Final Report *May 1976*

STUDY DESIGN FOR WILLOW RUN AIRPORT

By: JACK BLAND
JAMES E. GORHAM

Prepared for:

UNIVERSITY OF MICHIGAN
THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AND TRANSPORTATION
LANSING, MICHIGAN

SRI Project 3993

STANFORD RESEARCH INSTITUTE
Menlo Park, California 94025 · U.S.A.

STANFORD RESEARCH INSTITUTE
Menlo Park, California 94025 · U.S.A.

Final Report *May 1976*

STUDY DESIGN FOR WILLOW RUN AIRPORT

By: JACK BLAND
JAMES E. GORHAM

Prepared for:

UNIVERSITY OF MICHIGAN
THE MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AND TRANSPORTATION
LANSING, MICHIGAN

SRI Project 3993

CONTENTS

INTRODUCTION 3

TASK IA 7

TASK IB (April 30, 1975)

DETERMINE SOUTHEAST MICHIGAN'S AIRPORT REQUIREMENTS

I Background 11

II Analysis of Previous Forecasts 13

III Review of Airport Capacity Analyses 19

IV Regional Airport Considerations 24

V Findings and Conclusions 24

EXHIBIT IB-1 Willow Run Airport Task Force Membership . . . 31

APPENDIX IB-A Review of Forecasting Methodologies and Data Used in Detroit Region Forecast . . . 33

TASK IC (July 10, 1975)

ANALYSIS OF THE CANDIDATE ROLES FOR THE WILLOW RUN AIRPORT

Background 47

A Facilities 48

B Adjacent Land Uses 50

C Ground Access Systems 54

D Runway and Airspace Capacity 58

E Environmental Factors 60

F Financial Situation 74

G Possible Candidate Roles. 77

H Next Steps 83

EXHIBIT IC-1 Support for Study Design of Willow Run Airport Ralph H. Burke Associates . . . . . (85)*

EXHIBIT IC-2 Support for Study Design of Willow Run Airport Financial Reports . . . . . (115)

* Parentheses indicate blind page number

TASK IC LIST OF FIGURES

IC-1 Existing Land Uses, 1970 . . . . . (51)

IC-2 Zoning Map . . . . . (53)

IC-3 Principal Employment Areas on Willow Run Airport and Surrounding Areas . . . . . (55)

IC-4 1970 Regional Highway Network . . . . . (56)

IC-5 1972/1973 Traffic Flow . . . . . (57)

IC-6 1990 Proposed Transportation Plan: Willow Run Airport . (59)

IC-7 1974 Noise Exposure and Present Land Use . . . . . (66)

IC-8 1974 Noise Exposure and Zoning Map . . . . . (75)

TASK IC LIST OF TABLES

IC-1 Runway Evaluation 48

IC-2 Major Leases at Willow Run Airport 50

IC-3 Location of Close-in Schools 52

IC-4 Different Runway Capacity Analyses 58

IC-5 Aircraft Mix of Operations 62

IC-6 Noise Compatibility Interpretation 64

IC-7 Number of Aircraft Operations at Willow Run (FY 1974). 67

IC-8 Aircraft Performance/Operations Factors 70

IC-9 Aircraft Emissions and Air Quality Impact Summary . . 72

IC-10 National Ambient Air Quality Standards 73

IC-11 Revenue Sources 76

IC-12 Revenue Trends 76

TASK II (November 3, 1975)

DETERMINE THE FUTURE OWNER/OPERATOR FOR WILLOW RUN AIRPORT

A Background 123

B Owner/Operator Alternatives 126

C Evaluation Criteria 129

D Willow Run Airport Evaluation 144

LIST OF TABLES

II-1 Revenue Trends 133

II-2 Expense Trends 134

II-3 Status of Reserve Account 134

II-4 Simple Plus/Minus Scoring 144

II-5 Relative Likelihood or Attractiveness 145

II-6 Relative Likelihood or Attractiveness Using Weighted Scoring Factors 145

FIGURE II-1 Willow Run Airport Evaluation Matrix . . . . . (149)

EXHIBIT II-1 Statement of Qualifications of the Wayne County Road Commission to Become Owner/ Operator of Willow Run Airport (December 1975). 153

EXHIBIT II-2 Memorandum on Airport Role, from Deputy Director Bureau of Transportation Planning Michigan Department of State Highways and Transportation (August 4, 1975). 157

EXHIBIT II-3 Committee Motion Regarding Airport Role Willow Run Airport Task Force (July 31, 1975). 161

EXHIBIT II-4 Memo on Candidate Owner/Operators and Evaluation Criteria Willow Run Airport Task Force (July 15, 1975) . 165

EXHIBIT II-5 Memo on Candidate Owner/Operators and Evaluation Criteria:Comments from Task Force Manager, Aviation Planning Section Michigan Department of State Highways and Transportation (August 12, 1975) 167

EXHIBIT II-6 Statement by Willow Run Joint Airport Board (August 15, 1975) 181

EXHIBIT II-7 Memorandum, Agreement and Bylaws Relating to the Formation of the Tri-City Airport Commission 193

TASK II List of Exhibits (continued)

EXHIBIT II-8 Copy of SB 868 (HB 4968) Relating to Possible Changes to the Existing Law on Regional Airports, Act 206 Community Airport Authority Act 211

EXHIBIT II-9 Selected Financial Statistics for Example Michigan and California Airports. . 223

INTRODUCTION

INTRODUCTION

Aviation growth projected for the Detroit metropolitan area appears likely to exceed the potential capacity of the Detroit Metropolitan Wayne County Airport, the major air carrier airport serving the Detroit metropolitan area. The Willow Run Airport (WRA) has been regarded by some groups as the potential second major airport for the Detroit area, capable of accommodating traffic that will not be able to be served at Detroit Metropolitan.

The Michigan State Airport Systems Study, completed in 1973, treated the Detroit Metropolitan and Willow Run Airports as a single combined facility that would serve the air carrier and general aviation needs of the Detroit area. In the State Systems Study, traffic was forecast for the area as a whole and was not split between the two airports. A study was anticipated on the roles of the respective airports to be sponsored by the Wayne County Road Commission or the Southeastern Michigan Council of Governments (SEMCOG), or both.

The future ownership, operation, and use of the WRA has been uncertain. It is owned by the University of Michigan which is anxious to divest itself of the airport. The University has not considered the operation of an airport consistent with its program and mission, and it has disaffiliated itself with a research program located on the airport property. Furthermore, community opposition to the expansion of aviation activity at Willow Run developed. Representatives of communities adjacent to Willow Run have expressed interest and concern in respect to its future ownership and operation as discussed in this report.

The WRA already handles significant amounts of air cargo, some of which originates as far west as Grand Rapids and as far north as the Tri-City area. In addition, Willow Run is a potential reliever airport for cargo and general aviation activity that will not be accommodated in the future by Detroit Metropolitan. Were Willow Run discontinued as an airport, this current and prospective traffic would have to be accommodated by other airports in the state system plan. Therefore, new airport sites,

not now in the state airport system plan, would have to be investigated and perhaps added to the plan.

This study was undertaken, therefore, because it is essential to identify the future type of organization that should own and operate WRA. Further, this effort (of determining the future owner) should be coordinated with the interests, aims, and objectives of public and private groups and individuals in the Detroit metropolitan area, and with general land use and transportation planning efforts.

To assist in formulating an approach to address these needs, and to carry out the basic analytical research, the Michigan Department of State Highways and Transportation (State DOT) contracted with Stanford Research Institute (SRI). The sponsors of the project, the University of Michigan and the State DOT, formed a Sponsors Supervisory Committee (SSC) to guide the consultant's efforts.

OBJECTIVES OF THE STUDY

The objectives of this project were to develop a study design as follows:

Task I — To determine the future role of Willow Run Airport in the State Airport System in Michigan.

Task II — To determine the best owner/operator of Willow Run Airport and outline the pertinent factors in effecting the transfer of ownership.

BASIC APPROACH

It was agreed that determination of the future role should be considered separately from that of a new owner/operator, and that this should be done first in order to disassociate immediate local concerns over ownership and operation from the long range consideration of what type of facility is needed for the area. While a consensus was reached as to the future role of the airport, it was also recognized that a new future owner would have some degree of freedom with respect to future development, but should also have a strong as well as a moral obligation to adhere to the general guidance provided by the Task Force effort. At the time of the publishing of this report, discussions and deliberations are continuing with respect to the future owner/operator.

TASK IA

ESTABLISH PUBLIC INFORMATION AND COORDINATION MECHANISMS

STUDY DESIGN FOR WILLOW RUN AIRPORT

TASK IA

ESTABLISH PUBLIC INFORMATION AND COORDINATION MECHANISMS

In order to assure that the results of the study design project were responsive to special interest groups and to responsible agencies, the Sponsors Supervisory Committee (SSC)* requested that the Southeastern Michigan Council of Governments (SEMCOG) organize and chair a Willow Run Airport Task Force. The Task Force was created, consisting of representatives from agencies and organizations interested in or affected by the airport.** The WRA Task Force was then formed and deliberated on the matters contained in this report. Several Task Force meetings were held during the course of this study at various locations in Southeastern Michigan during 1975.*** Some Task Force opinions and some results of these deliberations are included in this report; however, an objective of this report was not to report on the deliberations of the Task Force. These were carried out under the direction of SEMCOG and reported separately to the SSC.

---

* Consisting of representatives of the University of Michigan and the Michigan Department of State Highways and Transportation.

** See Exhibit IB-1, page 31, for WRA Task Force membership.

*** March 25, May 13, July 22, and December 9, 1975.

TASK IB

STUDY DESIGN FOR WILLOW RUN AIRPORT
DETERMINE SOUTHEAST MICHIGAN'S AIRPORT REQUIREMENTS

July 18, 1975

TASK IB

STUDY DESIGN FOR WILLOW RUN AIRPORT
DETERMINE SOUTHEAST MICHIGAN'S AIRPORT REQUIREMENTS

I. BACKGROUND

Most aviation activity forecasts of the early 1970's were made without anticipation of the cartelization of Mid-East oil production and the subsequent effects on the air and ground transportation industries and the vigor of macro-economic activity. Forecasting of future airport activity levels is made considerably more difficult because of the uncertainties that surround future petroleum supplies--an energy source to which the air transport industry is likely to be technologically bound for the foreseeable future. The price of fuel increased by over 100 percent in the domestic markets and increases in foreign bonded fuel markets were even higher, forcing considerable rationalization of air carrier scheduling and aircraft mix decision making.

In addition, the decline in real national income and rapidly escalating prices have tended to attenuate the demand for both domestic and international air travel. The latter has been particularly affected because the large proportion of discretionary (pleasure) trips has responded more elastically to increases in the real cost of air travel and vacationing. Constant dollar GNP peaked in the fourth quarter of 1973 and has declined every quarter subsequently. Prices have increased overall at a rate between 9 and 13 percent* per annum since the second quarter of 1973.

The influence of these events on economic activity in Southeast Michigan has been amplified by the dependence of the Southeast Michigan area on the transportation equipment manufacturing industry. While the area has continued to diversify its manufacturing and commercial activity, the pronounced cycle of recession that the automobile industry has suffered has severely impacted the Southeast Michigan regional economy. The translation of the general recessionary cycle to an exaggerated cycle in the automobile industry can be seen in Table IB-1:

---

*Implicit GNP deflator

TABLE IB-1

CHANGES IN ANNUAL RATE OF ECONOMIC ACTIVITY*

(By Quarter)

	1973			1974		
	II	III	IV	I	II	III
Gross National Product (1958 $)	- .2%	+ .3%	+ .6%	- 1.8%	- .4%	- .5%
Gross Auto Production (1958 $)	+2.2%	-3.6%	-4.7%	-35.0%	+11.0%	+18.0%

At the end of 1974, gross auto product was nearly 3% lower (in 1958 $) than the level achieved in 1972.

The consequences of these developments in terms of airport activity has been a downturn in activity from the projected trend at the region's major air carrier facility, Detroit Metro, as illustrated in Table IB-2 below, using FAA forecasts and actual activity levels.

TABLE IB-2

DETROIT METROPOLITAN AIRPORT AIR CARRIER OPERATIONS

(000)

	1972	1973	1974
Actual	182	180	169
Contemporary Forecast	-	180	182

The factors of energy and recessionary macroeconomic tendencies may have a more moderate long-run impact than is evident from the activity levels of the last 6 or 8 quarters. However, there are nontransitory components to these developments which may significantly influence the future levels of passenger and aircraft activity at airports in the Southeastern Michigan area and the implied need for capital improvements and changes in management of the facilities. The purpose of this report is to explore the direction and magnitude of these influences and relate them to the capacity of existing airport facilities Our primary finding is that under relatively conservative scenarios the proposed capacity of the Detroit Metropolitan Airport is sufficient to accommodate all the likely growth in air carrier

*Calculated from data in the Survey of Current Business, November 1974 and March 1975.

traffic to 1995. The growth that we anticipate in the air cargo segment of the market is more difficult to translate into specific capacity requirements because of the predominance of a few large shippers in this area (largely auto manufacturers). While significant cargo needs are served by combination aircraft at Detroit Metro, the unique volumes and service requirements of the automobile manufacturer industry have been viewed as better provided at a specialized facility such as Willow Run. As in SRI's 1971 work for the state airport system plan, the allocation of the increasing general aviation activity in the area must be diverted from Detroit Metropolitan. The Willow Run facility is one logical recipient of a significant proportion of this traffic.

II. ANALYSIS OF PREVIOUS FORECASTS

Projections of future activity at S.E. Michigan air transport facilities have been presented by a variety of sources. In addition to the extensive modelling and demand forecasting provided by SRI for the Michigan State Airport Plan, traffic forecasts have been made by, among others, the ATA, Arnold Thompson Associates, Simat, Hellieson and Eichner, and the Federal Aviation Administration in its Terminal Area Forecast series. Table IB-3 summarizes the projections of the passenger enplanements made by some of these sources in various recent studies.

In general, all of the methodologies attempt to correlate the trends in the underlying factors that influence airline travel with the observed trends in air traffic. The underlying factors are mainly population, income and the user costs involved in trip-making. The forecaster then seeks projections of the underlying factors and uses these to forecast air transport activity. However, the methodologies differ in detail as to the way in which these factors are related to air traffic and these differences make some of the methodologies particularly useful for making revised traffic forecasts and others less so.

FAA: The Federal Aviation Administration regularly publishes Terminal Area Forecasts. The methodology used by FAA to forecast terminal activity involves essentially the allocation of traffic estimates derived from national traffic models to the individual terminals based on historic

TABLE IB-3

PASSENGER ENPLANEMENTS (000's) AREA TOTALS

	FAA (1967) HUB	ATA (1969) HUB	ATA (1971) (Detroit)	SIMAT (1972)	DeVany (1972)	FAA (1974)
AREA:	Detroit HUB	Detroit Report	Detroit	OBE Area 1971[3]	Detroit	Michigan
1970	3716.8					
1971						4670[1]
1972						4352[1]
1973						4615[1]
1974						NA
1975	6265.7	5995	4835	5456		5677
1976						6026
1977						6432
1978						
1979						
1980	10455	9610	7355	8094	10084[2]	7592('81)
1985		15182	11271	11348		9400('86)
1990				15224		
1995				20945		
2000				27754		

[1] Actual

[2] Passengers in and out

[3] Office of Business Economics Analysis Areas (U.S. Department of Commerce)

participation or "share" basis. While the terminal area forecasts derived in this fashion are modified somewhat by local conditions, the FAA methodology is not particularly responsive to the environment of an individual region or facility. Moreover, the model used does not, in general, consider how the role of a facility might change in the future as different routing and service patterns emerge. This makes it particularly difficult to have confidence concerning the legitimate development of particular facilities based solely upon the FAA's forecast.

SRI: The methodology employed by the Stanford Research Institute in 1971 in the Michigan State Airport System planning effort used national (or "nominal") traffic estimates only to determine the aggregate rate of growth of traffic in the State of Michigan. It was assumed at that time that the rate of growth of passenger enplanements, cargo tonnage enplanements, cargo tonnage enplaned, etc., would be roughly that projected for the national market. These nominal state-wide forecasts were then broken down on a facility by facility basis using a model which allowed for the competitive influence of one facility on another in addition to allowing for the competitive influence of other transportation modes. This model is extremely useful in determining the relative share of traffic among facilities within a region. In the current context, more attention must be paid to the relative position of the Michigan State System in the national forecast picture and on the influence of likely economic events on the future national route configuration and the Southeast Michigan area's role in that configuration.

SIMAT: In 1972 the firm of Simat, Hellieson and Eichner prepared a forecast of air traffic demand and activity for the Aviation Advisory Commission. The methodology involved correlating the trends in causal factors such as population, income and income distribution, and air transportation costs to the levels of air carrier, cargo, military and general aviation activity. The correlations were established, in general, at the national level, and a range of assumptions concerning GNP growth, population, etc., were tested against the outcomes with respect to air traffic demand. The national forecasts were transformed, in some instances, to regional estimates on a percentage participation basis. Like the FAA forecasts, the SIMAT forecasts have limited usefulness for region-specific and facility-specific analysis.

DeVany & Garges: In 1972, Arthur S. DeVany and Eleanor H. Garges published their research on the use of airspace that they performed while under contract to the Center for Naval Analyses*. Their research involved forecasting passenger air travel and airport use in 1980. The demand between major city pairs statistically correlated with the fare, air trip time, distance, income and population. The demand forecasts were generated by assuming changes in these factors for 1980 and were translated into aircraft movements and airport activity using a sophisticated model of the way in which load factors, aircraft mixes and routes are selected. They proposed two alternative route configurations and explored the influence of their assumptions and forecasts on airport activity. Their model predicts a decline in daily air carrier aircraft operations in the Detroit area largely because of their belief at the time that wide-bodied aircraft would be more economical to use on an increasing number of routes. In addition, the DeVany and Carges research provides some interesting insights into the area of route configuration and equipment usage that form an integral part of their forecast. However, their results do not incorporate the influence of higher fuel costs on the choice of aircraft type and on load factors. In addition, they did not explore the consequences of recession-retarded growth in the Southeast Michigan area on air carrier activity. They also did not explore specifically the areas of cargo and general aviation traffic.

Others: Other sources have developed or published forecasts for the Southeast Michigan area, including the Air Transport Association, Arnold Thompson Associates and Landrum & Brown. While the underlying assumptions have differed among the various forecasts, the methodologies pursued have characteristics represented by the three major studies cited above.

Where the same forecasting group has made several recent forecasts, the historical trend in these forecasts has generally been downward for the Southeast Michigan area. The Federal Aviation Administration and the Air Transport Association have made several recent downward readjustments in the level of passenger enplanements and aircraft operations, respectively, that were forecast for future periods in the Detroit Area. The necessity for these downward readjustments appeared even before the major impact of

*Transportation Research, March 1972.

the energy shortage and the severe recessionary tendencies of the overall economy. The Air Transport Association, for example, changed its projections of passenger enplanements for Detroit and originations substantially between 1969 and 1971.

Table IB-4

		ATA 1969	ATA 1971	Percent change in Forecast level
Domestic passenger enplanements (000's)	1975	5995	4835	- 19.3%
	1980	9610	7355	- 23.4%
	1985	15182	11271	- 25.8%
Domestic passenger originations (000's)	1975	5820	4694	- 19.3%
	1980	9330	7141	- 23.4%
	1985	14740	10943	- 25.8%

The projected influence of the recent changes in economic conditions in the United States have been translated into considerably reduced future airport activity forecasts. For example, the Federal Aviation Administration's Terminal Area forecast made in 1974 for the year 1986 is 37 percent less than a 1985 forecast made a year earlier for air carrier passenger enplanements at Detroit Metropolitan Airport.

Stanford Research Institute explored these trends in more detail and found that downward revisions in traffic forecasted were justified given the changes in the future values of causal factors. These changes include the following:

- Slower than anticipated growth of personal income in the Southeast Michigan area. The expected annual rate of growth of personal incomes in the area as projected by the Bureau of Economic Analysis is tabulated below:

TABLE IB-5

1980-1990	1980-2000	1980-2020	
3.3%	3.3%	3.0%	Southeast Michigan Area
3.5	3.5	3.3	U.S. Total

- Population growth will be lower in the Southeast Michigan area than for the nation as a whole, according to the Bureau of

Economic Analysis. The forecasts of the annual rates of growth are shown below:*

TABLE IB-6

1980-1990	1980-2000	1980-2020	
.87%	.75%	.61%	Southeast Michigan Area
.96	.83	.71	U.S. Total

It should be noted that the current estimate of the U.S. population in the year 2000 is lower than the low Series E projection made by the Department of Commerce in 1970. Many forecasters were relying on an even greater rate of population growth as embodied in the Series D estimates when they made their Michigan projections.

Previous forecasts have relied heavily on the assumption of continuing declines in the real or deflated cost of air transport services. While we anticipate productivity gains to be continued to be made in the field of air transportation, our forecasts presented in this draft report assume a more rapid moderation of these trends than previous analyses. This is a reasonable assumption under conditions of the rapidly inflating cost of jet fuel.

We have not forecast any extreme downturns in marcoeconomic activity or massive shortfalls in the availability of petroleum fuel. However, our forecasts are on the conservative side reflecting what we think will be continuing efforts aimed at energy conservation and the influence of these and other factors on the likely rate of growth of the national and Southeast Michigan economies.

These forecasting efforts are summarized in Table IB-7 below. This table gives the estimated annual rates of growth of the major components of the scheduled passenger, air cargo and general aviation market segments within the Southeast Michigan Area.

TABLE IB-7 Average Annual Compound Rates of Growth

	1975-1980	1980-1990	1900-1995
Domestic Passenger Enplanement	7.04%	6.17%	6.13%
Revenue Tons of Air Cargo Originated	13.25	11.24	10.90
General Aviation Itinerant Operations	5.40	6.30	7.20

* From a special Regional Analysis Projection System Report, Bureau of Economic Analysis, April 15, 1975.

For the purposes of the current task force effort, these projections of regionwide activity must be related to the capacity of existing facilities in order to provide indications concerning the need for certain types of development at the Willow Run Facility.

It should be noted that the State Airport System Plan considers several new sites on the basis of a full cost benefit analysis, and not simply a capacity analysis. However, in considering the proper role for existing facilities, it is necessary to explore the extent to which projected transport needs can be accommodated by the various facilities concerned.

III. Review of Airport Capacity Analyses

A review has been made of several capacity analyses done in the preparation of the State Airport System Plan, the Detroit Metropolitan Runway Project, the Environment Impact Statement, the central master plan work for Willow Run, and the master plan development for Detroit Metropolitan.

The definition of airport capacity is somewhat illusive. Experience tells us that "theoretical" capacities are often exceeded in the daily operation of toll bridges, supermarket check stands, as well as airports. It is also true that the level of service (waiting times and delays) deteriorates as more cars, people or aircraft seek service in the same time period. Because of this, the capacity analysis developed for the Federal Aviation Administration describes runway capacities in terms of delay levels.

Assumptions about future operations, and facilities have a significant effect upon the development of present and future airport capacities and delays. These assumptions or projections include the mix of aircraft types that will be serving the airport, the runway and taxiway system that will be available, seasonal and time variations of aircraft operations, operating rules for aircraft and air traffic control, weather experience and runway usage patterns.

The analysis of the airspace requirements for the air traffic control system to handle flights into and out of the terminal area and to and from the enroute air traffic system is an important part of the consideration of airport capacity. Within the airport itself, there are terminal

capacities involving passenger and employee access and parking, aircraft terminal gate positions, building size and frontal loading areas. Included in the terminal capacity question are the questions of which airlines are serving, with what type of flight equipment, how frequently and with how many passengers?

Finally, when there is more than one airport serving an urban region, which kind of traffic demand can be beneficially and economically served with the existing airport capacity in the region is a consideration. Should an additional airport or airports be considered for the regional system?

When all of these pieces are assembled, adjusted and judged, we should have some ideas about the "capacity" of an airport and the system in which it is to operate. This capacity, compared to the projections we have made for future demand, should give us the indication of adequacy of the existing airport or airports to accommodate that demand.

In the sections that follow, a review will be made of (1) the runway capacity analyses done for the Detroit Metropolitan and Willow Run Airports, (2) the airspace capacity determinations, and (3) the terminal plan capacity at DTW and the regional system considerations.

Runway Capacity - Detroit Metropolitan

The most recent runway capacity analysis done for Detroit Metropolitan appears as a part of the Environmental Impact Statement prepared for the construction of Runway 3R/22L. The following are the key features of this analysis:

Mix:

TABLE IB-8

MIX OF AIRCRAFT TYPES
DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Aircraft Class		Percent of Operations		
		1972	1976	1980
AA	B-747, DC-10 and L-1011, intercontinental versions of B-707, DC-8 and VC-10.	11	14	17
A	B-707, DC-8, B-720 and Convair 880.	18	9	9
B	DC-9, B-737 and B-727.	31	38	49
C	King Air, Falcon, F-27, Lear Jet, Gulf Stream and DC-3.	15	14	10
D & E	Cessna 310, 320 and 411; Queen Air; Piper Apache and Aztec, Cessna 150-210, etc.	25	25	15

Source: R. Dixon Speas Associates, Inc., September, 1972.

Capacity:

TABLE IB-9

ANNUAL AND PEAK HOUR CAPACITIES
DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Year	Airport Layout	Practical Annual Capacity (PANCAP)	Peak Hour Capacity
1972	Existing	341,446	91
1976	Existing	342,891	92
1976	With new 3/21	361,470	97
1980	Existing	335,653	90
1980	With new 3/21	354,300	95

Source: R. Dixon Speas Associates, Inc., October, 1972.

Delay:

At the demand levels between 250,000 and 500,000 total annual operations (including the general aviation activity shown in the mixes), the annual hours of delay at DTW would be:

TABLE IB-10

ANNUAL DELAY
(hours)

DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

1976 Aircraft Mix

Airport Layout	Annual Number of Aircraft Operations					
	250,000	300,000	350,000	400,000	450,000	500,000
Existing	2,593	4,877	9,129	17,844	35,402	66,062
New 3/21	1,645	3,078	5,249	8,254	12,252	18,044
1980 Aircraft Mix						
Existing	2,771	5,293	10,077	19,813	39,408	73,550
New 3/21	1,731	3,276	5,507	8,625	12,825	19,024

Source: R. Dixon Speas Associates, Inc., October, 1972.

At the demand level of 324,000 total annual operations shown in the EIS for 1980, the total annual delays (with the new runway) would be about 4000 hours.

Relationship to Passenger Capacity:

The historic and projected relationship between air passengers and airline operations at DTW is

TABLE IB-11

PASSENGERS PER AIRLINE OPERATION

Source	1970	1974	1976	1980
Actual	35	48	--	--
EIS*	--	--	55	69

* The passenger projections are from Arnold Thompson Associates, Passenger Terminal and Cargo Facilities Master Plan, 1972.

Runway Capacity - Willow Run

For willow Run, the existing runway system capacity was calculated on the basis of:

Mix:

TABLE IB-12

	Percent		
Aircraft Class	Present[1]		Future[2]
AA, and A	2	--	90
B	15		
C	30	--	10
D and E	53		

[1] FAA form 5090-2, p. 2

[2] Landrum and Brown, Willow Run Master Plan, Phase I, February 1970.

Capacity:

The analyses done by SRI in the Michigan State Study[1] and in Phase I of the Willow Run Master Plan work[2] indicates the approximate capacity of the existing airport as follows:

[1] See p. 10, Stanford Research Institute, Michigan State Airport System Plan Thru 1990.

[2] Landrum and Brown, Willow Run Master Plan, Phase I, February 1970.

TABLE IB-13

Source	Practical Annual Capacity
SRI (present mix)	417,000
Landrum and Brown	
(present mix)	475,000
(future mix)	375,000

Delay:

The accumulated delays were not presented though the analysis assumes an average delay to departures of 4 minutes for airline operations and 2 minutes for general aviation.

Relationship to Passenger Capacity:

No passenger demand was projected in either the SRI or the Landrum and Brown analysis.

Airspace

The development program at Detroit Metropolitan has followed the recommendation of a 1967 report* that was based upon long-term airspace considerations, the major direction of air operations should be in the northeast-southwest direction. This would allow approximately parallel operations at Willow Run (runways 5/23 and Metro (runways 3/21). Airspace approval of the runway 3/21 project was given by FAA on June 28, 1972.

Terminal Capacity

The master plan for the Detroit Metropolitan Airport* has suggested terminal area improvements to accommodate a demand level of 34,000,000

total annual air passengers by the year 1990 and an enplaned cargo tonnage of 1.5 million, this plan provides for:

- 53 additional aircraft gate positions
- 3 new runways
- 20,000 additional public parking spaces
- 1.4 million additional square feet of terminal building area

---

* Detroit Metropolitan Wayne County Airport, Master Plan Report-1967, Landrum & Brown

- Approximately 220 acres of air cargo area with 40 air cargo gate positions
- A second passenger terminal building
- A new access roadway system

IV. Regional Airport Considerations

Among the considerations of the Michigan State Airport System Study, were the interrelation of the various airports in the Southeastern Michigan region. In the final plan, adopted by the State Aeronautics Commission, Detroit Metropolitan is identified as the major airline airport serving for Southeastern Michigan with the ability to expand capacity to accommodate a 1990 projected level of demand.

Willow Run Airport is indicated as a General Transport airport in the State Plan with an expansion capability to accommodate a sizeable general aviation and contract air cargo demand.

In addition to Detroit Metro and Willow Run, the State Plan identifies the desirability, in the long-range (1983-1992), of considering another airport (Site 107) in the northeastern part of the region. While not indicated for capacity reasons, this alternative appeared to offer substantial benefits to the region's air travelers in terms of geographic convenience.

V. Findings and Conclusions

It is apparent from the capacity analyses that have been performed, that the Detroit Metropolitan Airport offers substantial capacity even under earlier forecasted traffic levels. In the light of downward revisions in these forecasts, it is likely that Detroit Metropolitan

will be able to handle future traffic without severe delays, particularly if the recommended construction of a second terminal area and runway are undertaken as described. As is discussed below, this conclusion is relevant with regard to air carrier and air cargo traffic, but the future general aviation traffic will have to be accommodated elsewhere.

Future Air Carrier Demand at Detroit Metro

The growth rates for air carrier passenger enplanements developed as part of our forecasting effort are translated into annual passenger enplanements at Detroit Metro in Table IB-14 below. Previous forecasts of passenger enplanements are tabulated along with the current forecast for the sake of comparison.

TABLE IB-14

Metro Wayne Airport

Comparison of Forecasts of Annual Air Carrier Passenger Enplanements (000's)

	SRI (1971)	FAA (1973)	FAA (1974)	SRI (1975)
1970				
1971	3640			
1972	↑	3680		
1973	|		3906	
1974	5200			
1975	↓	5269		
1976	↑	5719		4310
1977	|	6273	4413	
1978	|		4687	
1979	↓		4994	
1980	↑			5658
1981	|		5898	
1985	↓ 12135	11516		7633
1986	|		7304	
1990	↓			10296
1995				13863

While the indications are clear that effect of likely economic events is a reduction in future passenger enplanements from previous estimates, passenger enplanements must be converted to aircraft operations in order to be related to the capacity concepts discussed above. Table IB-15 projects annual air carrier operations and Detroit Metropolitan Airport from 1976 to 1995. Two previous forecasts are included to illustrate the degree to which our estimates represent downward revisions

from earlier forecasts. As comparison with the capacity estimates reviewed above indicates, the airport will not exceed its practical capacity within the analysis period. Because air cargo activity may add to the demand for the facility, however, it is next necessary to project the likely development of the air cargo market segment in the Southeast Michigan area.

TABLE IB-15

Annual Air Carrier Operations (000's)

Metro Wayne Airport

Year	A. Thompson (1972)	FAA (1974)	SRI (1975)
1974		169	
1975	225		
1976		183	179
1977		190	185
1978		199	191
1979			
1980		218	202
1985	285	245	224
1990	330		249
1995	380		276

Future Air Cargo Demand in the Southeast Michigan Area

The growth rates for cargo tonnage originated in the Southeast Michigan area, when applied to recent data indicate a growth of this market segment that is summarized in Table IB-16A. The estimate is lower than the previous forecasted levels that are presented for comparison. This is due to our assumption of a slower rate of growth for the GNP variables and a slowing in the decline of air cargo rates because of anticipated energy elements. We have not proposed a radical change in rail or truck rates, although the deregulation of these modes is a possibility and this could reduce the amount of air cargo traffic further.

TABLE IB-16A

Comparisons of Forecasts of Domestic Air Freight and Express Revenue Tons (000) Originated in Detroit Area Airports

Year	ATA(1971)[1]	SIMAT(1972)[2]	SIMAT(1972)[3]	SRI(1975)	
				METRO	Willow Run
1970	-	89	89	-	-
1975	248	184	166	120 ('74)	100 ('74)
1980	563.1	374	308	205	171
1985	1216.6	765	540	350	292
1990	-	1425	947	585	489
1995	-	2630	1614	980	821

TABLE IB-16B

Implied All-Cargo Departures (000)

Year	ATA(1971)[1]	SIMAT(1972)[2]	SIMAT(1972)[3]	SRI(1975)	
				METRO	Willow Run
1970	-	4	4	-	-
1975	9.7	7.2	6.5	6.5	15.0 ('74)
1980	18.8	12.5	18.0	10.3	17.1
1985	24.9	15.7	11.1	11.5	19.2
1990	-	20.4	13.5	14.2	21.3
1995	-	23.4	14.3	15.1	23.5

1. Figures represented total area traffic
2. Medium Forecast. Figures exclude Willow Run
3. Low Forecast. Figures exclude Willow Run
4. SRI forecast includes air mail and foreign traffic. These more inclusive calculations replace those presented in an earlier draft of this task.

air charter and non-scheduled air carrier activity at Willow Run is an insignificant portion of the operations in the region. Were this market to be enhanced by a change in the regulatory constraints on these types of services, the effect on total number of air carrier operations in the Southeastern Michigan areas is likely to be small because increase load factors could affect increases in total traffic to a great extent.

Demand for General Aviation Services

General aviation demand appears likely from our forecasts to grow at an attenuated but fairly rapid rate over the analysis period. We have taken account in our model of the effects of the cost of operating a private aircraft in the future in addition to the effect of changes in airline fares on demand for itinerant[1] general aviation services. Table IB-17 presents our forecast for the Willow Run Airport in this market segment. The demand for the Willow Run facility was derived from an estimate of the regional demand for these services, including that of potential general aviation users of Detroit Metropolitan that have been diverted from that facility. As the Table reveals, the role of Willow Run in this market segment is potentially significant. This does not assume, however, the development of significant capacity in the analysis period at nearby general utility airports.

---

1 We have not forecast the growth of non-itinerant or local general aviation services. This appears likely to be a smaller fraction of total operations in the future than it is currently, however, and it does not affect our conclusions.

TABLE IB-17

Comparison of Forecasts of Itinerant General Aviation Operations (000's) at Willow Run Airport

Year	SRI (1971)	FAA (1974)	SRI (1975)
1970			
1971	62		
1972	↑		
1973			
1974	65	53 (F.Y. 74)	
1975	↓		
1976	↑	62	56
1977		66	60
1978	119	67	65
1979	↓		
1980		78	76
1981	↑		
1985		110	124
1986	202		
1990	↓		176
1995			257

EXHIBIT IB-1

WILLOW RUN AIRPORT TASK FORCE

Chairman: John Marcosky, Councilman
City of Southfield
29537 Meadowlane Drive
Southfield, MI 48076

Ellis Amerman, Mayor
City of Belleville
City Hall
6 Main Street
Belleville, MI 48111

John Barr, Vice Chairman
Wayne County Board of Commissioners
726 City County Building
Detroit, MI 48226

Francis P. Bennett, Director
Wayne County Planning Commission
730 City-County Building
2 Woodward Avenue
Detroit, MI 48226

Ralph Byrd, President
Van Buren Township Civic Association
46470 Bemis
Belleville, MI 48111

K. Ross Childs, Acting General Manager
Southeastern Michigan Transportation Authority
211 West Fort Street, Suite 1600
Detroit, MI 48226

Thomas Fegan, Director
Washtenaw County Metropolitan Planning Commission
306 County Building-Main and Huron
Ann Arbor, MI 48108

Elton Gollwitzer, Supervisor
Van Buren Township
46425 Tyler Road
Belleville, MI 48111

George D. Goodman, Mayor
City of Ypsilanti
City Hall
304 North Huron Street
Ypsilanti, MI 48197

William E. Hamlen, Chief
Project Programming & Review Section
Michigan Aeronautics Commission
Capital City Airport
Lansing, MI 48906

Clare Hoedeman, County Highway Engineer
Washtenaw County Road Commission
555 North Zeeb Road
Ann Arbor, MI 48103

George Kiba
Greater Detroit Chamber of Commerce
150 Michigan Avenue
Detroit, MI 48226

Robert A. Larson
Director of Transportation Programs
Wayne County Road Commission
415 Clifford
Detroit, MI 48226

Beverly McAninch, Mayor
City of Plymouth
539 S. Sheldon Road
Plymouth, MI 48170

Robert Pangburn, Manager
Willow Run Airport, Main Terminal
University of Michigan
Ypsilanti, MI 48197

Willow Run Airport Task Force

Ms. Virginia Prentice
Environmental Research Institute of Michigan
3000 E. Delhi Road
Ann Arbor, MI 48103

Robert O. Pritchard, Chairman
Government Relations Committee
Ypsilanti Industrial Development Corporation
CO/209 Pearl Street
Ypsilanti, MI 48197

John Rhinehart, Manager
Ann Arbor Municipal Airport
801 Airport Drive
Ann Arbor, MI 48103

William Smith, Director
Detroit City Planning Department
801 City County Building
2 Woodward Avenue
Detroit, MI 48226

Eliot G. Striar, Assistant Corporate Council
Washtenaw County
117 Washington County Building
Ann Arbor, MI 48107

Cecil Ursprung, Study Director
Ann Arbor-Ypsilanti Urban Area Transportation Study
111 West Kingsley
Detroit, MI 48226

J. David Vander Veen
Director of Aviation
Oakland-Pontiac Airport
6500 Highland Road
Pontiac, MI 48054

William E. Winters, Supervisor
Ypsilanti Township
Township Hall
7200 So. Huron River Drive
Ypsilanti, MI 48197

Dwayne A. Zantop, President
Zantop International Airlines Inc.
Willow Run Airport
Ypsilanti, MI 48197

Ex Officio Members

William Gehman, Airport Engineer
Bureau of Aeronautics
Michigan Department of State Highways and Transportation
Capital City Airport
Lansing, MI 48906

Edward Kazenko, Manager
Metro Center Planning Section
Department of State Highways
P. O. Drawer "K"
Lansing, MI 48904

Gary Krause, Director of Planning
Southeast Michigan Council of Governments
1249 Washington Blvd.
Detroit, MI 48226

Edward Mellman, Manager
Aviation Planning Section
Michigan Aeronautics
Capital City Airport
Lansing, MI 48906

Dates of WRA Task Force Meetings: March 25, 1975
May 31, 1975
July 22, 1975
December 9, 1975

Appendix IB-A

REVIEW OF FORECASTING METHODOLOGIES AND DATA USED IN DETROIT REGION FORECAST

Introduction

The rapidly changing events in the air transportation industry make forecasting a very precarious enterprise; the forecaster must accommodate his projections not only to likely and easily extrapolated changes in underlying variables but also must make judgments concerning the impact of possible changes in some important factors such as fuel prices and aircraft technology, which are in a current state of flux. The policies of the domestic regulatory agencies and the petroleum supply policies of the oil exporting countries are factors that cannot be predicted with certainty but influence the operating costs and capability of the air transportation industry in a very significant way.

