Planning The State Airport System

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

PLANNING THE STATE AIRPORT SYSTEM 1978

Planning The State Airport System

AC 150/5050-3A

PREPARED BY A JOINT COMMITTEE OF THE
FEDERAL AVIATION ADMINISTRATION AND
NATIONAL ASSOCIATION OF STATE
AVIATION OFFICIALS

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

JUNE 1972

TABLE OF CONTENTS

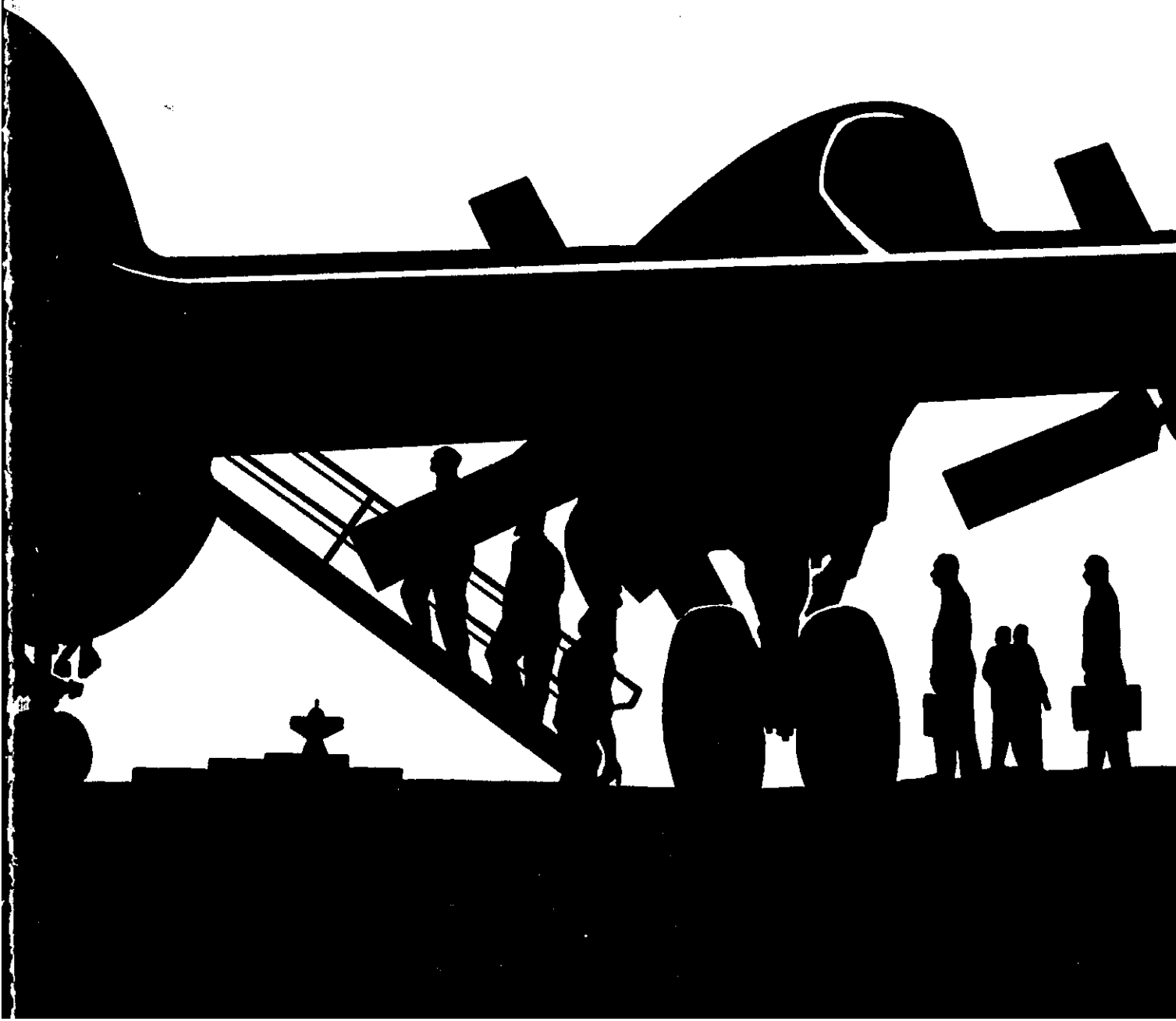
SECTION 1. INTRODUCTION

SECTION 2. ORGANIZING AND FUNDING THE PLANNING EFFORT

SECTION 3. THE PLANNING PROCESS - SYSTEM ANALYSIS

SECTION 4. THE PLANNING PROCESS - SYSTEM IDENTIFICATION

INTRODUCTION



section 1 INTRODUCTION

CHAPTER 1. BACKGROUND AND GENERAL INFORMATION

1. **PURPOSE.** The purpose of this advisory circular is to provide general guidance in preparing a State airport system plan. This guidance and related information are intended to be used by individuals and organizations responsible for airport system planning and development and others that have a need or desire to better understand the State airport system planning process. It is specifically applicable to preparing State airport system plans under the FAA administered Planning Grant Program (PGP) of the Airport and Airway Development Act of 1970.

The general guidance presented in this publication must be modified to meet the specific needs and requirements of each individual State. Each work statement presented in this publication should be analyzed for its value in achieving the desired results of the planning effort. Many of the work statements presented might not apply to some of the less populated States, and additional work statements may be required for States having a high level of aviation activity. Thus, the optimum level of effort and depth of analysis to be provided in the planning process will be based on the value of the information to be gained versus the resources needed to obtain it. Past experience indicates that expensive simulations of uncomplicated airspace or development situations, excessive origin and destination survey work, and overly complicated demand/capacity analyses of low activity facilities often result in an unnecessary and costly level of effort. It should be noted that the level of detail for State system planning is usually less than that used for planning large metropolitan areas and far less than that used for master planning individual airports.

Figure 1, a flow diagram of the State airport system planning process and chapter 2, an outline of a State airport system study, provide an overview of the State airport system planning effort.

2. **CANCELLATION.** The Federal Aviation Administration and the National Association of State Aviation Officials (NASAO) jointly developed this advisory circular which cancels the report entitled "Planning the State Airport System – December 1968" which was also prepared by the FAA and NASAO. The availability of this report was announced by AC 150/5050-3, dated January 31, 1969. That advisory circular is hereby cancelled.

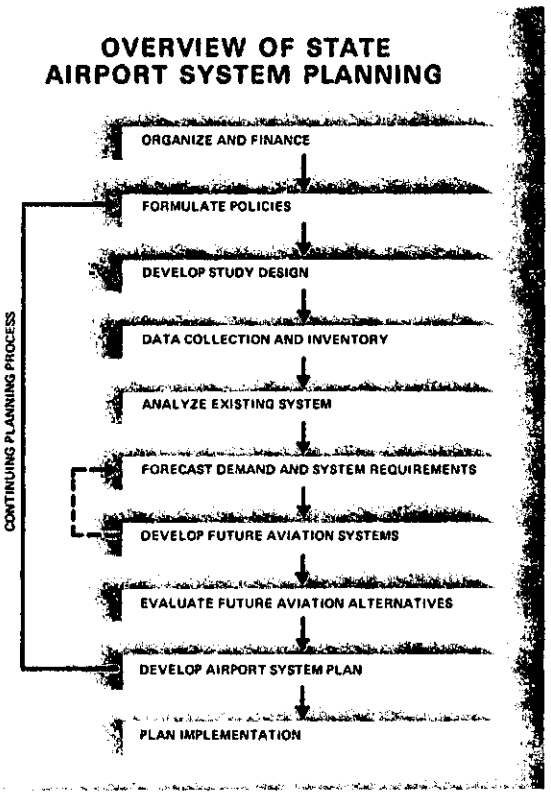


Figure 1. Overview of State Airport System Planning

3. **NEED FOR A STATE AIRPORT SYSTEM PLAN.** The use of air transportation as a mover of people and goods has become a highly significant part

of our contemporary society. The rapidity of its growth within the last decade and that expected in the future serves to directly intensify this social significance. The total air transportation system is a complex inter-relationship of many variables but one of the foremost is the national network of airport facilities. In terms of social visibility and impact, the physical airport and its functions represent the normal concept of air transportation. Additionally, the airport is the variable most relevant and immediate to a community in terms of cost. The financial requirements of modern airport facilities have become immense, while the demand for new and improved facilities has never been greater. As this demand multiplies, however, the competition for public funds steadily grows with new and different, but always more potential applications for such funds continually appearing. An appreciation of these trends highlights the conclusion that the development of the Nation's airport system is a matter warranting coordinated policy formulation at all involved levels of public administration.

Airports are but one small link in our total transportation system, but this link can have a significant impact on the total transportation system. An airport can be an effective and efficient interface between air and ground travel, or it can be an inefficient bottleneck. It is only through good system planning, at all levels, that we can hope to provide the required airport facilities at the right time and place to minimize the adverse aspects of such development.

State airport system planning is a means of directing and influencing many diverse airport development projects in such a manner that the composite State airport system yields the maximum benefits to all state citizens. The States have far too much at stake to simply react to an individual area's airport needs without carefully considering the effect of any proposed airport development on the major goals and objectives of the State. Since transportation is one of the more important components of State and regional development, it should be readily apparent that a good State airport system plan can be an effective tool in assisting State decision makers to direct and control the development of the State's resources.

4. DEFINITIONS

a. **State Airport System Plan.** The State airport system plan is a representation of the aviation facilities needed to meet the immediate and future air transportation needs of the State and achieve the overall goals of the State. It recommends the general location and characteristics of new airports and the nature of expansion for existing ones. It shows the timing and estimated cost of development, relates airport system planning to the economic development and environmental goals of the State and is accomplished in a comprehensive planning framework. It incorporates regional/metropolitan airport system planning and provides the basis for definitive and detailed individual airport planning.

b. **Regional Metropolitan Airport System Plan.** The regional/metropolitan airport system plan is a representation of the aviation facilities required to meet the immediate and future air transportation needs of the regional/metropolitan area and is considered a subsystem of the State airport system. It recommends the extent, type, nature, general location, estimated cost, and timing of airport development required to meet the aviation needs of the regional/metropolitan area and provides the framework for definitive and detailed individual airport master planning.

Generally, regional/metropolitan areas with more than one publicly owned airport, and which are forecast to have a population of 500,000 or an annual passenger enplanement level of 250,000 during the 20-year planning period, are planned on a system basis. This does not necessarily rule out system planning for multiple airport communities that will not attain these levels, nor does it indicate the need for system planning for communities that will.

FAA Advisory Circular 150/5070-5, Planning the Metropolitan Airport System, provides considerable information that can be applied to Planning the State Airport System and is recommended reading for individuals involved in State airport system planning.

c. **Airport Master Plan.** An airport master plan presents the planner's conception of the ultimate development of a specific airport. It effectively presents the research and logic from which the plan evolved, and artfully displays the plan in a graphic and written report. Master plans are applied to modernization and expansion of existing airports and to the site selection and planning of new airports, regardless of their size or functional role. Master planning is accomplished within the framework of a regional/metropolitan airport system plan, or a State airport system plan.

FAA Advisory Circular 150/5070-6, Airport Master Plans, provides considerable information that can be applied to Planning the State Airport System and is recommended reading for individuals involved in State airport system planning.

d. **National Airport System Plan.** The National Airport System Plan sets forth, for at least a 10-year

period, the type and estimated cost of airport development considered by the Federal Government to be necessary to provide a system of public airports adequate to anticipate and meet the needs of civil aeronautics, to meet requirements in support of the national defense as determined by the Secretary of Defense, and to meet the special needs of the postal service. The plan shall include all types of airport development eligible for Federal aid under section 14 of the Airport and Airway Development Act of 1970, terminal area development considered necessary to provide for the efficient accommodations of persons and goods at public airports, and the conduct of functions in operational support of the airport.

5. **PLANNING HORIZONS.** The long-range time period for the plan should generally be 20 years and should include: airport, heliport, seaplane bases, and STOLport locations; recommended development, timing of development, and magnitude of costs. Precise development needs and costs should not be required, although a reasonable estimate of needs should be expected. Since it may take as long as 10 years for a major airport to be established after its need has been identified, a 20-year horizon is not unrealistic.

In establishing the length of time for the LONG-RANGE planning period, consideration should be given to how long the long-range periods are for other State planning efforts such as the transportation and land use plans, with consistency as an objective. The INTERMEDIATE RANGE should be for a 10-year period and should more precisely determine development requirements and associated cost estimates than specified in the LONG-RANGE planning period.

The SHORT-RANGE period should be for 5 years and should include a detailed treatment of facility needs and cost estimates. The latter should be sufficiently accurate to permit financial planning and budgeting that is consistent with the airport financing programs and the local budgeting process at the State and Federal levels.

Because of the reliance of demand forecasts on certain statistical data from the National Census, planning periods ending on the decade should be considered. Additionally, the horizon years for the FAA's National Airport System Plan and the DOT National Transportation Needs Study should be considered.

6. **AIRPORTS IN THE STATE SYSTEM.** The State airport system plan should include all airports required to develop a comprehensive system of public airports which satisfy the needs of the people of all parts of the State. To accomplish this, qualifications for inclusion of locations may vary from State to State. For example, due to population distribution, geographic, or economic development factors communities of 500 population may qualify for entry into the plan in certain states, whereas, more highly populated or industrial States may have more stringent qualifications.

7. **CLASSIFICATION OF AIRPORTS.** Airports included in the State airport system plan should be classified in accordance with current FAA criteria for classifying airports (see FAA Advisory Circular 150/5090-2, National Airport Classification System).

CHAPTER 2.
TYPICAL OUTLINE FOR A STATE AIRPORT SYSTEM STUDY

8. **GENERAL.** The study outline shown below should provide an overview of the State airport system study effort and the basis for developing a study outline to meet the specific needs of the individual States. If the study is to be prepared under the FAA administered Planning Grant Program, a preapplication conference with the appropriate FAA regional office should be held during the "Study Organization and Finance" phase of the planning process. The official application for Federal assistance in preparing the State airport system plan would be submitted after the "Developed Study Design" phase of the planning process.

9. **TYPICAL OUTLINE FOR A STATE AIRPORT SYSTEM STUDY.**

A. Study Organization and Finance:

1. Organization and Procedures.
2. Limitations.
3. Funding.
4. Means of Coordination.

B. Formulate Policies:

1. Identification of Issues.
2. Policy Objectives.
3. Goals and Objectives.
4. Political Considerations.

C. Develop Study Design:

1. Method of Analysis.
2. Information Needed.
3. Data Available.
4. Procedures for Data Collection.
5. Procedures for Interfacing Other Plans.

D. Data Collection and Inventory:

1. Airports –

    a. Civil

        1) Air Carrier.
        2) General aviation.

            a) Publicly owned.
            b) Privately owned.

    b. Military.
    c. Expansion possibilities.
    d. General operating criteria.

2. Airspace and Navaids.
3. Aeronautical activity –

    a. Air carrier
        1) Operations.
        2) Passengers.
        3) Cargo/mail.
        4) Local origins/destinations.
    b. General aviation operations, based aircraft, owner distribution.
    c. Air taxi operations/passengers.
    d. Military operations.
4. Environmental factors.
5. Comprehensive/land use plans.
6. Transportation plans.
7. Socio-economic factors.
8. Applicable laws, ordinances, regulations.
9. Financial resources.

E. Analysis of Existing System:

1. Aircraft characteristics.
2. Airspace utilization.
3. Airport locations and characteristics.
4. Physical environment.
5. Other transportation systems.
6. Current air transportation demand.
7. Demand versus capacity.
8. Land use and noise considerations.

F. Future Demand and System Requirements:

1. Forecast air transportation demand.

2. Forecast aircraft and characteristics.
3. Forecast airspace utilization.
4. Forecast airport locations and characteristics.
5. Linkages to other transportation systems.
6. Environmental requirements.
7. Other technology.

G. Identify Future Aviation Systems.

H. Evaluate Future Aviation Alternatives:

1. Existing system expanded.
2. Other alternative systems.
3. Cost effectiveness.

I. Airport System Plan:

1. Physical facilities.
2. Airspace and navaids.
3. Financing.
4. Responsibility.
5. Plan format.

J. Plan Implementation:

1. Political considerations.
2. Environmental considerations.
3. Timing of projects.
4. Financing.
5. Land acquisition.
6. Recommended legislation/regulations/land use controls.

CHAPTER 3.
RELATION TO OTHER PLANNING ACTIVITIES

10. **GENERAL.** The State airport system plan should be properly coordinated and interfaced with appropriate metropolitan airport system plans, regional airport system plans, individual airport master plans, the State comprehensive plan, and local comprehensive plans with particular emphasis given to dove-tailing the airport plans of adjacent areas so as to provide a truly integrated Statewide airport system plan. Also, the State airport system plan must be appropriately coordinated with the airport planning efforts of adjacent States. Under the FAA Planning Grant Program, proposed regulations will require an appropriate system plan prior to the approval of a project for airport master planning in large or medium air traffic hubs (after 1973 for establishing a new airport and 1975 for an existing airport serving a large or medium air traffic hub). Figure 2, the Building Blocks of Airport Planning, illustrates the basic relationship of State airport system planning to other major planning activities.

11. **NATIONAL AIRPORT SYSTEM PLAN (NASP).** An effective State plan should provide the basic airport development recommendations for the FAA's National Airport System Plan. Therefore, a product of the State planning effort should be the development of information, in suitable format, for this purpose. A condition for financial assistance under the FAA administered Planning Grant Program is that specific FAA forms be completed by the sponsor for all airports which meet certain tests of national interest. The sponsor of a State airport system plan should consult with the appropriate FAA office for details concerning the NASP data requirements of the FAA Planning Grant Program before finalizing the scope of work for the planning effort.

12. **METROPOLITAN/REGIONAL SYSTEM PLANS.** Individual system plans for large metropolitan or regional areas should be integral components of the State system plan. If developed separately from the State plan, they should be completely coordinated with it and should reflect total consistency with respect to basic planning elements such as the data base and activity forecasts and, insofar as possible, should be predicated on similar planning procedures. Ideally, the planning efforts should be performed concurrently. Refer to Section 2, Organizing and Funding the Planning Effort, for guidance in structuring the planning process to produce an effective State/regional approach.

13. **MASTER PLANS.** Individual airport master plans, which reflect the detailed planning of a single airport, are accomplished within the framework of the State or regional system plan. Ideally, master planning should take place after the system plans have been completed. However, the urgency of development needs at many locations dictates that individual airport planning be expedited irrespective of the existence of a system plan. Where master and system plans proceed concurrently, there must be effective coordination between the two.

14. **STATE COMPREHENSIVE PLANNING.** The airport system plan should be an integral part of the State comprehensive planning process and reflect the overall development goals of the State. Every consideration must be given to full coordination of State and regional land use and ground transportation planning with the Statewide airport system planning due to the vast amounts of land used by airports, their impact on adjacent land uses, and the need for effective interface with ground transportation. When airport development is coordinated with State and local comprehensive planning, it becomes an effective tool for achieving State development goals.

15. **NATIONAL TRANSPORTATION NEEDS STUDIES.** The Department of Transportation has undertaken a National Transportation Needs Study which will be used as a basis for legislative and expenditure recommendations to the President and Congress. The report will contain nationwide esti-

mates of transportation needs, capital improvements programs, analysis of federally funded transportation programs, and funding levels to determine what changes are required to better align Federal expenditures with transportation requirements and an analysis of the environmental consequences of the needs and capital improvement programs.

The National Transportation Needs Study is not a substitute for the National Airport System Plan, State or metropolitan airport system plans, or airport master plans. Airport system and master plans should be used as a data source for the Needs Study.

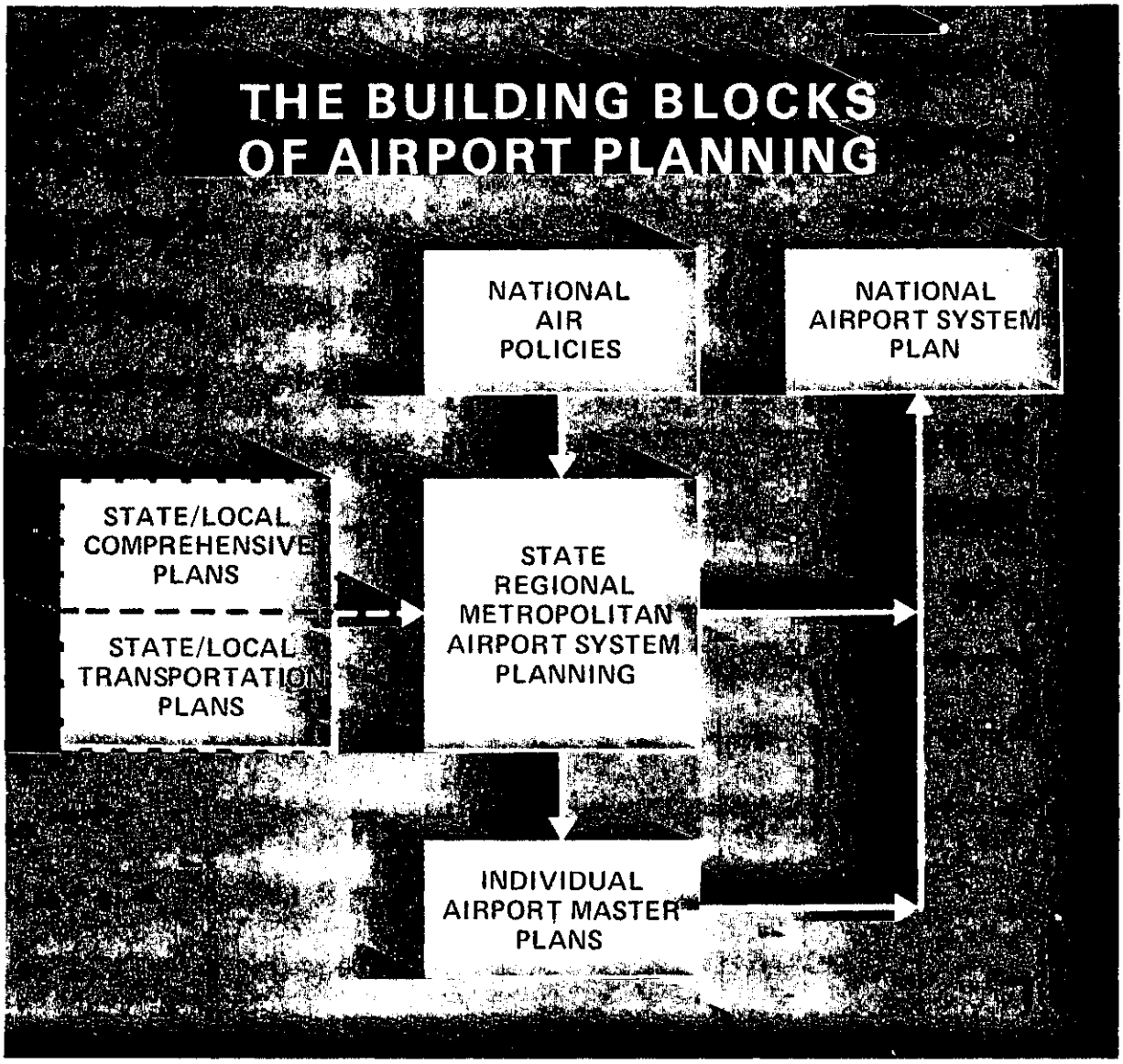


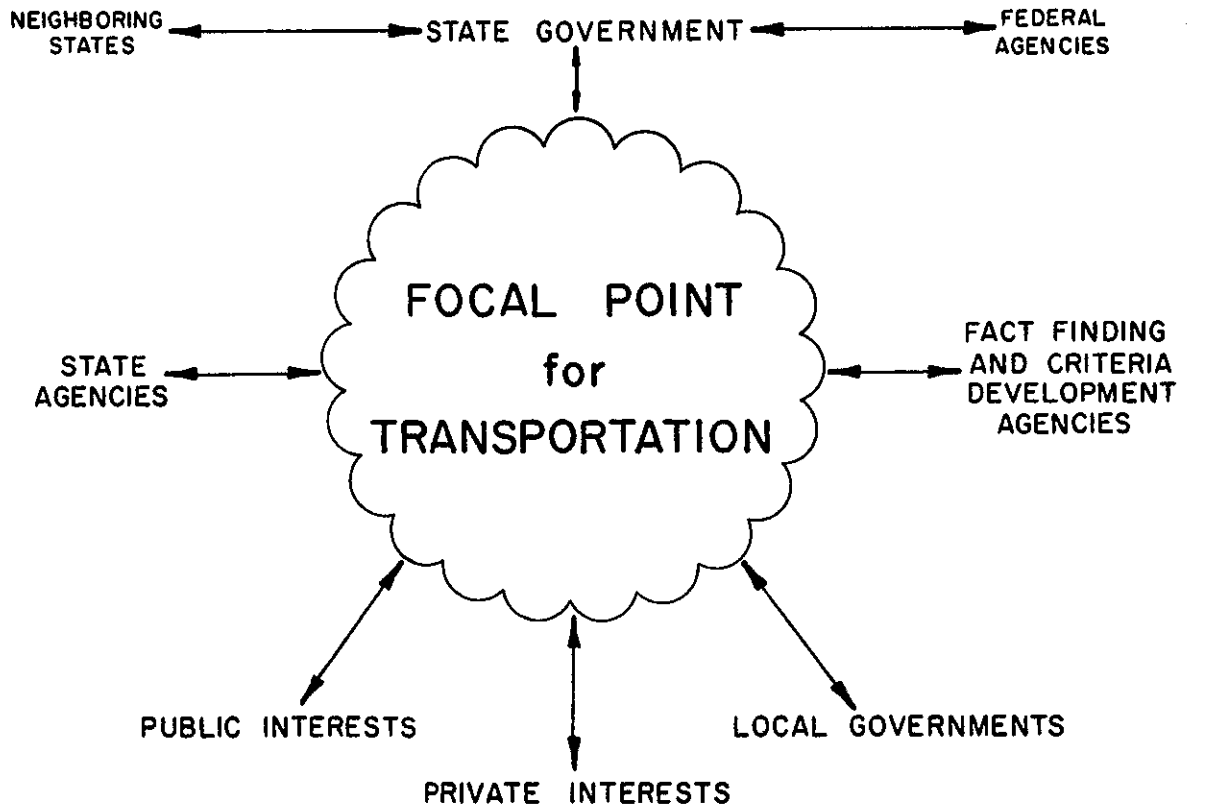
Figure 2. The Building Blocks of Airport Planning

CHAPTER 4.
THE ROLE OF STATE GOVERNMENT

16. **GENERAL.** While the short-term role and responsibility of the State, with respect to airport development and air transportation, will largely be determined by its existing aeronautics legislation, the long-term aviation goals of the State should not necessarily be restricted to the bounds of existing legislation. State decision makers should take an "active" approach to airport development; that is, they should view air transportation as a tool to be used in achieving the major goals of the State and not as a problem in itself that must be solved.

Basically, it should be the State's role to look into the future and determine just how airport development can best meet the overall goals of the State and then take whatever action is necessary to accomplish these goals. The State airport system planning process offers an excellent opportunity for a State to reevaluate its specific role in airport development and take necessary steps to realign its role to best meet the State's goals. Once the State has determined its airport role and responsibilities, such information should be widely publicized so that all interested individuals and organizations will clearly understand just who is responsible for what.

17. **UNIFICATION OF AIRPORT LEGISLATIVE STRUCTURE.** There is an immediate need for improved coordination and uniformity in the aeronautics and airport legislation existing at the State level. Efficient utilization of financial resources demand the establishment of an improved State system of funding priorities. The existing State aeronautics and airport laws should be a fundamental part of the policy-making process. All long-range plans and resultant strategies are only operative within the framework established by the statutory



structure. The goal formulation and planning procedures should not be the result of the legal possibilities. Whether they be obligatory or permissive, the statutes should rather be shaped to the needs of the long-range policies and plans. It is the task of the States to work consistently in transforming the nature of airport legislation from being strictly regulatory to becoming strategically opportunistic. The development of a legal environment as a function of the opportunities accorded by goal-oriented airport planning is essential. Based on unified goals established at the State and municipal levels, airport legislation should be so structured that the development of airport facilities aids in the achievement of desired metropolitan, regional, and State growth objectives.

While it is impractical to develop an "ideal" legislative airport system, a study of various States' airport related power should be beneficial in formulating the required statutory authority to meet the individual airport needs of a given State. With this in mind, Appendix I summarizes some of the information contained in a review of the individual states, with emphasis focused primarily upon financial powers.

18. **OVERALL PROGRAM COORDINATION.** Considering the nature and extent to which an airport influences, and is affected by, its surrounding region, coordination in planning with related public and private agencies is essential. The airport policies and plans of the State and municipality should be made compatible with those objectives relative to total transportation planning, urban land use, environmental and conservation planning, fiscal and economic policy development, and the airport and aviation plans of adjoining geographic areas. While the airport system should be the major transportation network under analysis, the interrelationships of the airport to other transportation modes within the area must be carefully considered. The long-range planning process should have as a primary objective the integration of the airport program into a coordinated multi-modal transportation system which encompasses the needs for such services at the municipal, regional, and State level. Particular attention is justified in providing long-range plans for future airport access needs. The demands for airport services by all types of customers, including those of air cargo-generating industrial facilities, need to be related to the present and planned highway and rail systems serving the airports. A failure to adequately provide for such necessary intermodal networks has contributed to many contemporary problems of inefficient airport facilities and serious urban congestion.

a. **Transportation Coordination.** There is clearly a need for consistent coordination of all related transportation planning. State legislation creating multimodal authorities has been successfully initiated in several jurisdictions. The increasing importance of airport access planning will undoubtedly sustain and expand this trend, generating the need for new types of airport-related statutes.

b. **Urban Land-Use Coordination.** The relatively recent trend toward systematic urban planning accented the need for strategic policy formulation regarding the development of urban land uses. When consideration is given to the fact that a major airport facility consumes thousands of acres of strategically located property, the need for coordinated planning is strongly reinforced. The airport must be suitable to its surroundings, with the reverse being equally true. The organizational structure for airport administration must be capable of providing sufficient land for present and projected demands, when such is needed. Acquisition, therefore, must be possible at a time considerably predating the initiation of construction. To insure the compatibility of the facilities with their surroundings, coordination at the local and State levels and between all relevant agencies is essential. State departments of conservation and development should be an immediate party to such coordination, as also should be those other agencies and organizations, both public and private, affected by the airport sponsor's acquisition, condemnation, and zoning functions. The latter function is a portion of the statute structure which should warrant particular policy development. The mechanics of the authority's zoning powers need to be explicitly related to the long-term goals of area development. The airport complex, as a user of expansive amounts of urban property, must be carefully integrated with its encompassing environment, and the zoning authority is the major tool for accomplishing such integration. The manner in which this authority is developed through the State statutes provides the foundation and constraints for its enactment at the municipal and regional levels.

c. **Economic Coordination.** Of utmost importance is the evaluation of the airport in terms of the long-range economic development goals of the State and its municipalities. The nature and location of airports affect the economy of the surrounding service areas to an extent much greater than the initial investment of land acquisition and facilities construction. In addition to the very substantial

continuing purchases of labor and materials by the airport itself, the creation of a new transport center generates increased demand for the great variety of goods and services consumed by the travelers. An airport also promotes new industrial facilities that are attracted by the advantages of an economically beneficial distribution center, promotes surrounding commercial and residential land use development, and initiates a stream of dollar spending.

Airports should be recognized not only as necessary service facilities but also as powerful tools for applying economic development policies. Through coordinated planning programs, airports should be designed and located to provide the services necessitated by aviation demand, while also aiding to achieve comprehensive economic development objectives. Such strategic applications of public investment are necessitated by the pluralistic demands of contemporary society and must be promoted by the legislative statutes relating to the airport system. The granting of increased State financial participation to those municipal airport development programs whose impact is of a broad statewide scope is an existing reflection of this type of coordinated policy formulation. A more widespread adoption of this type of legislative structure based on unified goal-oriented planning should be an emerging trend in the public administration of airports.

19. **GOAL ORIENTATION.** The trend toward goal-oriented financial structures in the Federal statutes needs to be extensively adopted in the airport legislation of nearly all States. Since an effective legal framework for airport financing is probably the paramount requirement for realistic implementation of the system development plan, this aspect of State legislation requires the greatest degree of coordinated goal-oriented planning. The principle that the attainment of airport system objectives should be strategically aided through the relevant legislative structure must be particularly applied to those statutes dealing with the financing of the system. Significant, but isolated, examples of effective financial planning can be found in the existing statutes of a few States. These can be generally characterized as special-purpose enabling legislation, created to fulfill an immediate legal need for a particular airport development project. The goal-directed concept underlying such statutes is the type of philosophy which will be required for planned systems implementation, not only for isolated cases of individual airport programs, but for the coordinated development of all facilities justified by the adopted State plan. Financial considerations should play a key role in the designing of a system plan to insure its economic feasibility, but once such feasibility has been established, the statutes relating to airport funding should not be a function of the inertia of tradition, but rather must be shaped by the effective implementation demands of the approved plan. A State airport system plan whose institution and effective management are constrained by an impotent statutory framework, becoming a plan defying implementation, has little real value.

20. **REVISION OF EXISTING STRUCTURES.** These essential requirements for operationally sound financial legislation will necessitate the revision of many of the existing structures at the State level. In addition to the high degree of expertise, impact, and recommended planning involvement which exists at the local level, it will be necessary that there also be an accompanying high level of financial power authorized by the State. The State should extend to the municipalities those degrees of authority consistent with the funding requirements incident to the local roles in the development of the State system. The direct delegation of taxing and bonding powers, without the accompanying necessity of referendum approval, to those municipal units acting individually or jointly in pursuit of the objectives of the State airport plan, will have to be a major trend of the very near future. Public cooperation and subsequent approval must be won through the consistent use of open, active, honest citizen and elected official involvement on information dissemination procedures.

NOTE: A considerable amount of the material presented in this chapter was extracted from the American Academy of Transportation's report referenced in Appendix I.

section 2 ORGANIZING AND FUNDING THE PLANNING EFFORT

CHAPTER 5. ORGANIZATION FOR THE PLANNING EFFORT

21. **GENERAL.** Organizational arrangements for the airport system planning process will vary from one state to another depending upon (1) the State's governmental organization; (2) the strength and effectiveness of the aviation organization; (3) the ability of the State to elicit cooperation from regional planning councils and individual airport management; and (4) the State role in development implementation.

