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STEVEN GROSSMAN
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DR. J. MULLIN-COMMITTEE CHAIRMAN
SCHOOL OF URBAN PLANNING/
LANDSCAPE ARCHITECTURE
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FOREWORD

In years past, cities had to be located at a seaport or else they could not economically survive. The airport has become the seaport of the 20th century. Cities large and small strive to make the most of their air transport facilities. In place of the standard industrial park, airparks are now being developed. In many cases the relationships between the city and airport have not been fully explored. Each can have several impacts upon the other. Obviously the city hopes to obtain economic benefits from the airport but it can also be negatively impacted by noise pollution and other externalities.

The airport, depending on its location, is conversely impacted by the community. If non-conforming uses surround the airport it might be forced to curtail operations which would effect the community economy. These relationships, while perhaps not obvious, are there to be seen. Too few communities have based their airport plans on incomplete knowledge of its probable impact and on unrealistic expectations.

The major responsibility for this attitude must be placed on the professionals in the field who, during the 1960s and early 1970s fostered the idea of the airport as an economic panecea. This attitude is evidenced by many sources one being Aviation and Economic Development prepared by the Michigan Areonautics Commission in 1969. It stated that:

"Spurred by the rise in business aviation, many communities around the country are feverishly building new airports, to

aid in both attracting new industry and keeping established firms. Although the business community understands the value of airports and what they mean to economic growth in the community, often the citizenry is hesitant about voting new tax measures to finance airport development or improvement, primarily because they do not see the direct benefit of an airport which will act as an economic generator for new industry, creating more jobs and a greater tax base."

It now appears that the citizenry had the right idea all along. The rosey picture created by the above quotation is now being questioned by many experts who are more closely examining the airport's impact on the community. The overall picture presents a view of the airport as an important component of the community economy but by no means the generator of growth it has been portrayed to be.

The situation in Lansing is typical of many moderately sized cities across the country. The question of airport expansion must be answered by a realistic look at what the airport means to a community and at the interface between the two entities. Because Lansing's Capital City Airport will be referred to throughout this report, chapter I presents a brief overview of the airport and the existing facilities. By far, the most important aspect of the airport is its economic potential and impact on the community. Chapter II explores this subject in detail and relates its findings to Lansing's airport. Economic benefits derived from the airport do not come free of cost nor is this cost cheap. Noise pollution and methods of abatement are the primary

focus of chapter III with special emphasis given to a Florida case study. Maintaining a proper airport environment should be of deep concern to community leaders who expect to benefit from the airport. Chapter IV views the means of controlling the airport environment in Michigan. Both the legal basis for land use control and its application in the case of Capital City Airport are discussed.

Taken as a whole, these four chapters represent the most important areas of community/airport interaction. The conclusions reached in the various chapters are not always what one would have expected but they are supported by the evidence presented.

This report brings together and focuses the work done in four courses taken over the past two years. These were:

1. Public Direction of Land Use
2. Airport Planning
3. Regional Economics
4. Regional Resource Development

Concepts from all four courses have been brought into play in the writing of this report. Both the regional and economic aspects of the airport have been clarified through these courses.

The purpose of this paper is to determine the role of the airport in community life and detail the benefits and costs of having an airport and its associated facilities. In particular, the effect of Lansing's Capital City Airport will be used to highlight these costs and benefits.

CHAPTER I

CAPITAL CITY AIRPORT

Introduction

In 1950, there were approximately eight billion revenue passenger miles provided by the domestic commercial air carriers, representing travel by some 17 million passengers. In 1972, the total had grown to 152 billion revenue passenger miles with the growth in numbers of passengers to 190 million. Growth such as this has led to an expanding importance of the air industry as an economic influence upon the urban scene. Cities of even modest size are incorporating air transport into their future plans whether it be private or commercial aviation.

The Lansing area has experienced a rate of growth during the past decade which is significantly greater than that of the nation as a whole and as the community has grown, so too has its demand for air transportation. To meet this demand, the level of aviation activity at Capital City Airport has risen steadily. Testifying to the rapidly increasing level of aviation activity is the noticeable crowding of some of the airport's facilities. Because the passenger terminal building was operating at its capacity, an addition to it was made in late 1974.

The following is a summary and description of Capital City Airport as it exists today. As the airport will be referred to in all of the following chapters the reader should familiarize himself with the existing facilities and the

governing body, the Capital Region Airport Authority. A more detailed discussion of the Authority and the powers it uses to run the airport will occur in chapter IV. A brief overview of the Authority shows that it is a fairly autonomous body consisting of representatives of Ingham County, Ingham Township, and the City of Lansing. This composition is particularly strange in light of the fact that the airport is located wholly within Clinton County. Clinton has refused to join the Authority thus saving any contributions to its operations but also being left out of decisions which have a direct effect upon taxable land within Clinton County. At the present time, efforts are under way to entice Clinton and Eaton Counties into joining the Authority.

Existing Facilities

The basis for this overview of the airport is an inventory of the existing facilities at Capital City Airport. This inventory shall be borken down into five areas as follows:

1. Capital City Airport is an Air Carrier/General Aviation Airport which serves the Lansing Metropolitan area.

Ninety percent of all aircraft operations at Capital City Airport are of the General Aviation type. Eight percent are commercial carrier operations while two percent are military and commuter flights. At the same time, ninety-eight percent of all revenues are generated through the activities of the commercial carriers. Figure 1.1 shows the extent of the recognized service area. The boundaries of this area are based on the availability of data rather than actual service areas. Most of the data compiled by the Federal government is based on SMSA's which makes this the best definition from the standpoint of obtaining Federal funds. It must be remembered that the counties to the north and west especially use the airport and take advantage of the services it provides. Table 1.1 is the Income Statement of the Airport Authority for the year 1975. Under operating revenues, most of these funds come in from the commercial carriers. Only a small percentage of leased sites is attributable to other sources.

2. Airfield facilities at Capital City Airport include three concrete and bituminous overlay runways. The runways are designed to handle 180,000 flight operations per year. At the present time they are

Figure 1.1
Capital City Airport

AIRPORT SERVICE AREA

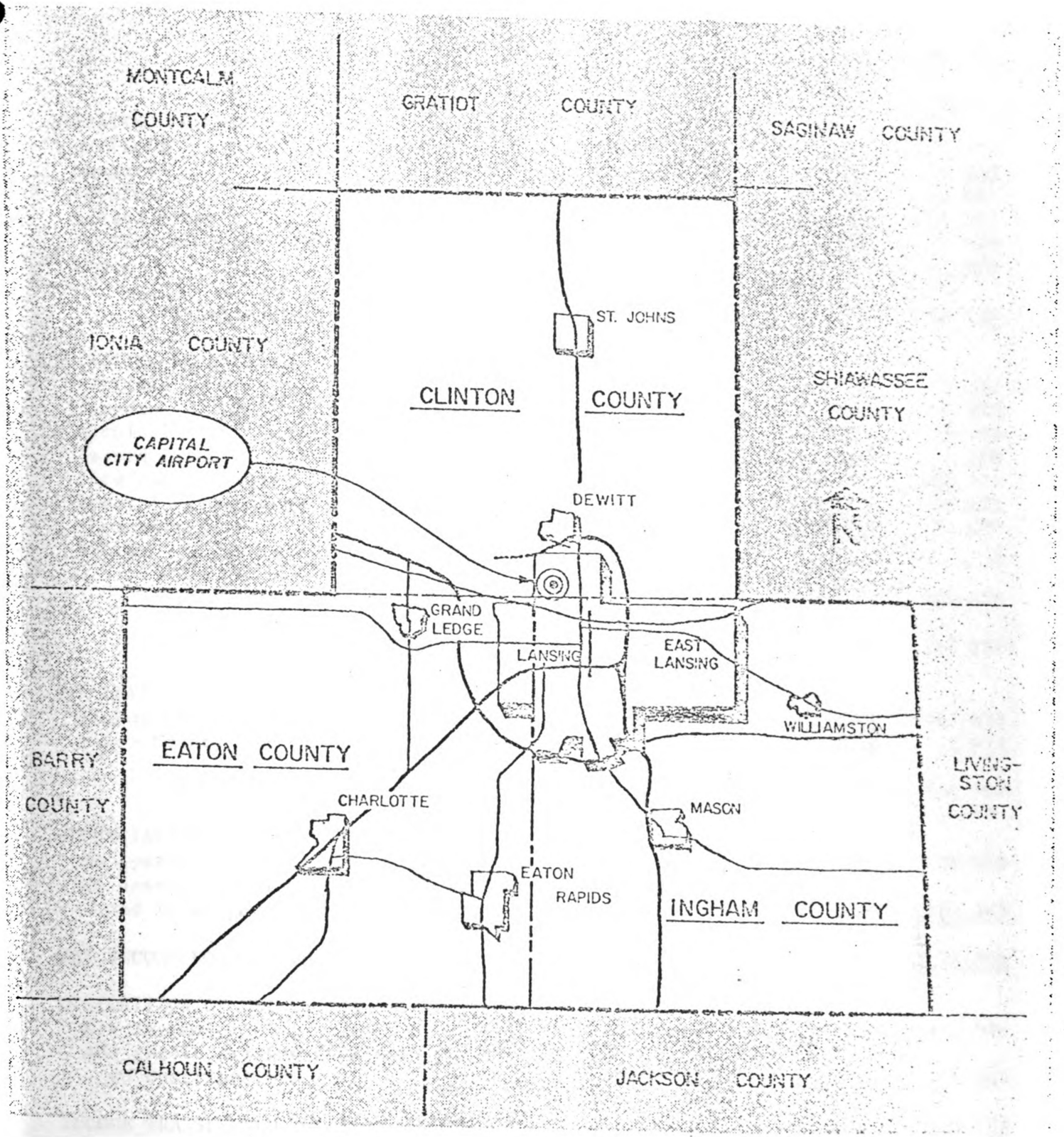


Table 1.1

CAPITAL REGION AIRPORT AUTHORITY

STATEMENT OF INCOME

	Year ended June 30,	
	1975	1974
OPERATING REVENUES:		
Airfield	$198 014	$177 746
Hangars	17 355	14 805
Terminal	207 236	149 007
Leased sites	121 026	100 507
Airline security screening	50 916	40 000
Other	60 002	21 953
Total operating revenues	654 549	504 018
OPERATING EXPENSES:		
Airfield	33 432	27 457
Hangars	2 644	1 523
Terminal	156 905	120 525
Leased sites	533	609
Fire and security	167 744	130 374
General maintenance	79 308	61 683
Administrative	193 540	172 699
Other	5 550	5
Total operating expenses	639 656	514 875
Operating income (loss)	14 893	(10 857)
TAX REVENUES FROM:		
Ingham County	956 944	926 343
Eaton County	7 084	6 421
Net income before depreciation	978 921	921 907
DEPRECIATION:		
On assets purchased with authority funds	49 090	36 018
On assets contributed by federal, state and local governments	325 677	294 385
NET INCOME FOR THE YEAR	$604 154	$591 504
DISPOSITION OF NET INCOME FOR THE YEAR:		
Net income	$604 154	$591 504
Add credit arising from transfer of depreciation to contributions	325 677	294 385
INCOME TRANSFERRED TO RETAINED EARNINGS	$929 831	$885 889

operating at this level. Figure 1.2 gives the general layout of the physical facilities at the airport.