In providing a forecast of air transportation activity in the Detroit region, we have reviewed econometric and statistical evidence of the relationship between important causal quantities and the amount of air transportation activity. In forecasting the underlying causal factors, we have attempted to make prudent judgments concerning the impact of likely changes in the Detroit area economy and fuel restrictions on the forecasted activity. In some cases, rather than hinge our forecast on the assumption of the value of an uncertain parameter, we have structured our logic in an a fortiori manner; that is, we have attempted in general to err in the direction of overstatement of future traffic in order to test the sensitivity of the capacity considerations that will ultimately dominate consideration of the Willow Run airport's future utilization. We found, in general, that in spite of generous assumptions with regard to future traffic levels, most market segments (with the possible exception of General Aviation) are capable of being handled with current or proposed capacity elsewhere in the region. While this method of argument does not give the analyst complete confidence in the absolute magnitudes

of the forecasted variables, our conclusions concerning the Willow Run facility are fortified by purposefully erring in a direction that argues for its utilization.

The following discussion outlines the procedures and data used to develop our traffic growth estimates.

Air Carrier Forecast Methodology

Our review of the air passenger demand literature indicated that forecasting passenger enplanements involved forecasting income, population, fares, flight frequency, and flight travel time. The influence of changes in these variables was related to changes in trip demand using elasticity estimates from two sources, an econometric analysis performed by DeVany* and the statistical correlations presented by Simat** in their 1972 report. The elasticity assumptions and their source are presented for each of the causal variables in Table A-1.

Table A-1

Variable	Elasticity Estimate	Source
Fare	-1.1	DeVany
Travel time per mile	- .21	DeVany
Frequency	.49	DeVany
Population	1.0	Simat
Income (growth factors reported by Simat (p. 73, 74) were used as presented in Table A-3 below).		

* A. S. DeVany and E. H. Garges, "A Forecast of Air Travel and Airport and Airway Use in 1980," Transportation Research, 1972.

** Simat, Helliesen, and Eichner, Forecast of Air Traffic Demand and Activity Levels to the Year 2000, 1972.

The use of these elasticity estimates to forecast the growth in passenger enplanements required estimates of the rates of growth of the underlying variables. The assumed rates of growth are presented in Table A-2 below:

Table A-2

Variables	Assumed Average Annual Rates of Growth (%)		
	1975-80	1980-90	1990-95
Population	.94	.87	.63
Fares	- .50	-1.0	-1.0
Flight Frequency	3.0	2.0	2.0
Travel Time	-6.7	-4.3	-3.8

The population growth rates come from a regional forecast of the Bureau of Economic Analysis, April 15, 1975. The decline in average fares assumed is not as rapid as has historically been the case (roughly 1.8% per annum in the last 20 years). We believe that some moderation of this trend is justified in the current and likely future context of scarce petroleum fuels slowing the rate of growth of revenue productivity of air carrier services. Flight frequency has increased at roughly a rate of 4% per year on typical routes and we have assumed that tendencies toward larger aircraft and fuel scarcity will moderate this development as well. Travel time per mile has declined historically by a rate of about 6.5% per year. Because we expect environmental restrictions to limit the use of supersonic aircraft, the decline in travel time rate has been moderated as well in the assumptions embodied in Table A-1.

The assumptions concerning demand elasticity with respect to each of the causal variables and the assumptions of growth rates in the variables in future periods enables calculation of growth rates of passenger enplanements in the Detroit area. These growth rates are summarized in Table A-3 below.

Table A-3

Annual Rate of Growth of Passenger Enplanements (%)

	1975-80	1980-90	1990-95
Growth contributed by income factors*	2.7	2.3	2.6
Growth contributed by other factors	4.34	4.87	3.53
Total	7.04	6.17	6.13

The conversion of passenger enplanement growth to air carrier operations growth requires assumptions about aircraft productivity--that is, load factors and aircraft size. These assumptions influence the forecasts of operations in a very significant way. For example, if the average seat capacity per departure increases by 5% per annum in the period 1975-80 and load factors increase by 2% per annum in this period, then operations would grow at an annual rate of only .04%**

Since the forecasts will be utilized in performing a capacity analysis of existing facilities, we made the assumption that aircraft productivity grows throughout the forecast period at the slow rate of 4% per year.*** This assumption will tend, probably to overstate the number of operations in the region and is a useful logical position since we are interested in the potential utility of the Willow Run facility as a back-up air carrier facility for Detroit Metro.

The growth rates calculated in Table A-1 were then applied to the actual operations experienced at Metro in 1974 to provide forecasts of future air carrier activity.

---

* The contribution to growth represented by income changes is from the "low" estimates of Simat, et al. These estimates were used because they incorporate changes in the distribution of income as well as the absolute level. The "low" estimate represents pessimistic development in the regional economy.

** (7.04% - (5+2)) = .04%

***Simat, for example, assumed growth rates in aircraft productivity of 5.9 to 4.7% over a similar forecast period.

General Aviation Forecast Methodology

The methodology proceeds by forecasting the aggregate growth in general aviation activity in the region and allocating this growth to the airport facilities under analysis. The total of this itinerant general aviation activity at Willow Run, Detroit City, and Metro Wayne was used as the basis of the analysis using data from 1974.

A review of the literature revealed that the causal variables in determining the level of general aviation activity were income, population, the price of general aviation services, and the price of (competitive) airline services. An econometric analysis by Brian Ratchford* was used as a source of the estimates of the elasticity of general aviation activity to these factors. The table below details the factors used from this study.

Variable	Range of Elasticities Estimated	Value Used by SRI
Income (per capita)	ca. 2.5-2.8	2.6
Price of G.A. services	ca 1.6-2.7 (negative)	2.0 (negative)
Price of airline services	ca .38-.70	.40
Population	---	1.0

The next step was to apply these factors to the assumed level of growth of the underlying variables. The assumed rates of growth of the underlying variables is presented in Table A-4 below.

---

* Brian T. Ratchford, "A Model for Estimating the Demand for General Aviation," Transportation Research, August 1974.

** Ratchford was dealing in per capita demand for General Aviation Services, so a population growth factor of exactly 1.0 is necessary to aggregate the forecast activity.

Table A-4

Assumed Annual Rate of Growth (%)

Variable	1975-80	1980-90	1990-2000
Income (per capita)	2.2	2.4	2.7
Price of G.A. services	.5	.2	0.0
Airline price	- .5	-1.0	-1.0
Population	.94	.87	.63

The rate of growth of per capita income and population were taken directly from the special Regional Analysis Projection System Report that was produced for us by the Bureau of Economic Analysis April 15, 1975. The airline price assumption is the same as is used above in the air carrier projections. The growth in the price of general aviation services that is assumed is designed to conservatively incorporate the effect of aviation fuel cost increases on General Aviation operating costs. This is in contrast to a nearly constant history in these prices (as reported by Ratchford) in real dollars, but is conservative, nonetheless.

These assumptions yield an estimate of the rate of growth of itinerant General Aviation operations for the forecast years as reported in Table A-5 below.

Table A-5

Compound Annual Rate of Growth (%)

1975-80	1980-90	1990-95
5.4	6.3	7.2

These factors obtained by multiplying the underlying rates of growth in Table A-3 by the elasticities in Table A-4 and summing overall variables.

The rates of growth so obtained were applied to the total amount of itinerant General Aviation activity reported in 1974 by the FAA for the three airports noted above. This amounted to roughly 230,000 operations. The growth factors developed above were applied to this total to determine the regional general aviation potential. Since Detroit Metro has an implicit objective of limiting General Aviation activity at its facility, the G.A. demand at other facilities (including Willow Run) will grow at a somewhat more rapid rate. The calculations and assumptions are tabulated in Table A-6 below.

Table A-6

(All Figures are in Thousands of Annual Operations)

Year	Area Operations	Allowed at Detroit Metro*	Net Demand at Other Facilities
1974	230	73	157
1976	256	90	166
1977	269	90	179
1978	283	90	193
1980	315	90	225
1985	428	60	368
1990	580	60	520
1995	822	60	762

The level of itinerant General Aviation operations at Willow Run is then assumed to grow at the rate at which the net demand in Table A-6 increases. It may actually exceed this if constraints are put on General Aviation development elsewhere in the regions, so we viewed this as a usefully conservative estimate.

---

* Roughly that assumed by the FAA in its 1974 Terminal Area Forecast

Air Cargo Forecast Methodology

Air cargo activity tends to put less pressure on airport runway capacity than passenger carriage because of its relatively smaller volume and the tendency for the traffic to move during off-peak hours. This may change, of course, if noise controls restrict nighttime activity. Cargo activity may, however, contribute substantially to ground facility requirements, although these requirements are as much a consequence of the type of cargo moved as the aggregate tonnage. Additionally, less information is available on the responsiveness of air cargo activity to changes in other economic variables and in the Detroit area, and so much of the cargo movements are specific to a few shippers that a regional forecast can only crudely represent likely shipment patterns. Nonethless, a rough forecast of air cargo activity was made and augmented by a direct survey of the future intentions of large shippers in the Detroit region.

The main variables of interest to a cargo forecast are the elasticity of cargo tonnage originations to growth in national production activity and the rates charged by shippers. The assumptions and sources for these elasticities are tabulated below:

Variable	Elasticity Estimate		Source
GNP	1975-1980:	2.5	Modified* from ATA, Airline Airport Demand Forecasts, July 1969
	1980-1990:	2.3	
	1990-1995:	2.0	
Rates	1975-1995:	-3.0	McDonnell-Douglas, Cargo Forecast July 1971

The forecast rates of growth of the GNP and cargo rate variables are presented in Table A-7 below.

---

* ATA found the elasticity component to be roughly .2 percentage points greater than assumed in the early years of the study period. The rate is moderated in future periods to reflect the "industrial life cycle" tendency for rapid early growth to moderate as an industry matures.

Table A-7

Assumed Annual Rates of Growth (%)

	1975-1980	1980-1990	1990-1995	Source
GNP	3.5	3	3.3	Bureau of Economic Analysis
Rates	-1.5	-1.5	-1.6	SRI's judgment

The assumption of negative growth in the rates charged to shippers is in accordance with the likely increases of productivity as larger aircraft with palletized or containerized cargo are increasingly utilized in the region. The early periods are assumed to suffer somewhat the dislocations caused by higher petroleum prices, hence, the decline in cargo rates resumes its historic pattern gradually over the entire forecast period.

The assumptions of Tables A-6 and A-7 are combined in forecasts of the annual rate of growth of tonnage originations. These forecasts are summarized in Table A-8 below.

Table A-8

Annual Rate of Growth Revenue Tons Originated in the Southeast Michigan area (%)

	1975-1980	1980-1990	1990-1995
Growth contributed by GNP growth	8.75	6.9	6.0
Growth contributed by declines in cargo rates	4.5	4.5	4.8
	13.25	11.4	10.8

* A value lower than the estimates of the Bureau of Economic Analysis may be justified given the dependency of cargo activity on auto production which is likely to grow at a somewhat lower rate than overall activity in the region.

These growth rates were then applied to the 1970 base data on domestic air freight and express revenue tonnage that originated in Detroit area airports (Simat, 1972). This yields forecasts of tonnage originated over the forecast period.

The conversion of tonnage originated into all-cargo departures involved making assumptions concerning the growth in cargo aircraft capacity and load factor in addition to postulating the tonnage lifted by all-cargo traffic (vs. belly pit). Forecasting of these factors requires considerable insight into the trends in the technology of loading and lifting air cargo. Because few thorough research efforts have been focused on this area, SRI incorporated the assumptions embodied by Simat, et al. in a report prepared for the Aviation Advisory Committee. These assumptions are summarized in Table A-9 for a few key years.

Table A-9

(%)

	1975	1980	1985	1990	1995
All-cargo as percentage of total	70	75	80	85	87
Average capacity (thousands of pounds per aircraft)	45	50	75	100	150
Load factor	.57	.60	.65	.70	.75

These assumptions embody a very rapid development of all cargo services and rapid increases in load factor over current levels. The first assumption tends to enhance the estimate of flight activity somewhat, while the second tends to moderate the increase in operations that accompanies growth in tonnage originations. We prefer to retain the load factor assumptions being somewhat more realistic now than it was at the time of the Simat research (1972) because of the likely influence of increased operating costs on flight frequency and load factors. The development of all cargo services seems overly rapid given the historic behavior of this market segment, but it might be usefully

retained to bias our estimates on the high side as a test of the binding capacity constraints at the regional airports.

The forecast rate of growth of tonnage originations in Table A-8 combined with the aircraft utilization forecasts of Table A-9 yields a forecast of all-cargo departures in Detroit area airports. There is no simple and direct measure available of all-cargo arrivals in the Detroit area, but the historic in and out pattern indicates that arriving air cargo is roughly 2/3 of departing cargo on a tonnage basis. All-cargo departures can be multiplied by 1.7 to determine the total level of operations from the forecast departures.

TASK IC

ANALYSIS OF THE CANDIDATE ROLES FOR THE WILLOW RUN AIRPORT

July 10, 1975

Task IC

ANALYSIS OF THE CANDIDATE ROLES FOR THE WILLOW RUN AIRPORT

BACKGROUND

The purpose of Task IC is to evaluate the existing capabilities of Willow Run Airport (WRA), to review its relationship to the surrounding land uses, to identify several possible candidate roles for the airport and to permit the selection of one role for further evaluation in Task II. Task IC includes a discussion of the following factors which relate to the evaluation of future roles.

- Facilities
- Adjacent Land Uses
- Ground Access Systems
- Runway and Airspace Capacity
- Environmental Factors (specifically noise and air quality)
- Financial Situation

The procedures used in this analysis have relied upon readily available data and information. One exception is the evaluation of environmental impacts expressed at the public meetings and by the Task Force in the selection of the factors which they wish to consider in analyzing alternative uses of WRA, separate noise and air quality evaluations have been developed by SRI.

At the conclusion of this section is a brief discussion of possible alternative roles and implications associated with each.

A. FACILITIES

Exhibit A contains the facilities report prepared by Ralph H. Burke Associates. This report deals principally with the Willow Run Airport facilities and statistics, but also includes information about the cargo facilities at Detroit Metropolitan Airport (DTW). The following information is selected from that report to describe the existing facilities:

- Runways, taxiways and aprons. Originally designed for single wheel loads of the B-24, the runways are presently evaluated as follows:

Table IC-1 RUNWAY EVALUATION

Runway	FAA Strength Evaluation* (000) Single	Dual	Tandem	Ralph H. Burke Associates Condition Evaluation
09R/27L	55	70	120	Good
14/32	55	70	120	NW half good, SE half poor
05L/23R**	35	45	90	Poor
05R/23L	55	70	120	Good
09L/27R	55	70	120	Good to Fair

* FAA Form 5010 of 5-24-72 and as revised 5-22-75.

** Closed to large aircraft operations.

The pavements are consistently experiencing overloading of 50-100 percent. The cargo aprons and Hangar #1 apron are badly cracked and in poor condition.

- Navigation facilities. The FAA maintains an air traffic control tower at WRA, a Visual Omni-directional Range (TVOR) an Instrument Landing System (ILS) on Runway 5R and approach

light system also on Runway 5R. The runways are all lighted, with a high intensity system on Runway 5R/23L and a runway end identification light system on Runway 23L.

- Clear zones. Each of the approaches to the runways at Willow Run Airport has a clear zone either by fee simple ownership or easement to at least 20 feet elevation on a 50:1 obstruction slope.

- Buildings and hangars. Generally described as well constructed, but obsolete. Hangar #2 is inadequate for large aircraft. The hangars on the east side of the airport are in poor condition. The general aviation area lacks quality facilities.

- Utilities

  1. Sanitary sewer -- poor condition
  2. Water system -- fair, but aging
  3. Electrical -- obsolete
  4. Fueling system -- 400,000 gallon capacity and in good condition

- Airport road system. System is circuitous but adequate. Directional signing is inadequate.

- Leaseholds. Because of University policy, most leases are of a short duration (1-3 years) with a 30 day termination clause. The existing major leases are:

Table IC-2

Major Leases at Willow Run Airport

Tenant	Lease
General Motors	3 year lease
Chrysler	3 year lease
Hoover Ball & Bearing	10 year land lease; option for 10 more years
Butler	5 year lease; noncancelable
Willow Run Services	5 year lease with 60 day termination clause
Zantop	3 year lease with 90 day termination by either party

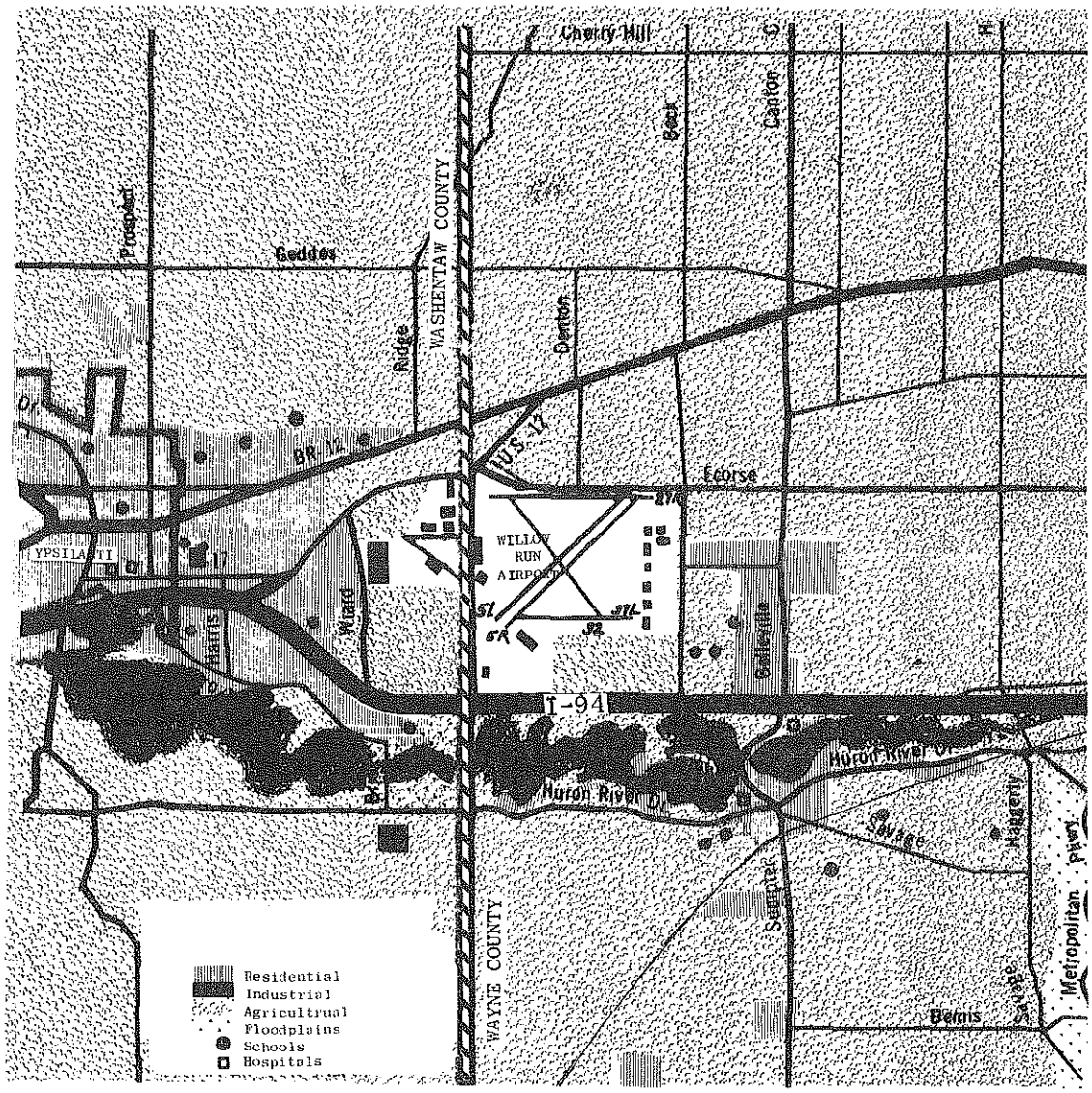
- Air cargo facilities. Exhibit IC-1 describes the condition of the existing WRA cargo facilities as in need of extensive rennovation. Indications are that there is sufficient capacity at DTW to accomodate the WRA cargo traffic there.

A general evaluation is that the principal facilities have been maintained to a level adequate to their present use. The balance of the facilities suffer from 35 years of deferred maintenance. Maximum use has been made of the airport operating areas and buildings in the past. Major replacement and reconstruction costs are an imminent consideration for the future.

B. ADJACENT LAND USES

Existing Land Uses

Figure 1 presents the existing land uses in the areas surrounding Willow Run. The areas north and east are generally agricultural use with scattered housing along local roads in these areas. Denton and the Quirk



Scale

1 2 3 4 5

mi.

FIGURE IC-1
EXISTING LAND USES 1970

Road areas have some localized housing concentrations. On the south shore of Bellville Lake, south of WRA, there are concentrations of residential use. Beginning in the area southwest of the airport, extensive residential areas, some of them new, are located in Rawsonville, Eastlawn, Ypsilanti and Willow Run.

The following schools are in closest proximity to flight paths to or from WRA:

TABLE IC-3

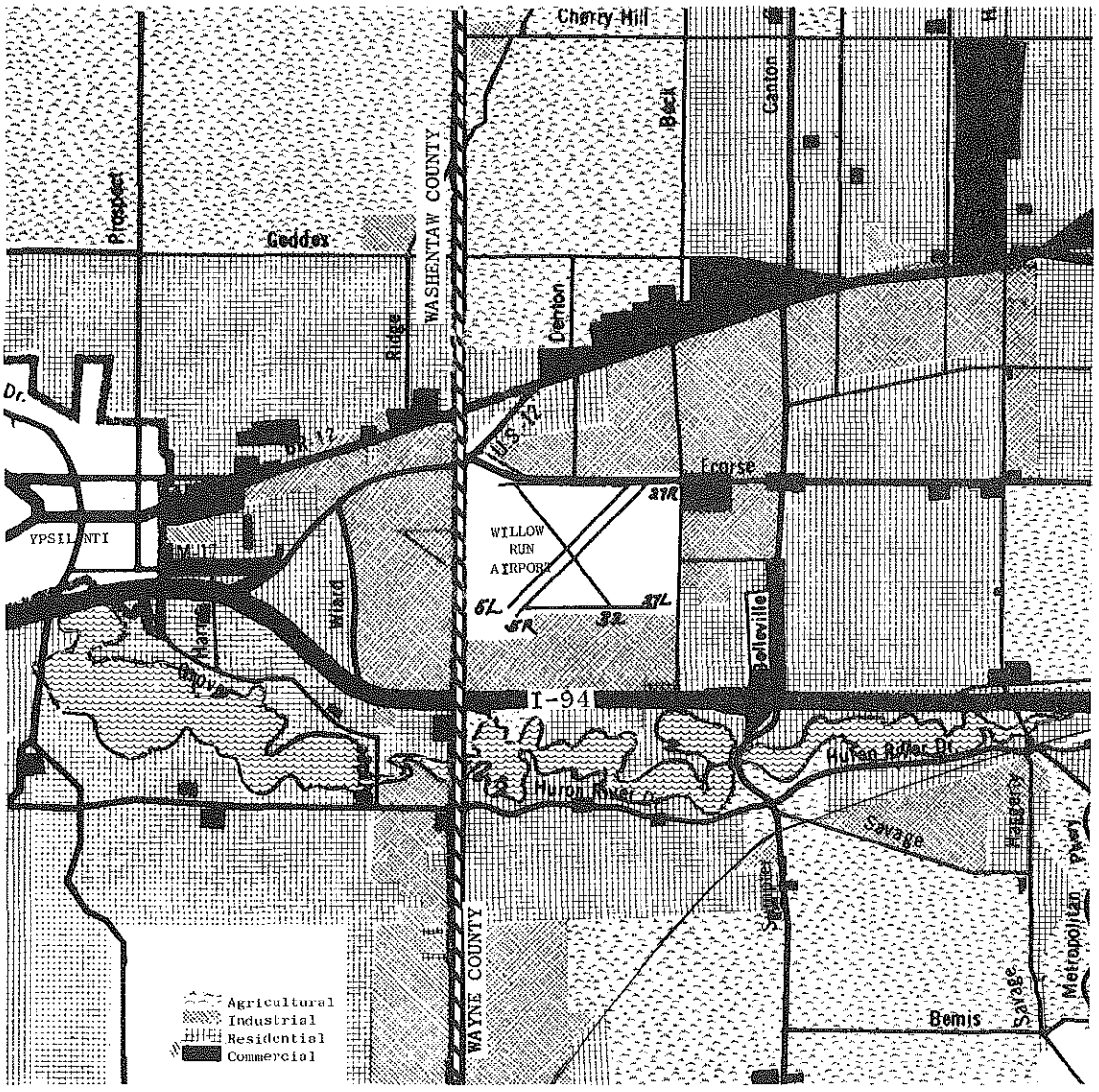
Location of Close-in Schools

School	Extended Centerline of R/W	Distance from Nearest R/W End	Location Relative to Centerline	
			Direction	Distance
Quirk Road	9R	1-1/8 mi.	S	1/8 mi.
Rawsonville	23L	1-1/8	SE	1/2
West Willow	27L	1-1/2	S	1/4
Kaiser	27L	1-1/2	N	1/4
Thurston	27L	1-1/2	O	O
Edmonson	27R	1-1/2	N	1/2
Denton	23R	1/2	NW	3/4

These two land uses--residential and schools--are the most sensitive to airport operations. Hazard exposure is one reason for this sensitivity and noise is the other.

Adopted Zoning

The current zoning is shown in Figure IC-2. Here, with the exception of the east end of Runway 9R/27L, the areas closest to the airport have a generally compatible industrial zoning. On the east end of 9R/27L



Scale

1 2 3 4 5

mi.

FIGURE IC-2

ZONING MAP

residential zoning is provided at the eastern property line, about 3000 feet from the runway end. The principal runway use directions NE/SW have zoned residential use about 2 miles from the approach end of Runways 23L and 23R and 1 miles from the approach end of Runways 5L and 5R.

Employment Concentrations

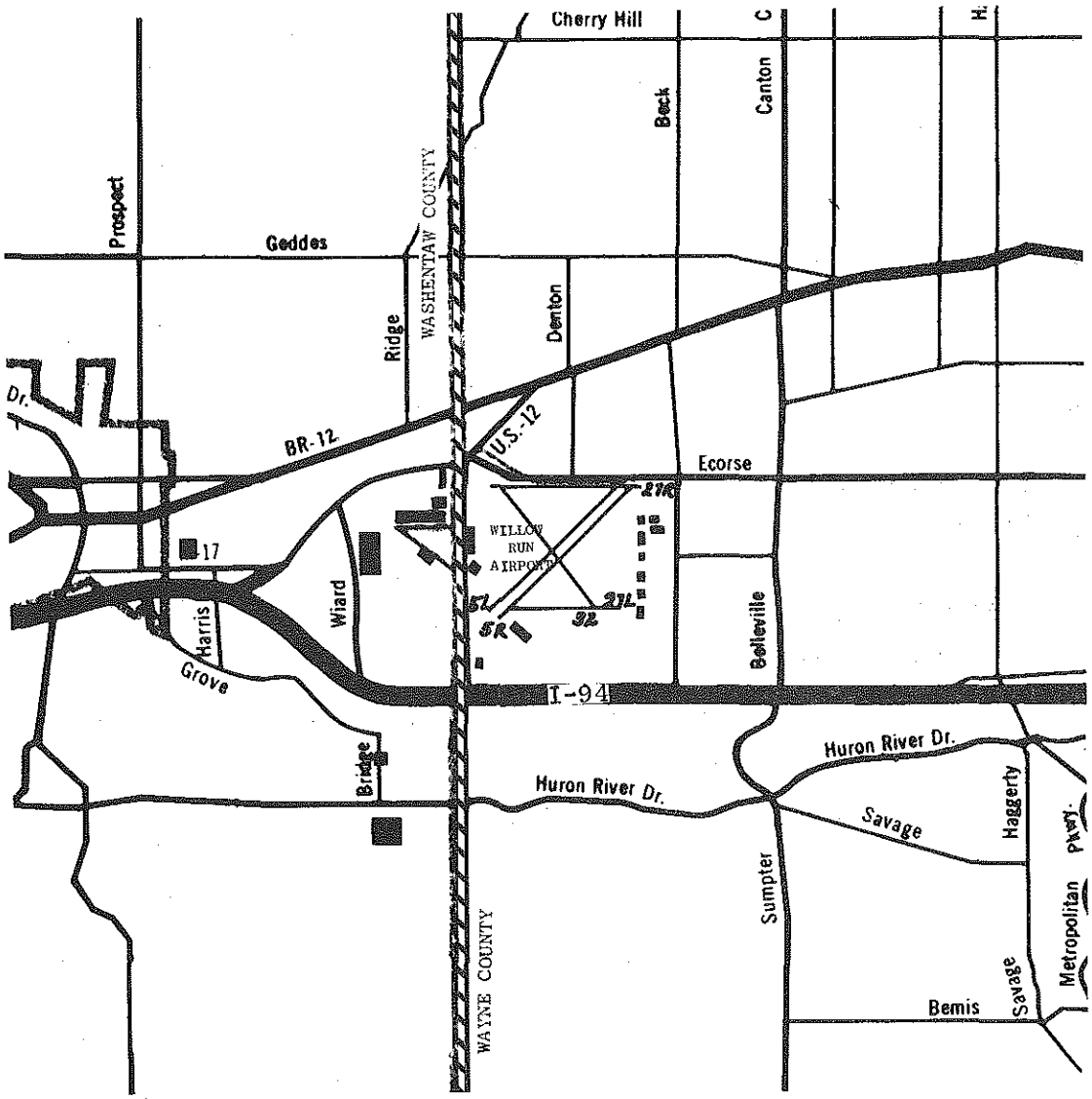
Employment centers include WRA itself with about 1100-1600 employees located throughout the 2000 acres airport. The largest concentration is in the east side of the airport at the Environmental Research Institute of Michigan (ERIM)--with about 400. Figure IC-3 depicts the other major employers in the areas around WRA. General Motors is the largest of these located at the western edge of the airport and employs about 5000.

The evaluation of the land uses indicates that the critical compatibility area, both existing and as zoned, is in the southwestern areas in the approach to Runway 5R and the departure from Runway 23L. The critical schools are Rawsonville and Quirk Road. The basic hazard areas in the clear zone areas are protected.

C. GROUND ACCESS SYSTEMS

The existing highway routes (1970) are shown in Figure IC-4. There is an extensive road system serving the WRA which provides a daily capacity well in excess of the current demand levels (see Figure IC-5). There are brief periods during the shift changes at GM that cause peak congestion in the immediate area of WRA.

The SEMCOG regional transportation planning for the Willow Run area indicates improvements to existing highways, a new I275 route, and a



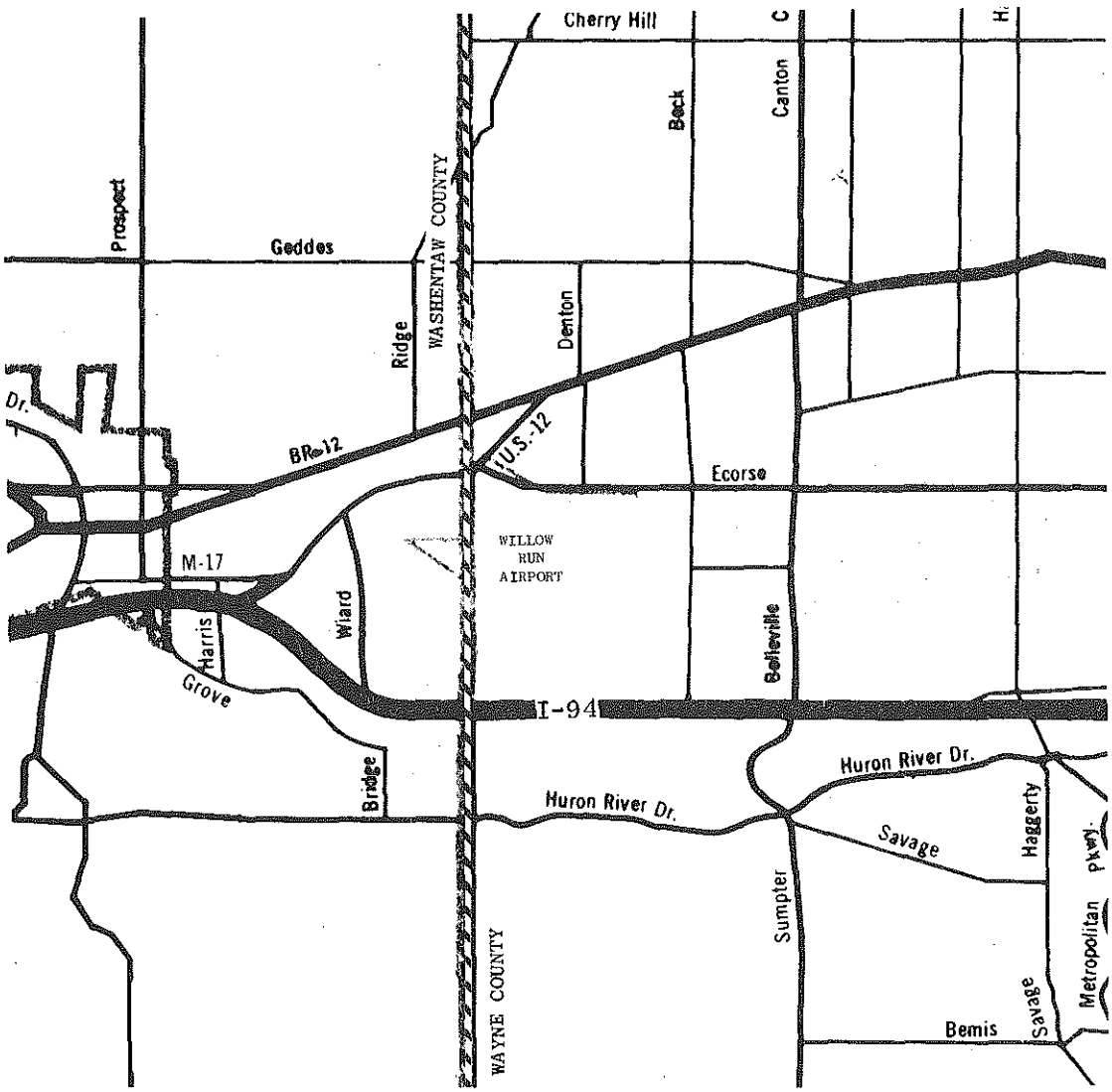
Scale

1 2 3 4 5

mi.

FIGURE IC-3

PRINCIPAL EMPLOYMENT AREAS ON WILLOW RUN AIRPORT AND SURROUNDING AREAS



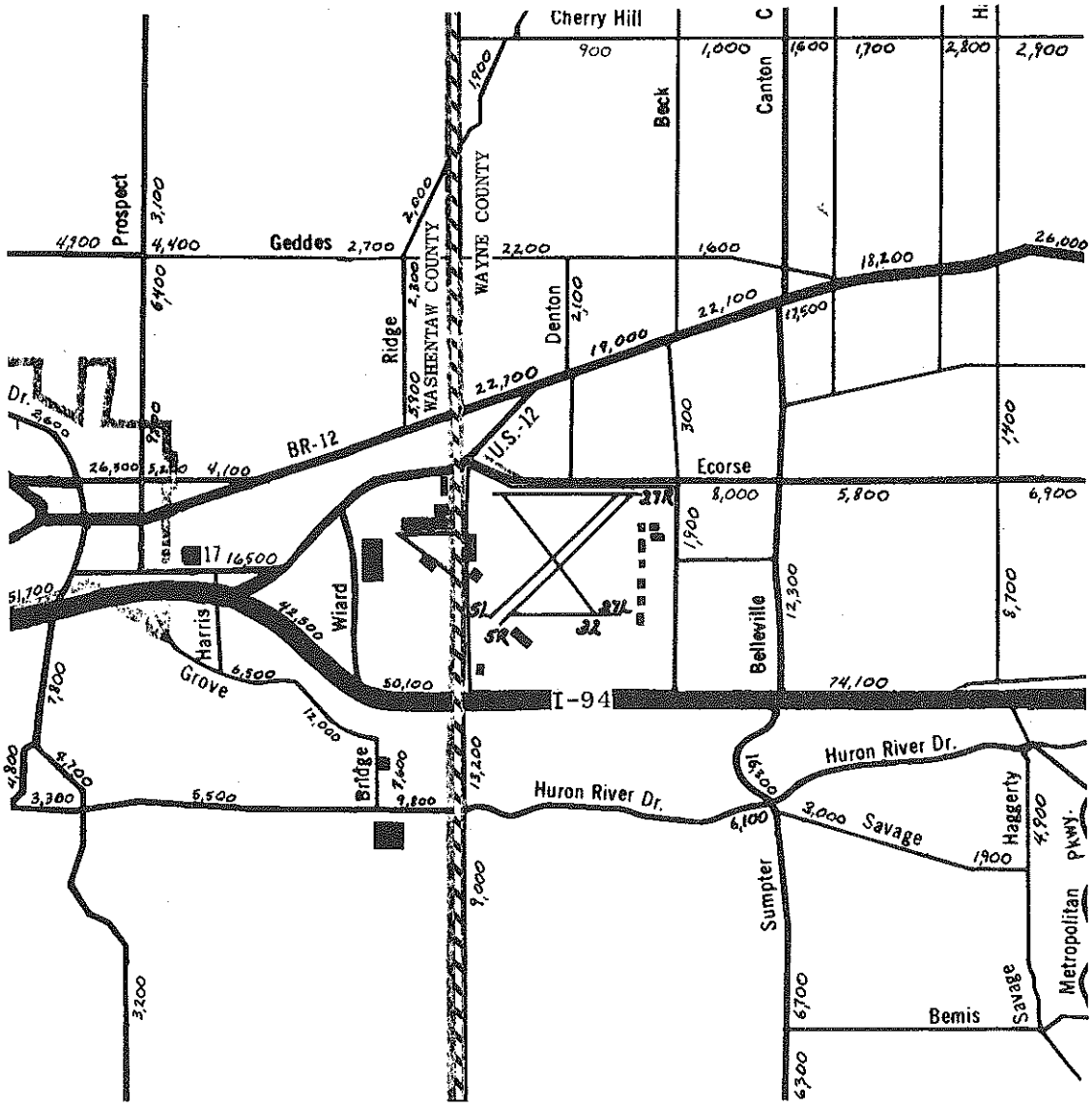
Scale

1 2 3 4 5

mi.

FIGURE IC-4

1970 REGIONAL HIGHWAY NETWORK



Scale

1 2 3 4 5

mi.

FIGURE IC-5

1972/1973 TRAFFIC FLOW

possible railroad commuter service on the Penn Central R.R. (see Figure IC-6).

As noted in Exhibit A, the highway routing to the present air cargo area at WRA is circuitous.

The overall evaluation of ground access is that it is excellent with a minor exception. An improved access to the cargo area could be provided from the existing Rawsonville Road/I-94 interchange.

D. RUNWAY AND AIRSPACE CAPACITY

Runway Capacity

As was indicated in Task IB, two previous analyses were done of the runway capacity at WRA--one by Landrum and Brown in their Phase I master plan work and the other by SRI in the statewide study. A critique of this previous work is shown in Exhibit A. Burke would reduce the Practical Annual Capacity (PANCAP) as shown in Table IC-4.

