

Table 2. Project needs and issues relating to scope.

<u>Project Need</u>	<u>Issue Regarding Scope</u>
New runway	Length, width, strength
Parallel taxiway	Length, width, strength
Apron expansion	Dimensions and strength
Runway lighting	Low, medium, high intensity
Fire/crash/rescue station	Number of bays
Runway overlays	Thickness and material

apply to future revenue streams to allow consistent comparisons of costs and revenues.

5. Select the alternative that yields an ROI greater than one. If there are more than one, select the highest ROI calculation.

Minimizing Construction Costs

Once it is determined that a project is justifiable and its scope is properly defined, efforts must be made to minimize the cost of the ensuing construction. This is accomplished through sound planning, flexible design standards, stringent pavement maintenance programs and careful project management.

Sound planning prior to the initiation of construction can have a significant impact on cost containment. Projects should be sited with economy of construction in mind. For example, changing the orientation of a crosswind runway so that it offers 95 percent rather than 97 percent coverage, still acceptable even by FAA standards, may offer substantial savings in grading and avoid the relocation of facilities in the path of the original site. In this case one must consider the tradeoff between the optimal siting of a project from a convenience standpoint and the cost savings realized from siting modifications.

The development of a good Airport Layout Plan (ALP) is a crucial aid to achieving lower construction costs. This plan provides for the orderly expansion of a facility as warranted, without unnecessary disruption to or relocation of existing facilities. Thus runway extensions should not require the expensive removal of hangars or buildings.

Planning to minimize the duration of construction also offers significant cost savings. Wherever it is feasible to close down a portion of the airport, and thereby accelerate construction, labor savings and better utilization of equipment yield substantial cost advantages.

The utilization of innovative and/or flexible design standards can also help minimize construction costs. Since general aviation airports do not need to be constructed to the same stringent standards as those served by scheduled air carriers, more flexible design standards offer sizeable cost savings.

Design criteria should be established which take into account the availability of local materials. This reduces the cost of shipping materials to the construction site.

The contractor should be given the latitude to select construction materials within the confines of specification boundaries. The cost and availability of construction materials can be assessed prior to the acceptance of the project design.

It is also wise for the airport sponsor to hold a preconstruction conference with interested contractors to confront those issues which can significantly affect costs. Incentives should be provided to develop design modifications that meet specifications (for example, split savings) wherever possible.

Stringent pavement maintenance programs can reduce the frequency of resurfacing projects, one of the major cost categories faced by the airport sponsor. This generally entails establishing an objective and systematic pavement rating index to determine the most cost-effective timing of projects and keeping pavement sealed and levelled.

Once the actual project construction proceeds, a final measure for holding down costs is the institution of careful project management practices. This is needed to insure the efficient phasing of construction, proper use of labor resources, and the monitoring of construction to ensure that the project meets all required specifications. This should be undertaken by the project manager in coordination and cooperation with the appropriate airport officials.

ALTERNATIVE FINANCING MEASURES FOR GENERAL AVIATION AIRPORTS

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Summary

Obtaining financing to underwrite improvements at general aviation airports has historically been a difficult task. This paper examines the strengths and weaknesses of four financial instruments: general obligation bonds, revenue bonds, municipal corporations, and industrial development bonds; and then discusses the major factors used to determine a community's bonding potential.

In the years ahead, more general aviation airports will have to become self-sufficient to finance badly needed capital improvements. Although some airports may be able to obtain subsidies by demonstrating their social value, there are no free lunches. Airport managers will need to become more innovative in searching out methods for financing improvements and the communities they represent will need to take action to enhance their revenue and bonding potential.

Introduction

Historically it has been difficult to finance capital improvements at general aviation airports. Even when federal funds are available, some airport sponsors have been unable to secure local matching revenues.

General aviation projects an image that interferes with the ability to garner financial support from the local citizenry. It encompasses such a wide variety of flying activities that its mission is somewhat vague in the minds of the non-aviation public. Furthermore general aviation is

incorrectly perceived by some as a recreational sport for doctors and lawyers.

Most general aviation airports are not financially self-sustaining and thus are tax drains on the local community. However, the financial viability of the facility depends to a large extent on whether it serves a metropolitan area, or a smaller community.

General aviation airports located in densely populated metropolitan areas are able to generate local revenues by charging substantial fees for the privilege of utilizing the facility. Normally these facilities are expected to cover a larger share of their operating and capital costs than their counterparts in smaller cities and rural areas and improvements are justified from a strictly economic perspective.

