



Aircraft Hangar Development Guide

A Valuable Airport Resource



CONTENTS

INTRODUCTION	2
<hr/>	
PROJECT PLANNING	
Step One	4
Step Two	9
Step Three	14
<hr/>	
PROJECT EXECUTION	
Step Four	20
Step Five	32
<hr/>	
APPENDIX I	34
<hr/>	
APPENDIX II	36
<hr/>	
APPENDIX III	38



The AOPA Airport Support Network program was introduced in 1997 in order to assist members in preserving general aviation airports throughout the United States. Today, AOPA works with some 1700 Airport Support Network volunteers to promote, protect and defend America's community airports.

This Aircraft Hangar Development Guide is another in a series of publications AOPA has created in order to help individual volunteers keep their airport healthy, vibrant and growing.

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Aircraft Hangar Development Guide
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INTRODUCTION

MANY PILOTS WHO own or plan to own an aircraft want a hangar to protect their valuable investments in personal transportation from the elements. But there seem to be many more general aviation (GA) aircraft than available hangars. Perhaps your name is on one or more hangar waiting lists.

Building hangars can attract new businesses and generate additional revenue for the airport. In fact, a well-executed and successful hangar project can be the key to a financially-secure GA airport.

The purpose of *Aircraft Hangar Development Guide* is to help you and your airport owner successfully plan, design, and complete a new hangar development project at your airport. In an ideal setting, a hangar project would be straightforward: Project scoping, financial justification, preliminary design and budgeting, funding, approvals, construction, and moving in all would fall into place as projected. Unfortunately, the ideal hangar project rarely exists. You could face hurdles such as confusing regulations or funding difficulties. This guide—and your persistence will help you deal with the challenges of building hangars at your airport.

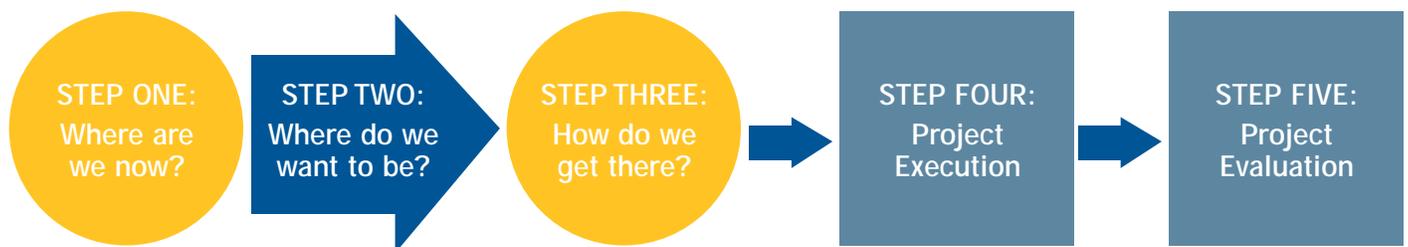
This guide has been tailored to meet the needs of a typical GA airport. Some specific elements may

not apply to your airport, and your locale may not face the same planning complexities as other parts of the United States. Regardless, this comprehensive guide covers many of the details you need to know—from start to finish—about a hangar development project.

Checklists at the end of each section make it easy to determine if you are ready to move to the next phase of the project. The guide also includes references to publications by the Aircraft Owners and Pilots Association (AOPA) and the Federal Aviation Administration (FAA) to provide you with additional information about building hangars.

THE BASIC PROCESS for planning and executing a successful hangar project has five steps. Take a look at the following flow chart and outline to see how the details of each step fit together.

Each of these five steps is equally important, but the success of a hangar project largely depends upon how well the first three steps are executed. Many projects fail because the implementation team neglects the first three planning steps and spends its efforts executing the project (choosing a contractor, setting a completion date, selecting the type of hangar doors). Prematurely jumping into project execution guarantees a



STEP ONE: WHERE ARE WE NOW?

- Determine the need for hangars (type, size, and number)
- Analyze the airport environment

STEP TWO: WHERE DO WE WANT TO BE?

- Explore alternate approaches
- Estimate financial impact
- Analyze strengths, weaknesses, opportunities, and threats
- Analyze boundary conditions
- Conduct stakeholder analysis
- Create a business plan

STEP THREE: HOW DO WE GET THERE?