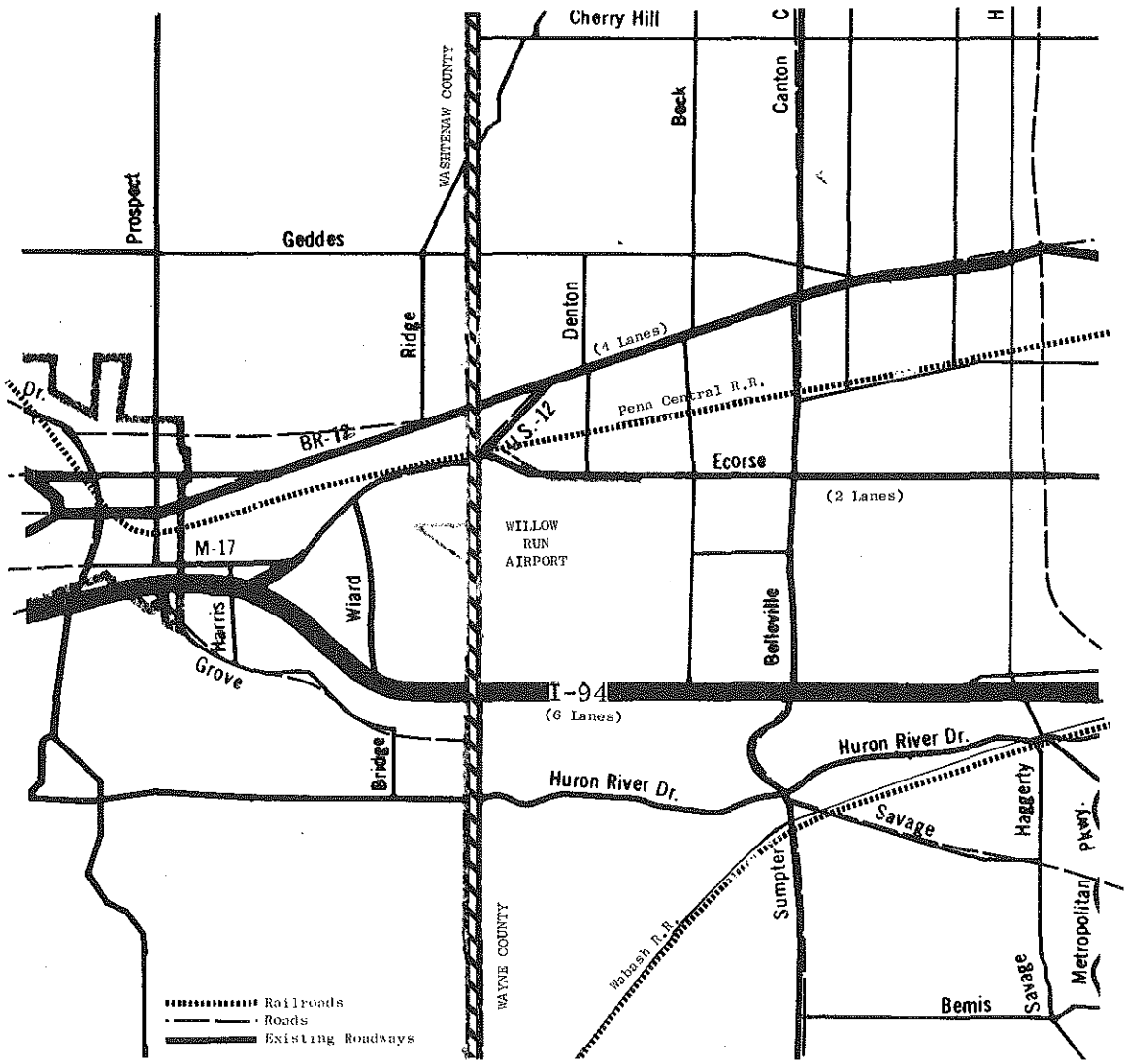
TABLE IC-4

Different Runway Capacity Analyses

Source	Practical Hourly Capacity		Practical Annual Capacity
	IFR	VFR	
Landrum & Brown (1970)	116	217	475,000
Stanford Research Institute (1972)	-	-	417,000
Ralph H. Burke Associates (1975)	52	167	430,000

The reasons for these differences are the assumptions made regarding aircraft mix, number of runways instrumented in the NE/SW direction and the availability of an ILS in the E/W direction.*

* See Section 3 of Task IB for a discussion of the significance of airport capacity.



Scale

1 2 3 4 5

mi.

FIGURE IC-6

1990 PROPOSED TRANSPORTATION PLAN
WILLOW RUN AIRPORT

The present demand level at WRA is:

Total Annual Operations - 182,000 (CY1974)
Peak Day - 1,016 (FY1974)
VFR Busy Hour - 138 (FY1974)
IFR Busy Hour - 17 (FY1974)

The VFR busy hour has about 75 percent touch-and-go general aviation operations included.

Airspace Capacity

There is a direct conflict in airspace between Detroit Metropolitan and WRA when there are east/west operations on the 9/27 runways at both airports. This occurs about four to six times annually and for periods of 8 to 10 hours. This requires a coordination procedure between the air traffic facilities at the two airports.

The principal operating directions, NE/SW, do not cause direct airspace conflicts between the two airports and the air traffic procedures are much less complicated.

In summary, the runway capacity is more than adequate for the existing use. The airspace can accommodate growth at both WRA and DTW. There is capacity for the projected general aviation and/or cargo use at WRA, though local operations by general aviation might be restricted somewhat.

E. ENVIRONMENTAL FACTORS

Because there was not existing information on the two most significant environmental issues--noise and air quality--SRI has prepared a preliminary analysis that reflects the worst effects of recent aircraft operations at WRA. This was done to attempt to quantify the extent of the problem as

identified during the public meetings and by the Task Force. These analyses are preliminary and reflect theoretical projections, not measured phenomenon. A detailed environmental impact statement would be developed as a part of an airport master plan.

Noise Considerations

A computer program originally developed by the Department of Transportation* and subsequently modified by SRI was used to calculate a 30 NEF noise exposure contour for the vicinity of the Willow Run Airport. This subsection details the major assumptions used in the preparation of the contour as well as some guidelines as to how to interpret such noise contours.

Mix of Operations

The assumed level of operations correspond to a daily average of Willow Run's annual operations for the fiscal year 1974. The annual total of 182,000 operations was divided by 365 to obtain an average of 499 operations per day. This daily figure was subsequently reduced to 497 by roundoff during the process of distributing the total number of operations among the individual operations and aircraft types. In this distribution the air taxi operations were included in the twin engine aircraft category and the military operations (which typically involve C-130 aircraft) were included in the air carrier (727-100C/QC) operations. The breakdown of the mix of operations is summarized in Table IC-5. The numbers in parentheses indicate the number of operations after being weighted to account for the additional discomfort and annoyance of aircraft noise generated during night hours. For the Noise Exposure Forecast (NEF) contour used in this

* H.B. Safeer and L.J. Williams, "Airport Noise Exposure Contour User Manual," OST-ONA 72-3, Department of Transportation, Washington, D.C. (24 August 1973).

report a night operation is weighted to cause the same annoyance as 16.67 daytime operations.

TABLE IC-5

Aircraft Mix of Operations*

	Day Itinerant	Day Local	Night Itinerant	Night Local
AIR CARRIER:				
DC-8-63F	2	-	8(134)	-
727-100C/QC	4	-	10(170)	-
Subtotal	6	-	18(304)	-
GEN. AVIATION:				
Single Engine	115	209	12(200)	22(366)
Twin Engine	72	19	6(102)	3(51)
Business Jets	11	-	4(68)	-
Subtotal	198	228	22(370)	25(417)
TOTAL	204	228	40(674)	25(417)
GRAND TOTAL:				497(1523)

The distribution of aircraft operations among the different runways is as follows. Air carrier and business jet operations use either Runway 5R or 23L. 60 percent of all air carrier and business jet operations use Runway 5R while 40 percent of these operations utilize Runway 23L. The general aviation aircraft, exclusive of the business jets, use Runways 5 roughly forty-one percent of the time, Runways 23 fifty percent, Runways 9 one percent, Runways 27 six percent, Runway 14 one percent, and Runway 32 one percent. This traffic was apportioned on an equal basis between the parallel runways.

* Airport Activity Statistics, December 31, 1972, Civil Aeronautics Board/ Federal Aviation Administration.

Arrival and Departure Profiles

The general aviation aircraft, exclusive of business jet type traffic, are assumed to use standard rectangular patterns. The traffic for Runways 14, 32, 27L, 5L, 23L, and 9L are assumed to utilize left traffic patterns while the traffic for Runways 27R, 9R, and 5R use right traffic patterns. The VFR pattern altitude that was used for all runways was 1000 feet above ground level (AGL). The VFR patterns were assumed to be 4000 feet wide for single engine aircraft and 6000 feet wide for twin engine aircraft. Aircraft engaged in air taxi operations were assumed to use the same arrival and departure profiles as twin engine general aviation aircraft.

The air carrier operations were programmed to use either Runway 5R or 23L. The air carrier arrivals to Runway 23L are vectored on a heading of 180° until intercepting the Final Approach Course at 4.1 miles from the runway threshold. Air carrier departures from Runway 23L were straight out departures utilizing noise abatement climb procedures. Air carrier arrivals to Runway 5R are vectored on a heading of 030° to intercept the ILS just beyond the outer marker. Air carrier departures from Runway 5R use noise abatement climb procedures, climbing straight out for more than 4 miles then being vectored to a heading of 340°. The noise abatement climb procedures used by air carrier jet aircraft involve a steep climb (1400 feet per statute mile) at full power until reaching 1500 feet AGL followed by a shallower climb (370 feet per statute mile) at 80 percent thrust. The business jets are programmed to use a similar profile without a thrust reduction.

TABLE IC-6

NOISE COMPATIBILITY INTERPRETATION

GENERALIZED LAND USE	NEF RANGE	GENERAL LAND USE RECOMMENDATION
Residential and Educational	less than 30	Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction.
	30 to 35	New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design.
	greater than 35	New construction or development should not be undertaken.
Commercial	less than 35	Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction.
	35 to 45	New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design.
	greater than 45	New construction or development should not be undertaken unless related to airport activities or services. Conventional construction will generally be inadequate and special noise insulation features should be included in construction.
Industrial	less than 40	Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction.
	40 to 50	New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design.
	greater than 50	New construction or development should not be undertaken unless related to airport activities or services. Conventional construction will generally be inadequate and special noise insulation features should be included in construction.
Open	less than 40	Satisfactory, with little noise impact and requiring no special noise insulation requirements for new construction.
	greater than 40	Land uses involving concentrations of people (spectator sports and some recreational facilities) or of animals (livestock farming and animal breeding) should generally be avoided.

Interpretation of Willow Run Noise Contour

The noise exposure contour for Willow Run generated by SRI's noise program is shown in Figure IC-7. The noise exposure patterns clearly correspond to the patterns of approaches, departures, and other aviation activities as previously described. It is readily apparent that the jet operations are the dominent aviation noise producing activity in this area since the contour shape closely correlates with the jet flight track profiles. The tendency of the contour width to narrow or "neck down" in the vicinity of the runway is due to the fact that the noise generated by an aircraft on or near the ground tends to be attentuated more quickly than does the noise generated by an aircraft at a slightly higher altitude. Since all jet operations and more than 90 percent of the general aviation operations use the 5/23 parallel runway complex it is not surprising that certain portions of the other runways are actually outside the 30 NEF contour. Again it should be emphasized, however, that the jet operations are the dominant source of aviation noise in this environment and that the tendency to perform these operations at night distinctly aggrevates the situation when examined in terms of NEF.

The interpretation of noise exposures, or noise contours, should always be performed with care. One must take into consideration the current and projected use of the land areas affected by the noise. As shown in Table IC-6 the 30 NEF contour depicted in Figure IC-7 has generally been found to be a good boundary between areas that are acceptable for residential and educational use and areas that are not acceptable for those uses. However, it is important to remember that noise measures such as NEF, CNR, CNEL

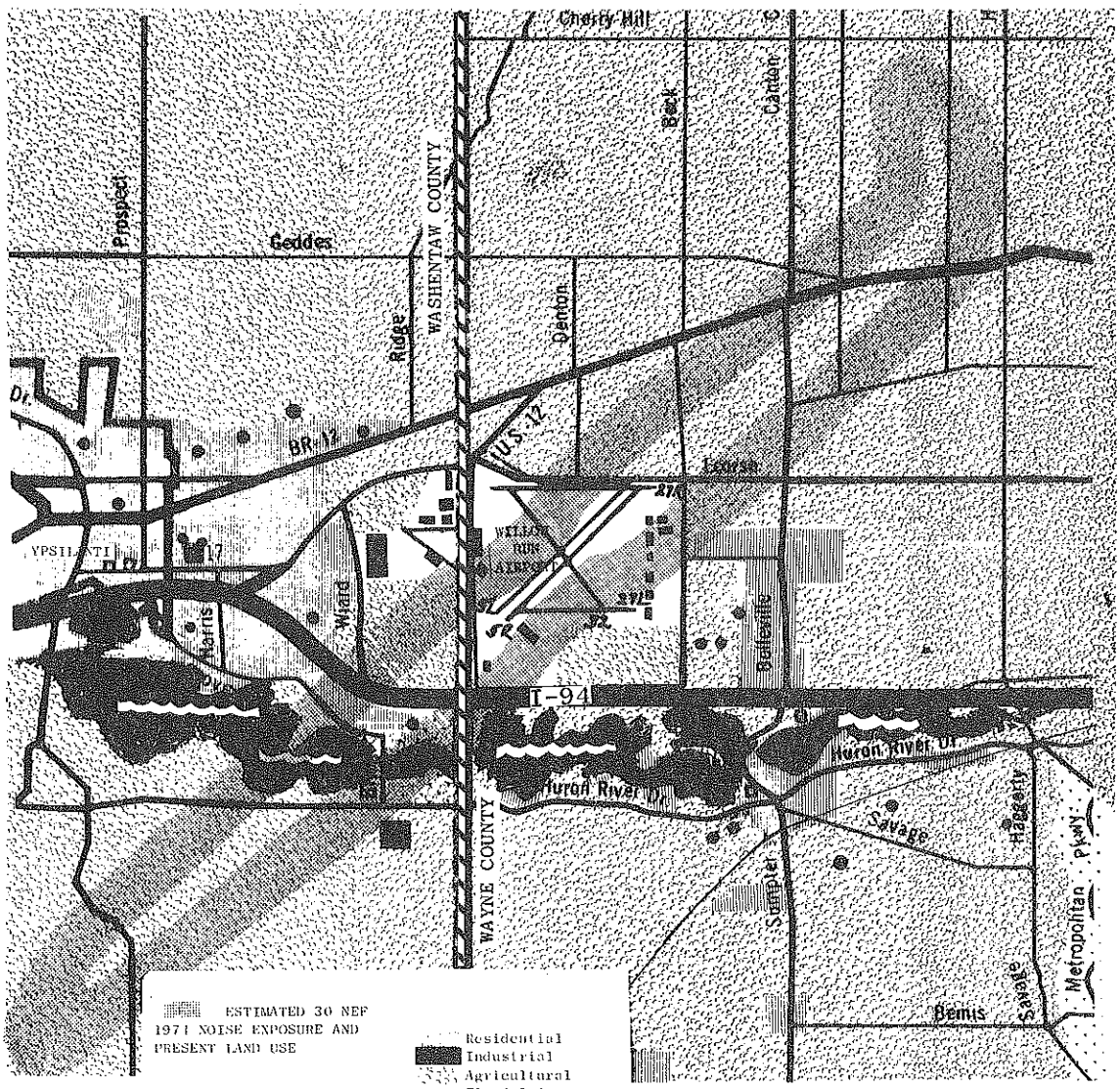


FIGURE I.C-7

EXISTING LAND USES 1970

and others are aggregate measures of the noise environment around an airport and airport and cannot completely account for all factors which may influence reactions among the individuals within that environment. One must also accept the fact that predicted contours or simulations underlying the computation of those contours are only as good as the assumptions that are made in establishing the operational data base. For example, the aircraft mix used in this analysis is different from that existing today. In either case, however, the noise exposure extends well off the airport property.

As a rule, information derived from noise contours is most appropriately used when interpreted in the manner of a guideline rather than as a precision instrument of measurement.

Air Quality Implications of Aviation Activity

Aviation activity has two basic impacts on ambient air quality: the first is the impact of the aircraft, while the second results from the use of motor vehicles by airport employees, patrons, and delivery vehicles. Accordingly, the analysis considers both aircraft and motor vehicle operations at the Willow Run Airport. As a representative data base, we have chosen to use conditions during FY 1974 at Willow Run under the assumption that future use of the airport would be comparable, if not actually less. In assessing quantitative estimates of air quality impact, we have used worst-case hourly conditions of both flight operations, ground traffic and meteorology.

Table IC-7 summarizes the number and type of aircraft operations at Willow Run for (1) the year, (2) an average day, (3) the peak day, and (4) the peak hour. In all cases the data are subdivided into day (0700-1900) and night (1900-0700) periods. Aircraft emissions are a function of the type and number of engines, and the type of aircraft. The latter affects

TABLE IC-7

Number of Aircraft Operations at Willow Run (FY1974)

Aircraft Type	Annual Average		Daily Average		Peak Day		Peak Hour	
	07-1900	19-0700	07-1900	19-0700	07-1900	19-0700	07-1900	19-0700
CARRIER:								
DC-8-63F	910	2,730	3	8	5	15	1	2
727-100C/QC	910	2,730	3	8	5	15	1	3
GENERAL:								
Single engine	118,300	12,740	324	35	660	71	103	11
Light twin	14,560	3,640	40	10	81	20	13	3
TAXI:								
DC-6	21,840	1,820	60	5	122	10	19	2
MILITARY:								
C-130	1,638	182	4	1	9	1	1	0
TOTALS	158,158	23,842	434	67	882	132	138	21

the modal performance of the aircraft (i.e., time in taxi-idle, takeoff, climbout, and approach-landing). Table IC-7 summarizes these parameters for for the six basic aircraft types that use the airport. Also summarized are the times that each aircraft type spends in each mode at Willow Run. These times are typical values provided by the U. S. Environmental Protection Agency (1973)*, except that the taxi-idle time has been reduced to be comparable to conditions at an airfield with the size and demand of Willow Run. Then, for each mode and aircraft type, the table also lists the appropriate emission rates (EPA, 1973) for carbon monoxide (CO), total hydrocarbons (THC), nitrogen oxides (NOx) and solid particlates (SP).

The aircraft data provided in Tables IC-7 and IC-8 were then used to compute worst-case day and night hourly emission rates for the airfield for each of the four pollutants. These emissions are summarized in Table IX along with the corresponding hourly ambient pollutant concentrations. The latter were computed using a simple area source dispersion model given by Holzworth (1972). In using the model it was assumed as a worst-case that all aircraft emissions are emitted at ground level. The maximum wind fetch over the airport is 5 km, while the wind speed was taken as 2 ms^{-1}. This is one-half the mean worst-season boundary layer average wind speed given by Holzworth (1972)** for nearby Flint, Michigan.

---

* U.S. Environmental Protection Agency, 1973: Compilation of Air Pollutant Emission Factors, 2nd edition. AP-42, Office of Air Quality Planning Standards, Research Triangle Park, N.C.

** Holzworth, G.C., 1972: Mixing Heights, Wind Speeds and Potential for Urban Air Pollution Throughout the Contiguous United States. AP-101 U.S. Environmental Protection Agency, Office of Air Programs, Research Triangle Park, N.C.

TABLE IC-8

Aircraft Performance/Operation Factors

Aircraft Type:	DC-8-63F	727-100C/QC	Single Engine	Twin Engine	DC-6	C-130
Aircraft Class:	Long-range Jet	Medium-range Jet	Gen. Av. Piston	Gen. Av. Piston	Piston Transport	Military Transport
No. Engines	4	3	1	2	4	4
TIME IN MODE--minutes:						
Taxi-idle	7.0	7.0	4.0	4.0	6.5	7.0
Takeoff	0.7	0.7	0.3	0.3	0.6	0.5
Climbout	2.2	2.2	5.0	5.0	5.0	2.5
Approach-Landing	4.0	4.0	6.0	6.0	4.6	4.5
MODAL EMISSION FACTORS--kg hr^{-1} $engine^{-1}$						
CARBON MONOXIDE:						
Taxi-idle	49.4	15.2	5.0	5.0		4.0
Takeoff	5.6	3.4	32.2	32.2		1.7
Climbout	6.9	4.0	29.8	29.8		1.5
Approach-Landing	18.0	8.3	11.0	11.0		1.6
Total					138.0	
TOTAL HYDROCARBONS:						
Taxi-idle	44.7	3.7	0.2	0.2		3.4
Takeoff	2.1	0.4	0.7	0.7		0.2
Climbout	2.2	0.4	0.6	0.6		0.2
Approach-Landing	3.6	0.8	0.2	0.2		0.2
Total					18.5	
NITROGEN OXIDES:						
Taxi-idle	0.7	1.3	0.0	0.0		0.6
Takeoff	67.1	89.8	0.1	0.1		12.7
Climbout	43.6	59.4	0.2	0.2		10.1
Approach-Landing	9.9	14.0	0.0	0.0		3.3
Total					0.2	
SOLID PARTICULATES:						
Taxi-idle	0.2	0.2	NA	NA		0.7
Takeoff	3.7	1.7	NA	NA		1.7
Climbout	3.9	1.2	NA	NA		1.4
Approach-Landing	3.6	0.7	NA	NA		1.4
Total					0.3	

The significance of the ambient concentrations is judged against the ambient air quality standards given in Table IC-10. Note that for the 1-hour maximum impact of 1.5 mg m^{-3} is far below the 1-hour standard of 40. In the case of hydrocarbons, note that Table IC-9 gives THC while the standard is only for reactive HC. An approximate reactive percentage is 65. Thus, HC concentrations from the airport alone (129 μg m^{-3}) appear to be close to the standard of 160 μg m^{-3}. However, the ambient standard is a three-hour average between 0600 and 0900, and the corresponding three-hour value at the airport would likely be significantly lower and therefore not jeopardize the standard. For NOx and SP, the ambient standards are 100 μg m^{-3} annual average, and 260 μg m^{-3} daily average, respectively. In both cases, airport induced concentrations are well below the standards.

A worst-case estimate of the CO impact of motor vehicles at the airport was also undertaken. The maximum number of permanent employees at the airport currently is 1662. We have assumed that during any one hour, these employees might generate as many as 1000 vehicle trips to which we add an estimated 50 truck trips. We have further assumed as a worst case that all 1050 vehicles might use a common stretch of roadway, and that their average speed would be reduced to 20 mph. The corresponding average vehicle emission rate for 1974 is 70 g/veh-mile. Then, using a simple line source dispersion model (e.g. see Turner, 1969)* we estimated the near-roadway CO concentration impact assuming a 1 ms^{-1} wind and an initial vertical Caussian dispersion coefficient of 5 m. The resulting ambient CO concentration of 7.8 mg m^{-3} is again well below the ambient standard of 40 mg m^{-3} for a 1-hour average.

* Turner, D.B., 1969: Workbook of Atmospheric Dispersion Estimates, U.S. Department of Health, Education and Welfare, Cincinnati, Ohio

TABLE IC-9

Aircraft Emissions and Air Quality Impact Summary

Aircraft Type	DC-8-63F	727-100C/QC	Single Eng. Piston	Twin Eng. Piston	DC-6	C-130	Total	
PEAK DAYTIME HOURLY EMISSIONS (kg):								
CO	26.8	6.6	236.9	59.8	5244.0	2.3	5576.0	
THC	22.2	1.5	4.6	1.2	703.0	1.7	734.2	
NOx	6.4	6.6	0.7	0.2	6.8	1.8	22.6	
SP	1.0	0.2	0.0	0.0	9.5	0.7	11.4	
PEAK DAYTIME HOURLY AMBIENT CONCENTRATIONS:								
CO	0.01	0.00	0.06	0.02	1.43	0.00	1.5	$mg\ m^{-3}$
THC	6.0	0.4	1.3	0.3	191.1	0.5	199.6	$\mu g\ m^{-3}$
NOx	1.8	1.8	0.2	0.0	1.8	0.5	6.1	$\mu g\ m^{-3}$
SP	0.3	0.0	0.0	0.0	2.6	0.2	3.1	$\mu g\ m^{-3}$
PEAK NIGHTIME HOURLY EMISSIONS (kg):								
CO	53.5	19.8	25.3	13.8	552.0	0.0	664.4	
THC	44.4	4.4	0.5	0.3	74.0	0.0	123.6	
NOx	13.0	19.8	0.0	0.0	0.7	0.0	33.5	
SP	1.9	0.7	0.0	0.0	1.0	0.0	3.6	
PEAK NIGHTIME HOURLY AMBIENT CONCENTRATIONS:								
CO	0.02	0.01	0.01	0.0	0.16	0.00	0.2	$mg\ m^{-3}$
THC	13.1	1.3	0.1	0.0	21.8	0.0	36.3	$\mu g\ m^{-3}$
NOx	3.8	5.8	0.0	0.0	0.2	0.0	9.8	$\mu g\ m^{-3}$
SP	0.6	0.2	0.0	0.0	0.3	0.0	1.1	$\mu g\ m^{-3}$

TABLE IC-10

National Ambient Air Quality Standards
For CO, NO_x, HC and SP

Carbon monoxide (Primary and secondary standards are the same)	• 10 milligrams per cubic meter (9ppm), maximum 8-hour concentration not to be exceeded more than once per year. • 40 milligrams per cubic meter (35 ppm), maximum 1-hour concentration not to be exceeded more than once per year.
Nitrogen dioxide (Primary and secondary standards are the same)	• 100 micrograms per cubic meter (0.05 ppm), annual arithmetic mean.
Hydrocarbons (non-methane) (Primary and secondary standards are the same)	• 160 micrograms per cubic meter (0.24 ppm), maximum 3-hour concentration (6-9 a.m.) not to be exceeded more than once per year. For use as a guide in devising implementation plans to meet the oxidant standards.
Particulate matter Primary standard	• 75 micrograms per cubic meter, annual geometric mean. • 260 micrograms per cubic meter, maximum 24-hour concentration not to be exceeded more than once per year.
Secondary standard	• 60 micrograms per cubic meter, annual geometric mean, as a guide to be used in assessing implementation plans to achieve the 24-hour standard. • 150 micrograms per cubic meter, maximum 24-hour concentration not to be exceeded more than once per year.

The evaluation of this environmental information can be summarized as follows:

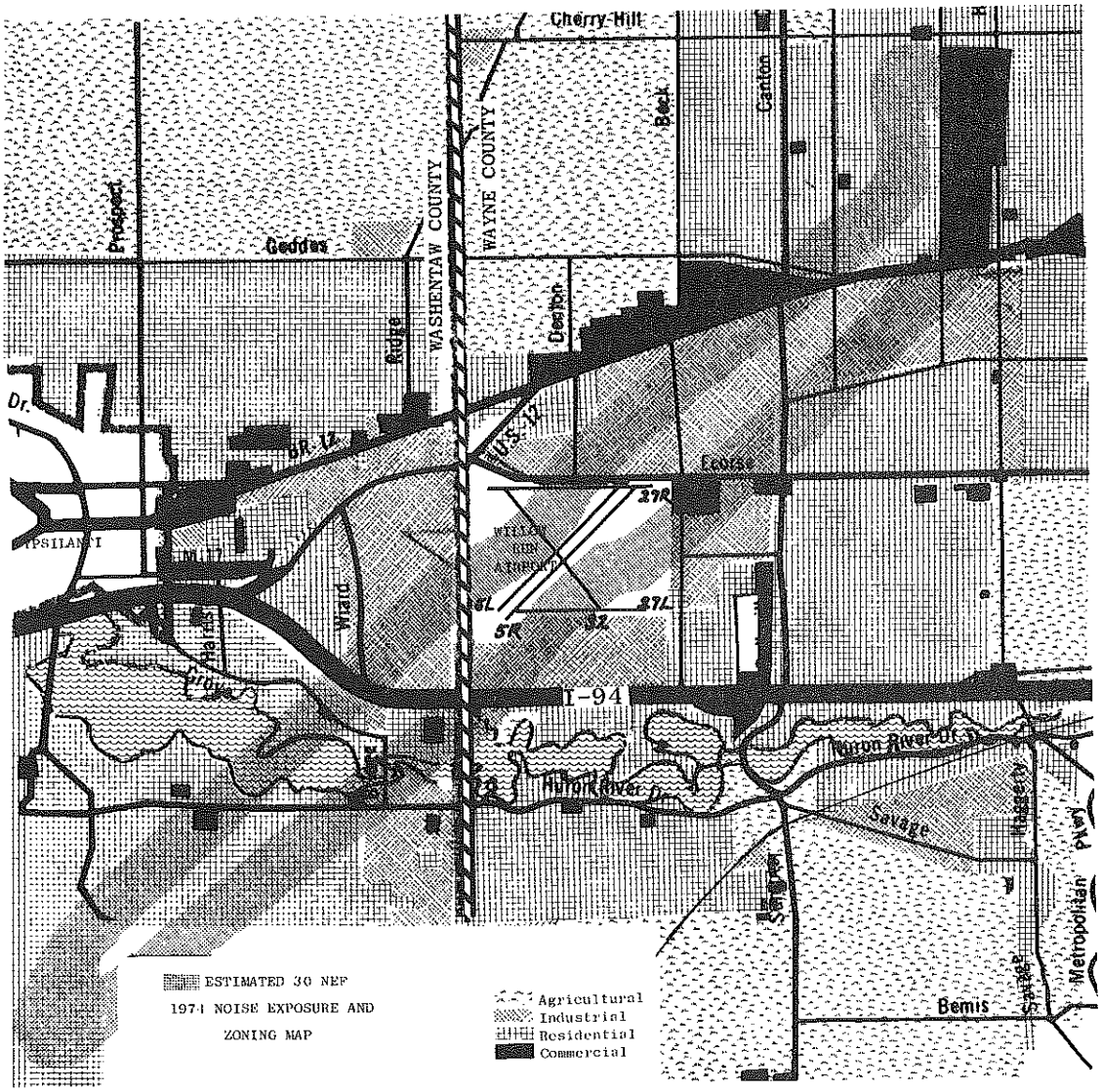
- Jet aircraft operations have a significant noise impact well beyond the airport boundries, specifically on residential land uses (see Figure 7).
- Large aircraft operations occurring during the night, even in small numbers, create major noise intrusion problems.
- The noise exposure from general aviation, without business jet traffic, is generally confined to the WRA property area. With business jet traffic, it can extend beyond.
- The zoning presently in existence would permit additional residential land uses in noise sensitive areas, primarily to the SW of the airport (see Figure 8).
- The emissions from the present aircraft and airport associated automobile traffic, does not, in itself, create an air quality problem.

F. FINANCIAL SITUATION

Exhibit IC-2 is a record of the Income Statements and Balance Sheets for the period FY 1968-69 through 1973-74. Also included is a partial statement through May 31, 1975.

Revenue

Income from research space, rental income, aircraft fuel farm and airfield revenues comprise over 90 percent of the income for WRA. This



Scale

1 2 3 4 5

mi.

FIGURE IC-8

ZONING MAP

has been consistently true during the six year reporting period, however, the importance of individual sources has shifted as can be seen in Table IC-11.

TABLE IC-11

Revenue Sources

	Proportion of the Total Revenue (%)		
	FY 1968-69	FY 1973-74	Δ
Income from research space	24.4	3.5	-20.9
Other Rental Income	53.2	62.3	+ 9.1
Aircraft Fuel Farm Revenue	3.2	17.7	+14.5
Airfield Revenue	14.0	13.9	- 0.1
Total	94.8%	97.4%	

It is also apparent that during this period sharp fluctuations in revenue have occurred around a weak growth trend in gross revenues.

TABLE IC-12

Revenue Trends

Fiscal Year	Gross Revenue	Annual Change (%)
1968-69	$1,472,984	
		27.8
1969-70	1,882,303	
		-12.9
1970-71	1,638,361	
		-22.2
1971-72	1,275,043	
		+38.4
1972-73	1,765,045	
		+11.9
1973-74	1,974,691	

Average annual rate of growth of gross revenue = 3.17*.

Expenses

Principal expense items in FY 1973-74 are maintenance and minor improvements (45%) and heat and electricity (25%). The variability in

* This revenue growth might be compared, for example, with the likely growth in the cost of operating and maintaining the facility. As an example, the consumer price index has grown at a rate of 7.8% during this period.

maintenance expenses reflected in Exhibit B seems to corrolate with the general facility conditions reported in Exhibit A. This implies that maintenance expense, considering the age and condition of the facilities, can be a serious economic problem in the future if revenues are not adequate.

Balance Sheet

The assets column of Exhibit B indicates a nearly static nature of WRA Investments-Revenues. With the condition of the major facilities described in Exhibit A and with deferred major maintenance/replacement expenses estimated at over $8 million over the next 10 years*, these reserves should be at a level well above the $590,000 shown for 1973-74. The 2000 acre WRA property, with 30 year old facilities, is breaking even on its cost of operation allowing some revenues for modest maintenance or maintenance reserve. Significant revenue reductions or a major replacement requirement will therefore require substantial subsidization by the owner in order to assure continued operation.

G. POSSIBLE CANDIDATE ROLES

The findings and implications of Task IB indicated:

- DTW will have sufficient capacity to accommodate the commercial air passenger and scheduled air cargo demand projected for the region under forecasted conditions. Therefore, there is no need for WRA to be developed as an air carrier airport.
- General aviation growth in the region will be substantial and diversion of some general aviation activity from DTW must be accommodated at other locations in the SE Michigan area in the future.

* Memo from the Willow Run Airport Manager (6-20-73).

- The automobile manufacturing industry has no foreseeable need for expansion of WRA's existing non-scheduled cargo operation, and the existing operation could be provided at one of several other airports, including DTW, if adequate facilities were available.
- Supplemental passenger air carrier operations are of little current significance and this is not expected to change.

Based on these findings and the work prepared in Task IC, the following candidate roles for WRA have been developed, together with implications of each alternative.

Status Quo--Contract Air Cargo and General Aviation Operations

For this alternative, the characteristics of air cargo would be similar to today's activity--air taxi and contract cargo carriers, with a highly variable market and season, various kinds of older aircraft, and some jets. General aviation, on the other hand, should increase either moderately as suggested by todays levels of operation and available facilities, or to a more robust level, as suggested by the Task IB forecast (257,000 itinerant aviation operations by 1995). Implications of this alternative include:

- Community impact--airport employment would increase slightly primarily due to general aviation growth. Residential growth would be restricted in the noise impacted areas. The possibility of future industrial growth would be maintained in the areas zoned for industry adjacent to the airport.
- Environmental impact--noise would continue to be a major problem,

and would affect the residential areas to the SW. This situation is caused by large aircraft flying night cargo operations.

- Financial impact--with or without general aviation growth, the airport would need to be subsidized by the owner. This cost is estimated to average $1 million per year* and does not include reconstruction of existing cargo facilities (see Exhibit A).
- Ownership considerations--therefore, these should include whether candidate owners are willing and able to subsidize operations to offset the low revenue periods as well as subsidize the major replacement and reconstruction of facilities which will be required.

General Aviation Operations Only (non cargo)

This alternative role would imply discouragement of air cargo operations at WRA and transfer of that activity to DTW or some other airport in the Southeastern Michigan area. Implications of this alternative include:

- Community impact--there would be a decrease in employment at the airport of about 600. Residential growth restriction could be relieved in a substantial portion of the area now affected adversely by noise. With WRA cargo removed, there could possibly be a surplus of adjacent land zoned industrial. A substantial reduction in land area to about 500-1000 acres would be adequate for general aviation operations. The ability to sell surplus property at prices recently paid for industrial land (reportedly $20-40,000 per acre) is questionable. Other adjacent property previously planned for cargo

* Memo from Willow Run Airport manager (6-20-73).

and distribution development must now vie for new uses and some WRA property contains structures which must be removed, making it less attractive than clear land.

- Environmental impact--noise problems would be substantially reduced particularly beyond the airport property. The number of business jets would be the only significant residual noise problem and this would be substantially less than with cargo jet operations. Increased night cargo operations would cause an adverse impact at whatever airport received WRA's current cargo role.

- Financial impact--the sizeable revenues from air cargo operations would be eliminated, but many of the major, currently deferred liabilities would also be reduced. Experience suggests that with a medium to large general aviation airport, one with 200 or more based aircraft and primarily dependent upon revenue from general aviation sources, revenue can be expected to meet operating expenses, but not capital costs. This could be significant even though, as a general aviation reliever airport for DTW, federal funds could be sought to pay for a major share of new development costs. An important factor would be the estimated "realizeable value" of the surplused WRA land. This land could revert to the federal government or the proceeds could accrue to the owner for development of the remaining airport property. In any case, the closer general aviation comes to the airport's capacity, the more self-sustaining it is likely to be financially.

- Ownership considerations--these could be more limited depending on the financial ability and also the interest in operating a

narrowly defined general aviation facility.

Phase Out Willow Run Airport

This would require transfer of the air cargo activity to other airport facilities. Diversion of the general aviation activity however would create a different problem. The forecast growth would require the expansion of other existing and planned general aviation airports in the ares. Because WRA accommodates so large a proportion of SE Michigan general aviation activity, its replacement may require several separate new facilities. It is SRI's judgment that neither the state nor the federal government would permit the closing of WRA until adequate alternate were provided to serve projected general aviation activity.

- Community impact--possible uses of the land include partial retention for future university use, expansion of existing industrial zoning and possible industrial development, expansion of residential and commercial zoning, and inexpensive space rentals of existing structures.
- Environmental impact--this would depend upon new uses.
- Financial impact--aspects of closing the airport could provide the federal government with a one time cash payment of some significance.

An Additional Consideration

Under any alternative except status quo, there is likely to be substantial surplus real estate created by a future role. The original premise of developing a large cargo facility at WRA has virtually no active supporters and is not suggested by current events or forecastable develop-

ments. The FAA, however, has shown interest in a strategy of land banking for future airport needs. In one sense WRA has, for the past few years since the departure of scheduled passenger operations, represented the banking of land suitable for future airport development.

While no current analysis exists which supports the future economic development of a large cargo facility (the only organization promoting a new generation of larger all cargo aircraft does not see WRA as a critical location), there is some, though small, probability of such a need. Where the automobile industry recovers from its current recession, and if the economics of air cargo distribution versus surface distribution were to improve, the economic health of the State and surrounding areas could be beneficially affected by the development of such a facility. An alternative site is always possible, perhaps even more desirable than WRA. WRA, on the other hand, exists. Since creation of a new airport is becoming an ever increasingly difficult accomplishment, some consideration should be given to the possibility that the federal government might decide, independently, to bank the surplus land at WRA--as a contingency.

In this event, the economic and financial implications of each alternative role would be affected, and, at the same time presumably, the willingness and ability of potential interested parties to assume the financial obligation to carry out development of the intended role. Obviously, the capability to finance the intended role must be a major consideration in the determination of the future owner/operator

NEXT STEPS

The information contained in Task I of SRI's study was developed in order to permit local deliberation to take place on the determination of the future role of Willow Run Airport. The Willow Run Task Force, the public and the Sponsor's Supervising Committee (SSC) was involved in this process. Following this determination, SRI commenced Task II of the study, determination of the future owner/operator for Willow Run Airport.