A most effective structure will be one that is capable of (1) establishing policy that is acceptable across the State and consistent with urban oriented airport policy; (2) bringing together for advisory and coordination purposes all appropriate aviation and non-aviation related interests; (3) assuring a planning process that is technically sound and responsive to policy and the coordinative process; (4) producing a plan that effectively integrates the individual metropolitan/regional airport system planning products so that the State plan has complete geographic coverage; and (5) establishing an acceptable framework for individual airport master planning efforts.

22. **ORGANIZATION FUNCTIONS.** In general, the organization will be structured to perform three principal functions, namely policy formulation, advice and coordination, and technical planning.

a. **Policy Formulation.** The establishment of basic ground rules or policies is necessary to build the framework for the technical planning process. These policies must respond as nearly as possible to the desires, attitudes, and values of the citizenry and, at the same time, give full consideration to meeting the State's long-range air transportation requirements. Additionally, these general policies should directly relate to and be integrated with comprehensive planning policy.

In formulating policy, it is necessary to work within the goals cited in Section 3, The Planning Process. This section also provides examples of the kinds of aviation-related goals which should be considered in developing a State airport system plan.

The policy-making unit of the overall organizational structure is the key body whose decisions will most shape the effort and its end results. This body must be able to speak for the many political jurisdictions, insofar as statewide planning is concerned. The policy group must be able to serve as an effective forum for discussion of the issues and should be able to present an acceptable majority position on the system plan that is finally selected.

In serving as a forum for discussion of the issues, the policy body is responsible for the establishment of appropriate mechanisms by which all identifiable citizen viewpoints can be heard. Such mechanisms can take a number of forms, from broad citizen representation on planning boards, to advisory councils sitting in regularly on meetings of the policy body. The structuring of such mechanisms should be tailored to most effectively accomplish their purpose; that is, the incorporation of citizen viewpoints in the planning process. It should not be allowed to be a vehicle for volatile and unconstructive actions. When appropriate, public hearings or public information meetings can be held for the purpose of involving the public in the planning process.

Typical State bodies which could take the lead in policy direction are State Planning Offices, State Departments of Transportation, and State Offices of Economic Development. There should be direct participation at the policy level by representatives of regional planning councils, at least from those councils representing the larger urban areas. The key to determining the makeup of the policy body will be measured by the ability of that body to speak for comprehensive planning activities at the State and regional levels. The power to conduct comprehensive planning and to integrate the specific functional

planning efforts (airports, highways, mass transit, rail, land use, etc.) with one another is essential for effective Statewide airport system planning.

b. **Advisory and Coordinative Efforts.** In the planning process, the roles of aviation interests and appropriate non-aviation interests must be considered in structuring the organization. On the aviation side, communication with airport operators is an absolute necessity. Participation in terms of coordination, advice, and in many cases, staff support will be required.

The FAA should be an element in the organizational structure insofar as coordination, approval, and financial and advisory assistance will be required. It is imperative that ground transportation planning agencies be directly involved in the advisory and coordinative function. Where the advisory and coordinative function in the organizational structure is assigned will depend on the individual organization.

More than likely, it would be performed at the point in the organization where the technical planning function is accomplished. For example, if the technical planning is done by the State aviation agency, the advisory and coordinative efforts will probably take place below the policy level where the technical planning function is being carried on. On the other hand, if the staff of the policy body does the technical planning, the advisory and coordinative efforts would take place at that level.

The following list represents the type of agencies the airport system planner must coordinate with:

1) **Other Aviation Organizations.** Appropriate FAA office, aeronautics agencies in neighboring States, local airport owners, airport authorities, and appropriate representatives of general aviation and air carriers.
2) **City, County, and Metropolitan Area Planning Agencies.** Local and metropolitan area airport system plans may be developed by the appropriate agencies. These should become integral parts of the State's airport system plan. The State should stimulate the development of such plans and should coordinate the integration of these plans into the State airport system plan.
3) **Other Transportation Agencies.** It is important that the State airport system plan be consistent with not only the more generalized plans for handling major traffic flows but also the detailed plans for roads and streets in the vicinity of each existing and proposed airport. Consideration should be given to mass transit facilities in terms of tracked vehicles or buses, limousines or taxis, emergency vehicles, and other types of people or goods movers which may be potentially used for connecting each airport with likely ground destinations or origins of trips. The appropriate State agencies should be made aware of inadequacies of ground access to the State's airports.
4) **Economic Development Agencies.** These would include Federal agencies such as the Economic Development Administration or the more recent multistate developmental "regions." At the State level, the industrial agencies should be involved. There may also be regional tourist/industry groups or local industrial development organizations (planning agencies may have knowledge of proposed public, semi-public, or private investment which may influence airport needs).
5) **Land Use Planning Agencies.** Because airports occupy large acreages of land and require rather sophisticated zoning protection around their perimeters for obstruction prevention and noise abatement purposes as well as mitigation of traffic congestion and other pollution, it is necessary that local and regional planners be involved in the development of airport plans.
6) **Conservation, Recreation, and Environment or Ecology Agencies.** Federal, State, and county conservation, forest and park departments or agencies should be consulted. New dams may create lakes which over-flow existing or proposed airport land, or may create new recreation areas that should have airports. Public forests and parks can also affect and be affected by airport development.
7) **Budgetary Agencies.** Since the methods of financing airport development vary from State to State, no specific guidelines for financing the development programs are included in this document. As many states will be required to recommend methods of implementing the airport system plan, it is suggested that close coordination be maintained with the appropriate budgetary agencies on both the local and State levels.
8) **Private Interests.** Sometimes users of airports also have definitive plans. For example, air carriers (including scheduled air taxis) may be planning equipment changes. Fixed-based operators or private airport owners may have plans for substantial additions to their facilities. In areas surrounding airport sites, land owners might be contacted to determine potential property improvements they are contemplating. Operators of communication towers should also be consulted.

c. **Technical Planning.** The technical planning

process begins with the inventory step, ending initially after the selection of a preferred alternative plan, but repeated during the continuing planning process. Normally, the technical planning will be done by an airport system planning staff administered by the policy body or the aviation agency within the framework of the State and regional comprehensive planning process. This organization will draw upon its own staff, other planning agency staffs (possibly those of the local airport operators and regional planning agencies), and will normally use a consultant firm or firms to do much of the technical planning.

23. **THE STATE ORGANIZATION.** State governments are organized in many forms and the location of the office concerned with State airport system planning also varies widely. Figures 3, 4 and 5 illustrate, in brief form, some of the more typical State organizations and the placement of planning within those organizations.

The relationship of the office of planning with other State agencies or departments and with local planning agencies is very important. If, as illustrated in figure 3, the office of State planning coordination is an executive arm of the governor which is charged with all developmental planning for the State (comprehensive highways, airports, other transportation, economic growth, etc.), coordination is simplified. An organization of this type would tend to have the direct participation of the State's elected officials and would be very close to the point of decision making, i.e., the governor and the legislature. In addition, an office in this position could easily coordinate planning across all State departments as well as directly with metropolitan area officials and, in doing so, represent the wishes of the governor. This would appear to be the most desirable and functional arrangement. An alternative (not illustrated) which would have most of the same desirable characteristics is a line department charged with all State planning.

Figure 4 illustrates the arrangement which offers several advantages but less than the organization in figure 3. In figure 4 the State department of transportation has a staff office charged with transportation and related planning for all modes. A major disadvantage of this arrangement is the need to coordinate by agreement, or some other mechanism, with state offices concerned with other forms of planning on a line basis and the lack of clear decision point when these agencies disagree.

The arrangement illustrated in figure 5 is probably most representative of State structures as they now exist. This structure requires a maximum of line coordination and personal persuasion between staffs to achieve the desired results in any single planning effort such as State airport systems.

Regardless of the actual structure of the State planning organization, a substantive review by the State A-95 Clearinghouse should be a requirement of the governor before a systems plan would be considered finalized. The comments of this review should be accounted for in the recommended plan.

24. **STATE/REGIONAL STRATEGIES.** In order to achieve a Statewide system plan which is geographically complete and which reflects the prerogative of local decision making in the large urban areas, workable mechanisms for achieving State/regional cooperation must be developed. The strategy selected for accomplishing the required cooperation may vary from one State to another. Ideally, the State should function as an "umbrella" agency in bringing together its efforts and those of the larger urban areas, with the policy body serving as the focus point.

If individual regional efforts proceed on their own without clear and continuing coordination with the State effort, the final products will be piecemeal, fraught with redundancies, ill-timed, and overly costly. Thus, it is highly important that the States proceed immediately to organize for a Statewide planning process and seek the cooperation of regional planning bodies. If consultant services are to be used, a single consultant acceptable to the regional organizations should be engaged if possible. The production of a Statewide plan with separately printed regional plans could adequately serve the needs of both State and local agencies.

One strategy which can achieve an effective State planning process is where the regional planning bodies, in conjunction with the larger airport operators, contribute funds or services to the State effort, participate on the policy body, coordinate with the technical staff, and select the regional system most responsive to its needs for incorporation in the State plan.

Another strategy has the State performing, in a phased sense, the activities leading to the planning decisions such as data collection, inventory, and demand forecasting with the regional planning bodies taking a demand allocated by the policy body and proceeding with determination of needs, development of alternative systems, and selection/adoption of the best alternative. The regional planning bodies would supply their own funds, use State funds, or any combination thereof. The State would accept the regional inputs in developing the Statewide plan.

A most difficult area of resolution involves the potential decision on a single regional airport serving two urban areas. Here, the utmost in skill is needed to evoke a cooperative decision that will best serve the goals of the State, and at the same time, relate well to the individual urban planning objectives. The State must provide the leadership in these kinds of situations and should insulate the Federal Government from direct involvement in decision making involving competitive interests at the local level.

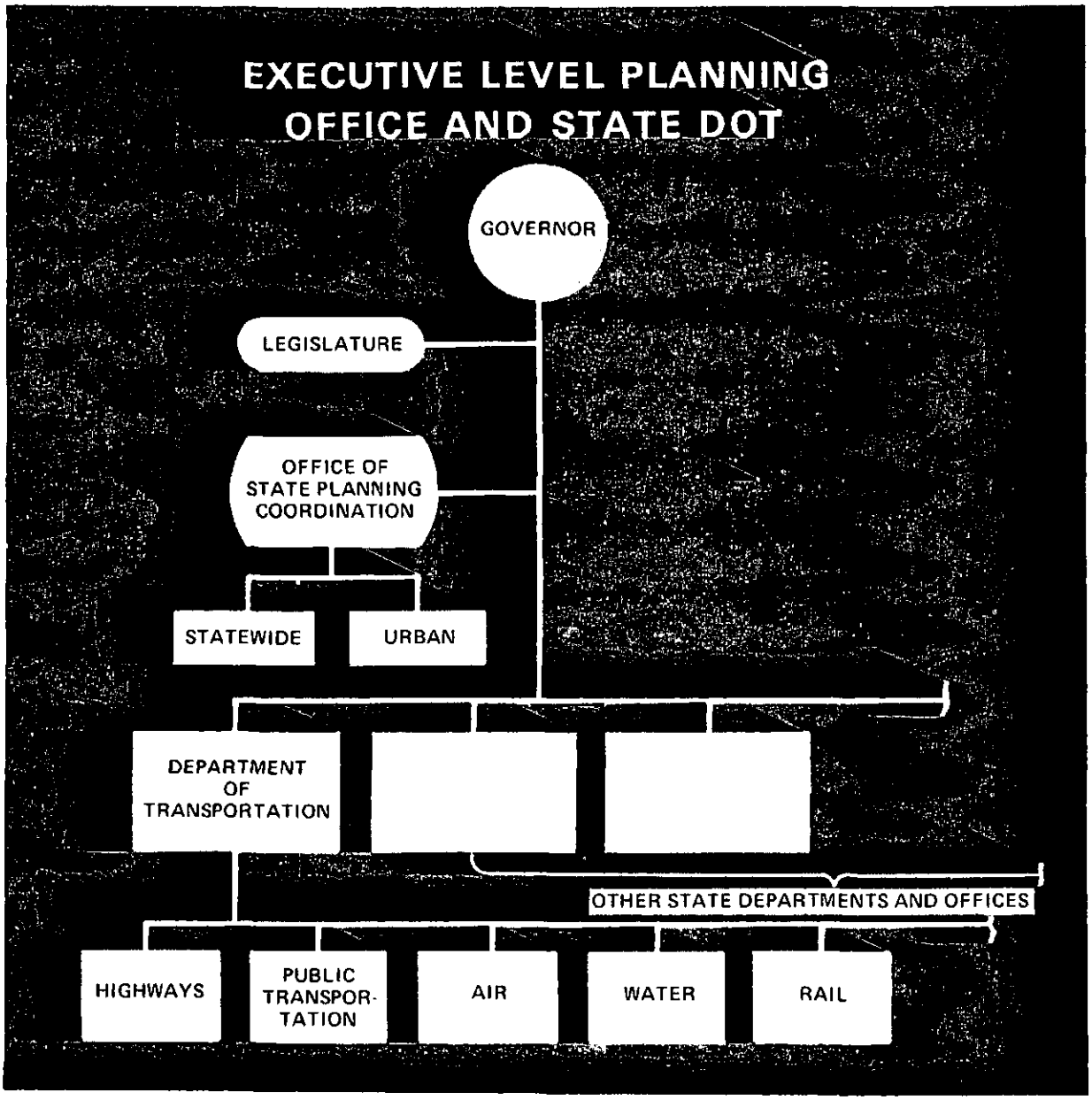


Figure 3. Executive Level Planning Office and State DOT

INDIVIDUAL DEPARTMENTS FOR MODES EACH WITH PLANNING RESPONSIBILITIES

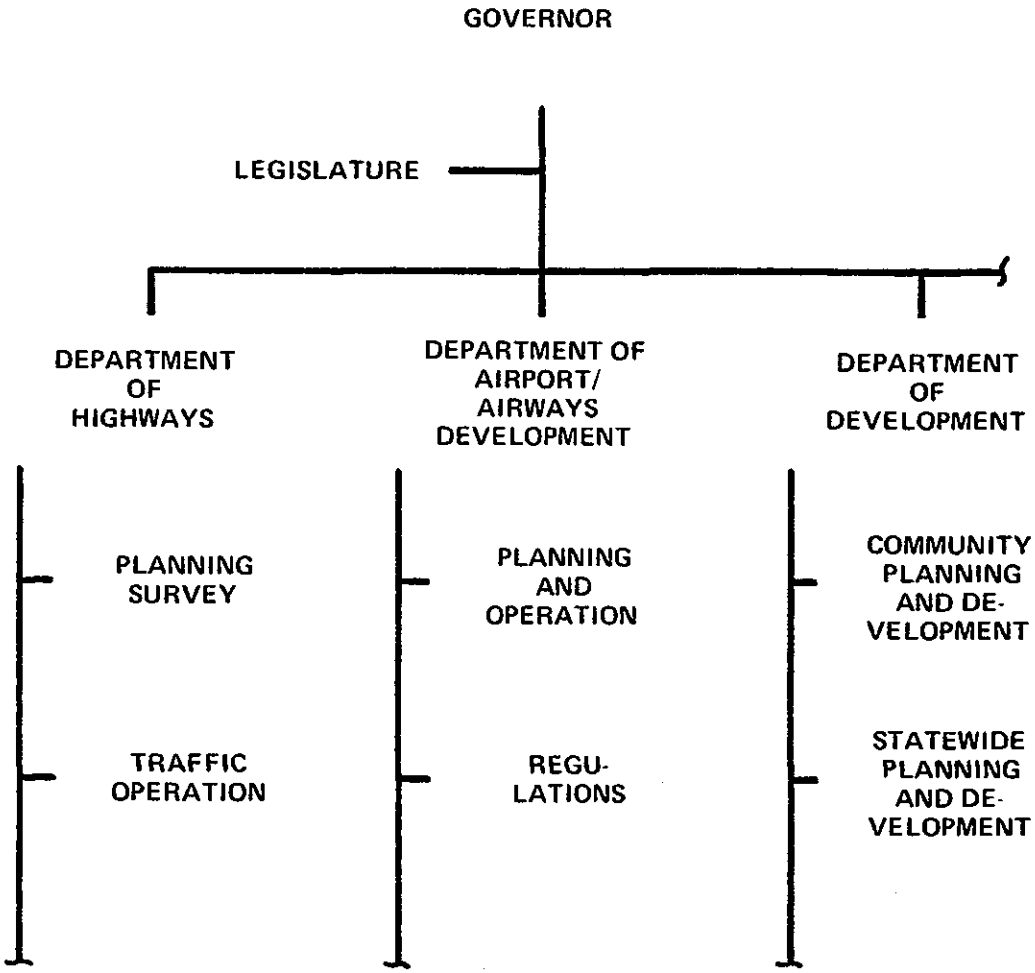


Figure 4. State DOT with Staff Level Planning Office

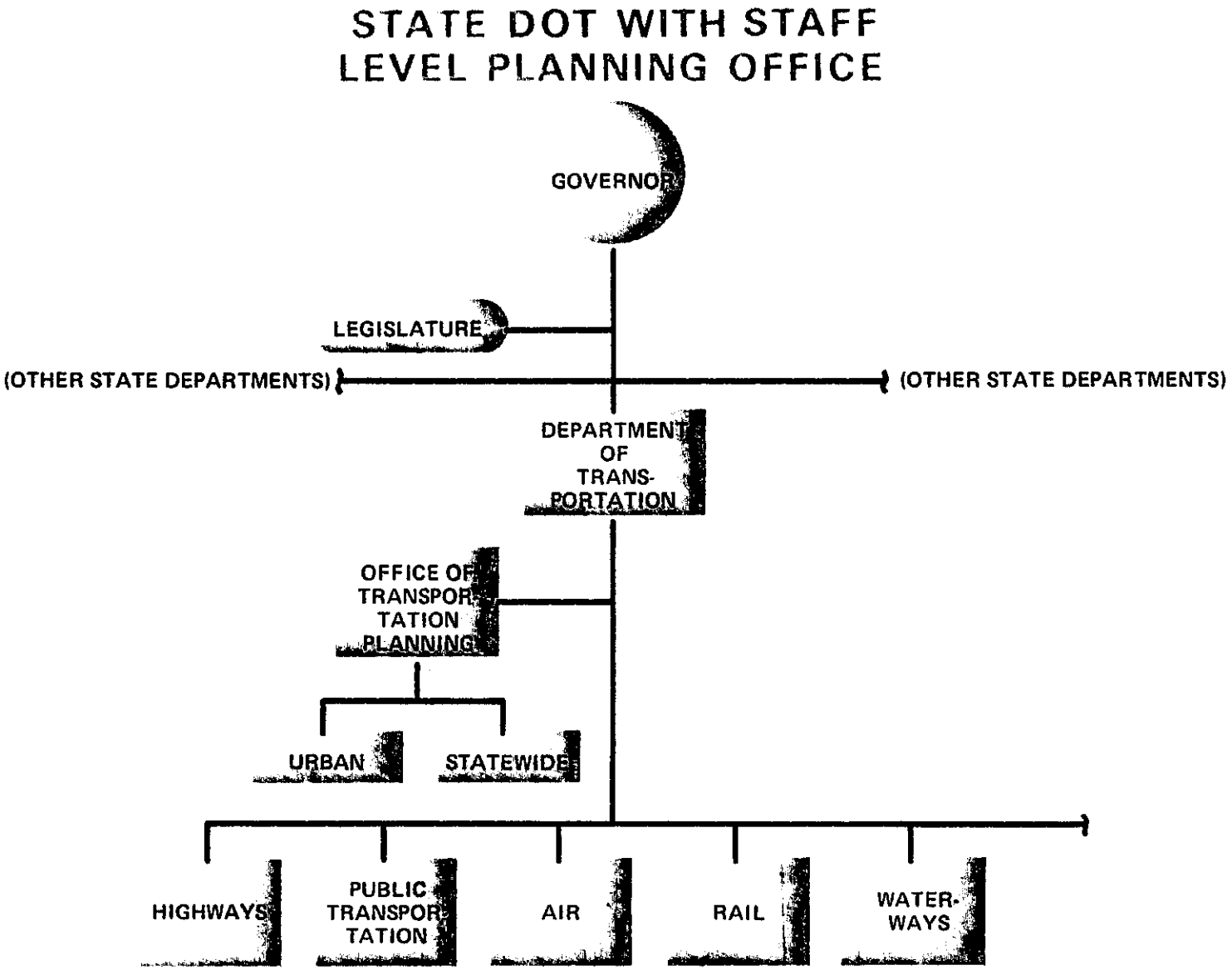


Figure 5. Individual Departments for Modes–Each With Planning Responsibilities

CHAPTER 6.
FUNDING THE PLANNING EFFORT

25. **GENERAL.** Section 13 of the Airport and Airway Development Act of 1970 (P.L. 91-258), dated May 21, 1970, provides for planning grants to develop or update (1) airport master plans and (2) airport system plans. The total funds obligated for grants under this program may not exceed $75 million and the amount obligated in any one fiscal year may not exceed $15 million.

A grant under this program may be issued for up to two-thirds the costs incurred in accomplishment of the planning project. Not more than seven and one-half percent of the available funds may be expended in any one State, Puerto Rico, the Virgin Islands, or Guam.

26. **SPONSOR ELIGIBILITY.** In order to sponsor an airport system planning project, the sponsor must qualify as a planning agency. By definition, this means any planning agency designated by the Secretary of Transportation, which is authorized by the laws of the State (including the Commonwealth of Puerto Rico, the Virgin Islands, and Guam) or political subdivisions concerned to engage in areawide planning for the State or areas involved in the study.

If a case should arise where more than one body applies for Federal funding for a State plan or for a similar area, and where identification of the appropriate agency empowered to plan for the area in question is not clear, the Secretary shall exercise his discretion in designating the eligible applicant. Such designation will normally be predicated on selection of an agency which is best equipped to perform the study.

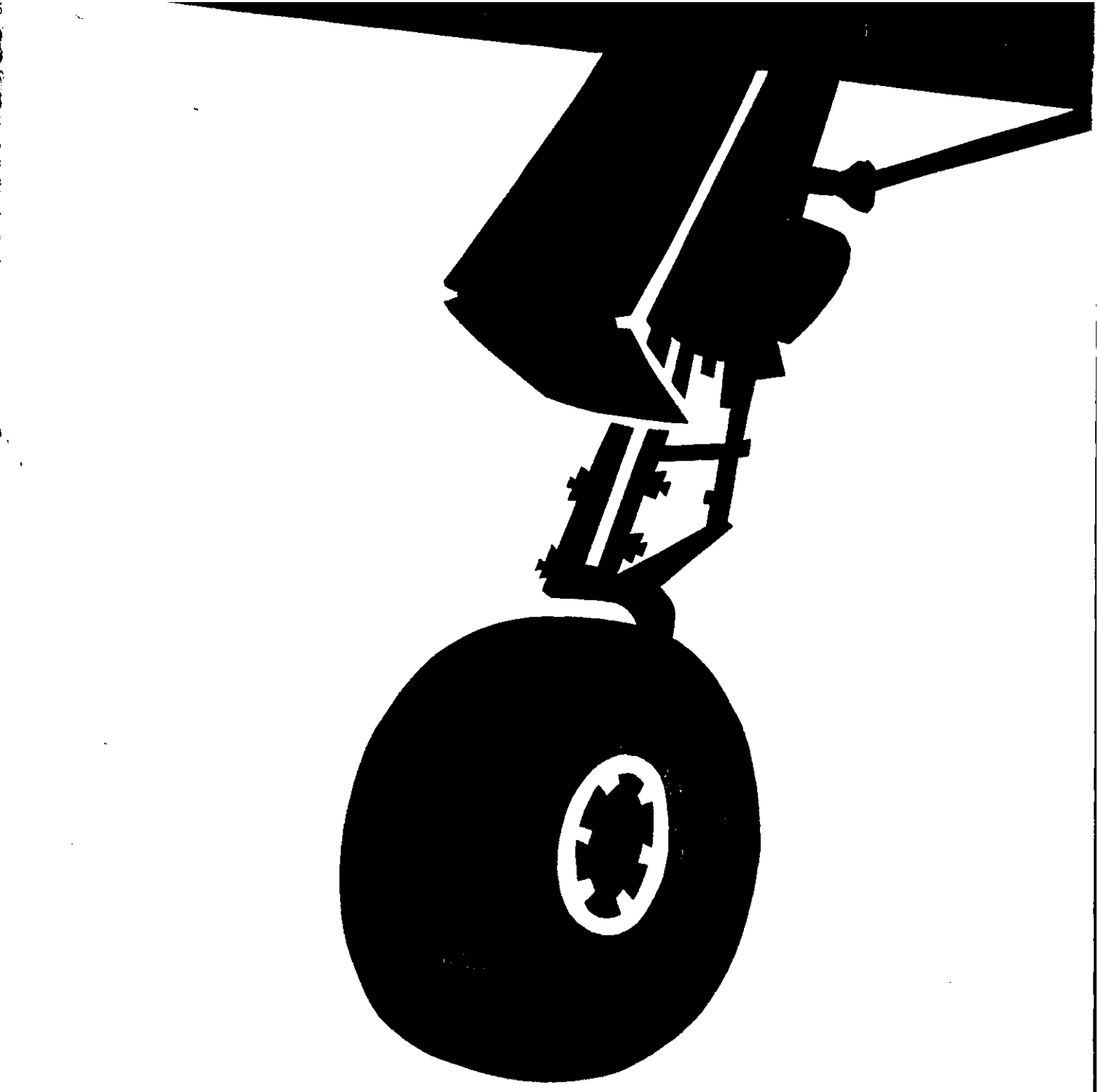
When the applicant is a functional agency, such as the State aviation or transportation agency, the application should contain evidence that the applicant is empowered to engage in planning and that approval to perform the study has been granted by the Statewide agency or by higher authority. Two or more bodies may act jointly as cosponsors if at least one meets the applicable eligibility criteria.

27. **SUPPLEMENTAL FUNDING.**

a. **Economic Development Administration (EDA).** In certain areas of the country which are economically depressed, the EDA of the Department of Commerce has authorized the establishment of Economic Development Districts (EDD's). These districts have representation from the towns and counties within their borders and have professional planning staffs. The districts are concerned with and promote economic development of all types. Some are assuming the roles of regional planning agencies.

Under their authorizing legislation, EDD's are allowed to supplement other Federal funds. Airport planning can be included in the EDD's activities.

b. **Regional Development Commissions.** The Appalachian Regional Development Act of 1965, which established the Appalachian Regional Commission, set the stage for large multi-state regional development commissions. Following the Appalachian Act, Congress passed the Public Works and Economic Development Act of 1965 which allowed five more commissions to be established: Coastal Plains, Four Corners, Upper Great Lakes, New England, and Ozarks. These commissions are chaired by Federal and State co-chairmen and represent a significant joint Federal-State working relationship. These commissions, like the EDA, can supplenent other Federal grants. Transportation planning was recognized as a vital part of the Commissions' planning programs, and airport system planning is a vital part of the overall transportation planning effort.



THE PLANNING PROCESS-SYSTEM ANALYSIS

section 3 THE PLANNING PROCESS-SYSTEM ANALYSIS

CHAPTER 7. GOALS

28. **GOALS OF A STATE AIRPORT SYSTEM PLAN.** Although each State must develop its own specific goals, objectives, evaluation criteria, and assign levels of priority, the primary goals of a State airport system plan, as viewed from a national level and stated in general terms are:

a. To provide for the orderly and timely development of a system of airports adequate to meet the aeronautical and air transportation needs of the State, its metropolitan areas, and the Nation in response to development and growth goals and patterns.

b. To provide for the orderly allocation of land for airport purposes.

c. To provide a basis for coordination of airport planning with all other State and regional planning.

d. To provide a framework for airport development programs consistent with short, intermediate, and long-range needs.

e. To ensure compatibility with the content, format, standards, and criteria of the National Airport System Plan in order that applicable portions may be integrated into the national plan.

f. To involve local, State, and national political and individual interests in the comprehensive and systems approach to airport planning and development.

g. To make possible long-range coordination of airport development, air navigation facilities, airspace use, and air traffic control procedures within the framework of State and metropolitan area comprehensive planning.

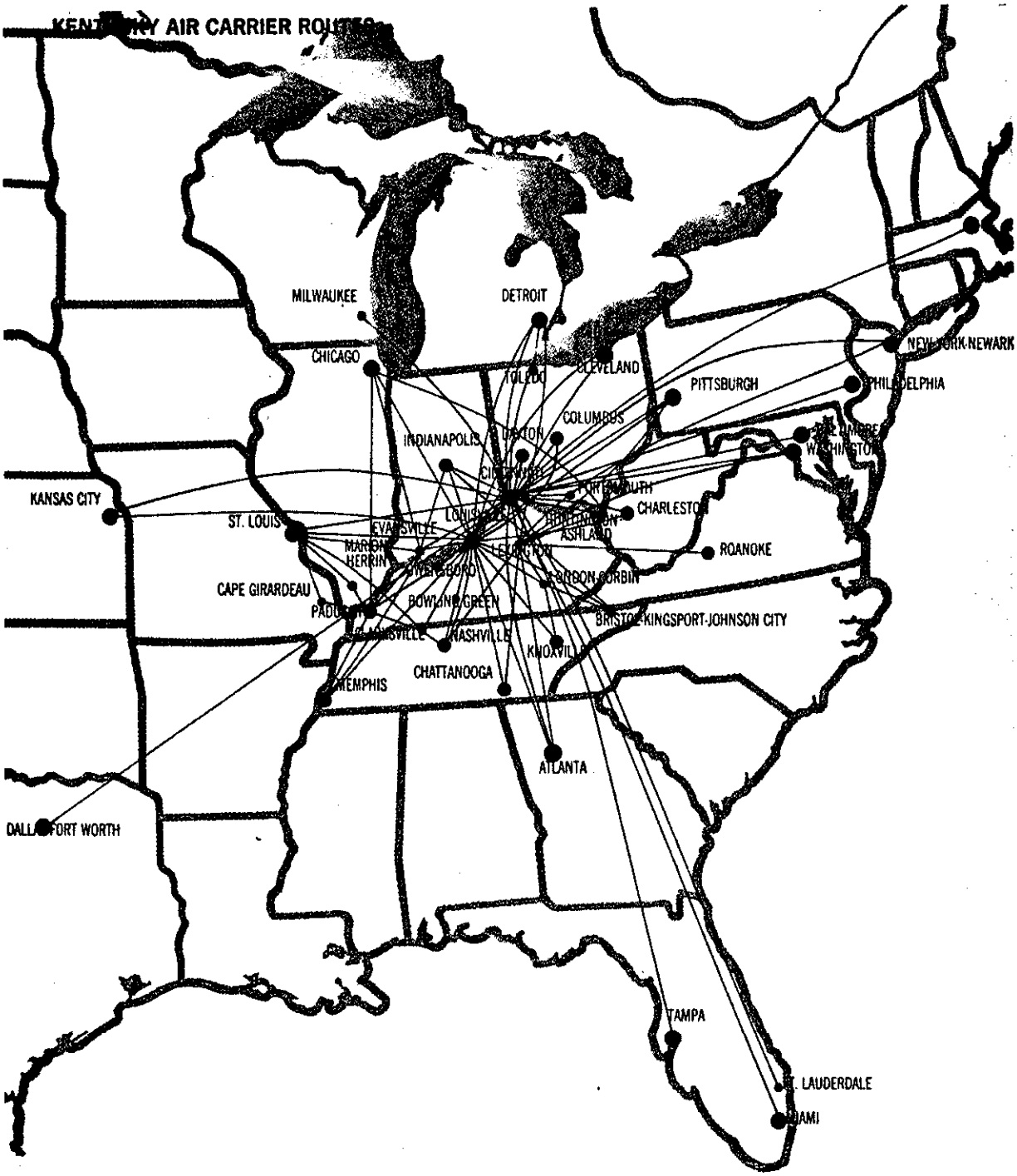
h. To provide a product for use at the local level to assist in the development of regional/metropolitan system planning, master planning, and design engineering.

i. To identify the general location of all the airports (by type and size) and recommended development (with estimated cost) that will be required to make air transportation reasonably accessible to the users in the State and which will be compatible with goals of the affected communities.

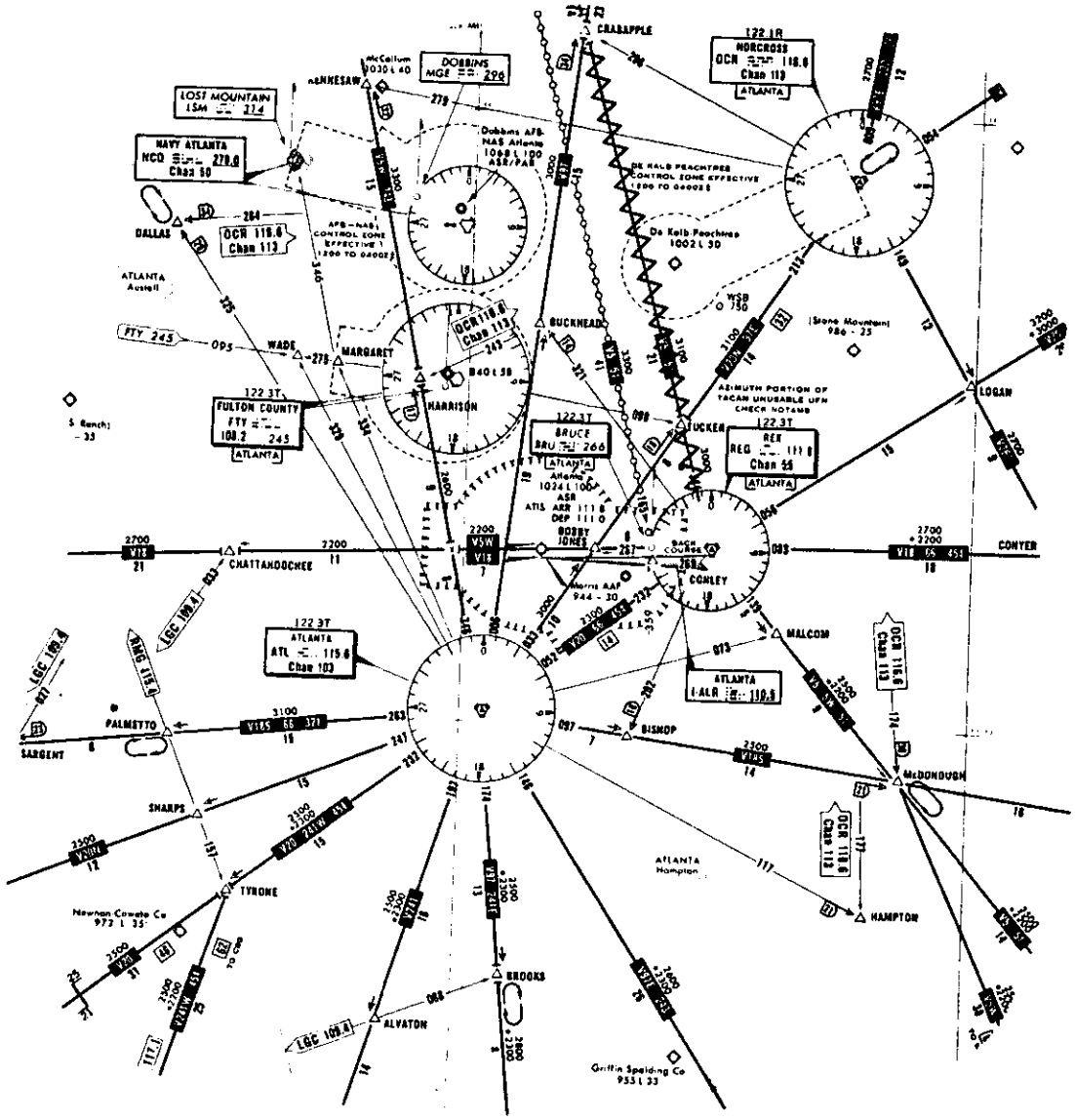
j. To provide priorities for State resource allocation.