- Frame and plan the project
- Build stakeholder support
- Prepare the project team
- Create preliminary project estimates
- Identify funding sources
- Prepare financial documentation
- Identify the review and approval steps

STEP FOUR: PROJECT EXECUTION

- Design and secure funding for hangars
- Solicit bids and award construction contracts
- Build hangars
- Complete the project and move in new tenants

STEP FIVE: PROJECT EVALUATION

- Evaluate the project financial performance
- Prepare a project summary for airport owner
- Conduct a user survey

costlier, more difficult, time-consuming effort that is likely to fail. It is important to evaluate the project at the end because this will uncover the strengths and weakness in the process that can be improved upon during future projects. It also can serve to promote the successful operation of the new hangars.

IT IS CRITICAL that each party involved in the project understands and agrees with the elements

detailed in the initial phases of planning. So, much of your effort during the first two steps will be spent building a compelling business case (See Appendix III “Is Your Business Case Compelling?”). At times it might feel as if you are not making progress, but the reality is just the opposite. Think of it as “going slow to go fast.” This approach can produce a high degree of acceptance, support, and commitment from all interested parties and lead to a cost efficient and timely project.

PROJECT PLANNING — STEP ONE

WHERE ARE WE NOW?

In this first step, you will assess the current state of your airport, how well it operates, and the viability of a hangar project. This includes quantifying the demand and need for hangars, assessing the “environment” within which the project will be executed, and obtaining support from key decision makers. It also means becoming familiar with the FAA requirements and regulations that govern airport development.

Before you begin, identify the key players who can assist you with the work. The team could include airport owner representatives, engineering consultants, and airport supporters.

Determine the need

Start by studying your airport hangar waiting list. If your airport does not have one, generate one to learn if there is a demand for hangars. Determine the level of commitment from those on the list—do they intend to occupy a hangar once one is built? In some cases, people have their names on multiple lists at neighboring airports, or they do not currently own an aircraft. In other cases, the waiting lists are not well managed, are out of date, or do not reflect the realistic demand for hangars. In any case, the waiting list and pilot demand for new hangars should be verified. A direct mail solicitation or survey to pilots within the airport’s service area should be considered.

ECONOMICS 101

Need or demand most certainly will be related to the cost of the hangar rental unit. It is wise to include an estimate of the rental cost on any existing or new waiting list or survey. Although basic hangar construction costs are available industry-wide and the hangar manufacturers will help, this first pricing estimate will require sharp estimates on site and land work.

One effective method to gauge the commitment of those on your airport’s hangar waiting list is to require a cash deposit from each individual to hold his or her spot on the list. It is incumbent on whoever manages the waiting list to do so fairly and equitably—never allow back room deals to influence priority on the list.

The type of hangar depends on the demand of your tenants and what is most appropriate at your airport. For example, nested T-hangars most often are attractive to potential renters because they provide the greatest degree of weather protection and security, whereas shade hangars have a structurally supported roof but open sides (no walls). Portable hangars are less expensive to build, but they are less durable and generate less revenue. Box hangars usually are attractive to owners of larger aircraft. These hangars can be quite expensive to build, but they also generate significant revenue.

ADDITIONAL ISSUES TO ADDRESS

- History of hangar project execution at your airport
- Demand for hangars at neighboring airports (and how that demand is being addressed)
- Sensitivity to paying higher hangar rent (new hangars probably will be more expensive to build, requiring higher rental fees)



Analyze the airport environment

Analyzing the environment within which you will be executing your project is a vitally important element that often is overlooked. Airport supporters often presume that if the demand for hangars is strong, then all a person must do is obtain the funding needed to complete the project. But before you seek funding, it is critical to research all of the elements in the airport environment. These elements include airport owner support, community support, airport master plan, zoning and land use, environmental issues, airport community design standards, airport tenant support, availability of project funding, and the current airport financial situation.