EXHIBIT IC-1

SUPPORT FOR STUDY DESIGN OF WILLOW RUN AIRPORT

Prepared for

STANFORD RESEARCH INSTITUTE
MENLO PARK, CALIFORNIA

Prepared by

RALPH H. BURKE ASSOCIATES
Engineers-Architects-Planners
Chicago - Park Ridge, Illinois

June, 1975

TABLE OF CONTENTS

		Page
I.	INTRODUCTION.	I-1
II.	EXISTING FACILITIES	II-1
	A. General	
	B. Runways, Taxiways and Aprons	
	C. Buildings, Hangars and Other Facilities	
	D. Cargo Facilities at Willow Run	
	E. Cargo Facilities at Detroit Metro	
III.	RUNWAY CAPACITY	III-1
	A. Existing Capacity	
	B. Future Capacity	
	C. Airspace	
	D. Regional Capacity	
IV.	LEASEHOLDS.	IV-1

List of Appendices

Attachment A - List of Persons Interviewed for Study

Attachment B - List of Documents Reviewed for Study

List of Tables

		Following Page
I-1	Detroit Willow Run Airport 1973 and 1974 Operations Summary	I-1
I-2	Detroit Willow Run Airport 1973 Aircraft Operations Summary	I-1
I-3	Historical Aircraft Operations at Willow Run Airport	I-2
I-4	Comparison of 1973 and 1974 Scheduled Air Cargo Tonnage Handled at Detroit Metropolitan Wayne County Airport	I-2
I-5	Comparison of 1973 and 1974 Aircraft Operations at Detroit Metropolitan Wayne County Airport	I-2
I-6	Comparison of 1973 and 1974 Passenger Traffic Statistics at Detroit Metropolitan Wayne County Airport	I-2

Table of Contents (Continued)

I-7	Comparison of 1973 and 1974 Tonnage of Enplaned and Deplaned Air Mail, Air Express and Air Freight at Detroit Metropolitan Wayne County Airport	I-2
IV-1	Major Leases at Willow Run Airport	IV-1

List of Figures

I-1	Aircraft Operations at Willow Run Airport	I-2
II-1	Willow Run Airport FAA Form 5010-1. Preliminary Update	II-1
II-2	Airport Layout Willow Run Airport	II-1
II-3	Airport Layout Detroit Metro Airport	II-5

SUPPORT FOR STUDY DESIGN OF WILLOW RUN AIRPORT

I. INTRODUCTION

The material and data presented in this report were collected by means of personal interviews with the Airport Managers at Willow Run and Detroit Metro, the Assistant Tower Chief at Willow Run, and the Air Traffic Control Operations personnel at Detroit Metro. A complete list of interviewed personnel is presented in Attachment A. A personal inspection of the landholdings and existing facilities at Willow Run Airport and at Detroit Metro was conducted. In addition a number of reports and documents relating to Willow Run Airport were reviewed. For a list of the documents see Attachment B.

Willow Run is unique among United States airports in that it is primarily a cargo handling airport with a higher frequency of CAB certificated cargo carriers than any other airport in the country. The cargo loading activity is a nighttime activity with the peak between 2 AM and 6 AM and, thus, does not conflict with the general aviation operations at the Airport. According to the tower, existing peak aircraft operations are about 100-120 operations per hour.

The cargo is almost exclusively automobile industry related, consisting of "crisis" shipments to automobile assembly plants which require quantities of parts to maintain their assembly line operations during production emergencies. Table I-1 and I-2 contain a summary of aircraft operations for 1973 and 1974.

In 1974 Willow Run enplaned approximately 107,000 tons of freight, and as shown in Table I-7, Detroit Metro enplaned a total of 95,000 tons of combined domestic and foreign freight, of which 81,000 tons were domestic.

In 1973 Willow Run enplaned 117,000 tons. Because the cargo is automobile related, the amount of cargo handled fluctuates with changes in automotive production. November 1974 was the all-time peak month for enplaned cargo tonnage, precipitously followed by the all-time low in December 1974, corresponding to major layoffs in the automotive industry.

Willow Run Airport was originally built by the Ford Motor Company in 1941 to manufacture the B-24 Liberator Bomber. After World War II, in 1946, the University of Michigan acquired title to the Airport for use as a research facility. The scheduled air carrier airlines moved their operations from Detroit City Airport to Willow Run in 1947. The airlines operated at Willow Run until they were phased out starting in 1964 and ending in June, 1966 when all of their operations were then transferred to Detroit Metro Airport.

Figure I-1 and Table I-3 show the annual aircraft operations at Willow Run Airport from 1950 to 1974.

Tables I-4 through I-7 contain a comparison of 1973 and 1974 operating statistics at Detroit Metro Airport.

In spite of the shift of all airline traffic to Detroit Metro, completed in June of 1966, air traffic operations at Willow Run have increased since 1966.

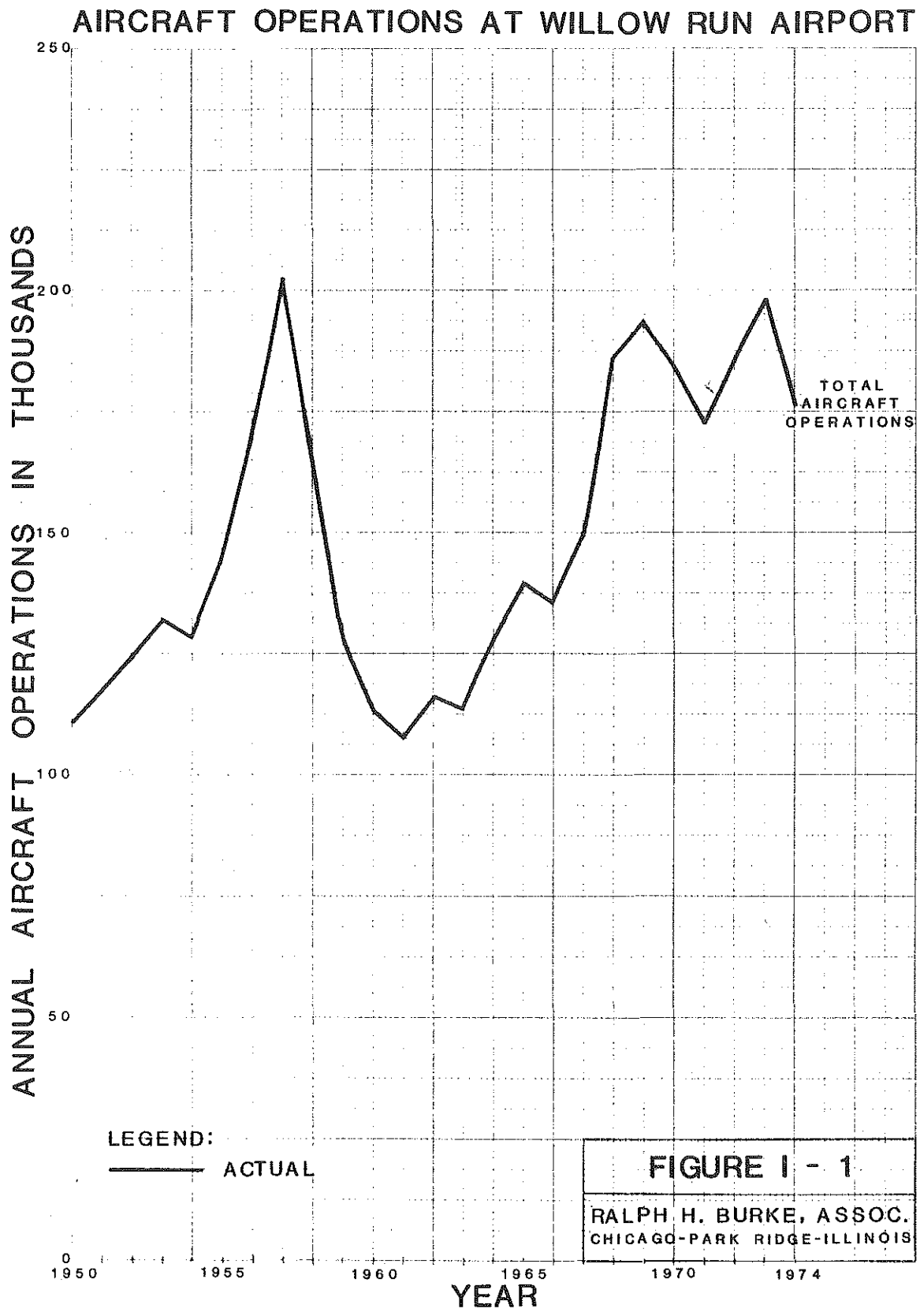

AIRCRAFT OPERATIONS AT WILLOW RUN AIRPORT
ANNUAL AIRCRAFT OPERATIONS IN THOUSANDS
250
200
150
100
50
0
1950
1955
1960
1965
1970
1974
YEAR
TOTAL AIRCRAFT OPERATIONS
LEGEND:
ACTUAL
FIGURE I - 1
RALPH H. BURKE, ASSOC.
CHICAGO-PARK RIDGE-ILLINOIS

TABLE I-1

DETROIT WILLOW RUN AIRPORT

1973 Operations Summary

Month	Aircraft Operations	Fuel Dispensed (Gallon)	Cargo Moved (lbs.)
Jan.	15,805	986,959	9,064,256
Feb.	14,457	826,440	7,570,312
March	14,250	961,599	10,050,315
April	17,355	1,000,588	11,731,883
May	16,851	1,110,805	15,338,603
June	19,949	1,394,233	24,828,745
July	18,795	1,382,757	25,546,348
August	16,830	1,482,935	28,522,116
Sept.	17,877	1,416,645	27,274,388
Oct.	16,397	1,361,184	26,134,185
Nov.	16,793	1,351,509	28,756,898
Dec.	12,261	847,821	19,864,119
TOTAL	197,620	14,123,475 Gal.	234,682,168 #

1974 Operations Summary

TOTAL	176,373	N.A.	214,000,000*

* Approximate based on 107,000 tons of cargo moved.

TABLE I-2

DETROIT WILLOW RUN AIRPORT

1973 Aircraft Operation Summary

Month	Air Carrier	Air Taxi	General Aviation	Military	Total Operations	Instrument Operations
JANUARY	370	1205	14178	52	15805	2607
FEBUARY	258	1038	13109	52	14457	2362
MARCH	342	1253	12581	74	14250	3071
APRIL	273	1350	15655	77	17355	2976
MAY	391	1780	14602	78	16851	3480
JUNE	1142	2095	16648	64	19949	4353
JULY	976	2158	15598	63	18795	4289
AUGUST	1103	2481	13200	46	16830	4978
SEPTEMBER	950	2866	13978	83	17877	4470
OCTOBER	855	3060	12452	30	16397	4743
NOVEMBER	939	3435	12314	105	16793	4585
DECEMBER	541	2130	9493	97	12261	3046
TOTAL	8,140	24,851	163,808	821	197,620	44,960

AirTaxi count includes 121 operators such as Zantop, Shamrock, Ortner, Rosenbalm, etc.
Air Carrier Count includes ONLY Supplemental Carriers such as Saturn, Ona., Southern, McCulloch

TABLE I-3

HISTORICAL AIRCRAFT OPERATIONS AT WILLOW RUN AIRPORT

Calendar Year	Total Aircraft Operations	Annual Percent Change
1950	111,336	-
1951	117,151	5.22%
1952	124,717	6.46
1953	132,406	6.17
1954	128,600	-2.87
1955	144,690	12.51
1956	169,174	16.92
1957	202,520	19.71
1958	166,118	-17.97
1959	128,560	-22.61
1960	113,274	-11.89
1961	107,411	- 5.18
1962	116,090	8.08
1963	113,887	- 1.90
1964 1)	127,675	12.11
1965	139,641	9.37
1966	136,300	-2.39
1967	149,255	9.50
1968	185,794	24.48
1969	193,390	4.09
1970	184,646	-4.52
1971	173,528	-6.02
1972	185,502	6.90
1973	197,600	6.52
1974	176,373	-10.74

Source: Monthly reports from Airport Management.

1) Scheduled airline service transferred to Detroit Metro between 1964 and 1966. Completed June, 1966.

TABLE I-4

COMPARISON OF 1973 AND 1974 SCHEDULED AIR CARGO TONNAGE HANDLED AT DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Calendar Year	Mail Tonnage	Express Tonnage	Freight Tonnage	Total Air Cargo Tonnage
1973	24,679	17,102	206,748	248,529
1974	36,243	12,255*	185,111	233,610

Source: Monthly Air Cargo Reports from Airport Management.

* Delta Airlines discontinued Express as of July 1.
North Central discontinued service for months of July and August.

TABLE I-5

COMPARISON OF 1973 AND 1974 AIRCRAFT OPERATIONS
AT DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Calendar Year	Scheduled		Military (Local & Itinerant)	Civil		Total Civil Operations	Total Aircraft Operations
	Air Carrier	Air Taxi		Local	Itinerant		
1973	186,749	15,042	284	970	75,508	76,478	278,553
1974	161,152	14,258	165	84	70,627	70,711	246,286

Source: FAA Monthly Summary of Aircraft Operations.

TABLE I-6

COMPARISON OF 1973 AND 1974 PASSENGER TRAFFIC STATISTICS AT DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Calendar Year	Enplaned Passengers		Total Enplaned Passengers	Deplaned Passengers		Total Deplaned Passengers	Total Passenger Movements
	Scheduled Airlines	Air Charter		Scheduled Airlines	Air Charter		
1973	3,967,932	97,028	4,064,960	4,026,668	101,153	4,127,821	8,192,781
1974	3,830,274	71,941	3,902,215	3,880,435	81,205	3,961,640	7,863,855

Source: Monthly passenger traffic statistics from Airport Management.

TABLE I-7

COMPARISON OF 1973 AND 1974 TONNAGE OF ENPLANED AND DEPLANED
AIR MAIL, AIR EXPRESS AND AIR FREIGHT AT
DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Calendar Year	Enplaned (Tons)			Subtotal Enplaned	Deplaned (Tons)			Subtotal Deplaned	Total Cargo Handled
	Mail	Express	Freight		Mail	Express	Freight		
1973	12,749	8,522	112,691	133,963	11,929	8,580	94,056	114,566	248,529
1974	18,389	6,931*	95,241	120,561	17,853	5,324*	89,869	113,048	233,610

Source: Monthly Air Cargo Reports from Airport Management

* Delta Airlines discontinued Express as of July 1
North Central discontinued service for months of July and August.

II. EXISTING FACILITIES

A. General

Figure II-1 shows the preliminary FAA Form 5010 revised during a field inspection on May 28, 1975 by the Michigan Aeronautics Commission performing under a special contract with the FAA. The approach slopes were modified to reflect the actual approach slopes at the Airport.

Discussions with the Airport Manager revealed that the existing gross weight pavement strengths of Runway 9R-27L and 14-32 are greater than indicated by the revised 5010 form. Both runways have the following pavement strengths:

Single Wheel Landing Gear - 55,000 lbs.

Dual Wheel Landing Gear - 70,000 lbs.

Dual Tandem Landing Gear - 120,000 lbs.

B. Runways, Taxiways and Aprons

Figure II-2 shows the existing airport layout. The Airport consists of 2,200 acres of land with one set of parallel east-west runways, 9L-27R and 9R-27L, one set of parallel NE-SW runways, 5R-23L and 5L-23R, and a SE-NW Runway, 14-32. The approaches to all the runways are generally excellent ranging from 40 to 1 to 50 to 1 obstruction free approach paths.

Following is a listing of the existing runways by length and width:

Runway	Length	Width
5R-23L	7,526'	160'
5L-23R	6,656'	160'
9R-27L	6,511'	160'
9L-27R	7,294'	160'
14-32	6,911'	160'
18-36*		

* Not an active runway, used as a taxiway.

28SW

FORM APPROVED BUDGET [illegible] NO. [illegible]

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FAA AIRPORT MASTER RECORD

FOREIGN EXCHANGE [illegible] 483-[illegible] 31 [illegible]
FSS ON AIRPORT
FOR OF CHANGES PRECEDED BY A [illegible] • DATE OF REPORT 10/13/72 [illegible] NUMBER
5 RGN & AREA GL LAN 5750
6 ARPT OPEN TO PUBLIC Y — LOCATION ID YIP
DETROIT — STATE MI — DIST & DIR TO ARPT FM ASSOC CITY
22 NAVIGATIONAL AGREEMENTS

10 OFFICIAL AIRPORT NAME	WILLOW RUN	23 ARPT LAT	42 14 14N
24 LONG	83 31 47W SRVD	25 ARP Y	26 ELEVATION 716S
11 ASSOCIATED CITY	YPSILANTI	12 STATE MI	27 HUB TYPE L
28 MAGNETIC VARIATION	02 34E	29 NORMAL MAX. TEMP.	85
13 COUNTY	WASHTENAW & WAYNE	14 STATE MI	30 RESERVED
31 SMSA	049	32 AERONAUTICAL CHART	DETROIT
15 OWNER NAME	UNIVERSITY OF MICHIGAN	16 ADDRESS	ANN ARBOR, MICHIGAN 4810[illegible]
17 OWNERSHIP CLASS	PU		
18 MANAGER NAME	R. E. PANGBORN	19 ADDRESS	WILLOW RUN AIRPORT, YPSILANTI, MICHIGAN 48197
20 PHONE	313-482-~~[illegible]~~ 2943		

33 RUNWAY	34 LENGTH	35 WIDTH	36 SURFACE COMPOSITION	37 S	38 D	39 DT	40 % EFF GRADIENT	41 % WIND COVERAGE	42 MARKING TYPE-CONDITION	43 CL LGTS	44 TYPE	45 INTST
09R/27L	6511	160	ASPH-CONC	35	45	90	.16	96.9	NPI-G	N	L802	M
14/32	6511	160	ASPH-CONC	35	45	90	0.14	84.7	NPI-G	N	L802	M
05L/23R	6050	160	~~ASPH~~-CONC	35	45	90	0.14	89.2	NPI-G	N	L802	M
05R/23L	7526	160	ASPH-CONC	55	70	120	0.17	89.2	PIR-G	N	L819	H
09L/27R	7294	150	ASPH-CONC	55	70	120	0.22	91.0	NPI-G	N	L802	M

71 STANDARD TIME ZONE +05 — 72 DAYLIGHT SAVING TIME ~~N~~ Y
73 RNWY LGT OPER SKED DUSK-DAWN
74 AIRPORT ATTENDANCE SCHEDULE: MONTHS ALL — DAYS ALL — HOURS ALL
75 ARPT BEACON LGT C-G
76 OPERATING SCHEDULE DUSK-DAWN
77 LANDING FEES FOR NON-COMMERCIAL USERS ~~Y~~ N — 81 TAXIWAY LIGHTS Y
78 STATE LICENSING CLASSIFICATION ~~[illegible]~~ Y — 82 WIND INDICATOR N
79 CUSTOMS AIRPORT OF ENTRY N — 83 SEGMENTED CIRCLE N
80 CUSTOMS LANDING RIGHTS AIRPORT N — 84 AC 150/5210-6 INDEX 5
85 FIRE & RESCUE EQPMT AS SUGGESTED BY AC 150/5210-6 Y — IF NOT:
86 1500 GAL. WATER & 14000 LBS. CHEMICAL IMMEDIATELY AVBL.
87 EMERG MED FACILITIES AS SUGGESTED BY AC150/5210-2 Y

RUNWAY END	47 TOUCHDOWN ZONE / CENTERLINE	47A HIGH SPEED EXIT	48 APPROACH	49 TD ZONE	50 REIL	51 APCH SLOPE INDCR	52 RVR	53 RVV	54 CTLG OBSTRUCTION (lighted/unlighted)	55 DIST FM THRESH	56 APCH RATIO	57 CLOSE-IN OBSTN	58 RGT TFC	59 BLAST FENCE	60 TYPE ARRESTING DEVICE (Far end)
09R		N		N	N	NONE	N	N	CHIMNEY	1400	~~4650~~-1	N	N	N	
27L		N		N	N	NONE	N	N	TREE	3240	~~4850~~-1	N	N	N	
14		N		N	N	NONE	N	N	OBST LGTS	900	14-1	N	N	N	
32		N		N	N	NONE	N	N	TREES	1300	40-1	N	N	N	
05L		N		N	N	NONE	N	N	TREES	1200	~~4042~~-1	N	N	N	
23R		N		N	N	NONE	N	N	TREE	1700	~~4850~~-1	N	N	N	
05R		N	ALSAF	N	N	NONE	1	N	FEL VAULT-L	600	49-1	N	N	N	
23L		N		N	Y	NONE	N	N	TREES	2600	~~4650~~-1	N	N	N	
09L		N		N	N	NONE	N	N	POLE-L	555	8-1	N	N	N	
27R		N		N	N	NONE	N	N	TREE	3350	~~4025~~-1	N	N	N	

88 SNOW REMOVAL PLAN	*Y
89 OPERATIONS AREA SWEPT	
90 WRECKAGE REMOVAL PLAN	Y
91 EMERG READINESS PLAN	N
92 DESIGNATED CD SHELTER	N
93 HELIPAD ON AIRPORT	N
94 WEATHER STN ON ARPT	N
95 ADMIN/TRML BLDG	*Y
96 ARPT INFO DESK	N
97 CARGO HANDLING	
98 NO. T-TYPE HANGARS	0
99 NO. CONVENTIONAL HNGRS	9
ENGINE OIL: 100 PISTON	Y
ENGINE OIL: 101 TURBINE	Y
REPAIRS AIRFRAME: 102 MAJOR Y	103 MINOR Y
REPAIRS POWER PLANT: 104 MAJOR Y	105 MINOR Y
OXYGEN: 106 HI PRESSURE	Y
OXYGEN: 107 LO PRESSURE	Y
OXYGEN REPL BOTTLES: 108 HI PRESSURE	Y
OXYGEN REPL BOTTLES: 109 LO PRESSURE	Y
110 AUX POWER FOR OPRNL FAC	
111 ARPT AIRSPACE ANALYSIS DTRMN	NO OBJECTION

112 NUMBER OF FIXED BASE OPERATORS 2
113 TYPES OF FIXED BASE OPERATORS: CHRTR/INSTRN/SALE/AIRLINE SERVICING
114 FUEL AVAILABLE FOR PUBLIC SALE

TYPE	UNDERGROUND (100 GAL)	ABOVE GROUND (100 GAL)
F-12	~~40~~ 2350	
F-15		
F-18	~~1000~~ 1300	
F-22	~~1150~~ 200	
F-30		
F-34	~~235~~	
F-40		
F-45		

115 MILITARY JOINT USE AGREEMENT N
116 MILITARY LANDING RIGHTS Y
117 BASED MILITARY & TYPE OPERATIONS: NONE
118 TYPE & NO. MILITARY ACFT: NONE

RUNWAY END	61 THRESHOLD DISPLACED	62 LANDING LENGTH DAY	63 LANDING LENGTH NIGHT	64 TAKEOFF LENGTH DAY	65 TAKEOFF LENGTH NIGHT	66 PART 121 EFCTV LENGTH LANDING	67 PART 121 EFCTV LENGTH TAKEOFF	68 THRESHOLD LATITUDE	69 THRESHOLD LONGITUDE	70 ELEVATION
09R										
27L										
14										
32										
05L										
23R										
05R										
23L										
09L										
27R										

72,000 SQ. FT. — 2 — 7 — 3

137 RE E-054 RWY 05R THR AT 3100 F-APCH RATIO 51-1. ~~RE E 077 NO LNDG FEE FOR PVT ACFT UNDER 4000 LBS.~~ RE E-085 1 FIRE TRUCK 1500 GAL H2O 750 GPM. 1 TRUCK 800 LB POWDER ~~RAMP TRUCK 700 LB POWDER.~~ FIRE STN ON ARPT. RE E-088 (2) SNOW GOS. (7) ~~DUMP~~ PLOWS. (3) SAND SPREADERS, ~~& 1 SNOW BLOWER.~~ RE E-095 (~~[illegible]~~) ~~53 FT STEEL & BRICK AIRFREIGHT & GA. RE E 134 ALT FOR DET METRO WAYNE CTY & DET CITY ARPTS. BASED AIRFREIGHT UNIVERSAL AIRLINES 707, DC-3 ACFT.~~ 04. RWY 5L/23R CLSD TO JETS, PROP JETS AND ACFT OVER 12500LBS.

CERT'D E-085 1-450 LB POWDER/100 GAL LGT. WATER

RE E-078 MICH CLASS A.
RE E-134 CERT FAR 139-1 06/01/73. CFR INDEX A.

E-052 1=APPROACH. 2=APPROACH & ROLL OUT. 3=APPROACH, MID-POINT & ROLL OUT.

[signature]

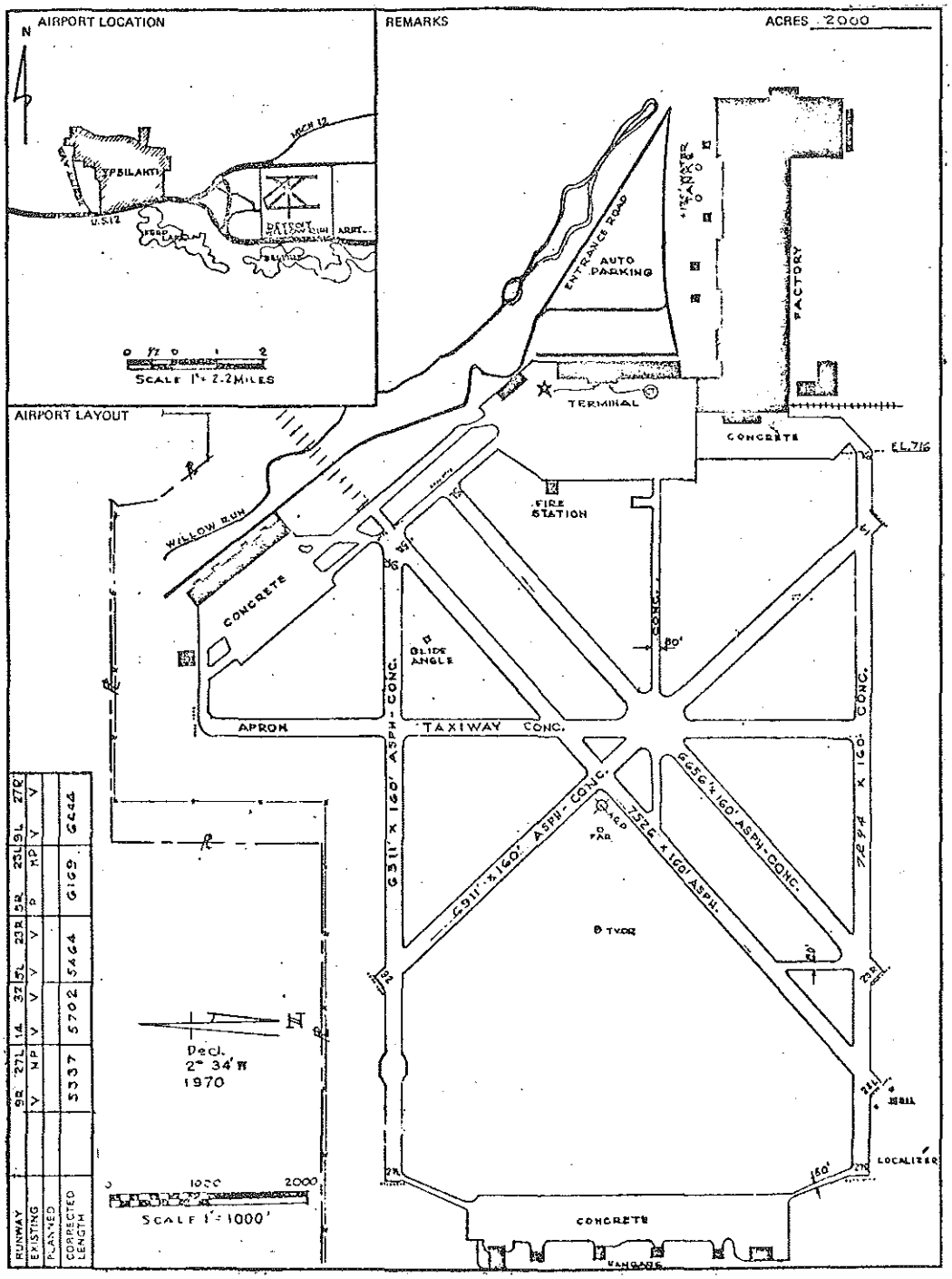
119 ESTD. TOTAL ANNUAL MILITARY OPERATIONS	826 ~~760~~	
120 ESTIMATED ANNUAL AIR TAXI OPERATIONS	24858 ~~0~~	
ESTD. GENERAL AVIATION OPERATIONS		
121 ANNUAL LOCAL	122 ANNUAL ITNRNT	123 TOT. PEAK MO.
~~107626~~ 121,376	~~[illegible]~~ 81742	~~18060~~ 22138

BASED GEN. AVIATION ACFT		SEAPLANE BASE DATA
124 SINGLE ENG. 4 PLACE & OVER	41 ~~848~~	129 SHELTERED
125 SINGLE ENG. UNDER 4 PLACE	31 ~~279~~	130 MOORING BUOYS
126 MULTI ENG	120 ~~101~~	131 DOCKS N
127 HELICOPTER	00	132 RAMP
128 SEAPLANE	2 ~~30~~	133 BEACHING GEAR
TOTAL	176	

134 AIRPORT SERVED BY SCHEDULED AIR CARRIER ~~Y~~ N
135 LATEST INSP OR INFO RCD. ~~[illegible]~~ 05/28/75 — 136 INSP ~~Y~~

FAA Form 5010-1 (7-70) — "•" = SEE REMARKS IN ITEM #137. — PT IN #22 & #27 "Y" = YES "N" = NO. — ABBREVIATIONS ARE LISTED IN THE CONTRACTIONS HANDBOOK, ORDER 7340.1B

WILLOW RUN AIRPORT	FAA FORM 5010-1 PRELIMINARY UPDATE	RALPH H. BURKE, ASSOC. CHICAGO-PARK RIDGE-ILLINOIS	FIGURE II - 1



AIRPORT LAYOUT - WILLOW RUN AIRPORT

RALPH H. BURKE, ASSOC.	FIGURE
CHICAGO-PARK RIDGE-ILLINOIS	II - 2

The pavement at Willow Run Airport, runways, taxiways and aprons, can best be described as "tired". All of the pavement except the east ramp and an extension to Runway 9R was originally constructed of unreinforced concrete with an 8"-6"-8" thickened edge section. The east ramp and Runway 9R extension were constructed of non-reinforced 10"-7"-10" thickened edge section.

The runways and taxiways were originally built in 1942 and 1943. They were designed for the B-24 aircraft with single wheels having a gross weight of 52,000 pounds. In 1952 the pavement was rated by the Civil Aviation Administration (CAA) at 60,000 pounds for single wheel landing gear aircraft and 80,000 lbs. for dual wheel landing gear aircraft. The airfield pavement is not strong enough for the aircraft which have been using the Airport. DC-8-61 series aircraft having gross weight in excess of 300,000 pounds have used the Airport. The pavement has consistently experienced overloads of from 50-100% and, as a result, there is much evidence of serious structural cracking.

The existing airport layout is lacking in taxiways with the result that the present runways must be used as taxiways. If higher capacities are to be handled at Willow Run, a more adequate taxiway system must be developed.

The runways which have been resurfaced are in good to fair condition. Those with grass growing in the joints are in fair condition. The runways which have not been overlaid have many fractured joints and are in poor condition.

Runways 5R-23L and 9R-27L have each been overlaid with 3 inches of asphalt in the center section, tapering down to a feather edge at a width of 150 feet, and are in good condition. Runway 9L-27R has also been overlaid with 3 inches of asphalt. The runway is in good to fair condition

with grass growing in the joints. Runway 5L-23R is in poor condition and is limited to use by aircraft having a gross weight less than 12,500 pounds. The northwest half of Runway 14-32 is in good condition and the southeast half is in fair to poor condition with grass evident in the joints. Runway 18-36, which is badly spalled, is closed and used as a ramp.

The existing cargo apron has severe and extensive reflective cracking. The apron for Hangar #1 is badly cracked as well.

C. Buildings, Hangars and Other Facilities

The main terminal area buildings and hangars are well constructed and adequate but obsolete. Hangar #2 is well-built and sturdy, but inadequate in size for large aircraft. The hangars on the east side of the Airport are timber structures in very poor condition.

The fuel storage system has a 400,000 gallon capacity and is in good condition. It is used as the only supply for aviation fuel for the Airport.

The utility systems are obsolete or aging, and in need of extensive rehabilitation. The east side sanitary sewer system was constructed in 1942 and experiences infiltration rates of as much as 500%. The force main extending from the east ramp to the main hangar area is deteriorating and very encrusted on the interior. Because of the encrustation, the excessive pump pressure required to push the sewage may cause a rupture of the line. The electrical system consists of obsolete switch gear, transformers, regulators and emergency generating systems.

The 6-12 inch cast iron water distribution service is adequate but aging.

The recently constructed Crash, Fire and Rescue (CFR) facility is in excellent condition. The Airport is CFR rated at Index B, but is only required to maintain Index A.

The access road is adequate; however, entry to the Airport is circuitous and directional graphics are required for the first time visitor to the Airport.

Willow Run Airport lacks a quality general aviation area. There are no tee-hangars. There is some tie-down space available on the west apron near the terminal.

D. Cargo Facilities at Willow Run

The cargo area consists of about 1,000,000 square feet with anywhere from 24 to 36 gate positions, depending upon the circumstance. The cargo apron is adequate, but in poor condition. Up to 24 gate positions have been loaded simultaneously and over 1,000,000 million pounds of cargo enplaned in a single night. While the facilities are adequate, they are aging and in need of extensive renovation. If the Airport is to continue in its current cargo role with the existing aircraft, the pavement must be strengthened and additional taxiways should be provided.

If the cargo role is expanded, as recommended by the 1970 Landrum and Brown (L & B) Study, the airport facilities will not be adequate for the larger DC-8, B-707 type aircraft. The use of these aircraft would require that the runways be lengthened and strengthened, additional taxiways be provided, and that additional land be purchased for the runway extensions. In addition new, larger hangars would be required if aircraft maintenance is performed at Willow Run Airport.

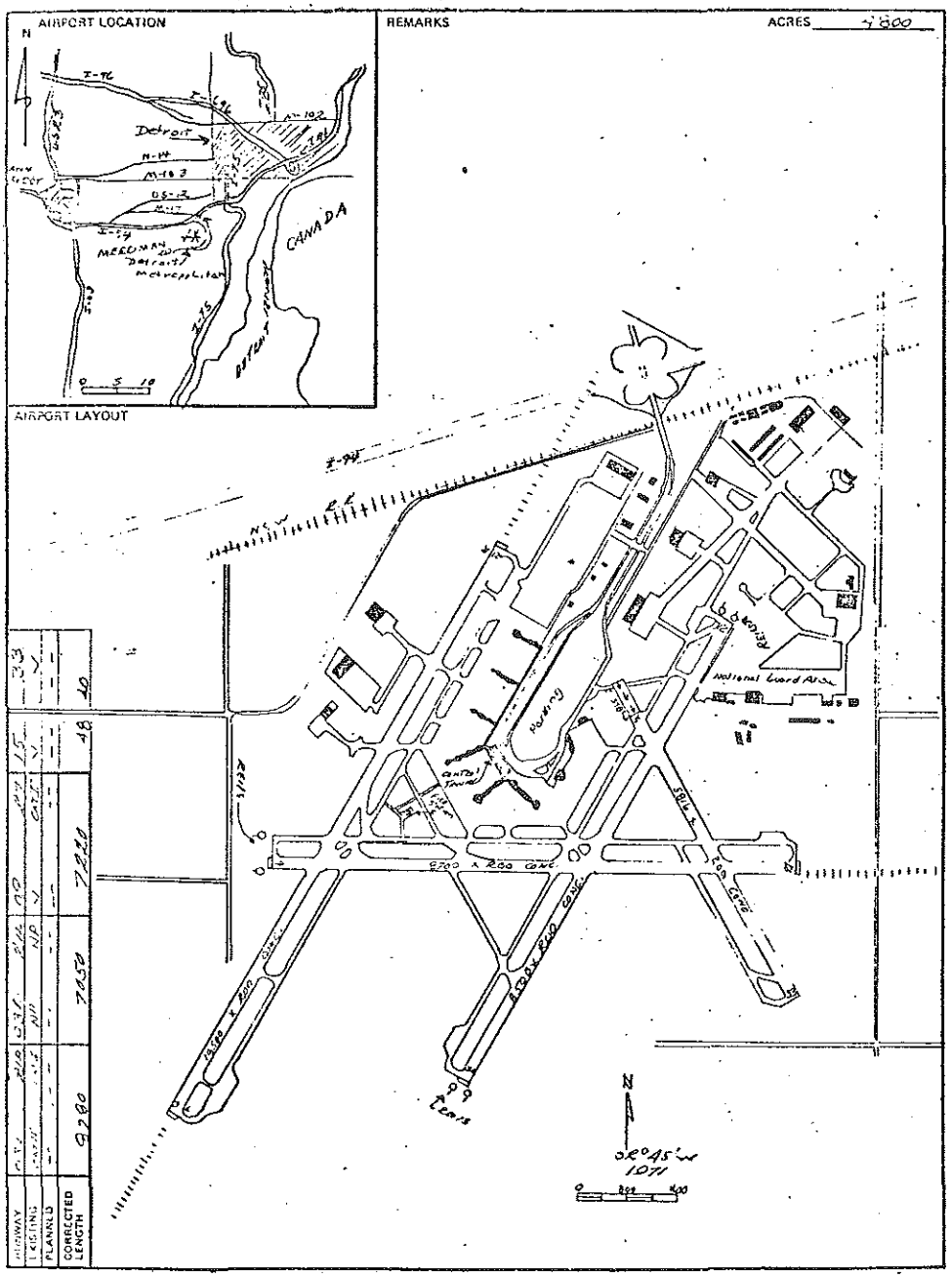
If the cargo role is expanded, but the expansion is deferred until the wide body jets of the L-1011, DC-10 family become more prevalent, the runways will be adequate in length for transcontinental flights but will still require strengthening. Again, if cargo aircraft maintenance is performed at Willow Run, new, larger hangar facilities will be required, since the existing hangars are not large enough for the larger modern day aircraft.

The access road system in the vicinity of Willow Run Airport is excellent with I-94 on the south and Ecorse Road on the north. However, as previously mentioned, the access is circuitous. More direct access to the cargo area could be provided in the future by extending Rawsonville Road northward from the existing Rawsonville exit at I-94 directly to the cargo area.

E. Cargo Facilities at Detroit Metro

The cargo facilities at Detroit Metro consist of individual scattered facilities operated either independently or jointly by each of the airlines with about 8 available gate positions. The cargo handled at Detroit Metro is the high value "belly cargo" typically handled by the airlines. In a discussion with Dan Norton, the Airport Manager, it was indicated that the cargo currently handled at Willow Run Airport could be handled at Detroit Metro with no problems at the existing volume levels. The Detroit Metro Airport Layout is shown on Figure II-3. The Master Plan indicates a new air cargo facility in excess of 5,000,000 square feet which will be located west of proposed Runway 3R-21L. This new facility will require new taxiways. Prior to that, the additional air cargo can be accommodated in existing facilities east of Runway 21R.

The roadway access to Detroit Metro is currently operating at capacity levels during peak periods. The ALP calls for the development of an additional access road which will approach from the south and enter the passenger terminal area by means of a tunnel under Runway 9-27.



AIRPORT LAYOUT - DETROIT METRO. AIRPORT

RALPH H. BURKE, ASSOC. CHICAGO-PARK RIDGE-ILLINOIS	FIGURE II - 3

III. RUNWAY CAPACITY

A. Existing Capacity

The existing capacity as presented in the Phase I Master Plan as prepared by L & B in February 1970 does not accurately reflect the existing capacity at Willow Run Airport. The existing capacity at Willow Run Airport was determined by L & B using FAA document AC 150/5060A, "Airport Capacity Criteria Used in Long Range Planning". This document is intended for long range planning purposes to determine the maximum capacity of a particular airfield assuming that the taxiway system is fully developed. The Existing PANCAP as determined by L & B is 475,000 operations and the Practical Hourly Capacities were 116 IFR operations and 217 VFR Operations. The existing capacity analysis at Willow Run should reflect the capacity reduction which would occur based upon the limited development of the taxiway system and a reduction in IFR capacity based upon the fact that only one runway, Runway 5R-23L, has an ILS installation. Although the Phase I Master Plan acknowledges that adequate taxiways and exits must be provided to develop maximum capacity, it does not accurately portray the existing capacity based on the deficiency in taxiways.