Because airports in smaller towns have limited revenue-generating capabilities and are seldom self-sustaining, improvements to their facilities are justified on the basis of the indirect economic benefits offered to the community. The airport is seen as a public utility which offers intangible benefits not reflected in the facility's income balance statement. Additionally these facilities may attract aircraft owning industries and create needed employment in the community.

Regardless of the size and location of the general aviation airport, the ability to finance a capital improvement rests directly on the airport manager. The wide variety of financial instruments available to airport officials for generating needed local capital are discussed in the next section.

Financial Instruments

Four typical instruments used to finance general aviation airport improvements are general obligation bonds, revenue bonds, municipal property corporation bonds, and industrial development bonds.

Municipalities can issue general obligation bonds provided they have voter approval. Debt limitations, however, can constrain the ability of a municipality to issue such a bond. Furthermore, pressures of competing municipal services for general revenues make it difficult to use general obligation bonds to finance airport development.

General obligation bonds are sold on the open market and backed up with the taxes and other general purpose funds the municipality collects. These bonds generally carry lower interest rates than revenue bonds because they are secured by the full faith and credit of the community's taxpayers.

One Wisconsin community has effectively used a general obligation bond to improve its airport. Although the airport has some air carrier service, its problems are similar to general aviation facilities since its revenue base does not offset its costs.

The voters approved a \$1.9 million bond issue to cover the local cost of a new runway, terminal, fire/crash/rescue building and maintenance facility at the same time the community received a federal airport grant. A local bank sold bonds in the community just before interest rates escalated, and shrewd officials placed the proceeds from the sale in higher yielding investments. As a result the airport sponsor earned \$350,000 after retiring principal and interest on the bonds and the local community benefited from improvements to its airport.

Revenue bonds, another financing mechanism, are retired strictly by the revenues generated from a particular improvement. For example, if revenue bonds are sold to cover the cost of constructing an

apron, the tie-down fees charged for parking aircraft on that apron would be used to retire the bonds. Of course the airport must have a strong enough traffic history to assure that the apron will be fully utilized. The general requirement for bonded indebtedness is a ratio of 2:1; in other words, \$2 million in revenue should be generated to sell \$1 million in bonds.

Municipal property corporations can also issue bonds. These are non-profit corporations which can pledge sales, franchise and other special use taxes to retire their bonds. This gives the bond holder more security than offered by most revenue bonds and consequently results in lower interest rates. A feature of this form of financing which results in opposition to its usage is that taxes generated in part by non-airport users are employed to cover the cost of facility improvements.

Industrial Development Authority Bonds are often issued when a corporation locates or intends to locate at an airport, and agrees through the fees it pays and its financial holdings to underwrite the bonds. Although these types of bonds have not been widely used to finance airport improvements, they have the potential to be employed more extensively in the future.

In some instances airport improvements will be funded by a combination of the above financial instruments. These hybrid financial packages, however, may be complicated and carry higher interest rates reflecting greater risk.

The types of financial instrument most amendable to a particular airport sponsor, depends upon the nature of the facility. General aviation airports in large metropolitan areas serve enough traffic and generate enough user charges to support revenue bonds. Airports in smaller communities with uncertain financial viability, on the other hand, must rely more heavily on general obligation bonds or other financial mechanisms. Unfortunately these communities may lack the characteristics needed to gain credibility in the eyes of institutions that issue bonds. Some of the many factors involved in evaluating the bonding potential of a particular community and its airport are discussed below.

Bonding Potential

Financial institutions examine many factors in order to gauge the bonding potential of communities interested in financing an airport improvement. The following five factors are commonly assessed:

- Name recognition. Communities that are known throughout the country have a wider market for their bonds than lesser known cities. Phoenix airport revenue bonds are marketable in New York, while smaller towns would have difficulty selling bonds out of the state.
- Stability and economic viability of the community. Communities that have a long history of financial stability are in a better position to offer bonds than newer cities. Thus a new town or planned community might have more difficulty selling bonds than an established one.
- Forecasts of airport traffic and associated revenues. A major determinant of a community's airport revenue bond potential is traffic forecasts. The number of based aircraft and aircraft take-offs and landings are used to compute

airport revenue assuming the payment of certain charges for such usage. Generally revenue estimates are derived by assuming that existing rates remain constant, but factoring in increases to offset the impact of inflation. Financial analysts are very conservative and somewhat reluctant to assume that local officials will be able to raise user charges beyond an amount necessary to offset inflation.

- Political support. The degree of political support behind an airport development option plays a large role in determining bonding capability. A city council that votes 4 to 3 to finance the construction of an airport improvement, may not find it as easy to sell bonds as one that votes 7-0.
- Competitive markets. An examination of the facilities at neighboring airports, and the charges for their usage, may give some idea of the potential of the airport facility being analyzed.

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