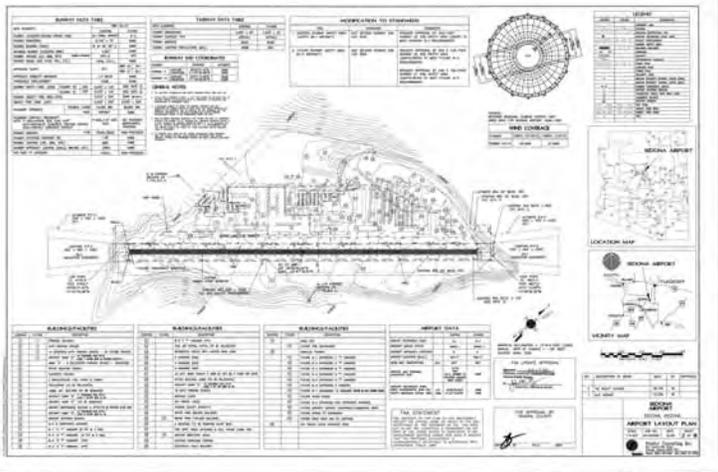
Airport owner support: If you don't have solid owner support for your airport, you will be fighting an uphill battle the entire way. Whether the airport is privately owned or city, county, or even state owned, you'll need a lot of help and support to successfully execute the hangar project. Identify the key decision makers early, because you will need their support to get favorable decisions on funding applications, permits, and contractor bid and award. You will need support from the airport manager, airport commission, city or county council, planning department, and senior city or county staff members.

Community support: A lack of community support for your airport will make your hangar project much more difficult. If your airport has been

a good neighbor, you'll be miles ahead. You might think you know what level of community support currently exists at your airport, but just because you haven't received a series of complaints from neighbors doesn't mean that you have support. Check with local community leaders, newspaper editors, and business groups to learn what they think about the airport. AOPA's *Airports: A Valuable Community Resource* (<http://www.aopa.org/members/files/airport/>) provides strategies that you can use to improve community support.

Airport master plan: Every airport should have an up-to-date master plan—a document approved by the FAA that describes the fully built-out capacity of the airport and the plans for achieving it. It also includes an FAA approved airport layout diagram that illustrates current and future development plans. It is critical that your hangar project is depicted on this diagram early in the planning phase because FAA grant funding, as it may apply to your project, will be based on the airport layout plan.

Zoning and land use: The airport probably has some requirements that govern how land can be used or developed. For example, there may be certain areas on airport property limited to commercial development, designated for aircraft storage, or a combination of the two. Some land



Sample airport layout plan.

might be required to remain open, free from development. If the area available for hangars is not zoned appropriately, you will need to correct that issue first. Consult AOPA's *Guide to Airport Noise and Compatible Land Use* (http://www.aopa.org/asn/land_use/) for basic guidelines on sound land-use planning.

Environmental issues: Environmental issues can be difficult to deal with during airport development. Use a current master plan to address all such issues based on maximum airport built-out capacity. Check with your planning department, community development staff, or other organization that has land-use jurisdiction at the airport, and get their assessment on whether the hangar project will need an environmental impact report (EIR). Typical environmental issues can include noise, traffic, water runoff, water use, soil impact/degradation, visual impact, and vegetation or animal impacts.

Your local FAA Airports District Office (ADO) can be helpful when working through environmental issues, and AOPA can provide technical assistance. An EIR can be time consuming and expensive, so plan accordingly if this becomes unavoidable. It will be important to the airport owner to know what impact an EIR will have on the hangar project. In some cases, EIR

requirements have made hangar projects financially untenable.

Airport community design standards: This may not apply to all airports, but it should be checked. Community design standards usually apply to the architectural design of buildings, including hangars. There may be restrictions on building size, shape, color, materials, and provisions for support infrastructure (parking and handicap access). The airport owner should be able to supply a copy of design standards, if they exist for your airport. These standards can impact the cost of your project, and consequently, your business plan.

Airport tenant support: Even though those on a hangar waiting list might be anxious to have the project completed, others at the airport might not be as enthusiastic. For example, an existing on-airport business may see new hangars as a threat—perhaps the project requires some of the property the business leases, or it creates competition. Determine the level of support you need from current on-airport businesses or other tenants so that they don't prevent the project from moving forward. You also might need to review or modify existing hangar lease documents to address existing or potential conflicts.

Availability of project funding: The main sources of funding for your hangar project will be through existing airport revenues, state aviation fund grants or loans, municipal bonds, and public or private loans. In some circumstances, FAA Airport Improvement Program (AIP) funding may be available thanks to changes made in 2003 by Congress. Vision 100, now Public Law 108-176, allows for the use of AIP funds to construct hangar projects on non-primary airports provided that the airport sponsor has a plan in place to fund all airside development needs first. The local FAA ADO can provide additional information on this program.