3. The Capital City Airport Terminal Complex lies on the south side of the airfield.

The terminal houses all the necessary functions to operate a commercial carrier airport. It was designed to handle 150,000 people per year and presently it is handling 300,000 per year.

4. General aviation facilities are found in three locations at the airport.

Of these three locations, the facilities located at one site are the oldest at the airport and in need of replacement. Located next to the primary runway, these facilities do not present the most pleasant working environment.

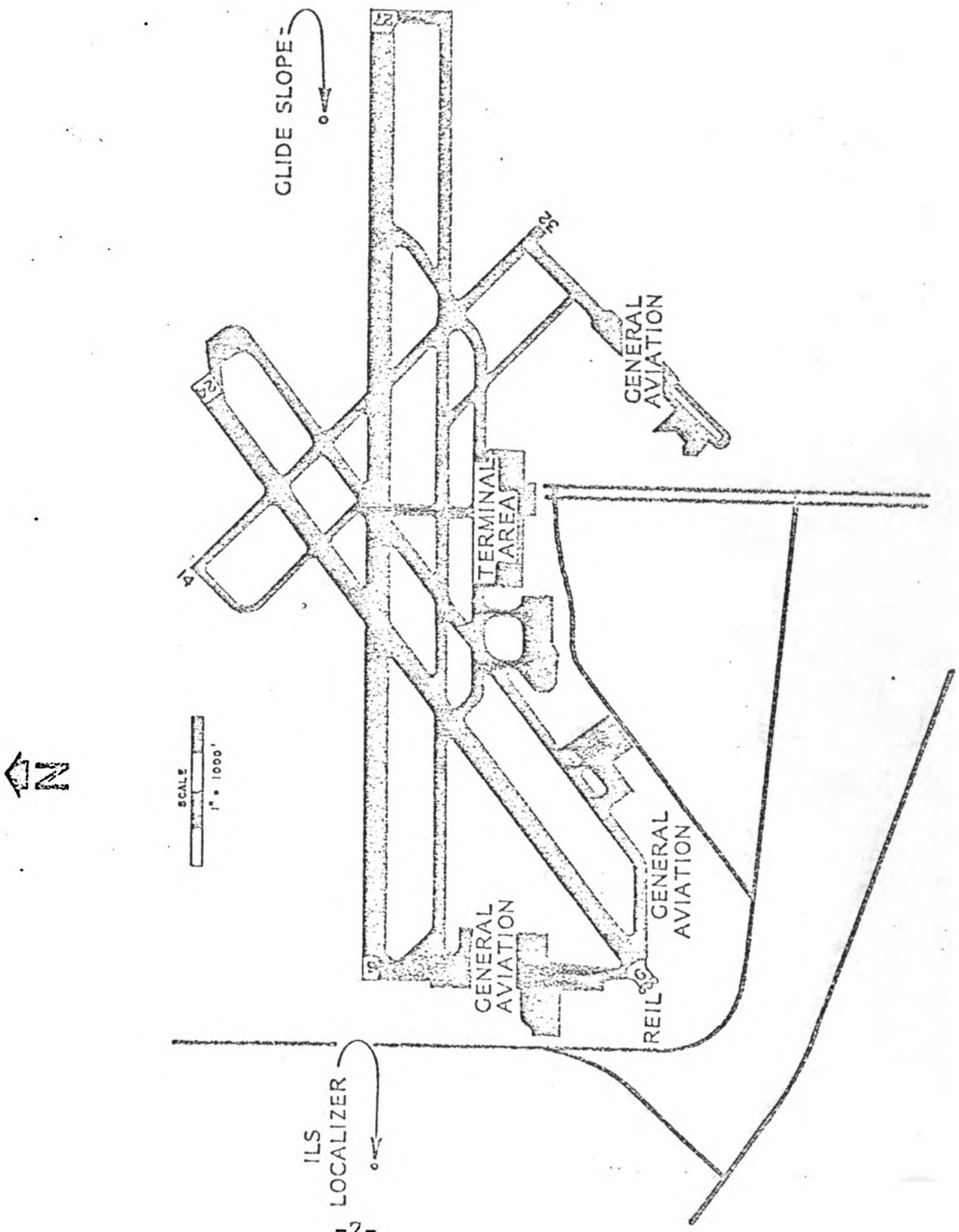
5. Support facilities at the airport include maintenance and fire/crash/rescue buildings, and fueling facilities.

Much of the equipment used is old and in need of repair or replacement. The location of the safety equipment means that they cannot reach all areas of the airport in a minimal amount of time. Plans are now being implemented to relocate these facilities to a more central location at the airport.

In addition to the above facilities the airport does lease extensive amounts of land to various groups. In the area north of the terminal building, several companies have located office buildings. In the lands surrounding the runways on the east and south the airport has leased the land to farmers to keep the land in agricultural production. While not extensive, these lands do bring in some income to the Authority.

Figure 1.2
Capital City Airport

SCHEMATIC LAYOUT OF THE
EXISTING AIRPORT



Conclusion

This summary of Lansing's Capital City Airport and its facilities should provide the reader with the necessary background to fully understand the references made in succeeding chapters. The issues to be discussed are extremely pertinent to the Lansing situation. Lansing is at a pivatol point regarding its air transport facilities. With expanding use, all of these facilities will be overtaxed and some expansion will be necessary. A clear understanding of the impacts and relationships presented by this expansion must be obtained for proper decision making.

The conditions found at Capital City Airport can be summed up as follows:

1. While general aviation make up the bulk of flight operations, commercial aviation pays ninety-eight percent of the cost.

2. The three runways are at their rated capacity of 180,000 flight operations/year.

3. Terminal facilities at the airport are operating at 200 percent of capacity or 300,000 people/year.

4. The airport service should not be limited to the tri-county area and should those counties north of Clinton County which make extensive use of airport facilities.

CHAPTER II

THE AIRPORT AND THE COMMUNITY ECONOMY

Introduction

Until recently, it had been assumed that the airport was a prime generator of economic growth. This conclusion is easily reached if one observes any major airport in this country. Many types of industry are attracted to an airport location. These include single-story factories, warehousing, office buildings and ancillary services which cater to the airport user. Many of these airports are among the largest employers in their regions. Employee salaries plus the multiplier effect of these dollars can provide a huge lift to any community. In addition to these benefits, the airport will usually buy many of the commodities it needs from local suppliers.

In the following sections these economic impacts will be discussed in more detail. The benefits and costs the airport will be viewed from an economic standpoint. Throughout the 1950's and 1960's the airport was thought of as the stimulus which helped a community grow. Some discussion will be devoted to this point and to why it might be fallacious if taken strictly. Finally, the situation at Lansing's Capital City Airport will be viewed economically and some conclusions as to what the airport means to Lansing will be drawn.

Employment

With the growth in air traffic, airports have become employment centers in their own right. Los Angeles International, which employed 37,000 people in 1970, is the second largest employer in Los Angeles County. Los Angeles reported a $1.4 billion gross payroll impact generated by the airport. A report by the Miami Airport Authority counted 25,000 airport employees with gross personal incomes amounting to $141.6 million. O'Hare, which is the sixth largest employer in the Chicago area, has 22,000 employees. They were paid an average wage of $13,000 making them among the highest paid workers in the metropolitan area. They collected nearly $300 million in salaries equalling nearly one percent of the estimated total disposable income for all employed persons in the Chicago SMSA.[1] Figures for New York, Washington and Atlanta are of simmilar magnitude.

It is obvious that the airport once established can become a major factor in the economic life of the community. What must be emphasized is the fact that the airport is established and the communities are growing at the same time. In these larger cities, the airport is not seen as a growth pole. Recently a study on the new Dallas/Fort Worth airport concluded that "the Regional airport is not seen as a major impetus to an increase in the growth rate of the region, but rather as a necessary condition for the continuance of the current growth rate."[2]

The employment potential of the airport goes far

beyond its direct employees. A study done by C.E.I.R. Inc. on New York's airports in 1959 revealed that substantial employment accrued to industires which were related to the airport. Purchases by the airports accounted for secondary employment of 11,000 and a payroll of $61 million and also an additional 4,000jobs in related transport industries and 20,000 jobs in service industries (ie. hotels, restaurants).[3] While the scale of these figures cannot be applied to all communities it must be taken as fact that the airports contribution to employment in the region can be substantial.

The Multiplier Effect

Much has been written about the role of the employment "multiplier effect". With reference to airports, the multiplier has two components:

1. Indirect employment-Ancillary activities created to serve the airport, the airlines, or passengers. This includes hotels, car rental agencies, catering firms, etc.
2. Secondary employment-Service sector activities such as laundries and grocery stores whose existence depends on the needs of those directly employed by or indirectly dependent on the airport.[4]

The multiplier accounts for indirect and service sector activity that would not have otherwise occurred. The location of a major airport in any area will mean the rapid introduction of a large number of new basic jobs, and

a consequent increase in population due to the influx of workers and their families. This initial increase in basic workers and their families will create a demand for services in the form of retailing and other non-basic activities, and thus an increase in the number of service jobs in the region. Employees who fill service jobs, together with their dependent families, will bring about a further increase in population and so on and so on.[5] The number of runs one wishes to pursue is only limited by time and technology. For the purposes of this paper suffice to say that some multiplier effect is present.

In a study on the "Economic Impact of the Dallas/Fort Worth Regional Airport on the North Central Texas Region in 1975", the conclusion was reached that a multiplier effect of 2.4x for total purchases and an effect of 2x for employment was in play. This was done after the input-output model was run through for eight rounds of transactions. Many experts say that this multiplier must be measured against the multiplier obtained if some other use existed or alternative transport modes were used. In addition to being difficult from a quantitative standpoint, in a very practical sense, for most city-pair markets today, national or international, business or pleasure oriented, there are no alternatives.[6] There is a strong dependency upon air transportation which cannot be measured using the "multiplier effect" technique. Many of the benefits are intangible such as city prestige.