Considerable attention must be given to reducing broad general goals to more explicit goals directly related to a State's needs. Then specific objectives for accomplishing such goals must be developed. These objectives should be stated in such a manner as to permit evaluation of progress toward achieving goals.

The end results of the planning effort must recommend the general location and characteristics of new airports, the nature of expansion and characteristics of existing ones, and the timing and estimated cost of proposed airport development required to meet the overall State goals. The plan must also present the pertinent backup information and data which were essential to the development of the system plan, a description of the various concepts and alternatives which were considered in establishing the plan, and provide a concise and descriptive report so that the impact and logic of its recommendations can be clearly understood by the primary system users and those authorities and public agencies which are charged with the approval, promotion, and funding of the improvements proposed in the system plan.



Source: Spindletop Research, Inc., 1971


CRABAPPLE
DOBBINS
MGE 296
LOST MOUNTAIN
LSM 214
NAVY ATLANTA
NCO 278.0
Chan 50
DALLAS
OCR 116.0
Chan 113
ATLANTA
Austell
FTY 245
WADE
MARGARET
HARRISON
FULTON COUNTY
FTY 108.2 245
ATLANTA
122.3T
BUCKHEAD
DeKalb Peachtree
1002 L 30
NORCROSS
OCN 116.8
Chan 113
ATLANTA
LOGAN
TUCKER
REX
REG 111.0
Chan 55
ATLANTA
BRUCE
BRU 266
ATLANTA
Atlanta
1034 L 106
ASR
ATIS ARR 111.0
DEP 111.0
BOBBY JONES
CHATTAHOOCHEE
CONLEY
CONYER
MALCOM
ATLANTA
ATL 115.6
Chan 103
ATLANTA
E-ALR 118.6
PALMETTO
SARGENT
SHARPS
TYRONE
BISHOP
McDONOUGH
HAMPTON
ATLANTA
Hampton
BROOKS
ALVATON
LGC 109.4
Griffin Spalding Co
953 L 33
Newnan Coweta Co
972 L 35

CHAPTER 8.
DATA COLLECTION AND INVENTORY

29. **GENERAL.** The airport system planner must define the existing airport system and evaluate the effectiveness of such a system before investigating the various means of meeting future airport requirements. One of the first steps in defining the existing airport system consists of collecting appropriate types of data on the airport and the area which the airport serves. However, before attempting to collect airport related data, the planner should review the types of data that are readily available and then determine just what data and information he will need to accomplish his objectives. The planner should know how all data will be used in the airport study before attempting to collect such data. Care should be taken to eliminate the collection of data that falls into the category of "nice to know, but not essential to the objectives of the study." It is recommended that a series of data-sheets be developed for use in collecting the needed data. These data-sheets should assist the planner in standardizing his collection procedures and be beneficial in handling the data once it is collected. The format of these data sheets whould be tailored to the specific needs and requirements of each State with adequate consideration given to data bank requirements. Appendix II contains a representative list of various airport planning parameters that should be reviewed for the purpose of determining what data will be needed for achieving the study's objectives. Appendix III lists various sources of aviation statistics.

30. **AIRPORT SYSTEM FACILITIES INVENTORY.** The FAA's Airport Master Record (FAA Form 5010-1) provides an effective means of gathering selected information on existing airport facilities. In addition to the basic facility data shown on the front side of Form 5010-1, an airport layout sketch is normally shown on the back side of the form. The airport system planner should utilize the State's file of Airport Master Records in preparing the State airport system plan. There are numerous tabulations and comparisons that can be made from the data on the 5010-1. Typical information needed in a State airport system study might be a list of all airports that are lighted and have paved runways in excess of 3200 feet. Such a list could be readily prepared by use of Form 5010-1. The airport system facilities inventory must also include data on aircraft, airspace, navigation aids, and environment and would contain the following types of data and should be presented in such a manner that the total airport system can be evaluated. (See Appendix II for additional information on Data Collection and Inventory.)

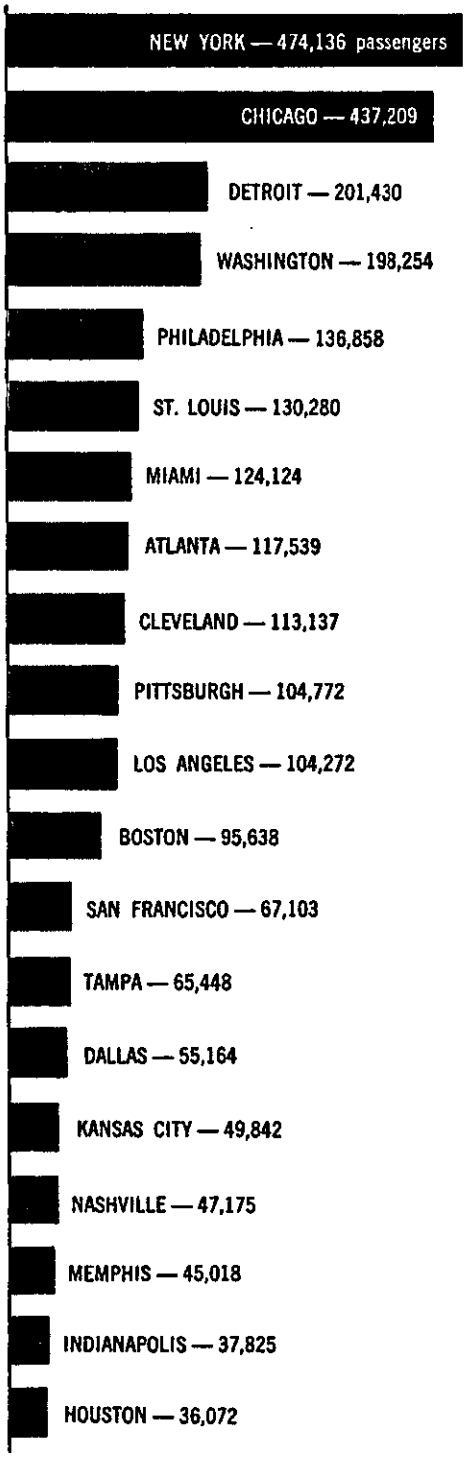
a. **Airports.** Data on ownership, location, elevation, runways, taxiways, acreage, terminals, layout plans, and service facilities (data from available sources on the amount of general aviation and air carrier aviation gas and jet fuel usage, including a description of users by category as domestic and overseas should be useful).

b. **Aircraft.** Data on based aircraft, type of aircraft, aircraft ownership, operations per unit of time, and for selected airports, airline, charter and private passengers, occupancy ratio, and freight handled.

c. **Airspace.** Data on route identification, airspace requirements and restrictions under governmental control, aircraft per unit of time on airways routes, IFR procedures and approach zones. (In general, the more complex and difficult airspace situations will be analyzed in detail under a Metropolitan Airport System Plan or Master Plan.)

d. **Navigational Aids.** Data on enroute and terminal navaids (VOR, DME, VORTAC, ILS, ADF, RADAR, communication facilities, lighting, etc.). For enroute navaids data, prepare a base map showing State airports and overlays of the different navaids coverage, major route structures, and aviation desire lines. For terminal navaids, document (graphic or matrix) various navaids facilities at State airports. Existing navaids facility data can be obtained from aeronautical charts, airman's information manual, enroute charts, airport master record, and instrument approach charts. Local FAA personnel can also provide technical information on various navaids equipment capability and limitations.

e. **Surface Transportation.** Data on airport access (highway lanes, rail, rapid transit, bus service, water,



TOP 20 DOMESTIC CITY PAIR SUMMARY
With Origins or Destinations at Kentucky Airports
(1969 DATA)

Source: Spindletop Research, Inc., 1971

taxi, etc.), airport parking (public and employee), and approximate travel times between the airport and major airport traffic generators. Approximate number (and percentage in planning area) of people within 30 and 60 min. normal driving time to any airport and air carrier served airport. (In general, the surface transportation aspect of airport planning will be dealt with in more detail under a metropolitan airport system plan or master plan.)

f. **Environment.** Existing airports should be studied for the purpose of determining which airports have existing or potential environmental related problems (aircraft engine noise represents the current most significant airport environmental problem). For those airports that have or expect environmental problems, sufficient data must be collected to allow adequate analysis in recommending new airport development. Typical data that would be needed for airports having environmental problems might be data related to noise impact on wildlife refuges, housing developments, recreational areas, etc., near the airport.

31. **PLANNING AND ECONOMIC DATA AFFECTING THE AIRPORT SYSTEM.** The airport system planner should obtain and review available planning and economic data affecting the airport system and evaluate its adequacy in the development of the airport system plan. This information would include by county or planning region:

a. **Planning.** Data on county population; growth trends; population characteristics; zoning requirements around airports; airport noise abatement procedures; State, county, and regional transportation and land use plans; recreation plans; and travel statistics.

b. **Economic.** Data on airport development costs, operating expenses and revenues, history and sources of grant from government, gross national product, county employment, income levels and distribution, land values, commercial and industrial activity, and State or regional economic development plans and goals.

c. **General.** Data on county motor vehicle registration, air photos, available topography, climate, tourist and recreation activities, wildlife populations and habitats, historic areas, and other pertinent information.

32. **INVENTORY OF ORIGIN AND DESTINATION (O&D) DATA.** The airport system planner should inventory all available data on origin and destination of passengers and goods and evaluate the adequacy of the information with respect to airport-

to-airport and portal-to-portal movement. The format of the O&D data gathered in future studies as an updating procedure in the continuing planning process should be considered.

a. **Existing Data.** Obtain and research available information from Air Transport Association, Federal Aviation Administration, Federal Highway Administration, State Highway Department, and Fixed-Base Operator air carrier records, and data on travel patterns from comprehensive transportation projects recently completed.

b. **Survey Data.** If required, develop interview questionnaire forms suitable for obtaining sample O&D data and other information for general aviation, air taxi, and air carriers not readily available from existing sources.

33. **DATA AND CRITERIA EVALUATION.** The objective of this item is to assemble the collected data in a tabulated and meaningful form to determine its completeness and compatibility when compared with the planning criteria. The following task should be carried out concurrently with the data collection and inventory work.

a. Assemble all inventory information together in a meaningful form and establish procedures for data processing.

b. Organize and classify all available data that can be incorporated later in the information data bank, data that is useful for informational use, data which can be discarded, and data which are incomplete and require supplementing.

c. Identify all data by source and cross reference so that all data can be made available for various tasks in the form required.

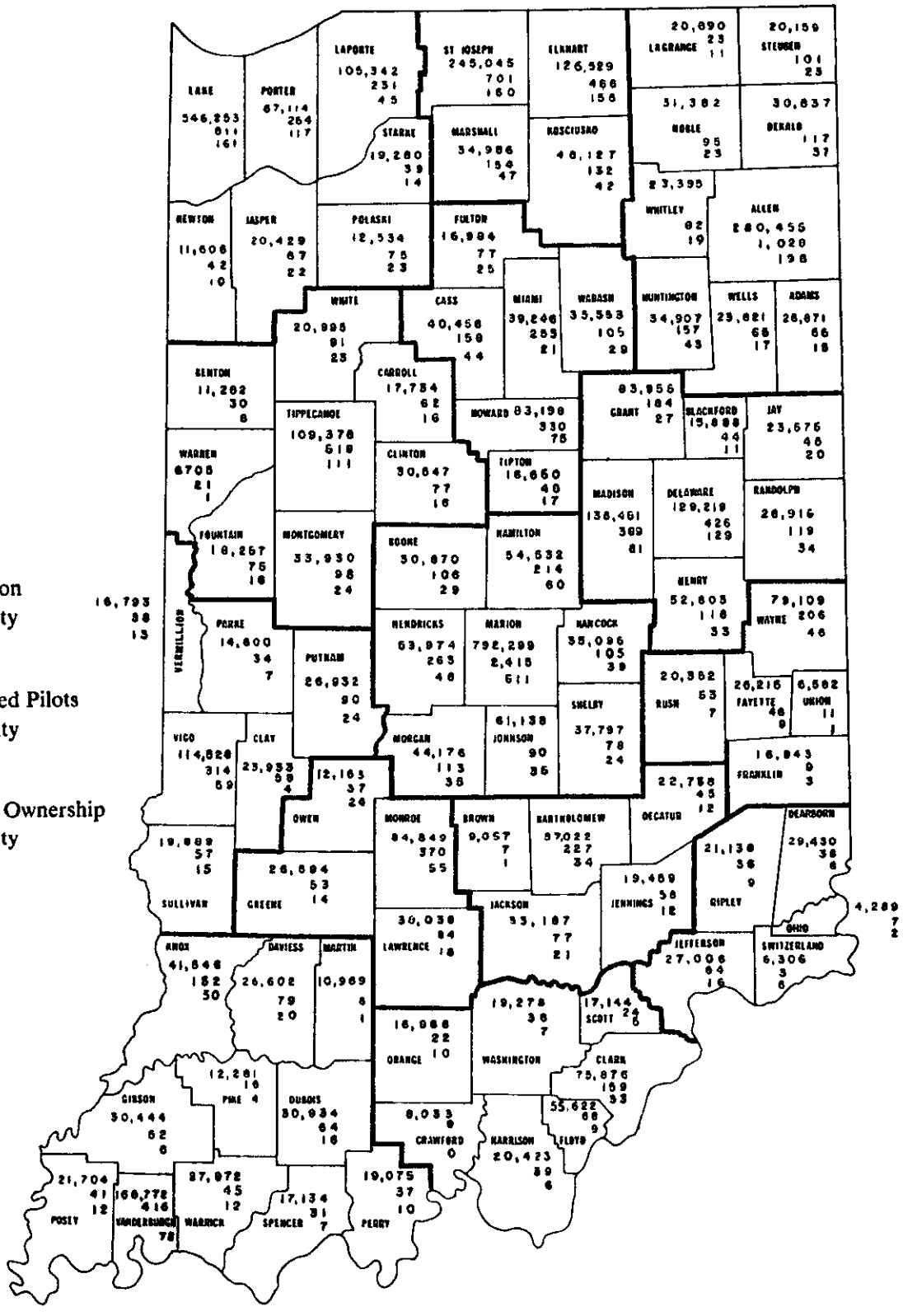
d. Evaluate all data for adequacy and compatibility with criteria needed for development of the State airport system plan.

e. Where data are incomplete and required during the various phases of the analysis of the existing and future system, establish the requisite criteria to obtain the information through the use of the questionnaire survey forms for this purpose, including O&D, typical weather, and other data required for use in airport capacity, and also other information pertinent to analysis and forecasting work elements of the State airport system plan development.

Population
by County

Registered Pilots
by County

Aircraft Ownership
by County



County Aviation Profile

CHAPTER 9.
ANALYSIS OF EXISTING SYSTEM

34. **GENERAL.** An analysis of the existing system is essential in determining State airport development needs. A review and analysis of existing and planned facilities against forecast demand will provide the basis for establishment of the State airport system development plans. Elements of work would include the following tasks.

35. **AIRCRAFT CHARACTERISTICS.** Utilize the aircraft inventory data to summarize the pertinent performance characteristics and capability of selected general and commercial aircraft that are currently using State airports. Include in this summary runway requirements, fuel usage, noise levels, and passenger and cargo loading capabilities. Include in this summary characteristics of military aircraft, such as operations and type of aircraft, insofar as these factors affect the use of airspace near nonmilitary airports.

36. **AIRSPACE UTILIZATION AND NAVAIDS REQUIREMENTS.**

a. Summarize the current utilization of airspace on airway routes by general, commercial, and military use. Include peak use characteristics, airspace restrictions, the time and location of saturation conditions, and the air traffic control facilities and abilities. Enumerate numbers of aircraft in flight as a function of time, altitude, and location, and categorize in terms of type of aircraft, mission, and flight plan. Delineate the airway system in terms of enroute and terminal radio facilities and the procedures necessary to use them. The precision of this summary should be determined by the airspace complexity of the State or regional area. Normally, a high degree of detail airspace planning in the State planning process is not required.

b. Utilize published FAA charts, Airman's Guide, and Jeppsen Charts to derive the airspace requirements. Include IFR approach and departure paths which must be protected. Record and analyze air traffic patterns as required.

c. Establish, as a result of reviewing, the above documents and information, the airspace requirements for the existing airport system, taking into consideration both IFR/VFR airspace requirements.

d. The airport system planner should coordinate airspace utilization studies with appropriate FAA personnel.

e. Using the navaids data developed in the data collection and inventory process, analyze base map and overlays to determine areas and airports that lack adequate navaids and communication facilities. Determine type and general location of navaids required to meet existing aviation requirements.

f. To obtain maximum utilization of existing navaids facilities, careful consideration should be given to establishing new instrument approaches from existing navaids (consult local FAA office for assistance in planning new instrument approaches and detail information on navaids equipment capabilities).

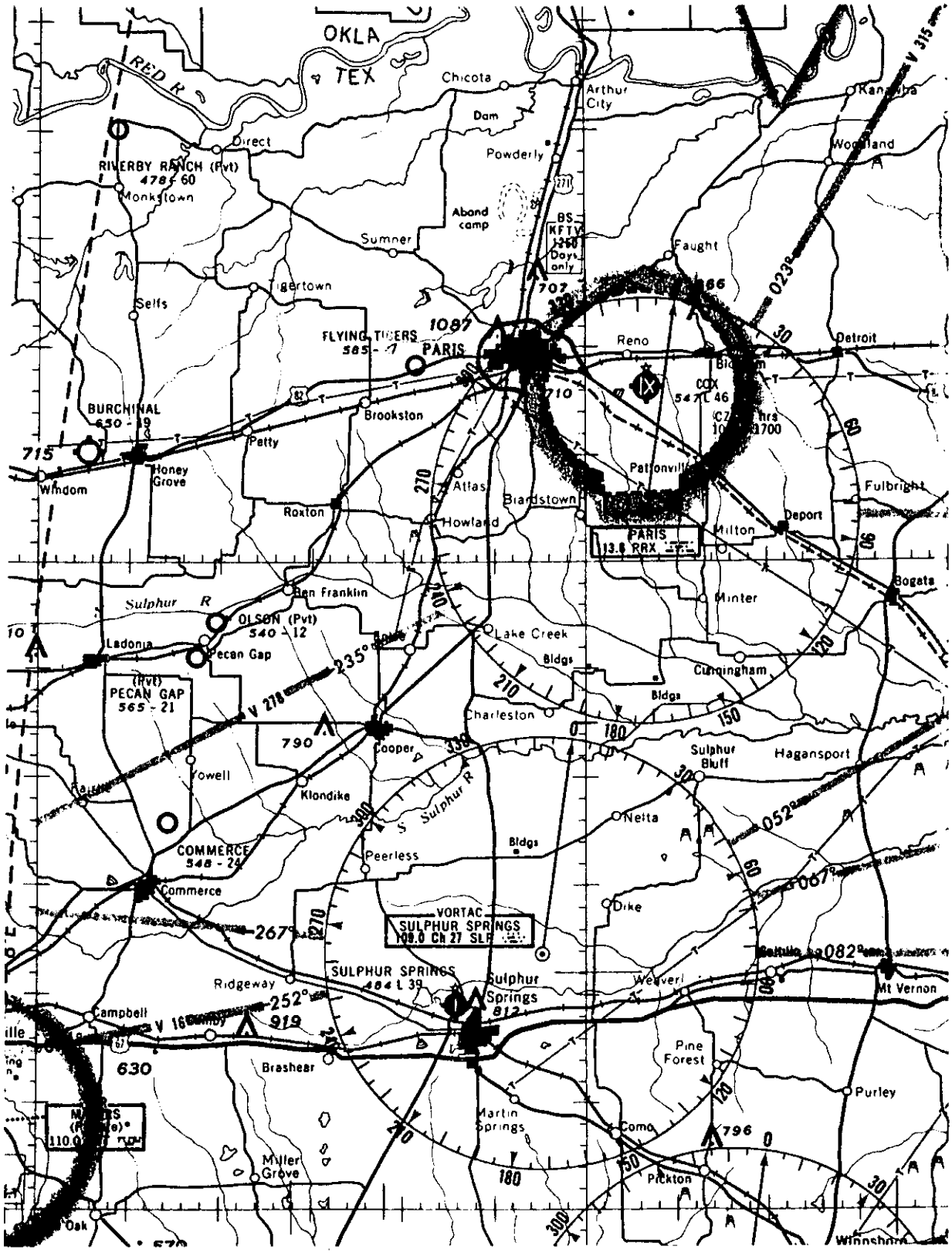
g. Indicate recommended navaids on State map and provide brief narrative justification of recommended navaids.

37. **AIRPORT LOCATIONS AND CHARACTERISTICS.** Analyze the inventory data collected on the physical facilities and characteristics of airports, including their location and the relationship to the type of aircraft handled and the type of navigational aids in use. Compute airport capacity in terms of peak hour and annual movements. Evaluate capacity of airports in relation to airspace, runways, and taxiways for both IFR and VFR conditions. (Many of the smaller airports will not require a detailed capacity analysis due to the small number of existing or forecast operations.)

a. For airports operating above 60 percent capacity, expressed as number of operations per unit of time, provide a delay analysis of aircraft operations if absolutely necessary in making major planning decisions.

b. Review the type of navigational aids, including instrument landing systems in current use.

c. Estimate the capacity of airport terminals, parking facilities, and access facilities at selected airports, and summarize the baggage and cargo handling facilities and maintenance facility locations at the air carrier airports, and identify peaking characteristics of these operations.



Typical map showing geographical distribution of airports.

38. **PHYSICAL ENVIRONMENT.** Use available data to subjectively review the physical environment of selected airports and their geographical service areas in relation to topography, weather, intrusions of surrounding land uses, land use and noise factors, and other pertinent environmental characteristics. Potential environmental problems should be noted. Develop a State map showing environmentally sensitive areas and their relationship to State airports. (Detailed environmental impact statements are not required for State airport system plans prepared under the FAA Planning Grant Program.)

39. **OTHER TRANSPORTATION SYSTEMS.** Review other modes of transportation such as auto, rail, and bus, and subjectively assess the significance of these modes as a determinant in choice of travel.

40. **CURRENT AIR TRANSPORTATION DEMAND.**

a. Identify current general aviation and air carrier travel desire patterns, passenger and cargo loadings, and investigate whether today's system is adequately meeting the demand. Analyze the following categories and characteristics to aid in determining current air transportation demand.

1) General aviation to include number of pilots, O&D of selected passengers and aircraft, numbers and categories of aircraft, numbers of flights, characteristics of the flights, such as business, recreation, and training.
2) Commercial aviation to include numbers of passengers, O&D of passengers and cargo, number of operations, and tons and classification of air freight.
3) Military aviation to include number and types of aircraft, number of flights, characteristics of the flights, and mission priorities, insofar as this information can be ascertained from the military.
4) Planning and economic data related to aviation users, to include population, motor vehicle registrations, economics of the region, and geographical area served by airports.

b. Analyze the demand for air transportation by expressing numbers of passengers, percent occupancy, volume of cargo, aircraft operations, populations, and origins and destinations, in terms of general aviation and commercial air activity. Include military air activity insofar as this demand affects airspace near civilian air activity.

c. Determine the air activity in terms of annual demand, daily distribution during the busiest month, and peak hourly demands for both general and commercial aviation (VFR and IFR).

d. Determine the relationship of current demand for air travel to population and other pertinent economic factors for use in projecting future demand from these same parameters.

e. Analyze O&D data collected and inventoried from secondary information and the O&D sample surveys. Establish travel patterns for the various categories of general and commercial aviation for both passenger and cargo movements. Identify the available ultimate O&D of passengers and cargo, and also the airports of O&D now being used. Utilize this O&D information for depicting trip distributions on a portal-to-portal basis where existing available and derived data permits. Where O&D is inadequate, establish the travel patterns on an airport-to-airport basis so that in the future, as the O&D data are expanded, they can be incorporated in the continuing planning process.

41. **TRAVEL ANALYSIS.** (As required to meet the goals and objectives of the individual States.)

a. If a computer is utilized in analyzing travel patterns, adapt existing computer program packages and their component sub-routines so as to provide the "tools" necessary for handling the statistical data in the analysis of the demand, supply, and needs of the existing system, and also for later use in evaluating demand and supply of the future systems.

b. Delineate the aviation study zones and subzones within the State study area and the external major geographical areas outside the cordon limits of the study area.

c. Identify the different types of aviation trips such as interstate, intrastate, and intra-regional trips, by category of trip to include general aviation and air carrier aircraft.

d. At selected airports establish travel factors such as the usage of the airports by pilots and passengers, by category of air travel, and the corresponding usage for cargo movements at certain airports.

e. Utilize the information gathered and evaluated in order to simulate the travel patterns and O&D of passengers and cargo. Obtain a balanced trip distribution tabulation of aviation trips between zonal pairs, together with an assignment of these trips to the aviation network.

42. **DEMAND VERSUS CAPACITY.**

a. Compare current demand for air transportation

to the capacity of existing systems of airports and identify whether today's airport system is adequately meeting the demand.

b. Identify surpluses and deficiencies in the current airport system.

c. Establish preliminary objectives and criteria for effectively meeting current needs in the system.

d. Relate the current needs with respect to the supply, approximate location, and type of physical facilities, including aspects of general aviation reliever airports, V/STOL requirements, and distribution of airline services.

e. Within the framework of the preliminary objectives, identify and establish the needs for physical facilities, airspace utilization and controls, ground transportation linkages, and environmental controls.

f. Enumerate preliminary findings, conclusions, and recommendations which will be required in the initial review of the current aviation system and subsequently in the formulation of the programming and scheduling aspects of the implementation program.

43. **LAND USE AND NOISE CONSIDERATIONS.** Prepare land use and noise guidelines and report material in order to aid in formulating necessary legislation for land use and noise regulation pursuant to the implementation of the State airport system plan. The following tasks would be accomplished in the performance of this work:

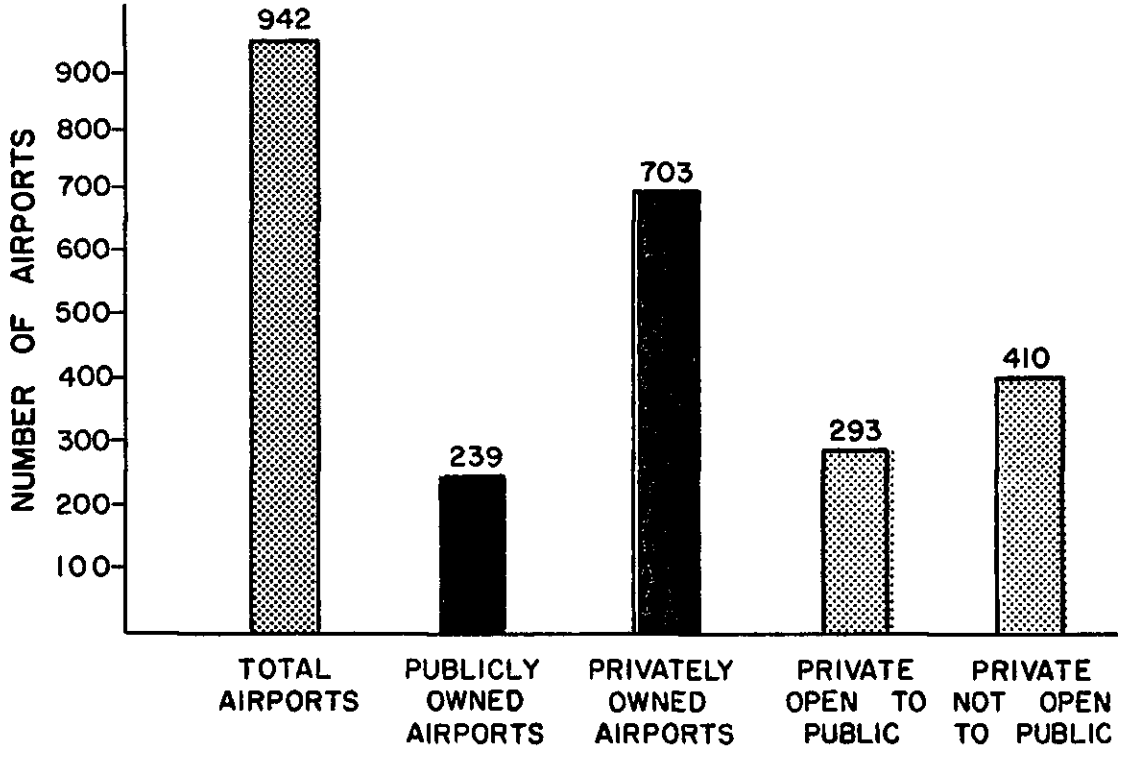
a. Provide summary descriptions of the noise and pertinent aircraft performance characteristics with provision for updating information as more definitive data become available.

b. Develop a brief guide for use in outlining suggested procedures and measures that airports may take to help achieve compatible land use.

c. Orientate the format of the land use control and noise data for later incorporation in the information data bank.

d. Prepare report material for recommendations pursuant to land use and noise regulations and legislation.

e. Prepare report material for use in public information meetings pursuant to land use and noise regulation and legislation.



TEXAS AIRPORT DISTRIBUTION BY OWNERSHIP AND PUBLIC USE

CHAPTER 10.
FORECAST DEMAND AND SYSTEM REQUIREMENTS

44. **GENERAL.** Project future aviation demand and system requirements to horizon year activity levels (5, 10, and 20 years). Determine future air transportation demand for general aviation, air taxi, and air carrier type aviation and provide as one of the alternate system requirements the ultimate capacity of existing physical facilities expanded to their fullest capabilities. Future requirements should be established within the context and format of the travel analysis procedures used for measuring existing system demands and needs. The following paragraphs list major aspects of travel analysis and contain guidelines for the elements of work that should be considered. The forecast work tasks shown in this chapter are not intended to restrict the system planner to a single forecast methodology but should be helpful in determining the best forecast methodology and procedures to use in a particular situation. Additional information on aviation forecasting and some methods for developing these elements of work are presented in the FAA's Advisory Circulars Planning the Metropolitan Airport System (150/5070-5), Airport Master Plans (150/5070-6), and Aviation Demand and Airport Facility Requirement Forecasts for Medium Air Transportation Hubs Through 1980 (January 1969).

45. **FORECAST AIR TRANSPORTATION DEMAND.** Forecast the future air transportation demand for general aviation, air taxi, and air carrier type of aviation for each aviation planning area. See Appendix III for sources of aviation statistics and Appendix IV for sources of socio-economic data. Military aviation demand will be ascertained from the military for use in analyzing future airspace requirements adjacent to civilian airports.

a. Determine the growth relationships of future general aviation, air carrier, air taxi, and air cargo demand based on principal planning and economic determinants, using as a basis similar correlations established for current demand. These determinants would include population, income, employment, gross national product, and other appropriate factors, where adequate future information is available.

b. Develop a set of growth factors of demand for the various aviation planning areas to be applied to the existing origin and destination (O&D) aviation planning area trip ends as input to the analysis process.

c. Explore the demand relationships and suitably weigh the growth factors to take into account travel times, competing transportation modes, and other factors such as operating characteristics of aircraft, improved schedules, and accessibility to airports, where these can be adequately measured.

d. Utilizing this analysis procedure, estimate the growth in air travel demand for passengers and air cargo, and associate this air activity demand with the horizon target years.

e. Calculate the demand for air travel in the various planning areas by major categories of aviation and express the demand in terms of number of passengers, percent occupancy, volume of cargo, aircraft operations and other parameters such as number of general aviation pilots.

f. Determine the demand for air activity in terms of annual demand, daily distribution for the busiest month, and peak hour demand, by different categories of aviation.

g. Using the existing travel patterns and O&D information as a basis, analyze future planning and economic criteria to assess changes in future travel patterns. Use this analysis to modify, as necessary, the future trip distributions.

h. Identify all information required to determine the distribution and assignment of future passenger and cargo air travel demands, including O&D, travel times, travel networks, number of passengers, number of general aviation pilots, and corresponding parameters for cargo movements for periods to which the forecasts apply.

i. Obtain the overall aviation planning area and subarea trip distributions of future demand, and assign these volumes of trips to the future aviation network.

j. Use the derived demand for future air travel to aid in forecasting requirements for physical facilities, including aircraft, airports, airspace, and navaids, and also in the later evaluation of future aviation alternates.

k. Using as a basis the relationships previously established between existing air travel and volume of traffic on the access roads, determine overall similar requirements for future access needs. Use the results of this analysis to calculate capacity limitations for access needs at airports.

l. Estimate the future demand for military aviation in terms of parameters required to analyze the effects on airspace near civilian airports.