Grants through the AIP come with obligations that are intended to support sound financial practices and management of the airport and to ensure that the FAA's investment is secure. The FAA requires all of the grant eligible elements of the hangar project to be included on the airport capital improvement project (ACIP) list. The FAA ADO handles these documents, which amount to an airport wish list. If parts of the hangar project that you expect to be funded by an FAA grant are not included on this list, they won't get approved. Long lead times are associated with ACIP list processing and actually receiving grant funds or other forms of financing for a publicly owned airport, so allow time for this in your business plan and project planning.

To help you understand the obligations associated with FAA grants, the FAA has published two valuable documents: *Airport Compliance Requirements Order 5190.6A* and *FAA Policy and Procedures Concerning the Use of Airport Revenue*. Copies of these are available from the FAA's Web site (www.faa.gov) or from any FAA ADO. A working knowledge of these documents will help in the creation of a sound business plan. It also will be handy when interacting with airport owners and decision makers whose support is needed to successfully execute the project.

If your hangar project is to be a private development, then funding will not be as much of an issue. Check with the airport owner's financial staff for information on sources of private funding. Contact an engineering or aviation-consulting firm that specializes in airport project funding to determine the availability of funding for your project.

Current airport financial situation: Airport supporters and owners often don't fully understand the financial situation of their airport. Depending upon the level of support received and availability of the airport owner's staff, you

might find yourself putting a lot of work into understanding the airport's finances. You might find that the airport owner has not been handling the airport finances properly. For example, airport fuel revenue could have been diverted into non-airport related accounts, depriving the airport of badly needed operating revenue. These issues should be addressed before proceeding with the hangar project.

The airport manager or other individual who is in charge of the airport's finances should be able to help you find the necessary documents to review for the project. Check the monthly revenue and expense statements to see if the financial condition of the airport will support a hangar project. Look through a few years worth of statements to see how revenues and expenses have tracked over time. If your airport has been running deficits, the local owning entity will be less likely to burden the operation with additional debt. This will make it more difficult for you to convince them of the need to build hangars. If a long-term deficit situation exists, you might need to address that first in your business planning before beginning the hangar project. Remember, a well-planned hangar development project could help erase an airport's operating deficit and help the airport turn a profit.

Depreciation is usually a year-end charge to account for the loss of value of an investment over time because of the use of an asset. For example, new hangars put into service are "reduced in value" on the airport financial statement year by year to account for wear and tear. If an airport were to generate enough revenue to cover depreciation charges, it would in effect be building a reserve fund so that when it was time to replace the hangars, sufficient funds would be available to do so without the need of any additional loans or grants. However, few airports are able to do this. (See Appendix I "Airport Revenue and Expense Financial Analysis.")

LISTS OF TYPICAL REVENUE AND EXPENSE LINE ITEMS

Revenues

- Tiedown rent
- Hangar rent
- Ground leases
- On-airport business leases
- Fuel sales
- Personal property tax
- Airline ticket tax (for commercial service airports only)
- Interest

Revenues: For most GA airports, fuel sales and rent generate the largest portion of revenues. But personal property tax also generates revenue. This is handled differently across the United States depending on city, county, and state law. However, it typically is paid by aircraft owners based on the assessed value of their aircraft. In some cases, a portion of the total payments can be returned to the airport. The airport owner and the tax agency can agree upon a funding arrangement. For example, a county might levy the tax and agree to return a portion of it to the airport.

Costs/Expenses

- Salaries and wages
- Debt service (loan payments)
- Fuel purchases
- Maintenance and repair
- Office supplies
- Hazardous waste disposal
- Utilities
- Owner overhead charges
- Insurance and risk management
- Depreciation charges

Expenses: Debt service is typically the largest expense for airports that have continuous development. However, salaries, overhead charges, and fuel purchases might be the biggest expenses at airports where development has been spotty.

You should be able to address each of the items discussed, based on the information you have gathered so far. You probably will not have all of the details, but you should have enough to accurately assess “Where are we now?” and what you need to do in order to move forward. Present this preliminary information to key decision makers to gain the support needed to proceed.



CHECKLIST FOR STEP ONE

- ✓ Quantify and value hangar demand
- ✓ Assess level of current support for airport
- ✓ Identify key decision makers
- ✓ Assess level of current community support
- ✓ Identify zoning and land-use issues
- ✓ Confirm airport master plan in place
- ✓ Assess environmental issues, preliminary judgment in hand
- ✓ Review airport design standards
- ✓ Assess level of current airport tenant support
- ✓ Determine availability of project funding
- ✓ Establish project team
- ✓ Decision to proceed in hand
- ✓ Review airport finances

PROJECT PLANNING — STEP TWO

WHERE DO WE WANT TO BE?