In addition the L & B capacity analysis has assumed an existing aircraft mix corresponding to Type 1 which would consist of approximately 10% Type C aircraft (executive jet and twin engine transports), and approximately 90% D + E (light twin-engine piston and single engine piston). The present aircraft mix as supplied by FAA Form 5090-2[1] is as follows:

Aircraft Class	Percent
A	2%
B	15%
C	30%
D + E	53%

[1]Study Design for Willow Run Airport, p. 13

This corresponds more closely to aircraft mix Type 2 with the following percentage breakdown.

Type 2 Mix

Aircraft Class	Percent
A	0%
B	30%
C	30%
D + E	40%

In addition the IFR capacity analysis is based upon the assumption that both parallel E-W runways, Runway 9L-27R and 9R-27L, are instrumented and that the separation distance between them is 5,000 feet or more which would allow for simultaneous IFR landings. According to the Willow Run Airport Layout Plan, prepared in 1966, the actual distance between Runways 9R-27L and 9L-27R is approximately 4,825 feet. This would result in a reduction in IFR capacity. In addition only Runway 5R-23L is instrumented.

Assuming full taxiway development , but assuming that only the existing ILS installation on Runway 5R-23L is available results in the following existing capacities.

	Runway Layout	Mix	PANCAP[1]	Practical Hourly Capacity	
				IFR	VFR
1.	Existing Airfield	Type 2	430,000	52	167
2.	Ultimate Airfield	Type 2	525,000	115	228
3.	Ultimate Airfield (Alternate)	Type 2	660,000	126	304

It should be noted that the IFR capacity for the existing airfield corresponds to a single runway IFR capacity.

Following are the existing capacities as estimated in the L & B Master Plan.

[1]PANCAP = Practical Annual Capacity

Runway Layout	Mix	PANCAP	Practical Hourly Capacity IFR	VFR
1. Existing Airfield	1970	475,000	116	217
2. Ultimate Airfield	1970	600,000	117	297
3. Ultimate Airfield (Alternate)	1970	770,000	128	396

In summary, the L & B PANCAP's would appear to be somewhat overstated and the existing IFR Practical Hourly Capacity is considerably overstated. In addition, the capacity for both ultimate airfield configurations was made by Landrum and Brown on the assumption that the independent parallel runway separation exceeds 5,000 feet, and that both of the runways have instrument capability. If these independent parallels were meant to be existing 9R-27L and 9L-27R then a further reduction in IFR capacity would be in order, since they do not meet the minimum FAA separation criteria of 5,000 feet.

B. Future Capacity

Given the assumption that the future aircraft mix is 90% A and B and 10% C, D and E type aircraft, resulting in an aircraft mix most like Mix 4, the airport capacities logically follow using the tables on "Airport Capacities for Long Range Planning Purposes". However, it should be noted that the aircraft mix assumed for the future seems extreme in that 90% of the aircraft are Type A or B.

C. Airspace

Concern has been expressed about possible conflicts which might arise when approaches to Detroit Metro are made to the east on Runway 9, and when Willow Run Airport is using Runways 5L-23R and 5R-23L. Under these circumstances, aircraft bound for Detroit Metro pass directly over Willow Run.

To determine what effect, if any, such operations would have on the capacity of Willow Run and possible conflicts which might ensue, personnel at the Air Traffic Control (ATC) operation at Detroit Metro were interviewed.

The Air Traffic Control operation at Detroit Metro is responsible for joint operation of Willow Run Airport and Detroit Metro. A discussion with the Planning Procedures personnel revealed exclusive use of Runway 9 at Detroit Metro only four to six times annually. However, the wind duration under such circumstances might require that they operate in the single runway mode for 8-10 hours at a time. The aircraft approaching Detroit Metro are held at 3,000 feet until they pass over the Willow Run VOR and then continue their descent into Detroit Metro. There is no existing conflict when Detroit Metro is using Runways on the 3-21 axis. It was further indicated by ATC that with increased operations in the future, the combined operation of the two Airports would require closely coordinated operation, but the traffic could be accommodated.

It should be pointed out that because the cargo operation is primarily a nighttime activity, the operation of large cargo aircraft from Willow Run will not interfere with daytime peak hour traffic at Willow Run or Detroit Metro.

D. Regional Capacity

The existing PANCAP as determined by the Stanford Research Institute (SRI) in 1971 was obtained from, "Study Design for Willow Run Airport". The existing PANCAP as determined by SRI is 417,000 operations. This number is slightly less than the PANCAP or 475,000 from the L & B Master Plan and would appear to be a more realistic estimate of the existing capacity based on the PANCAP of 430,000 movements which was obtained in the previous section on Runway Capacity.

IV. LEASEHOLDS

Following is a list of major tenants and their lease arrangements:

Table IV-1

Major Leases at Willow Run Airport

Tenant	Lease
General Motors	3 year lease
Chrysler	3 year lease
Hoover Ball & Bearing	10 year land lease; option for 10 more years
Butler Aviation	5 year lease; noncancelable
Willow Run Services	5 year lease with 60 day termination clause
Zantop	3 year lease with 90 day termination by either party

The other leaseholds at Willow Run are generally short term leases of from one to three years with a 30 day termination clause which can be initiated without cause by either party.

It is the policy of the University of Michigan not to issue long term leases because of the uncertainty over the long term future ownership of Willow Run. The University does not want to be in the position of being unable to release the Airport because of prior long term commitments.

ATTACHMENT A

LIST OF PERSONS INTERVIEWED FOR STUDY

1. Willow Run Airport

   a. Robert E. Pangburn, Airport Manager
   b. Gerald King, Assistant Airport Manager
   c. Lenny Klaker, FAA, Tower Supervisor

2. Detroit Metro Airport

   a. Dan Norton, Airprot Manager
   b. Richard Butas, Planning Procedures Office, ATC Operations, FAA

ATTACHMENT B

LIST OF DOCUMENTS REVIEWED FOR STUDY

1. "Design, Maintenance and Performance of Resurfaced Pavements at Willow Run Airfield", William S. Housel, 1962.

2. "Michigan State Airport System Plan thru 1990", August, 1970.

3. "Michigan State Airport System Plan, Technical Report", December 1970.

4. "Michigan State Airport System Plan, Appendix to the Technical Report", December 1970.

5. "Michigan State Airport Plan (1970-1975)", April 1971.

6. "Michigan State Airport System Plan, Interim Report, Data Collection and Analysis Methods", July 1972.

7. "Phase I Master Plan Report, Airfield Development Program, Detroit Willow Run Airport", Landrum and Brown, February 1970.

8. "The Great Lakes Region Aviation System, Ten Year Plan 1974-1983", August 1974.

9. "Willow Run - Detroit Metropolitan As a Joint Aeronautical Facility", January 1971. A preliminary report to the Board of Wayne County Road Commissioners.

EXHIBIT IC-2

SUPPORT FOR STUDY DESIGN OF WILLOW RUN AIRPORT

FINANCIAL REPORTS

THE UNIVERSITY OF MICHIGAN
Willow Run Airport
Financial Report
Fiscal Year 1968-69

Income Statement

Revenue		
University Rental of Research Space*	$360,000.00	
Rental Income	783,581.30	
Revenue Aircraft Fuel Farm	47,501.02	
Airfield Revenue	206,484.34	
Miscellaneous Sales and Service	19,375.03	
Investment Income	27,776.04	
Use of Previously Restricted Revenue	28,266.59	$1,472,984.32
Expenses		
Salary and Wages	$ 94,574.08	
Staff Benefits	19,665.03	
Office Expense	5,090.18	
Telephone	3,413.77	
Heat and Electricity	302,390.21	
Water and Sewerage	15,366.01	
Insurance	42,115.12	
Fire and Plant Protection	162,745.50	
Transportation and Travel	4,973.02	
Maintenance and Minor Improvements	816,646.86	
Miscellaneous	6,004.54	1,472,984.32
		$ -0-

Balance Sheet

Assets	
Cash	$ 437,916.14
Investments - Reserves	607,276.65
Inventory Fuel Oil	838.25
Total Assets	$1,046,031.04
Liabilities	
Reserve for Major Repairs and Replacements	$ 607,276.65
Accounts Payable	19,984.84
Restricted Revenue for Expansion and/or Modification of Airport Facilities	418,769.55
Total Liabilities	$1,046,031.04

* Included in this report are 157 acres containing 37 buildings with a total of 171,025 square feet of space which are not part of the original Airport property or subject to the restrictions of the quitclaim deed dated April 8, 1949. This included all the buildings and property east of Beck Road except the 15 acres of the rocket test area and also includes the Packard Hangar and 23 acres west of Beck Road.

The property described above was transferred to the University by a quitclaim deed dated February 9, 1961, by the Department of Health, Education and Welfare and is administered by the Secretary of HEW.

THE UNIVERSITY OF MICHIGAN
Willow Run Airport
Financial Report
Fiscal Year 1969-70

Income Statement

Revenue		
University Rental of Research Space*	$ 352,800.00	
Rental Income	789,129.36	
Revenue Aircraft Fuel Farm	40,199.61	
Airfield Revenue	180,921.83	
Miscellaneous Sales and Service	129,509.52	
Investment Income	37,913.68	
Use of Previously Restricted Revenue	351,828.97	$1,882,302.97
Expense		
Salary and Wages	$ 147,980.28	
Staff Benefits	22,096.48	
Office Expense	2,843.62	
Telephone	6,359.31	
Heat and Electricity	338,994.31	
Water and Sewerage	22,468.80	
Insurance	54,593.00	
Fire Protection	137,913.32	
Transportation and Travel	4,568.95	
Maintenance and Minor Improvements	1,144,474.90	$1,882,302.97
		$ -0-

Balance Sheet

Assets	
Cash	$ -0-
Investments - Reserves	569,485.57
Inventory Fuel Oil	950.16
Accounts Receivable	108,781.50
Total Assets	$ 679,217.23
Liabilities	
Reserve for Major Repairs and Replacements	$ 569,485.57
Accounts Payable	5,000.00
Restricted Revenue for Expansion and/or Moficiation of Airport Facilities	104,731.66
Total Liabilities	$ 679,217.23

* Included in this report are 157 acres containing 37 buildings with a total of 171,025 square feet of space which are not part of the original Airport property or subject to the restrictions of the quitclaim deed dated April 8, 1949. This included all the buildings and property east of Beck Road except the 15 acres west of Beck Road.

The property described above was transferred to the University by a quitclaim deed dated February 9, 1961, by the Department of Health, Education and Welfare and is administered by the Secretary of HEW.

THE UNIVERSITY OF MICHIGAN
Willow Run Airport
Financial Report
Fiscal Year 1970-71

Income Statement

Revenue		
University Rental of Research Space*	$ 352,800.00	
Rental Income	927,071.09	
Revenue Aircraft Fuel Farm	48,245.40	
Airfield Revenue	199,192.77	
Miscellaneous Sales and Service	15,923.39	
Investment Income	28,514.22	
Use of Previously Restricted Revenue	66,614.29	$1,638,361.16
Expense		
Salary and Wages	$ 129,042.04	
Staff Benefits	18,190.19	
Office Expense	3,108.30	
Telephone	5,512.51	
Heat and Electricity	394,208.61	
Water and Sewerage	16,624.11	
Insurance	82,137.87	
Fire Protection	151,115.85	
Transportation and Travel	6,242.17	
Maintenance and Minor Improvements	832,179.51	$1,638,361.16
		$ -0-

Balance Sheet

Assets	
Cash	$ 35,139.15
Investments - Reserves	548,353.00
Inventory Fuel Oil	24,456.91
Accounts Receivable	-0-
Total Assets	$ 607,949.06
Liabilities	
Reserve for Major Repairs and Replacements	$ 583,146.03
Accounts Payable	346.12
Restricted Revenue for Expansion and/or Modification of Airport Facilities	24,456.91
Total Liabilities	$ 607,949.06

* Included in this report are 157 acres containing 37 buildings with a total of 171,025 square feet of space which are not part of the original airport property or subject to the restrictions of the quitclaim deed dated April 8, 1949. This included all the buildings and property east of Beck Road except the 15 acres of the rocket test area and also includes the Packard Hanger and 23 acres west of Beck Road.

The property described above was transferred to the University by a quitclaim deed dated February 9, 1961, by the Department of Health, Education and Welfare and is administered by the Secretary of HEW.

THE UNIVERSITY OF MICHIGAN
Willow Run Airport
Financial Report
Fiscal Year 1971-72

Income Statement

Revenue		
University Rental of Research Space*	$ 300,000.00	
Rental Income	586,792.75	
Revenue Aircraft Fuel Farm	34,657.42	
Airfield Revenue	174,816.86	
Miscellaneous Sales and Service	11,795.93	
Investment Income	31,276.15	
Use of Previously Restricted Revenue	135,704.32	$1,275,043.43
Expenses		
Salary and Wages	$ 126,029.79	
Staff Benefits	18,678.66	
Office Expense	1,241.81	
Telephone	6,249.02	
Heat and Electricity	434,900.54	
Water and Sewerage	25,257.89	
Insurance	72,081.17	
Fire Protection	144,103.53	
Transportation and Travel	5,220.77	
Maintenance and Minor Improvements	441,280.25	$1,275,043.43
		$ -0-

Balance Sheet

Assets	
Cash	$ (162,500.21)
Investments - Reserves	584,936.86
Inventory Fuel Oil	587.93
Accounts Receivable	48,874.04
Total Assets	$ 471,898.62
Liabilities	
Reserve for Major Repairs and Replacements	$ 584,939.86
Accounts Payable	-0-
Overuse of Restricted Revenue for Expansion and/or Modification of Airport Facilities	(113,038.24)
Total Liabilities	$ 471,898.62

* Included in this report are 157 acres containing 37 buildings with a total of 171,025 square feet of space which are not part of the original airport property or subject to the restrictions of the quitclaim deed dated April 8, 1949. This includes all the buildings and property east of Beck Road except the 15 acres of the rocket test area and also includes the Packard Hangar and 23 acres west of Beck Road.

The property described above was transferred to the University by a quitclaim deed dated February 9, 1961, by the Department of Health, Education and Welfare and is administered by the Secretary of HEW.

TASK II

DETERMINE THE FUTURE OWNER/OPERATOR

FOR WILLOW RUN AIRPORT

November 3, 1975

THE UNIVERSITY OF MICHIGAN
Willow Run Airport
Financial Report
Fiscal Year 1972-73

Income Statement

Revenue		
University Rental of Research Space*	$ 225,000.00	
Rental Income	878,626.70	
Revenue Aircraft Fuel Farm	68,591.52	
Airfield Revenue	514,909.66	
Miscellaneous Sales and Service	49,471.90	
Investment Income	28,445.47	$1,765,045.35
Expense		
Salary and Wages	$ 105,144.80	
Staff Benefits	16,113.69	
Office Expense	1,356.42	
Telephone	6,228.85	
Heat and Electricity	414,857.46	
Water and Sewerage	22,122.98	
Insurance	29,706.87	
Fire Protection	161,174.75	
Transportation and Travel	5,946.21	
Maintenance and Minor Improvements	910,904.37	
Restricted Revenue for Expansion and/or Modification of Airport Facilities	91,486.95	$1,765,045.35
		$ -0-

Balance Sheet

Assets	
Cash	$ (138,010.19)
Investments - Reserves	584,936.86
Inventory Fuel Oil	21,717.52
Accounts Receivable	101,804.09
Total Assets	$ 570,448.28
Liabilities	
Reserve for Major Repairs and Replacements	$ 584,936.86
Accounts Payable	7,062.71
Overuse of Restricted Revenue for Expansion and/or Modification of Airport Facilities	(21,551.29)
Total Liabilities	$ 570,448.28

* Included in this report is the original airport property, subject to restrictions of the quitclaim deed dated April 8, 1949.

Also included in this report are 157 acres, containing 37 buildings with a total of 171,025 square feet of space, which was transferred to the University by a quitclaim deed, dated February 9, 1961, by the Department of Health, Education and Welfare and is administered by the Secretary of HEW. This latter deed includes all buildings and property east of Beck Road, except the 15 acres of the rocket test area, and also includes the Packard Hangar and 23 acres west of Beck Road.

THE UNIVERSITY OF MICHIGAN
Willow Run Airport
Financial Report
Fiscal Year 1973-74

Income Statement

Revenue		
University Rental of Research Space*	$ 70,000.00	
Rental Income	1,230,329.50	
Revenue Aircraft Fuel Farm	348,700.70	
Airfield Revenue	273,514.10	
Miscellaneous Sales and Service	11,023.26	
Investment Income	41,123.55	$1,974,691.11
Expense		
Salary and Wages	$ 114,143.69	
Staff Benefits	17,833.71	
Office Expense	2,624.74	
Telephone	5,822.73	
Heat and Electricity	492,828.53	
Water and Sewerage	29,774.47	
Insurance	43,712.36	
Fire Protection	176,314.73	
Transportation and Travel	5,543.07	
Maintenance and Minor Improvements	891,050.39	
Restricted Revenue for Expansion and/or Modification of Airport Facilities	195,042.69	$1,974,691.11
		$ -0-

Balance Sheet

Assets	
Cash	$ (1,869.03)
Investments - Reserves	589,684.44
Inventory Fuel Oil	62,540.41
Accounts Receivable	114,746.13
Total Assets	$ 765,101.95
Liabilities	
Reserve for Major Repairs and Replacements	$ 589,684.44
Accounts Payable	1,926.11
Restricted Revenue for Expansion and/or Modification of Airport Facilities	173,491.40
Total Liabilities	$ 765,101.95

* Included in this report is the original airport property, subject to restrictions of the quitclaim deed dated April 8, 1949.

Also included in this report are 157 acres, containing 37 buildings with a total of 171,025 square feet of space, which was transferred to the University by a quitclaim deed, dated February 8, 1961, by the Department of Health, Education and Welfare and is administered by the Secretary of HEW. This latter deed rocket test area, and also includes the Packard Hangar and 23 acres west of Beck Road.

AIRPORT
STATEMENT OF REVENUE AND EXPENSE
AS OF 05-31-75

ACCOUNT NAME		
REVENUE:		
W.S. Revenue - Reng	$ 900,000.00	$1,052,624.62
Erim Rental Revenue	253,000.00	195,031.76
W.S. Revenue - Aircraft Fuel	210,000.00	245,096.64
Airfield Revenue	175,000.00	201,454.99
W.S. Rev.-Misc Sales & Services	10,000.00	11,756.24
Total Revenue	1,548,000.00	1,709,964.25
EXPENSE:		
Erroneous Charges & Credits		
Administrative Salaries	135,000.00	114,392.18
Office Expense	3,000.00	1,015.35
E.S. Insurance	15,000.00	201,508.57
West Side Heat-Steam	200,000.00	213,987.14
West Side Electricity & Air	200,000.00	75,338.62
E.S. Electricity	75,000.00	6,104.73
E.S. Water & Sewerage	8,000.00	
E.S. Fire Department		
East Side Heat	70,000.00	110,159.12
Provision for Repairs & Replacement		
Transportation - Admin.	4,000.00	3,610.66
Travel - Admin.	3,000.00	1,233.07
Telephone - Admin.	6,500.00	5,743.95
Staff Benefits - Admin.	22,000.00	19,055.12
W.S. Insurance	56,000.00	47,347.45
W.S. Workmens Comp. Ins.	600.00	240.00
W.S. Water & Sewerage	25,000.00	27,307.84
W.S. Fire Protection	200,000.00	168,438.69
W.S. Maintenance	480,400.00	506,445.83
W.S. Airfield Rep-Run Tax & Ramp	25,000.00	22,451.50
Recharge Supervision	45,000.00-	48,049.51-
W.S. Equipment	50,000.00	52,315.49
Boiler Operation	55,000.00	47,014.71
Total Expense	1,588,000.00	1,575,660.51
NET-OPERATING-REVENUE	40,000.00-	130,303.74
Revenue from Res Fund Invest	40,000.00	36,855.28
NET REVENUE ADJUSTED	-0-	167,159.02

AIRPORT
BALANCE SHEET
as of 05-31-75

DESCRIPTION	AMOUNT
ASSETS	
Cash - Airport	$278,110.01
IE-RFIP-Airport	589,684.44
Inventory - Fuel Oil - ES - Airport	62,540.41
Total Assets	930,334.86
LIABILITIES	
Accounts Payable - Airport	
Total Liabilities	
RESERVES	
RFS for Repair & Replace - Airport	589,684.44
Total Reserves	589,684.44
FUND BALANCE	
Equity - Airport	173,491.40
Total Fund Balance	173,491.40
NET TOTAL	167,159.02

TASK II

DETERMINE THE FUTURE OWNER/OPERATOR FOR WILLOW RUN AIRPORT

A. BACKGROUND

Purpose

The purpose of Task II is to assist responsible individuals in determining the best owner/operator for Willow Run Airport (WRA) as it affects overall public policy and to indicate some pertinent factors in effecting the transfer of ownership and operation. Task I reviewed the history of WRA, surveyed the present condition of facilities, forecasted its future potential traffic, and presented factors relating to the determination of the future role of the airport. Task II identifies the candidate alternative organizations that are suitable to own, operate, and develop the airport in relation to its future role. To the extent possible, SRI has considered all principal special interests relating to WRA in this regard.

The SRI Study Team and the SSC have agreed on the criteria to be used in evaluating candidate owner/operator alternatives prior to the analytical phase of the task. These are described later in this section. On the basis of these criteria, SRI identified candidate organizations best suited to assume the required responsibilities and develop the desired role for the airport. In these deliberations, SRI considered all information provided us through the SSC and directly from various community organizations and special interest groups as well as responsible governmental officials. Candidate organizations were analyzed to determine the feasibility of transferring ownership and operation of WRA to them. Any constraints or difficulties--whether legal, political, administrative, technical, or financial--in effecting such a transfer were evaluated. Eligibility of the candidate owner/operators to sponsor, contract for, implement, and update a Master Plan for WRA were considered from a standpoint of legal status, sources of financing, eligibility to own and operate

an airport, and eligibility under FAA Planning Grant Programs and Airport Development Aid Programs to contract for and expand funds for Master Planning and airport development.

Candidate owner/operators are described on the basis of key selection criteria plus any other relevant considerations identified during the course of the study. This information focuses on the advantages and disadvantages of alternative candidate owner/operators particularly in relation to the desired future role of WRA within the State airport system.

Recommended Candidate Role

On July 22, 1975, members of the SEMCOG Willow Run Task Force met to review SRI's Task IC report and deliberate on the future role of Willow Run Airport. This meeting resulted in approval of the following statement:

> "Recommend that Willow Run Airport continue to be used as an aviation facility to comply with the needs of general aviation and contract air cargo." (Attachment A)

Subsequently, this recommendation was forwarded to SRI and provides the basis for the evaluation carried out in Task II. (Attachment B) It was discussed at the July 23 meeting that once a new owner/operator was established, it might not be obligated to carry out the recommended (intended) role. The possibility of obligating the new owner/operator through the transfer agreement was also discussed. It was generally agreed that selection of an owner/operator who could and was properly motivated to carry out the intended role was an important consideration in the ultimate decision process. Task II has proceeded on this basis.

Considerations Relating to Control Choices and Evaluation Criteria

In developing candidate ownership and control alternatives or choices, SRI has used the following general considerations as guidelines:

- Existing viable agencies
- Formal positions of existing agencies
- Experience in Michigan and elsewhere
- Evaluation criteria.

Criteria for evaluating candidate owner/operators have been developed based on information contained in Task I of this study and suggestions by the Sponsor's Supervisory Committee (SSC) and the SEMCOG Willow Run Task Force (Attachments C and D). These criteria may be summarized as follows:

- Feasibility Considerations--These include willingness of Federal Aviation Administration officials to accept the new owner and approve the transfer as provided for in the airport's quit-claim deed, acceptability of the transfer by the University, and any other legal considerations which might act in a restrictive manner.
- Public Policy Considerations--These include acceptability by various local, state, or regional public agencies and special interest groups.
- Management Considerations--These include capabilities or experience in airport management, operations, and maintenance.
- Technical Considerations--These include capability to assume responsibility for the present physical plant and performing the tasks necessary to the intended future role, including planning, engineering, construction, and preparation of capital grant applications.
- Financial Considerations--These include elegibility for federal and state airport funding, authority to borrow, tax, and/or issue revenue or general obligation bonds, willingness to subsidize deficit operations, commitment to revitalize facilities in accordance with the recommended (intended) role.

The Matrix Evaluation

An evaluation matrix approach has been employed for the evaluation process. This focuses on the advantages and disadvantages of alternatives. It highlights a few limited feasible alternatives as compared with all conceivable ones. As stated earlier, it is not SRI's intention to finalize conclusions or develop recommendations on the owner/operator consideration--this is the appropriate role of the Sponsor's Supervising Committee with the advice of the Task Force.

The evaluation matrix accomplishes this in Figure 1 by summarizing the overall results of the Task II effort. In addition, the section WILLOW RUN AIRPORT EVALUATION, at the end of the report, provides the reader with a range of conclusions that can be drawn depending upon the relative importance assigned to the various evaluation criteria.

B. OWNER/OPERATOR ALTERNATIVES

Control Options

Three principal factors will determine how Willow Run Airport will be developed to provide for its intended future role--ownership control, policy control, and operating control. These factors should be viewed as separate and distinct from one another in the evaluation process to allow a wider range of possible options. A single owner/operator, as is now the case, may be the correct approach for the future, but as will be apparent in this analysis, several other options are available, each with some relative advantages and disadvantages. Because of this, they are treated separately in the evaluation matrix.

1. Ownership Control has two basic options:

(a) Unchanged, where the University of Michigan continues to own the airport. This is essentially the status quo, but an alternative would include arrangements to delegate or transfer all responsibilities to other parties. This has an advantage of minimizing the problems of transfer, of maintaining the University's right to possible future use of the property and, depending upon the transfer agreement, of giving the University assurance that the intended role will be carried out and that the impact of the airport upon its neighbors will not be beyond that intended in the transfer agreement. It has the disadvantage of a continuing

relationship of the University with the airport if the University has evidenced a strong commitment to dissolve this tie.

(b) Changed, where the University transfers ownership and responsibility to a new owner. This has the advantage of relieving the University of any future responsibility to maintain and develop the airport. It has the disadvantage (to the University) of relinquishing its rights to possible future use of the property--an option the University has chosen for 30 years.

2. Policy Control, as distinct from ownership, has several options relating to the special interests involved. Selection of the policy control mechanism will, more than any other decision, determine how the airport will be developed in the future, how it will be operated, and how well it performs its intended role. As such, policy control is the real issue in the operator/ownership consideration. Options for policy control, therefore, can be viewed differently and for different reasons, depending upon viewpoint and objectives. These may include: local community interests; regional interests; development interests; growth control or environmental interests; interest in close adherence to the intended airport role; net income maximization or minimization of losses, etc. For the evaluation, policy control need not be combined with ownership or operating control, for these can be structured separately.

Task IC introduced the aspect of financial uncertainty with regard to WRA's future development and operation. This will be discussed later in more detail. It is crucial that the policy control of the airport be carefully related to corresponding financial responsibility for operating the airport according to its intended role. It cannot be overemphasized that only with adequate financial resources can WRA's intended future role be assured.

3. Operating Control has three basic options. These include; currently experienced operator, caretaker status (i.e., employ a professional operator), and "learn by doing". Each of these has advantages and disadvantages. Because of the deteriorated condition of facilities and the need to focus early on airport operations and economics, and on financial resources and facility development, the third option may be unattractive. What should be apparent, however, is that the key decision relates to policy control, not operations, for the agency exercizing policy control will make the operational decisions and assume responsibility for development. This being the case, an important consideration may be the extent to which the policy control body has access to operating experience.

Identification of Candidates

Selection of candidates began by identifying all possible candidates and combinations of candidates, using the three control factors--ownership, policy, operating. Following this, the list was narrowed to those considered to be feasible candidates. Feasibility was determined by several factors:

Circumstances: University of Michigan, since it already owns the airport property.

Responsibility: Michigan Department of State Highways and Transportation (State), who is responsible for the statewide system of airports and has funds for its development.

Expressed Interest: Willow Run Joint Airport Board (Joint Airport Board), who has evidenced a strong interest in the airport. (Exhibit II-6)

Experience: Wayne County Road Commission (Wayne County), who is knowledgeable in airport planning and operations, and who operates a large international airport.

Representation: A regional airport authority (would need to be created), that could represent the varied interests throughout a wide geographic area.

In addition to the candidates listed above, SRI reviewed the possibility of the Federal Aviation Administration (FAA) as a candidate. The FAA operates two public airports, Washington National and Dulles International, and maintains an ongoing interest in the Willow Run Airport property through provisions in its quit-claim deed. While technically feasible, it is unlikely that FAA would seriously consider ownership and operation, assuming an acceptable proposal can be developed within the State of Michigan.

Also considered was a private investor/operator. Given the financial picture for general aviation airports in Michigan and elsewhere, it is unlikely that any private investor would be interested in developing WRA as an airport in strict accordance with the intended role and without direct subsidy payments for assuming responsibility for WRA's financial operations and liabilities.

The control options and candidates selected for evaluation are presented in the Willow Run evaluation matrix in Figure 1.

C. EVALUATION CRITERIA

The evaluation criteria were developed by the SRI study team and reviewed and approved by the SSC (Exhibit II-5). The purpose of these criteria is to aid the Task Force and SSC in judging the "best" future owner/operator. As required in our contract, the SRI staff has provided advantage/disadvantage interpretations in Figure 1 for each of the candidates, for each of the evaluation criteria.

This section discusses the evaluation criteria. A summary of the evaluation is contained in Figure 1.

Feasibility

The selected role for WRA has an effect upon feasibility of ownership when the projections from Task IB are also considered. The selected role was "continue to be used to comply with the needs of general aviation and contract air cargo." The Task IB projections indicate some growth for general aviation and an uncertain future for contract air cargo.

The provisions of the Willow Run Airport Quit-Claim Deed include a recapture clause whereby the Federal Government has a claim on the property if its use is not consistent with federal intent. FAA must approve ownership transfer as well as new lease arrangements. Any move to restrict the role or operations of Willow Run as an airport may be prohibited or limited by FAA.

Feasibility also relates to form and the financing powers of the new owner. The airport could be organized and owned under a joint powers agreement by local governments similar to that of the Tri-City Airport Commission (Exhibit II-7) where local governments agree to support the airport financially. This is essentially the position of the Joint Airport Board, consisting of the townships of Van Buren and Ypsilanti and the City of Ypsilanti. The Joint Airport Board makes a strong case for support as shown in Exhibit II-6.

Another alternative is to form a regional airport authority for the southeastern region. The provisions of Michigan Public Act 206, "The Community Airport Act", binds the parties to the agreement. It further provides a tax base with which to support the airport financially. Such

authority could issue self-liquidating bonds and have the power to tax up to one mill under present legislation, but its creation requires a referendum. An alternative regional approach is contained in a bill currently in a committee of the legislature. (Exhibit II-8) This modification would permit the establishment of a regional agency by local government agreement and the approval of the Michigan Aeronautics Commission. Under the new proposal it would have the power to tax up to 3/4 mill and would not require a referendum.

The State is permitted to own and operate an airport under existing state law. It operated Capitol Airport at Lansing until 1971 at which time it transferred the airport to Ingham County and the City of Lansing. The transfer was motivated by questions of finance and willingness of the local communities to take the responsibility. The transfer resulted from a special act of the legislature together with a local election approving the acceptance of the airport.

An alternative concept, involving State ownership, would have a joint board of control formed to exercise policy direction of operations and development, and to assume responsibility for financing the airport. The makeup of the board of control could be similar to that of a regional authority, with some participation by the State. This alternative has the advantages of representation contained in a regional structure and a widespread base for financial support.

Also of concern with respect to feasibility is the time required to shift responsibility and ownership, and/or to form a new multi-jurisdictional agency. A transfer of ownership, if considered a significant federal action, could require that an Environmental Impact Statement (EIS) be prepared.

Public Policy

Public policy deserves careful consideration in the evaluation process. Careful attention should be given to the question of local versus regional forms of control. Obviously, local governments in close proximity desire to carefully control the more negative environmental aspects of the airport (as identified in Task IC) while seeking to achieve the benefits of an economically viable operation for the community. The regional approach allows a much broader consideration of the airport role. For example, the cargo role implies a national perspective, even potentially international, and certainly one which must be responsive to the economic needs of the entire southeastern Michigan region and many automotive-oriented cities beyond, both in michigan as well as adjoining states.

What seems to be desirable is some balance between local concerns over the adverse impacts of development and operation, the need for a sound general aviation facility within the community, and a focus on the economic value of air cargo development needs in the future. Also, consideration should be given to how Willow Run and Detroit Metropolitan work together so their air cargo and general aviation roles are supportive.

Management

Given the deteriorated facilities and the need to concentrate on improving the economics of the present situation, strong and vigorous management to operate and develop the airport's activities is an essential, continuing requirement. This may be difficult to accomplish with boards of control representing multiple interests and with limited maintenance and capital budgets.

Technical Capability

As with management, technical airport development experience and capability is also important to the long term success of Willow Run. Key requirements include planning, engineering, the preparation of capital and planning grant applications, the development of an airport master plan and environmental impact statements. Also of importance, is the identification and prioritizing of maintenance and capital programs and of alternatives and operational procedures to relieve environmental impacts.

Financial Requirements

1. Extent of Financial Responsibility. Using recent financial statements, WRA's unfavorable income/cost situation was discussed in Task IC. (Tables II-1 thru 3) review the record of the operating revenues and expenses and the status of the reserve fund for the period Fiscal Years 1969/70 through 1973/74.

Table II-1

REVENUE TRENDS

Fiscal Year	Revenues	Annual Change (%)
1968-69	$1,444,717*	
		+6
1969-70	1,530,474*	
		+3
1970-71	1,571,747*	
		-28
1971-72	1,393,339*	
		+55
1972-73	1,765,045	
		+12
1973-74	1,974,691	

The mean value for revenues during this period was $1,571,002** and the average growth rate from FY 1968 to 1969 was +1.7%.

*Transfers from the Restricted Revenues account have been omitted.

**The standard deviation was $284,444.

Table II-2

EXPENSE TRENDS

Fiscal Year	Expenses	Annual Change (%)
1968-69	$1,472,984	
1969-70	1,882,303	+28
1970-71	1,638,361	-13
1971-72	1,275,043	-22
1972-73	1,673,558*	+31
1973-74	1,779,648*	+6

The mean value for expenses during this period was $1,620,316 (the standard deviation was $218,222) and the average growth rate was +1.9%.

Table II-3

STATUS OF THE RESERVE ACCOUNT

Fiscal Year	Asset-Reserves	Annual Change (%)
1968-69	$607,277	
1969-70	569,486	-6
1970-71	583,146	+2
1971-72	584,940	+.03
1972-73	584,937	0
1973-74	589,684	+1

The mean value of the reserve account during this period was $586,578 (the standard deviation of $12,226) and the average change during the period was -0.7%.

---

*Transfers to the Restricted Revenues account have been omitted.

The current accounting system uses a zero year-end balance requirement which tends to obscure the actual operating income or loss. WRA appears, however, to operate with a surplus about one year in five when the air cargo business is very strong. The uncertainty of air cargo was discussed in Task IB, as well as the factor that the auto manufacturers do not foresee a quick return to strong usage of WRA's air cargo capacity. This compounds the capability to predict if and when higher or profitable levels of air cargo activity may be expected. The foregoing summarizes a somewhat bleak revenue outlook in the short run.

The cost outlook will be determined to a large extent by the new operator, but is obviously influenced by the air cargo role which will require considerably more property, runways, facilities, etc., than if the role were restricted to general aviation only. These factors emphasize the need to place the airport with a public body who can assume the burden of insuring WRA's continued operations in the role selected by the SSC.

The relationship of the reserve account to the physical condition of the airport is important. Ralph H. Burke Associates described the condition of the airport in their exhibit to Task IC as badly in need of reconstruction, development, and maintenance. In 1973, the airport manager estimated that deferred maintenance costs could run to approximately $8.5 million over a ten-year period, or expenditures at the rate of one million dollars per year to upgrade the existing situation. The details of these estimates are described in Prognosis of Willow Run Airport Operation Costs/Revenues 1973-1983, memorandum from Robert E. Pangburn. June 1973 when these estimates were made, it should be noted that costs have escalated substantially and facilities have continued to deteriorate.

PROGNOSIS OF WILLOW RUN AIRPORT OPERATIONAL

COST/REVENUES 1973-1983

The successful operation of Willow Run Airport on a self sustaining basis is very greatly dependent upon air cargo movement through the facility. At present and for the foreseeable future, the cargo upon whick we depend is automobile industry oriented. When the auto industry is in peak production periods, air cargo volumes are high. During normal or low auto production periods, our air cargo volumes are drastically reduced. Past performance indicates that one year out of five are especially productive for our airport operations.

The type of air cargo moved through Willow Run is largely "panic movements" brought on by the inability of auto parts supplies to maintain a steady pipeline to the assembly plants. Air cargo transportation is expensive when compared to ship, rail or truck and will remain so until more efficient and less costly airframes are developed, and airports are expanded or developed to handle the larger airframes. Until such a situation develops, air cargo will not be accepted as a cost competitive mode of transportation.

Willow Run Airport is currently in a category that is too large for small aircraft and too small for large aircraft. We must either prepare for a new generation of aircraft by providing longer and stronger runways or be in a better position to financially sustain ourselves during those periods when revenues will not meet expenses.

If we examine the possibility of operating Willow Run, dependent more upon General Aviation than Air Carrier we are faced with the impossible situation that general aviation aircraft will not support Willow Run and if user fees were increased to provide the necessary revenue, the aircraft would disappear and relocate to less costly facilities.

A prime example of this is that for a recent 12 month period, small aircraft generated 80 percent of our traffic and produced only 2 percent of our airfield revenue.

In the writers opinion it is not logical to expect a comfortable level of air carrier (cargo) activity at Willow Run for many more years unless the runway system is lengthened & strengthened.

If, however, we do assume that present levels of air carrier activity are maintained for the next ten years without expansion of the airfield, we are faced with some substantial maintenance and replacement costs, the financing of which can not be derived from airport revenues.

The time period assumed is ten years, however the condition of much of the utility distribution systems is precarious and failure could occur at any time which renders any forecast of cost flow, moot. It must be expected however that the following expenditures must be made within the next ten years if Willow Run is to be maintained at its current level of ability to handle aircraft. Costs estimated are 1973 costs with no provision for escalation.

CONTINUED.....

1.	Airfield concrete resurfacing or replacement:	
	A. Resurface all runways to maintain strength	
	5 @ $400,000.00	2,000,000.00
	B. Resurface taxiways	600,000.00
	C. Resurface Parking Aprons	1,600,000.00
		4,200,000.00
2.	Airfield Electrical Systems Complete replacement of runway lighting, cables and fixtures	400,000.00
3.	Primary Electrical Gear Complete replacement of obsolete switch gear, transformers, regulators and emergency generating systems and cables	2,500,000.00
4.	Access Roadway Resurfacing (6 miles)	200,000.00
5.	Renovation of Mechanical Systems in three main hangar buildings	300,000.00
6.	Renovation of Sewage Transmission System	250,000.00
7.	Renovation of Fire Protection Systems	300,000.00
8.	Replace Lifting Mechanisms, cables and Drums Hangar Doors 16 @ $10,000.00	160,000.00
9.	Replace Fencing (Selected areas)	75,000.00
10.	Renovations in Aviation Fuel Farm	250,000.00
	Operating expense subsidy for anticipated low revenue periods	
	8 Years @ $150,000.00	1,200,000.00
		$ 9,835,000.00

The Current Reserve Fund for Willow Run will permit operation through two poor revenue years after which time the University should be in position to expend a minimum of one million dollars per year and possibly much greater amounts should a major failure occur in our utility systems.