Industrial Growth

The attraction of the airport environment for industry is a subject that has been studied but no concrete conclusions have been drawn. In formulating land use plans many communities have designated land surrounding the airport as either open space or industrial. The reasons for this are obvious. Both the noise and traffic generated by the airport would be detrimental to a residential environment, yet as will be discussed in another chapter of this report, many cities have allowed residential land use to reach the borders of its airport.

One of the major arguments for the attraction of the airport is the "infrastructure" argument.[7] Many airports were built on the urban periphery and improvement in highway access was essential. Little thought was given to direct mass transit links to the airport. The projected demand would not have been sufficient to support such a link and the distances involved would push costs beyond the feasible level. To this day very few airports have mass transit links directly to them, Cleveland being one of the major cities with such a link. Because of this emphasis on highway access to the airport, many new and innovative types of road networks were planned. When these roadways were planned, they were thought to be monuments to modern design, and sufficient to meet demand for at least several decades. This however was not always the case. The expressway between O'Hare Airport and Chicago's loop was completed in 1961. By 1963, usage

exceeded estimates projected to 1980. Perhaps mass transit would have been a viable alternative at today's useage levels.

Today, the problems associated with constructing a mass transit link have been compounded by the fact that these highway links often passed through undeveloped areas. This improved access and heightened the potential for development of that land thus raising land costs substantially. The attractiveness for industry was further enhanced when utilities were installed to meet the airport demand. These could easily be tapped for other uses, reducing capital outlays that would otherwise be necessary if these services were not already available. So, it can be seen that it is not the airport itself but rather the infrastructure built to support the airport that exerts a strong pull on industrial location.

The airport itself will have an impact on the industry of a community. Industries have shown a tendency to concentrate around high volume transfer points such as O'Hare in Chicago.[8] Small airports provide business aviation with convenient access to the airways, and it is not uncommon for business locational decisions to turn on whether adequate facilities are at hand to accommodate corporate aircraft.[9] In this country alone 18,000 companies praticipate in business aviation activities and many more regularly use commercial airlines to further their business interests. The civil aviation industry itself is an important contributor to the nation's G.N.P. This contribution to G.N.P. is increasing at a rate

2-3 times faster than the G.N.P. of the United States is increasing as a whole.[10]

Industries reliance upon air transportation is further documented by the findings of the Aviation Development Council of the New York-New Jersey Metropolitan Region. It revealed that the imposition of a night curfew on airport operations would have detrimental effects to several industries. It would mean second day mail delivery to a majority of points which now receive next morning delivery, diversion of some mail to surface transportation and serious overloads and traffic congestion during the day. "The delays in the shipment of air cargo caused by a curfew would increase considerably the costs of doing business for innumerable industries because of increased investment in inventories, greater losses through increased spoilage and higher costs from increased handling."[11] Banks would lose $34,870,000 per year in lost interest and the Department of Defense would incur higher costs because of the lack of cheap night flights for its personnel.

That industry utilizes air transportation is beyond doubt. The above facts prove this out but the question of the airport as an economic stimulus still remains unanswered. The follwoing section presents some arguments against the concept of the airport as a generator of economic activity for the community.

Economic Importance of the Airport

Previous sections have presented arguments which seem to picture the airport as an important element in the community economic picture. While its importance cannot be denied evidence indicates that it is not the stimulant that some people claim. According to the Massachusetts Port Authority, "Air passenger and air cargo services are in fact, the catalytic agents providing the stimulus for a major part of our economic stability and growth."[12] This last statement suggests that the airport is an attraction for industry which would locate in that city anyway. The idea of the airport as a stabilizing agent rather than a direct stimulant is worth noting because communities that rely on the airport for economic growth and on nothing else could be in for a rude awakening. Because the airport is neither a source nor a market most industries would not be attracted to it just for the air transportation alone.

It can be argued that many airports have been located on "development corridors" which were sectors of the city that were already beginning a growth spurt. The topographical considerations for airport site selection and low land prices may have logically encouraged a trend in that direction with or without the airport. When the airport was built, improvement of the infrastructure, as discussed earlier, influenced and further stimulated the process.[13] This line of thinking is quite consistant with observable trends.

The area surrounding the Detroit-Metro airport was a prime candidate for development even before the airport was built. The infrastructure provided by the airport helped to speed up the normal development process. The Real Estate Research Corporation concluded that "growth around airports is the result of the improved highway networks which have been built around the airports rather then a consequence of the airport itself."[14] The only induced effect caused by airports is the growth of hotel and service establishments around the airport. This is most evident in the large metropolitan areas especially New York where the number of hotels surrounding J.F.K. International has expanded significantly.

In smaller areas the major importance of the airport is still that of a connection with the major hub airports of the metropolitan areas. If it were left to economic viablilty, many of the smaller cities would not receive commercial air service at all. In the ten year period from 1961-1971 the number of points receiving air service dropped from 729 to 479.[15] The airlines which serve these markets require some sort of government subsidy to maintain service.

Capital City Airport and the Community Economy

The importance of Capital City Airport to the Lansing region is difficult to quantify. "An airport brings numerous direct economic benefits to an area. It hires many employees. It promotes tourist travel to an area. Industry may locate in the area as a result of having airport facilities available or the airport may be essential to the general economic well being of the area involving all the industry of an area. Construction employment and related services must be considered."[16] Considering these factors separately one can see that Capital City's importance lies in its service potential for local residents.

The population and income of the area play an important part in determining what role the airport will play in the community. Based on the preliminary counts of population as compiled by the Bureau of the Census, the city of Lansing had a population of 131,546 for the year 1970. This figure shows an increase of 21.4% from the 1960 census.[17] If Lansing's prosperity in business, industry and government continues at a comparable rate, it is expected that a population of nearly 200,000 people could be expected by the year 1990. The activities of the past seven years may cause this figure to be slightly optimistic but the overall trend seems to be holding as Lansing rebounds from the recession of the early 1970s.

When considering income, the type of employment which predominates in an area is of vital importance.

The character and volume of employment within a community affects the demand for air transportation. Employment has three implied effects on demand. These are, the generation of personal income, the stimulation of net immigration of population seeking employment opportunities and finally, business travel requirements are defined by the character of the industries or institutions within the community.[18]

This last category was the subject of an F.A.A. study in the mid 1960's. This study classified cities into four distinct groups. These groups were marketing, institutional, industrial or balanced. Because of both the state government and Michigan State University, the Lansing SMSA has been classified as institutional. In 1972 approximately 27% of the total labor force in the Lansing SMSA were employed by the state government. The data presented in table 2.1 does not suggest any significant change is occurring.

Per capita income in this area grew by 45% from 1962-1972. This was nine points above the average for the United States as a whole. Trends indicate this increase will continue for the foreseeable future.[22] This above average income augers well for the need for Capital City Airport. It has been shown that cities in the institutional category have the highest demand and useage for air transportation.

Looking at Lansing's industrial picture one does not see any visible effect that the airport has had on development patterns. The major growth direction is to

Capital City Airport

LABOR FORCE & EMPLOYMENT
ESTIMATES 1962-1972
FOR THE LANSING-EAST LANSING SMSA

	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972
otal Labor Force 1/	117,800	120,900	126,200	132,700	136,800	142,000	147,700	153,300	157,900	157,900	160,500
Unemployment	5,300	5,100	4,300	2,900	3,400	3,900	4,700	4,400	9,100	9,300	8,800
Percent of Labor Force	4.5	4.2	3.4	2.2	2.5	2.7	3.2	2.8	5.8	5.9	5.1
Nonagrc. Wage and Salary Emp.	94,600	98,300	102,800	111,900	116,700	120,900	125,600	131,800	129,300	131,300	134,200
Manufacturing	28,200	30,300	32,100	37,100	38,200	37,800	38,300	40,400	33,600	36,600	36,900
Durable Goods	29,200	27,100	29,200	34,000	35,100	34,300	35,100	37,100	30,000	33,100	33,900
Metal Industries	3,400	3,500	3,500	3,600	4,000	3,900	3,800	3,900	3,200	2,700	2,800
Non-electrical Machinery	2,500	2,700	2,900	3,200	3,400	3,200	2,900	3,200	2,900	2,500	2,200
Transportation Equipment	19,100	19,700	21,200	25,500	26,000	25,400	26,700	28,600	22,000	26,000	26,800
Other Durable Goods	1,300	1,200	1,600	1,700	1,700	1,800	1,800	1,200	1,400	1,200	1,400
Non-durable Goods	3,000	2,900	2,900	3,100	3,200	3,400	3,200	3,200	3,600	3,500	3,000
Non-manufacturing	65,400	68,300	70,700	74,800	78,400	83,100	87,300	91,300	95,600	94,800	97,300
Contract Construction	3,700	4,100	4,100	4,400	4,800	5,000	5,200	6,000	5,500	6,600	5,200
Trans., Commun., & Util.	3,300	3,200	3,300	3,200	3,300	3,300	3,300	3,300	3,400	3,500	4,000
Wholesale Trade	2,900	3,000	3,100	3,200	3,300	3,500	3,400	3,400	3,600	3,300	3,500
Retail Trade	13,400	13,900	14,400	15,100	16,000	17,000	17,600	17,700	18,700	18,300	18,500
Finance, Real Estate & Ins.	3,200	3,400	3,400	3,500	3,600	4,200	4,700	5,100	5,600	5,700	6,000
Service	10,300	10,700	11,500	12,200	12,600	13,300	14,400	15,100	15,600	15,100	16,800
Government	28,600	30,100	31,000	33,100	34,700	36,900	38,700	40,700	43,200	41,700	43,400
Federal	1,600	1,800	1,900	1,900	2,000	2,000	2,000	2,100	2,300	2,200	2,100
State	17,400	18,600	19,100	20,800	21,900	23,500	24,800	25,900	27,100	26,400	26,500
Local	9,500	9,700	10,000	10,400	10,900	11,300	11,800	12,600	13,800	13,100	14,700
Other Employment 2/	17,900	17,500	19,100	17,900	17,500	17,200	17,400	17,400	18,500	17,300	16,500

Subtotals may not add to totals because of rounding.

Includes workers involved in labor-management disputes, agricultural workers, self-employed, domestic workers, and unpaid family workers.

urce: Michigan Employment Security Commission.

