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driver's license. But for that very reason they may not be accessible to the elderly, the young, the poor, or the handicapped who require some form of public transportation by air, rail, or highway.

A second concept of evaluation is reliability. All forms of transportation are generally mechanically reliable. Aircraft, however, are much more vulnerable to weather than the other modes. Localities with severe weather conditions may find a corresponding lack of reliability in air service. Under some conditions, however, air service may be more reliable than highway modes.

The third concept is adaptability to both load and terrain. General aviation is not as well adapted to bulk loads as are trucks or boxcars. Buses and cars suffer a similar limitation. Terrain, except the most rugged, poses little problem to aircraft, however.

Routing flexibility is the fourth concept. Except for rail (and water) transportation, most modes can reach most areas.

Fifth, the cost of using the various modes is also discussed in Chapter II. The importance of this factor depends on the socio-economic characteristics of the citizens of the community, some of whom could afford to use one mode but not another. Economics must also be considered in the light of the importance of time and comfort. Americans tend to consider the full-size automobile as a standard of comfort.

Developing The Plan

Introduction

So far this chapter has discussed the factors involved in deciding whether or not the community needs the services of general aviation and in formulating a plan to meet any such needs. That a plan is to be formulated implies that a preliminary decision has been made by the community that it needs the services being planned.

Such a preliminary decision is little more than an educated guess, especially since it is based on a subjective estimation of community goals which, typically are difficult to determine since they are rarely discussed. They exist more in behavior patterns and in basic assumptions than in words. A decision-maker is more likely to discover the goals which certain individuals or groups advocate for the community than those of the community as a whole.

The difficulty of discovering community goals is compounded by the lack of citizen response to less-than-concrete plans and to invitations to become involved in the early stages

of the planning process. As plans become more concrete, citizens are more likely to respond, only to discover that their role is simply to applaud or oppose the developed plans but not to contribute to them. Consequently, community leaders must take steps to involve citizens in the formulation of plans as early as possible in the planning process. If done successfully, citizens will have an opportunity to articulate their goals and to incorporate them into the developing plans.

Such an effort runs contrary to an authoritarian leadership style in which a decision is made and then announced to the community. A democratic approach, seeking community input before the decision is reached is antithetical and seems to be slow, frustrating, and bogged down in endless discussion.

Leadership seeking community involvement enables the community to discover its goals during the process of planning; the "endless discussion" becomes a method of incorporating those goals. If, indeed, the discussion is endless, one could argue that the proposed public project is not consonant with community goals but stems, instead, from some special interest.

There are several benefits to community involvement. Once a plan is formulated, it is unlikely to be bogged down by unanticipated opposition, lawsuits, and action groups, because all interests have been consulted. The cooperation involved in formulating the plan will promote a sense of community pride and awareness. Furthermore, the goals discovered through such a process will provide guidelines for future planning efforts. One gains thoroughness of decision-making by sacrificing speed.

While the ideal of full citizen participation in planning may be unrealizable presently, it can be approximated by publicizing the planning process, soliciting comments, and holding well-announced public hearings before making decisions at crucial points in the planning process, as well as by conducting surveys to determine local preferences.

In addition to citizen participation, a second principle of planning is comprehensiveness. Satisfying the needs for general aviation services should be part of the overall community development effort.

Chapter I provides a useful outline of the many steps necessary in the planning process. The basic sequence in the planning development process will be discussed here. It consists of (1) describing alternative ways of satisfying estimated needs, (2) evaluating the alternatives

and selecting one, (3) developing a plan to implement the selected alternative, (4) measuring the physical, economic, social, and political impacts of the selected plan on the community, (5) evaluating the impacts which have been projected, and (6) revising the plan on the basis of the assessed and evaluated impacts. This section will deal with the first three steps in the basic sequence.

Alternatives

Once the needs have been identified, planners should devise a variety of ways, if possible, to satisfy those needs. Alternatives will have to be evaluated on the basis of the existing resources of the community. Consequently, the first step is to list the estimated needs and the second is to take an inventory of those factors in the community which may contribute to need satisfaction.

The needs may be satisfied by other means than the acquisition of access to general aviation facilities. Better transportation of people and/or goods may be obtained by the acquisition of bus, truck, or railway service, or simply by improving the local highway system or access to interstate routes.

Sometimes, however, important needs cannot be met without the acquisition of better access to a general aviation facility. It is possible that a nearby community has an airport which would be suitable. One plan might be to improve access to that airport by instituting taxi or limousine service or by building or improving an access road to such an airport. If such an airport exists nearby but does not provide the services required, one plan might be to join with the neighboring community to improve their airport, in effect making it a regional airport.

Another alternative is for the community to construct or expand its own airport. Then two important sets of alternatives arise. The airport may be the local community's or it may be established through a regional authority or commission. Again, the airport may be constructed to FAA specifications or it may be built using other standards. (The implications of this alternative have been discussed above.)