46. **FORECAST AIRCRAFT AND CHARACTERISTICS.**

a. Enumerate the types, population, mix, performance characteristics, and capabilities of significant future aircraft which are likely to be in use in the horizon target years.

b. Using the demand results of the travel analysis process, evaluate the usage of general aviation aircraft for air charter, business, and pleasure use, and the usage of air carrier aircraft recognizing future aircraft such as jumbo jets, SST's, stretched jets, airbus, and V/STOL. Consider also, new generation military aircraft insofar as these can be ascertained from the military for their effect on the future airspace utilization near non-military airports.

c. Forecast the use of air taxi and general aviation aircraft by type of operation, business, recreational, and training flights. Investigate such factors as historical trends and Statewide and other developments which may substantially increase certain types of operations, such as increased use of corporate business aircraft.

d. Forecast by type of operation and by aviation planning area the number of general aviation operations, considering such factors as availability of airports in the aviation planning area, economic and population trends, and the history and growth of general aviation operations nationally, Statewide, and regionally.

e. Forecast air carrier operations in terms of magnitude recognizing total number of airline seats required to serve derived passenger projections, future size and mix of aircraft, acceptable occupancy ratios, and other factors. Define volume of operations on an annual, busiest day, and peak hour basis.

f. Forecast air carrier cargo movements, tonnage, and characteristics, recognizing existing and future determined relationships between volume of air cargo and economic indicators, and recognizing growth of air cargo aircraft type and size and average capacity of cargo aircraft. Define volume of movements on an annual, busiest day, and peak hour basis.

47. **FORECAST AIRSPACE UTILIZATION.**

a. Forecast the future airway route system based on the existing system and on possible route expansions and reductions for domestic and international air carriers. This will provide the future airways network for distribution and assignment of trip volumes in the travel analysis process.

b. Using the results of the travel analysis output, forecast and analyze future general aviation, air taxi, and air carrier airspace utilization, including airway routes, peak use characteristics, airspace restrictions, and identify the air traffic control procedures necessary to effectively use the airspace.

c. Identify and analyze specific problem areas in the airspace system. Include in the analysis instrument approach needs, indications of where future IFR demands will be great enough to require improved ATC capability for capacity reasons, future flight capability, aircraft traffic volumes by category, and capacity/delay calculations.

d. Estimate airspace requirements and controls for the future general and commercial airport system, recognizing airspace usage related to IFR/VFR procedures.

e. Examine the future requirements of airspace by military aircraft as to the effect on general and commercial airspace requirements and usage.

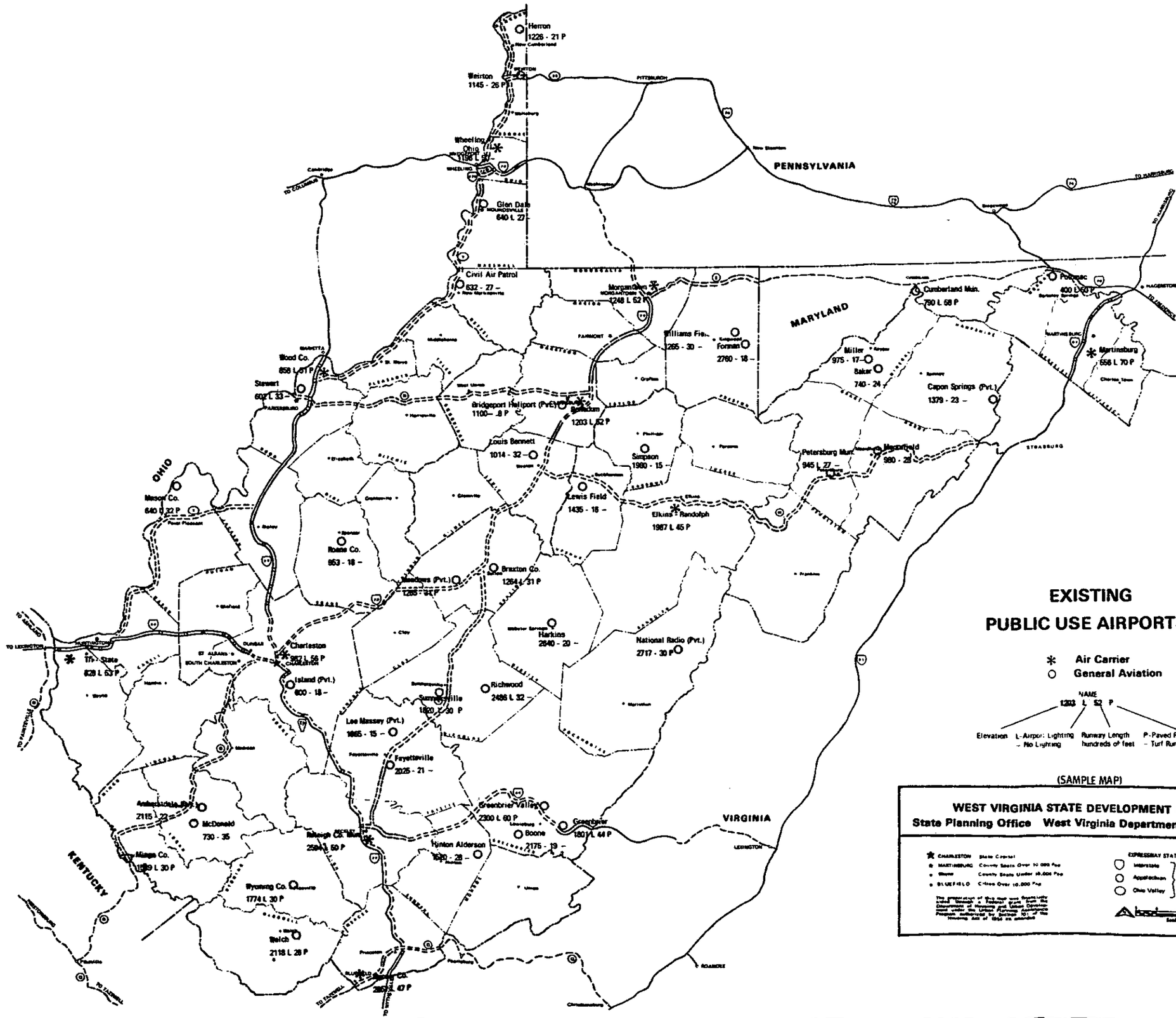
f. See Appendix II, Part 2, for additional information on airspace utilization.

48. **FORECAST AIRPORT LOCATIONS AND CHARACTERISTICS.**

a. Forecast the possible alternate general locations and size of the physical airport facilities and their characteristics necessary to serve the anticipated demand for the future horizon target years.

b. Investigate and forecast known plans for expansion of existing airports and their physical facilities. This information will be used in the evaluation of future aviation alternates to determine the future capacity of the expanded airport system.

49. **FORECAST NAVIGATION AIDS REQUIREMENTS.** Determine general location and type of navaids required to meet the forecasted air transportation demand. This determination of navaids requirements should be an integral part of the overall process of determining airport facilities requirements. Particular attention should be given to locating new general aviation airports so that maximum use of existing navaids can be realized. An analysis of navaids requirements would normally include the following tasks:



EXISTING
PUBLIC USE AIRPORTS

* Air Carrier
○ General Aviation

NAME
1203 L 52 P
Elevation | L-Airport Lighting – No Lighting | Runway Length hundreds of feet | P-Paved Runway – Turf Runway

(SAMPLE MAP)

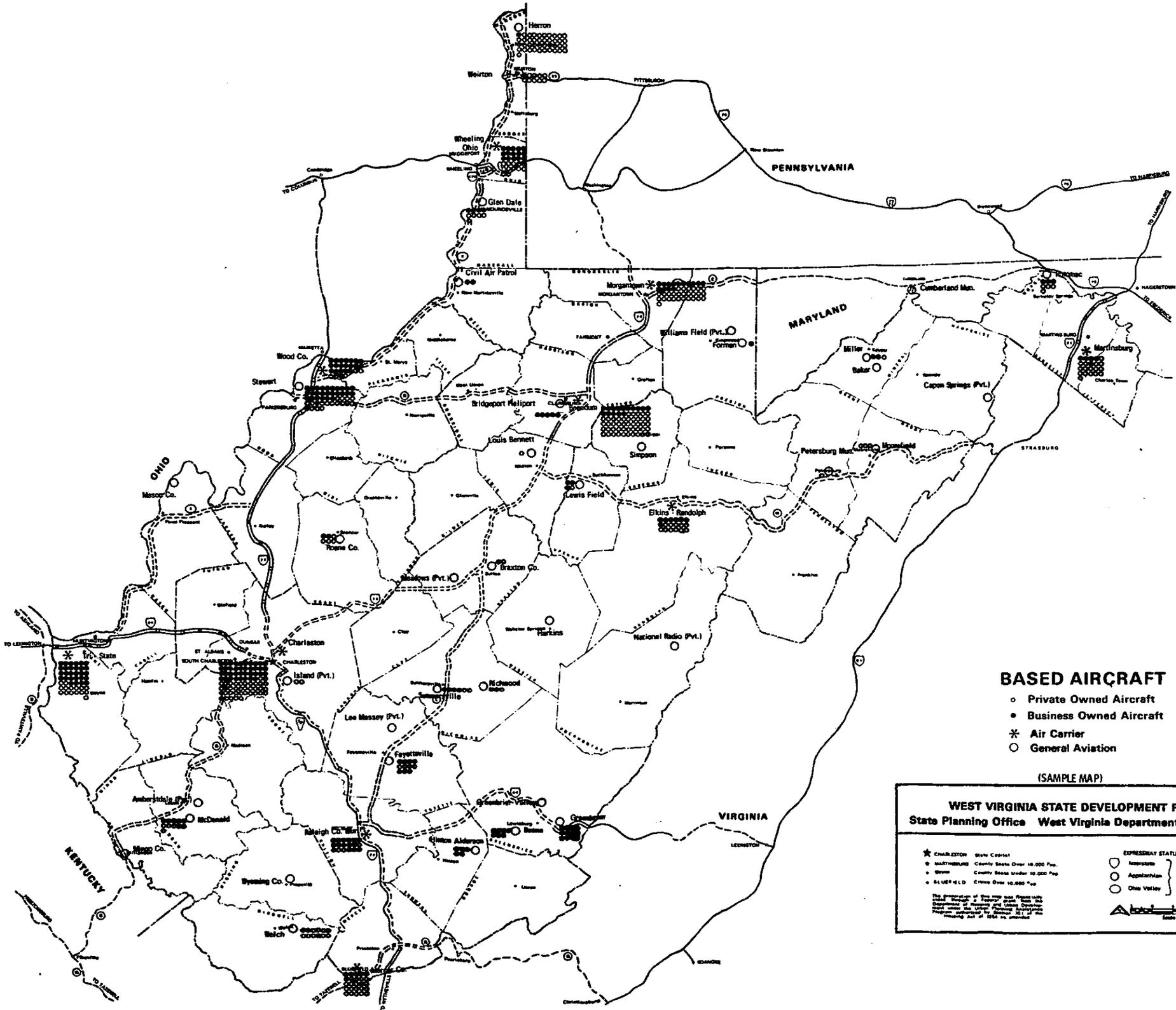
WEST VIRGINIA STATE DEVELOPMENT PLAN
State Planning Office West Virginia Department Of Commerce

★ CHARLESTON State Capital
● MARTINSBURG County Seats Over 10,000 Pop
• Weirton County Seats Under 10,000 Pop
▪ BLUEFIELD Cities Over 10,000 Pop

EXPRESSWAY STATUS January 1988
Interstate
Appalachian
Ohio Valley
Complete-Incomplete
Out of State Expressways Status Shown by Single Line

334-434 O - 68 (Faces blank p. 104) No. 1

334-434 O - 69 (Faces blank p. 104) No. 2



BASED AIRCRAFT

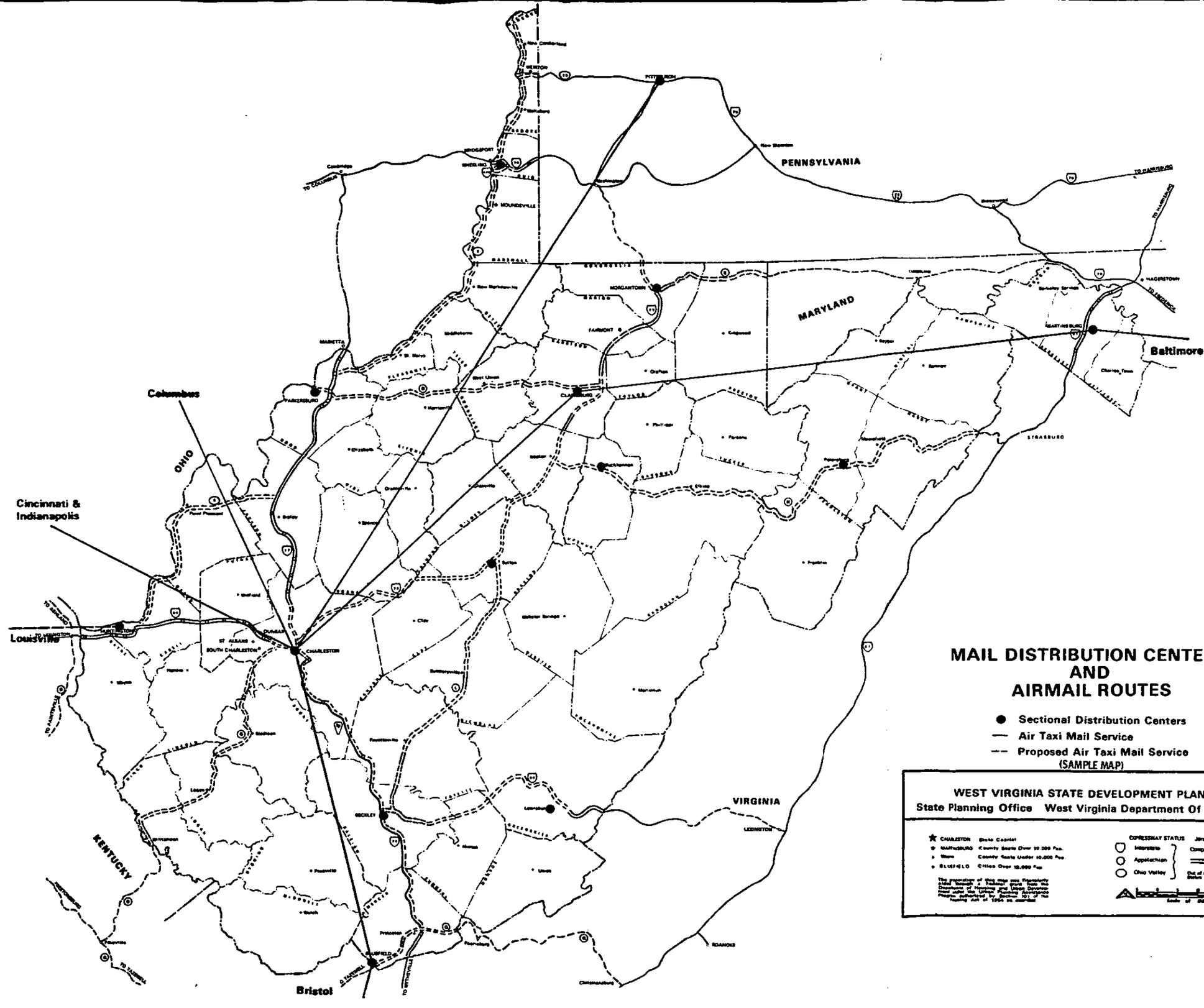
- ○ Private Owned Aircraft
- ● Business Owned Aircraft
- ✳ Air Carrier
- ○ General Aviation

(SAMPLE MAP)

WEST VIRGINIA STATE DEVELOPMENT PLAN
State Planning Office West Virginia Department Of Commerce

★ CHARLESTON State Capital
■ MARTINSBURG County Seats Over 10,000 Pop.
▪ Glenville County Seats Under 10,000 Pop
● BLUEFIELD Cities Over 10,000 Pop

EXPRESSWAY STATUS January 1969
Interstate
Appalachian
Ohio Valley
Complete-Incomplete
Out of State Expressways Shown for Origin-Line



MAIL DISTRIBUTION CENTERS AND AIRMAIL ROUTES

- ● Sectional Distribution Centers
- — Air Taxi Mail Service
- -- Proposed Air Taxi Mail Service

(SAMPLE MAP)

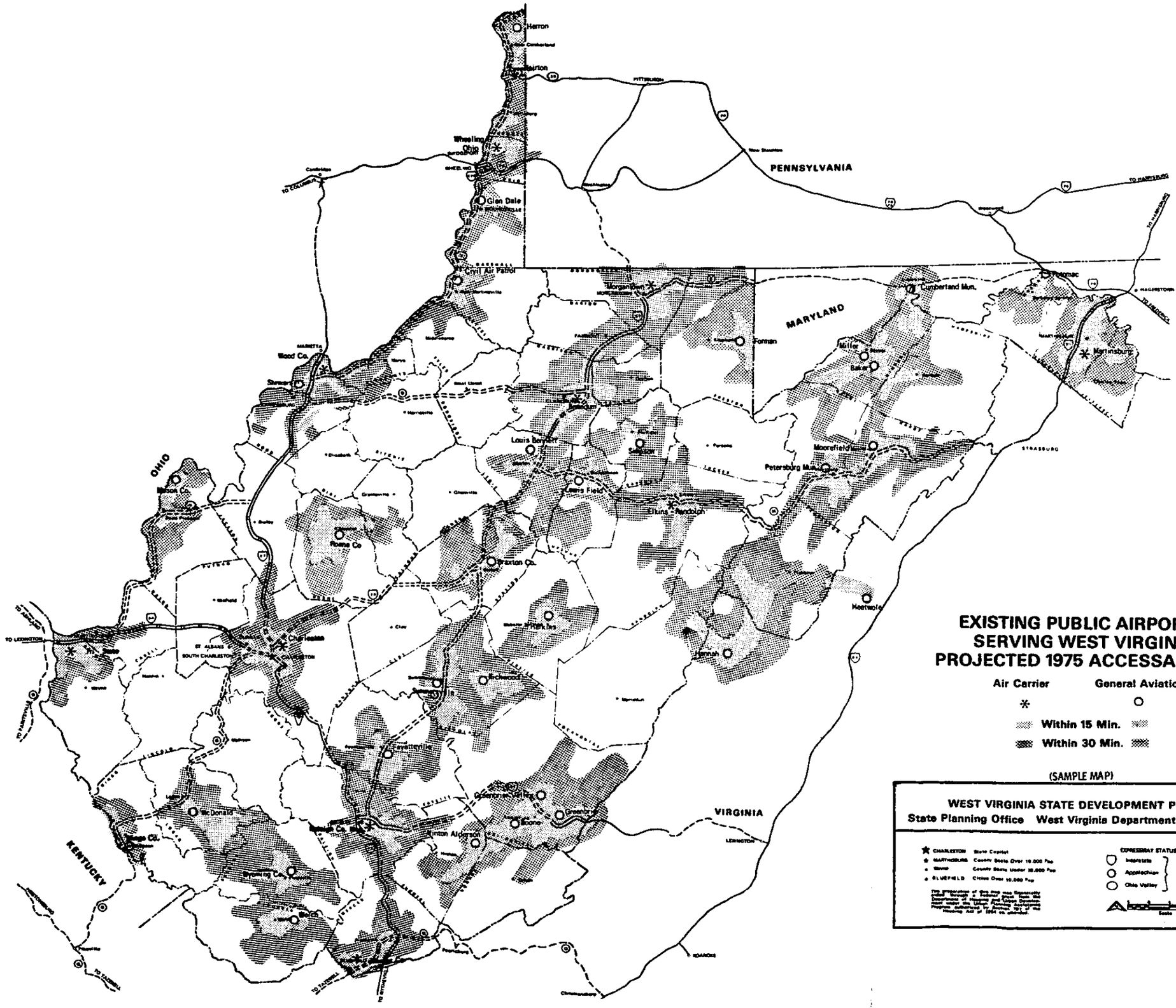
WEST VIRGINIA STATE DEVELOPMENT PLAN
State Planning Office West Virginia Department Of Commerce

★ CHARLESTON State Capital
★ MARTINSBURG County Seats Over 10,000 Pop.
• Ripley County Seats Under 10,000 Pop.
• BLUEFIELD Cities Over 10,000 Pop.

EXPRESSWAY STATUS January 1968
Interstate
Appalachian
Ohio Valley
Complete-Incomplete
Out of State Expressways Marked Miles by Single Line

The preparation of this map was financially aided through a Federal grant from the Department of Housing and Urban Development under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended

334-434 O - 68 (Faces blank p. 104) No. 4



EXISTING PUBLIC AIRPORTS SERVING WEST VIRGINIA PROJECTED 1975 ACCESSABILITY

Air Carrier * General Aviation ○

Within 15 Min.

Within 30 Min.

(SAMPLE MAP)

WEST VIRGINIA STATE DEVELOPMENT PLAN
State Planning Office West Virginia Department Of Commerce

★ CHARLESTON State Capital
☆ MARTINSBURG County Seats Over 10,000 Pop
• Others County Seats Under 10,000 Pop
• BLUEFIELD Cities Over 10,000 Pop

EXPRESSWAY STATUS January 1968
Interstate — Complete-Incomplete
Appalachian — Out of State Expressway
Ohio Valley
Scale of Miles

a. Using the base map and overlays developed in the data collection and inventory process, indicate the proposed new airports, and determine additional navaids required to serve these airports.

b. Using the forecast of aircraft operations, determine navaids required to meet forecasted demand at existing airports.

c. Using the air transportation forecast, develop an air transportation desire diagram for use in analyzing future enroute requirements.

d. Recommend future navaids requirements (graphic and/or matrix form) and give brief narrative justification of each recommendation. (The long range navaids recommendations should give adequate consideration to technological changes in navaids equipment and capabilities.)

50. **LINKAGES TO OTHER TRANSPORTATION SYSTEMS.** Investigate, where appropriate, the potential presence of other future transportation systems and interface facilities to provide access to airport facilities and the alternatives that are available to properly link the major airports with other transportation systems.

51. **ENVIRONMENTAL REQUIREMENTS.** Summarize general considerations of noise, topography, possible encroachment by other land uses, and weather conditions that will have qualifying effects upon the location of new airports.

52. **OTHER TECHNOLOGY.** Review other technologies for their possible impact on the aviation system, including ground transportation systems, communications systems, navigational aids, and new generations of general aviation, air taxi, and air carrier aircraft.

CHAPTER 11.
IDENTIFY FUTURE AVIATION SYSTEMS

53. **GENERAL.** This task addresses itself to the various alternates or configurations which conceivably will meet the projected demands within defined objectives and criteria. Up to this point, the planning effort has been mainly concerned with collecting and generating data. With the possible exception of the O&D survey requirements, the program does not lend itself to incorporating the general public as a participant. This area, however, does afford the opportunity of involving the public, legislators, industry, and others that should be utilized to the fullest for this purpose.

54. **FUTURE SYSTEMS.** Enumerate preliminary objectives and criteria for future aviation systems and identify the best alternates to be evaluated for the adequacy in meeting future needs. The following identifications should be made:

a. Identify the future demands for air travel as a function of air activity levels approximating the horizon target years.

b. Identify the future forecasted supply of physical plant, including aircraft, airspace, navaids, and landing systems.

c. Identify linkages to other transportation systems and environmental factors with respect to the influence of these factors on the demand for air travel.

d. Identify the distribution and configuration of the best alternative Statewide airport systems, including the existing expanded system. Recognize presently proposed Federal, State, regional, and local plans for developing existing and new airports, both general aviation and air carrier served airports, throughout the Statewide system.

Include in the identification, as part of one of the alternative systems, a configuration of airports to serve V/STOL aircraft and a configuration of reliever airports to serve general aviation, including training flight operations. Consider also the possibility of airports to serve SST operations insofar as plans to use SST aircraft are realistic and can be ascertained for evaluation.

CHAPTER 12.
EVALUATE FUTURE AVIATION ALTERNATIVES

55. **GENERAL.** The objective of this work is to evaluate the forecasted future demand, comparing these demands against the best alternative system of physical facilities, and thereby determining the relative feasibility of providing for future aviation needs. Elements of work include:

56. **EXISTING SYSTEM EXPANDED.**

a. Estimate the future capacity level of the existing airport system by calculating the ultimate capacity of the existing supply of physical facilities expanded to their full capabilities. Include the improvement of present runways and turnoffs, adding new runways and turnoffs and the provision of other facilities such as IFR approach aids. Estimate the cost (by major category/airport) for expanded system.

b. Analyze and compare the previously determined air travel demands against the existing expanded configuration of supply to determine overall surpluses and deficiencies in the system for the various horizon target years.

c. Determine the need for additional new airports and/or related parts of the physical aviation system facilities, as measured by deficiencies in the system, including excess demand and excessive origin to airport travel times.

d. Determine the need and effect on the system of closing airports as indicated by a deficiency in demand or functions.

e. Evaluate airspace and navaids needs required by system effectuation. This will include instrument approach needs, indications of where IFR demands will be great enough to require improved ATC capability for capacity reasons, and indications where additional airway aids or capacity is needed. Base the results on airspace analysis in light of future aircraft and traffic volumes, future flight capability, meteorological conditions, and conventional capacity/delay/analysis.

57. **OTHER ALTERNATIVE SYSTEMS.**

a. Establish the best alternative configurations of airports and aviation systems to serve the excess forecasted demand, recognizing environmental requirements and other factors such as competing modes of transportation, ground transportation linkages, and the possible rescheduling of air travel during off-peak periods. Prepare cost estimate of proposed airport development (by major category).

b. Evaluate the forecasted demands against these alternative configurations of airport systems to determine surpluses and deficiencies.

58. **COST EFFECTIVENESS.** Subject the existing expanded system and each of the selected alternate systems to a cost effectiveness evaluation so as to establish the relative feasibility and practicality of the various systems and their components. The depth of this evaluation should be sufficient to achieve the plan's objectives.

a. Develop from the information base and subsequent analysis statistical data for use as input to the cost effectiveness evaluation. Input data to this evaluation would include number of pilots and passengers using selected airports by frequency of use and category of air travel, corresponding parameters for cargo movements at selected airports, and approximate time period to which the above forecasts apply, together with airport characteristics, capital costs, and operating revenues and expenses.

b. Evaluate the relative cost of delay to aircraft operations compared to the effectiveness of providing additional airport capacity.

c. Evaluate the incremental capital cost, operating revenue, expenses, and effectiveness of providing additional airports. Consider in this analysis the effect on the demand at existing airports when new airports are provided to serve the horizon year activity levels.

d. Determine approximate locations for additional airports to handle the excess demand by analyzing the excess volume of air traffic related to travel time to and from given airports.

e. Evaluate the feasibility of providing additional airports or the closing of existing airports by measuring the incremental gain or loss in effectiveness when compared with the incremental increase or decrease in cost.

f. Evaluate total demand flow in and out of selected airports to determine if the total facility is over-utilized or under-utilized.

g. Analyze various horizon year types of demands, such as short haul and long haul, to determine the utilization of specific types of the system and record significant differences.

j. Determine the magnitude of additional airport requirements as indicated by the excess volume of traffic for general and commercial aviation.

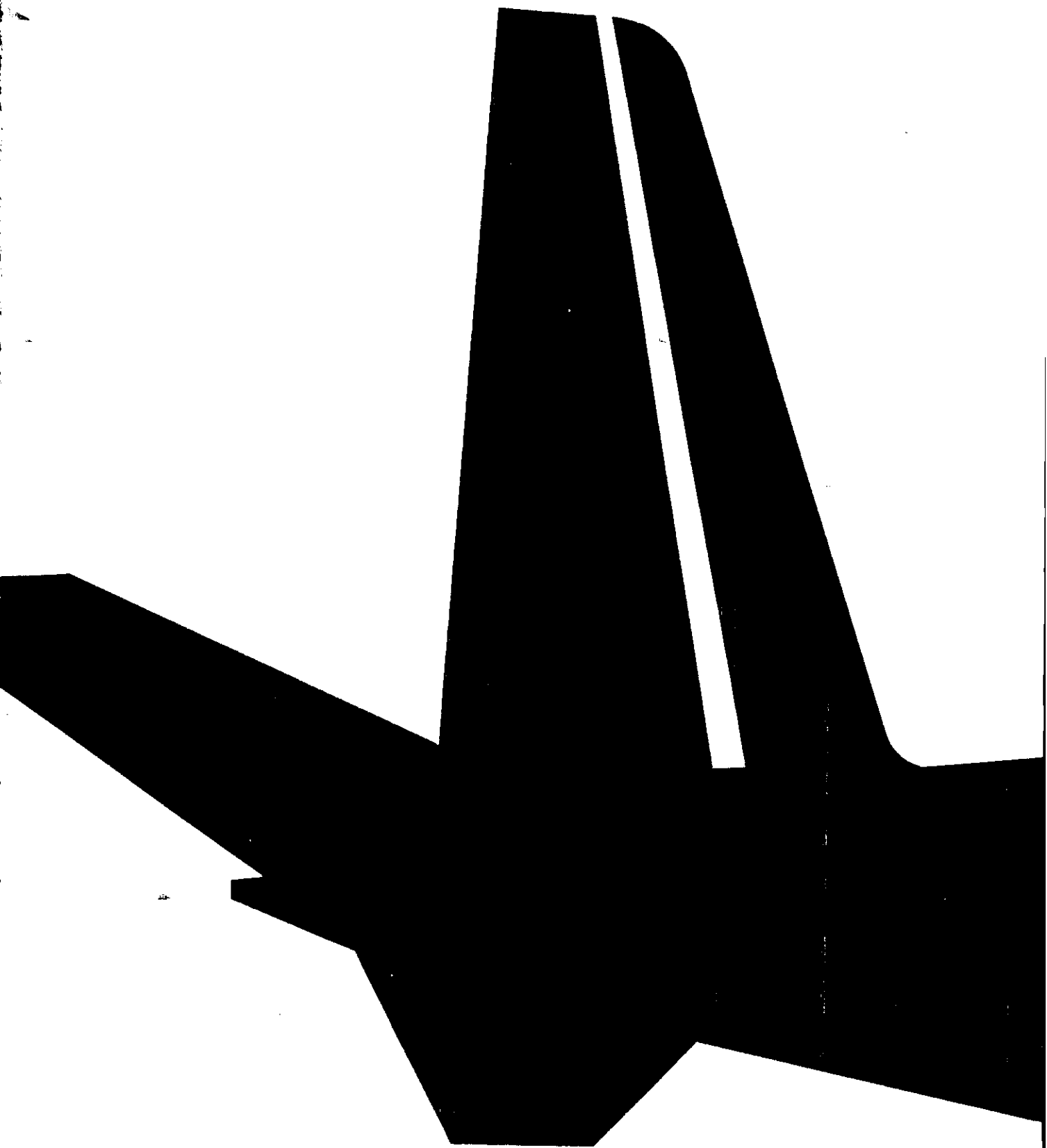
59. **SENSITIVITY ANALYSIS.** On the basis of a subjective evaluation, assess the sensitivity of the location of new airports and the closing of existing airports compared to estimates of forecasted demand and future aircraft characteristics, travel time, airport capacity, and other factors such as airport capital costs, economic effects on property values adjacent to the airports, environmental impact, and rescheduling of aircraft arrivals and departures to off-peak periods.

60. **COST REVENUE ANALYSIS.** Identify, as a result of the cost effectiveness evaluations, the best alternate future system of airports related to forecasted demands for both general and commercial aviation, expressing this system in relation to air activity demand levels for the approximate horizon target years. Subject the best selected alternative supply of airports to a cost revenue analysis.

a. Investigate the financial feasibility of proposed new airports by estimating revenues and costs and determine whether the rate of return is adequate over some future planning horizon.

b. As a result of the cost revenue investigations, evaluate the economics of providing the alternate system of physical facilities and select for formulation that aviation system and its service facilities which meet the objectives and needs of the State.

THE PLANNING PROCESS-SYSTEM IDENTIFICATION



section 4 THE PLANNING PROCESS-SYSTEM IDENTIFICATION

CHAPTER 13. AIRPORT SYSTEM PLAN

61. **GENERAL.** The major work elements of this section formalize the selected airport system, define its components, and describe methods of accomplishing the plan. This includes an optimum configuration of airports, the supporting airspace system and navaids, overall funding requirements for airport development, and the administrative and legislative requirements necessary to attain the best use of funds in relation to the most effective utilization of existing and proposed new airports.

62. **AVIATION PROGRAM.** Accomplish the formalization of the selected airport system including the definition of its components and describe methods of accomplishing the plan. Include the following major elements of work:

a. **Physical Facilities.**

1) Review all previous work in data collection, analysis, forecasting, and evaluation of alternate aviation systems. Incorporate the conclusions resulting from these elements in the formulation of the State airport system plan, outlining recommendations for a configuration or system of airports in the State.
2) Recommend an optimum configuration or system of airports and other physical facilities that will satisfy the demand for air transportation as a Statewide system and within the context of the National Airport System Plan.
3) Describe the number of airports, their general location, capital needs (by major category of development) using typical airport development costs (based on current dollar value), implementation, financing, legislation, and formulate recommendations thereto.
4) Describe the effectiveness and impact of the system plan.
5) Describe the flexibility in the plan and enumerate where adjustments might be made pursuant to changing socio-economic conditions over the time span of the future horizon target years.
6) Describe the plan, as developed in terms of aviation activity related to horizon year time periods, as distinct from absolute time periods.
7) Formulate and construct the plan in such a manner so that future technological changes can be incorporated in the plan as they occur at a future time period.
8) Describe the implications of alternate configurations and components of the system such as V/STOL and reliever airports.
9) Describe the effects of the introduction of new and improved vehicles and systems designed to satisfy specific service needs in terms of generating new demands for air travel.
10) Describe the aviation system that is appropriate and adequate enough to absorb the additional induced demands which experience has shown will be forthcoming as elements of the system are constructed.
11) Describe the number and approximate location of airports, their capacities, and other characteristics pursuant to the system of physical facilities.

b. **Airspace and Navaids.** Describe the airspace requirements and navaids needed to support the State airport system. This description should include graphic representation of new airways, navaids, and airport traffic areas and control zones. The plans should also explain what consideration and assumptions were made with respect to improved air traffic control procedures and services and improved navigational aids such as area navigation based on the VORTAC system.

c. **Financing.**

1) Establish overall funding requirements for airport development including the possible acquisition of privately owned airports by public agencies.
2) Describe the amount and sources of funds currently invested in capital development at airports in the State.
3) Delineate identifiable amounts and sources of capital funds for airport development in terms of those monies contributed by the Federal and State governments and also by use of public bond monies.
4) Describe airport developments of a private nature which have occurred at publicly owned airports where ground leases have been obtained by fixed-based operators and other tenants.
5) Describe the investment sources of funds for airport development drawn from various sources, including Federal and State grants, general obligation and revenue bonds, recreational and park funds, general fund revenues, and airport depreciation reserve accounts.
6) Describe potential new sources of funding for all aviation facilities.

d. **Responsibility.**

1) Describe the proposed diversity in ownership and administration of airports in the State.
2) Describe the administrative and legislative requirements necessary to attain the best use of limited funds in relation to the most effective utilization of existing and proposed new airports.
3) Describe the need for airport integration and coordination of airport functions and enumerate a suitable approach towards organizing airports into an adequate Statewide system.
4) Identify the need for public ownership as a means of protecting airports in the Statewide system.
5) Identify the responsibility for the accomplishment of each planned recommendation, recognizing the approximate location of airports, their construction, operation and maintenance requirements, and the needs of protection, acquisition, financing, and administration.
6) Describe the goals and objectives of the program, the role of the State in aviation planning, and the state's responsibilities in context with the National Airport System Plan and the regional and county airport plans.