Table 2.2

Capital City Airport

SUMMARY OF AVIATION DEMAND FORECASTS

	1972	1980	1985	1990	1995
ENPLANED PASSENGERS					
. Domestic Scheduled	136,784	228,000	293,600	373,400	478,000
. Other (Commuter & Non-Scheduled)	9,731	9,120	11,750	14,940	19,120
. Total	146,515	237,120	305,350	388,340	497,120
OPERATIONS					
. Domestic Scheduled Air Carrier	14,144	14,200	14,600	15,500	16,600
. Other Air Carrier	8,854	1,900	1,950	2,060	2,200
. Itinerant General Aviation1/	63,852	126,252	151,302	176,853	210,420
. Local General Aviation1/	69,602	105,840	126,840	148,260	176,400
. Military	1,413	2,000	2,000	2,000	2,000
. Total Operations	157,865	250,192	296,692	344,673	407,620
Based General Aviation Aircraft 1/	159	252	302	353	420
Other					
. Originating Air Cargo (Tons)	2,180	2,240	3,580	5,563	8,640
. Originating Air Mail (Tons)	308	725	1,080	1,620	2,430

1/ Case I Forecasts - No new general aviation airports in the Service Area. This and other cases are defined and explained in the text.

the south of Lansing, directly away from the airport. Industries have located near the airport but strong development pressures do not exist at the present time. Sam Burns, former head transportation planner for the Tri-County Rgional Planning Commission, views the airport as just another element in Lansing's economic picture. This view is shared by Mr. Russell Brown, the airport manager.

If the airport is not the economic stimulant that some suggest in Lansing , than its role must be related to the people it serves. In addition to the institutions described above the airport does pump valuable dollars into the community. Assuming the 65% of Administrative, maintenance and fire and security expenses are payroll related then in 1975 the airport contributed $286,385 in employee earnings. Using a multiplier of 2.4 which was described in an earlier section a figure of $687,324 is obtained.[19] While this is not a major factor in Lansing's total economy taken through many rounds it could be significant. Additionally, this figure represents only airport employees. An equal if not greater number of employees obtain their income from the airport by working for the airlines or commercial enterprises located in the terminal. Adding to this is the dollar amount of supplies the airport and related service industries purchase from area realators. All of these factors put together indicate a significant role played by the airport in Lansing's economy.

The Airport Authority likes to stress the point that industrial pressures will be increasing. This increase is not due to any airport related activities however, it

has come about because of the intended construction of I-69 just north of the airport. Once again the problem of distinguishing between airport induced growth and infrastructure induced growth crops up. It is safe to say in this instance that historical data indicates the increase in industrial activity is related to the highway construction. Also this industry will not be new industry, but industries that are either relocating within Lansing or industries that were coming to Lansing anyway. The development pressure in south Lansing will probably diminish somewhat once the highway has been opened.

Attitudes such as that expressed in a Lansing Planning Board Report in 1972 must be reversed. This report was a development plan for the airport area. Citing other publications it concluded that the major impact of an airport was to keep capital in the area and also attract new capital to the area. It says citizens must be educated as to the benefits an airport can bring so they will agree to put up funds for airport expansion. In professional circles this attitude seems to be changeing towards a realization of what the actual role of the airport is. The real task is to educate the politicians and planners so that they will not misdirect public funds to achieve goals which are not realistic.

Conclusion

In reviewing the preceeding sections, the controversy over the role an airport plays in a community's economic structure appears to be better defined than previously thought. The two schools of thought are:

1. The airport acts as a stimulant to economic growth by attracting new industy to the area and helping to retain old ones.
2. The airport is but one of many ingrediants in the overall economic picture of the community. It exists because the market for its services exists.

It is the conclusion of this section that from all the data available the second school of thought seems to correspond to reality.

Industrial growth around airports had been used as the major argument for the airport as a stimulant. On the surface this appears to be a logical argument but one must look deeper. Industrial location is primarily a function of cost. There are basically three types of industries when thinking of industrial location. These are raw material oriented, market oriented and footloose industries. Footloose industries can locate in just about any area as long as some advantage exists for doing so. An increasing number of industries is this country are of the footloose type. One of the major costs of locating a new plant is the cost of utilities and transportation links, generally highway. If an industry can reduce these

costs by locating in an area where these services exist then it will do so. This explains to a large extent why airports attract industry. The infrastructure already exists for the airport and can easily be tapped into.

Most of these areas were already growing and the airport just added another reason to locate there. On a regional level, no study has shown that airports attract industries from outside the region which would not have located there anyway. What the airport does do is guide and channel growth away from certain areas which otherwise would have experienced some form of industrial growth.

In addition to directing growth the airport, especially large hub airports, contribute many dollars into the community economy. Even in a community the size of Lansing with its small airport, the annual dollar contribution to the local economy can be estimated at somewhere over $1.5 million per year. At an average annual family income of $12,367^{23}$ per year, this means that 130+families derive their income from the airport. These figures are if anything conservative. The larger the airport, the larger its contribution to the local economy.

Industry has come to rely on air transportation for many services. These include quick and efficient cargo handling, passenger services and mail and other communication delivery. The airport must be viewed as a necessary item of the entire economic package which a community can offer an industry seeking to relocate. Just having an airport will

not be enough because many communities have airports. "Air transportation is but one of the many essential services required for the functioning of a modern industrial society."[20] Most communities seem to realize the importance of the airport. "Difficult as it may be to measure precisely these economic benefits and costs, the public decision to build airports and subsidize airlines where necessary, expresses the public judgement that the community benefits outweigh the social costs."[21] While the airport is not a panecea for economic development it does have an important role to play in maintaining a healthy community economic structure.

FOOTNOTES

1. Department of Housing and Urban Development, Major Airports and Their Effects on Regional Planning, U.S. Government Printing Office, Washington,D.C., 1974, p.7.

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3. ibid; p. 573.

4. op cit 1; p. 7.

5. ibid; p. 8.

6. op cit 2; p.578.

7. deNeufville, Richard and Yajima, Takaski, "Economic Imapct of Airport Devvelopment", 12th Annual Meeting, Transportation Research Forum, Richard B. Gross Co., Oxford, Indiana, 1971, p.123.

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10. Stratford, Alan H., Airports and the Environment, St. Martin's Press, New York, 1974, p.28.

11. op cit 2; p.578.

12. op cit 7; p.123.

13. op cit 1; p.9.

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15. Joseph F. Vittek Jr., "Air Service to Small Communities", 15th Annual Meeting, Transportation Research Forum, Richard B. Cross Company, Oxford, Indiana, 1974, p.407.

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18. Capital Region Airport Authority, Capital City Airport Master Plan-Vol. II, Lansing, Mi., 1976, p.B-7.

19. Capital Region Airport Authority, Annual Report-Fiscal Year Ennded June 30, 1975, p.11.

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CHAPTER III

AIRPORT NOISE AND THE COMMUNITY

Introduction

With the acceptance of the presence of airports within our communities, the noise problem takes on grave importance. Most of our present day airports were originally sited on the periphery of the urban area. Eventually, development pressures and expansion, unforeseen by most planners, surrounded and went past the airport areas. The noise affected area around the airport soon came to include many types of intensive land uses. The projected high noise area around John F. Kennedy International Airport in New York already includes 35,000 dwelling units, 22 public schools and 36 churches and clubs. Comparable statistics around L.A. International Airport are 47,000 dwelling units, 33 public schools, 20 churches, 3 hospitals and one college.[1]

The public outcry against this type of interference has been intense, but so has the public use of air transportation. Figures indicate that not only is air transportation a widely uses modeeof transportation but one of the safest means of transportation for those not using it. Non-occupant fatalities from 1950-1963 reveal that the air transportation industry had the best safety record over the

other three major forms of transportation.[3]

Mode	Fatalities
Automobile	121,853
Busses	4,908
Passenger Trains	12,830
Passenger Aircraft	38

The problem of aircraft noise pollution has been present since the inception of the aircraft industry. It was recognized early that noise from aircraft engines could affect the hearing of pilots and ground crew personnel, as evidenced by the fact that one of the earliest investigations conducted by the Army Air Corps, during W.W. I, related to aviators hearing. One of the earliest recorded official noise complaints, related to aircraft operations, occurred in 1928 at which time a farmer wrote to the Postmaster General stating that low flying aircraft were disrupting egg production.[4] A similar case, which shall be discussed in more detail later, was decided by the Supreme Court some years later.

The present growth of commercial aviation can be traced back to W.W.II. During W.W.II, the extensive utilization of military aircraft for passenger and freight transportation provided an impetus to the aviation industry which laid the basis for the postwar growth of commercial aviation. Several noise related studies were conducted by the military in the period 1946-1951. These studies showed that levels between 70 db and 120 db were

experienced throughout an area of 144 square miles, under the takeoff and approach zones, when certain large aircraft operated.[5]

With the advent of jet aircraft and their introduction into the commercial sphere of operations, the noise problem became more severe. In 1951, the Port Authority of New York issued a regulation forebidding landing or takeoff of jets, without permission from the Authority. This is extremely similar to what is now taking place with regard to the British/French Concorde SST. Early in 1952, the problem of noise resulted in action within the air transport industry to develop a "National Air Transport Coordinating Committee" to consider problems of aircraft noise in the New York area. The problems New York faced were shared by an increasing number of cities. Today there are over 2000 large jet propelled aircraft operating in the United States fleet, compared with none in 1957. In 1972, these aircraft served 479 of the nation's individual major terminals.[6]

The source of the noise pollution, aircraft takeoffs and landings also rose at an alarming rate. For example, in 1972 at O'Hare Airport, the nation's busiest, there were 660,000takeoffs and landings. Miami International experience 437,000 flights per year. Little wonder that the noise bothered some people. How many people are "some"? Approximately sixteen million persons are presently impacted by aviation noise in the United States, and in spite of the introduction of quieter new aircraft the number

will continue to grow.

Some type of control had to be established. By enacting the Noise Control Act of 1972, Congress provided the Administrator of the EPA with authority to coordinate Federal noise control activities, Federal research and development related to noise, and to provide technical assistance to States in the area of modal codes and laws.[7] This act has brought together all the programs which had previously been under the FAA, NASA and other Federal agencies. No regulatory agency was set up to specifically administer these programs and this appears to be the major fault of the 1972 law. Studies are being conducted under grants provided by the Act which will hopefully lead to recommendations concerning the establishment of strict Federal regulations which will be compatible with local government control of the airport and its surrounding environs.

This chapter will deal with methods of diminishing the impact of Airport noise on the community. The idea of removing the airport from the urban environment will be discussed first using a case study from Florida. Different techniques of landing and taking off have been developed and these will be reviewed in the next section. Finally, litigation remedies will be viewed as the last resort of the community and the individual.

Non-Urban Locations

One of the basic solutions to the noise problem is to locate jetports as far away from urban areas as is economically feasible. As regional planning became accepted, many proposals have been advanced to establish regional airports instead of every community having its own seperate airport. The few attempts at regional airports have run into many problems.