Each of the various alternatives relevant to the local situation (and outlined in the preceding portions of this chapter) should each be formulated in terms of the needs it satisfies, the costs and revenues, and the community goals it serves.

Evaluation and Selection of Alternatives

Brief descriptions of methods for com-

munity need satisfaction will serve as the basis for involving the community in the decision-making process. The fact that a plan is in progress should be publicized and local civic service organizations should be notified about the tentative plan choice. The plans should be made easily available and written comments should be solicited. Finally a public hearing on the alternatives should be announced. After the public hearing, the decision-makers will have some basis on which to select the most desirable alternative.

Development of Preliminary Plan

Unless the alternative selected involves building or expanding an airport, it falls outside the scope of this report. If a new airport is chosen, a preliminary plan must be developed. This plan should be developed by considering various alternatives in the light of the factors mentioned earlier in this chapter. Planning development is covered more thoroughly in Chapters I, II, IV, and V. Among the factors to be considered are the sponsor, function, form, funding, and site of the airport. Alternatives should be considered for each item.

Once several alternative plans have been drawn up, community input should be solicited again in an effort to provide clues to unexpected impacts of the various alternatives. After this solicitation the plans should be assessed and evaluated in terms of their impacts as discussed in the next section.

IMPACTS

This section will deal only with the impacts of airports upon the community. Chapter II identified and discussed many of the physical impacts of general aviation, including noise level, air and water quality, and land use. In this section economic, social, and political effects will be considered. Some economic impacts of a proposed airport will have been included in the plans as a projected demand for general aviation services and as an examination of the economic and fiscal capabilities of the community. As Chapter II indicated, general aviation airports frequently operate at a loss and the subsidy they receive is often justified on the basis of hoped-for secondary impact, such as industrial development.

Once probable impacts have been identified, it is necessary to reconsider the question of community need. At that point the public is most likely to become seriously interested in the planning since people tend to react only to projects which are relatively concrete.

The Use Of Airports To Attract Industry

It has been argued that airports and general aviation services are a necessity if a small city or town is to expand or retain its present industrial base. Since many small towns believe that industrialization is the answer to their problems, they may be led to invest their development efforts in aviation facilities rather than in other areas. The arguments in favor of aviation development and the likely consequences of industrialization should be considered by any town seeking revitalization.

The problems of small towns which lead them to seek new industry are generally the result of the trends toward the mechanization of agriculture and the urbanization of the population. Mechanization increases agricultural productivity per worker so that fewer farm workers are needed. Workers not needed either migrate from rural areas or remain to become unemployed or underemployed.⁶⁵ Declining population is bad for business. Local businesses leave, thereby degrading the quality of rural life and making the cities more attractive for those who remain. As the population of the countryside declines, local industries may leave if they depend on local markets.⁶⁷ Communities believe that added industry would attract new population, increase the tax base, and create more disposable income, all of which would improve the social and economic quality of life.

Proponents of general aviation argue that the availability of air transportation will promote economic growth by (1) attracting new industry, (2) helping established business and industry expand (thereby employing surplus farm labor), and (3) retaining present industry.⁶⁸ This view is based on the expanding use of business aircraft and on the trend of industry to avoid the

central cities.

The economic impact of airport development was suggested in a study by the Indiana Aeronautics Commission which concluded that Indiana should develop a \$112.5 million system to handle business aircraft because "any Indiana community without convenient and adequate airport facilities nearby will be at a severe disadvantage in competing nationally for business investment and employment."⁶⁹

According to the Aviation Advisory Commission, airports "act as magnets to attract business and industry." The commission also argued that "it has been factually established that few businesses are willing to build plants and other facilities in a community that has no airport."⁷⁰ The same direct relationship between aviation activity and economic development has been suggested by the FAA which indicated that (a) the airport is a direct economic asset to the community because firms require aviation services, and that (b) "documented cases" show that the existence of an airport is a controlling factor in the decisions of industries to move in or out of a community.⁷¹ The FAA, however, has not presented the "documented cases" that support the suggested critical influence of an airport in plant location. In addition, the type of documentation that is available is frequently questionable from a methodological point of view. An example is a 1965 survey of 500 communities conducted by the Texas Aeronautics Commission. The commission reported that it asked communities whether or not industry and business had located there due to the existence of an airport and found that all of the communities in the 50,000-100,000 population range responded yes, while only 36.3 percent of the communities in the 2,000-5,000 population range responded yes.⁷² One would expect the larger communities to have access to an airport and to rationalize the airport in terms of the needs of the business community. This is probably a good example of the bias in aviation studies that Jeremy Warford referred to in his study entitled *Public Policy Toward General Aviation*. Warford argued that it is usually aircraft-owning businessmen who are polled on the importance of general aviation and they rate its importance highly.⁷³

The relationship between industrial development and general aviation services is much more complex than the FAA and other studies suggest. In fact, although many studies show that aviation facilities are an important factor in industrial location decisions few have been able to demonstrate the importance of general aviation in plant location.⁷⁴ However,

⁶⁵ Federal Aviation Administration, Systems Planning Division, Airports Service, *The Airport—Its Influence on the Community Economy* (Washington: Federal Aviation Administration, 1967), p. v.