63. **PLAN FORMAT.** Following coordination with other interested agencies and the opportunity for general public comment, the comprehensive State airport system plan should be printed and distributed and contain the plans for the location, cost, and timing of all phases of airport system development.

a. **Sample Guide.** The sample guide in Appendix V is a skeleton form outlining only the basic format of each section of the plan. This outline should be expanded to meet the individual needs of each State. A State airport system plan will normally be composed of two volumes.

1) Volume I. State Airport System Plan (Summary Report) would be a summary document of the State plan that would be for public use and normally would be furnished to State legislatures, local political and coordinating bodies, interested individuals, and the FAA. The Summary Report should be concise, avoid highly technical discussions, and be well illustrated. Illustrations should include a plan portrayal showing the locations and general configurations of each existing and new airport in the system for the three time periods and showing the projected land uses and ground transportation systems.
2) Volume II. State Airport System Plan (Technical Supplement) would be a document which includes technical analyses and detailed information regarding the locations in the plan. It would contain historical data, demand forecast, socio-economic data, cost estimates of recommended development (based on current dollar value), and other backup information pertinent to the development of the plan. This volume would be used at State level for continuing interagency coordination, for refinement and updating prior to accomplishment of future plans, for discussion with individual airport owners on implementation actions, for FAA use as required, and any other purpose of the State.

b. **Updating the Plan.** It is recommended that the plan be updated as necessary and re-issued at least every 5 years. Revisions may be made as required to account for important technological and socio-economic changes. If possible, future revisions should utilize national census years for intermediate and long-range planning horizons.

64. **PROGRAM IMPLEMENTATION.** This task should identify critical elements of implementation in terms of financial needs, fund participation, and implementation responsibilities.

Analyze and evaluate the Statewide system in terms of financial needs to meet the projected demands. Optimum course of funding action should be determined by analyzing each of the program parts on the basis of alternate development schedules compared to selected time increments, funding capacity, and financing requirements.

Analyze the benefits to users and non-users to determine justification of the fund participation required of State, Federal, and regional agencies.

Establish a fiscal implementation program, predicated upon defined responsibilities, designed to meet future aviation needs. The program should include recommendations for policy and legislative actions, administrative measures, scheduling and responsibility requirements for program continuity, and the management control functions for overall implementation of the continuing planning function.

a. **Financial Analysis Program.**

1) Establish a financial analysis program (manual or computerized) format for use as an accounting tool to permit financial analysis of the system plan.
2) Establish the format of the program in a form which will be useful to the State as an overall guideline so that as the program proceeds during future years, further evaluations can be made using new fund sources or other inputs in the program; and so that it can be used in conjunction with present procedures for allocation of State funds as an aid in the rating of financing priorities.
3) Develop procedures for analyzing each selected group of airports in terms of expenditures for the following categories: Land acquisition, airport facilities, navigational aids, and other physical plant. Incorporate also as input data, sources and projected amounts of revenue and financing capacity, amount of anticipated Federal participation for eligible items, and the amount, if any, of State participation.
4) Evaluate each selected group of airports or Statewide system of airports in terms of financial needs to meet the projected demand for the horizon target years. Summarize in the form of a tabulation a financial analysis in terms of each flow and funding requirement and the financing deficiencies. Prepare for certain groups of airports tabulations to show funding distribution based on total revenue from local, Federal, and industry sources, and total expenditure for each selected group of airports by counties or regions.
5) Determine an optimum course of funding action by analyzing each of the program parts on the basis of alternative development schedules compared to selected time increments, funding capacity, and financing requirements, and establish the total financial requirement for the Statewide system in relation to the best development and implementation schedule.
6) Analyze the amount of State financial participation involving funds, recognizing the financial needs, the fiscal restraints such as the amounts and sources of State and other revenues, and the amount of Federal monies available for certain specific requirements. Identify the State participation in terms of the State airport system plan and identify the other areas of financial participation needed for fund implementation of the whole program.
7) Investigate priorities of funding requirements for State monies based upon overall Statewide needs and determine whether additional new sources of income to certain airports may be desirable to reduce the demands on the State funds and enumerate the most appropriate sources of these funds.

b. **Fund Participation.**

1) Analyze the benefits to air carriers through the provision of better and more frequent feeder service from outlying general aviation airports and the need for participation by air carriers in the Statewide program of improvements to airports.
2) Analyze the close relationship between air travel and ground travel between airports to determine justification for additional participation by other State and Federal agencies involved in improving access to airports.
3) Determine the fund participation required of State, Federal, and regional agencies as a means of providing for necessary improvements for access to airports.
4) Based upon the financial analysis cost effectiveness attributable to airports, investigate potential revenue sources which appear reasonable, and develop recommendations as a means of initiating their enactment.

c. **Implemention Responsibilities.**

1) Establish a fiscal program predicated upon defined responsibilities, designed to meet future aviation needs. Enumerate principal elements such as reve-

nue, cost, expenditure needs, and program timing based on future aviation activity levels. Recommend appropriate and practical funding patterns including a program of revenues and their allocation and identify procedures and responsibilities for implementation.

2) Identify revenue needs, timing, and sources for planned recommendations that are determined to be a State responsibility. Establish a capital cost budget for meeting state responsibilities, recognizing programmed timing of accomplishments.
3) Enumerate recommendations for implementation of the physical and policy elements of the State airports system plan. Include recommendations for policy and legislative actions, administrative measures, scheduling and responsibility requirements for program continuity, and the management control functions for overall implementation of the continuing planning function.

CHAPTER 14.
INFORMATION DATA BANK
(Manual or Computerized)

65. **GENERAL.** Assemble the data in a form so as to permit reasonably rapid handling and retrieval of necessary data and in a form that will permit updating on a selected element basis. If a computer is to be used, develop the information data bank utilizing appropriate computer language and process so as to assure compatibility both now and in the future. The data bank should be designed to accommodate the independent data requirements of the different planning areas. The format and method of receipt of the data should be coordinated with other State agencies and regional agencies as needed. If possible, the data supplied by the regional agencies should be in a format suitable for direct inclusion in the State's data bank.

It is recognized that many States do not currently need nor desire a computerized information data bank; therefore, those States that desire to develop a manual information system should do so. The need for an automated airport information system should be determined on an individual basis.

a. As a first step, assemble all the collected and inventoried data in the various categories, identify the State computer facilities to be used later in the continuous planning process, and formulate methodology for receipt, updating, and retrieval of data information.

b. Establish data bank categories of the data on an area index basis to include:

1) Physical facilities file – to provide information relating to existing airports and their physical facilities.
2) Demographic file – to provide planning and economic information to include statistical data on population, employment, and income.
3) Financial file – to provide financial information with respect to airport costs and revenues.
4) Travel file – to provide information relating to travel patterns.

c. Establish the relative size of the data bank so as to determine the proper selection of the mode of storage.

d. Develop the design of the data bank and organize the data files in such a way so as to permit recall of the data on various geographic levels with the aviation areas as the primary base. Include in the design of the data bank the file formats, input procedures, editing and error procedures, updating procedures, sort criteria, and general manipulation procedures and data output formats as appropriate.

e. Obtain, classify, and code the physical socio-economic and locational data of the study area. Prepare the specific data related to the whole aviation program, including airport facilities, aircraft characteristics, planning and economic data, and O&D data for inputing into the data bank.

f. Design the information retrieval and output module of the data bank so as to provide computer printouts of the stored data.

g. Provide a complete listing of the stored data bank information in the form of tabulation printouts from the physical facilities file, the demographic file, the financial file, and the travel file.

h. Describe the process required to incorporate data obtained from other sampling surveys which might be conducted in the future by State agencies which would be desirable input into the data bank. Such surveys could include:

1) Aircraft movement at airports without towers from which itinerant flight patterns may be derived from the number of based aircraft.
2) Noise sampling at airports with respect to certain aircraft types for which no extensive data and analysis are presently available.
3) Relationship of noise and land use control.

CHAPTER 15.
THE CONTINUING PLANNING PROCESS

66. **GENERAL.** A continuing airport system planning process is necessary in order to respond to the air transportation needs of the State in a changing environment. Changes in State policies, inability to implement some elements in the original plan, advances in aviation technology, and revisions to comprehensive and surface transportation plans must be accounted for in the airports system planning process. Current, valid data concerning land use, travel, and transportation facilities must be maintained as well as a continuing validation of demand forecasts, airport operation and utilization, environmental impact, and financial capabilities. A continuing reappraisal of the organizational structure and its effectiveness in carrying out the continuing planning function may also be appropriate.

The essential ingredients of the continuing airport system planning process are surveillance, reappraisal, service, and a periodic report.

67. **SURVEILLANCE.** The maintenance of aviation demand, land use and environmental impact data, airport system, and surface transportation system characteristics on a current basis is necessary; (1) to properly compare and evaluate the existing conditions in relation to the forecasts made in developing the recommended plans and programs; and (2) to determine if the assumptions made previously are holding over time. Current estimates of changes in other State characteristics such as population, employment, or other socio-economic factors are required. A most important ingredient of the surveillance program is the maintenance of information concerning the progress of airport development projects and how the complete projects are affecting demand characteristics and other airport-related elements.

Direct indications of traffic growth can be determined from the airport operators, the FAA, and CAB through their annual statistical publications.

Changes in land development policy should be identified in the detail necessary to evaluate their effect upon the future plans. These changes could be identified by recording new zoning ordinances, approved changes in existing ordinances, major zoning variances, new utility installations, transportation improvement projects, flood control, land reclamation projects, etc.

Other actions taken by local, State, and Federal governments, and major private developers, should be identified so that their effect can also be evaluated. These actions could include the approval of urban renewal projects, public housing, major subdivisions or industrial parks, water and sewer programs, open space, transit grants, and the action of local jurisdictions on the adoption of the plan. The surveillance program should be conducted annually or semi-annually as each individual situation may dictate.

68. **RE-APPRAISAL.** Re-appraisal is the systematic sequence of activities directed at maintaining the planning process as a valid and effective program.

The surveillance program should provide information on major changes of specific elements and signal the need for re-appraisal of the current plan in light of the changes. In any event, a re-appraisal of the plan would be indicated at least every 5 years. At that time, the forecast period should be pushed forward by 5 years.

The re-appraisal, or plan re-evaluation, should consider all the elements of the original planning process, including a reconsideration of State policy objectives, the planning organization itself, and a restudy of the financial resources and the development priorities. Also of importance will be an examination and updating of the technical procedures being used in light of the continually evolving transportation and comprehensive planning technology.

Should a major revision of the plan be indicated from the results of the re-appraisal, a new plan, following essentially the same steps as were used in developing the original plan, should be developed and adopted.

69. **SERVICE.** One of the main objectives of the continuing airport system planning process is the development of the capability to provide needed planning data and assistance to those responsible for

plan implementation. The output derived from the planning forecasts and analyses has limited value until applied to the decision-making process. The service function should not be limited to the study participants; it should also include the other public and private sectors involved in State development and implementation programs.

Such services might include: supplying current and forecast socio-economic, land use, and traffic data; preparation and updating of maps; publicizing study recommendations; detailed analysis of various elements of the recommended plan; assistance in the development of State and Federal needs estimates; assistance to operating agencies responsible for implementing various proposals; and evaluation of alternative development plans that may be proposed from time to time. The true effectiveness of the planning process will ultimately be measured by the extent of its contribution to proper project selection and design.

70. **PERIODIC REPORT.** The continuing airport system planning process should not be limited to technicians and to technical and policy committee members. The entire process should be given exposure to demonstrate that the process is truly taking place and also to justify to the local citizens the continual expenditure of public funds.

The report, prepared to coincide with completion of a surveillance program, should include a quantitative summary of all surveillance items and, more importantly, should summarize the degree to which the process has been successful. This can be accomplished through several analyses. First, what has been the progress in implementing the recommended airport system plan? Is land development occurring in a pattern that is consistent with the land use plan? The answers to these questions will lead to a re-examination of the total comprehensive planning and also of the steps taken to implement these plans.

In order to help coordinate private development with the construction of airport improvements, it is suggested that consideration be given to using the periodic report as a means of publishing results of the revised plan.

APPENDICES

APPENDIX I
FINANCIAL AND RELATED POWERS OF SELECTED STATES[1]

[1] A Survey Report of State Airport Organizational and Legislative Structures, The American Academy of Transportation, June 11, 1971. (408-A Huron Towers, Ann Arbor, Michigan 48105)

FINANCIAL AND RELATED POWERS OF SELECTED STATES

This section presents summaries of certain specific types of financial powers provided for in-State aeronautics and airport legislation. The primary emphasis throughout is upon directly legislated powers, as differentiated from potential powers granted through permissive legislation, but necessitating the substantiation of referendum approval. Emphasis here is also upon those legislated powers directly delegated to municipalities for airport development at that level.

With these dual purposes noted, the following discussion classifies selected State legislation into several categories. The specific categories presented in this section are:

1. State bonds for aeronautics development.
2. Municipal bonds for aeronautics development.
3. Municipal short-term notes for aeronautics development.
4. Municipal property taxation for aeronautics development.
5. State aviation fuel taxes channeled to municipal airports.
6. State taxes on commercial aircraft.
7. State enplaned passenger fees.
8. Eminent domain powers for aeronautics development.

State Bonds for Aeronautics Development

1. *Alaska* – With airport development and administration being highly centralized at the State level, Alaska has legislated significant financial power for airport funding. State airport revenue bonds may be issued for financing airport acquisition, construction, and improvement. Terminal buildings are included as an eligible expenditure. These revenue bonds are limited to bearing 8 percent annual interest. The 1970 total issue amounted to nearly $20 million.

2. *Kentucky* – The State may issue airport revenue bonds when approved by the Governor. Such bonds are limited to a maximum maturity of 25 years and an annual interest rate not to exceed 6 percent.

3. *Minnesota* – The State may issue airport bonds, termed "Minnesota Metropolitan Airports Certificates of Indebtedness," when so requested by the Governor. The limit on such bond issues outstanding is set at $1 million. These proceeds are to be used as financial assistance to municipal airports which are a part of the approved State airport plan.

4. *Ohio* – The State may issue aeronautics bonds, the proceeds of which are distributed to county airport authorities in grants of a fixed and equal amount, subject to referendum approval.

5. *Virginia* – State airport revenue bonds may be issued by the State-level agency, the Virginia Airports Authority. The bonds are limited to a maximum 40-year maturity and annual interest of 6 percent.

Municipal Bonds for Aeronautics Development

Many States have provided for municipal airport financing through bond issues. Most, however, have restricted such financial power through the necessity of referendum approval. Those States listed below have legislation directly authorizing municipal airport bond issues, without the necessity of such local referendum.

1. *Illinois* – County airport authorities in counties under 500,000 population are authorized to issue general obligation bonds up to a limit of 1 percent of the total assessed value of all taxable property within the county. Revenue bonds are also authorized for such county authorities up to 2 percent of the total assessed property value. Municipal airport authorities may issue airport revenue bonds up to 5 percent of the total assessed value within the municipality.

2. *Indiana* – Municipalities may issue general obligation bonds of up to 5 percent of their total assessed property value for airport development.

3. *Minnesota* – Significant bonding powers are legislated to metropolitan airport commissions, the latter being composed of two contiguous first-class cities. This special purpose legislation allows such an airport authority to issue general obligation bonds

with the full faith and credit of the cities pledged of up to $125 million outstanding. Such bonds are to carry 3- to 30-year maturities and a maximum annual interest rate of 5 percent.

4. *Nebraska* – Both city airport authorities and county airport authorities are authorized to issue general obligation bonds. The frequency, price, and total amount of such bond issues are to be determined at the discretion of the authority board, presumably without referendum.

5. *Nevada* – Municipal airport authorities may issue revenue bonds without referendum approval.

6. *New Mexico* – Municipal airports are authorized to issue revenue bonds without referendum approval. Such airport revenue bonds are limited to bearing 6 percent interest per annum.

7. *North Dakota* – Municipal airport authorities are permitted to issue revenue bonds bearing up to 7 percent annual interest and restricted in total only by the statutory debt limitations of the municipality.

8. *Ohio* – Regional airport authorities, composed of one or more counties may issue revenue bonds without referendum. Such bonds are to be limited to 6 percent annual interest.

Municipal Short-term Notes for Aeronautics Development

1. *Massachusetts* – All municipal authorities are permitted to issue 2-year notes in anticipation of a State or Federal assistance grant.

2. *Michigan* – Community airport authorities, composed of two or more municipalities, may issue notes of 1-year maturity at up to 6 percent interest, for meeting current operating and maintenance expenses.

3. *Nebraska* – Both city and county airport authorities are permitted to issue "bond anticipation notes" of up to 30 months' duration and 7 percent interest per annum. The total amount of such notes is not to exceed the total of the authority's outstanding bonds.

Municipal Property Taxation for Aeronautics Development

While many States have legislation permitting municipal tax levies for airport development, the emphasis in this section is upon those states whose legislation directly authorizes such tax levies without referendum approval.

1. *California* – Airport district boards are authorized to levy an annual property tax of up to 2 mills. County and city airport authorities may levy up to 3 mills.

2. *Florida* – Special purpose legislation authorizes the Hillsborough County Aviation Authority to levy up to 1.5 mills annually. The comprehensive Jacksonville Port Authority may levy tax funds to a total of $800,000 annually, exclusive of those necessary for bond principal and interest.

3. *Illinois* – Airport authorities of counties having less than 500,000 population may annually levy up to 2 mills for general purposes and up to 1.5 mill for the payment of bond principal and interest. All municipal airport authorities may levy up to 0.75 mill, exclusive of funds for bond repayment.

4. *Indiana* – Municipal airport authorities may levy up to 0.1 mill annually.

5. *Iowa* – Joint airport authorities may annually levy 1 mill.

6. *Michigan* – Community airport authorities, composed of 2 or more municipalities, may levy up to 0.3 mill annually.

7. *Minnesota* – A metropolitan airport commission of 2 contiguous first-class cities may annually levy up to 1 mill for general purposes and any necessary amount for payment of bond principal and interest.

8. *Montana* – Municipal airport commissions are authorized to levy up to 2 mills annually.

9. *Nebraska* – City and county airport authorities are both authorized to levy up to 1 mill annually. Joint authorities may pool their levying powers.

10. *North Dakota* – Municipal airport authorities may annually levy up to 4 mills for general purposes. Additional levies are authorized for any deficit occurring in airport bond principal and interest payment.

11. *South Dakota* – A city airport authority may annually levy up to 2 mills.

State Aviation Fuel Taxes Channeled to Municipal Airports

A large majority of the States impose a tax on aviation fuel. The administration and disposition of such funds, however, vary widely. In some States the entire amount collected is refundable, while in others there is no direct benefit to aeronautics development. The several States noted below have been selected for emphasis because the proceeds or their aviation fuel taxes are directly channeled to municipal airport development, rather than being totally accumulated at the State level.

1. *Alaska* -- The proceeds of the State's tax on aviation fuels are allocated on the basis of 40 percent going to the State aviation fund and 60 percent remaining at the airport where the tax is collected.

2. *Arkansas* – The State imposes a tax on all aviation fuel at 3 percent of sales. The proceeds are distributed to the municipalities for airport construction.

3. *Nevada* – The proceeds of the State aviation fuel tax are allocated to the county's airport funds on a proportionate basis of fuel sales and consumption.

4. *New Hampshire* – The proceeds of the State's 4 cents per gallon aviation fuel tax are distributed to those municipalities having aeronautics funds on the basis of proportionate sales volume.

5. *Pennsylvania* – Aviation fuel tax proceeds may be used by the State for extending financial assistance directly to municipal airport authorities.

6. *Utah* – 75 percent of the total proceeds of the State's 4 cents per gallon aviation fuel tax is allocated to municipalities on the basis of the origin of the tax collections and the comparative consumption of aviation fuel.

7. *Wyoming* – The unrefunded portions of the State's 4 cents per gallon aviation fuel tax are returned to the municipal airports at which the taxes are collected.

State Taxes on Commercial Aircraft

1. *Montana* – The State levies an annual tax on "airline flight property" which is based on the proportion of total time, tonnage, and revenue ton-miles accounted for within the State, as well as on the number of arrivals and departures. The proceeds of this tax are allocated to the municipalities based on the relative proportions of operations occurring within the State's municipalities.

2. *New York* – The State levies an annual tax on commercial air carriers based on the percentage of total operations carried on within the State.

3. *South Dakota* – There is an annual tax on airline flight property levied by the State. The proceeds of the tax are allocated to municipal airports having commerical service on the basis of 25 percent equally distributed and 75 percent allocated on the basis of proportionate usage.

4. *Wisconsin* – The State levies an annual tax on all air carrier (flight) property.

State Enplaned Passenger Fees

1. *New Hampshire* – All commercial air carriers using any airport financed wholly or partially through State funds are required to collect and pay to the State aeronautics fund the sum of $1 per passenger.

2. *Ohio* – The State collects 4 percent of the gross sales of commercial air carriers made within the State.

3. *Oklahoma* – The State levies a 3 percent sales tax on all airline tickets sold within the State.

4. *Virginia* – State legislation authorizes the collection of an "enplaning service fee" of $1 per passenger.

Eminent Domain Powers for Aeronautics Development

Nearly every State authorizes its municipalities to exercise powers of condemnation in order to acquire property for public airport development. The emphasis in this section is upon those States which provide for municipal condemnation beyond the legal boundaries of the municipality and upon one apparently unique instance in which eminent domain powers are extended to commercial air carriers.

1. *Florida* – Commercial air carriers are granted the power to condemn private property for the construction of airports and terminal facilities as long as the carrier takes full ownership of all rights to the property and not just a "particular right or estate."

2. *Kansas* – A city may exercise its condemnation powers beyond its municipal boundaries for airport development.

3. *Georgia* – Any municipality may condemn property outside its territorial boundaries for the establishment or enlargement of its airports.

4. *Michigan* – Under certain conditions, a municipality may exercise its eminent domain powers outside its own county's boundary.

APPENDIX II
DATA COLLECTION AND INVENTORY

Part 1. General Data and Inventory
Part 2. Airspace

APPENDIX II

Part 1. General Data and Inventory

Once the goals and objectives of the State airport system planning effort are fairly well established, the planner should determine the information needed to achieve the desired objectives. After the planner has established what information is required, he must determine what data will best provide the needed information. Typical airport data elements and variables which might be used in developing an airport system plan are shown in Table A-1. It is suggested that the planner review Table A-1 for the purpose of determining the specific data needed for his particular study and then develop a series of data sheets that can be used in collecting the desired data.

It should be noted that the same information might be obtained from different data. The planner should thoroughly investigate the different sources of aviation data and the cost associated with collecting such data before firmly committing himself to the collection of selected data. Maximum utilization of the data and information obtained from FAA Form 5010-1 (sample form shown in Figure II-1) should be made. The planner should also carefully review other recent plans for determining what existing data could be used in the airport planning effort. Figures II-2 through II-12 show typical methods of illustrating selected airport planning data. Figures II-13, II-14, II-15, and II-16 show typical graphic data that may be used in airport system planning.

The airport system planner should indicate the level of accuracy required in the data collection process. It is likely that the level of accuracy will vary with the type of data collected. An example of this might be a State needing to know within ± 5 percent the number of aircraft operations at large- and medium-hub airports, ± 10 percent for the small hubs, and ± 20 percent for the other selected airports (the percentage figures should not be taken as typical).

FORM APPROVED. BUDGET BUREAU NO. 04-R0061

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

FAA AIRPORT MASTER RECORD

2 ADVISE FSS OF CHANGES PRECEDED BY A DOT • | DATE OF PRINT 10/29/70 | 1 SITE NUMBER 62120 1
3 FOREIGN EXCHANGE-NO TOLL NO. OR AREA CODE NO. | 5 REGION & AREA EA BOS
INTERPHONE BETWEEN FSS & AIRPORT | 4 FSS ON AIRPORT | 6 ARPT OPEN TO PUBLIC Y | 7 ARPT LOCATION ID

8 ASSOCIATED CITY	ANY CITY	9 STATE MASS	21 DSTC & DRCTN TO ARPT FM ASSOCD CITY 10S	22 NAP/FEDERAL AGREEMENTS NX	
10 OFFICIAL AIRPORT NAME	ANY CITY MUNICIPAL		23 ARPT LAT. 45° 22' 33" N	24 LONG. 127° 02' 33" W SRVD	25 ARP Y 26 ELEVATION 485
11 NEAREST CITY	ANY CITY	12 STATE MASS	27 HUB TYPE S	28 MAGNETIC VARIATION 1400 W	29 NORMAL MAX. TEMP. 78
13 COUNTY (Arpt located in)	BARNSTABLE	14 STATE MASS	30 RESERVED	31 SMSA	32 AERONAUTICAL CHART
15 OWNER: NAME	ANY CITY AIRPORT AUTH	16 ADDRESS 5010 AIRPORT ROAD, ANY CITY, MASS 02020			17 OWNERSHIP CLASS PU
18 MANAGER: NAME	A.B. SMITH	19 ADDRESS			20 PHONE 123-456-1234

33 RUNWAY	34 PHYS LENGTH	35 WIDTH	36 SURFACE COMPOSITION	FAA GROSS WT. STRENGTH (1000 lbs) 37 SNGL WHL	38 DUAL WHL	39 DUAL TAND	40 % EFF GRADIENT	41 % WIND COVERAGE	42 MARKING TYPE-CONDITION	43 CL LGTS	RUNWAY LGTS 44 TYPE	45 INTST
5/23	6010	75	ASPH	100	120	200	1.41	85.0	ALL WEA-G	Y	L802	H

71 STANDARD TIME ZONE | 72 DAYLIGHT SAVING TIME Y
73 RNWY LGT OPER SKED DUSK-2330 | 74 AIRPORT ATTENDANCE SCHEDULE

	MONTHS	DAYS	HOURS
75 ARPT BEACON LGT C-G			
76 OPERATING SCHEDULE DUSK-DAWN	ALL	TUE-SUN	0700-2330

77 LANDING FEES FOR NON-COMMERCIAL USERS Y | 81 TAXIWAY LIGHTS N
78 STATE LICENSING CLASSIFICATION | 82 WIND INDICATOR Y
79 CUSTOMS AIRPORT OF ENTRY N | 83 SEGMENTED CIRCLE Y
80 CUSTOMS LANDING RIGHTS AIRPORT N | 84 AC 150/5210-6 INDEX B
85 FIRE & RESCUE EQPMT AS SUGGESTED BY AC 150/5210-6A Y | IF NOT:
86 GAL WATER & LBS CHEMICAL AGENT AVBL
87 EMERG MED FACILITIES AS SUGGESTED BY AC150/5210-2 Y
88 SNOW REMOVAL PLAN Y | 112 NUMBER OF FIXED BASE OPERATORS 4
89 OPERATIONS AREA SWEPT | 113 TYPES OF FIXED BASE OPERATORS
90 WRECKAGE REMOVAL PLAN Y
91 EMERG READINESS PLAN Y | INSTR/SALES/CHARTER
92 DESIGNATED CD SHELTER N
93 HELIPAD ON AIRPORT N | 114 FUEL AVAILABLE FOR PUBLIC SALE

TYPE	UNDERGROUND (100 GAL)	ABOVE GROUND (100 GAL)	MIL
94 WEATHER STN ON ARPT N			
95 ADMIN/TRML BLDG Y			
96 ARPT INFO DESK	F-12		
97 CARGO HANDLING	F-15	20	
98 NO. T-TYPE HANGARS 0	F-18	20	
99 NO. CONVENTIONAL HNGRS 2	F-22	20	
ENGINE OIL 100 PISTON Y	F-30		
101 TURBINE N	F-34		
REPAIRS MAJOR N MINOR	F-40		
AIRFRAME 102 N 103 N	F-45		
POWER PLANT 104 N 105 Y			
OXYGEN 106 HI PRESSURE N	115 MILITARY JOINT USE AGREEMENT		
107 LO PRESSURE N	116 MILITARY LANDING RIGHTS		
OXYGEN REPL BOTTLES 108 HI PRESSURE N	117 BASED MILITARY & TYPE OPERATIONS		
109 LO PRESSURE N			
110 AUX POWER FOR OPNNL FAC	118 TYPE & NO. MILITARY ACFT		
111 ARPT AIRSPACE ANALYSIS DTRMN NO OBJECTION			

RUNWAY END	45 ALNMT TO DEG TR	LIGHTING 47 HI SPEED EXIT	48 APPROACH	49 TD ZONE	50 REIL	51 APCH SLOPE INDCR	52 RVR	53 RVV	APPROACH SURFACE DATA 54 CTLG OBSTRUCTION (Marked-Lighted)	55 DSTC FM THRESH	56 APCH RATIO	57 CLOSE IN OBSTN	58 RGT TFC	59 BLAST FENCE	60 TYPE ARRESTING DEVICE (For end)
5		N	ALSA	Y	Y	VASI	N	N	TREES	1000	50+ :1	N	N	N	
23		N	ALSA	Y	Y	NONE	N	N	POLE ML	500	45 :1	N	N	N	

RUNWAY END	61 THRESHOLD DISPLACED	LANDING LENGTH 62 DAY	63 NIGHT	TAKEOFF LENGTH 64 DAY	65 NIGHT	PART 121 EFCTV LENGTH 66 LANDING	67 TAKEOFF	THRESHOLD 68 LATITUDE	69 LONGITUDE	70 ELEVATION
5										
23										

137

SAMPLE FORM

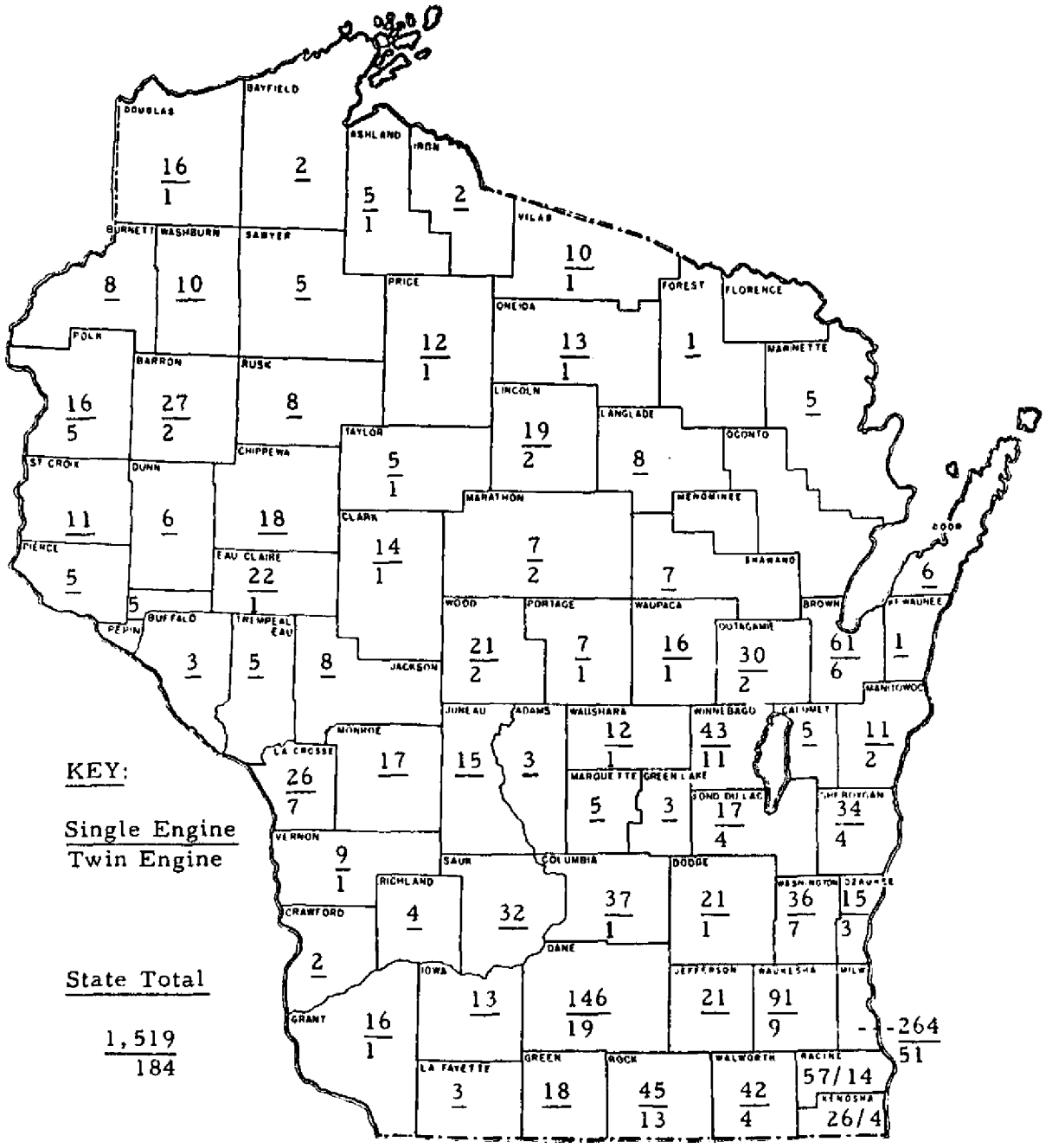
(SEE REVERSE SIDE OF FORM FOR SKETCH.)