The proposed regional jetport in southern Florida is a good example of one area's attempt to locate an airport away from urban areas. The need for a new airport was abundantely clear to the Dade County Port Authority. As early as 1949, Miami International, profiting from its end of the line position for domestic flights and from south Florida's good weather and large, uninhabited land and sea areas, had become an important base for maintenance and overhaul of commercial airliners and for pilot training. The first proposal for a new airport occurred in 1952 but it was not until the mid 1960s that the Port Authority began to take action.

Part of this need for a new airport was due to the fact that out of the 437,00 flights per year nearly one quarter of them were for pilot training. These flights were not well suited to an urban area. Even without these training flights Miami's facilities were expected to reach the saturation stage by the end of the 1970s.[8]

Thus the search for a new site was begun. Several factors complicated the search. The Everglades Preservation

area and Everglade National Park extended for about 100 miles north to south and from 15-40 miles east to west. The area north and east of this sanctuary was fairly close to Florida's gold coast region and thus the problem of high land values presented itself.

Politics played a key role in the site selection. Most of the potential sites were not located within Dade County but the Authority still wanted complete control of the airport no matter where it was built. Very few counties would permit the construction of so sizable a project without exercising some control over it.

The search finally settled on a site in the Big Cypress Wilderness, located about 45 miles from Miami and about six miles from Everglades National Park. About one-third in Collier County. The primise of residential and commercial development associated with the jetport overcame the resistence of the Collier Commissioners. It was envisioned that a city would develop in the jetport vicinity. Transportation to the jetport would be handled by a high speed transit system plus the extension of I-75 into the area.

Environmentalists would claim that no consideration was given to the impact the jetport would have on the environment of the area. The Port Authority did however comply with all Federal and state regulations then in existence. "The Federal Airport Act of 1946 requires that airport projects approved by the F.A.A. be reasonably consistent with such regional plans as planning agencies might have prepared."[9] Discussions were held with all interested state and Federal agencies.

Due to a lack of environmental concern which was extremely prevelant in the mid 1960s, the usefulness of these discussions is questionable. In June of 1967 a Park Service offical wrote the Federal Aviation Administration to say that "the choice of the new site was very heartening to us."[10]

The cost of the jetport was expected to exceed one billion dollars, not counting the cost of the rapid transit system and the expected Federal contribution would total $300 million.[11] At first the airport would only be used as a training facility and then as Miami International became overcrowded, commercial air service would begin.

What finally led to the projects demise was the fact that the access road and transit line would have to cross through Federal Conservation Area number three. Robert W. Padrich, chairman of the Flood Control Districts governing board, discovered this and immediately became alarmed about the potential consequences. He called a conference of all interested conservation groups and soon questions were being asked of the Port Authority as to its site selection process. When the Port Authority admitted that the Big Cypress site was selected without careful evaluation of the environmental impact it would have, support was quickly withdrawn. The Governer withdrew his support of the project and the project was open to challenge under section 4(f) of the Urban Mass Transportation Act of 1964 This meant that all Federal funding could be withdrawn. By mid-April 1969, an Everglades Coalition of nearly all of the national conservation groups was demanding that

construction of the jetport be halted. A Federal investigation into the impact of the airport was launched. The report found that the Big Cypress was vital to the Everglades National Park and that without proper land use controls, construction of the airport would be highly detrimental.[12] By checking the past performance of the governments involved it became abundantly clear that the prospect of effective land use controls being instituted was indeed a bleak one.

The study saw three alternative courses of action. The project could proceed as planned and the Everglades destroyed. The airport could just be used for training flights, but this would not eliminate development pressures in the area, and thirdly, an alternative site could be found.[13] On January 15, 1970, representatives of Dept. of Interior, the Department of Transportation, the governor's office and the Port Authority signed the Jetport Pact. It provided for the abandonment of the Big Cypress site once an acceptable replacement site could be found, acquired and then developed to a comparable stage as that of the existing facility. This could be done at no cost to Dade County. Construction would then proceed normally.[14]

The procedure for finding this new site was not spelled out and confusion resulted. The second site selection process suffered from the same handicaps as the first and then some. The second site was to be selected by the state with the Port Authority having final approval. The original airport proposed by the Authority would have been a truly regional airport. It was hoped that the second

site would also have this characteristic, but the state was not set up to consider regional aspects, there was no regional planning or regional agencies then in existence. Political factors became more troublesome as the Port Authority refused to give up any of its powers. A site was subsequently selected in the northern portion of Dade County.

The one outstanding feature of the site was how poor a site it was. The noise generated from an airport at this site would affect 14,000 Miami residents not counting any future growth that might occur.[15] The noise would also cover recreation areas, schools and churches thus reducing their value. The site also intruded upon Federal Water Conservation areas which are crucial in the supply of fresh water to the enitre southern Florida area. The site was initially rejected by the Dade County Commissioners but they gave their consent on the condition that the airport would be smaller than originally planned and would be merely one of a constellation of airports within the region serving similar functions. This put to rest any idea of the jetport serving as a growth pole and also the lofty plans that were projected for the jetport.

All of the above led to the demise of the regional jetport and all it could have meant to the area. By building the smaller facility it was not considered that the airport might have to handle 115 million passengers a year by the year 2000. It seems apparent that the attitude of the Port Authority played a major role in the destruction of any hope for a regional airport in southern Florida. There were several

sites, mostly located north of Dade County, upon which a regional airport could have been built. Selection of such a site would have contributed to the growth and stability of the region.

All the lofty ideals of the original proposal were abandoned with the selection of the north Dade County site. The noise problem, which was one of the major reasons for building a new airport, would not be eliminated. By locating close to present airports air traffic congestion would be increased. A smaller airport would not solve the passenger congestion already existing. Pollution problems still existed, both air and water.

Several lessons and recommendations can be gleaned from the Florida experience. If airports are to be located outside the metro area it will become necessary to locate outside the political jurisdiction of the urban area. Regional planning and even regional government becomes a necessity. At the very least, state regulations or state planning forcing cooperation between local governments should be enacted. Local governments constantly view their position as being one of a competitor with adjacent governments. This business-like sense of competition is a major stumbling block to regional airports. To ease the planning process the public should be constantly involved and full disclosure of all relevant facts should be made. This would tend to reduce the number of projects held up due to court suits and other forms of litigation. The idea of regional airports is a sound one but perhaps a few years ahead of its time. With a few exceptions

(ie. Dallas/Fort Worth) regional airport planning is in the infant stage with much progress necessary.

For many smaller areas the option of building a completley new facility does not exist. These areas must rely on other methods to alleviate the noise problem while retaining their existing facilities. The next section will deal with certain techniques which can be implemented by the airlines in the flight operations to reduce the impact on noise of the surrounding community during takeoff and landing.

Flight Procedures

Regulating flight operations is one means of controlling and/or reducing noise. Takeoff, approach and minimum altitude are the three variables that can be controlled.

There are at least two distinct types of takeoff noise problems: noise alongside the runway and noise under the climbout flight path. They are distinct in that reducing one generally results in increasing the other. For most airports, the climbout noise is more critical. At present there are no F.A.A. controls relating to noise abatement takeoff procedures.[16] Several airlines employ different methods to reduce the effect of noise on the surrounding areas.

For residential areas very far from the airport, greater then ten miles, the most beneficial procedure is generally to climb at the steepest angle possible with nearly full power. This procedure is used by American and United Airlines. For areas 2-10 miles from the airport, the best procedure is to climb steeply and then at an altitude of 1,500 feet, reduce power to not less than that required to maintain safe flight in the event of an engine failure. Power is not reapplied until the aircraft reaches an altitude of 4,000 feet. Northwest Airlines uses this procedure and all airlines serving Washington National Airport use it. It reduces noise approximately 2-7 EPNdb. A 10 EPNdb decrease would be perceived as a halving of the noise level.[17] This procedure will cause a noise increase for about one mile prior to the cutback and then again after

power is reapplied.

To reduce sideline noise the most beneficial procedure would be to reduce power from the start of the takeoff role. This procedure results in lower altitudes and higher noise levels under the climbout path so it is not good to use when urban areas are located downrange of the airport. The best method would be to tailor each approach to the specific runway and surrounding conditions.

The same situation that exists on takeoffs also exists on approaches. That is, there are no F.A.A. requirements but the industry has adopted certain procedures. Most apprcaches are made on an electronic Instrument Landing System Glide Slope. This slope for new installations is three degrees. Sixtyfive percent of the systems now existing were built before the three degree standard and are between 2.5 and 2.9 degrees. A one half degree increase in approach angles reduces noise 2-3 EPNdb. The high adjustment cost, approximately $62,000 would appear to be the main hindrance to the complete changeover of all airports.[18]

A two segment approach has also been tried. Under this method the initial decent would be at a steep six degrees. At an altitude of 1,000 feet the decent gradually decreases to normal. The noise benefit from this method has been measured to be as high as 17 EPNdb under the steep portion of the flight profile. The noise reductions become smaller as the aircraft gets closer to the airport, becoming 0 when the transition to the final glide slope is complete. It would cost approximately $31,400 per aircraft to equip them

with the instrumentation necessary to put this approach into practice. Objections have been raised by the National Pilots Association as to the safety of the method and the F.A.A. is presently conducting tests. The construction of larger runways would also contribute to reducing approach noise. If planes could land at higher speeds they would not have to use flaps when approaching and also the use of reverse thrust could be avoided upon landing with longer runways. It appears that several of these approaches once tested could be used to reduce noise levels. Proper indoctrination of pilots would be necessary to allow the safe usmage of all methods.

The present minimum altitude set by the F.A.A. is 1500feet. Increasing this altitude to 3000feet would reduce noise by 10 EPNdb. This approach has several disadvantages. It would mean aircraft would have to travel further to intercept the glide path at a higher altitude. This could spread noise over a larger area although it would be at a reduced rate. This higher altitude would also reduce the area of maneurverability and thus contribute to increased air congestion. Because of the potential noise relief, increased minimum altitudes seem to merit further evaluation through the F.A.A. rule-making process and at this time the F.A.A. has begun studies and experimentation.

From the discussion of all the methods it can be seen that noise abatement flight procedures can be instituted fairly quickly. By themselves they will not solve the noise problem but taken in conjunction with other steps in a comprehensive program, they can play a large role.