In Step Two of the process, you will learn the scope of this hangar project by exploring alternative approaches and estimating the financial impact of each. Once you have chosen the best approach, you will analyze its strengths, weaknesses, opportunities, and threats. You also will analyze boundary conditions, conduct a stakeholder analysis, identify key decision makers, and create a compelling business plan for your approach.

Explore alternative approaches

There are a number of reasonable approaches to getting new hangars built at an airport. Each has pros and cons (see comparison charts below), so you will need to analyze the options to determine which is best. There are three typical approaches. First, a private company can own the hangars on leased airport property. Second, the airport owner can build the hangars and rent them to airport tenants. Third, the land can be leased to a private developer who will build and rent the hangars to airport tenants.

PROS [Private vs. Owner Development]

PRIVATE DEVELOPMENT

- No up-front owner investment required
- No owner management needed
- No occupancy risk
- One entity to deal with

AIRPORT OWNER DEVELOPMENT

- Good demand
- Highest revenue flow to airport
- Built to airport owner specs
- Greatest control to ensure compliance with airport rules

CONS [Private vs. Owner Development]

PRIVATE DEVELOPMENT

- Lower revenue because open land is leased, limiting control of future rent increases
- Management of hangar waiting list can be problematic
- Owner may lose asset appreciation depending on lease terms

AIRPORT OWNER DEVELOPMENT

- Airport owner management oversight needed
- Potentially highest capital cost
- Maintenance costs come from airport budget

Generating revenue is usually the primary goal for GA airports, so having the airport owner fund, build, and manage a hangar project is frequently the best approach. If the owner is not supportive, then finding a private source for funding, construction, and operation will be the most attractive alternative. The key will be your financial analysis.

Estimate the financial impact

After exploring the alternative approaches, it is critical to assess the financial impact of each on the airport's operation. Take the past financial history of the airport's operation, include the impact of the new hangars, and project the result.

You will need to get budget-type estimates for the various alternatives you reviewed in the prior step. Look into revenue, operating expenses, and capital costs/loan obligation payments.

Remember to include an estimate of increased fuel sales revenue (and the other miscellaneous items that would increase) based on the number of aircraft based at the airport. A cost-effective source for such information can be obtained from prior projects at your airport or neighboring airports, adjusted for inflation and differences in scope. Use an airport consultant or engineering contractor to generate budget type estimates.

Once you have gathered the pertinent information, run the financial projections out at least 10 years, applying inflation-based adjustments for operating expenses and revenues. During this 10-year period, you likely will see that existing loans may be fully paid off, generating the potential for increased positive cash flow and other benefits. These are all important to document in the final business plan as justification for the project. A copy of a typical financial projection, or *proforma*, is included in Appendix II.

Analyze project strengths, weaknesses, opportunities, and threats (SWOT)

The purpose of determining the project's strengths, weaknesses, opportunities, and threats (SWOT) is to uncover the impact that your hangar project will have on the airport's stakeholders. It is helpful to have a group of project proponents working together on the SWOT analysis and interviewing key decision makers or stakeholders—this can uncover potential issues more quickly than doing it alone. Typically, you will discover things that you can use to your advantage or issues that you can address in the early stages of project planning to limit their possible negative impact.

EXAMPLES FROM A SWOT ANALYSIS

STRENGTHS

- History of success
- Full hangar waiting list
- City council support
- Available FAA, state funding
- Contractors committed to airport
- Generally good community relations

WEAKNESS

- Airport manager has minimal project experience
- Possible tenant resistance
- Unknown degree of owner support and staff availability
- Unknown potential neighbor resistance

OPPORTUNITIES

- Provides increased revenues for the airport
- More satisfied airport customers
- Increased airport business opportunities
- Transportation infrastructure improvements

THREATS

- Obstacles to progress created by current tenants
- Unknown community resistance
- Airport Improvement Program is not funded by Congress (a possibility only)
- Developer or other party has conflicting interests

Once you have completed the SWOT analysis, you will have a better idea of where to focus your energy as you start persuading the decision makers and other stakeholders to become supportive of the project. If you are fortunate, you might not have many worries in this regard, but it is best to be forearmed.

Analyze boundary conditions

Boundary conditions are nothing more than the “givens” surrounding the project. They set what’s in bounds and what’s out of bounds. There undoubtedly will be constraints on the project that you will not be able to change. Better to know this now and include it in your initial planning than later, which could put the project in jeopardy.