⁶⁶ Kenneth Holt and Jerry Pratt, "Company Officials and Community Leaders," in Larry R. Whiting (ed.), North Central Regional Center for Rural Development, *Rural Industrialization: Problems and Potentials* (Ames, Iowa: Iowa State University Press, 1974), pp. 120-121.

⁶⁷ Federal Aviation Administration, Systems Planning Division, Airports Service, *op. cit.*, p. iii; Louis H. Mayo, *op. cit.*, pp. 12, 56.

⁶⁸ Nammack, *op. cit.*, p. 24.

⁶⁹ Aviation Advisory Commission, *General Aviation*, p. C-60.

⁷⁰ Federal Aviation Administration, Eastern Region, *op. cit.*, p. 1.

⁷¹ Nammack, *op. cit.*, p. 25.

⁷² Warford.

⁷³ *Ibid*.

as a study by M.I.T. Flight Transportation Laboratory points out "unless there are other factors such as access to materials, an adequate labor supply and the proper tax structure, air service will not induce new industry to an area."⁷⁵

Whether or not an airport alone is a sufficient condition to encourage the development of new industry is certainly open to question. It seems clear, however, that plant location decisions are based on a variety of criteria including: (1) traditional factors such as the existence and accessibility of markets, raw materials, utilities, transportation, and labor; (2) institutional factors such as the type of government and tax rates; (3) community factors such as amenities (cultural facilities and natural environmental conditions), attitudes and population size; (4) personal preferences such as the desires of management and the residence of the owners; and, (5) site factors such as land and buildings.⁷⁶

There are a number of reasons why non-metropolitan areas are attractive to industry. Employers are not enchanted with big cities where employees' productivity suffers from the frustration of rush hours, and where crime, noise, pollution, and expenses are increasing. The suburbs, which were likely locations for new or fleeing industry, have become less attractive as the metropolitan area and its blight swallows them. They suffer from pollution, haphazard land use, transportation difficulties, high land costs, and labor shortages. Small cities are attractive because they are free of many of these disadvantages. In addition, their labor tends to be non-union, more productive, and cheaper than urban labor. The national highway system has made most small communities accessible. Utilities, land, seasonal

workers (spouses), and recreational activities are available. Taxes are lower and the towns are generally eager to accommodate new industry.⁷⁷

On the other hand there are many firms which recognize the advantages of metropolitan areas. There is a rich supply of knowledge available in local universities, research institutions, and engineering firms. At hand are advertising agencies, sophisticated financing, utilities, and transportation. In addition metropolitan areas benefit from the external economies of agglomeration and from the cultural amenities which can only be supported by a large population. Small communities often present problems to industry. They may provide low levels of public service and few opportunities for contact with customers, suppliers, and other producers. Local labor may not be easily trained due to lower levels of education; management and executive personnel are unlikely to be available. Also, there is likely to be a lack of mechanical and construction workers, of housing, and of other facilities.⁷⁸

It is important to keep in mind that the national economy is becoming more and more service oriented. Thus, while one-third to one-half of new manufacturing plants open in small or non-metropolitan communities goods-related employment has dropped from one-half of the non-agricultural total to 26 percent.⁷⁹ In the past, many industries located near raw materials, but today only seven percent of the labor force is estimated to be near such resources; consequently, industries tend to locate near consumers and capital. It is often hard to find capital in rural areas with which to finance new industries because local banks are more conservative and less growth minded than branch banks and they often find commercial paper more attractive than local investment.⁸⁰ Service industries, are much less likely to locate away from large markets than is manufacturing.⁸¹

As a result of the drawbacks which many firms see in small communities and of the transformation to a service economy, there are many more communities seeking industry than there are firms seeking non-metropolitan locations. While communities have spawned approximately 14,000 industrial development organizations, there are only 500 to 750 new plant locations each year.⁸² If each organization sought only one new plant for its community, at present rates it would take over 20 years to supply them all.