Litigation Remedies

Throughout the history of this country, and to a greater extent in the last twenty years, the court suit has been the primary means by which private citizens can combat injustices inflicted upon them. People affected by the noise generated by airport activities are no exception. Residences can be severely affected by this noise. Damages result from noise, vibration and danger or psychological danger. As the value of homes decreases so does the resulting damage decrease in dollar value. Areas right next to runways might be reduced in value to their agricultural values.[19]

The lawsuit has been the primary tool used to recover these noise inflicted damages. In 1962 there were over 1000 lawsuits at 19 different airports. With airports now within close proximity of residential neighborhoods, it is not hard to imagine this figure increasing dramatically. The requested damages out of these 1000 lawsuits was $14.5 million. At last count there was more than $200 million in other outstanding noise lawsuits.[20]

The course of action most lawsuits pursue is that the noise of the airport involves a taking. To sue on a nuisance claim has not proved successful because of the identity of the defendent. The plaintiff must prove the noise and its source are a public nuisance and since airports are created pursuant to statuatory authorization and are public owned it would be difficult to prove that the public is annoying itself. Airlines are exempt, because they are regulated and controlled by the federal government.[21] One of the major Supreme Court

cases affecting this type of litigation is the United States v. Causby. Mr. Causby owned a chicken farm at one end of a runway and claimed the noise from the airport prevented his chickens from producing. The Supreme Court ruled in his favor but stipulated that in order for a taking to occur the flights must be directly over the subjects property.

Courts have not afforded adequate relief to homeowners for several reasons. There has been an unwillingness on the part of the courts to stretch the traditional trespass and nuisance requirements. There has always been a certain bias in this country towards industry and free enterprise. This has come through in many court cases where the evidence while perhaps not strong, has still pointed towards the guilt of the aircraft industry and even then the industry won. It is however difficult to collect evidence against airports and also there are certain inadequacies inherrent in private party litigation. A California Supreme Court recently ruled that a homeowner cannot sue a city in a class action for nuisance and inverse condemnation.[22] The court found that there was an insufficient community of interest among the property owners near the airport to warrant their engaging in a class action suit. This meant that each homeowner would have to sue on an individual basis and the cost and time involved would prevent many from doing so. In Alleghany Airlines, Inc. v. Village of Cedarhurst, the Supreme Court ruled that local controls over airlines are illegal due to the already existing Federal controls.

The Housing and Urban Development Act of 1965 directed HUD to study methods to reduce loss and hardship to homeowners whose property is depreciated in value following the construction of airports in the vicinity of their homes.[23] Some homeowners have tried to collect damages more than once. They claim that increased activity at airports represents a second taking of their property and are thus eligable to claim more damages. The court ruled that once an airport has begun operations property owners are given notice not only of existing activity but of greater activity in the future.

Government must fully realize its responsibility for noise problem. An airport is presently considered an economic entity and while this is not totally incorrect one must look at the social impact of the airport. Government intervention is required to secure welfare-maximizing rather than profit-maximizing behavior. Local governments as the public sponsors of the airport, must bear the cost of the taking. In doing so the cost of the noise would be internalized and could be passed on to the consumer of the airport service. This job cannot be left to the Federal government for one major reason. If the Federal Government became responsible for the noise claims they would also have to take on the job of planning, building and operating the airports for which it is responsible.

There are two basic routes that governments can take in trying to control the noise problem as it effects homeowners. Enabling legislation encourageing and compelling adequate land use planning and zoning around airports with provisions

for enforcement as well as a general revision of archaic planning and zoning laws would allow local communities to solve much of the noise problem on their own initiative.[24]

The purchases of air and noise rights by local communities from homeowners would serve several purposes. It would compensate all owners harmed by noise. This would reduce claims and thus litigation to a great extent. By hitting local government in their most vulnerable spot, the pocketbook, it would lead to proper location of airports where lease costs would be the lowest. This would also put pressure on the air industry to try and perfect a quieter engine. As long as noise exists and airports are located in close proximity to populated areas, litigation will continue but the aforementioned solutions would take a larger share of the litigation out of the courts and thus save local communities the expense of paying out claims plus court costs.

In the next section Lansing's respose to its noise problem will be explored. Chapter IV will look at how Michigan has enable its localities to handle the noise problem in general.

Airport Noise and Capital City Airport

The remedies discussed in the preceeding sections of this chapter are not exclusive of one another. All can be used in some combination and at Capital City Airport this is what has occurred.

At the present time the impact of noise from aircraft operations at Capital City is minimal. No offairport land is subject to noise levels greater than 85 db for periods in excess of five minutes per day. The 85 db figure is the threshold established by the Federal Aviation Administration for the testing of airport noise effects. The reason for this lack of noise impact is that there are a very low number of jet aircraft operations at the airport presently. Also, the runways that these operations take placeon minimize community exposure. The following noise contour map indicates that while some residential and public buildings are subject to noise for periods of 1-5 minutes, the impact is minimal and no serious problems have arisen because of community protests.

The planning and location of the airport must be considered primary reasons for the lack of a noise pollution problem. Located on the north side of Lansing, Capital city is in one of the non-growth areas of Lansing. Major growth has taken place to the south and east of Lansing with only a minimal of residential expansion occurring in the north. As discussed in other chapters, this condition is expected to change with the opening of I-69 just north of the airport. This is where planning the proper airport

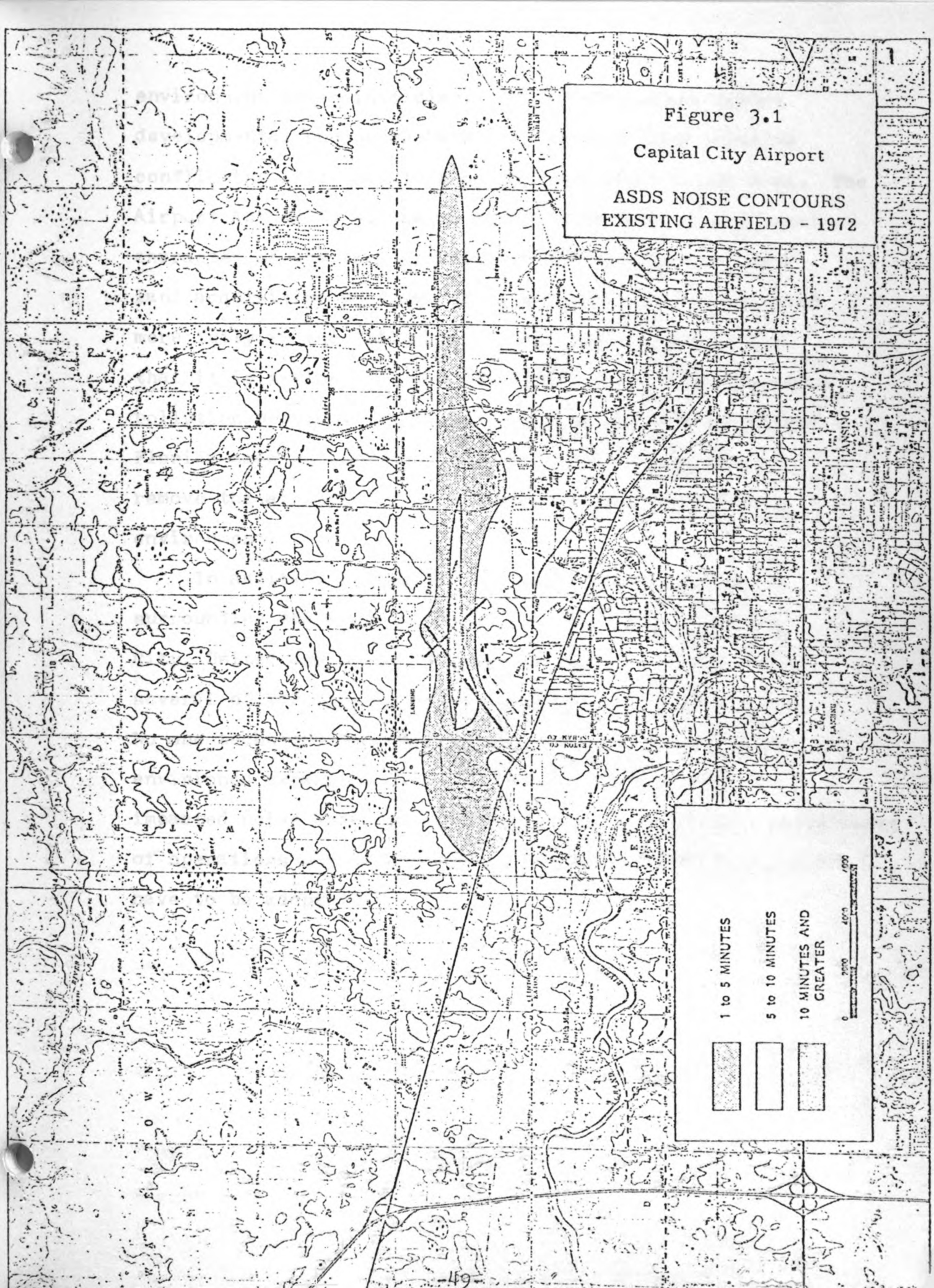
Figure 3.1
Capital City Airport
ASDS NOISE CONTOURS
EXISTING AIRFIELD - 1972
1 to 5 MINUTES
5 to 10 MINUTES
10 MINUTES AND GREATER
0
2000
4000
6000

environment comes into play. In too many cases future developmental pressures have been ignored thus allowing conflicting land uses to encroach upon the airport area. The Airport Authority wishes to maintain as much of the rural character of the land as possible and has embarked on a land acquisition program. This program will be discussed more fully in the following chapter but suffice to say that it is trying, through land banking to avoid the noise pollution problem. While not going to the extreme of the Florida case previously cited, the Authority seeks to remove the airport as far as possible from the urban environment.

In addition to maintaining appropriate land uses surrounding the airport, both airlines serving Capital City, United and North Central, are experienced in using several of the flight procedures discussed earlier. No one technique has of yet been implemented but if the envisioned expansion of air operations takes place the impacted noise area will expand greatly. To avoid a curtailment of operations one or more of the discussed techniques will have to be adopted.

Conclusion

The future appears brightest for those smaller cities which are just beginning to contemplate the construction of an airport. Much has been learned in the last twenty years. Unfortunately, this learning has been from mistakes. Lesson number one is that locating an airport away from the urban areas is not enough. Airports attract development. Without proper land use controls residential development will likely spread to the border of the airport. The 100,000 people living in the shadow of J.F.K. International in New York and the 150,000 living within close proximity of LA International can attest to the fact that an airport environment is not condusive to peace and quiet. All new airports should rely heavily on strong land use controls. Consideration should be given to future expansion of the airport and also of the urban area. The response in Lansing to this situation will be discussed in detail in the next chapter. Much of the expense of this planning will be borne by the Federal government. The Federal Airport Act of 1946 provides for grants to public agencies for airport development.

