, on many privately-owned airports, the FBO is the owner of the airport.

15. "Floor Elevation" of TCA - altitude at which positive air traffic control in a Terminal Control Area begins. Aircraft can operate below floor elevation without being under Terminal Control Area restrictions. (See definition of Terminal Control Area).

16. General Aviation - All civil aircraft and aviation activity except that performed by the certified air carriers.

17. Glide Slope or Glide Slope Indicator - Instrument that indicates the path of descent and gives positive vertical reference to a glide path in an instrument approach to a runway.

18. General Utility Airport - This type of airport accommodates substantially all propeller aircraft of less than 12,500 pounds. It is primarily intended to serve either communities located on the fringe of a metropolitan area or a relatively larger population community remote from a metropolitan area.

19. General Transport type airport - Airport desgined to accommodate transport category aircraft up to 175,000 pounds.

20. Instrument Approach - a landing approach to a runway, usually under bad weather conditions, wherein the approach to an airport's runway is flown primarily by reference to instruments to a prescribed "decision height". At this height the pilot makes positive visual reference to the airport, or its approach lights, or terminates the approach and begins climbing back to a higher altitude (missed approach).

21. IFR - Instrument Flight Rules - rules as prescribed by Federal Air Regulations for flying by instruments. Often used when weather conditions, visibility or ceiling, fall below those prescribed for Visual Flight Rules. Cannot operate IFR if weather conditions are worse than the minimums.

22. ILS - Instrument Landing System - A nonvisual, precision approach to a runway utilizing two pieces of equipment on the airport: one to provide lateral guidance to the runway centerline; the other to give positive vertical reference to the glide path to the runway end.

23. Itinerant Operation - Any operation that has a take-off to landing time span of greater than thirty minutes that does not have the characteristics of a local flight (see below).

24. Localizer Component of ILS - nonprecision instrument approach to increase utilization of an airport. This component gives the pilot-in-command lateral guidance in an approach to a runway.

25. Local Flight Operations - Refers to those activities by aircraft which; (1) Operate in the local traffic pattern or within sight of the airport; (2), Execute simulated instrument approaches or low passes at the airport (i.e., touch-and-go's); (3) Arrive from or depart to a local practice area located within a 20-mile radius of the airport. (Most instructional/training operations are local).

26. Airport Master Plan - A document which presents (in conjunction with an airport layout plan), the ultimate configuration and development of a specific airport in both graphic and written form. This document is normally the result of one or two years of study accomplished through the airport's local government sponsor. The funding of such studies in Illinois comes primarily from the Federal Aviation Administration, with the State of Illinois and the local sponsor each paying up to one-sixth of the cost of the study.

27. MLS - Microwave Landing System - A new instrument land system using UHF radio signals to guide the aircraft's approach instead of the VHF system now used. The microwave system provides fewer ground reflections, takes up less space, and costs less to install. There are advantages to an MLS installation at "difficult" sites because of a somewhat lower cost due to less site preparation.

28. NASP - National Airport System Plan - This plan, developed by the FAA, is a legislated requirement from the 1970 Airport and Airways Development Act (PL 91-258). It replaces the old NAP or National Airport Plan. The present NASP covers nationwide airport development needs from FY 1972 to FY 1992.

29. Noise Abatement - The attempt to reduce the amount and level of noise on and around airports, especially during takeoffs and landings, partly through special operational restrictions and proper land use planning for areas affected by airport noise.

30. "Oil and Chip" Runway Surfaces - A basic type of hard surface runway, this surface is a minimum step above a regular dirt or turf runway. The advantage is that, with the addition of oil and aggregate to the natural surface, some stability is added during rainy weather.

31. Pilot Starts - An aviation industry term referring to the number of new student pilots entering pilot training or flight school programs. This is an indicator of the health of the general aviation industry.

32. PANCAP - Practical Annual Capacity - The theoretical number of aircraft operations that can be handled by an airport in a year. This measurement depends upon runway layout (number, type, direction), instrument land capability of the airport, average weather conditions, the presence of an air traffic control tower, et cetera.

33. Privately-Owned, Public-Use Airports - These airports are the existing privately-owned, public-use airports for which no public acquisition is envisioned. Their continued existence and degree of development will depend on the owner, land use/development pressures, the proximity of public-owned airports (if any) and any applicable aeronautic/airport statutes or regulations. As a minimum, the owners of these facilities are urged to maintain these airports, to the maximum extent feasible, in accordance with federal standards for Basic Utility, State II airports.