TYPICAL BOUNDARY CONDITIONS:

- FAA and state will provide funding
- Architectural designs will require review and approval
- City/county council must endorse project plan and contract awards
- Lease agreements must be renegotiated with some current airport tenants
- Neighbors must be included in communication process
- Hangar design is restricted by airport layout plan
- No additional airport staff can be added to administer project
- Owner will not provide any supplemental funding (i.e., hangar project must be self-supporting)

With the boundary conditions identified, you might find more issues that need to be considered as you put together the business plan and deal with stakeholders during project execution. It is key to determine who will be the decision maker, from whom or what group



you will need approvals, and whether this will change at various points during the project.

Conduct stakeholder analysis

A stakeholder is any person or group who has an interest in or will be impacted by the hangar project. Once you have identified the stakeholders, determine their level of support. This will help you manage the level of acceptance and commitment for your project—strong allies can influence those who show little support.

Use the SWOT analysis to create strategies to increase the level of commitment from key stakeholders. Ask yourself: “What would our stakeholders say about the project if it was a success from their perspective?” or “What are their views of the airport operation today?” With these answers, you can develop strategies to get the needed support.

Keep in mind that the stakeholder analysis likely will change over time as issues are addressed or new stakeholders are identified.

STAKEHOLDER ANALYSIS TOOL

Name	Strongly Oppose	Moderately Oppose	Neutral	Moderately Support	Strongly Support	Concerns	Desired Behavior	Influence Strategy
People on hangar waiting list					X	Want hangars ASAP	Support	Keep informed
Current airport tenants				X		Want hangars ASAP	Support	Keep informed
Business tenants (varied support level, multiple tenants)	X			X		Competition from new businesses	Reduced resistance	Demonstrate equity in costs
Airport commission					X	Project success	Demonstrate support	Keep informed
City hall			X			Project problems and financial obligations	Supportive, involved as appropriate	Reduce need for active involvement, project self-supporting
Community			X			Noise, safety	Nominal support	Keep informed
FAA, state				X		Execute project and use their procedures	Satisfaction	Keep informed and use their procedures
Contractors					X	Open dialogue	Active partner	Open dialogue continuously

Use the Stakeholder Analysis data to boost support for the project and minimize opposition.