REP/mh
6/20/73

Robert E. Pangburn
Airport Manager

The "stability" of expenses noted in a recent report to the Willow Run Joint Airport Board* is likely to have been achieved by deferring maintenance. Also, less than half of the total estimated costs appear to qualify for FAA ADAP funding (possibly Items 1, 2, and 9).

Two other sources have indicated an accumulated operating deficit over the first five years of operations. In the Horwitch/Dawson report, the accumulative deficit was $0.2 to $4.5 million** and in a Wayne County staff report*** $10 million.

A relatively new requirement yet to be evaluated at WRA is that of the Occupational Safety and Health Act of 1970 (OSHA). By approval of Michigan's State OSHA plan in 1973, working conditions for local and state employees are now covered. Bringing the facilities at WRA up to the OSHA standards could represent a sizeable expense.

Given the intended role, therefore, of continuing and developing a large costly facility, the requirement for large financial resources and strong public resolve to commit resources to redevelopment of the airport should be reemphasized.

2. Experience Elsewhere. SRI has assembled financial data on other airports in the U.S. including some specific airports within the State of Michigan and in California. (See Exhibit II-9) California was selected for comparison because weather conditions in that state are as favorable to continuous operating and low maintenance costs as anywhere in the country. It may be noted from the exhibit that the smaller general aviation activities do not perform well in terms of their income surplus expectations.

---

* Horwitch and Dawson, Report on Operations of WRA and Recommendations for Future Action. Draft, October, 1975.

** Middle case and worst case range.

*** Wayne County Road Commission, Willow Run-Detroit Metropolitan As A Joint Facility. January, 1971.

By comparison, those few airports for which SRI was able to obtain information in Michigan also do not provide a guarantee of break-even operation--although this data is skimpy and does not reveal annual trends. Also, it should be recognized that local county and city airport expense statements may be somewhat misleading and understated. Many city and county services can be provided gratis without showing an expense transfer to the airport (police, fire, snow removal, planning, etc.). In addition, depreciation and debt service are not included as operating expenses.

A conclusion reached by SRI is that a small (400-500 acre) general airport can operate at break-even with about 150-200 fixed-base aircraft (see Figure II-9.3). The larger (2000 acre) general aviation/air cargo operation can approach break-even only if the air cargo and other revenues can be substantially developed or if other efficiencies can be realized (see Figure II-9.2).

3. Financial Resources. A final consideration on financing deals with capability of the public agency or body who owns and controls the airport to support development and possible deficit operations--deficits on the order of $200,000 to $2 million per year. It was earlier indicated that the desired form is one where the parties involved are responsible for continued support and not a voluntary agreement, where unforeseen or difficult circumstances could cause those involved to walk away from responsibility. The commitment to develop and operate an airport should not be entered into casually. It is a long-term affair, desirably embracing decades (as was the case by the University since World War II), not just a few years.

This public agency or body must be committed and capable of funding annual operating expenses out of available resources--existing revenues

or the power to tax. It should be based on a population base sufficiently large so that this cannot become a substantial burden. The agency or body should also have sufficient resources to finance capital improvements, including the power to borrow and to issue general obligation bonds, since revenue financing using WRA as a base is not likely to be possible.

The following provide some insights into the financial capability of the various candidates:

University of Michigan--has operated WRA in the past on a self-sustaining cash basis. The present interest in relinquishing ownership is in part to avoid any transfer of university funds.

Local Airport Commission--the member jurisdictives of the Willow Run Joint Airport Board* offer a State Equalized Value (SEV) for real and personal property** as follows:

City of Ypsilante	$126,142,290
Van Buren Township	134,715,900
Ypsilante Township	370,198,041
Total	$631,056,231

One cent of tax rate per $1,000 of assessed valuation on that tax base raises $6,300.***

Wayne County Road Commission--Wayne County has a total SEV of $14.3 billion. Every cent per $1,000 SEV on that tax base raises $143,000.

The operating revenues at DTW (in 1971) indicate operating revenue of $12.5 million and operating expenses of $6.6 million.**** In addition,

---

*Ypsilanti Township, Van Buren Township, and the City of Ypsilanti voted to establish the Joint Airport Board in order to give seriousness to their intent and have committed a start-up fund for this purpose.

** 1975

***The Average tax rate in City of Ypsilanti in 1972 was $59.74 per $1000 SEV.

****Note that expenses do not include debt service and depreciation.

Wayne County indicates that, in discussion with the airlines serving DTW, they (the airlines) have indicated willingness to subsidize development of WRA for a limited period in order to improve WRA's ability to act as a reliever airport for general aviation purposes.

Regional Airport Authority--could include, as a minimum, the adjacent, affected cities and townships beyond those included in the WRJAB, specifikally the City of Belleville and the Townships of Canton and Superior. The addition of these jurisdictions would increase the SEV by $248 million, or $897 million in total. Every one cent per $1000 SEV on this tax base would raise $8,790.

Yet a broader regional base could include Wahtenaw and Wayne Counties with a total SEV of over $16 billion. A one cent per $1000 SEV would raise $160,000 on that larger regional base.

State of Michigan--the state general fund is one source of financial support, but not a likely one on a continuous basis. One consideration could be a one-time contribution to the reserve fund to assure continuance of an important public facility of state-wide significance.*

The revenues derived from the aviation fuel tax** are not sufficient to provide continuous substantial support to WRA without compromising other airports in the system.

Comparative Summary--productivity of the local property tax may be expressed in differing forms. Several of these are shown in the following table which compares the aforementioned possible alternatives.

Pro Forma Property Tax Productivity

Based on the State Equalized Value (SEV) for Real and Personal Property

	One Cent per $1000 SEV	One Cent per $100 SEV	One Mill per $1000 SEV	One Mill per $100 SEV
• Local Airport Commission.....	$ 6,300	$ 63,000	$ 630	$ 6,300
• Wayne County Road Commission ...	143,000	1,430,000	14,300	143,000
Regional Airport Authority				
• as Expanded Local Commission..	8,790	87,900	879	8,790
• as Two-county Authority.....	$160,000	$1,600,000	$16,000	$160,000

* As identified in the State Aviation Plan.

** About $2.9 million for the fiscal year ending June 30, 1972.

Wayne County indicates that, in discussion with the airlines serving DTW, they (the airlines) have indicated willingness to subsidize development of WRA for a limited period in order to improve WRA's ability to act as a reliever airport for general aviation purposes.

Regional Airport Authority--could include, as a minimum, the adjacent, affected cities and townships beyond those included in the WRJAB, specifically the City of Belleville and the Townships of Canton and Superior. The addition of these jurisdictions would increase the SEV by $248 million, or $879 million in total. Every one cent per $1000 SEV on this tax base would raise $8,790.

Yet a broader regional base could include Washtenaw and Wayne Counties with a total SEV of over $16 billion. A one cent per $1000 SEV would raise $160,000 on that larger regional base.

State of Michigan--the state general fund is one source of financial support, but not a likely one on a continuous basis. One consideration could be a one-time contribution to the reserve fund to assure continuance of an important public facility of state-wide significance.*

The revenues derived from the aviation fuel tax** are not sufficient to provide continuous substantial support to WRA without compromising other airports in the system.

Comparative Summary--productivity of the local property tax may be expressed in differing forms. Several of these are shown in the following table which compares the aforementioned possible alternatives.

Pro Forma Property Tax Productivity

Based on the State Equalized Value (SEV) for Real and Personal Property

	One Cent per $1000 SEV	One Cent per $100 SEV	One Mill per $1000 SEV	One Mill per $100 SEV
• Local Airport Commission	$ 6,300	$ 63,000	$ 630	$ 6,300
• Wayne County Road Commission	143,000	1,430,000	14,300	143,000
Regional Airport Authority				
• as Expanded Local Comm.	8,790	87,900	879	8,790
• as Two-county Authority	$160,000	$1,600,000	$16,000	$160,000

* As identified in the State Aviation Plan.

** About $2.9 million for the fiscal year ending June 30, 1972.

D. WILLOW RUN AIRPORT EVALUATION

The evaluation matrix, Figure II-1, presents inoverall discussion of the advantages and disadvantages of alternative candidate owner/operators for each of the five evaluation criteria. To the extent possible, this represents an objective assessment of SRI's analysis.

A matrix such as this organizes the relevant information which should be considered in reaching a conclusion. The weight of each item in the matrix, however, is open to individual judgement. To help narrow the discussion, SRI has evaluated the alternatives using three different and succeedingly more sophisticated techniques which quantify the results. These are contained in Tables II-4, 5, and 6. Table II-4 represents a simple plus/minus evaluation with the algebraic sum indicated to the right. Table 5 estimates a numeric value for each cell in the matrix on a scale of zero to one. The sum is indicated to the right. Table 6 combines the likelihoods of Table 5 with a weighting for each evaluation criteria. Again, the relative ranking of each alternative is presented in the right hand column.

Table II-4 SIMPLE PLUS/MINUS SCORING

ALTERNATIVE CANDIDATES	Evaluation Criteria: Feasibility (Weighting factor=1)	Public Policy (Weighting factor=1)	Management (Weighting factor=1)	Technical (Weighting factor=1)	Finance (Weighting factor=1)	Weighted Score
1.a. University	+	-	+	-	-	-1
1.b. University with a Board of Control	+	+	-	+	-	+1
2. Local Airport Commission	+	+	-	-	-	-1
3. Wayne County Road Commission	-	-	+	+	+	+1
4. Regional Airport Authority	-	+	+	+	+	+3
5.a. State of Mich.	+	-	+	+	-	+1
5.b. State of Mich. with a Board of Control	+	+	+	+	-	+3

Table II-5 RELATIVE LIKELIHOOD OR ATTRACTIVENESS

ALTERNATIVE CANDIDATES	Evaluation Criteria: Feasibility (Weighting factor=1)	Public Policy (Weighting factor=1)	Management (Weighting factor=1)	Technical (Weighting factor=1)	Finance (Weighting factor=1)	Weighted Score
1.a. University	1.0	0.3	0.9	0.5	0.2	2.9
1.b. University with a Board of Control	1.0	1.0	0.7	0.7	0.5	3.9
2. Local Airport Commission	1.0	0.7	0.5	0.5	0.4	3.1
3. Wayne County Road Commission	0.5	0.4	1.0	1.0	0.9	3.8
4. Regional Airport Authority	0.5	1.0	1.0	1.0	1.0	4.5
5.a. State of Mich.	1.0	0.1	1.0	1.0	0.1	3.2
5.b. State of Mich. with a Board of Control	0.9	1.0	1.0	1.0	0.5	4.4

Table II-6 RELATIVE LIKELIHOOD OR ATTRACTIVENESS USING WEIGHTED SCORING FACTORS

ALTERNATIVE CANDIDATES	Evaluation Criteria: Feasibility (Weighting factor=10)	Public Policy (Weighting factor=8)	Management (Weighting factor=5)	Technical (Weighting factor=5)	Finance (Weighting factor=10)	Weighted Score
1.a. University	(1.0) 10	(0.3) 2.4	(0.9) 4.5	(0.5) 2.5	(0.2) 2	21.4
1.b. University with a Board of Control	(1.0) 10	(1.0) 8	(0.7) 3.5	(0.7) 3.5	(0.5) 5	30.0
2. Local Airport Commission	(1.0) 10	(0.7) 5.6	(0.5) 2.5	(0.5) 2.5	(0.4) 4	24.6
3. Wayne County Road Commission	(0.5) 5	(0.4) 3.2	(1.0) 5	(1.0) 5	(0.9) 9	27.2
4. Regional Airport Authority	0.5 5	1.0 8	1.0 5	1.0 5	1.0 10	33.0
5.a. State of Mich.	(1.0) 10	(0.1) 0.8	(1.0) 5	(1.0) 5	(0.1) 1	21.8
5.b. State of Mich. with a Board of Control	(0.9) 9	(1.0) 8	(1.0) 5	(1.0) 5	(0.5) 5	32.0

Feasibility and financial requirements have been assigned the highest weight in Table II-6, since feasibility and the capability of continuing the role of the airport are essential. Feasibility includes:

- Can the candidate affect the acquisition and transfer within 24-30 months?
- Will the FAA approve the transfer?
- Is the candidate capable of long-term ownership?
- Will the role for WRA remain as selected?
- Will voters support the creation of an agency with taxing powers?

Financial Requirements include:

- Can the candidate support the airport financially?
- Is the burden reasonable?

After feasibility and finance, SRI believes public policy is most important. Public policy includes:

- Is the alternative best representative of all of the public interests involved?

Finally, SRI judged management and technical skills as important but as factors which can be acquired. Collectively, these are weighted the same as feasibility or finance.

As noted in the tables, the top candidates are similar irrespective of the technique used. In order of preference, these are:

4. Regional Airport Authority
5.b. State of Michigan--with a Board of Control
1.b. University of Michigan--with a Board of Control

The regional airport authority is attractive in all respects, particularly since it guarantees financial support of the airport. Only the uncertainty of feasibility, i.e., lack of acceptance by its constituency, casts it in

doubt. Such an authority could be created within 24-30 months, assuming it passed the necessary referendum under existing law.

SRI's second candidate, the State of Michigan with a Board of Control, can contain all of the features of a regional authority without the problems of implementation. Jurisdictions forming the Board of Control would enter into an agreement to provide financing for the airport. Since this is as yet untested, the extent of the financial support is uncertain, but presumably this alternative holds out the possibility for all interested parties to achieve their needs.

The third alternative, the University with a Board of Control, is desirable in that the University already owns the airport; therefore, transfer of the airport is not required, only leadership and acceptance by those interested in participating in the control and finance of the development of the airport.

Other alternatives considered had advantages and disadvantages as noted in the evaluation matrix, but did not appear as attractive. Obviously, the status quo is not attractive if only because the University does not wish to continue to carry the brunt of responsibility for development, operations, and finance. The Joint Airport Board provides local control but seems to have an insufficient financial base and may not be able to build a strong management team. Wayne County Road Commission could improve its ranking with a strong statement of commitment, and its financial base is sound, but the apparent resistance to this alternative by local communities indicates this is not as attractive as other alternatives and raises real doubts about feasibility and community resistance to any development which might be proposed.

In the final essence, the evaluation factors must be weighted and considered by each responsible advisor or decision maker from his own view. SRI presents this information to the SSC, the SEMCOG Willow Run Task Force, and other concerned publics in the hope that a sound and effective decision may be forthcoming on Willow Run which is in the best interest of the public.

ALTERNATIVE CANDIDATES FOR OWNERSHIP, CONTROL AND OPERATION			EVALUATION CRITERIA									
			FEASIBILITY		PUBLIC POLICY		MANAGEMENT		TECHNICAL CAPABILITY		FINANCIAL REQUIREMENTS	
OWNER	POLICY BODY	OPERATOR	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES	ADVANTAGES	DISADVANTAGES
1a. University of Michigan	University of Michigan	University of Michigan	Avoids problems of ownership transfer and FAA approvals; preserves University position in land for possible alternative future uses.	Counter to basic policy decision that airport operation is an inappropriate role for University and desire not to carry loss operation.	No commitment to expanded operations -- acceptable to local governments	Potential future adverse community reaction associated with operations and rapidly deteriorating facilities.	University has current operating experience.	Lack of continued interest or consciousness of purpose in role of airport manager.	Knowledgeable on current facilities, needs.			Perpetuates high financial risk to University; uncertain that University can or will provide needed capital investment and operating subsidy if deficit operations continue.
1b. University of Michigan	Board of Control (consisting of members appointed by the University to represent the airport's interest)	Under new control, the policy making body would determine who should be responsible for operating the airport and how this should be carried out. Operation could be provided by the owner directly or under contract by an experienced airport operator.	Shifts some responsibility from regents to individuals more involved in the airport's role in the community and more representative of its needs.	Can not relieve University of all responsibility while it retains an ownership interest.	Depending upon make up, a Board of Control could represent all principal interests.	University would continue to be associated with airport policy to some extent.	Could produce more commited management better able to plan and carry out needed maintenance and development.	With change in control, new management would need to be implemented.		Must acquire technical capabilities.		Only relieves University of financial responsibility to the extent Board of Control is willing to assume this obligation.
2. Local Airport Commission (example: Willow Run Joint Airport Board consisting of representatives from Van Buren Township, Ypsilanti Township and the City of Ypsilanti)	Local Airport Commission	(Same as above)	Strong local government interest in assuming responsibility for Willow Run documented; state precedence elsewhere; FAA approval likely.	Upper limitations on funding raise doubts.	Would likely serve local community needs as well as any alternative; would have support of local community services (police, fire, zoning, etc.).	Not organized to be responsive to regional or state-wide needs.	Close support of local governments.	Local governments have no operating experience; new management would need to be implemented.	Close support of local governments.	Must acquire technical capabilities.	Willing to provide limited financial support.	Probably unwilling to support development if continued deficit operations are substantial; financial base should consist of at least the two counties to lessen the possible tax burden if deficit operations continue.
3. Wayne County Road Commission	Wayne County Road Commission	(Same as above)	FAA approval likely. Strong interest in owning and developing the airport.	Degree of interest unclear. Lack of local community support.	Could coordinate policies and operations between Metropolitan and Willow Run Airports.	Not organized to be responsive to local community or regional interests; local community support doubtful.	Considerable expertise in operating a large major international airport.	New management would need to be implemented.	Extensive specific knowledge, local expertise, resources, planning capabilities, planning and capital grant expertise; finance and legal capabilities; can coordinate surface transportation development within Wayne County.		Probably capable of all requisite local financial support, both operating as well as local share of ADAP funds; opportunity to cross-subsidize with Metropolitan in exchange for operational advantages. Airlines are willing to subsidize some WRA developments in short term.	Requests for ADAP funds could be adversely affected in the presence of strong local community resistance.
4. Regional Airport Authority (consisting of member political jurisdictions)	Regional Airport Authority	(Same as above)	State precedence elsewhere; FAA approval likely.	Requires approval by member political jurisdictions; exposure of Detroit Metropolitan Airport to regionalization could discourage Wayne County support.	Regional Authority could be constituted so as to reflect all principal interests involved; would likely receive support from citizens and surrounding communities; strong geographic rationale; provides for local as well as regional concerns; provides for fiscal responsibility; provides for comprehensive policy development procedures.	Some reaction to regional government.		New management would need to be implemented.	Presumed to have access to requisite experience.	Must acquire technical capabilities.	Powers to borrow and issue self liquidating bonds, tax through local government; lowest per capita finance burden.	Limitations on taxation subject to referendum.
5a. State of Michigan	State of Michigan	(Same as above)	Authorized to own an airport; FAA approval likely.	Unlikely to assume sole responsibility for Willow Run.		Too removed from regional and local concerns.	Access to state-wide operating experience.	New management would need to be implemented.	Extensive technical knowledge, resources, planning capabilities, planning and capital grant expertise; finance and legal capabilities; can coordinate surface transportation development in the region.	No current airport operating experience -- would have to make or buy.		Unlikely to assume the financial risk and burden -- might have trouble justifying assuming financial burden for a single airport in the state.
5b. State of Michigan	Separate Board of Control (consisting of members appointed by representative political jurisdictions)	(Same as above)	Authorized to own an airport; FAA approval likely.	Requires agreement of member agencies.	A separate Board could be constituted so as to reflect all principal interests; would likely receive support from citizens and surrounding communities; strong geographic rationale plus inclusion of state-wide transportation perspective; provides for local and regional concerns; provides for fiscal responsibility; provides for comprehensive policy development procedures.	Some reaction to regional government.	Access to statewide operating experience	New management would need to be implemented.	State has extensive general technical knowledge, resources, planning capabilities, planning and capital grant expertise; finance and legal capabilities; can coordinate surface transportation development in the region.	No current airport operating experience -- would have to make or buy.	Full support of financial requirements; lowest per capita finance burden. State participation through normal programs.	Must be agreed to by member political jurisdictions.

FIGURE II-1 WILLOW RUN AIRPORT EVALUATION MATRIX

TASK II

ATTACHMENTS

EXHIBIT II-1

STATEMENT OF QUALIFICATIONS OF THE WAYNE COUNTY ROAD COMMISSION TO BECOME OWNER - OPERATOR OF WILLOW RUN AIRPORT

The purpose of this statement is to enumerate the reasons why the Wayne County Road Commission (WCRC) is eminently well qualified to become the owner-operator of Willow Run Airport. The first portion of the statement will discuss the factors mentioned by Chairman Marcosky in his memorandum to the Willow Run Airport Task Force. The second portion will address related factors demonstrating that the WCRC has the necessary expertise to insure that Willow Run is operated in a manner which will make it a positive factor in Southeast Michigan.

Mr. Marcosky's memorandum lists several factors which are discussed as follows:

1. Financial capability - the WCRC has the capacity to provide immediate working capital through its association with the airlines at Detroit Metropolitan Wayne County Airport (DMWCA). In addition, it has a unique long range funding capability through its ability to issue bonds under the Michigan Aeronautics Code, based on the revenue guarantees by the airlines.
2. Legally constituted body - the WCRC is a legally constituted body to operate an airport under Act 327 of 1945 as amended, which is the Aeronautics code of the State of Michigan.
3. Acceptability by local, state and federal agencies - the WCRC has excellent working relationships with both state and federal agencies including the Michigan Aeronautics Commission (MAC) and the Federal Aviation Administration (FAA) which are the primary agencies involved in airport development and operations. Relationships with local agencies are more difficult to quantify but the WCRC has good working relationships with other county agencies both in Wayne and Washtenaw and with the majority of Wayne County cities and townships.

4. Commitment to operate facilities in accordance with role - the WCRC will commit to operate Willow Run under whatever guidelines are established by agencies legally empowered to do so and in accordance with Willow Run's role to be used as an aviation facility to comply with the needs of general aviation and contract air cargo.

Those factors demonstrating the ability of the WCRC to operate Willow Run Airport efficiently are as follows:

1. Operation Capability - the WCRC through its experience at DMWCA has acquired the capability to efficiently operate an airport on a day to day and long term basis. This includes the administration of all phases of agreements with airlines, concessionaires and airport servicing companies. Also it has demonstrated expertise in airport security and crash-fire-rescue procedures.
2. Maintenance Capability - the WCRC has acquired experience in the maintenance of both land side and air side facilities at an airport. Included are day to day maintenance, establishment of priorities for both long range and short range maintenance projects, building and utility maintenance, etc.
3. Planning, Federal Aid and Environmental Factors - It will be necessary to improve Willow Run Airport and the WCRC has expertise in the preparation of Master Plan studies through its ongoing work at DMWCA. Included in this expertise is familiarity with the preparation of Federal Aid applications and working relationships with both the FAA and the MAC. Also included is a familiarity with project monitoring and grant audits. The WCRC is familiar with federal and state requirements and procedures in the preparation of environmental impact statements, the conduct of public hearings, A-95 procedures and the fulfillment of requirements as to citizens' participation.

4. Funding - Once again, as it is found necessary to improve Willow Run to meet needs, the WCRC has the necessary legal staff to conduct all phases of the issuance of bonds and subsequent contract administration.
5. Right-of-Way acquisition - If land acquisition becomes necessary, the WCRC has long experience in all phases of property acquisition from the preparation of the necessary documents for appraisal to the legal staff necessary for preparation of conveyance documents and condemnation procedures.
6. Engineering Capability - the WCRC has experience in all phases of engineering for airport projects. This capability ranges from monitoring existing facilities for needed maintenance projects through design and construction engineering for complete runway-taxiway construction and development of necessary road access. In addition, this capability extends to building work, terminal, hangar, parking lots, etc.

It is believed the above mentioned qualifications demonstrate that the WCRC has the necessary experience and staff available to develop Willow Run Airport to the fullest potential as a positive transportation and economic factor in Southeast Michigan. The WCRC in the role of owner-operator of Willow Run Airport would utilize skills and resources already in existence and make unnecessary another (duplicating) layer of government in handling airport development and operations at Willow Run.

12-2-75
RAL:k

STATE OF MICHIGAN

EXHIBIT II-2

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STATE HIGHWAYS BUILDING - POST OFFICE DRAWER K - LANSING, MICHIGAN 48904

JOHN P. WOODFORD, DIRECTOR

August 4, 1975

Mr. Jack Bland, Director
Transportation Distribution
Stanford Research Institute
Room E-312
333 Ravenswood Avenue
Menlo Park, California 94025

Willow Run Airport Study-
Consultant Activities

Dear Mr. Bland:

Please be advised that the following resolution was approved by a majority of the members of the Willow Run Airport Study Advisory Task Force at their July 22, 1975 Meeting:

> "Recommend that Willow Run Airport continue to be used as an aviation facility to comply with the needs of general aviation and contract air cargo."

In order to meet our requirements for a full and open report, we have asked members of the Task Force that they submit any "minority opinions" on the candidate role for the Willow Run Airport to be attached to the final report of Stanford Research Institute. The deadline for the submittal of any minority reports was August 1, 1975. No minority reports were received, but the attached letter from Mr. Elton Gollwitzer, Supervisor of Van Buren Township, points out what he considers deficiencies in the report. We ask that his letter be included in the addendum.

Based upon the resolution of the Task Force, public input and the findings of your firm, the Sponsor's Supervising Committee recommends that Willow Run Airport continue in its current role in the Michigan State Airport System. This recommendation eliminates the expansion of the airport to a major freight facility or a significant reduction of current airport function.

We authorize you to finalize the report on the role of Willow Run Airport in the Michigan State Airport System and to proceed with Phase II, "Determine the future Owner/Operator for Willow Run Airport." We have requested that Task Force Members submit any additions or comments regarding the factors used in analyzing candidate owner/operators and the list of possible owner/operators to Edward Mellman of my staff by August 6, 1975. In directing

MICHIGAN
THE GREAT LAKE STATE

your activities to analyzing candidate owner/operators, please consider the Task Force members' suggestions which Mr. Mellman will forward to you after the August 6, 1975 deadline date for submission.

If there are any questions regarding the above information, please let me know.

Very truly yours,

Sam F. Cryderman, Deputy Director
Bureau of Transportation Planning

bg

ATTACHMENT

TOWNSHIP OF VAN BUREN

VAN BUREN TOWNSHIP

46425 TYLER ROAD • BELLEVILLE, MICHIGAN 48111 • 313 699-2001

SUPERVISOR—GOLLWITZER CLERK—CULLIN TREASURER—YORK

31 July 1975

Mr. Edward A. Mellman,
Manager, Aviation Planning Sect.
Modal Planning Division
Bureau of Transportation Planning
3rd Floor, Highway Bldg.
Lansing, Michigan 48904

RE: S.R.I. Tasc IC Draft,
Willow Run Airport Study

Dear Mr. Mellman:

Much of the valuable information in subject report was over-shadowed by two unfortunate inclusions, as follows:

First - Figure 7, page 20 entitled "Existing Land Uses 1970". This map shows almost everything around Willow Run as being agriculture in 1970. This map is completely wrong. No few comments could correct it. From looking at this map, the natural deduction is that everything was open space in 1970. From that, one might also assume that all development has taken place since the airport "expansion" was proposed! In actuality, some of the settlements predate Willow Run and the Bomber Plant. PRACTICALLY NOTHING HAS BEEN BUILT IN THE PAST 5 YEARS.

Second- Financial Impact Page 33 says that the airport would have to be "subsidized by the owner. The cost is estimated to average 1 million dollars per year*". The asterisk explains that the "estimate" is taken from a "memo from the Willow Run airport manager (6-20-73)." Unquestionably, Willow Run management knows the problems. But, it does not follow that they must all be paid for by a "subsidy by the owner". Neither does it follow that the problems have to be solved at the rate of 1 million dollars per year. Actually, it is over 2 years since he wrote his memo and nobody has subsidized it to the tune of 2 million dollars during that time.

The impression given by these two unfortunate inclusions is that if anyone gets hurt by the expansion, it's his own fault for moving in since 1970 and, that only a super-financial body could operate the facility. Both of these conclusions are absolutely false and I do not believe the report was intended to promote them. It would seem a more objective way could be used to make the point that Willow Run will have to have work done on it over the next several

(continued)

years to put it in condition to serve whatever role is needed. The amount, and how it will be financed, will vary with the role and the events that transpire.

It was brought out at the session of the task force that the role the airport would fill would ultimately be determined by the owner and by the "needs". The implication by those who are air-oriented was that there should be no hindrance to meeting those "needs" at Willow Run. For those who are not air-oriented, it seems unreasonable that their property should be held in limbo waiting to see what "needs" develop. Much is said about the importance of planning and it is just common sense that Willow Run Airport be part of a reasonable plan for the area so that other property owners can use their property. All the future "needs" of humanity need not be filled at this particular point on the earth's surface.

This brings us to the character of the owner who presumably decides what the "needs" are. Over four years ago, one prospective owner decided what the "needs" should be for Willow Run. The "needs" were well publicized and included nearly doubling the size. Over four years later - (now), the whole idea seems preposterous to most people, (see SRI Report I.B.) We must assume that leaving the future of Willow Run up to this type of decision-making without any system of check and balance usually afforded in a democracy, would be totally irresponsible. If both the role and the operator are being decided by the selection of an operator, great care should be taken that this operator be responsive to the needs of the people. The operator's judgement must not be confined to a narrow field, with no consideration for the rights of others. The "needs" must be those of the people, not the "needs" of a large bureaucracy for a place to do a big thing.

- This is very important.

Yours truly,

G. E. Gollwitzer,
Supervisor

VAN BUREN TOWNSHIP

cc: Edward Kazenko, Wm. Gehman
John Markosky, John Axe

GEG:rb

EXHIBIT II-3

TO: Members of the Willow Run Airport Task Force

FROM: John Marcosky, Chairman

SUBJECT: Committee Motion Regarding Airport Role

DATE: July 23, 1975

The motion of July 22nd, as passed by majority vote of task force members present, is the basis of the formal recommendation to be submitted, by August 1st, to the Sponsor's Supervising Committee. To eliminate the possibility of misunderstanding, the motion is restated below.

> "Recommend that Willow Run Airport continue to be used as an aviation facility to comply with the needs of general aviation and contract air cargo."

In accord with the task force's policy of full and fair airing of all points of view, members may submit a "minority opinion" on the candidate role for Willow Run Airport for attachment to the consultant's final report. It is requested that this be transmitted to Edward Mellman of the SSC by August 1st.

As mentioned at the July 22nd meeting, members should submit any additions or comments regarding the factors used in analyzing candidate owner/operators and the list of possible owner/operators by August 6th. This should also be sent to Mr. Mellman at the address below:

Edward Mellman, Manager
Aviation Planning Section-Modal Planning Division
Bureau of Transportation Planning
Michigan Department of State Highways and Transportation
P. O. Drawer "K"
Lansing, Michigan 48904

MEMO

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
1249 Washington Blvd. 8th Floor Book Bldg. Detroit, Michigan 48226

SOUTHEAST MICHIGAN
COUNCIL OF GOVERNMENTS

July 24, 1975

Mr. Samuel F. Cryderman
Deputy Director
Bureau of Transportation Planning
Michigan Department of State Highways
and Transportation
State Highways Building
Post Office Drawer "K"
Lansing, Michigan 48904

Dear Mr. Cryderman:

As was charged, a major duty of the Willow Run Airport Task Force is the review of the content and findings of all phases of the Willow Run Airport Study and the provision of recommendations regarding solutions to the issues raised. Since the initial meeting, members of the advisory committee have expended considerable time and effort in reviewing study material and advising the consultant, the Stanford Research Institute. At this point in the study, a total of four full sessions of the task force have been held. Moreover, two public information meetings were arranged and held to assure direct citizen viewpoint and involvement.

The primary purpose of the study as stated within the Willow Run Airport Study Design, is two fold: (1) determination of the future role of the facility, and (2) selection of the best owner/operator. The first juncture of the study was reached and addressed by the task force at its July 22nd meeting. After long discussion and careful consideration of the consultant's Task IC report, Analysis of the Candidate Roles for the Willow Run Airport, the following motion was passed by Majority vote of task force members present.

"Recommend that Willow Run Airport continue to be used as an aviation facility to comply with the needs of general aviation and contract air cargo."

Therefore, it is the formal recommendation of the task force that Willow Run Airport's future role be consistent with the aforementioned motion.

Sincerely,

John Marcosky

John Marcosky
Chairman, Willow Run Airport Task Force

JM/BDS/mw

cc: Vice Chairwoman Beverly McAninch
Edward Mellman
Edward Kazenko
William Gehman
Robert Pangburn
Willow Run Airport Task Force Members

EXHIBIT II-4

TO: Members of the Willow Run Airport Task Force

FROM: John Marcosky, Chairman

SUBJECT: Summary of Task IC and future study work

DATE: July 15, 1975

A brief summary of the consultant's report on candidate roles for the Willow Run Airport has been prepared and is enclosed. It is hoped this summary will aid in the task force's deliberations regarding the airport's future role. To meet the August 1st date requested by the Sponsor's Supervising Committee, and to allow sufficient time for the preparation of the formal recommendation, it will be necessary that the task force reach a decision with regard to Willow Run's future role at the July 22nd meeting.

Following the determination of the airport's role, the next major step of the Study is the evaluation and selection of the owner/operator of the facility. To begin this process the following possible owner/operators have been suggested for discussion.

Candidate Owner/Operators

1. University of Michigan
2. Michigan Department of State Highways and Transportation
3. Willow Run Airport Commission
4. Wayne County Road Commission
5. Regional Airport Authority
6. Federal Aviation Administration
7. Other suggestions from task force members

MEMO

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
1249 Washington Blvd. 8th Floor Book Bldg. Detroit, Michigan 48226

In addition to possible owner/operators, the task force must provide, for consideration by the consultant, factors to be used in analyzing the proposed owner/operators. Below is an initial list of suggested factors to be employed in the evaluation.

FACTORS USED IN ANALYZING CANDIDATE OWNER/OPERATORS

1. Financial capability
2. Legally constituted body
3. Acceptability by local, state, and Federal agencies
4. Commitment to operate facility in accordance with role
5. Other suggestions from task force members

The members of the committee are urged to consider these proposed owner/operators and factors and submit any additions at the forthcoming meeting.

STATE OF MICHIGAN

EXHIBIT II-5

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STATE HIGHWAYS BUILDING — POST OFFICE DRAWER K — LANSING, MICHIGAN 48904

JOHN P. WOODFORD, DIRECTOR

August 12, 1975

Mr. Jack Bland, Director
Transportation and Distribution
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

SUBJECT: Suggested Factors and Possible
Owner/Operators - Willow Run Airport

Dear Jack:

In accordance with our telephone conversation of August 11, 1975, I have enclosed the factors and possible owner/operators of Willow Run Airport suggested by the following members of the Study Task Force:

1. G. E. Gollwitzer
   Supervisor, Van Buren Township

2. Ellis Amerman
   Mayor, City of Belleville

3. Robert A. Larson
   Director of Transportation
   Wayne County Road Commission

In addition to these comments, we have been advised that two other members of the Willow Run Airport Study Task Force -- Thomas J. Fegan, Director of the Washtenaw County Planning Commission and George Goodman, Mayor of Ypsilanti -- have communications on the owner/operator question in process. Because we were informed of these comments before the August 6, 1975 deadline, we will accept them for the same consideration as the three suggestions submitted with this letter.

MICHIGAN
THE GREAT LAKE STATE

Please consider these suggestions in your analysis of the best owner/operator of Willow Run Airport and keep us advised of your progress on this phase of the study.

Sincerely,

Edward A. Mellman, Manager
Aviation Planning Section
Bureau of Transportation Planning

Enc.

City of Belleville

MUNICIPAL BUILDING
6 Main Street
BELLEVILLE, MICHIGAN 48111

Office of the Mayor

July 30, 1975

Edward Mellman, Manager
Aviation Planning Section-Modal Planning Division
Bureau of Transportation Planning
Michigan Department of State Highways and Transportation
P.O. Drawer "K"
Lansing,Michigan 48904

Dear Mr. Mellman

We wish to explain our views on the future operation and owner of the Willow Run Airport.

We feel that the Organization formed by Ypsilanti Township, Ypsilanti City, and Van Buren Township should be the future Owner-Operator of this Airport. This would put control of all operations and expansions in Local hands, where we can have some influence on the Future.

We feel this would provide the best results for all Communities in the Area.

Sincerely

Ellis Amerman

Ellis Amerman
Mayor

EA/jb

Wayne County Road Commission

OPERATORS OF ROADS • AIRPORT • PARKS • SEWER & WATER

415 CLIFFORD • DETROIT, MICHIGAN 48226 • PHONE 962-5700

August 1, 1975

Mr. Edward Mellman, Manager
Aviation Planning Section-Modal Planning Division
Bureau of Transportation Planning
Michigan Department of State Highways and Transportation
P.O. Drawer "K"
Lansing, Michigan 48904

Dear Mr. Mellman:

Re: Candidate owner/operators factors - Willow Run.

In accordance with your July 23, 1975 request, I am hereby submitting comments regarding the factors used in analyzing candidate owner/operators for Willow Run Airport. My comments are as follows:

1. The financial capability factor should include the ability to provide immediate working capital and the ability to bond.

2. Additional factors to be included should be a factor regarding staff capabilities in the areas of administration, finance, legal and technical engineering.

3. Another factor is experience in operating an airport facility.

Regarding the seven suggested candidate owner/operators, three of the seven appear to be very remote possibilities. The University of Michigan, the present owner/operator wants to cease operations at Willow Run. The Federal Aviation Administration, as a national policy, does not own and operate airports with the exception of two--Dulles and Washington National which are operated because of their critical importance to national security. The Michigan Department of State Highways and Transportation does not operate any airports.

If you have any questions regarding the above, please advise.

Very truly yours,

BOARD OF WAYNE COUNTY ROAD COMMISSIONERS

Robert A. Larson
Director of Transportation

RAL/dd

cc: Mr. M. J. Zolik
Mr. C. H. VanDeusen
Mr. R. E. Dinsmore

WASHTENAW COUNTY
METROPOLITAN PLANNING COMMISSION

306 COUNTY BUILDING MAIN AND HURON STREETS
P.O. BOX 645 ANN ARBOR, MICHIGAN 48107 (313) 994-2435

DIRECTOR
Thomas J. Fegan

August 1, 1975

Mr. John Marcosky, Chair
Willow Run Task Force
29537 Meadowlane Drive
Southfield, MI 48076

Dear Mr. Marcosky:

On July 22 the Willow Run Task Force, after considerable discussion, passed a motion regarding the future role of the land which is presently Willow Run Airport. At that time the Washtenaw County Planning Commission representative abstained from voting, and noted that the issue of the role of the airport would be discussed with the County Planning Commission and thereafter a position would likely to taken.

On July 23, I received a communication from you noting that you wished any comments we might have, or minority report, to be provided by August 6, 1975 if was to become a part of the report. We wish to comply with your request but find it all but impossible to meet this time schedule. The next full County Planning Commission meeting is August 13, 1975 and at that time I intend to present the issue of Willow Run Airport to the Planning Commission and they in turn can take a position. Immediately thereafter we will transmit their action to you for inclusion in the report.

If you have any questions or find difficulty with this schedule, please let me know.

Sincerely,

Thomas J. Fegan
Director

TJF/skm

cc: Marilyn Thayer
Edward Kazenko
Gary Krause
Edward Mellman

WASHTENAW COUNTY

METROPOLITAN PLANNING COMMISSION

306 COUNTY BUILDING MAIN AND HURON STREETS
P.O. BOX 645 ANN ARBOR, MICHIGAN 48107 (313) 994-2435

DIRECTOR
Thomas J. Fegan

August 19, 1975

Mr. Edward Mellman, Manager
Aviation Planning Section
Model Planning Division
Bureau of Transportation Planning
Michigan Department of State
Highways and Transportation
P.O. Drawer "K"
Lansing, Michigan 48904

RE: Role of the Willow Run Airport

Dear Mr. Mellman:

On July 22, 1975 the Willow Run Task Force met and, after extensive discussion, passed a resolution regarding the future role of the Willow Run Airport. At that time I, as a Task Force member, abstained from voting, indicating that I wished to discuss the "role" issue with the Washtenaw County Planning Commission before taking a position.