34. Publicly-Owned, Instrument Landing System Airports (Public ILS) - These airport facilities serve as the primary, all-weather, general aviation reliever airports for the region's Airport Carrier Airports. Their dominant role is to provide reasonable access to each area of the region by the complete range of general aviation aircraft (including corporate jets). Their facilities are also adequate to accommodate Third Level Air Carrier service where demand warrants.

35. Publicly-Owned, Visual Flight Rules Airports (Public VFR) - The primary role of the Public VFR airports is to supplement the Public ILS facilities in serving the general aviation needs of the region. These facilities are necessary to accommodate demand for airport facilities exceeding that which can be reasonably handled at the Public ILS airports. They are large enough to accommodate the majority of the general aviation fleet with the exception of most corporate jets. Some of the Public VFR airports may be oriented largely to personal business and recreational use. Others, dependent on local demand, may serve a high proportion of itinerant traffic. While these facilities are intended primarily as Visual Flight Rules airports, nonprecision instrument approaches may be established to increase their utilization where feasible.

36. Published Instrument Approach - All nonprecision and precision approaches to be performed at any airport in the country under instrument conditions have to be approved by the Federal Aviation Administration. Once approved, an approach "chart" or "plate" is published which graphically describes the type of approach, approach minimums, obstructions in the path to the airport, altitude data, et cetera.

37. Reliever Airport - an airport whose PRIMARY purpose is to serve general aviation AND, at the same time, relieve congestion at a major airport having a high density of scheduled certificated airline traffic. It performs this function by attracting and diverting

general aviation activity away from the major airport.

38. RLA - Restricted Landing Area - A private-use airfield with no FB0 provided commercial aviation services legally available. This is a growing segment of the overall airport facilities inventory in the Chicago Region. This growth in RLA's is presumably occurring because commercial airport services are on the decline.

39. RNAV - Area Navigation - A means of navigation allowing direct flight between two points, rather than following the sometimes circuitous enroute airways. This form of navigation is usually used in the enroute (inter-city) airspace structure, although there have been some applications in metropolitan areas and at individual airports. For example, Aurora Municipal has an "RNAV" instrument approach to its main runway.

40. STOL - Short Take off and Landing - Refers to aircraft which are capable of STOL performance and airports designed to handle these aircraft.

41. T-Hangars - Storage hangars for aircraft that are T-shaped, like an airplane and grouped in muliunits on a part of an airport. One airplane per T-hangar.
(Wings form top of the T, fuselage and tail forms the stem. Aircraft is backed into hangar).

42. TCA - Terminal Control Area - The aircraft traffic control area surrounding a major air carrier airport in which all aircraft must be under radar control. Chicago TCA is this controlled area surrounding Chicago-O'Hare International and Chicago-Midway airports.

43. Turbojet - An engine that derives power from a vaned wheel spinning in reaction to burning gases escaping from a combustion chamber. The turbine in turn drives a compressor and other accessories.

44. Turboprop - A turbine engine in which the rotating turbine turns a propeller.

45. VFR - Visual Flight Rules - "Seen and be seen" flight rules. Used durinci good weather conditions under which an aircraft can be operated by visual reference to the ground and to other aircraft.

46. VOR - Very High Frequency Omnidirectional Radio Range - A ground radio station that provides a pilot of a properly equipped aircraft with his location in reference to that station. Better known as "Omni".

47. VOR Approach - A landing approach to a runway using the VOR as a reference point and directional guidance to the runway.

APPENDIX

A. Names, Addresses, and Phone Numbers of Appropriate Federal, State, Regional Planning, and Local Airport Officials.

B. Pal-Waukee Airport Based Aircraft Tenants Questionnaire (August, 1974).

C. Pal-Waukee Airport Charter Customer Questionnaire (August, 1974).

D. Pal-Waukee Airport Flight Student and Aircraft Rental Customer Questionnaire (August, 1974).

E. Pal-Waukee Airport Transient Users Questionnaire (September, 1974).

Appendix A

Names, Addresses, and Phone Numbers of Appropriate Federal, State, Regional Planning, and Local Airport Officials

1. Federal Aviation Administration

Mr. George Grote, Chief
Chicago Airport District Office
Great Lakes Region
2300 East Devon Avenue
Des Plaines, Illinois 60018

Telephone: 312-694-4500

2. State of Illinois, Division of Aeronautics, Department of Transportation

Mr. Roger Barcus, Chief Engineer
Capital Airport
Springfield, Illinois 62705

Telephone: 217-782-2882

3. Pal-Waukee Airport

Mr. Charles E. Priester, Manager
Priester Aviation Service - Pal-Waukee Airport
Wheeling, Illinois 60090