In view of the disparity between the number

⁷⁵ Vittek, *op cit.*, p. 40

⁷⁶ Henry L. Hunder, *Industrial Development* (Lexington, Mass. D C Heath & Co., 1974), Chapters 5 and 6

⁷⁷ This paragraph is based on Maurice Fulton, "Industry's Viewpoint of Rural Areas," in Whiting, *op cit.*, pp. 69-74, and Niles M. Hansen, "Factors Determining the Location of Industrial Activity," in Whiting, *op cit.*, pp. 28-29

⁷⁸ This paragraph is based on Hansen, *op cit.*, p. 29, Fulton, *op cit.*, p. 74, H.A. Wadsworth, "Community Planning and Decision-making to Attract Industry," in Whiting, *op cit.*, p. 65, and Ralph Widner, "Regional Coordination of Communities with Industrialization Potential," in Whiting *op cit.*, p. 131

⁷⁹ Fulton, *op cit.*, p. 99, Hansen, *op cit.*, p. 3

⁸⁰ Hansen, *op cit.*, pp. 28 and 30, Benjamin Chinitz, "Public Intervention and Guidance of Market Forces to Achieve Redistribution," in Whiting, *op cit.*, p. 131, and Widner, *op cit.*, p. 129

⁸¹ Hansen, *op cit.*, p. 35

⁸² Earl O. Heady, "Rural Development and Rural Communities of the Future" in Whiting, *op cit.*, p. 139, Hansen, *op cit.*, p. 42

of firms seeking locations and the number of communities which believe they would benefit by attracting a new manufacturing facility, it is important to investigate all the factors which contribute to a firm's location decision. A community must have advantages which make it attractive to industry before aviation facilities would become a factor. Because of the variety of factors involved in location decisions, it is difficult to generalize about them; however, several studies have been conducted which may provide some guidance in this respect.

According to a report written for the Appalachian Regional Commission by Management and Economic Research Incorporated (MERI), a substantial amount of information has been generated in recent years concerning the airport's influence on plant location decisions.⁶³ The information takes two forms: individual airport case studies and industrial surveys.

The case study approach generally supports the conclusion that airports are, in fact, an important community attribute for the attraction of industry. Yet, none of these studies measures the relative importance of the airport's attractiveness quantitatively compared to the other community attributes. In addition, many display a pro-airport bias. For example, a report prepared by the FAA entitled *The Airport—Its Influence on the Community Economy* cited as its purpose to seek "... tangible evidence of significant community benefit which could be causally related to each airport's development."⁶⁴

The MERI report also cited the industrial survey as a measure of the airport's influence in location decision-making. Despite potential analytical and conceptual problems, the results do provide, at least, some indication of the role played by airports in location decisions. Airports were listed as important by 20-30 percent

of those involved in the location decision-making process.⁶⁵ It appears, then, that only in some cases is an airport a primary determinant in decision-making.

Robert W. Shively studied 330 responses to a survey of Nebraska industrial plants. The most important factors determining industrial location decisions included quality, availability, and cost of labor and the existence of a right-to-work law in the state; highway transportation and proximity of markets; reliability of electrical service and availability of natural gas; availability of sites; and the fact that the people who started the plant lived in the area. (See Table III-V.) A consultant indicated that small communities attractive to industry had good highways with ready access to Interstate routes; strong and intelligent community leadership; a lack of domination by a single industry; a good supply of labor; a big city within 50 miles; and unforbidding terrain. Another consultant mentioned trainable labor, good highways, and adequate utilities.⁶⁶ Checklists from two sources emphasized public services and a progressive attitude in addition to those factors already mentioned.⁶⁷ In sum, the major factors involved in plant location decisions seem to be labor, highways, utilities, availability of sites, community attitude, and proximity to markets.

In contrast to these and other factors, aviation services do not seem to be rated especially important. In the Shively study, air freight transportation and air passenger transportation were respectively 33rd and 36th in importance among 43 factors. (See Table III-V.) According to one of the consultants, "a few firms needed or wanted airport facilities nearby for fast shipment of raw materials and finished products."⁶⁸ A survey conducted by the Minnesota Department of Aeronautics tends to confirm the secondary importance of aviation in industrial site location. (See Table III-VI.) Unless the above mentioned factors and others are present, it is unlikely that aviation facilities will aid in wooing industry. If all of these factors and others are present, it is unlikely that lack of general aviation services would deter an interested company.

The Ohio County Airport System is often credited with aiding in the development of the state.⁶⁹ Under the plan low-cost, paved, single-runway airports were built in almost every county. Yet it is difficult to credit the subsequent industrialization to the airports or even to estimate the degree to which they were necessary, since the state as a whole has many fac-

⁶³ Management and Economic Research Incorporated *Guidelines for an Appalachian Airport System* Appalachian Research Report No. 3 (Palo Alto, 1967), pp. 40-48.

⁶⁴ Federal Aviation Administration, Systems Planning Division, *Airport Service* *op cit.*, p. 11.

⁶⁵ Management and Economic Research Incorporated *op cit.*, pp. 42-47.