After receiving a memorandum on August 1, 1975 from John Marcosky, Chair of the Task Force, indicating that added comments by members could be transmitted, staff proceeded to provide the County Planning Commission with the necessary information so that the issues relating to the Airport's future role options would be clear to them when it was discussed at their regular meeting. On August 13, the County Planning Commission met and, after substantial discussion, passed the following motion:

> "The Washtenaw County Metropolitan Planning Commission concludes that, based on the information provided by the Willow Run Task Force and intensive review and discussion carried out by the Planning Commission, the Willow Run Airport should remain as an airport; that such airport should be under the managerial and operational control of a local body; and that, before the County Planning Commission can take a position on the future role of the airport, more explicit and definitive information on the financial issues should be provided and closely analyzed."

During the Commission's review, a number of important issues were raised about the future of the Airport. The Commission concluded that Willow Run should remain an airport, but the type of airport could not be determined as it was found there was not adequate information, especially pertaining to the financial considerations of the alternative options described. The information provided by the Stanford

Research Institute of Menlo, California, Task Force consultants were analyzed. It was felt that the questions raised by Fulton B. Eaglin, Attorney for the newly formed Willow Run Joint Airport Board, about the consultants' conclusions were not answered. Issues of existing and future land use in the runway Noise Exposure Forecast (NEF) areas and the potential of night cargo flights versus daylight general aviation flights were closely reviewed by the Commission. The cost issue for improvements-maintenance-operation for a potential cargo airport versus a general aviation airport at Willow Run, and the capability of the future owners making the necessary improvements under each option needs further study. If some level of cargo activity is necessary to have a first class facility, just how much is needed?

If it is necessary to maintain or even expand the cargo activity at Willow Run to provide the future owners with adequate revenue to adequately operate the airport, the adjacent local governments must seriously consider steps to modify land use policies, especially as they relate to schools, single-family residences and apartments, so that the noise-safety conflicts that will likely grow with a major cargo airport can be alleviated as much as possible.

Even though the Task Force has taken a position about the future role of Willow Run Airport, it is the conclusion of the County Planning Commission, and of myself as a Task Force member, that more explicit information on the financial aspects of the alternative roles (air cargo versus general aviation) must be provided and, as a result of this information, possibly more study may be needed on the environmental issues before a position on the future role of the Willow Run Airport can be taken.

If you have any questions, please feel free to contact me.

Sincerely,

Thomas J. Fegan

Thomas J. Fegan
Director

cc: John Marcosky
Gary Krause
Edward Kazenko

CITY OF ANN ARBOR MICHIGAN

DEPARTMENT OF PARKS AND RECREATION
ANN ARBOR MUNICIPAL AIRPORT
801 AIRPORT DRIVE, 48104

August 6, 1975

Mr. Edward A. Mellman, Manager
Aviation Planning Section
Model Planning Division
Bureau of Transportation Planning
3rd Floor — Highway Building
Lansing, Michigan 48904

Dear Ed:

At the last meeting of the Willow Run Task Force a few questions were raised regarding Ann Arbor. Specifically I remember the character of three and I would like to have you answer them in writing.

Cecil Ursprung: Referring to Jack Bland's letter of April 30, 1975, which states, ". . . does not assume development of significant capacity at nearby utility airports," Mr. Ursprung wanted to know if the development of other airports had been considered. I believe thay you responded that this was a study of the Willow Run Airport and not the region. That study had been done earlier by the state and S.R.I. Someone made note of the fact that the state system study projected a 7% compounded annual growth for the region.

Messrs. Fegan and Lloyd then asked some questions which I have condensed into two major questions. If the projected new airports are not built are there enough airports in the region to meet the projected needs? Will Willow Run be able to meet Ann Arbors needs? To these you answered no. You went on to say that you felt that TransPlan forecasts were conservative but not objectionable in-so-far as the state was concerned.

In the interest of accuracy I have written what I thought I heard at that meeting. These appear to be three major questions confronting us. I am sure that citizens will view your response with some question but will view them as technical input to the study. I am sure that many would want to say that Ann Arbor wishes to reserve the right to accept or reject what you might say in the determination of policy, but that your technical input would be appreciated.

Sincerely,

John C. Rinehart, A.A.E.
Airport Manager

JCR/mlt

August 11, 1975

Mr. John C. Rinehart, A.A.E.
Airport Manager
Department of Parks and Recreation
Ann Arbor Municipal Airport
801 Airport Drive
Ann Arbor, Michigan 48104

SUBJECT: Factors Relating to Willow Run Study

Dear John:

In accordance with your letter of August 6, 1975 in which you raised several questions relating to the Willow Run Study, we will try to address these factors in the same order in which they were asked.

Although the Willow Run Study addresses itself primarily to one airport, the consultant (SRI) did, in the research, take an overview of regional aviation demand. In addition, as you point out in your letter, the Michigan State Airport System Plan was utilized as a basic source of data.

For this reason, the large map of State Planning and Development Region No. 1 was used at the meeting. In all airport studies undertaken in Southeast Michigan, the individual airport plan must be considered with some thought given to its regional or state airport system role.

The projected aviation needs for this region, or any other region in the State of Michigan, are based on forecasted demand for facilities. These facilities are comprised of various sizes and types of airports rated on the basis of forecasted demand. If the new airports, which are needed in the area are not built, there will not be enough airports to meet projected aviation needs.

Willow Run Airport is not able to meet Ann Arbor's aviation needs, nor is Ann Arbor able to meet Willow Run's aviation needs. They are two different types of airports; each serving different areas, numbers, and types of aircraft. They are not competing airports, but are complimentary facilities in the state and regional airport systems.

The forecasts done by Trans Plan for the Ann Arbor Municipal Airport Master Plan Study are reasonable. For a detailed analysis of these forecasts, we refer you to review our written comments on them, which we said, in part:

> "We have reviewed the first three (3) phases of the Ann Arbor Master Plan entitled, Inventory, Forecasts and Demand Capacity Analysis.
>
> In general, we feel that the consultants have been very thorough in their analysis and we agree with their estimates of Forecasts and Demand/Capacity.
>
> We concur with their analysis that the State Airport System Plan (SASP) estimates of based aircraft for Ann Arbor should be considered a minimum or "Low" estimate. The SASP estimates for Ann Arbor are based on the assumption that other airports will be developed around Ann Arbor, namely, Chelsea, Milan, Salem, and Willow Run. If these other airports are not developed, Ann Arbor's activity will be greater than anticipated."

We hope that the above information will answer your questions and provide adequate, technical information for the citizens of the Ann Arbor area to consider when reviewing the progress of the master plan.

Very truly yours,

Edward A. Mellman, Manager
Aviation Planning Section
Bureau of Transportation Planning

EAM:ef

cc: R. S. Boetman, Manager
Metro Regional Planning Division

Gary Krause, SEMCOG THIS COPY FOR

STATE OF MICHIGAN

EXHIBIT II-6

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STATE HIGHWAYS BUILDING — POST OFFICE DRAWER K — LANSING, MICHIGAN 48904

JOHN P. WOODFORD, DIRECTOR

August 15, 1975

Mr. Jack Bland, Director
Transportation and Distribution
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

SUBJECT: Suggestions on Owner/Operator
From Willow Run Joint Airport Board

Dear Jack:

Enclosed is a letter from Mr. Fulton B. Eaglin, Attorney for the Willow Run Airport Joint Board, detailing the point of view of his client regarding the best owner/operator for the Willow Run Airport.

This detailed letter questions the financial backing necessary to operate this facility and proposes the Willow Run Joint Airport Board as the best possible owner/operator of the airport, after discussing a number of alternatives. Please consider this information, along with the other suggestions submitted in our previous letter to you, in analyzing the best future owner/operator of Willow Run Airport.

We have been advised that the Washtenaw County Planning Commission discussed the Willow Run Study in detail at their meeting of August 13, 1975. They will be submitting a written report on their findings. They have advised us orally that they are in favor of a local owner/operator for Willow Run Airport and they would have preferred to see a cost benefit analysis or at least an estimated cost statement for each of the candidate roles for Willow Run Airport.

As far as we know, the Washtenaw County Planning Commission's letter will be the last one discussing either the report or suggestions for owner/operator of the airport.

Sincerely,

Edward A. Mellman, Manager
Aviation Planning Section
Bureau of Transportation Planning

Enc.

MICHIGAN
THE GREAT LAKE STATE

MEMORANDUM

TO: WILLOW RUN AIRPORT TASK FORCE

FROM: WILLOW RUN JOINT AIRPORT BOARD

SUBJECT: CANDIDATE-OWNER, OPERATORS WILLOW RUN AIRPORT

DATE: August 7, 1975

I. INTRODUCTION

On July 22, 1975, a meeting of the Task Force was held at Van Buren Township Hall to determine what would be the future role of Willow Run Airport. Basically, the group decided the future role would be the status quo option as suggested under the Stanford Research Institute Study, published on July 10, 1975. In essence, the Airport is to continue as a general aviation facility with contract cargo operations.

After having determined the role of the Airport for the future, Chairman, John Marcosky, asked each of the members of the Task Force to submit their written suggestions about who should be the candidate-owner, operator for the airport facility. This memorandum is being written by the Willow Run Joint Airport Board, which has three members on the Willow Run Airport Task Force, George Goodman, Mayor of Ypsilanti, G. Elton Gollwitzer, Van Buren Township Supervisor, William Winters, Ypsilanti Township Supervisor, in response to said request of the Chairman. Thus, the question with which this memo concerns itself is "of the six possible candidate-owner, operators for the Willow Run Airport who amongst them should own and operate said Airport".

II. ALTERNATIVES

A. UNIVERSITY OF MICHIGAN

The University of Michigan, the present owner-operator of the Willow Run Airport has stated consistently that it wants to be relieved of the responsibility of owning and operating the Airport. As a result of their own admissions, they have excluded themselves as one of the candidates to own and operate the Airport. Thus, no further suggestion or comment is made regarding their operating the Airport.

B. MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

The Michigan Department of State Highway and Transportation is not in the business of owning and operating airports anywhere in the State. If anything, they are performing a supportive role to highways and transportation systems throughout the State. Perhaps, it is possible they would be interested in performing a supportive role to whomever the owner-operator of the Airport might become. However, for them to take over and operate an Airport on a day to day basis, we feel would be outside the scope of their operations. We, the Willow Run Joint Airport Board, certainly hope that the Department of Highways and Transportation will help the owner-operator of the Airport, just as we would expect them to help the Wayne County Road Commission in running Detroit Metropolitan Airport, or Amtrak in trying to have a successful rail transportation system throughout the state.

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

C. WILLOW RUN AIRPORT COMMISSION

In this Committee's mind, Willow Run Airport Commission is synonomous with Willow Run Joint Airport Board. In short what the three units of government have named their board. Van Buren Township, Ypsilanti Township and the City of Ypsilanti are the three units of government, which have joined together to form this group. They are organized under Public Acts 327 of 1945 and are at present a functioning viable organization prepared to receive the Willow Run Airport, when a determination is made, that the same will be deeded to this group. Several factors support this groups taking over the Airport. They follow:

1. The airport is contained entirely within the boundaries of these three units of government.

The runways are in Van Buren Township and the buildings are in the Township of Ypsilanti. Both units of government have joined with the City of Ypsilanti for the purpose of owning and operating this airport.

The airport is in a rather awkward position of being located on the borderline of two counties with its runways in Wayne County and its major buildings and other facilities in Washtenaw County. Furthermore, most of the air traffic from the airport affects both counties. As such, it is our belief that future owners of the Airport should be a group responsive to the needs of the major communities surrounding the Airport. There is only one such group.

2. The citizens who are to be affected the most by the Airport, reside in these three units of government and as such should be able to direct their own future with respect to said facility.

The citizens of these three communities have been actively seeking to own and operate Willow Run Airport for some period of time. They are the most affected. They have the greatest numbers of employees presently working at the airport, and it is their airspace and land which will be most affected by the future operations of Willow Run Airport. If Willow Run Airport is allowed to continue to deteriorate the property values surrounding said airport will be adversely affected.

In short, if someone else operates this airport and allows it to deteriorate, thereby causing the land values of the property surrounding and adjacent to the airport to go down, someone completely outside the control of the three units of government have caused a tremendous economic loss to all of the citizens of these three communities without their being involved at all.

The planning for and the orderly development of the lands in proximity to the Airport by the three communities, can be achieved only if the use and development of the Airport is coordinated by these communities. The local communities can change the zoning, create industrial parks and industrial development districts, locate new roads and locate and construct sewer and water facilities to serve both the airport and the surrounding area on a planned and coordinated basis to achieve a reasonable development of the area to its maximum potential.

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

3. The three units of government are prepared to subsidize the airport to the extent necessary to make it a functional, viable, economic entity.

Van Buren Township, Ypsilanti Township and the City of Ypsilanti, joined together to form the Willow Run Joint Airport Board under Public Act 327 of 1945 with the full understanding that economic subsidy of the airport might be necessary. The three units of government stand prepared to back their commitment by making dollars available where necessary to make the airport run. However, the three units of government want to make it quite clear that a million dollar subsidy from the communities tax dollars, which has been suggested from some corners, is indeed out of the question. In a memorandum to the Task Force dated July 22, 1975, Fulton B. Eaglin, Attorney for the Airport Board, pointed out the fallacy of the million dollar tax subsidy. Said memorandum is attached hereto.

A large outlay, perhaps a million dollars or more may be necessary in order to bring the Airport to some new level of operation, however, there are several ways in which this can be handled. Funds are available through the Federal Government to assist in maintenance and development. Revenue bonds are available as a source of financing for rehabilitation and development. The state, which also has an interest in seeing Willow Run Airport survive, could be another funding source.

4. Willow Run Airport is adjacent to a Ford Motor Company Plant and a General Motors Plant; both of whom have had high usage of the airport's facilities, and both of whom are found in all three of the communities comprising the Willow Run Joint Airport Board.

Although the automobile industry is suffering a minor set back at this moment in history, it is anticipated that as additional energy sources are found and automobile engines are converted, the automobile industry will again become a great user of the airport. Ford Motor Company Plant and Generla Motors Plant own tremendous amounts of the land immediately around same and they are already members of the three existing communities. Working with the communities on the Airport would further aid in the good will which has grown between the communities in which they are located.

5. Willow Run Airport is between US-23 on the West, I-275 on the East, I-94 on the South and US-12, Michigan Avenue on the North.

With these highways bordering right on the Airport, they make access from the three communities interested in running the airport, as well as outlying communities very easy. If the Airport were owned by the three communities, and additional access routes were needed as has been suggested by the Stanford Research Institute in their 10 July 75 Report, the communities would be more prone to make whatever land is necessary, available, if they did in fact control the airport. In short, in some ways without the three communities owning the airport, whoever becomes the owner-operator may have a very difficult time in building additional access routes.

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1670

6. Futures plans for the Willow Run Airport will be much more compatible with the growth of its surrounding communities if it is controlled by same.

A very interesting phenomina occurs in this Country with planning, we often plan for the immediate future without considering long term effects of our decisions and as such turn out to be penny wise and pound follish. It would be foolish to do the same with Willow Run Airport. At the present time, the three government entities interested in Willow Run Airport are growing and expanding. As they grow, and as general industry grows in southeastern Michigan, so will air cargo and general aviation continue to grow. This may result in an even greater use of the Willow Run Airport in the future, necessitating expansion.

If this expansion becomes necessary, the three surrounding communities are the best qualified to plan the future growth of the airport in conjunction with the surrounding areas so the two will grow together and be mutually compatible. We have seen far too often, the negative results of governmental units working against each other in the areas of planning. This type of fiasco need not happen with the Willow Run Airport and its surrounding community. The Willow Run Joint Airport Board is in the best position to plan for the Airport's future since it is indirectly responsible for the future development of the entire area.

D. WAYNE COUNTY ROAD COMMISSION

The Wayne County Road Commission presently owns and operates the Detroit Metropolitan Airport, a passenger terminal which, it has been said, should be able to meet the needs of the greater Detroit Metropolitan area well into the 1990's. Willow Run Airport on the other hand is not in the passenger terminal business, but is restricted to general aviation and contract air cargo. While Detroit Metropolitan Airport does handle some minor cargo operations, they are primarily a passenger airport. Should they take over a general aviation and cargo facility, it is felt by some, general aviation and cargo would suffer while passenger terminal operations prospered because of the Wayne County Road Commission past focus on passenger operations.

None of the units of government in which the Airport is completely found, want the Wayne County Road Commission to own and operate the airport. They saw them bulldoze their way through Romulus with little or no concern for that community. The communities involved don't want the same to happen here.

The Wayne County Road Commission has said it doesn't want commercial and general aviation operations in one place. If they got the airport, it's possible the Willow Run Airport would be closed to general aviation use, a use this Task Force has said Willow Run Airport should have.

If the Wayne County Road Commission were to take over control of the Willow Run Airport, they would have a monopoly on all air cargo operations in the greater Detroit Metropolitan area. Two problems arise immediately when this happens; first, all air cargo could be moved to Detroit Metropolitan Airport, thereby causing a tremendous loss of revenues to the Willow

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

Run Airport; secondly, such a monopoly could drastically increase the air cargo rates for the air carriers, since their needs could only be met by one operator.

The Detroit Metropolitan Airport has been run by a professional in the field of airport operations. The Willow Run Airport will be run by one also. The ten years experience in running Detroit Metropolitan, carries no advantages in the road commission quest for control of the facility.

E. REGIONAL AIRPORT AUTHORITY

A regional airport authority does not exist at this point in time. Therefore, this option is not a present viable alternative. At some point in the future, if a regional air port authority comes into existence, then Detroit Metropolitan Airport, Willow Run Airport, Ann Arbor Municipal Airport and all other local airports can make a decision as to whether or not they would want to join such an authority. However, to start such an authority by giving them control of an existing, functioning airport while such a group neither exists, nor if it did exist has no immediate connection with the communities surrounding the airport, would in the Willow Run Joint Airport Board's estimation be a complete mistake.

F. FEDERAL AVIATION ADMINISTRATION

The Federal Aviation Administration has stated in open conversation to Fulton B. Eaglin, attorney for the Board, and other members of this Board, that they presently own two airports and are not interested in owning and operating a third. Therefore, for the same reason that the University of Michigan was excluded as Option A, we would exclude the Federal Aviation Administration. They are not interested.

G. OTHER SUGGESTIONS FROM TASK FORCE MEMBERS

At present there are two primary contendors for the Willow Run Airport. The Wayne County Road Commission and the Willow Run Joint Airport Board. As between these two the question becomes in the end are the people who live and work in a community going to be able to control their own future or is someone from outside their areas going to be able to dictate to them. We think the community should be able to decide its own future.

As for other suggestions from Task Force members, we are always interested in listening to others, however, we are certain once these suggestions are in they must fall to a man's right to control his own future and that is what the three communities who sit on the Willow Run Joint Airport Board are asking.

III. CONCLUSIONS

By way of review, there are six major reasons why Willow Run Airport should be owned and operated by the Willow Run Joint Airport Board. They are:

A. The Airport is entirely located within the three units of governments boundaries;

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

B. The local person in the three units of government will be the most effected by the airport's use;

C. The three units of government are prepared to make the economic commitment necessary to make the Airport run;

D. If the three units of government own and operate the Airport, it will strengthen the already existing good will between the Ford Motor Company, General Motors and the three communities involved;

E. It will make building any additional access routes necessary for the operation of the airport infinitely easier.

F. Future planning for the airport will be more compatible with the growth of its surrounding communities if they in fact control the operation of same.

The Willow Run Joint Airport Board is prepared to accept and run the airport successfully. We are intiating discussions with professionals to plan for the operating of the facility. The task force support for three communities would be a tremendous aid in our achieving our final goal.

/s/ Paul Clay
PAUL CLAY
CITY OF YPSILANTI

/s/ Fred Domen
FRED DOMEN
VAN BUREN TOWNSHIP

/s/ Frank Daniels
FRANK DANIELS
YPSILANTI TOWNSHIP

/s/ G. Elton Gollwitzer
G. ELTON GOLLWITZER,
SUPERVISOR, VAN BUREN TOWNSHIP

/s/ George Goodman
GEORGE GOODMAN,
MAYOR, CITY OF YPSILANTI

/s/ Dale Hooker
DALE HOOKER
CITY OF YPSILANTI

/s/ Jerry Matton
JERRY MATTON
VAN BUREN TOWNSHIP

/s/ Roy Wilbanks
ROY WILBANKS
YPSILANTI TOWNSHIP

/s/ Bill Winters
BILL WINTERS,
SUPERVISOR, YPSILANTI TOWNSHIP

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

MEMORANDUM

TO: Willow Run Airport Task Force

FROM: Willow Run Joint Airport Board

SUBJECT: The Stanford Research Institute (SRI) Report dated July 10, 1975 - Analysis of the Candidates Roles for the Willow Run Airport

DATE: July 22, 1975

I. INTRODUCTION

On July 10, 1975, the Stanford Research Institute of Menlow Park, California, produced a written report for this Task Force. Some months ago the City of Ypsilanti, the Township of Van Buren and the Township of Ypsilanti joined together to create a Joint Airport Board. The purpose of this Board is to gain control of the Willow Run Airport as we are the three local units of government in which the airport is found. It is our sincere desire to jointly control this airport which is completely within our governmental boundaries. With this in mind, several questions and objections have been raised by we, the three governments to Phase I, or Task 1 C of the Stanford Research Institute study.

II. THE PROBLEM

On pages 32 to 37 Stanford Research Institute lays out three possible alternatives for the use of Willow Run Airport. The status quo,general aviation operations only, and a phase out of Willow Run Airport.

A. The Status Quo:

An analysis of the status quo alternative brings us to the conclusion that a SRI recommendation of maintaining the status quo, where the airport would have to be subsidized to the tune of approximately $1,000,000 per year exclusive of reconstruction of existing cargo facilities, would be detrimental to this organizations taking over the airport. Not only do we feel that such a recommendation would be detrimental to this organizations even-

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
55 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

tually coming to control the airport, but we further find a $1,000,000 figure may be incorrect.

After having reviewed the income statements attached to the report, for the years 1968 to 1974, we find a tremendous amount of flux in what should be some relatively stable figures. The University of Michigan's rental and research space has gone from a cost of $360,000 in 1968-1969 to a figure of $70,000 in 1973-1974, with no apparent shrinkage in the amount of space used by the University. Assuming for a moment the space used is the same, the costs should be the same but there is $290,000 a year which is presently not being received by the airport for its operation. Miscellaneous sales and services have fluctuated from a low of $11,023.26 in fiscal year 1973-1974 to a high of $129,509.52 in fiscal year 1969-1970. With some effort these figures could also become more stable. In fiscal year 1972-1973 the figure for miscellaneous sales and service was $49,471.

Airfield revenues have varied from a low of $174,816.86 in fiscal year 1971-1972 to a high of $514,909.66 in fiscal year 1972-1973 - Why? Salary and wages have fluctuated from a low of $94,574.08 in 1968-1969 to a high of $147,980 in 1969-1970 with them generally leveling off at somewhere between $105,000 and $115,000 for the remaining years. Why did they become so high in one year and then fall off so tremendously?

We simply bring forth these figures to show there has been little, if any, consistency in the overhead for the airport. Before anyone could make an evaluation or a suggestion that the airport would have to be subsidized to the tune of $1,000,000, we feel a full financial analysis of all the existing sources and uses of funds for the airport must be made. Thus the second sentence of paragraph 1, financial impact page 33 should be stricken from the report.

Ownership considerations on page 33 should also be changed

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

to read:

> "Therefore these should include, whether the candidate owners are willing to subsidize operations to off-set low revenue periods, when they may occur, as well as subsidize the major replacement and reconstruction of facilities which will be required."

B. General Aviation Operations Only

This talks about all cargo operations being moved from Willow Run Airport to the Detroit Metropolitan area. We do not agree.

While the three units of government are against Willow Run becoming a super cargo airport, we also are not enthused about losing one of its major sources of revenue. The SRI report indicates throughout that Willow Run receives tremendous revenues from the auto industry, because the auto companies ship materials on an emergency basis to their assembly plants in other areas when it appears their production lines might close down. The auto industry may be suffering at the moment, and this source of revenue low, but, to completely remove all cargo operations from the airport we think would be a tremendous mistake. The three units of government would rather see some other type of air cargo carrier utilized, such as the L-1011 or the DC 8's so existing runways need not be lengthened nor schools in the runway approaches, threatened. To do this, one does not have to move cargo from Willow Run Airport to Detroit Metropolitan.

C. Phasing Out Willow Run Airport

This is completely alien to our interest. The three units of government believe a functional viable use consistent with the interest of the three communities surrounding said airport can be maintained.

III. CONCLUSIONS

A. To allow Stanford Research Institute's recommendations to stand as they are means the demise of the Willow Run Joint Airport Boards chances of maintaining or receiving control of the airport.

The status quo with a $1,000,000 annual subsidy auto-

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
33 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

matically excludes the three units of government. We could not afford to subsidize the airport to that extent. The three units of government stand prepared to provide some form of subsidy, however, a subsidy of $1,000,000 would be impossible. We point to the Tri-County Airport in Midland, Michigan, as an example of how an airport can operate on a much smaller subsidy. There the three units of government are providing a $150,000 a year subsidy and they are now at a point where such subsidy may no longer be necessary.

B. Airport which handles general aviation only has fewer advantages than one which handles both, aviation and general cargo.

Jobs are a problem everywhere, and for the Willow Run Airport to immediately have to decrease its size of employment by 600 when the great majority of people working there do in fact come from our units of government, would be a blight upon the working people of this area. We think the airport can be productive for the three cities involved and if anything, produce more employment, not less.

C. Phasing out Willow Run Airport will only benefit the University of Michigan and a few industries in this general area.

If the airport is phased out the three units of government will have little, if anything, to say about the development of the area. Therefore, (WRJAB) Willow Run Joint Airport Board, goes on record as opposing all three draft recommendations of the Stanford Research Institute as they presently stand. We propose SRI rewrite their recommendations to reflect our concerns and in such a way we may be one of the finalist when a decision is made as to who will get the airport.

Fulton B. Eaglin
Attorney for Willow Run Joint Airport Board

LAW OFFICES
EGNOR, HAMILTON
& EAGLIN
53 SOUTH HURON ST.
YPSILANTI, MICH. 48197
(313) 483-1679

SEP 19 1975

EXHIBIT II-7

Excerpts from Proceedings
of the City Commission
Bay City, Michigan

April 14, 1941 - Page 88

Of City Attorney:

At the informal meeting of the City Commission held on April 10, 1941, certain statements were made by the City Manager to the City Commission concerning the proposition of a tri-county airport and a discussion was had regarding a certain proposed resolution as suggested also by the City Manager. A review of the file shows that our City Commission has approved in a general way of participation in the building and equipping of a tri-county airport consisting of Saginaw, Bay and Midland Counties, it being understood that a government grant or grants would be obtained if possible to prosecute the proposition; and as a next step in the procedure it was considered necessary to name a sponsor and co-sponsors of the proposition and to submit an application to the W.P.A. for consideration. The entire proposition is legally a matter of discretion of the City Commission, both as to policy involved and expenditures to be authorized. So far the City has not obligated itself to any particular expenditure and would be bound to support the proposition and policy only as far as it wishes to do by subsequent committments. Hence, the proposed resolution by the City Manager if adopted by the City Commission restates a policy and a willingness to cooperate as a co-sponsor without obligation as to expenditures by the City, except that the application to the W.P.A. outlines a further policy regarding expenditures but without direct committment as to expenditure by the City. Such an application or request for designation of a national defense project could be withdrawn at any time after the same had been filed and up to a time, where either the federal government or any other city had become involved in expenditures that would obligate the City of Bay City to assume and pay its proportionate share. In other words, I do not consider the request or application and the approval of it by adding the name of Bay City as a co-sponsor, a legal obligation against the City to pay a specific amount in expenditures, and I attach hereto for your consideration a sample of a request or application for designation of a national defense project. You will note that paragraph four refers to distribution of project costs but does not specifically apportion such costs between the three municipalities. Such an obligation on the part of the City would be another step taken by the City Commission in its discretion at a later time and is not now involved. I also attach hereto copy of resolution as prepared by the City Manager as well as a copy of a resolution proposed by the City Manager of the City of Saginaw, either one of which would create liabilities against the City of Bay City only so far as they are specifically enumerated therein, and neither as yet creates a legal obligation against the City of Bay City for an expenditure of public money until further ordered by the City Commission of Bay City. Received and referred to Commission as a whole.

April 21, 1941 - Page 104

Of Commission as a Whole:

WHEREAS, the Council of the City of Saginaw, the Commission of the City of Bay City, and the Council of the City of Midland have heretofore signified their willingness to participate in the construction of a tri-county airport under W.P.A., and

WHEREAS, it appears desirable to have one city sponsor such a project and the other cities act as co-sponsors, and

WHEREAS, it has been suggested that the City of Saginaw (the largest of the three cities) sponsor such a project with the City of Bay City and the City of Midland as co-sponsors,

NOW, THEREFORE, BE IT RESOLVED, that the City of Saginaw sponsor the application to W.P.A. for the construction of a tri-county airport as stated above with the City of Bay City and the City of Midland as co-sponsors, and

BE IT FURTHER RESOLVED, that the proper city officials of Bay City be authorized and directed to execute said application as co-sponsors for and on behalf of the City of Bay City.

Adopted by the following vote: Yes - Commissioners Morrison, Hahn, Kerr, Dean, Jablonski, Shawl, Schmidt, Hayes, Rabedioux - 9. No- None.

August 18, 1941 - Page 237

Of Commission as a Whole:

Resolved, That a Tri-City Airport be established as per agreement between the City of Saginaw, City of Midland and City of Bay City, said agreement being attached hereto.

Adopted by the following vote: Yes - Morrison, Hahn, Kerr, Dean, Shawl, Schmidt - 6. No - Hayes, Rabedioux - 2.

AGREEMENT

WHEREAS, the City of Saginaw, the City of Bay City, and the City of Midland, all municipalities of the State of Michigan, have had under discussion, through their legislative bodies the matter of the acquisition of property for the construction and maintenance of a tri-city airport, and

WHEREAS, the said City of Saginaw, acting for itself and as the representative of the City of Bay City and City of Midland, has heretofore made application with the Civil Aeronautics Authority, an agency of the United States Government, for federal assistance in the construction and maintenance of said proposed airport, and

WHEREAS, it is necessary for the municipalities hereinbefore mentioned to acquire a tract of land consisting of approximately six hundred forty acres for the purpose of the construction of said airport, now therefore,

IT IS MUTUALLY AGREED between the municipalities hereinbefore mentioned, as follows:

1. That the said municipalities agree each with the other to participate in the acquisition of a tract of land approximately six hundred forty acres in area for the purpose of constructing or permitting the construction of an airport thereon.

2. The proportion of the cost of the acquisition of said proposed airport site, the portion thereof to be borne by each of the said municipalities, and the interest of each of said municipalities in said land shall be as follows:

(a) City of Saginaw shall contribute fifty (50%) per cent of the cost of the acquisition of said airport site, the City of Bay City, thirty (30%) per cent, and the City of Midland twenty (20%) per cent.

(b) Title to said property shall be held by said municipalities as tennants in common and each municipality shall own such percentage of property acquired hereunder as the percentage contributed by such municipality shall bear to the total cost of the property to be acquired hereunder, viz., City of Saginaw fifty (50%); City of Bay City, thirty (30%) per cent; and the City of Midland twenty (20%) per cent.

3. It is mutually agreed that said municipalities, through their properly and legally qualified representatives, shall procure options on properties suitable for the site of said proposed airport and that before any of said options are exercised or the location of the proposed airport definitely ascertained, the legislative bodies of each of said municipalities shall give their consents and approvals to the price to be paid for the properties to be purchased and to the exact location of said proposed airport.

4. All preliminary expenses incurred hereunder prior to the acquisition of property hereinbefore mentioned shall be borne by said municipalities according to the following percentage: City of Saginaw, 50%; City of Bay City, 30%; and City of Midland, 20%.

IN WITNESS WHEREOF:

The City of Saginaw has caused these presents to be executed by its duly authorized officials this _____ day of _____, A.D., 1941;

The City of Bay City has caused these presents to be executed by its duly authorized officials this _____ day of _____, A.D., 1941;

The City of Midland has caused these presents to be executed by its duly authorized officials this _____ day of _____, A.D., 1941.

Approved as to substance:

CARL H. PETERSON
CITY MANAGER OF CITY OF SAGINAW

Approved as to form:

F. ROLAND SARGENT
CITY ATTORNEY OF CITY OF SAGINAW

CITY OF SAGINAW, A MUNICIPAL CORPORATION

BY _____
WM. J. BRYDGES, MAYOR

BY _____
SHIRLEY W. CORRIGAN, CITY CLERK

Approved as to substance:

CITY MANAGER OF CITY OF BAY CITY

Approved as to form:

CITY ATTORNEY OF CITY OF BAY CITY

CITY OF BAY CITY, A MUNICIPAL CORPORATION

BY _____
MAYOR

BY _____
CITY CLERK

6

Approved as to substance: CITY OF MIDLAND, A MUNICIPAL CORPORATION

_____ BY _____

CITY MANAGER OF CITY OF MIDLAND MAYOR

Approved as to form:

BY _____

CITY CLERK

_____

CITY ATTORNEY OF CITY OF MIDLAND

August 18, 1941 - Page 239

Of Commission as a Whole:

RESOLVED:

That the City of Bay City enter into an agreement with the cities of Midland and Saginaw as to a 50-30-20 percent interest in the purchase of a Tri-City Airport site, as to the profits and maintenance thereof as per attached agreement.

Adopted by the following vote: Yes - Morrison, Hahn, Kerr, Schmidt - 4. No - Dean, Shawl, Hayes, Rabedioux - 4. Mayor Tomlinson voted yes.

AGREEMENT ESTABLISHING TRI-CITY AIRPORT COMMISSION

WHEREAS, The City of Saginaw, City of Bay City, and the City of Midland, all municipalities of the State of Michigan, have heretofore entered into an agreement concerning the acquisition of certain property to be used as an airport, and

WHEREAS, It is contemplated that said airport shall be jointly owned and operated by said municipalities, and

WHEREAS, Act 344, P.A. 1939, expressly authorizes the legislative bodies of Michigan cities to create an agency to have general control and supervision of jointly owned municipal airports, now, therefore,

IT IS MUTUALLY AGREED, as follows:

1. There is hereby created an agency to be known and designated as the "TRI-CITY AIRPORT COMMISSION."

2. Said Tri-City Airport Commission shall consist of three members. Each City shall be entitled to equal representation on said commission and the chief administrative officer of each City shall be ex-officio the representative of that City on said Tri-City Airport Commission. In event the chief administrative officer of any city hereto cannot serve or is absent from any meeting, he shall have the right to designate a substitute. Said substitute shall serve as a member of the Tri-City Airport Commission at the pleasure of the chief administrative officer appointing him. Said substitute shall have all the rights and privileges of any other member of the Tri-City Airport Commission.

3. The Tri-City Airport Commission shall have such authority as may be vested in it by the statutes of the State of Michigan or which may hereafter be delegated to it by the legislative bodies of the cities hereinbefore mentioned.

4. Said Tri-City Airport Commission shall meet at least once each month and as much oftener as it may deem necessary. The Tri-City Airport Commission shall select its own meeting place and shall, within thirty (30) days from its organization meeting adopt its own by-laws.

5. The members of said Tri-City Airport Commission shall serve without pay.

6. The cities hereto mutually agree that expenses or profits from the operation and maintenance of said proposed airport shall be divided on the following basis:

City of Saginaw.....Fifty (50%) per cent.
City of Bay City.....Thirty (30%) per cent.
City of Midland.....Twenty (20%) per cent.

IN WITNESS WHEREOF:

The City of Saginaw has caused these presents to be executed by its duly authorized officials this _____ day of _____, A.D., 1941;

The City of Bay City has caused these presents to be executed by its duly authorized officials this _____ day of _____, A.D., 1941;

The City of Midland has caused these presents to be executed by its duly authorized officials this _____ day of _____, A.D., 1941.

Approved as to substance:

CARL H. PETERSON
CITY MANAGER OF CITY OF SAGINAW

CITY OF SAGINAW, A MUNICIPAL CORPORATION

BY _____ MAYOR
WM. J. BRYDGES

BY _____ CITY CLERK
SHIRLEY W. CORRIGAN

Approved as to form:

F. ROLAND SARGENT, CITY ATTORNEY OF CITY OF SAGINAW

CITY OF BAY CITY, A MUNICIPAL CORPORATION

Approved as to substance:

CITY MANAGER OF CITY OF BAY CITY

BY _____ MAYOR

BY _____ CITY CLERK

Approved as to form:

CITY ATTORNEY OF CITY OF BAY CITY

CITY OF MIDLAND, A MUNICIPAL CORPORATION

Approved as to substance:

_____

CITY MANAGER OF CITY OF MIDLAND

BY _____ MAYOR

BY _____ CITY CLERK

Approved as to form:

_____

CITY ATTORNEY OF CITY OF MIDLAND

August 18, 1941 - Page 240

From Commission as a Whole:

Be it Resolved that the sum of Three Hundred ($300.00) Dollars be set aside for the purposes of defraying all necessary preliminary expenses in obtaining options on the properties in reference to a Tri-City Airport site, said amount to be turned over to the Tri-City Airport Commission.

Adopted by the following vote: Yes - Morrison, Hahn, Kerr, Schmidt - 4. No - Dean, Shawl, Hayes, Rabedioux - 4. Mayor Tomlinson voted yes.

October 6, 1941 - Page 286

By Commissioner Schmidt:

Resolved, that this Commission go on record as affirming its action of August 18, 1941 C.P. 237-8-9-240 to establish a Tri-City Airport as per agreement between the City of Saginaw, City of Midland and City of Bay City.

Adopted by the following vote: Yes - Morrison, Hahn, Kerr, Dean, Jablonski, Schmidt, Rabedioux - 7. No - Shawl, Hayes - 2.

November 24, 1941 - Page 348

Of City Manager:

Following your informal instructions last October 9th, A. H. Wait, Regional Airport Engineer, of Civil Aeronautics Administration, made inspections of the several locations being considered for the Tri-City Airport. Am today in receipt of the result of his contact with the Airport Commission and same is attached for your early consideration. Referred to Commission as a whole.

December 8, 1941 - Page 359

Of Commission as a Whole:

WHEREAS it is the policy of this City to cooperate with the Federal Government in its defense effort and to assist to the extent of its ability and

WHEREAS the government has declared the district embracing the Cities of Midland, Bay City and Saginaw to be a defense area, and has awarded contracts for defense materials amounting to about $100,000,000.00 in this area, and

WHEREAS as a consequence of this situation the government, through its Civil Aeronautics Administration, with the approval of the general staff of the army, has suggested the desirability of establishing a mile square airport located about an equal distance from each of the three cities, and has appropriated $527,000.00 for that purpose, the three cities to furnish the site, and

WHEREAS the army engineers have investigated the several different sites suggested by the three cities and have found that Section 14, of Tittabawassee Township, Saginaw County, to be much the most desirable location

NOW, THEREFORE BE IT RESOLVED that the City of Bay City is prepared to proceed forthwith in cooperation with Saginaw and Midland to obtain this section by purchase, or condemnation, and to appropriate and place in escrow its 30% share of the estimated cost of said section as its contribution to the National Defense Program. Adopted unanimously.

of City Attorney:

Presenting a resolution for condemnation proceedings for certain lands in Section Fourteen (14) Town Thirteen (13) North, Range Three (3) East. Received.