Telephone: 312-775-3885

4. Chicago Area Transportation Study

Mr. Aristide E. Biciunas
Study Director - CATS

- also -

Mr. David A. NewMyer, Manager
Airport System Planning - CATS
300 West Adams Street
Chicago, Illinois 60606

Telephone: 793-3464

APPENDIX B

Priester Aviation Service
in cooperation with
Chicago Area Transportation Study

PAL-WAUKEE AIRPORT
BASED AIRCRAFT TENANTS QUESTIONNAIRE
August, 1974

Note: The following information is to be used for statistical purposes only and will remain confidential.

FOR ALL TENANTS

1. In order that we may develop a market area for Pal-Waukee Airport services, please provide the following information:

For company owned aircraft:

Company name_____

Company address

Title of person completing questionnaire

Aircraft Based:

Make	Model	Number

For privately owned aircraft:

Address of person basing aircraft:

_____

_____

Aircraft based:

Make	Model	Number

2. How are the aircraft based by you or your company at Pal-Waukee used?

Usage Category	% of Use
☐ Corporate Business	
☐ Private Business	
☐ Government	
☐ Charter/Commercial	
☐ Personal/Recreational	
☐ Instructional	
☐ Aerial Application	
TOTAL	100%

3. Describe briefly how the use of Pal-Waukee Airport benefits your activities or those of your company.

4. Please estimate the percentage of trips made in these aircraft to or from points outside the State of Illinois.

_____% of trips to/from points outside Illinois

5. If Pal-Waukee Airport were forced to close, how would your aircraft operations be affected? (Please check one).

☐ Move present aircraft to airport.

☐ Be forced to acquire smaller aircraft in order to operate from _____ airport.

☐ Sell aircraft and cease flying.

☐ Sell aircraft and rent or charter aircraft as required/ from airport.

☐ Sell aircraft and rely on scheduled airlines.

☐ Other, (explain)

_____

FOR TENANTS OPERATING AIRCRAFT FOR CORPORATE USE. (Others skip to question 11).

6. What type of facilities does your company have in the Chicago Area, and in which municipalities are they located.

		Municipality
___	Headquarters or Main Office	_____
___	Regional or Divisional Offices	
	Manufacturing Plant(s)	_____
	Distribution Center	_____
r]	Research & Development Facilities	_____
	Other (explain) _____	_____
O	_____	_____

7. How many total employees are employed by your company in Chicago Area offices, plants or other facilities.

_____employees

8. How many company employees in the Chicago Region depend directly on the company's aviation activities for employment?

_____employees

9. If possible, please estimate the total annual payroll for the above aircraft use - related employees.

_____/year.

10. If Pal-Waukee Airport were forced to close what would be the effect on the above indicated facilities in the Chicago area (question 6)?

5. Please explain briefly why you or your ccmpany have chosen to charter aircraft fran Pal-Waukee Airport instead of other services at other airports.

6. Aie aircraft Charter services used to supplement company or personally awned aircraft based in the Chicago Area?

Yes No

to supplement aircraft based in other cities?

Yes I No

7. **If** Charters are for company business, please indicate the type of facilities your company has in the Chicago Area.

	Municipality
○ Ccupany Headquarters or Main Office.	_____
❑ Regional or Divisional Officies.	_____
❑ Manufacturing Plant (s).	_____
❑ Distribution Center.	_____
❑ Research and Development facilities.	_____
❑ Other, explain _____	
_____	_____

8. Plpase estimate the percentage of trips to/fran points outside the State of Illinois.

_____% to or fram points outside Illinois.

9. Please explain briefly how you or your company benefit fran the use of charter services fran Pal-Waukee Airport.

10. Would you or your company be willing to contact various Federal, State, and local government officials to explain, in person or by letter, how you or your company benefit by the continued existence of Pal-Waukee Airport.

1 Yes, representing self

Yes, representing company

IT No.

Please provide a phone number where you may be reached. _____

APPENDIX D

Priester Aviation Service
in Cooperation with the
Chicago Area Transportation Study

Pal - Waukee Airport
Flight Student and Aircraft
Rental Customer Questionnaire
August 1974

Note: The following information is to be used for statistical purposes only and will remain confidential.