⁶⁶ Fulton, *op cit.*, pp. 77-78; Holt and Pratt, *op cit.*, pp. 121-122.

⁶⁷ *Plant Location 1974* (New York: Simmons-Boardman Publishing Co., 1975), p. 7; G. A. Hornberger, "Corporate and Community Decision Making for Locating Industry," in Whiting, *op cit.*, pp. 85-88.

⁶⁸ Holt and Pratt, *op cit.*, pp. 121-122.

⁶⁹ Farnsworth, *op cit.*, p. 34; Clair Stebbins, "Ohio's Airport Building Program," *The AOPA Pilot*, December 1974, pp. 38-39; Larry Trask, "Ohio Shows FAA How to Build Airports," *The AOPA Pilot*, November 1970, p. 29.

TABLE III-V
RANKING OF LOCATION FACTORS IN NEBRASKA, ALL INDUSTRIES

Rank	Factor	Points	Rank	Factor	Points
1	Labor quality	645	23	Groundwater supply	420
2	Highway transportation	640	24	Amount of unionization	417
3	Labor availability	637	25	Proximity to raw materials	416
4	Available site	604	26	Construction costs	401
5	Reliability of electric service	585	27	Housing for plant workers	385
6	Wage rates	582	28	Housing for executives	372
7	Proximity to market	562	29	Caliber of local ID group	347
8	People who started plant lived here	537	30	Local financial institutions	327
9	Natural gas availability	529	31-32	Recreational opportunities	298
10	Right-to-work law	520	31-32	Vocational training programs	298
11	Taxes	519	33	Air freight transportation	293
12	Electric rates	514	34	Nearness to colleges and universities	288
13	Rail transportation	511	35	Hotel, motel, and meeting facilities	271
14	Community attitude toward industry	505	36	Air passenger transportation	267
15	Friendliness of people	490			
16	Natural gas rates	480			
17	Attractiveness of community	474	38	Local investors	230
18	City water at site	473	39	LDC financing	166
19-20	Health facilities and services	465	40	Local subsidies	159
19-20	City sewer at site	465	41	SBA financing	133
21	Available building	435	42	Industrial revenue bonds	126
22	Quality of local schools	428	43	Recommendation of consultant	120

Note A factor was awarded one, two, or three points each time it was rated of minor importance, important, or very important, respectively. Source: Robert W. Shively, "Decision Making for Locating Industry," in Larry R. Whiting, *Rural Industrialization: Problems and Potentials*, Ames, Iowa: Iowa State University Press, 1974.

TABLE III-VI
RANKING OF LOCATION FACTORS IN MINNESOTA

A	B	C
According to 24 communities of 1,000 to 10,000 without paved and lighted airports.	According to 35 communities of 1,000 to 50,000 with paved and lighted airports.	According to 25 industries which have built or expanded a plant in Minnesota in the last five years.
1. Labor Supply	1. Labor Supply	1. Labor Supply
2. Community	2. Community	2. Community
3. Sites and Improvements	3. Sites and Improvements	3. Market and Highway Accessibility
4. Rail Accessibility	4. Highway Accessibility	5. Taxes
5. Market	5. Taxes	6. Materials
6. Taxes	6. Rail Accessibility	7. Rail Accessibility
7. Power and Fuel	7. Aerial Accessibility	8. Power and Fuel
8. Aerial Accessibility	8. Power and Fuel	9. Sites and Improvements
9. Highway Accessibility	9. Market	10. Aerial Accessibility
10. Materials	10. Materials	11. Special Facilities
11. Water Accessibility	11. Special Facilities	12. Water Accessibility
12. Special Facilities	12. Water Accessibility	

Source: Minnesota Department of Aeronautics, *A Study of the Socio-Economic Impact of Aviation on Selected Communities*, 1 January 1975.

tors which are attractive from a business point of view. If, as one consultant suggested, a location decision is begun with a delimitation of an appropriate region relative to markets, Ohio is geographically favored.⁹⁰ In addition, Ohio has a strong highway system, a favorable tax climate, plentiful labor, and good factory sites.⁹¹ The same governor who promoted the airport system also initiated an extensive system of regional vocational education centers. The state was heavily industrialized (except in the southeastern section) before the airport system began. Many communities are within fifty miles of the state's large cities (Cleveland, Columbus, Cincinnati, Akron, Toledo, Dayton.) While the airport program made the state more attractive to some industries,⁹² it is not clear that the lack of the airport system would have prevented substantial development. It can be argued, however, that while the airport system had little influence on the degree of industrialization in Ohio, it may well have determined the distribution of new industry; that is, new plants may have been constructed in smaller communities rather than on the fringes of the larger cities.

Assume that a community has an airport, many other factors attractive to industry, and an

active and progressive leadership. What then are the impacts of industrialization likely to be? The answer to this question depends on the nature of the community and on the new industry, but there are certain factors which can give a general indication of the probable effects.