RESOLUTION FOR CONDEMNATION PROCEEDINGS

WHEREAS, the City Commission for the City of Bay City declares and deems it necessary to take private property for public improvement, to-wit, a tri-city airport; and

WHEREAS, the taking of said private property for public improvement is within the scope of its powers; and

WHEREAS, the said improvement is for the use and benefit of the general public; and

WHEREAS, the improvement is for the use and benefit and safety of the general public under the national emergency;

BE IT RESOLVED, that William J. Williams, City Attorney for the City of Bay City, institute the necessary proceedings on behalf of the City of Bay City in the Circuit Court for the County of Saginaw, Tittabawasse Twp., to take the private property, to-wit, Section Fourteen (14), Town Thirteen (13) North, Range Three (3) East, for public improvement and use; and further

BE IT RESOLVED, that the City of Bay City make and deliver to William J. Williams, City Attorney, a true copy of this resolution certified under seal; and further

BE IT RESOLVED, that the said City Attorney prepare and file in the name of the City of Bay City in the Circuit Court for the County of Saginaw a petition signed by said City Attorney in his official character and duly verified by him; and

BE IT FURTHER RESOLVED, that a certified copy of this said resolution be annexed to the said petition. Adopted unanimously.

SEP 19 1975

AGREEMENT

AGREEMENT, made and entered this_____day of_____, A.D. 19___, by and between the CITY OF SAGINAW, the CITY OF MIDLAND, and the COUNTY OF BAY, by their respective legislative bodies;

WITNESSETH:

WHEREAS, The City of Saginaw, City of Bay City, and City of Midland, all municipalities of the State of Michigan, did, on the 18th day of August, 1941, enter into two certain agreements, the first providing for the acquisition and ownership of the Tri-City Airport site as tenants in common with ownership and sharing of cost as follows: City of Saginaw, fifty percent (50%); City of Bay City, thirty percent (30%); and City of Midland, twenty percent (20%), and the second providing for the creation of the Tri-City Airport Commission; and

WHEREAS, Said last above mentioned agreement was amended by a supplemental agreement entered into by said cities as of the 5th day of August, A.D. 1957; and

WHEREAS, The City of Saginaw on July 10, 1961, the City of Bay City on July 5, 1961, and the City of Midland on July 19, 1961, and the County of Bay on July 21, 1961, did each approve an agreement modifying the above mentioned agreements by the deletion of the City of Bay City as a party thereto and the substitution of the County of Bay for and in the place of the City of Bay City and transferring all of the City of Bay City's interest in and to Tri-City Airport to the County of Bay; and

WHEREAS, The City of Saginaw, the City of Midland, and the County of Bay did each approve an agreement, dated February 21, 1962, for purposes of enlarging the Tri-City Airport Commission, and for the purpose of incorporating all prior agreements into one agreement; and

WHEREAS, The City of Saginaw, County of Bay, and City of Midland, did on February 17, 1965, enter into an agreement to provide security for certain revenue bonds issued by the Tri-City Airport Commission, which agreement was amended on May 24, 1965; and

WHEREAS, It is the intention of the parties to continue the operation of the Tri-City Airport by the Tri-City Airport Commission, and to revise the rights of the parties with respect to ownership of the Tri-City Airport, and the duties of the parties with respect to the expenses of property acquisition, operation, maintenance, and improvement of Tri-City Airport,

NOW, THEREFORE, It is mutually agreed between the City of Saginaw, the City of Midland, and the County of Bay as follows:

1. The agency heretofore created, known and designated as the "Tri-City Airport Commission" is continued as hereinafter provided.

2. Said Tri-City Airport Commission shall consist of nine (9) members. Each of the two cities who are parties hereto shall be represented on said Commission by not less than one administrative officer of the city, and not less than one member of the legislative body of the city and such other person as the legislative body may select to represent it. Each of said members to be appointed by the legislative body of the city. The County shall be represented by not less than two members representing the Board of Supervisors and one member to be appointed by the Board of Supervisors, each of said members to be appointed by the Board of Supervisors of the County of Bay.

3. The Tri-City Airport Commission shall have all powers permitted by Act 327, P.A. 1945, as now existing or as hereafter amended, or as provided by any statute of the State of Michigan supplementing or superseding said act, together with such other and additional powers as may be hereafter delegated to it by the legislative bodies of the municipal corporations who are parties hereto.

4. Said Tri-City Airport Commission shall meet at least once each month and as often as it may deem necessary. The Tri-City Airport Commission shall select its own meeting place and adopt its own By-Laws for the conduct of its own affairs.

5. The members of said Tri-City Airport Commission shall serve without pay from the Tri-City Airport Commission.

6. Title to property which now comprises the Tri-City Airport, and such property as may be hereafter acquired shall be held by the City of Saginaw, City of Midland, and the County of Bay, as tenants in common with the City of Saginaw having an undivided one-third (1/3) interest, the City of Midland an undivided one-third (1/3) interest, and the County of Bay an undivided one-third (1/3) interest.

7. Participation in the expense of property acquisition, operation, maintenance, and improvement of Tri-City Airport shall be shared equally by the parties, viz: City of Saginaw, one-third, City of Midland, one-third, and County of Bay, one-third, and in no year shall any party contribute a sum less than Fifty Thousand ($50,000) Dollars for the purposes herein specified, such sum to include that party's contribution to the joint maintenance fund described in paragraph 8 hereof, except that: In any year that the Tri-City Airport Commission does not have expenses exceeding income from the operation of Tri-City Airport and the Tri-City Airport Commission has not adopted any plan for property acquisition or property improvement, then, in such year no party shall be obligated to contribute the sum of Fifty Thousand ($50,000) Dollars, or any lesser amount, and any net profit for such year derived from the operation of Tri-City Airport shall be divided equally in one-third shares among the parties.

8. The participation by the parties in the joint maintenance fund created for the purpose of paying and providing security for the payments of certain revenue bonds as is expressly provided for in the agreement dated February 17, 1965, as amended May 24, 1965, shall be in equal shares, viz: City of Saginaw having an undivided one-third (1/3) interest, the City of Midland an undivided one-third (1/3) interest, and the County of Bay an undivided one-third (1/3) interest. This agreement shall not be construed to affect the rights of any bondholder but shall operate only as an agreement by and among the parties hereto.

9. This Agreement shall become effective on July 1, 1970, if it shall have been then executed by the City of Saginaw, City of Midland, and the County of Bay.

IN WITNESS WHEREOF, the City of Saginaw, the City of Midland, and the County of Bay have caused these presents to be executed by their respective duly authorized officials as of the day and year first above written.

TRI-CITY AIRPORT COMMISSION

BY-LAWS

May 26, 1970

I

MEMBERSHIP

The membership of the Tri-City Airport Commission shall be in accordance with the provisions of numbered paragraph two of the agreement creating said Commission dated February 21, 1962, by and between the City of Saginaw, the County of Bay and the City of Midland, all Michigan Municipal Corporations and shall consist of nine (9) members who may be reimbursed for actual authorized expenses but who shall receive no other compensation from the Airport Commission for their services.

II

OFFICERS

Section 1 The Tri-City Airport Commission shall elect a Chairman for a one (1) year term at it's regularly scheduled annual meeting. No person elected as Chairman shall serve for more than two (2) consecutive one (1) year terms.

Section 2 The Chairman shall preside at all meetings of the Airport Commission and shall have a vote on all matters acted upon by it. He shall have other powers and perform such other duties as may be delegated to him by the Airport Commission.

Section 3 The Tri-City Airport Commission shall elect a Vice-Chairman for a one (1) year term at it's regularly scheduled annual meeting. No person elected as Vice-Chairman shall serve for more than two (2) consecutive one (1) year terms.

Section 4 The Vice-Chairman shall have such powers and perform such duties as may be delegated to him by the Airport Commission. In the event of the absence or disability of the Chairman the Vice-Chairman shall perform the duties and exercise the powers of the Chairman.

Section 5 The Tri-City Airport Commission shall elect a Secretary for a one (1) year term at it's regularly scheduled annual meeting. No person elected as Secretary shall serve for more than two (2) consecutive one (1) year terms.

Section 6 The Secretary shall have charge and custody of the records of the Airport Commission. He shall take minutes of all meetings of the Airport Commission to be recorded and shall sign all such minutes. The Secretary shall have such other powers and perform such other duties as may be delegated to him by the Airport Commission. In the event of the absence or disability of the Secretary the Assistant Secretary shall perform the duties and exercise the powers of the Secretary during the period of his absence or disability. The Commission may appoint an Assistant Secretary to perform the duties of the Secretary as herein defined.

Section 7 The Tri-City Airport Commission shall appoint a Treasurer. The Treasurer shall have charge and custody of the books and funds of the Airport Commission. He need not be a member of the Commission. The Treasurer shall have such other powers and perform such other duties as may be delegated to him by the Airport Commission.

Section 8 The Tri-City Airport Commission shall elect no more than one (1) officer from each of the participating municipalities.

III

MEETINGS

Section 1 The Airport Commission shall hold regular monthly meetings at 1:30 p.m. on the third Thursday of each month. Such meetings shall be held at the Airport unless a written notice is sent to each member of the Airport Commission setting forth a meeting location other than at the Airport. The dates of all regular meetings for the coming year shall be presented to and approved by the Commission at the annual meeting. Following approval they will be published (at least once) in the Saginaw News, Bay City Times, and Midland Daily News.

Section 2 The regular May meeting in each year shall constitute the annual meeting of the Airport Commission at which time officers shall be elected for the ensuing year.

Section 3 Special meetings of the Airport Commission shall be held upon the call of the Chairman or upon the call of any two members of the Airport Commission by giving written notice thereof to each member of the Airport Commission at least twelve hours before the time set for said special meeting. Such written notice may be given by mailing or delivery of said notice to each member of the Airport Commission at his business or residence address in which case the twelve hours shall mean from the time of delivery of the notice to address of the Commissioner.

Section 4 In the event that a quorum of the Airport Commission is not present at any regular or special meeting, a majority of the members present at such meeting may adjourn the meeting from time to time without notice other than by announcement at the meeting, until a quorum of the Airport Commission shall attend.

Section 5 Notice of any special meeting may be waived, in writing, by the members of the Airport Commission. Written notice of a special meeting shall not be required if all members of the Airport Commission are present at, and participate in, the meeting.

IV

COMMITTEES

The Chairman shall appoint from the membership of the Airport Commission such committees as may be authorized by the Airport Commission. Such committees shall perform such duties and exercise such powers as the Airport Commission may specify and shall make such reports as it may require.

V

RULES OF ORDER

Section 1 At all meetings, a quorum shall consist of five (5) or more members, and they shall be authorized to transact business.

Section 2 Five (5) affirmative votes shall be required for final action on any matter acted upon by the Airport Commission except that a two-thirds vote, six (6), of the full Airport Commission shall be required in such matters as shall be adjudged by the Airport Commission to be within the purview of Act 317 of the Public Acts of 1968.

Section 3 The By-Laws for the conduct of all business before the Airport Commission shall be consistent with the provisions of the statutes of the State of Michigan and Robert's Rules of Order.

VI

CONFLICT OF INTEREST

In all matters of business, the Airport Commission shall be cognizant of, and act in accordance with the provisions of Act 317 of the Public Acts of 1968.

VII

AMENDMENTS

The By-Laws of the Airport Commission may be amended at the annual meeting or at any regular monthly meeting, providing that notice of the proposed amendment, modification or addition hereto shall be given in writing at least ten (10) days prior to said meeting.

VIII

MINUTES

True copies of the approved minutes of the Airport Commission shall be bound and retained as a permanent Airport Commission record.

EXHIBIT II-8

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STATE HIGHWAYS BUILDING – POST OFFICE DRAWER K – LANSING, MICHIGAN 48904

JOHN P. WOODFORD, DIRECTOR

July 2, 1975

Mr. Jack Bland, Director
Transportation and Distribution
Room E-312
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

Request for SB No. 868

Dear Mr. Bland:

As per your request, we are sending a copy of Senate Bill No. 868 regarding establishment of airport authorities. There is also House Bill 4968 that has the same wording as Senate Bill 868.

We have also enclosed the Michigan Aeronautics Commission's analysis of this bill. These bills were requested by the commission and there are no other bills at this time which consider the establishment of airport authorities.

Sincerely,

Edward A. Mellman, Manager
Aviation Planning Section
Bureau of Transportation Planning

bg

ATTACHMENTS 2

MICHIGAN
THE GREAT LAKE STATE

SENATE BILL No. 868

May 19, 1975, Introduced by Senator DE GROW and referred to the Committee on Corporations and Economic Development.

A bill to provide for the establishment of airport authorities; to provide for certain counties within designated state planning regions to create an airport authority; to provide for the membership of authorities; to provide for the powers and duties of the authorities; to authorize issuing of bonds; to provide for the planning, promoting, acquiring, constructing, improving, enlarging, extending, owning, maintaining, and operating landing, navigational, and building facilities necessary thereto at airports within the authority area; to provide for changes in the membership therein; to authorize counties to levy taxes for such purpose; to provide for the operation and maintenance and issuing notes therefor; to authorize condemnation proceedings; and to repeal certain acts and parts of acts.

THE PEOPLE OF THE STATE OF MICHIGAN ENACT:

Sec. 1. Upon approval of the Michigan aeronautics commission, 2 or more contiguous counties or 1 county and a contiguous city, village, or township

SENATE BILL No. 868

within a designated state planning region, by resolution passed by a majority of the entire membership of each legislative body voting separately, may join to form an airport authority, hereinafter referred to as the authority. The authority shall be a charter authority within the meaning of section 6 of article 9 of the state constitution of 1963. The political subdivisions proposing to form an authority shall notify all counties within their designated state planning region giving them at least 30 days to indicate their desire to join the proposed authority.

Sec. 2. The authority shall be governed by an airport authority board, hereinafter referred to as the board. The membership of the board shall consist of 1 member appointed by the governor with the advice and consent of the senate, and from each county appointed by its legislative body, 1 member for the first 100,000 population or fraction thereof; plus 1 for each additional 250,000 population or major fraction thereof, up through 600,000 population plus 1 for each additional 500,000 population or major fraction thereof. The appointed members shall be electors of the appointing counties and may be members of the legislative body thereof.

Sec. 3. Of the county members appointed, 1 member shall be for 4 years, 1 member for 3 years, 1 member for 2 years, and 1 member for 1 year as the number of members permits. The governor's appointment shall be for 4 years. After the initial appointments expire all members shall be appointed for 4 years. When the board consists of more than 5 members, the sixth and succeeding members shall be appointed for staggered terms as established for the 4 original county appointees. Each member appointed shall serve until a successor is named at the end of his term. A member may be reappointed. If a member is unable to complete his term of office, a successor shall be appointed in the same manner as original appointments are made to complete the term.

2909 '75

Sec. 4. The legislative body of the county may remove a member appointed by it by a 3/4 vote of the full membership.

Sec. 5. An additional county contiguous to the original counties forming the authority, including those outside the boundaries of the designated state planning region wherein an authority does exist subsequently may become a member of the authority upon resolution adopted by the governing body of the county and acceptance by resolution adopted by a majority vote of the board. The number of members to be added to the board, when an additional county becomes a member of the authority, shall be determined as provided in section 2.

Sec. 6. At its first meeting the board shall organize by electing a chairman and a vice-chairman, who shall be members of the board, and a secretary and treasurer, who need not be members of the board, and other and additional officers who need or need not be members of the board as the board deems necessary. The board may also adopt a corporate seal and appoint an executive committee consisting of the chairman and 1 member from each of the governmental units comprising the authority other than that represented by the chairman to perform duties the board may assign. The members of the executive committee shall hold office at the pleasure of the board. All members of the board and executive committee shall serve without compensation from the authority but shall be entitled to reimbursement by the authority for actual expenses incurred in the discharge of their duties. A majority of the board members constitutes a quorum.

Sec. 7. The authority is a public body corporate, may sue or be sued in a court of this state and shall plan, promote, extend, own, maintain, acquire, purchase, sell, construct, improve, enlarge, and operate all publicly owned airports and airport facilities established after the date the authority is

formed to be operated within the territorial jurisdiction of the authority. An existing publicly owned airport or airport facility within the jurisdictional confines of the authority at the date of authority formation may elect to come within the operational jurisdiction of the authority unless prohibited by legal restrictions or limitations, upon acceptance by the authority under mutually agreeable terms and conditions.

Sec. 8. (1) The board shall hold meetings at the call of the chairman, who shall give at least 3 days personal or written notice of the time and place of the meeting. The board shall adopt a schedule of regular monthly meetings and adopt a regular meeting date, place, and time. The chairman shall call a special meeting at any time upon request of 3 members of the board. The board shall keep a written record of every meeting, which record shall be public. The board shall provide for a system of accounts to conform to a uniform system required by law and for the auditing at least once a year of the accounts of the treasurer by a certified public accountant. The treasurer shall post a suitable bond by a responsible bonding company, the cost of the premium of the bond to be paid for by the board. The board may appoint an executive director and shall adopt rules and policies governing professional work and services offered by airports and airport facilities under its jurisdiction.

(2) A board member or a person holding appointment by the board shall not be interested directly or indirectly in a contract entered into under this act. A board member shall not be subject to personal liability for any liability of the authority.

Sec. 9. Annually, on a given date mutually arrived at by the board and the county legislative bodies of the authority, the board shall present a budget containing an itemized statement of the estimated current operational expenses and the expenses for capital outlay including funds for the operation

and development of all airports under the jurisdiction of the board, including the amount necessary to pay the principal and interest of outstanding bonds or other obligations of the authority maturing during the ensuing fiscal year or which have previously matured and are unpaid, and an estimate of the estimated revenue of the authority from all sources for the ensuing year. The board shall designate the fiscal year of the authority. The board shall adopt a budget as shall be deemed necessary and shall ascertain what appropriations are required from the several counties comprising the authority to meet their shares of the budget in excess of the estimated revenues. The authority shall file a copy of its annual report with the state aeronautics commission.

Sec. 10. The board shall certify to each participating county the amount to be raised and each county comprising the authority shall include its certified amount to be raised in its next ensuing budget and shall pay the amounts so certified from funds available including the proceeds of a tax the county is authorized to levy within its jurisdiction. The tax shall not exceed 3/4 mill on each dollar of assessed valuation as last equalized by the state. The limitation of section 6 of article 9 of the state constitution of 1963 shall not apply to taxes imposed by the board and levied by the counties comprising the authority.

Sec. 11. For the purpose of acquiring, purchasing, constructing, improving, enlarging, or repairing airports and facilities created within or acquired by the authority, the board may issue self-liquidating bonds of the authority in accordance with Act No. 94 of the Public Acts of 1933, as amended, being sections 141.101 to 141.139 of the Michigan Compiled Laws.

Sec. 12. A county member of an airport authority, upon request and upon resolution of its governing body, duly accepted by a 2/3 majority vote of the entire governing board of the airport authority, may be released from

membership. A county shall not be released from membership in an airport authority until its share of outstanding obligations of the authority incurred after the time of the admission to membership of the county are paid or adequate provision is made for their payment.

Sec. 13. The board operating an airport under this act, by resolution adopted by a majority vote of the entire governing board, may borrow money and issue notes, maturing not more than 1 year after the date of their issuance and bearing interest at not to exceed 6% per annum for the purpose of meeting current expenses of operation and maintenance of the airport. The resolution shall provide for the pledging of income and revenues of the airport authority not otherwise pledged for the payment of the notes, and shall provide for a special sinking fund into which there first shall be paid, as collected, a sufficient sum from the revenues to retire both the principal of and interest on the notes to maturity. The resolution may also provide for pledging of other assets of the airport authority as additional security for payment of the notes. Notes shall be subject to Act No. 202 of the Public Acts of 1943, as amended, being sections 131.1 to 138.2 of the Michigan Compiled Laws.

Sec. 14. For the purposes of the authority, the board may purchase, lease, accept by gift or devise real or personal property, or condemn private property. It may sell, exchange, lease, hold, manage, and control that property. It may convey its property or a part thereof without monetary consideration to a nonprofit corporation organized for the purpose of owning, maintaining, and operating a public airport or permit the use of the property by the corporation. The conveyance or permission for use shall be upon condition that the corporation maintain and operate an airport upon land so conveyed or use of which is permitted and that the corporation shall conform to

the rules and standards provided by Act No. 327 of the Public Acts of 1945, as amended, being sections 259.1 to 259.208 of the Michigan Compiled Laws. If land is acquired by condemnation, Act No. 149 of the Public Acts of 1911, as amended, being sections 213.21 to 213.41 of the Michigan Compiled Laws, or other appropriate provisions as exist or shall be made by law, may be adopted and used for the purpose of instituting and prosecuting the condemnation proceedings.

Sec. 15. The real and personal property of the community airport is exempt from taxation.

Sec. 16. Community airport means a location, either on land or water, which is used for the landing or take-off of aircraft, which provides facilities for the shelter, supply, or care of aircraft or for receiving or discharging passengers or cargo and all appurtenant areas used and suitable for airport buildings or other airport facilities, all appurtenant rights of way and runway clear zones as designated by the civil aeronautics authority, whether heretofore or hereafter established.

Section 17. Act No. 206 of the Public Acts of 1957, being sections 259.621 to 259.631 of the Compiled Laws of 1970, is repealed.

2909 '75

Michigan Department of State Highways and Transportation
Legislative Analysis-1975 Session
June 4, 1975

H.B. Introduced by: Rep. F. Robt. Edwards
Referred to: Committee on Taxation
S.B. Introduced by: Senator DeCrow
Referred to: Committee on Corporations and Economic Development

House Bill 4968
Senate Bill 868

1. Purpose of the bill:

The bill would provide for the establishment of airport authorities; the development of airports owned and operated by those authorities, the funding, constructing, etc. of such airports, and provide reciprocity with adjoining states for the development of airports under authorities.

2. (a) Introduced at the request of the department?

The bill was introduced at the department's request.

(b) Position of the department:

The department supports the bill if amended as suggested.

3. Fiscal effect:

The bill would have no fiscal effect to the department.

4. Other agencies affected by the bill:

No other agencies would be affected by the bill.

5. (a) Arguments for the bill:

The most significant portion of the bill is in its funding provision. An airport authority may levy a tax not to exceed 3/4 mill on each dollar of assessed valuation as last equalized by the state. The authority may do this without a vote of the electorate in the authority area. There is no requirement for the authority to levy this tax. The bill would provide a means for the authority to levy tax but leaves the decision in local hands.

Present legislation allows for an authority to levy as high as one mill tax, but membership in the authority is dependent upon a vote of the electorate. This voting provision erases the advantage gained by the higher tax levy potential.

In addition, the authority may now consist of only one county and a contiguous jurisdiction, such as another county, city, village, or township.

(b) Arguments against the bill:

The department has no arguments against the bill.

6. Suggested amendments:

The department suggests amending the bill according to the attached.

7. Background information:

The airport authority subject is one of the most pressing and perplexing in aviation in the State of Michigan. Most of the problems in large urban areas, particularly Detroit, can be laid at the doorstep of not having a central aviation planning and development agency. For a number of years, the Bureau of Aeronautics has urged that particular areas in Michigan adopt the authority form of airport organization. Those areas that did attempt to form such an airport authority sometimes had to modify their proposed organization because of a decision of the electorate. A case in point is the Lansing area where an authority was proposed to govern aviation in the Tri-County area. The voters rejected the authority in two of the three counties proposed and now only Ingham County and the City of Lansing are members of the airport authority, even though the aviation problems have to be addressed on a three-county basis.

The problem is even more pressing in the Detroit area. The disappearance of privately-owned public-use general aviation airports has added to the need for more facilities for this segment of aviation. In addition, when a unique situation arises, such as the ownership and operation of Willow Run Airport, there is no central authority to address the problem and conduct necessary studies.

With an authority to plan and develop airports in Southeast Michigan, many of these problems could be addressed.

Table 11. California General Aviation Airports, Traffic and Financial Statistics, FY 1970-71

AIRPORT	TRAFFIC STATISTICS		FINANCIAL STATISTICS			NET PROFIT (000)
	No. FIXED BASE AIRCRAFT	TOTAL MOVEMENTS (000)	OPERATING * REVENUES (000)	OPERATING * EXPENSES (000)		
VAN NUYS	781	538.8	$1,067.9	$398.4		669.50
SANTA MONICA	485	301.5	451.3	266.9		184.40
TORRANCE	765	388.5	344.5	244.9		99.60
HAWTHORNE	268	226.1	295.9	228.6		67.30
PALO ALTO	285	178.9	252.9	228.3		24.60
CONCORD	386	279.1	163.0	107.9		55.10
HAYWARD	489	323.0	150.2	103.5		46.70
LIVERMORE	170	249.0	148.8	139.5		8.70
FULLERTON	385	190.9	128.4	109.6		18.80
SALINAS	150	102.2	89.0	62.7		26.30
RIVERSIDE	135	122.9	73.7	144.5		(70.80)
UKIAH	59	33.5	41.9	32.9		9.00
HOLLISTER	73	30.0	34.2	22.1		12.10
MARYSVILLE	57	40.0	32.9	31.9		1.00
TRACY	38	24.0	32.4	19.0		13.40
MADERA	29	24.0	29.8	13.1		16.70
WATSONVILLE	92	54.7	28.2	22.8		5.40
CORONA	185	50.2	19.7	14.7		5.00
AGUA DULCE	44	31.0	18.3	31.3		(13.00)
SERVICE AREA 60			17.4	190.6		(173.20)
BRAWLEY	38	19.7	15.7	6.5		9.20
LOS BANOS	27	16.0	15.3	8.2		7.10
REDLANDS	87	35.0	14.7	17.6		(2.90)
HANFORD	60	55.1	14.4	10.5		3.90
PORTERVILLE	62	70.0	14.3	21.1		(6.90)
RED BLUFF	35	25.0	13.9	19.6		(5.70)
RIALTO	80	65.0	13.2	9.4		3.80
LINCOLN	85	62.0	12.4	8.8		3.60
CALEXICO	30	45.4	10.7	7.3		3.40
WILLITS	8	12.5	10.2	16.9		(6.70)
DOS PALOS	17	20.0	8.1	12.3		(4.20)
SERVICE AREA 53			7.2	27.4		(23.80)
OAKDALE	19	7.0	7.1	11.0		(3.90)
KING CITY	26	5.0	6.3	5.6		0.70
AUBURN	40	35.0	5.7	1.5		4.20
TURLOCK	20	20.0	3.5	6.8		(3.30)
RIO VISTA	8	7.2	3.3	1.6		1.70
CALIPATRIA	23	13.0	3.1	0.8		2.30
CHOWCHILLA	16	9.0	2.1	5.3		(3.20)
SANTA CRUZ	65	76.0	1.6	3.9		(2.30)
CLOVERDALE	11	12.0	1.5	1.4		0.10
EUREKA	4	2.0	1.4	0.1		1.30
OROVILLE	27	1.0	1.3	2.1		(0.80)
GUSTINE	15	12.0	1.1	1.0		0.10
CORNING	10	8.3	0.6	2.4		(1.80)
TULELAKE	12	6.0	0.3	9.6		(9.30)
SUSANVILLE	26	14.5	0.1	4.5		(4.40)
13 MISCELLANEOUS			---	33.3		

*Adjusted to represent fuel flowage fees instead of fuel sales and cost of sales

Source: Aerospace Corporation, Financial and Statistical Data and Estimating Relationships for Airport Planning. August, 1973.

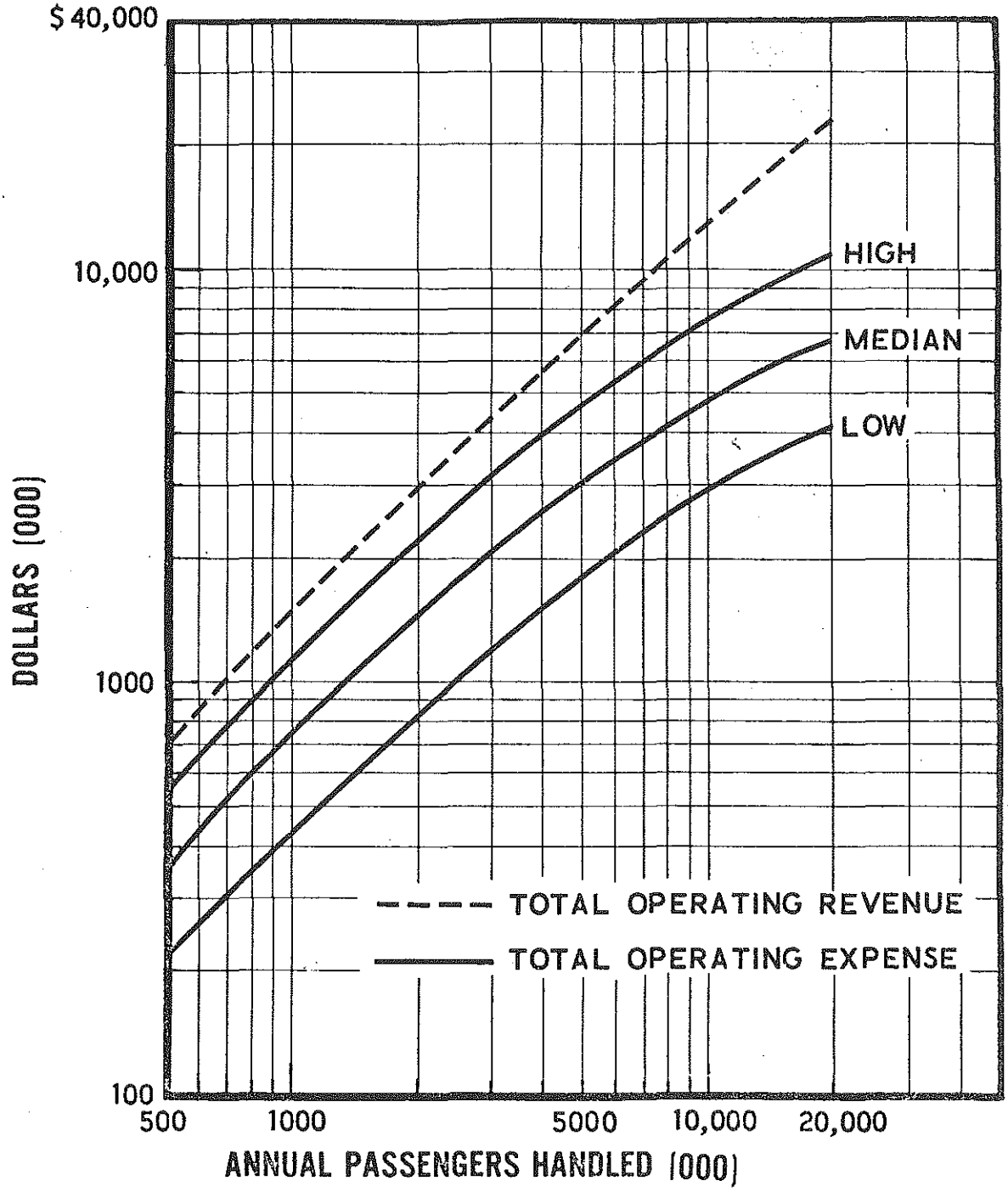


FIGURE II-9.1 Airport Revenue and Expense Estimating Relationships, Total Operating Revenues and Expenses--Large Air Carrier Airports (Over 500,000 Annual Passengers Handled) (1971 Dollars)

Source: Aerospace Corporation, Financial and Statistical Data and Estimating Relationships for Airport Planning. August, 1973.

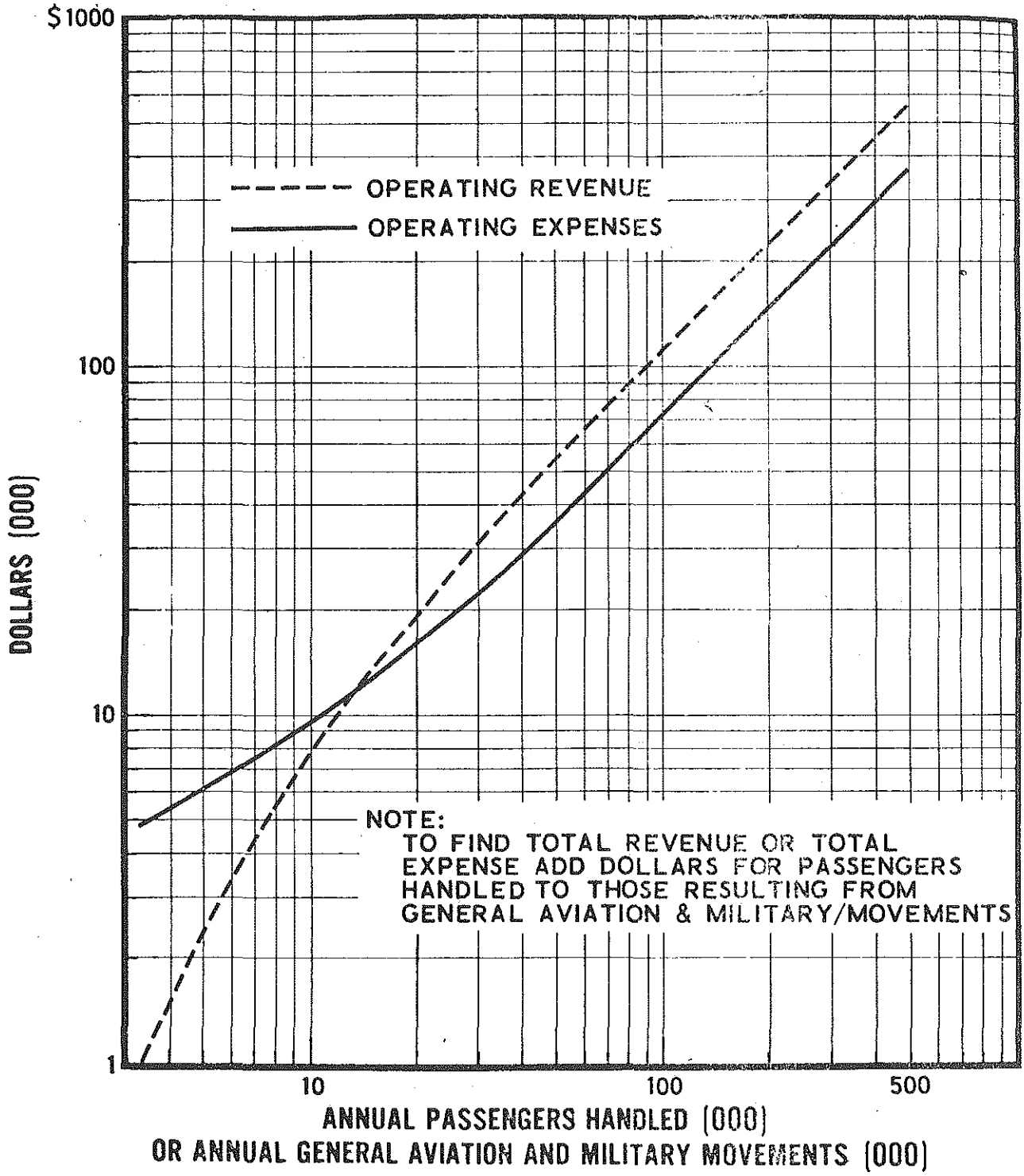


FIGURE II-9.2 Airport Revenue and Expense Estimating Relationships, Total Operating Revenues and Expenses--Small Air Carrier Airports (Fewer than 500,000 Annual Passengers Handled) (1971 Dollars)

Source: Same as Figure H-1.

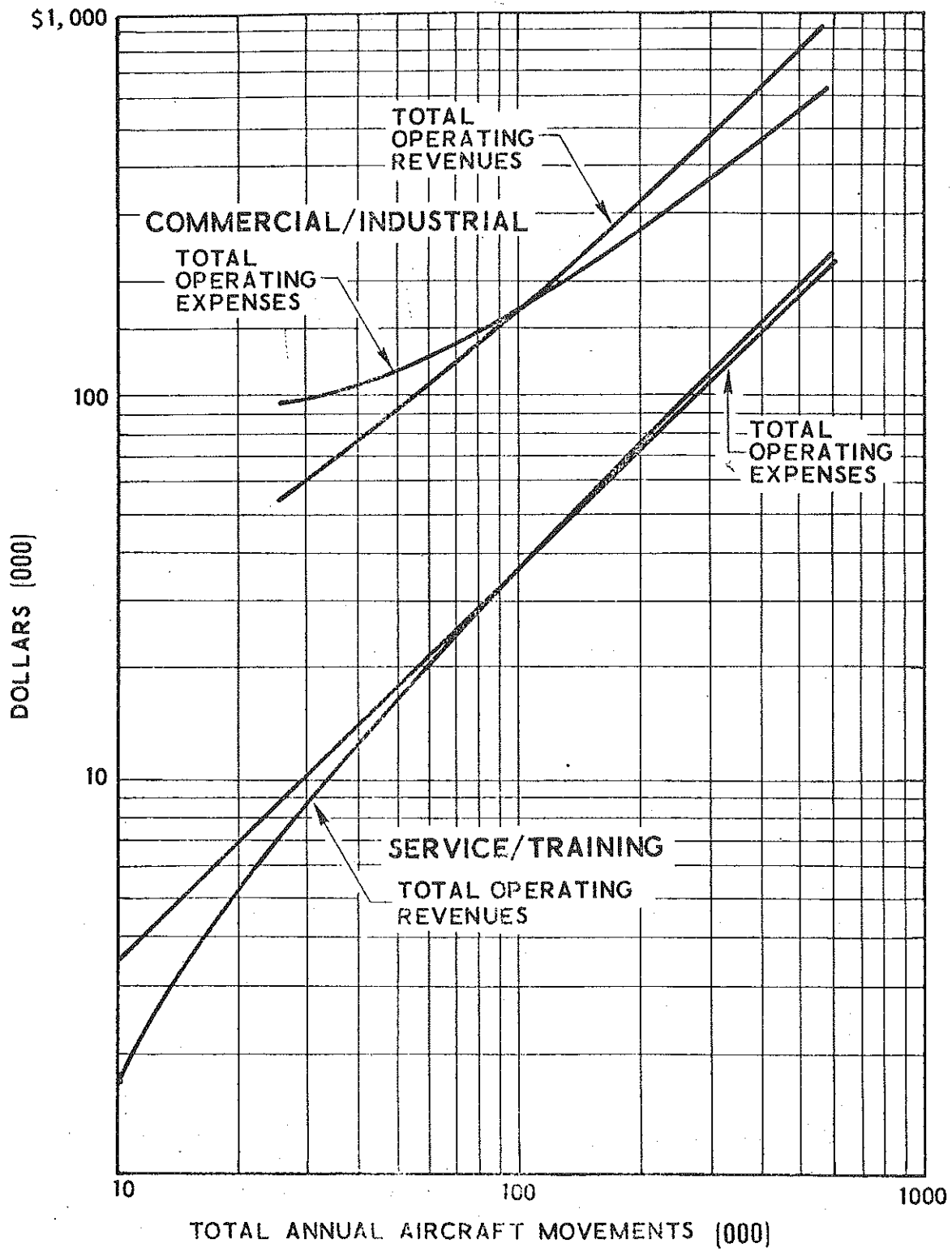


FIGURE II-9.3 Airport Revenue and Expense Estimating Relationships, Total Operating Revenues and Expenses--General Aviation Airports (1971 Dollars)

Source: Same as Figure H-1.

Table II-7 Selected Financial Statistics on Michigan Airports

AIRPORT	FINANCIAL STATISTICS		
	OPERATING		NET
	REVENUES (000)	EXPENSES (000)	PROFIT (000)
ALMA-GRAHOF (FY '75)	$ 27.6	$ 45.5	($ 17.9)
BRANCH COUNTY (1973)	12.5	19.1	(6.6)
MT. PLEASANT (1974)	63.2	37.6	25.6
ST. CLAIR COUNTY (1973)	37.8	38.6	(.8)
DETROIT CITY (1975 - 4 mos.)	1,818.0	1,975.4	(157.4)
OAKLAND-PONTIAC (1974)	415.2	315.0	100.2