Regionalism will become an important issue in the future. Do Lansing, Jackson, Kalamazoo, Grand Rapids and Battle Creek each need their own major airport? Economic efficiency would probably be better served by the construction of one large regional airport connected with high speed transit links, if possible. The problems associated with this method were discussed in the sothern Florida case. Lack

of regional government was the major obstacle encountered. With each local government quarreling over who should control what and where it goes very little can be accomplished. State governments will have to pass legislation creating and granting powers to regional governments. The county may be a thing of the past. State planning should become more common as problems arise which cannot be handled by localities and affect the entire state. Without such state and regional planning, solutions, such as that arrived at in Florida, will be all to common. This type of solution generally adds to the problem. Regional airports are easier to locate far from urban areas and thus eliminates many of the noise problems if properly done.

For existing airports the problem of noise is a complex one. A major step towards its solution will come when local operators are forced to pick up the cost associated with noise. Once this is passed on to the users of air transportation pressure will be increased on all parties concerned to reduce the expense of noise. Local government can take several steps. Leasing of air and noise rights is one way to remove the cost of litigation but the expense is still high. Properties surrounding airports can be purchased but with residential property values so high, no local government could afford it. The short range solution seems to be to pay off the landowners and make the customers pay for it.

Aircraft flight procedures can reduce this cost. By following the takeoff, altitude and landing procedures outlined previously the amount of noise could be dropped

to acceptable levels. Here too, there would be a cost but perhaps the airlines should be forced to bear it.

Little mention has been made of insulating buildings against noise pollution. It goes without saying that any buildings built in the future should be insulated but the cost of doing so to all existing structures would be prohibitive. Perhaps some tax incentive could be made available to homeowners and employers to enable them to insulate without bearing the full brunt of the cost.

The noise problem will not be solved overnight. Some of the blame for its existence must go to the airport planners of past years. These men, mostly engineers, had little feel for the human element and how it would interact with the airport. More than any other factor, noise will be a determinant of future airport location. Consolidation of small airports into regional centers is likely. But whatever course is taken the person planning the airport will have to consider the people who must live with it.

Controlling the land airport around the airport will play a crucial role in reducing the number of people affected by the noise at the airport. The next chapter will view the situation in Michigan as far as who controls this land. The case of Lansing and Capital City Airport will be discussed in particular. Whether by luck or planning, Capital City does not have a noise problem at the present time. The steps being taken to preserve this situation are the topic of the second portion of the chapter.

FOOTNOTES

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17. EPA, op cit, p.18.

18. EPA, op cit, p.20.

19. William Randall, "Appraisal of Damages Caused by Proximity to Jet Airports", The Appraisal Journal, vol. 22, January, 1954, p. 37.

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22. "California Court Bars Class Action", Aviation Week and Space Technology, vol. 101, October 7, 1974, p.35.

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CHAPTER IV

COMMUNITY CONTROL OF THE AIRPORT AND SURROUNDING LAND

Introduction

Twenty-five years ago when many cities were first establishing their airports, little thought was given to what would happen in the future. Because of this, development of non-compatable uses have grown up around the nation's airports, almost without exception. This problem shall be the focus of this chapter. Lansing is fortunate in that development has not yet encroached upon its airport's boundaries. In a recently adopted master plan, the airport's governing body, the Capital Region Airport Authority has attempted to meet this future problem and prevent it. An integral part of the plan is a 1500 acre land acquisition program which is currently being implemented.

Land as it effects the airport and the community shall be discussed in detail. Section one looks at the existing methods of controlling land use in and around the airport and the problems that are present. Power is the key element here and how it is wielded by its possessors. The institutions that have been created to wield this power have their faults and corrective measures must be taken.

Section two will look at the land acquisition program itself to determine its costs and benefits. More pertinent is who bears the costs and and who reaps the benefits of of the airport expansion program. The first topic discussed is the state involvement in airport land planning which began in 1950.

Airport Land Use Control in Michigan

Airport Control - Where the Power Lies

On June 7, 1950, Michigan's Airport Zoning Act was passed by the state legislature. It empowered the Michigan aeronautics commission, municipalities, and other political subdivisions to "promulgate, adopt and establish, administer and enforce airport zoning regulations." The reason behind the passage of this act is quite simple. The state found itself in possession of several airports, especially Capital City Airport in Lansing. As the urban areas served by these airports grew it was felt that some control was necessary to prevent incompatible uses from locating near the airport. The pretext used was that of safety. The act called for the adoption of airport approach plans. Each plan outlined exactly what was a hazard, the area where it might be located and the height limits and other requirements within the hazard area.

Overall, the Airport Zoning Act is traditionally structured. The apparatus established to administer the system is a zoning board with an appeals board for controversial cases. Both of these institutions are familiar structures and need not be elaborated on here. Public hearings are called for which must be publicized beforehand. The 1953 zoning ordinance adopted by the state for Capital City Airport stretched over one hundred pages in length and detailed exactly what uses were permitted on the airport property plus specifying height restrictions for the airport runway approaches which stretched out to ten miles from the end of

the runway.

Community involvement in this process was minimal to say the least. Since the state owned the airport, it adopted whatever regulations seemed appropriate. This system was not to last forever though. On July 16, 1970 the Governor signed House Bill #4220 which provided for the creation of airport authorities and the membership thereof.

Reflecting perhaps the changing sentiment regarding public particpation in decision making, the act provided for representation of the affected governmental units on the authority board. In particular, this act established the Capital Region Airport Authority by transferring 1,135 acres of land to the Authority and investing the board with certain powers. When initially formed, this board was composed of representatives of Ingham, Clinton, and Eaton Counties and the City of Lansing. Since its conception, both Clinton and Eaton Counties have withdrawn from the board. This defection had led to a curious situation regarding the decision making process. The airport lies wholly within Clinton County. The Board regularly makes decisions which effect the county, but because it is not a member, Clinton County has no voice in these decisions.

A major power of the board is the right to tax its members up to 3/4 mill on each dollar of assessed valuation, to pay for operating expenses, repairs, improvements and expansion. As of this writing, only the residents of Ingham County pay any tax for airport operations. The residents of Clinton and Eaton Counties have received all

of the benefits without paying any of the monetary costs. It can be said that Clinton County is paying social costs, i.e. noise and air pollution, but due to careful planning on the part of airport administrators, these costs have been kept to a minimum. Efforts are now being made to entice these two counties into joining the board once again. In view of the current land acquisition program (discussed in a subsequent section) and the overall 20 year plan, a more comprehensive effort is needed to encompass all affected areas.

This 1970 Act also stated that "for the purpose of acquiring, pruchasing, constructing, improving, enlarging or repairing airports and airport facilities created within or hereafter acquired by the Authority, the board may issue self-liquidating bonds of the Authority." Here is another example of community airport interaction. The bond rating the airport receives reflects Wall Street's assessment of not only the board's ability to repay the loan but also the community's support of the airport. Close ties with the community it serves would appear to be essential to enhance the borrowing potential of the authority. The Capital Region Airport Authority has an excellent rating which reflects to a certain extent its acceptance by the community.

Land Use Control

As stated previously the board does have zoning powers within its own property limits. This zoning plan was adopted in 1953 and is in need of updating. In addition, a 1976 Airport Zoning Act, passed in June of that year,

grants to the board the power to zone land up to ten miles outside the boundaries of the airport itself. This area extends from the runway end in an ever decreasing triangle with its point located ten miles away. This zoning overrules any existing zoning adopted by the local government. This would seem to present a problem in intergovernmental relations but in the case of Capital City Airport, no such problems exist. In the past, it has been common practice for the local units of government prior to adopting their zoning ordinances to request assistance from the airport authority. This has resulted in a reasonable effective zoning plan in the airport vicinity.

As of this writing, no zoning ordinance has been adopted by the board for its surrounding area. It appears they will simply incorporate those ordinances already in existence. This would be a mistake on the part of the board. It should look deeply into how it can, by its zoning powers, effect and guide the growth of neighboring townships. In the coming years there will be severe developmental pressures placed on the townships north of Lansing. The main intent of the board's ordinance should be to alleviate these pressures because most compatible land uses are extensive rather than intensive. Since these townships are basically rural in character they would appear to be eager to develop a method of maintaining their way of life. The traditional zoning ordinance has not proved an effective tool for accomplishing this. Too often the profit motive has proved the downfall to small rural communities.

Land Acquisition Program

As stated previously the airport occupies 1200 acres. Under the currently effective 20 year master plan, a program of land acquisition which will add 1500 acres to the airport, is currently being implemented.

Existing Land Use

Incompatible land uses around an airport fall into two classes. First, certain uses of land near airports could pose safety hazards to aircraft using the airport. Such uses include erection of tall structures that intrude into navigable airspace, or uses that would interfere with electronic communications or visibility or which would present confusing lights to aircraft operators. Second, other uses of land near airports can be environmentally incompatible in that they expose those on the ground to excessive levels of aircraft noise.

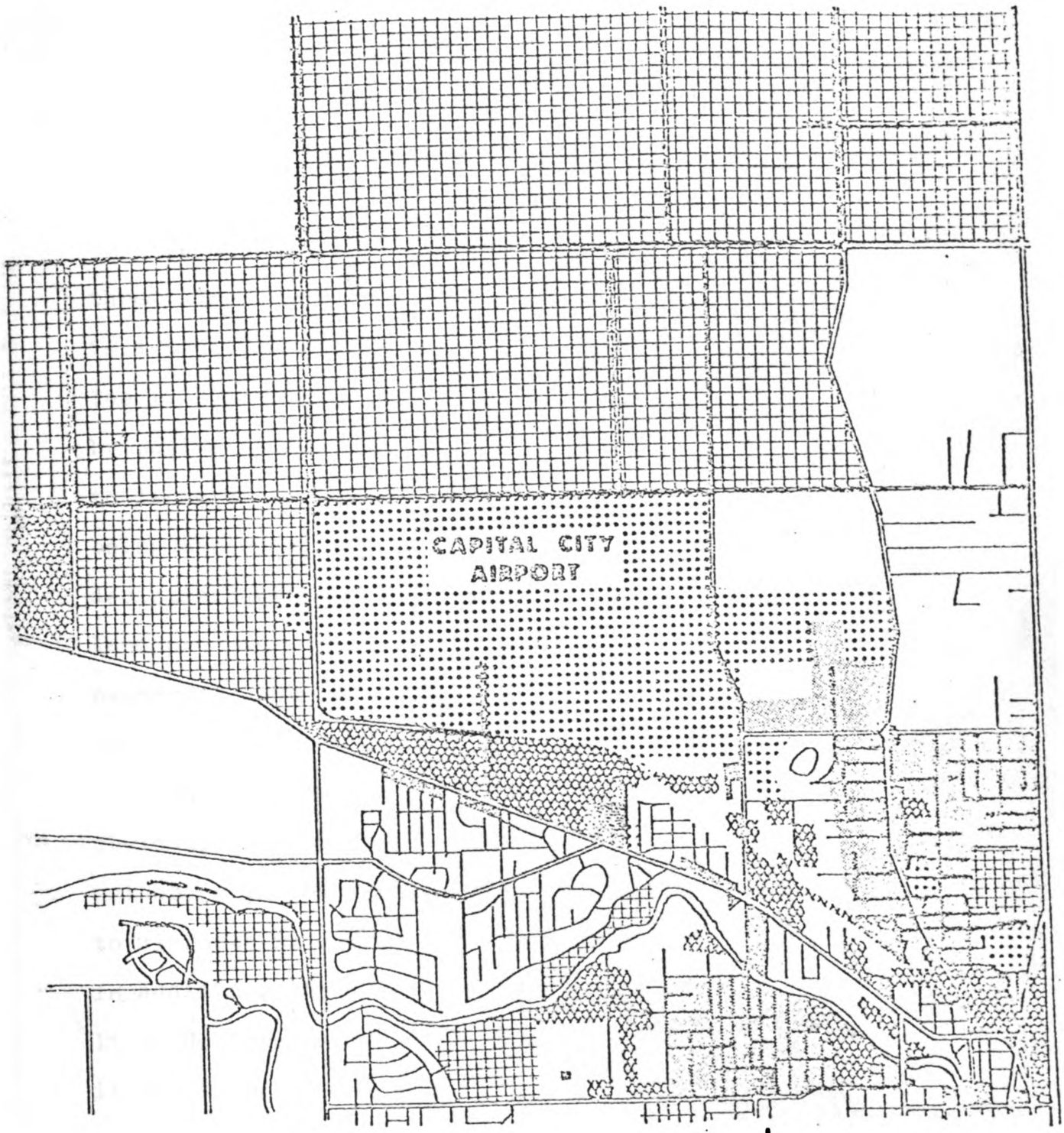
The existing land uses in the area of Capital City Airport are described below and depicted on figure 4.1.