119 ESTD. TOTAL ANNUAL MILITARY OPERATIONS	0	
120 ESTIMATED ANNUAL AIR TAXI OPERATIONS	200	
ESTD. GENERAL AVIATION OPERATIONS		
121 ANNUAL LOCAL	122 ANNUAL ITNRNT	123 TOT. PEAK MO.
6000	10000	4500
BASED GEN. AVIATION ACFT		SEAPLANE BASE DATA
124 SINGLE ENG. 4 PLACE & OVER	2	129 SHELTERED
125 SINGLE ENG. UNDER 4 PLACE	8	130 MOORING BUOYS
126 MULTI-ENG	2	131 DOCKS
127 HELICOPTER	0	132 RAMP
128 SEAPLANE	0	133 BEACHING GEAR
TOTAL		
134 AIRPORT SERVED BY SCHEDULED AIR CARRIER	Y	
135 LATEST INSP OR INFO REQ. 5/12/70		136 INSP. Y

FAA Form 5010-1 (7-70)

"•" = SEE REMARKS IN ITEM #137. EXCEPT IN #22 & #27 "Y" = YES; "N" = NO. ABBREVIATIONS ARE LISTED IN THE CONTRACTIONS HANDBOOK, ORDER 7340.1B

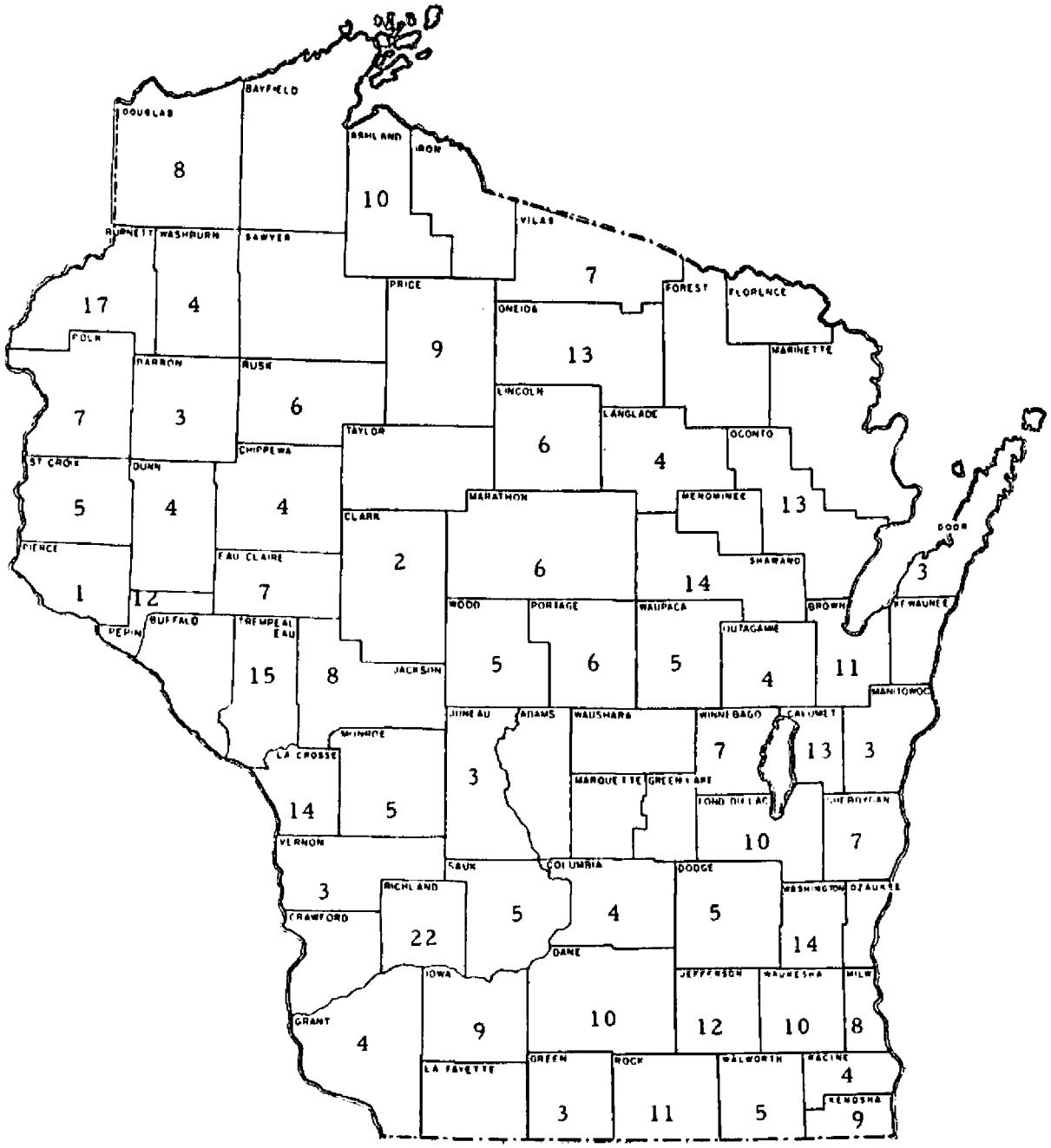
Figure II-1. FAA Form 5010-1



SOURCE: WISCONSIN STATE AIRPORT SYSTEM PLAN – 1968

Figure II-2. Typical Method of Illustrating Selected Airport Planning Data

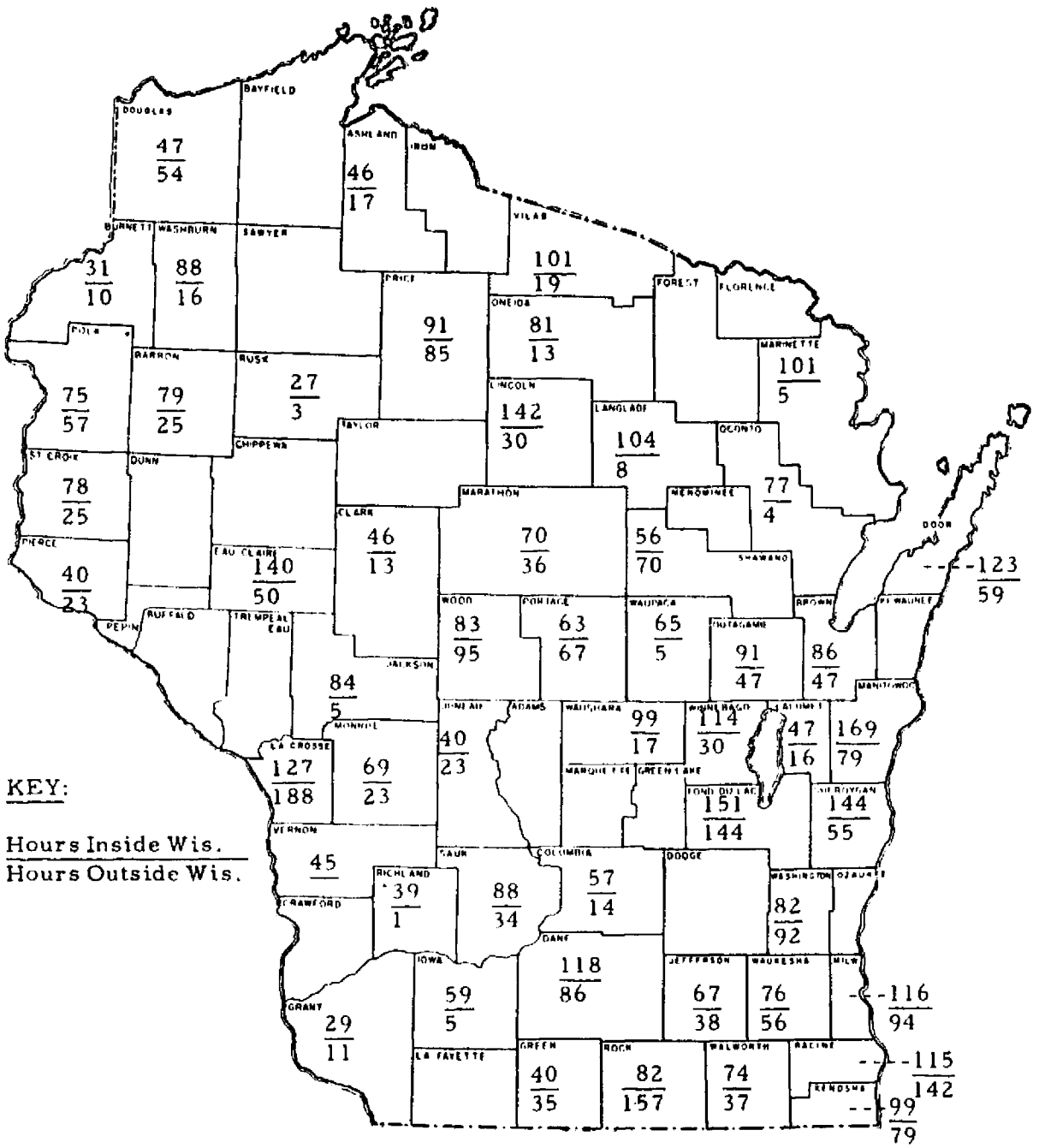
AVERAGE MILES TRAVELED TO AIRPORT BY REGISTRANTS IN EACH WISCONSIN COUNTY - 1964



SOURCE: WISCONSIN STATE AIRPORT SYSTEM PLAN – 1968

Figure II-3. Typical Method of Illustrating Selected Airport Planning Data

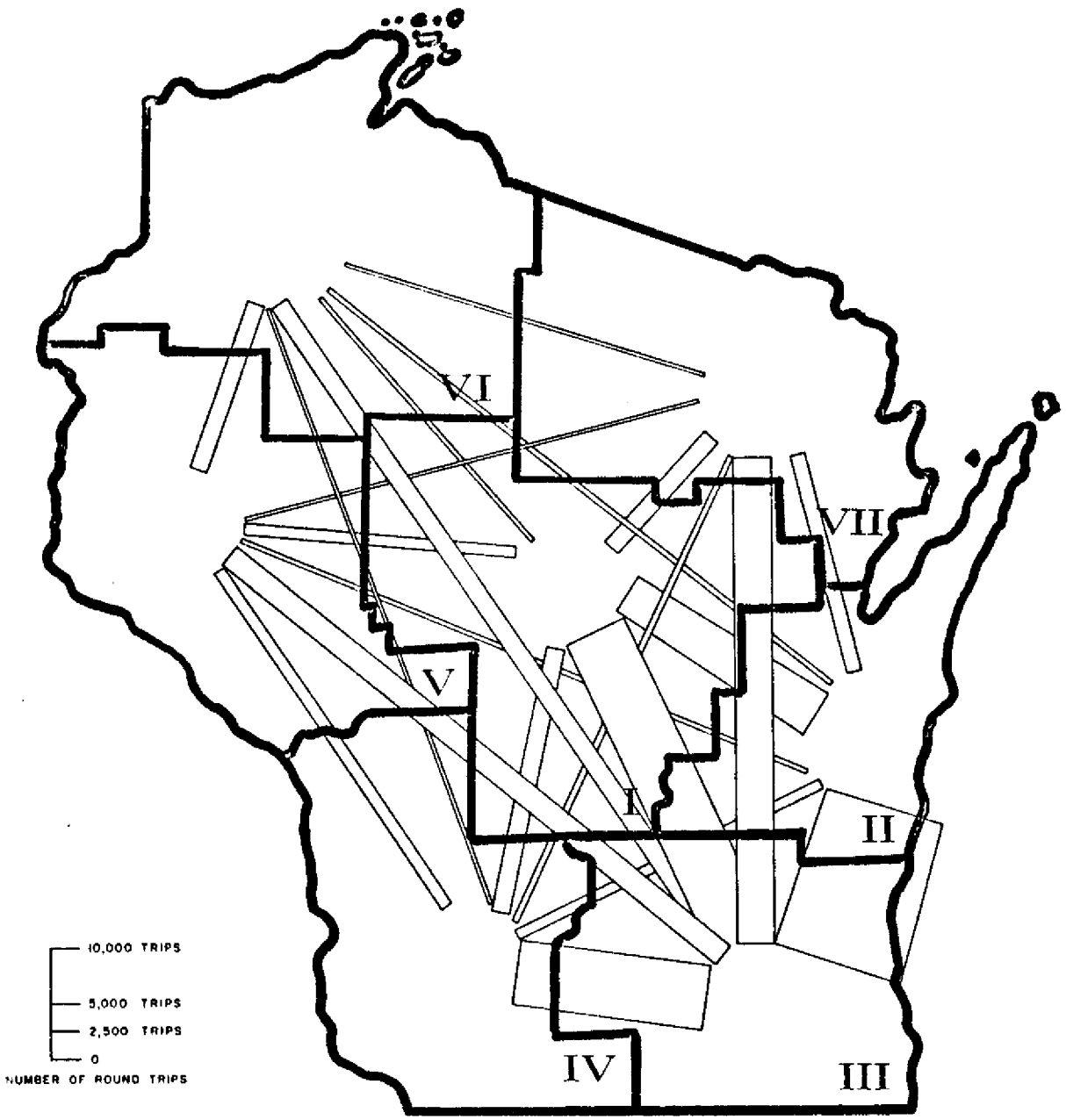
AVERAGE HOURS FLOWN PER HOME BASED AIRCRAFT
BY WISCONSIN COUNTY - 1964



SOURCE: WISCONSIN STATE AIRPORT SYSTEM PLAN – 1968

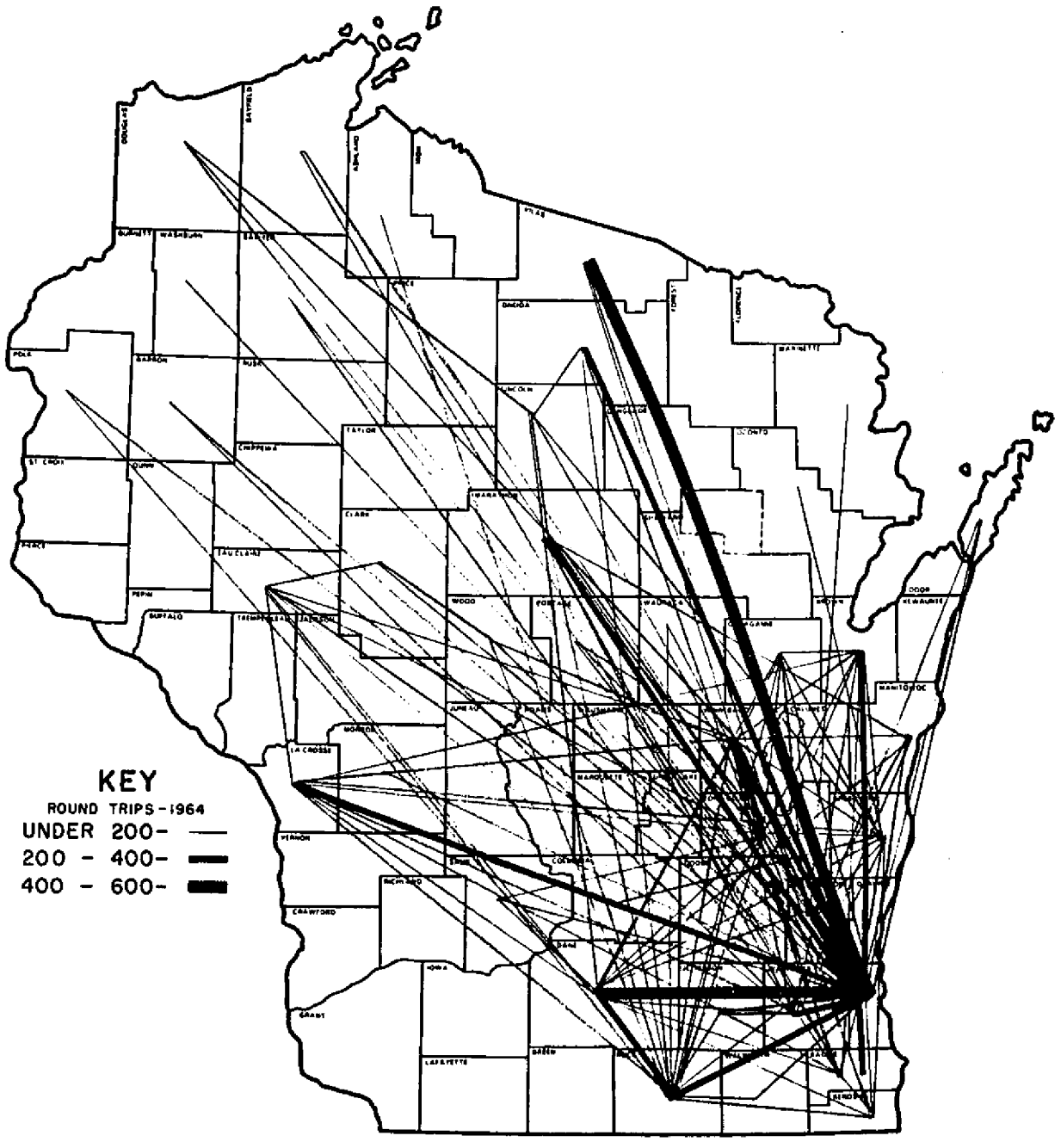
Figure II-4. Typical Method of Illustrating Selected Airport Planning Data

WISCONSIN INTRASTATE ROUND TRIPS
BETWEEN STATE'S PLANNING AREAS - 1964
(General Aviation)



SOURCE: WISCONSIN STATE AIRPORT SYSTEM PLAN – 1968

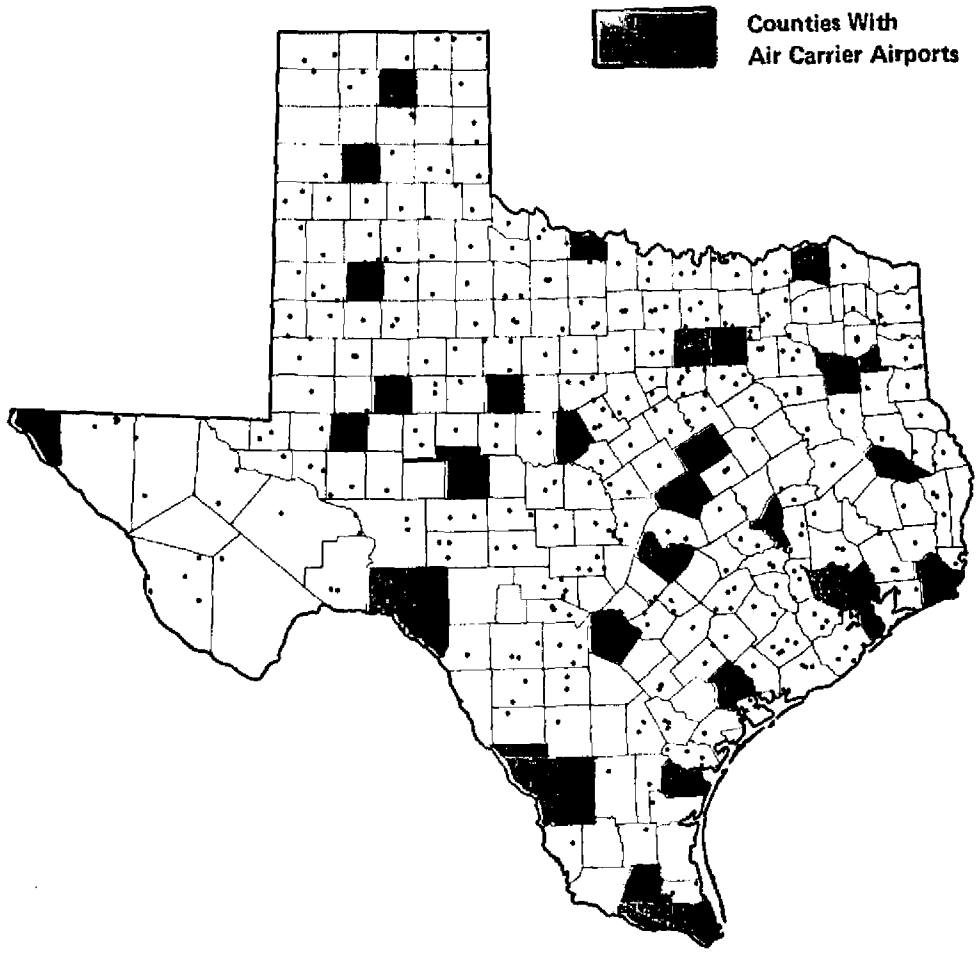
Figure II-5. Typical Method of Illustrating Selected Airport Planning Data



NOTE: INTERCOUNTY FLIGHTS THAT TOTALED LESS THAN 20 ROUND TRIPS PER YEAR WERE NOT INCLUDED

SOURCE: WISCONSIN STATE AIRPORT SYSTEM PLAN – 1968

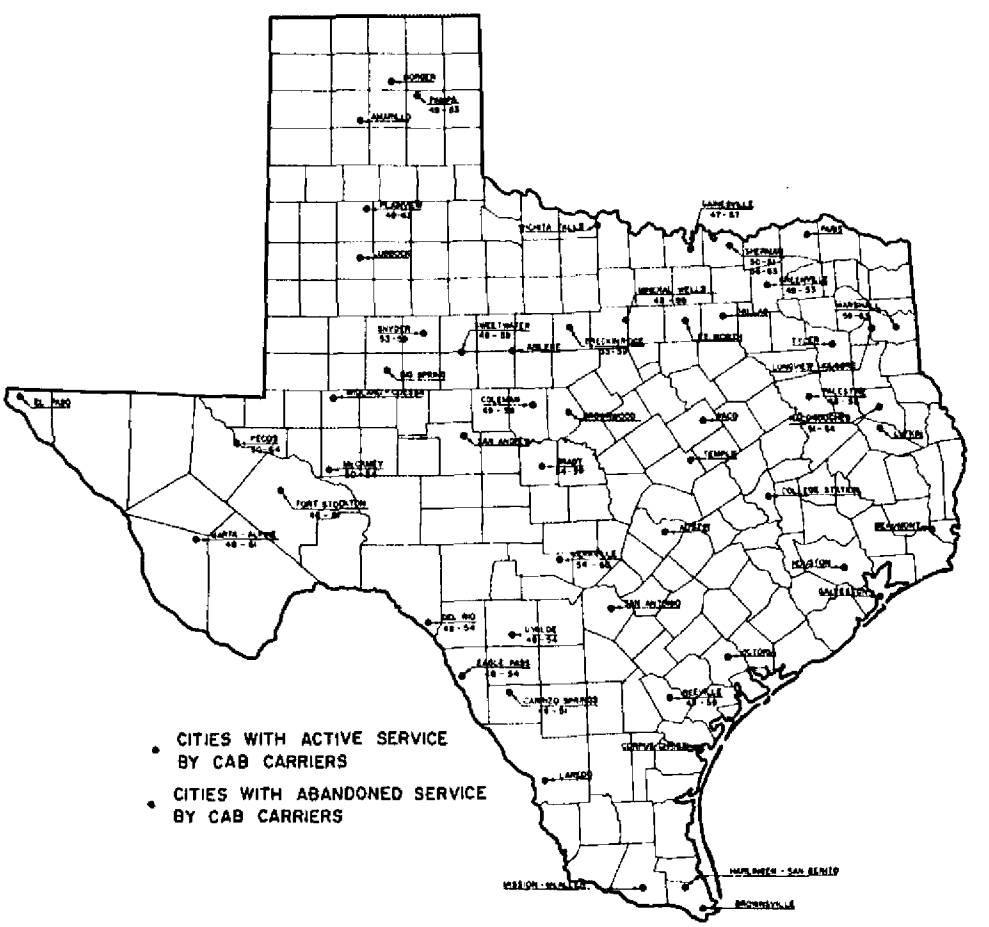
Figure II-6. Typical Method of Illustrating Selected Airport Planning Data



DISTRIBUTION OF PUBLIC-USE AIRPORTS IN TEXAS—JANUARY 1970.

SOURCE: AIR TRANSPORTATION FOR TEXAS

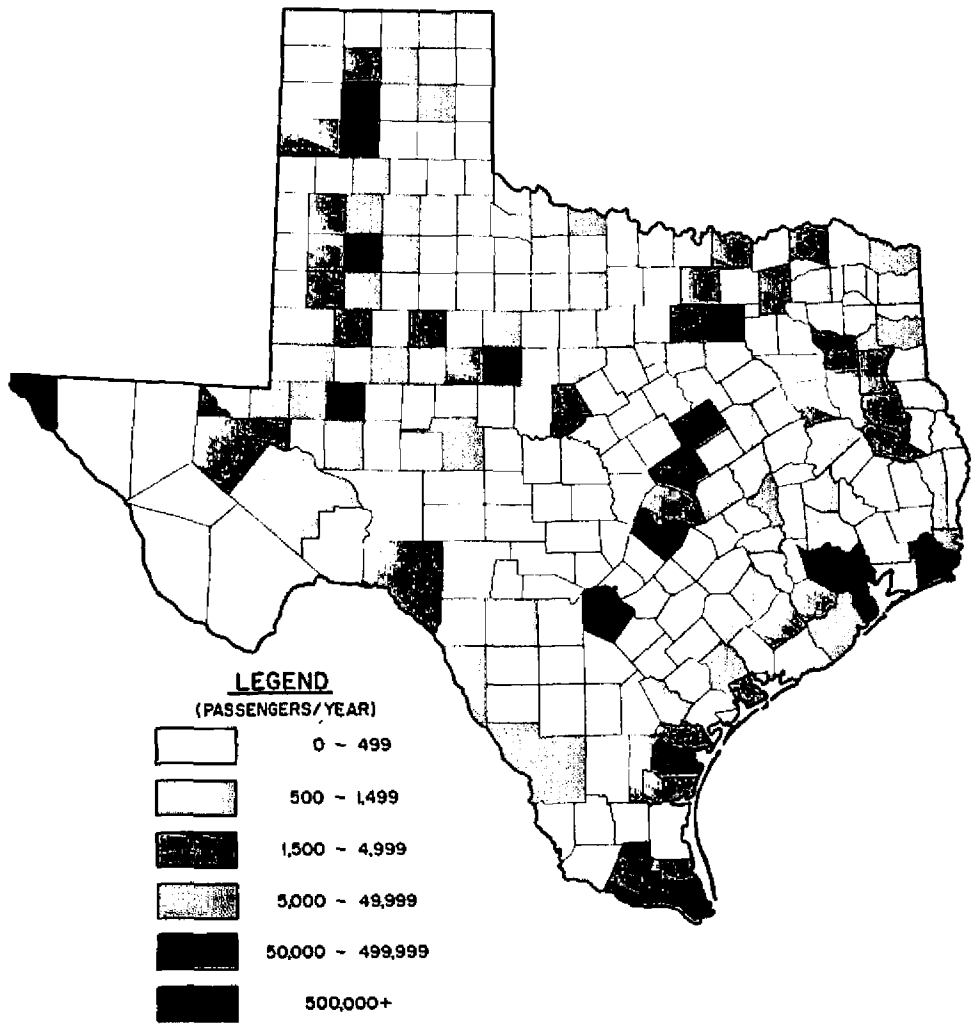
Figure II-7. Typical Method of Illustrating Selected Airport Planning Data



Texas cities served by CAB carriers since 1948.

SOURCE: AIR TRANSPORTATION FOR TEXAS

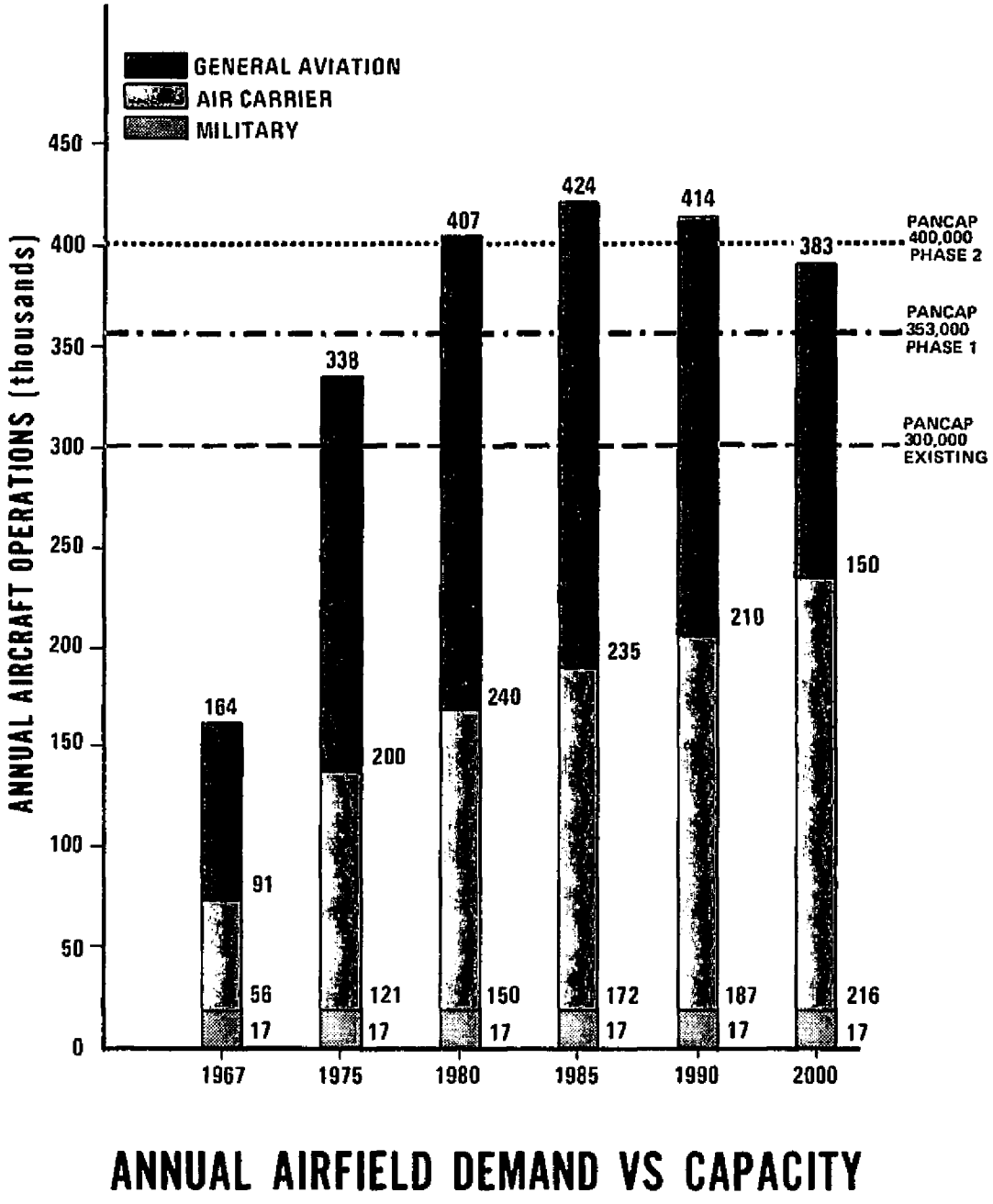
Figure II-8. Typical Method of Illustrating Selected Airport Planning Data



Forecasts of potential air passenger originations for Texas counties—1980.