First, the favorable economic impacts of the new firm may be less than anticipated. Communities often seek industry in order to bring in more money and improve business with the payroll of the new firm. Thus, each dollar of payroll will generate income for others as it is spent. If the new industry is to be a significant economic benefit this multiplicative effect should be large. Unfortunately, the smaller the community, the smaller the multiplier, because the money flows out of a small community faster than out of a larger one. So while the multiplier for investment dollars is taken to be about seven on a national level, the multiplier shrinks to three or four at the state level. The local community, if small, can count on very little from this multiplication.⁹³

The loss of payroll multiplication is due to the "leakage" of money out of the community or the failure of the payroll to represent new money. A major cause of leakage is the portion of the work force composed of non-resident commuters who take their paychecks out of the community in which the firm is located and spend it elsewhere. In the case of one steel plant, 83 percent of the work force resides in counties other than that in which the plant is lo-

⁹⁰ Hornberger *op. cit.*, pp. 85-88

⁹¹ Stebbins, *op. cit.*, p. 39

⁹² Trask, *op. cit.*, p. 29

⁹³ John T. Scott, Jr. and Gene F. Summers, *Problems in Rural Communities after Industry Arrives*, in Whiting, *op. cit.*, p. 96, Wadsworth, *op. cit.*, p. 63

cated. Again, the local residents who commute to jobs outside the community, may quit their old jobs to take new ones at the new local plant. Except for the increase in their wages, their take-home pay represents no new money coming into the community, since they were already bringing it in from the jobs to which they previously commuted.⁹⁴ Similar considerations apply to those on welfare or unemployment—that portion of the payroll which really represents new money may not be spent locally unless an adequate economic infrastructure has developed: locals may travel to larger towns or use mail-order catalogs to shop because of the expense and lack of variety of goods locally. Money saved in local banks may also represent leakage since commercial paper may be more attractive than local investment.⁹⁵

Consequently, communities should not accept new plant locations without evaluating the prospective industry.⁹⁶ The most important questions in this regard are the kind and source of labor. Will the plant require labor of a sort available locally or will a large number of the workers commute? One plant located in Appalachia employed 3,000 workers who commuted to the plant from 27 counties in two states.⁹⁷ Some companies prefer their workers to live out of town in order to reduce local public service needs and consequent taxes on the firm.⁹⁸ Will the new industry employ workers who are now unemployed or underemployed, or will it simply increase competition for those already employed? If so, it is unlikely to employ displaced farm workers. Even companies which hire locally may not increase employment as much as expected since they may hire the better workers who are then replaced by those who had been employed or underemployed at marginal, unnecessary, or redundant jobs which cannot subsequently be filled economically.⁹⁹

A second major consideration is whether the company will hire women or men primarily. Scott and Summers pointed out that the sex of the workers has important local economic consequences.¹⁰⁰ If a plant hires women primarily,

it is unlikely to have an effect on the size of the local population since there is generally a good supply of female labor among the wives and daughters already residing in the area. While they will be paid low wages, their income will all go to local families already in existence; average family income will increase, as will consumption. It is likely that more cars and more expensive cars will be purchased by such families. Families with working wives will purchase more convenience foods, household services (e.g., laundry), and women's clothing. They are likely to eat out more often and at better restaurants, and upgrade their houses and furniture; however, they will be unlikely to build many new houses.

If, on the other hand, a factory hires men primarily, Scott and Summers argued the consequences will be vastly different. Population will increase as workers move closer to their jobs and bring families with them. Aggregate community income will increase but not per capita income to any great extent. The new families will require housing, furniture, and low-cost automobiles. Low cost food sales will increase, but not restaurant business; however, there will probably be more activity at taverns, bowling alleys, and other places of entertainment. The larger population will increase the number of students who require public schools and put a larger demand on public services in general. In addition there will be an increase in the number of young heads of households.

If Scott and Summers are right, there seems to be a trade-off between growth and increased standard of living. If a community acquires industry which employs men, it might grow and be likely to persist in the future since the number of young families will increase. Per capita income will be low, however. If the industry employs women, family income will increase, but the population will not.