1. To the north of the airport, the land is primarily in agricultural use with scattered, low density residential development along some sections of existing roads.

2. Land west of the airport is primarily open. A golf course, cemetary, and farms are the significant uses.

3. South of Capital City Airport, commercial/ industrial and residential uses predominate. The proposed development will have no affect upon land

EXISTING LAND USE



EXISTING LAND USE

RESIDENTIAL
COMMERCIAL
OPEN SPACE
AGRICULTURAL
PUBLIC SEMI-PUBLIC
INDUSTRIAL

uses in this area.

4. To the southwest of the airport is a rapidly developing residential community.

5. To the east of the airport, land is in low density residential and scattered commercial uses.

As can be seen, the airport does not face an immediate threat from encroaching incompatible land uses. This is a position which should be maintained and enhanced. The land acquisition program seeks to accomplish this goal by buying up surrounding land. Any unused land will be leased to farmers for cultivation. This practice is currently being employed with existing property. The state highway department will be acting as agent for the authority in all land pruchases and of the 1500 acres to be purchased, owners of 1000 have already contacted the Authority to indicate their willingness to sell.

The reasons for this willingness to sell, while not obvious, can be discerned. Airports are not the best neighbors in the world. Resale value of property adjacent to airports is reduced to what agricultural land is worth. In addition, the Authority has the power to take the land it needs through the power of eminent domain. As long as it can be proved that the land is needed for a public purpose, the Authority can secure the land while paying "just compensation" to the owner. In many past cases this has meant long delays for the owner when the courts decide on a fair price. To avoid this, many owners try and get the

best price by dealing with the Authority directly.

Up to this point, no judgement has been made regarding the land acquisition program itself. What effects will it have upon the community and will it accomplish the desired goal of maintaining a proper airport environment?

In answer to the first question, both DeWitt and Watertown Townships will suffer financially from the acquisition program. Taking 1500 acres off the tax roles will hurt both townships. As a state created agency, the Authority's property is tax exempt. In addition to this being prime agricultural land now, the future must also be considered. If it is assumed that development will proceed as projected, this land would have been useable as commercial/light industrial which generate a much higher tax return than agricultural land. The interesting fact is that while both townships will suffer from the plan, neither township had any voice whatsoever in its formulation because they are not members of the board. This is yet another argument for a wider membership on the Authority board.

Is the airport environment to be preserved by this program? The Authority would argue yes on the grounds that more land than necessary is being purchased. All of this excess land will maintain the character of the area and keep out unwanted uses. As the map (fig. 4.2) on the follwoing page indicates, the idea of sufficient excess land is blatently untrue. The plan now in use is based on a 20 year perspective ending in 1995. By that time, a new terminal, two new runways and several runway extensions will be

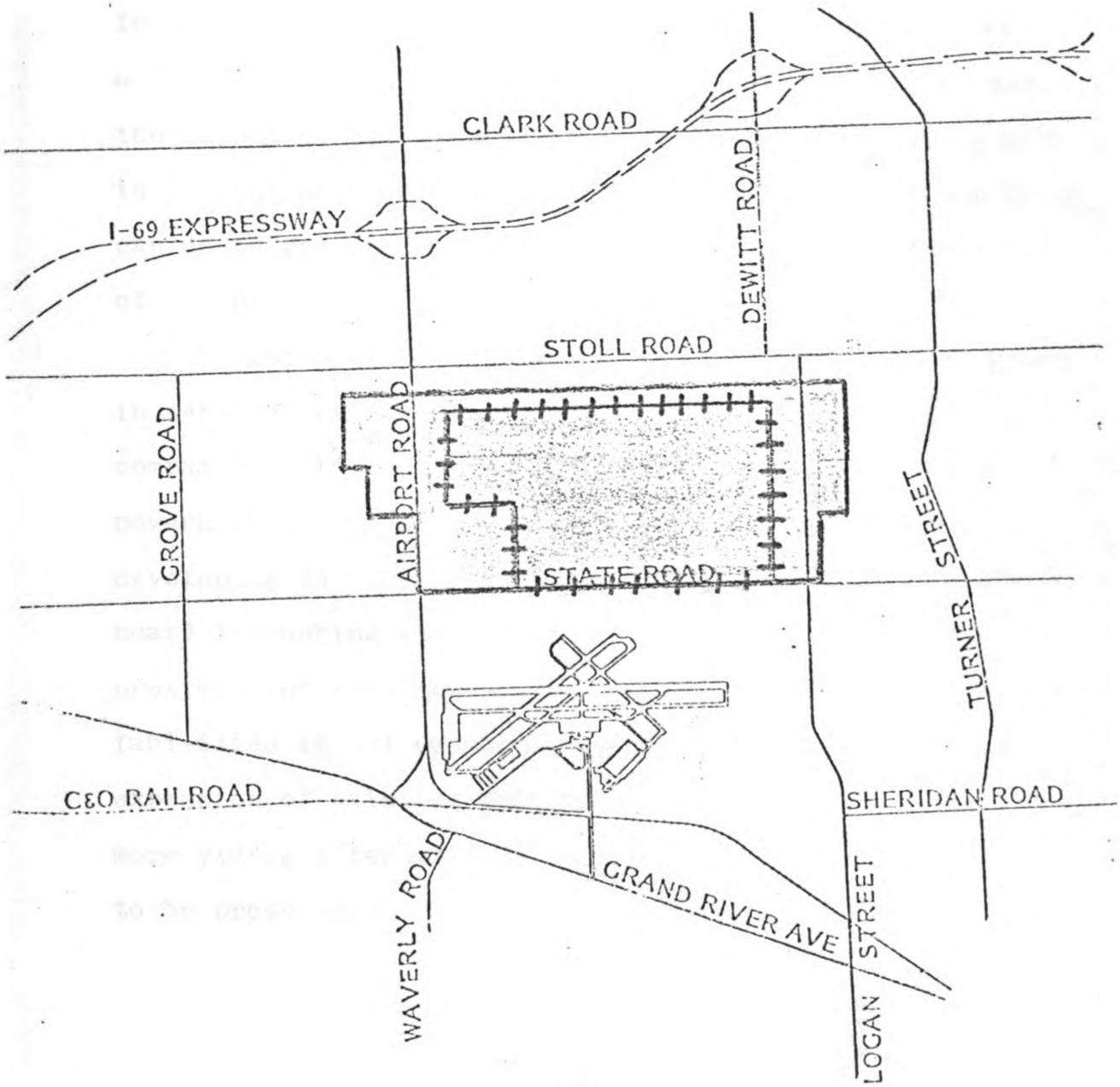
Figure 4.2

Capital City Airport

GROUND ACCESS SYSTEM

Future Buffer Zone

Future Airport Facilities



completed. These projects will use up most of the acquired land and leave little for any type of buffer zone. In addition, the state highway department is in the process of planning a major bypass highway which will be just north of the airport site. There will be an interchange at DeWitt Road which will be a focal point for new growth. In justifying the location of the new terminal this was a major consideration but was ignored when talking about the impact of new airport facilities. Residential growth is beginning in the area and there is little the Authority can do to prevent it because it does not lie in its area of zoning power.

Accompanying this residential growth will be a growth in service uses and commercial uses. These uses are not compatible with an airport environment and the zoning powers of the airport will not prevent this growth. By developing the northern sector of the acquired land, the board is pushing active airport operations within close proximity of this growth. The case presented for these new facilities is not extremely convincing. It appears that expansion of existing facilities would prove to be a more viable alternative if a proper airport environment is to be preserved.

Conclusion

Relationships are often difficult to discern when looking at various institutions. This chapter has viewed the power relationship between the airport Authority and the surrounding communities. If power is defined as the ability to coerce somebody to do something he normally would not, then it is clear that the Authority holds a good deal of power over the local governmental units. This power takes several forms. Initially, the state invested airport commissions to regulate height and safety hazards. As time progressed this expanded to include the power of eminent domain, the taxing power and finally, dominant zoning. At the present time, this power is wielded in a vacuum because these governmental units are not represented on the board.

This chapter has suggested that this situation be remedied. The impact of having full representation on the Authority Board could be substantial. With only Ingham County on the Board, little thought was given to the impact of development plans on the two bordering townships, DeWitt and Watertown. If both are given a voice in determining future policy there will be a greater balance to that policy. A more equitable sharing of costs and benefits will result.

The need for land use controls is not questioned, nor is the need for additional land for future airport development. What is unfortunate is that community participation in the decision making process has not been as complete as it should be.

If the public wishes to continue to receive the benefits of air transportation it must be prepared to work to preserve a sound airport environment. This can only be achieved if all levels of government and the public become intimately involved in the process.

In this report an attempt has been made to review the most important areas of community/airport interaction. As can be seen both entities are closely related and have many impacts upon one another both positive and negative. It will only be through a greater understanding of these relationships that the full potential of the airport can be realized. By maximizing the positive aspects and minimizing the negative, the airport can continue to play an important role in the overall community structure.