1. In order that we may develop a market area for Pal-Waukee Airport services, please provide your residential address.

_____

_____

2. What type of Pilot Certificate do you currently hold? (Check applicable boxes)

O Student

Li Private

O Commercial

Li Instructor

fl Airline Transport Pilot

3. What ratings do you currently hold? (Check applicable boxes)

[Z Single Engine

[I] Multi-Engine

r] Rotor craft

Glider

Li Lighter-than-air

' Instrument

4. Are you currently enrolled in a flight training program at Pal-Waukee Airport?

❑ Yes ❑ No

If yes, what certificate and/or rating are you actively pursuing?

_____

_____

5. ***As*** a pilot, how do you intend to employ your skills in the future?

❑ I fly for personal business or recreation only

❑ I fly non-professionally on company business (exclusively or in addition to personal)

❑ I fly professionally as corporate pilot

❑ I fly professionally as air-taxi or charter pilot

❑ I fly professionally as flight instructor

❑ I fly professionally as airline pilot

❑ uncertain.

6. What type of aircraft do you most frequently rent?

make:_____ model:_____

7. How many hours have you flown in aircraft rented from Priester Aviation in the past 12 months?

_____hrs.

8. Please estimate the number of these hours flown for the following purposes:

Company Business _____hrs.

Personal Business _____hrs.

Pleasure or recreation _____hrs.

Instructional _____hrs.

Other, explain _____

_____ _____hrs.

9. Please explain briefly why you have Chosen to rent aircraft at Pal-Waukee Airport instead of other airports.

10. If Pal-Waukee Airport were forced to close, how would your flying be affected?

quit flying

continue flying same amount by renting aircraft from another airport. (if airport known, specify:

_____

reduce amount of flying by renting aircraft from another airport. (if airport known, specify:

_____

11. Would you be willing to contact various Federal, State and Local government officials to explain in person or by letter how you or others benefit by the continued existence of Pal-Waukee Airport?

Yes No

Please provide a phone number where you may be reached _____

APPENDIX E

Priester Aviation Service

in Cooperation with the

Chicago Area Transportation Study

Transient Users Questionnaire

Pal-Waukee Airport

NOTE: This Questionnaire is being distributed to all registering transient users during the month of September 1974. This survey is directed at establishing the importance of Pal-Waukee Airport to all segments of the aviation community. Your cooperation in completing the following questions will be appreciated.

PLEASE COMPLETE ONLY ONE QUESTIONNAIRE DURING THE MONTH.

1. How often do you or does your company use Pal-Waukee? (Complete one of the following.)

   _____times per week

   _____times per month; or,

   _____times per year

2. What aircraft type is used for the above trips to Pal-Waukee? (If more than one aircraft type, please list them and note the number of trips for each as per question 1).

_____

3. Where is (are) the above aircraft based?

AIRPORT _____

CITY/STATE_____

4. Do most of your trips to Pal-Waukee originate at the above-named place?

   ___ Yes ___ No

If no, where?_____ ___

(City, State)

5. Note how the aircraft is (are) being used when using Pal-Waukee:

USAGE CATEGORY	PERCENT OF USE
☐ Corporate Business	
☐ Private Business	
☐ Government	
☐ Charter, Commercial	
☐ Personal, Recreational	
☐ Instructional	
☐ Aerial Application	
	100.0%

6. If Pal-Waukee Airport were forced to close, how would your aircraft operations into the Chicago Region be affected? (Please check one).

☐ Will fly into _____ Airport instead of Pal-Waukee with present aircraft.

☐ Will cease flying into the Chicago Region.

☐ Will purchase or use smaller aircraft and fly into _____ airport.

☐ Will rely on scheduled air service.

☐ Other, explain. _____

_____

_____

7. When using Pal-Waukee, what is your, or your passengers, most common destination in the Chicago area? (City or Village name.)

_____

8. If your trips to Pal-Waukee are for Company Business, does your company operate facilities in the Chicago region?

☐ YES ☐ NO

If yes, what type and in what municipality are they located?

		Municipalities
☐	Corporate Headquarters or Main Office	_____
☐	Regional or Divisional Offices	_____
☐	Manufacturing Plant(s)	_____
☐	Distribution Center/ Warehouse	_____
☐	Research & Development Facilities	_____
☐	Other, explain,_____	_____

_____

_____

9. Describe briefly how the use of Pal-Waukee Airport benefits you activities or those of your company.

10. If you or your company desire to make further statements regarding the airport, please identify yourself below and an address or phone number where you may be reached.

_____

_____

_____

Thank you for your cooperation. Please return to the Transient Office at Pal-Waukee or Mail to:

George J. Priester, Aviation Service
Pal-Waukee Airport
Wheeling, Illinois 60090