SOURCE: AIR TRANSPORTATION FOR TEXAS

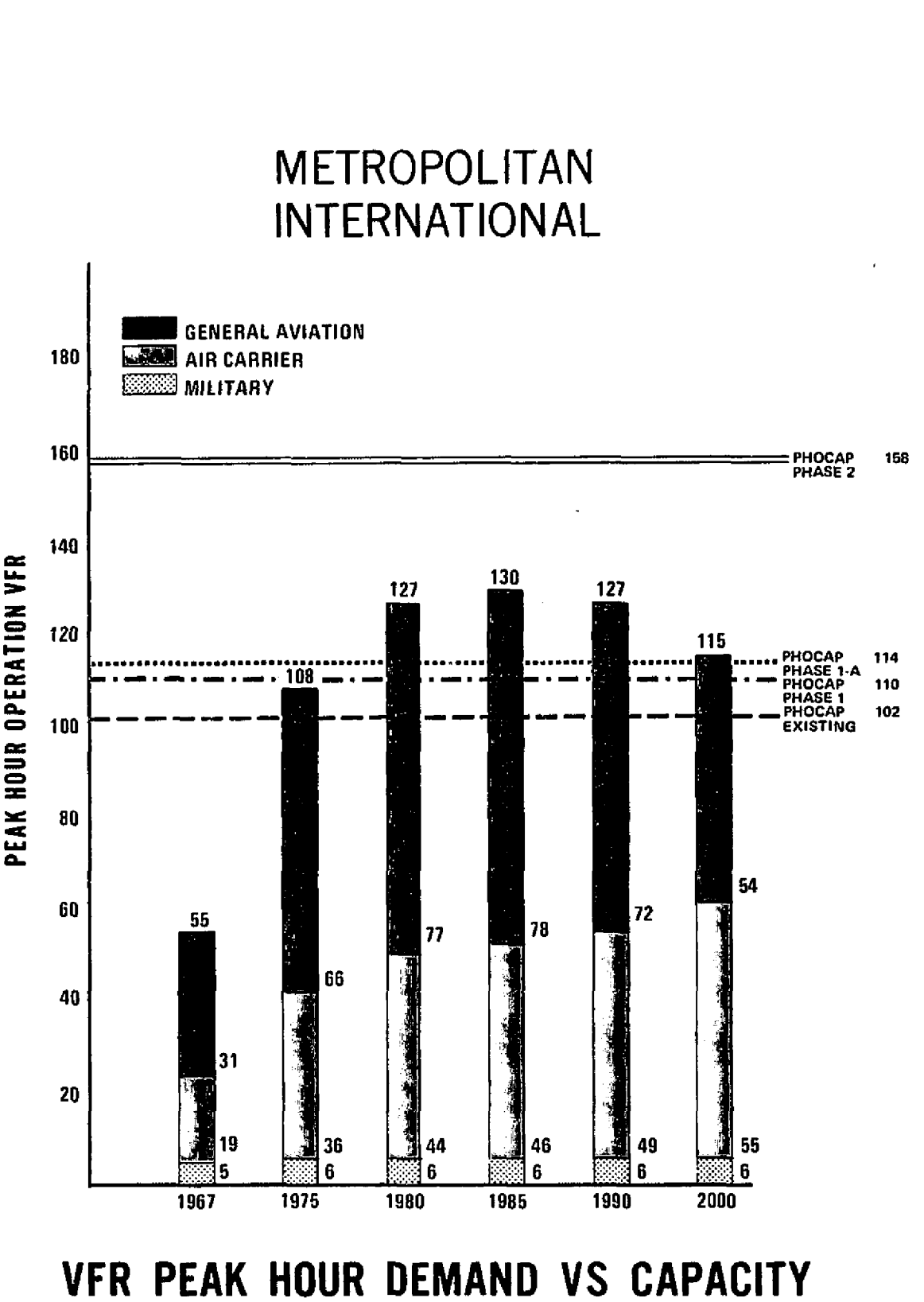
Figure II-9. Typical Method of Illustrating Selected Airport Planning Data



ANNUAL AIRFIELD DEMAND VS CAPACITY

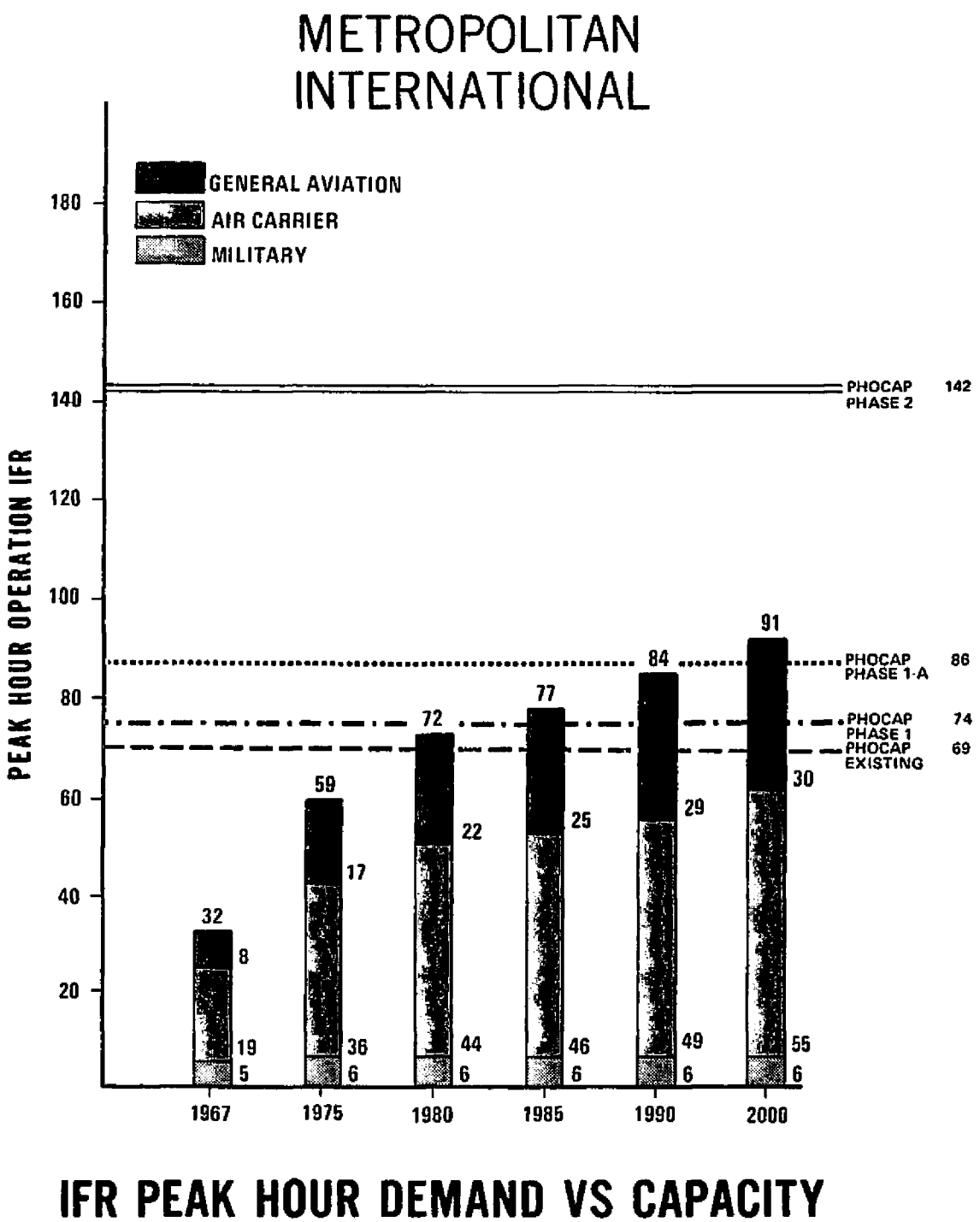
SOURCE: LANDRUM AND BROWN

Figure II-10. Typical Method of Illustrating Selected Airport Planning Data



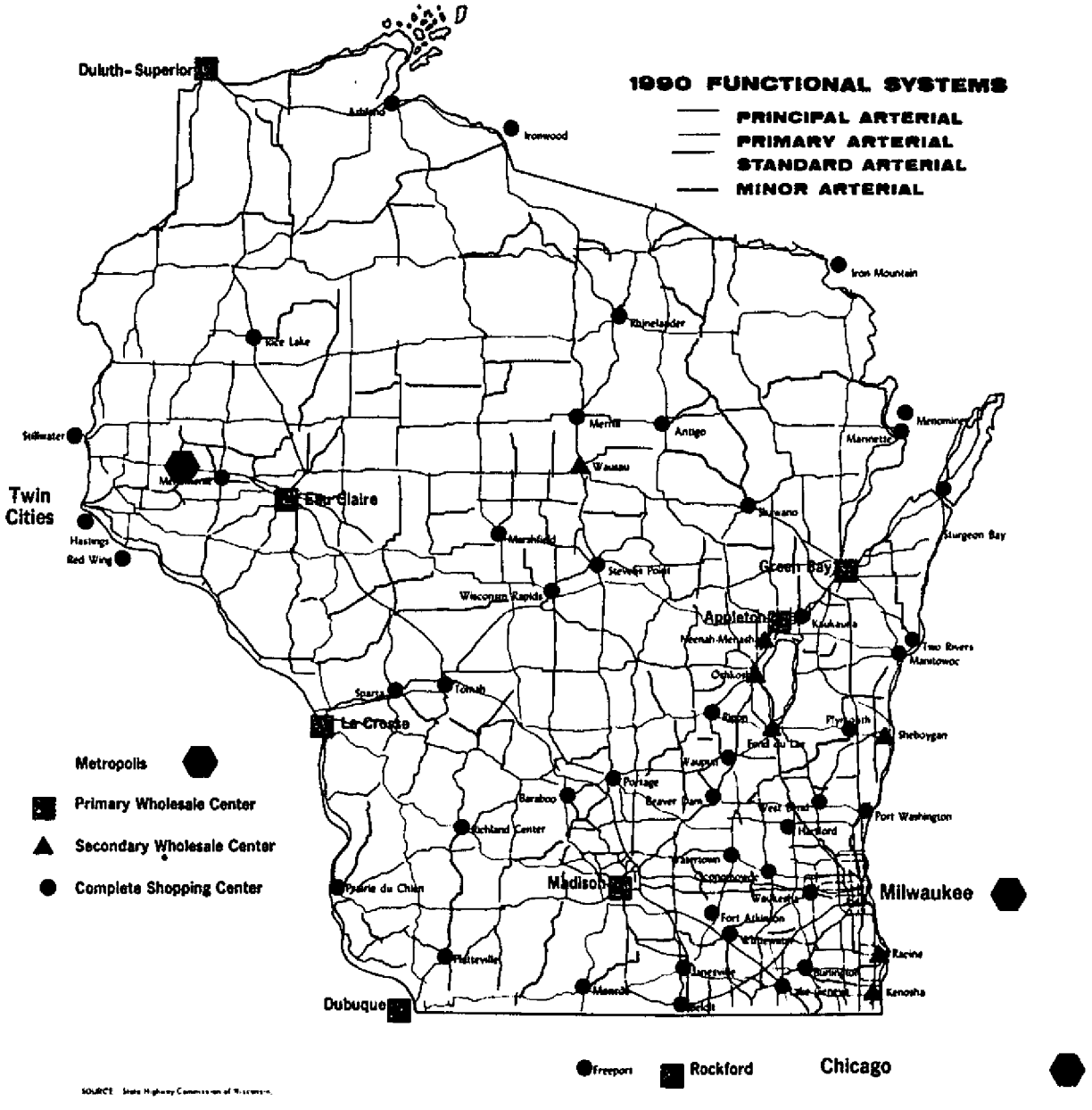
SOURCE: LANDRUM AND BROWN

Figure II-11. Typical Method of Illustrating Selected Airport Planning Data



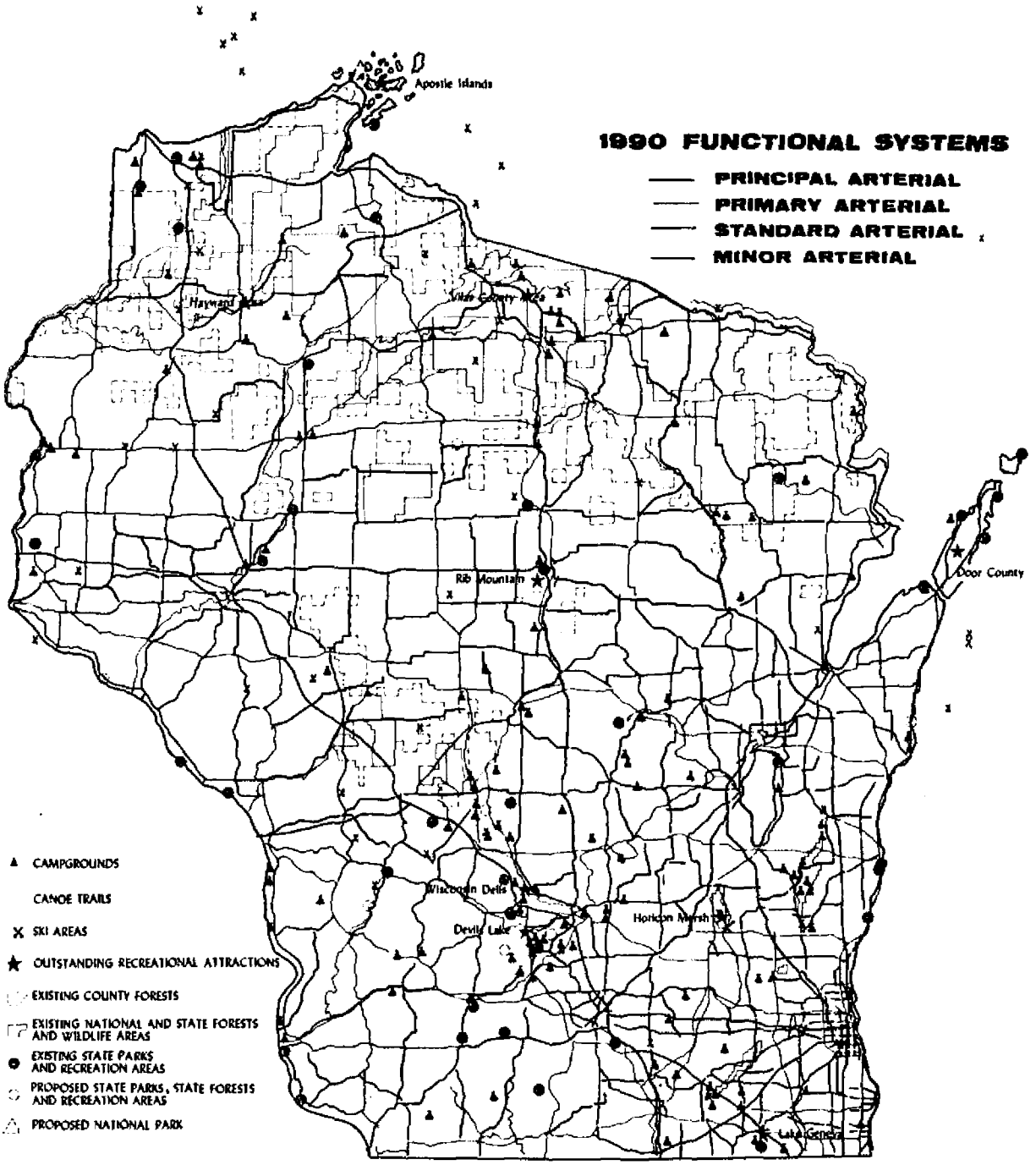
SOURCE: LANDRUM AND BROWN

Figure II-12. Typical Method of Illustrating Selected Airport Planning Data



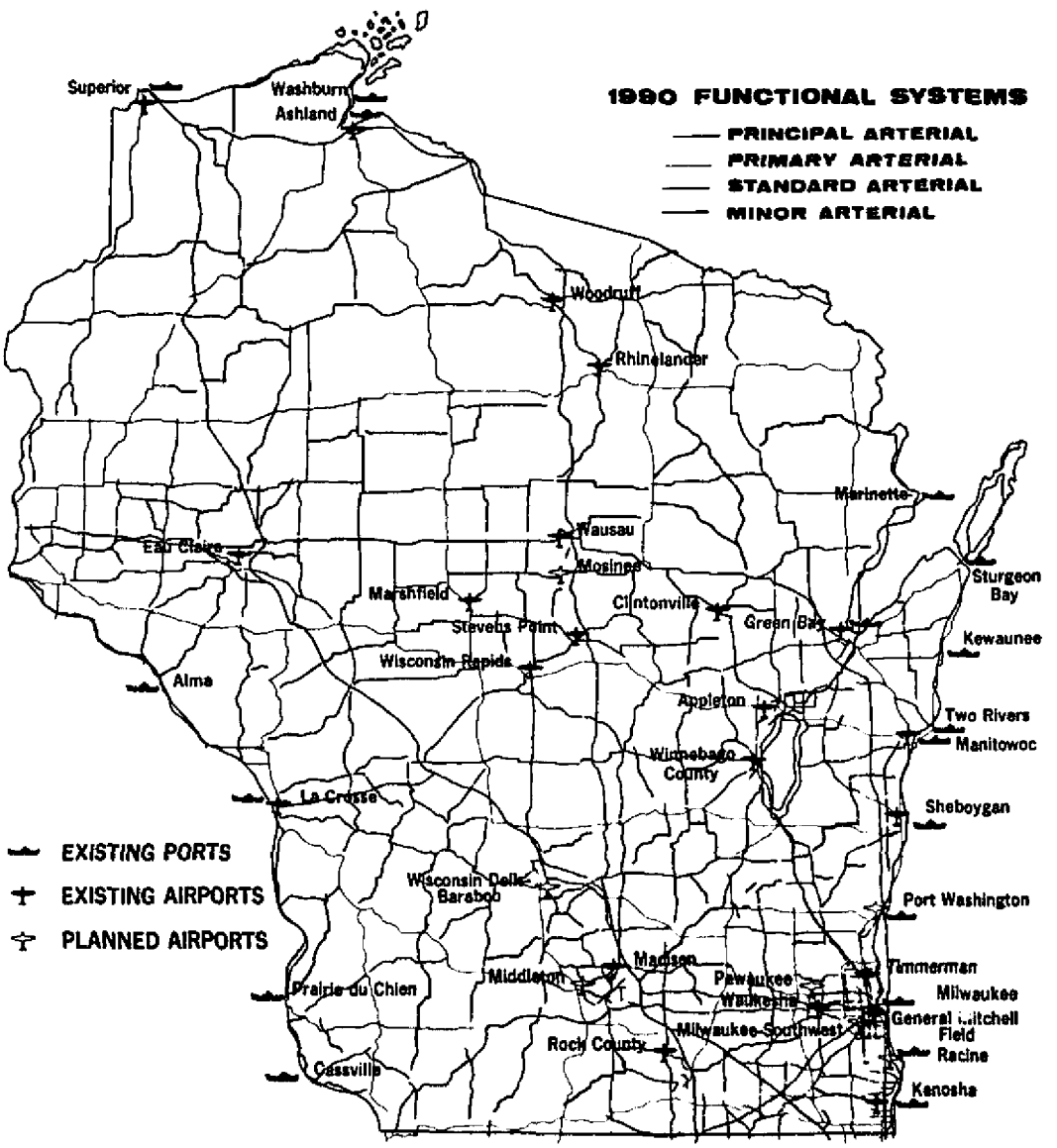
SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Figure II-13. Typical Graphic Data That May Be Used in Airport System Planning



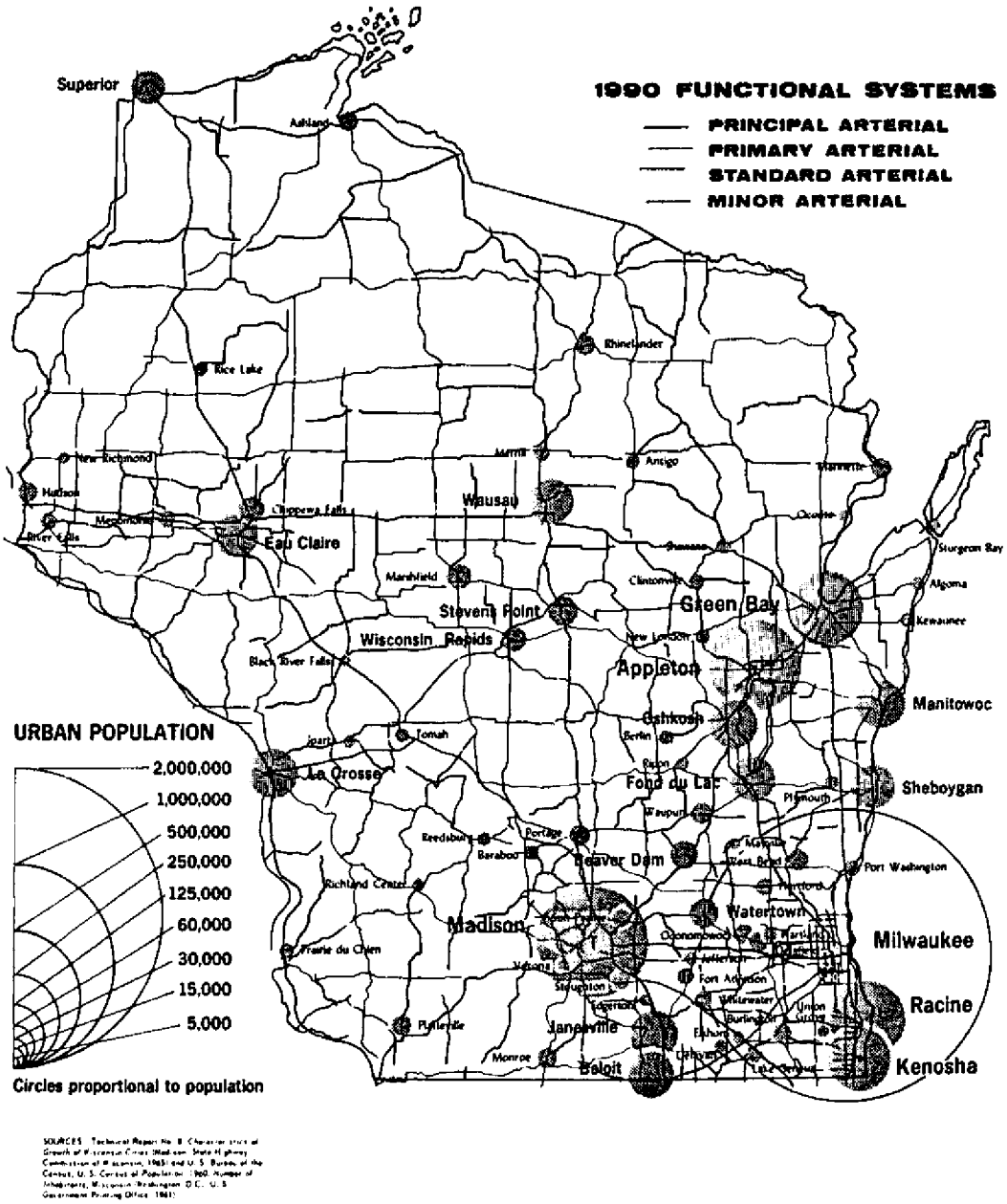
SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Figure II-14. Typical Graphic Data That May Be Used in Airport System Planning



SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Figure II-15. Typical Graphic Data That May Be Used in Airport System Planning



SOURCE: WISCONSIN DEPARTMENT OF TRANSPORTATION

Figure II-16. Typical Graphic Data That May Be Used in Airport System Planning

TABLE A-1. TYPICAL AIRPORT DATA ELEMENTS AND VARIABLES

The following list of typical data elements and variables should be reviewed for the purpose of determining the specific type of data needed to meet the planning objectives of the individual States.

IDENTIFICATION DATA

Airport name.
FAA site number.
State identification number.
Name of city associated with airport.
County in which airport is located.
Name of nearest city/town.
Planning area (region, zone, etc.) in which airport is located.
Classification of airport.

AIRFIELD DATA

Number of runways.
Orientation of runways.
Length of runways.
Width of runways.
Condition of runways.
Obstructions.
Wind coverage.
Largest aircraft runway can accept.
Airfield capacity (VFR & IFR).
Taxiway configuration.
Apron areas.
Communications.
Weather.
Navigation aids.
Approach & departure procedures.
Landing minimum.
Tower.

PHYSICAL FACILITIES DATA

Terminal (lobby, baggage, ticket, service, etc.).
Hangars.
Fixed-based operations.
Fuel (historic data on fuel sales).
Aircraft services (maintenance, radio, engine, airframe).
Terminal parking facilities.
Fixed-base operations parking facilities.
Access roads.
Utilities (water, gas, electricity, sewage, etc.).
Crash equipment.
Snow removal.
Terminal capacity.
Access road capacity.

AIRCRAFT & OPERATIONS DATA

Number of based aircraft (by type, ownership, etc.).
Number of aircraft operations (air carrier, general aviation, VFR, IFR, etc.).
Size of aircraft.
Distribution of operations (busy hour, busy week, busy month, etc.).
Load factor.
Number of enplanements, deplanements.
Average length of flight (air carrier & general aviation).
Schedule of all air carrier & air taxi flights.
Air cargo (tons, volume, etc.).
Training flights.
Availability of training area.
STOL operations.
Aircraft O-D.

AIRPORT USER DATA

Centroid of airport user.
Passenger O-D.
Aircraft owner O-D.
Primary airport users.
Passenger profile.
Airport employee O-D.
Number of airport employees.

ECONOMIC DATA

Area served by airport.
Mean area income.
Income distribution of area.
Number of autos registered.
Number of schools.
Age distribution of area residents.
Gross area product.
Import/export of products.
Modal split.
Taxes (sales, property, personal, State, local, etc.).
Income for airport (rental, landing fees, sales, etc.).
Expense of operating airport.
Means of financing airport development and operations.
Ability to issue bonds.
Value of existing airport facilities and land.
Previous federal aid.
Eligible for federal aid.
Previous State aid.

ENVIRONMENTAL RELATED DATA

General land use (airport property and adjacent airport).
Noise impact.
Air.
Water.
Recreation.
Significant historical sites.
Wildlife.
Hospitals, schools, public meeting places, etc.
Laws, ordinances that affect airport development.

DATA FROM OTHER PLANNING EFFORTS

Which airports have master plans (date of master plan).
Which areas have an airport system plan.
Which areas have a comprehensive development plan.
State, region, and local transportation plans.
State highway plans.
Railroad plans.
Mass transportation plans.
State comprehensive plan.
National plans.

GRAPHIC DATA

Airport layout drawing with vicinity map.
Air photo of existing airport or proposed site.
Land use map of airport area.
County road map showing airport location.

GENERAL STATISTICAL DATA

Number and percent of communities with at least 1,000 population within 30 min. driving time of an airport in the State system. Number and percentage of population residing in the entire State; and within 30 and 60 min. of any airport; within 30 and 60 min. of any airport with scheduled service, including third level air carrier airports within 30 and 60 min. of any air carrier served airport.

APPENDIX II

PART 2. AIRSPACE

Although the majority of the detailed analysis of airspace requirements will be performed during metropolitan/regional airport system studies and airport master planning, the State airport system plan must consider airspace requirements in sufficient detail to allow reasonable projection of airport alternatives. The primary concern of the airport system planner, with respect to airspace, is how the use of airspace affects the capacity of the airport or airport system.

For planning purposes, airspace requirements might be divided into the following three categories: (1) airport control zones and terminal control areas; (2) transition control areas; and (3) en route control areas.

If the use of airspace is a limiting factor for airport capacity, it is generally because of incompatible IFR and/or VFR operations with adjacent airports.

In preparing the State airport system plan, the planner should make an initial review of all airports with respect to airspace requirements. Such a review should consist of studying sectional aeronautical charts, approach and departure procedures, and other published data. Those airports that are relatively isolated and do not have a capacity problem can generally be eliminated from further airspace study. A graphic representation of airport control zones and transition control areas will be beneficial in analyzing airspace requirements of new airports. It is not anticipated that the airspace study of most airports will require a great deal of time during the system study. Once the system planner has collected the necessary data required for studying the airspace of the State airports, it is suggested that arrangements be made with local FAA personnel for reviewing and discussing airspace requirements and identifying selected areas that might require additional airspace studies.

It should be beneficial to the planning process if airspace and navigational aids be considered together since navaids play such a significant part in airspace utilization. It is also recommended that the individual(s) responsible for the airspace and navaids study have as broad a background as possible in aviation (IFR flight experience should also be beneficial).

Those areas that are experiencing airspace capacity problems (in any of the three categories) will require a more detailed analysis of possible alternatives. Close coordination of possible alternatives with the FAA will be required since any change in an operating system would have a direct influence on air traffic control. In the majority of cases, satisfactory solutions to airspace problems can be worked out by conventional techniques of analysis, although there might be a need for some sort of air traffic simulation or computer analysis of airspace utilization at the large hub airports. It must be recognized that the detailed study of airspace utilization at the large airports is expensive and time consuming due to the vast amounts of data that must be collected if computer simulation techniques are used in such studies.

Since the airport system study is concerned with the general location of new airports, detailed airspace studies for new airports are unnecessary. The system planner should only be reasonably confident that the general locations of a new airport will provide the required airspace. In the event that complicated airspace studies are required, it is suggested that a consultant familiar and experienced in the type of anticipated study be used. (There are several consultants that have specialized experience in airspace studies and have developed various computer programs that might be modified to use in selected locations that would be beneficial to state planners.)

FAA Order 7480.1A, Guidelines for Airport Spacing and Traffic Pattern Airspace Areas, dated August 3, 1971, provides general guidelines to agency personnel for analyzing airspace requirements.

APPENDIX III

SOURCES OF AVIATION STATISTICS

Subject	Tabular Detail	Area		Frequency	
		Area and Size Limitations	Other Limitations		
A. FORECASTS					
1. Government	Aviation industry and air traffic activity at FAA towers:	National, Aviation industry	Active general aviation aircraft by FAA region	Annual	*Aviatio* *19* , Aviati Aviat
	Air carrier traffic, air carrier fleet, general aviation flying and aircraft fleet, domestic aviation fuel consumption, civil aircraft and engine production, and operations.	FAA towers—air traffic activity	9 year forecasts		
	Aviation demand and airport facility requirements at large air traffic hubs:		22 Hubs	August, 1967 only	*Aviatio* *Requ* *Trans* Airpc Divisi
	Aviation demand for each hub, 1970, 1975, 1980. Includes methodology.				
	Aviation facility requirements for each hub for 1980. Includes methodology.				
	Same as above but for medium air traffic hubs.		35 Hubs	January 1969 only	*Aviatio* *Requ* *Air T* 1980 Plann

Appendix III Sources of Aviation Statistics—Continued

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
	Forecast of domestic passenger traffic for scheduled air carrier service. Three (3) forecasts based upon three different assumptions for fares.	Domestic trunk line carriers	Revenue passenger miles only.	Irregular	*Forecast of Domestic Passenger Traffic for the Eleven Trunkline Carriers, Scheduled Service, 1968-1977*, Bureau of Economics, Civil Aeronautics Board (CAB).
2. Industry	Forecasts for planning airport facilities: National aggregate and individual airport forecasts for passengers, cargo, and aircraft movements–1970, 1975, 1985.	National, 22 Hubs.		Project by phases	*ATA Airline Airport Demand Forecasts*, Air Transport Association (ATA).[1] [1] This is a continuing joint Airport Demand Forecast Study by ATA, member airlines, and gov't./private contributors.
	General aviation history and forecasts for the general aviation fleet; distribution of fleet in 75 top SMSA's; hours flown; aircraft movements; airmen; and, economic impact.	National	Total only aircraft in SMSA distribution. Forecast years 1970, 1975, and 1980.	April 1969, only	*Fact Book on the Magnitude and Economic Impact of General Aviation*, Aerospace Industries Association (AIA).[1] [1] This report was condensed from a study of the general aviation industry which was prepared by an aviation consultant firm for the Utility Airplane Council of AIA. (Now the General Aviation Manufacturers Association)
3. Consultants	Depends upon the method of economic analysis used by any particular consultant and the metropolitan area situation.	Variable		Irregular	Aviation-oriented consultant firms.[1] [1] Desired aviation statistics for any particular metro. area are obtained either by an information search for what has been previously done by consultants or by a contracted research effort.

Appendix III Sources of Aviation Statistics—Continued

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
B. AIRPORT					
1. Airport facilities	Airport facilities listing by state and county—(by airport and associated city): Based aircraft, operations, runway length, acres, fuel used, etc.	11 FAA Regions, 50 States, All counties, and Urban Places		Annual	*Airport Facilities Listing by State and County*, (Machine tabulation, Report No. AS-5010-5), Airports Service, Airports Planning Division, FAA.
	U.S. civil and joint-use airport facilities on record with FAA, Dec. 31: Total facilities; Abandonments; Lighting and paving data; Runway length; Population size-group served.	National, 50 States		Annual	*FAA Statistical Handbook of Aviation*, Office of Management Systems, Information and Statistics Division, FAA.
	FAA Form 5010-1—Airport master Record.	All airports of record		Annual Inspection	Filed at FAA Headquarters, Regional and Area Offices
2. Airports	Appraisal of U.S. civil airport needs for commercial and private flying: Airports by city and state. Recommended construction for 5-10 years. Improvements-runway, taxiways and other airport safety requirements. Airport development cost.	National, 50 States, All Cities, and Urban Places, Puerto Rico and Virgin Islands	Not all airports of record. Only ones meeting NASP admission criteria	Biennially	*National Airport System Plan*, Airport Service, Airports Planning Division, FAA.

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
2. Airports cont'd.	Federal-aid Airport Program and Airport Development Aid Program as of December 31 Funds: Total, Federal, sponsor. Number of airports, projects.	National, 50 States, Puerto Rico and Virgin Islands		Annual	*FAA Statistical Handbook of Aviation*, Office of Management Services, Information and Statistics Division, FAA;
	Listing of aircraft landing places:	50 States, Puerto Rico, Guam and Virgin Islands		Annual	*AOPA Airport Directory*, Aircraft Owners and Pilot Association (AOPA).
	Analysis of results of the 1969 General Aviation public airport financial survey, revenues, expenses, development costs.	1,408 airport base total results only.	Only public-owned airports	September 1979 only	Report on FAA's 1969 General Aviation Public Airport Financial Survey, Airports Service, Airports Planning Division, FAA.
	A listing of public use airports, which qualify for an FAA determination of the effect a structure near an airport would have on the safe and efficient use of airspace; as provided in FAR Part 77, *Objects Affecting Navigable Airspace.*	All qualified public use airports, per FAR, Part 77		Semi-annual	(1) *Airman's Information Manual, Part 2, Airport Director*, Air *Traffic Service, Flight Services Division, FAA.*
				Monthly	(2) *Alaska Airman's Guide and Chart Supplement*, Coast and Geodetic Survey, Dept. of Commerce.
				Monthly	(3) *Pacific Chart Supplement*, Air Traffic Service, Flight Services Division, FAA.

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
C. AIRCRAFT INVENTORY					
1. Active civil aircraft	States ranked by active aircraft ownership per 1,000 sq. miles, per 10,000 population	National, Regional, 50 States All Counties		Annual	*Census of U.S. Civil Aircraft*, as of Dec. 31, Office of Management Systems, Information and Statistics Division, FAA.
	Civil aircraft: Eligible, ineligible	National, Regional, 50 States All Counties		Annual	*Ibid.*
	By year of manufacture:				
	Active Aircraft annually registered with FAA, each of past 10 years:				
	Total; rank of State				
	Active U.S. aircraft:	National Regional, 50 States, All Counties		Annual	*Ibid.*
	Total; aircarrier, December 31; general aviation—multi-engine, 4-place single engine; rotocraft; all other.				

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
1. Active civil aircraft – cont'd.	Aircraft registered with FAA, December 31: Eligible: Total; air carrier; general aviation, by type Total; eligible: Current year and two prior years Eligible: Total; by year of manufacture: Per 1,000 sq. mi.: per 10,000 population Area of State (sq. mi.); average per 1,000 square miles.	National, 50 States Puerto Rico and Virgin Islands		Annual	FAA Statistical Handbook of Aviation, Office of Management Systems, Information and Statistics Division, FAA.
	Summary of active aircraft by state and county	National, 50 states		Annual	U.S. Active Civil Aircraft by type and by region, state and county (machine tabulation, Report No. 8050-13), Office of Management Systems, Information and Statistics Division, FAA.
	General Aviation total based aircraft by base airport, by actual use and primary use.	All airports of record		Annual	Distribution of Registered aircraft within use categories by base airport (actual use/primary use), (machine tabulation, Reports No. MS 8050-18), Office of Management Systems, Information and Statistics Division, FAA.
	Registered general aviation aircraft by state: Total: class, inactive, active	National, 50 states		Annual	Distribution of registered general aviation aircraft by year of manufacture, by aircraft class within state, (machine tabulation, Report No. MS 8050-31), Office of Management Systems, Information and Statistics Division, FAA.

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
	Registered general aviation aircraft (county data converted to a community data base): Total, single-engine, multi-engine.	All SMSA's all Hubs, cities, and urban places	All non-SMSA cities with 50 or more based aircraft	November 1968 only	Registered General Aviation Aircraft by Community Size, Air Traffic Service, Executive Staff, FAA.
	Scheduled air carrier flight data by type of equipment	Scheduled air carriers		Semi-annual	Scheduled Air Carrier Flight Data by Type of Equipment (machine tabulation, Report No. EC 1800-1), Office of Aviation Economics, Aviation Forecast Division, FAA.
2. General Aviation based aircraft	FAA Form 5010-1	All airports of record		Annual Inspection	Filed at FAA Headquarters, Regional, and Area Offices
3. Air Taxi	Activities of scheduled air taxi Operators: No. of operators and aircraft	Registered operators		Annual	Commuter Air Carrier Operators as of September 19__, Office of Management Systems, Information and Statistics, Division, FAA.[1] [1] Scarcity of information for this category: Best private source is the National Air Taxi Conference or an individual airport survey.
D. ACTIVITY					
1. Certificated Airline Operations (Includes passengers & cargo)	Aircraft departures: Total performed Scheduled; nonscheduled;	All scheduled air carrier airports; Hubs	Only certificated route carriers	Semi-annual	Airport Activity Statistics of Certificated Route Air Carriers, CAB and FAA.