Impacts on the community result not only from employment after the plant is built, but also from the workers who construct it. It will make a major difference whether local or imported construction labor is used. If construction labor is brought into town for a relatively short building project, there will be a short-run demand for sleeping quarters for inexpensive eating places, along with the generation of additional business at places of entertainment. However, local businesses will not be able to expand to meet the demand comfortably since it will exist for only a relatively short time. If the building project is long-term, workers will bring in their families who will put a strain on the

⁹⁴ Scott and Summers *op cit.*, p. 96 *cf.* Wadsworth *op cit.*, p. 63

⁹⁵ Widner *op cit.*, pp. 129-130. Scott and Summers, *op cit.*, p. 96. Hansen, *op cit.*, p. 30

⁹⁶ Wadsworth, *op cit.*, p. 62

⁹⁷ Widner *op cit.*, p. 131

⁹⁸ Scott and Summers *op cit.*, pp. 104-105

⁹⁹ Wadsworth *op cit.*, p. 64. Hansen *op cit.*, pp. 40-42

¹⁰⁰ This paragraph and the next are based on Scott and Summers, *op cit.*, pp. 102-105

school system and on other municipal services. One town expanded its schools and services because it expected the new industry to promote new growth. When the town failed to grow, the citizens enjoyed more services as well as a higher tax bill.¹⁰¹

New industry can have many other effects on the local community. The potential stress on local public services has been mentioned in passing. Paying for increased services can be a financial strain on a small community, especially if the new industry has been offered tax incentives to locate in that area. This form of inducement should be avoided since "tax policies are seldom a decisive influence in selecting a branch location" except in metropolitan areas.¹⁰² Again, ecological problems may result from new plants. While pollution is not a frequent consequence, it should be evaluated in each case. More important is the increased water runoff created by the added roof and parking lot area. Runoff can tax the sewer or storm system, cause erosion, and flood basements.¹⁰³

There are social and political consequences to be considered as well. If the new industry will attract new population, what are the likely characteristics of that population? How big will it be relative to the present community? How will it be integrated into the life of the community?¹⁰⁴ The plant may become a factor in the local power structure. The town may be put in a subservient position if the plant employs a large portion of the population.¹⁰⁵ On the other hand, new industry can help provide leadership and brainpower for the community and help it to progress in the future.¹⁰⁶ In many cases physical and social improvements follow the establishment of a branch plant.¹⁰⁷

Conclusion

Communities may make two assumptions in their plans for development. These assumptions are both questionable. The first is that the acquisition of new industry will be of benefit to the community. The second is that an airport will be a major aid in attracting new industry.

The first assumption is questionable because the effects of a new plant on a com-

munity vary considerably because of low economic multipliers, payroll leakage, the source and kind of labor, the method and duration of construction, new demands of community services, social problems, changes in the political structure, and ecological considerations.

The second assumption is questionable because of the relatively small market for the many communities seeking industry and the factors which are far more important than air service in the location of new plants.

Social And Political Impacts

Most of the social impacts of an airport on a community are dependent upon the economic variables. Economics lead to political consequences as well. If a town builds an airport with hopes of industrial development the reputation of the responsible community leaders may rise or fall as industry arrives or fails to appear. In addition, the cost of constructing an unwarranted airport will either result in higher taxes or lower levels of local services.

If the airport does help to bring in industry, the community may find that its life style has changed, for example, from semi-rural to semi-industrial life. Since new industries could be expected to draw employees from the surrounding countryside, the new life style would involve daily commuting, which in turn may lead to rush hours, traffic jams, new road construction, and an increased police force to handle the traffic. This will result in some increased stress, as will the change from a farm life to an industrial discipline.

Should significant growth take place the locality would be called upon to provide the higher level of government service typical of a small city. It is likely that local taxes, after an initial decrease in rate to take into account the added base due to new industry, would once again begin to climb.

Social and economic impacts will of course vary depending on the nature of the community involved. In a large metropolitan area, the effects of adding a small general aviation airport would be minimal compared to the area's entire economy and society. If the general aviation airport is really a new metropolitan airport suitable for air carrier service, the effects would be larger and are rather well studied. In an isolated urban area, there may be a large economic effect and a smaller social impact since the life style is already industrial and urban.

There are also some consequences which seem to be relatively independent of the eco-

¹⁰¹ This paragraph is based on Scott and Summers *op cit.*, pp 101-102

¹⁰² Holt and Pratt *op cit.* p 121

¹⁰³ Holt and Pratt, *op cit.* p 125, Scott and Summers *op cit.*, p 100

¹⁰⁴ Scott and Summers *op cit.*, pp 102 and 107

¹⁰⁵ Fulton, *op cit.* p 74 Wadsworth *op cit.*, p 65

¹⁰⁶ Wadsworth *op cit.* p 65

¹⁰⁷ Holt and Pratt *op cit.* p 125

conomic variables. They are hard to measure and fall primarily into a category which one could call community solidarity or community interaction. Despite the difficulties of measurement, these factors can be extremely important in the quality of life of the community.

In order to build an airport under the Ohio plan, a community had to seek it actively by developing plans and raising money. It therefore became more organized than it had been in order to acquire the airport. Leaders had to promote, persuade, and generate community consensus.¹⁰⁸ In effect the community united around a project and the project became a symbol of the community. While the airport may not put the community on the map in the eyes of the rest of the world, it makes the community feel that it is on the map: the airport becomes a source of civic pride and identification.