Appendix III Sources of Aviation Statistics—Continued

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
	On-line revenue traffic				
	Passengers: enplanements:				
	Originations, scheduled service				
	Freight, express, and mail originations (tons) scheduled				
2. FAA operated tower operations	Aircraft operations:	National, Regional States, Puerto Rico, Virgin Islands, Cities and Urban Places	Only airports with FAA-operated tower	Semi-annual	FAA Air Traffic Activity, Office of Management Systems, Information and Statistics Division, FAA.
	Total; itinerant; local; instrument				
	FAA flight service stations and combined station-towers:	National, Regional States, Puerto Rico, Virgin Islands, Cities and Urban Places	Only airports with FAA-operated	Semi-annual	FAA Air Traffic Activity, Office of Management Systems, Information and Statistics Division, FAA
	Total flight services; aircraft contacted; flight plans originated; pilot briefs; airport advisories; flight condition messages				
	Daily tower operations: air carrier, general aviation, military	Tower airports		Monthly	FAA Form 7230-1, Airport Traffic Record, Filed at airport towers, FAA.[1] [1]Monthly totals sent to Air Traffic Service, Executive Staff, FAA, Washington, D.C.

Appendix III Sources of Aviation Statistics—Continued

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
	Peak day and peak hour at traffic control towers: air commerce airports, general aviation airports (includes methodology).	Tower airports		Semi-annual	Terminal Area Air Traffic Relationships, Office of Management Systems, Information and Statistics Division, FAA.
3. Air taxi operations (includes passengers)	Information on departures, passengers, fuel consumed, employment and similar data compiled to produce a profile of the air taxi industry.	National		May 1968 only	1966 Census of Air Taxi Operators, Office of Management Systems, Information and Statistics Division, FAA.[1] [1] Scarcity of information for this category. Best private source is the National Air Taxi Conference or an individual airport survey.
4. General Aviation Operations at Non-tower airports (includes passengers)[1]	General aviation aircraft flight hours by airports	All airports of record		Annual	Distribution of registered general aviation aircraft hours within use categories by base airports (actual use/primary use), (machine tabulation, Reports No. MS 8050-2), Office of Management Systems, Information and Statistics Division, FAA.
	General aviation occupant load factors, by kind of flying, by flight plans filed or not filed	Based upon accident records for general aviation flying, 1964-1968.		Periodic	1970 study of general aviation flying occupant load factors, Office of Management Systems, Information and Statistics Division, FAA. [1] Scarcity of information for this category, Best sources are FAA Form 5010-1, or by an individual airport survey.

Appendix III Sources of Aviation Statistics—Continued

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
5. Military operations at military bases	Military air traffic activity	National, military bases		Annual	Military Air Traffic Activity Report, Office of Management Systems, Information and Statistics Division, FAA.
6. Demand	Domestic and U.S. flag international origin and destination surveys.[1]	Scheduled air carriers		Quarterly, Annual Semi-annual	Origin and Destination Surveys, CAB/ATA [1] Basis for reporting and the content for these O&D surveys change from time to time. For current information, contact Chief, Office of Carrier Accounts and Statistics, CAB, for purchase, contact Vice President, Finance and Accounting, ATA.
7. Scheduling	Arrivals and departures from and to all locations with scheduled airline service	National, Int'l. Cities, and Urban Places		Bimonthly	Official Airlines Guide—Quick Reference Editions, R. H. Donnelly Corp.
E. REPORTS, PUBLICATIONS AND SPECIAL TABULATIONS					
1. Specific, individual locations					[1] Desired aviation statistics for any particular metropolitan area can be obtained either by a diligent information search for what has been previously done by others or by an individual research effort

Appendix III Sources of Aviation Statistics–Continued

Subject	Tabular Detail	Area		Frequency	Source and Notes
		Area and Size Limitations	Other Limitations		
					[2]I. Advisory circulars and special reports and tabulations by the Federal Aviation Administration.
2. General					II. Reports and publications of: (1) Aerospace Industries Association of America (AIA) (2) Airport Operators Council International (AOCI) (3) Air Transport Association (ATA) (4) Association of Local Transport Airlines (ALTA) (5) Consultant firms (6) Helicopter Association of America (7) International Air Transport Association (ATA) (8) National Air Taxi Conference (NATC) (9) National Association of State Aviation Officials (NASAO) (10) National Business Aircraft Association (NBAA)

APPENDIX IV

SOURCES OF SOCIO-ECONOMIC DATA

Appendix IV Sources of Socio-Economic Data

A. Guides to the Use of Federal and State Statistics

1. *Directory of Federal Statistics for Local Areas,* U.S. Department of Commerce, Bureau of the Census, U.S. Government Printing Office.

2. *Measuring Markets, A Guide to the Use of Federal and State Statistical Data,* Business and Defense Services Administration, Office of Marketing and Services, U.S. Government Printing Office.

Part I–Describes some of the measurable characteristics and dimensions of a market.
Part II–Lists the principal statistical series of interest.
Part III–Provides a series of cases which illustrate how Government statistics can aid in measuring markets.
Part IV–Bibliography–Listing of Government and non-government materials which are useful in measuring markets, arranged by sources of statistical data, methods of analysis, bibliographies, and directories.

3. *Guide to U.S. Government Serials and Periodicals,* 1969 Edition, Volumes 1 and 2: Copyright by John L. Andriot, Documents Index, Box 195, McLean, Virginia 22101. (Issued annually in March)

B. Historical Trends

1. *Historical Statistics of the United States, Colonial Times to 1957:* 1960, the U.S. Bureau of the Census, U.S. Government Printing Office.

2. *Historical Statistics . . . Continuation to 1962 and Revisions:* 1965, the U.S. Bureau of the Census, U.S. Government Printing Office.

3, *Long Term Economic Growth, 1860-1965:* 1966, the U.S. Bureau of the Census, U.S. Government Printing Office.

C. Market Statistics, Private Sources

1. *Sales Management* (semimonthly, and *Annual Survey of Buying Power*). Sales Mgt., Inc., 630 Third Ave., New York, N.Y. 10017.

2. *Rand-McNally Commercial Atlas and Marketing Guide* (Annual). Rand-McNally and Co., 405 Park Avenue, New York, N.Y. 10022.

D. Government Data

1. Publications

a. *County and City Data Book, (latest) edition,* by the U.S. Bureau of the Census, U.S. Government Printing Office, A statistical abstract supplement published after each decennial and quinquennial economic census.

b. *Congressional District Data Book* (Districts of the 88th Congress) and updated by *Supplements, Redistricted States.* Data Book prepared 1963–U.S. Government Printing Office. *Supplements*–89th Congress 1965: 90th Congress 1966, obtained on request from the Bureau of the Census, Washington, D.C. 20233.

2. Measurements

	Measurement	*Frequency of Publication*	*Source*
a. Population			
(1)	Population growth	Decennial (all censuses)	Federal Gov't., Bureau of the Census
(2)	Resident and civilian population	Annual	"
(3)	Land area	Decennial (all censuses)	"
(4)	Population per square mile, urban and rural	"	"
(5)	Population age distribution	"	"
(6)	Resident population by age groups	Annual	"
(7)	Education distribution	Decennial (all censuses)	
b. Income			
(1)	Median family income by income size classes	Decennial (all censuses)	Federal Gov't., Bureau of the Census
(2)	Total and per capita personal income	Annual	Federal Gov't., Office of Business Economics
(3)	Aggregate personal and per capita income by type of income and industrial source	Annual	Federal Gov't., Office of Business Economics
(4)	Disposable personal income	For selected years	"

(5) Taxable income, classified by size of adjusted income	Annual	Federal Gov't., Internal Revenue Service	
c. Employment			
(1) Percent employment in white collar occupations	Decennial (all censuses)	Federal Gov't., Bureau of the Census	
(2) Percent unemployment rate	Annual	Federal Gov't., Bureau of Labor Statistics	
(3) Employment and earnings statistics	Quinquennial (all censuses and Annual	Federal Gov't., Bureau of the Census and Bureau of Labor Statistics	
(4) Employment in agriculture	Quinquennial (all censuses)	Federal Gov't., Bureau of the Census	
(5) Employment in durable goods manufacturing	"	"	
(6) Employment in non-durable goods manufacturing	"	"	
(7) Employment in mineral industries	"	"	
(8) Employment in transportation, communication and other public utilities	"	"	
(9) Employment in wholesale and retail trade	"	"	
(10) Employment in public administration	"	"	
d. Sales			
(1) Value added by manufacture	Quinquennial and Annual	Federal Gov't., Bureau of the Census	
(2) Value of shipments	Quinquennial	"	
(3) Retail sales	Quinquennial (all censuses)	"	
(4) Wholesale sales	"	"	

APPENDIX V

SAMPLE GUIDE FOR A STATE AIRPORT SYSTEM PLAN

1. **VOLUME I. STATE AIRPORT SYSTEM PLAN – SUMMARY REPORT.**

   a. **Chapter 1. Foreword.** A foreword is a proper place to set forth the goals and objectives of the plan, general background, comment, historical review if needed, and facts that should be known by the reader at the outset.

   b. **Chapter 2. Legal Authority for the Plan.** The legal authority for a plan should be described and the relationship between the planning and implementing organizations should be discussed.

   c. **Chapter 3. Contents of the Summary Report.**

      1) Summary of contents, including reference to contents of Volume II.
      2) Explanation of differences and scope of short (5 years), intermediate (10 years), and long term (20 years) plans.
      3) Brief history of state aviation and background of state aviation programs.
      4) Future of State aviation and its role in economic and social progress.
      5) Priorities for state resource allocation (Volume I or II). See figure V-1 for typical method of illustrating airport development priorities.
      6) Relation of the State's aviation role, policies, programs, and facilities to those of adjacent states and the Nation.
      7) Highlights of major air transportation, aeronautical developments, and problems within the State and Nation.
      8) Brief summary of statutes related to airport development such as control of tall structures, aircraft noise abatement, compatible land use controls, and financial resources.
      9) Existing system description – general description of airport system, how well it meets its current requirements.

   d. **Chapter 4. The Development of a State Plan.**

      1) General description of how data were collected on existing aeronautical facilities, aviation statistics, and related State and local factors. Also, how other planning programs were considered.
      2) General description of entry criteria and the basis for same.
      3) General description of important planning assumptions which were used.
      4) Summary of forecasting methodologies and techniques.

   e. **Chapter 5. The Plan.** This chapter should contain a summary of planned development for the State airports (tabulation format) with estimated cost of development (based on current dollar value), map identification of proposed location of each facility by type and priorities for development.

   f. **Chapter 6. Coordination.** Evidence should be indicated that coordination of the State Airport System Plan with other plans, such as State comprehensive plans, highway plans, and regional metropolitan and local land use plans has been accomplished, including a specific listing of agencies and individuals that are to receive a formal copy of the plan. Approvals, concurrences, and other comments should also be included as a result of prior circulation of the draft. Where appropriate, responses to comments should also be added.

   g. **Chapter 7. Airports and the Economy.** The environmental and socio-economic assumptions and considerations of the plan should be covered in this chapter.

   h. **Chapter 8. Implementation and Continuing Planning Program.** This chapter should discuss costs and financing and should show how the planned development is to be accomplished. It should be designed primarily for the use of airport owners and/or sponsors so they may complete necessary advance planning of the proposed development and be assured that, within the limits of State and/or Federal funds available, requests for financial assistance will be approved. The plan should also discuss the procedures that will be used to update the plan and the planned time frame for updating.

2. **GRAPHICAL PRESENTATIONS FOR VOLUME I.** The amount and types of graphic presentation will vary somewhat from State to State depending on allowable printing costs and individual taste. Quite early in the planning process, advice should be sought from individuals familiar with the techniques of report preparation, graphics, and

layout. Also, if photos are to be used, it is wise to collect them some time in advance so there will be a wide selection from which to choose. It is suggested that the following are best shown graphically:

a. **Inventory of Existing Resources.** *State map(s) for each of the following:

* 1) Existing airports, heliports, seaplane bases, both public and privately owned, serving the public.
2) Aircraft population and distribution by symbols.
3) Active pilots and distribution by symbols.
4) Existing trunk, regional, intrastate, and scheduled air taxi (commuter-local service routes).
5) Current surface travel routes.
6) Recreation areas to be served by air.
7) Existing Federal airways.
8) Location and types of existing enroute navigational aids.
9) Location and types of environmental sensefire areas (national parks, wildlife area, etc.).

b. **The State Plan.** State maps showing:

1) Existing airports and those needed in the different planning periods by class and system role. (Note: It may be necessary to use a map for each before preparing a composite map or at least use coloring to illustrate the different categories comprising the entire system.)
2) Present and future major surface travel routes needed to serve the State by the different planning periods.
3) Proposed enroute navigational aids.
4) Alternate new airport locations evaluated.

Graphs showing forecasts for the state:

a. Number of airports.
b. Civil aircraft (transport and general aviation).
c. Air carrier/air taxi enplaned passengers.
d. General aviation flying (by classification).
e. Aircraft by type of operation.

3. **VOLUME II. STATE AIRPORT SYSTEM PLAN – TECHNICAL SUPPLEMENT.**

a. **Chapter 1. Foreword.** Relate to Volume I and state that the technical supplement contains the backup assumptions, derivations, and methodologies used in developing the plan. This volume should also contain the inventory of existing airports. Specific reference should be made to individual or organization to contact for additional information regarding the plan.

b. **Chapter 2. Airports in the State System and Their Classification.** As developed in Section 3 of this document. (Include both existing and planned classification, if these are to change.)

c. **Chapter 3. Inventory of Existing Aeronautical Facilities.** As developed using Chapter 8 of this document.

d. **Chapter 4. Coordination with other Planning Programs.** As developed in Sections 1 & 2 of this document.

e. **Chapter 5. Sources of Aviation Statistics and Forecasts.**

f. **Chapter 6. National, State, and Local Socio-Economic Factors Affecting Amount of Aeronautical Activity.**

g. **Chapter 7. Forecast of Aeronautical Activity.** As developed using Chapter 10 of this document. See figures V-2, V-3, V-4, and V-5 for typical methods of illustrating selected planning information.

h. **Chapter 8. Airport System Requirements.** As developed using Section 4 of this document.

i. **Chapter 9. Requirements for Navigational Aids.** Reference Section 3 of this document.

j. **Chapter 10. Inventory of Airports.** Data sheets for each active civil airport in the state, cross-checked with FAA Airport Master Records (5010.1), aeronautical charts, and other recognized sources for the greatest possible accuracy. Surrounding land use information and maps may normally be obtained from responsible local comprehensive planning agencies. Include maps, as appropriate, for each airport which shows major airport facilities as well as identification of surrounding land uses in the airport's immediate environs.

4. **APPENDICES.** Any information or data deemed necessary to support a specific approach to developing the plan or situation that may be of a controversial nature requiring additional detail.

Note: The ranking individual responsibility for developing the State airport system plan should make sure that all detail backup information and supporting documentation, plus the master copy of the published plan, are properly indexed and stored for possible future use. If a consultant develops the plan, the project should not be closed until the appropriate backup material has been delivered to the State in an acceptable manner.

Priority Improvement Schedule
Fiscal Year 1973

Airport	Improvement	Rating*	Cost
Standiford	Runway Overlay	126.14	2,500,000
LJC Jetport	Land Purchase	121.49	21,000,000
LJC Jetport	Engineering	119.99	600,000
Lexington	Land Purchase	92.37	275,000
Cincinnati	Land Purchase; Site Leasing	88.45	6,250,000
Cincinnati	Access Road; Site Work	87.19	1,290,000
Lexington	Terminal	72.87	2,250,000
Cincinnati	Aircraft Apron	71.29	4,500,000
Cincinnati	Terminal Work	68.95	18,000,000
Lexington	Auto Parking	63.87	15,000
Cincinnati	Auto Parking	61.45	600,000
Cincinnati	Utilities Work	59.95	1,000,000
Cincinnati	Security Fence	59.59	250,000
Paducah	Land Purchase	57.44	100,000
Paducah	Light and Mark VFR Runway	51.44	45,000
Owensboro	Extend Runway	50.63	750,000
Owensboro	Navigational Aids	49.13	75,000
Ashland	Land Purchase; Site Prep.	48.68	24,400
London	Navigational Aids	47.87	94,500
Somerset	Land Purchase	47.64	6,700
Elizabethtown	Land Purchase	46.45	63,000
London	Parallel Taxiway	46.37	257,000
Elizabethtown	Build Access Road	44.35	233,000
Richmond	Land Purchase	43.44	63,000
Ashland	Extend Runway	43.28	230,430
Danville	Land Purchase	43.23	2,300
Georgetown	Pave and Light Runway	42.68	250,000
Paducah	Fire and Rescue Equipment	41.95	40,000
Richmond	Site Preparation	41.94	6,800
Middlesboro	Land Purchase	41.79	4,000
Greenville--Central City	Land Purchase	41.62	1,100
Richmond	Build Access Road	41.34	233,000
Mt. Sterling	Land Purchase	40.85	3,000
Carrollton	Land Purchase	40.78	63,000
Hazard	Land Purchase	40.64	123,000
Elizabethtown	Pave, Light Runway, Navaids	40.45	329,900
Richmond	Pave Light Runway, Turnaround	40.44	277,100
Olive Hill	Land Purchase	40.29	900
Mammoth Cave	Land Purchase	40.15	55,000
Pikeville	Build Access Road, Parking	40.15	350,000
Somerset	Parallel Taxi	40.14	100,000

*RATING FACTOR BASED ON PRIORITY MODEL DEVELOPED SPECIFICALLY FOR THE STATE OF KENTUCKY

Figure V-1. Typical Method of Illustrating State Airport Development Priorities

Based Aircraft Projections by Classification

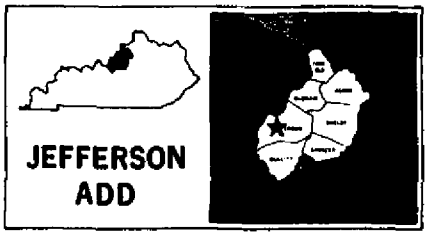
Kentucky Airport	1975 Classification C Heavy–Twin Business Jet Over 12,500 Lbs.	D Multi-Engine Under 12,500 Lbs.	E Single-Engine Under 12,500 Lbs.	TOTAL 1975 Based Aircraft	1980 Classification C Heavy–Twin Business Jet Over 12,500 Lbs.	D Multi-Engine Under 12,500 Lbs.	E Single-Engine Under 12,500 Lbs.	TOTAL 1980 Based Aircraft	1990 Classification C Heavy–Twin Business Jet Over 12,500 Lbs.	D Multi-Engine Under 12,500 Lbs.	E Single-Engine Under 12,500 Lbs.	TOTAL 1990 Based Aircraft
PURCHASE ADD												
Fulton	0	2	9	11	0	3	11	14	0	5	17	22
Kentucky Dam	0	2	9	11	0	3	11	14	0	5	17	22
Mayfield–Graves County	0	1	6	7	0	2	7	9	1	3	10	14
Murray	0	2	9	11	1	3	10	14	2	5	17	22
Paducah	2	12	21	35	3	14	27	44	7	24	38	69
Benton*	–	–	–	–	0	0	3	3	0	1	4	5
PENNYRILE ADD												
Marion*	–	–	–	–	–	–	–	–	–	1	4	5
Cadiz (Lake Barkley)*	–	–	2	2	–	–	3	3	–	1	4	5
Elkton	–	–	3	3	–	–	4	4	–	1	5	6
Greenville–Muhlenberg County	–	4	8	12	–	5	10	15	–	8	16	24
Hopkinsville–Christian County	–	3	17	20	–	5	20	25	4	10	25	39
Madisonville	2	9	15	26	5	10	17	32	10	15	25	50
Princeton–Caldwell County	–	1	7	8	–	2	8	10	–	4	11	15
Dawson Springs*	–	–	–	–	–	–	–	–	–	1	3	4
Land Between the Lakes*	–	–	–	–	–	–	2	2	–	1	3	4
GREEN RIVER ADD												
Hawesville–Hancock County	–	3	8	11	–	4	10	14	–	6	16	22
Henderson*	–	4	26	30	2	6	32	40	6	12	44	62
Morganfield	–	–	2	2	–	–	3	3	–	–	5	5
Owensboro–Daviess County	6	30	44	80	10	32	48	90	28	48	64	140
Sturgis	–	1	6	7	–	2	7	9	–	4	10	14
Beaver Dam–Hartford	–	–	–	–	–	–	3	3	–	1	4	5
BARREN RIVER ADD												
Scottsville*	–	–	–	–	–	–	–	–	–	–	4	4
Tompkinsville*	–	–	–	–	–	–	1	1	–	–	3	3
Mammoth Cave*	–	–	–	–	–	–	2	2	–	–	4	4
Bowling Green–Warren County	2	8	24	34	3	10	31	42	14	16	35	65
Glasgow	–	3	21	24	2	4	24	30	5	10	33	48
Russellville–Logan County	–	1	9	10	–	2	10	12	–	4	15	19
Edmonton*	–	–	–	–	–	–	–	–	–	–	3	3
Franklin	–	–	6	6	–	1	7	8	–	3	9	12
LINCOLN TRAIL ADD												
Bardstown	–	4	7	11	–	5	9	14	2	8	12	22
Elizabethtown–Hardin County*	–	2	16	18	–	4	18	22	3	7	25	35
Hardinsburg–Breckinridge County	–	3	7	10	–	4	8	12	–	6	13	19
Lebanon–Springfield	–	–	1	1	–	–	2	2	–	–	4	4
Rough River	–	–	1	1	–	–	2	2	–	–	4	4
Nolin Reservoir*	–	–	–	–	–	–	3	3	–	1	4	5
JEFFERSON ADD												
Louisville–Standiford Field	10	5	2	17	11	8	4	23	13	15	10	38
Louisville–Bowman	2	64	251	317	–	79	317	396	–	124	495	619
Louisville–Jefferson County Airport*												
NORTHERN KENTUCKY ADD												
Williamstown*	–	–	–	–	–	–	3	3	–	1	4	5
Greater Cincinnati	5	12	18	35	6	16	22	44	10	25	34	69
Carrollton*	–	–	4	4	–	1	4	5	–	2	6	8
Falmouth*	–	–	–	–	–	–	3	3	–	1	4	5
BUFFALO TRACE ADD												
Fleming-Mason	–	–	1	1	–	–	3	3	–	1	4	5
Vanceburg*	–	–	–	–	–	–	1	1	–	–	3	3

Figure V-2. Typical Method of Illustrating Based Aircraft Projections by Classification

Practical Annual Capacity (PANCAP): Using Airport Capacity Criteria Used in Preparing the National Airport Plans

Classification	Kentucky Airport	Present Runway Configuration and Capacity: Single R/W Min. T/W (1)	Single R/W Improved T/W (2)	Multiple R/W Min. T/W (3)	Multiple R/W Improved T/W (4)	Aircraft Mix: % A:B:C:D&E	VFR Peak Hour	PANCAP (000)	1990 Runway Configuration and Capacity: Configuration (1-2-3-4)	Aircraft Mix: % A:B:C:D&E	VFR Peak Hour	PANCAP (000)
	PURCHASE											
BII	Fulton	X				0:0:0:100	77	110	1	0:0:0:100	77	110
G	Kentucky Dam	X				0:0:0:100	77	110	1	0:0:10:90	77	110
G	Mayfield–Graves County	X				0:0:0:100	77	110	1	0:0:10:90	77	110
BT	Murray	X				0:0:0:100	77	110	2	0:0:20:80	105	160
AC	Paducah			X		0:0:20:80	83	130	4	0:10:20:70	81	155
BII	Benton*								1	0:0:0:100	77	110
	PENNYRILE											
BI	Marion*								1	0:0:0:100	77	110
BII	Cadiz (Lake Barkley)*								1	0:0:0:100	77	110
BI	Elkton	X				0:0:0:100	77	110	1	0:0:0:100	77	100
BII	Greenville–Muhlenberg County	X				0:0:0:100	77	110	1	0:0:0:100	77	110
G	Hopkinsville–Christian County	X				0:0:0:100	77	110	1	0:0:10:90	77	110
BT	Madisonville	X				0:0:10:90	77	110	2	0:0:20:80	105	160
BII	Princeton–Caldwell County	X				0:0:0:100	77	110	1	0:0:0:100	77	110
BI	Dawson Springs*	X							1	0:0:0:100	77	110
BII	Land Between the Lakes								1	0:0:0:100	77	110
	GREEN RIVER											
BII	Hawesville–Hancock County	X				0:0:0:100	77	110	1	0:0:0:100	77	110
G	Henderson*	X				0:0:0:100	77	110	1	0:0:10:90	77	110
BI	Morganfield	X				0:0:0:100	77	110	1	0:0:0:100	77	110
AC	Owensboro–Daviess County				X	0:0:20:80	83	130	4	0:10:20:70	81	155
BII	Sturgis				X	0:0:0:100	225	320	4	0:0:0:100	225	320
BII	Beaver Dam–Hartford*								1	0:0:0:100	77	110
	BARREN RIVER											
BII	Scottsville*								1	0:0:0:100	77	110
BII	Tompkinsville*								1	0:0:0:100	77	110
BII	Mammoth Cave*								1	0:0:0:100	77	110
AC	Bowling Green–Warren County			X		0:0:20:80	83	130	4	0:10:20:70	81	155
G	Glasgow		X			0:0:10:90	110	150	2	0:0:10:90	110	150
BII	Russellville–Logan County	X				0:0:0:100	77	110	1	0:0:0:100	77	110
BI	Edmonton*								1	0:0:0:100	77	110
BII	Franklin*								1	0:0:0:100	77	110
	LINCOLN TRAIL											
G	Bardstown	X				0:0:0:100	77	110	2	0:0:10:90	115	160
G	Elizabethtown–Hardin County	X				0:0:0:100	77	110	2	0:0:10:90	115	160
BII	Hardinsburg–Breckinridge County	X				0:0:0:100	77	110	1	0:0:0:100	77	110
BII	Lebanon–Springfield	X				0:0:0:100	77	110	1	0:0:0:100	77	110
BII	Rough River	X				0:0:0:100	77	110	1	0:0:0:100	77	110
BII	Nolin Reservoir*	X				0:0:0:100	77	110	1	0:0:0:100	77	110
	JEFFERSON											
GT	Louisville–Standiford Field				X	20:40:20:20:	74	250	4	0:30:30:40	106	275
G	Louisville-Bowman				X	0:0:10:90	135	190	4	0:0:10:90	135	190
AC	Louisville–Jefferson County*								4	60:20:20:0	180	560
	NORTHERN KENTUCKY											
BII	Williamstown*								1	0:0:0:100	77	110
AC	Greater Cincinnati				X	20:40:20:20	105	440	4	40:40:20:0	105	470
G	Carrollton*								2	0:0:10:90	115	160
BII	Falmouth*								1	0:0:0:100	77	110
	BUFFALO TRACE											
G	Fleming–Mason								1	0:0:0:100	77	110
BI	Vanceburg*								1	0:0:0:100	77	110

Figure V-3. Typical Method of Illustrating Practical Annual Capacity of Selected Airports



Name: Standiford Field

County: Jefferson

Location: 4½ miles Southeast of center of city

Elevation: 497 feet

Existing Facilities and Services: R/W 1-19 7800 ft x 150 ft paved; 6-24 5000 ft x 150 ft paved; 11-29 paved 7250 ft x 150 ft, lighting, fuel, scheduled air carrier service, manager, FBO.

General Information: This facility expected to be converted into a general transport facility by 1980. Air carrier service to be assumed by new Louisville-Jefferson County airport. Critical aircraft DC-10-30.

SUMMARY DATA

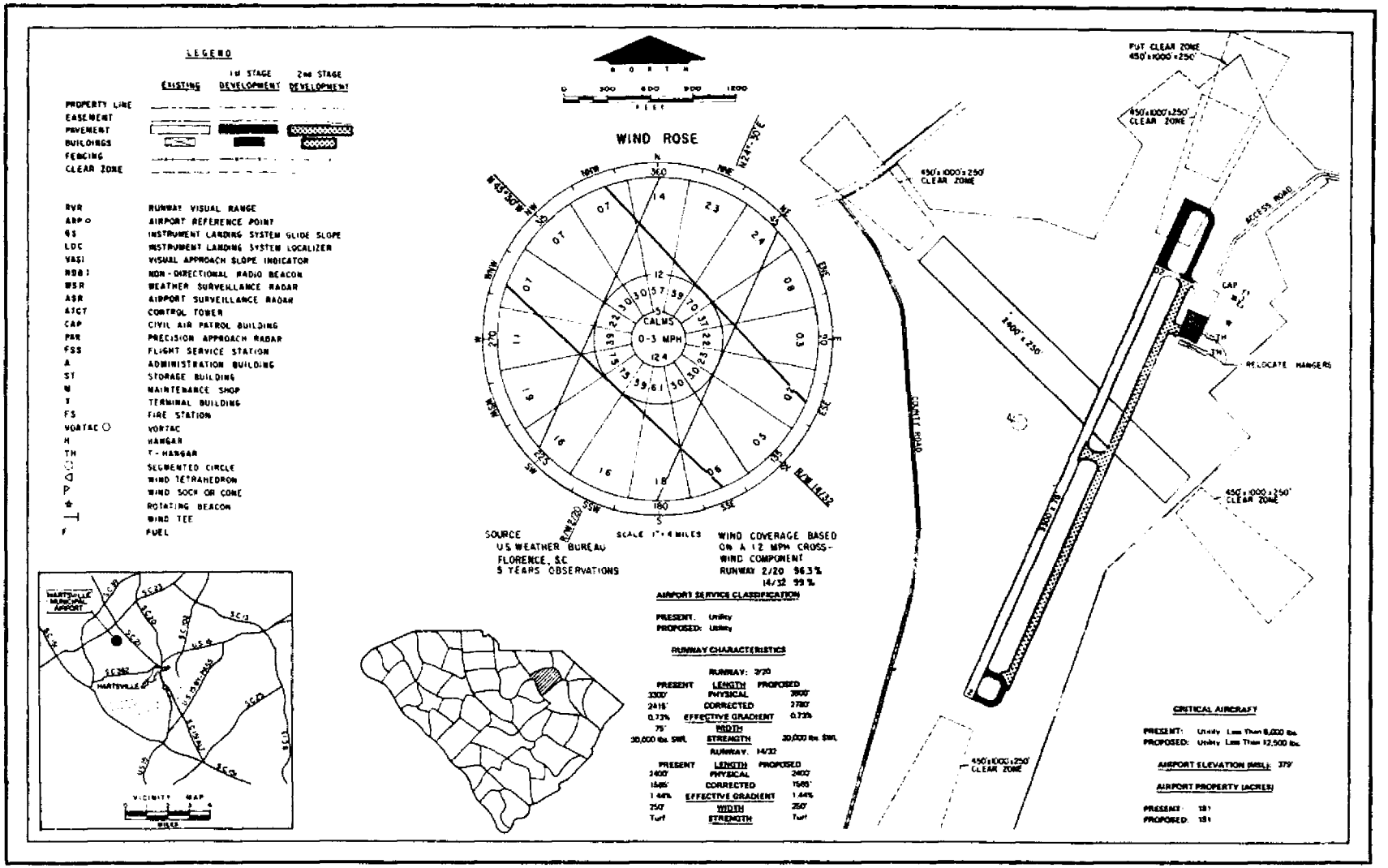
Socioeconomic	50	60	65	70	75	80	85	90
Population *	1/	680.0	732.0	777.0	825.0	868.0	911.0	954.0
Number Employed*	1/	239.0	309.0	335.0				
Motor Vehicle Registration*	1/	237.0	303.0	370.0	439.0	508.0	577.0	646.0
Covered Employment *	1/	122.0	146.0	168.0				
Number w/ Income Over $10,000*	1/	4.1	26.7	77.9	99.4	133.5	167.5	201.6
Gross Income Over $10,000***	1/	0.19	0.47	1.3	1.6	2.3	2.8	3.2
Aggregate Recreation Demand	1/							
Operational								
Annual Operations (Total) *	1/	114.3	105.4	144.8	160.0	205.0	260.0	325.0
Itinerant Operations *	1/			130.3	144.0	184.5	234.0	292.5
Air Carrier Operations *	1/	75.6	54.4	81.3	89.4	0	0	0
Enplaned Passengers **	1/	0.38	0.59	0.90	1.9	0.3	0.4	0.5
Peak Hour Operations	1/	1/	1/	50.0	64.0	82.0	104.0	130.0
Critical Aircraft Operations *	1/	1/	1/	42.0	46.4	59.5	75.4	94.3
Instrument Approaches*	1/	1/	1/	5.8	6.4	8.2	10.4	13.0
Based Aircraft	1/	1/	1/	11.0	17.0	23.0	30.0	38.0

IMPROVEMENT SCHEDULE

Year		Total
73	Overlay of R/W 11-29 (2250 ft) - $200,000; Overlay of R/W 1-9 and taxiway - $2,300,000.	$2,500,000
74	Extend R/W 1-19 1800 ft - $3,500,000.	$3,500,000
75	Bit overlay R/W 6-24 - $250,000.	$ 250,000
76-80	Extend taxiway C - $600,000; Removal of hazard - $60,000; Bit overlay of East Ramp - $140,000; Shop (Bowman and Standiford) - $200,000.	$1,000,000
81-85		
86-90		

GRAND TOTAL: $7,250,000 **SCALE:** *(000) ** (000,000) 1/ Not Available

Figure V-4. Typical Method of Illustrating Recommended Development and Selected Airport Data



SOURCE: SOUTH CAROLINA STATE WIDE AVIATION AND AIRPORT PLAN

Figure V-5. Typical Method of Graphically Illustrating Recommended Airport Development

* U. S. GOVERNMENT PRINTING OFFICE : 1972 O - 488-878