The airport in Vinton County, Ohio, became a more lasting example of this theme. Vinton's airport became its community center, a place where art exhibits and other cultural and recreational events take place.¹⁰⁹ Again the airport serves as a way of bringing people together and making them proud of their community.

These characteristics of the local airport do not follow automatically from its mere creation; they are highly dependent on the planning process, becoming possible with full citizen participation. Positive benefits also depend on comprehensive planning and land use. With proper planning and implementation an economically-warranted airport can become something of direct value to many citizens, since others besides businessmen and pilots will be users of the facility. Such direct benefits are more easily perceived than those indirect benefits which flow from the additional industry an airport may generate.

It is important to point out, however, that such benefits as these may be derived from things other than airports—the community could unite around building a community center, a water supply system, or a recreational area. If other circumstances do not warrant an airport, the above mentioned social benefits alone do not justify it either.

Re-Evaluation

Once the various plans have been studied and their probable impacts determined, the

community has developed a new awareness of the issues involved in providing general aviation services. It is likely that groups within the community have become interested in the issue, and that anti-, pro-, and neutral-airport sentiments have developed. It is reasonable to assume that there could be a significant difference between the estimate of community needs made at the time of the initial decision to initiate the planning process, and that which could be made now in the light of concrete facts, plans, and additional community inputs. Decision-makers must take advantage of this opportunity to re-evaluate their original findings. Consider, for example, the case where the plans call for the construction or expansion of an airport. The airport is now more than a dream: it is an actual plan with estimated benefits and costs and projected physical, social, political, and economic impacts. It has attracted the attention of numerous individuals in the community. One of three possible paths might now be pursued: the plan may be dropped, revised, or implemented as is.

The same methods described earlier in this chapter may be used to stimulate the incorporation of citizen inputs into the decision-making process—publicizing the plans, soliciting comments, and holding public meetings.

Impacts are not necessarily exclusively good or bad. Even among those undesirable impacts, some will be worse than others. How important is it to the community, for example, that the airport is likely to increase the noise level in certain areas by a given amount? In the case of social and economic impacts, evaluation is even more difficult. If it seems likely that an airport will attract industry and increase the size of the community, then the community must decide on the desirability of such an impact. What value does the community place on the pride that may go with having an airport? The community will have to determine the possible degree of relationship between general aviation and each of a variety of factors. It must also evaluate the relative importance of these factors in the light of community goals. The evaluation of the overall benefit or disbenefit of the impact of a general aviation airport on the community is a complex matter. Several evaluative techniques are available, but none of them is completely satisfactory.

One approach is to develop "before-and-after" scenarios describing the community with and without the facility, in terms of such factors as expanded industry, population growth, tax values, and the like. These scenarios could

¹⁰⁸ Farnsworth, *op cit.*, p. 24

¹⁰⁹ Stebbins, *op cit.*, p. 42

then be evaluated subjectively by the community, in the light of its goals and objectives. This method assumes the general aviation facility to be the only influencing variable in social and economic development and tends to neglect other equally important factors in the community's development effort. It also tends to neglect those real values within the socio-cultural framework of the community which are neither economic nor quantifiable. Another method is that of "cost-benefit analysis," which weighs economic and social benefits against economic and social costs. The analysis is conducted after dollar values are assigned to all non-monetary costs and benefits. The artificial quantification of such factors as the value of human life and the quality of the environment, however, can lead to questionable, or at the least controversial, conclusions.

A reasonable approach to impact evaluation therefore, seems to be one in which both monetary and non-monetary factors can be analyzed within a framework that maintains a viable separation between the two, yet offers insight into the interaction between them. Such a framework is that of "cost-effectiveness," in which the direct and indirect non-monetary costs or benefits of a given course of action are evaluated relative to the monetary costs. Each alternative plan could thus be ranked in accor-

dance with the degree to which it satisfies given community goals. Tradeoffs between the levels of satisfaction of different competing, and sometimes contradictory, community goals must be considered by the planners, decision-makers, and the community at large. The decision is basically one in which the community has to make a choice between alternative options leading to different identifiable futures, given the costs associated with these options. Such analyses and decisions are usually made in the political arena, in accordance with the processes of social choice prevailing in the community.

The re-evaluation of community needs and goals might show that the facility is not warranted after all. It may, on the other hand, accentuate the need for the facility. The re-evaluation can form the basis for a determination of the types of desirable impacts to be encouraged. As revised and amended plans are developed, impacts must be re-assessed in order to make certain that no new negative impacts are introduced, and that the replanned facility has both mitigated the negative and augmented the positive expected impacts. The iterative process of planning, assessing impacts, and re-evaluating should continue until a satisfactory plan is obtained.