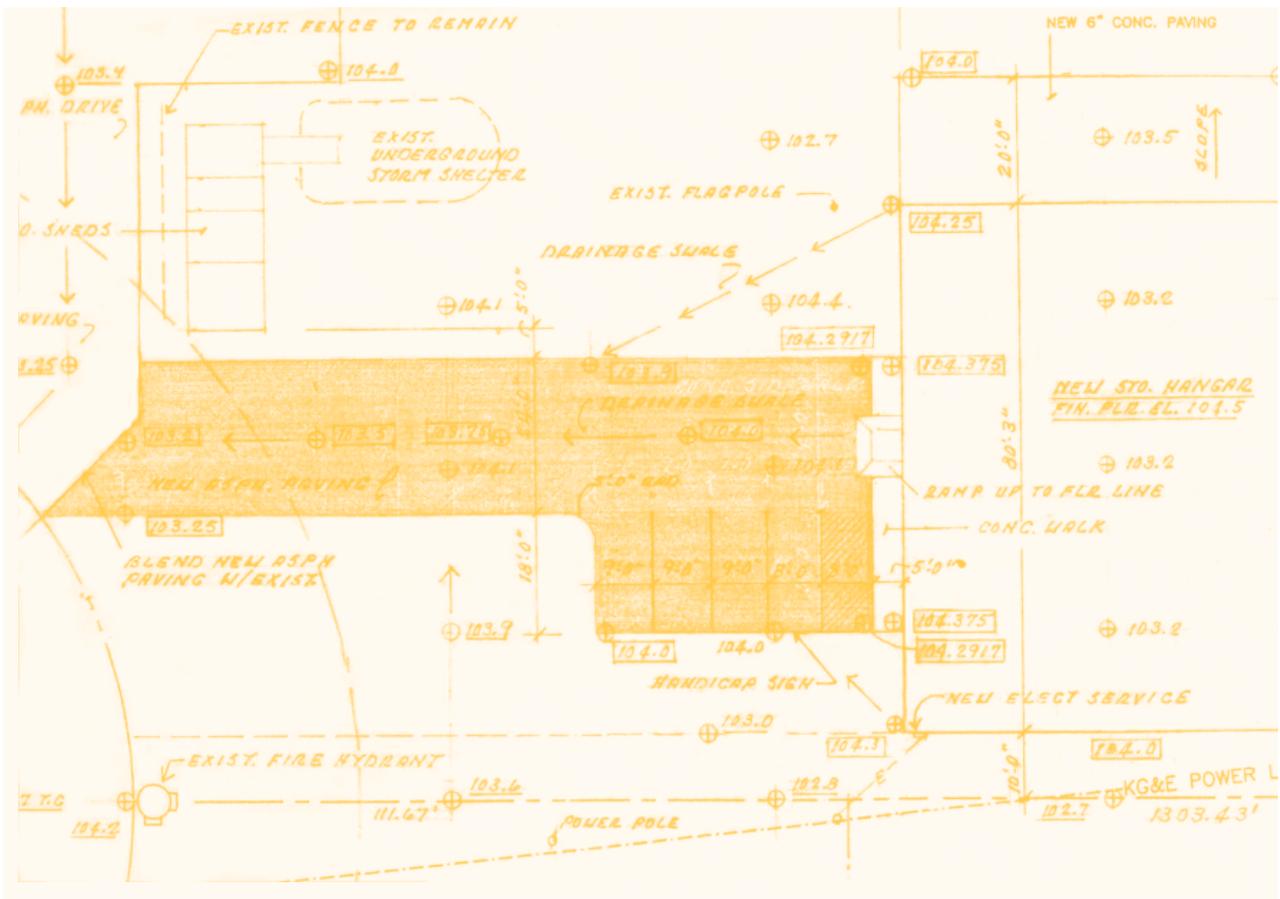
Create a business plan

Even if you don't face all of the issues explained in this guide or need to create an elaborate business plan for your key decision makers, you still should go through these steps. A business plan will assist you throughout the project and will help it run more efficiently.

By now you will have a thoroughly researched document, a compelling financial statement for your selected alternative, and a plan to deal with most of the issues from decision makers and stakeholders. Make sure your business plan is well supported before presenting it. Appendix III provides tips on how to compile a compelling business plan. Use the completed elements from the first two project steps to build your credibility with the key decision makers and stakeholders, which will pay dividends as the project progresses.

CHECKLIST FOR STEP TWO

- ✓ Explore alternatives
- ✓ Estimate the financial impact
- ✓ Complete a SWOT analysis
- ✓ Review the boundary conditions
- ✓ Select decision makers
- ✓ Complete a stakeholder analysis
- ✓ Select desired alternative
- ✓ Report best alternative to decision makers
- ✓ Confirm project team members
- ✓ Prepare and present business plan to decision makers
- ✓ Decision to proceed in hand



PROJECT PLANNING — STEP THREE

HOW DO WE GET THERE?

During Step Three of the process, you will fully develop the preferred hangar alternative. This includes framing the project, setting detailed plans for execution, and building stakeholder support. You also will prepare your project team and establish each member's roles and responsibilities. Creating preliminary

design and budget estimates, identifying funding sources, and identifying the project review and approval process will occur during this step as well.

But before you start developing the preferred hangar alternative, take time to define seven key project management principles that will help to ensure a successful hangar project.

Seven key principles of project management

1 Clear direction

Be certain that everyone involved is clear on his or her roles and responsibilities, the required project approvals, and the way decisions will be made.

2 Sponsorship

Be certain that you have the necessary support for the project from the airport owner and other key stakeholders each step of the way.

3 Communications

Develop a communications plan in order to keep all stakeholders, future tenants, and elected officials informed on progress of the hangar development. Ensure that all stakeholders are included in your communications plan. The objective is to reduce surprises and potential resistance.

4 Engagement

The airport owner and stakeholders will need to be engaged and supportive of the project at different levels and points in time. Establish and confirm the needed level of involvement or support before you proceed.

5 Shaping and reinforcement

Once you've established the level of support needed, use the stakeholder analysis (created in Step Two) to assess any gaps between the sponsors' current level of support and the level of support needed. Develop plans to shape the behaviors you need from each sponsor and reinforce the desired ones.

6 Measurement

Establish qualitative and quantitative criteria at each project step to track progress. During each step, ask yourself, "What would success look like?"

7 Plan modification

Once your plan is established, don't assume it will never need to be changed or updated. Changes are continual on any project; don't ignore or assume everything is as it seems or will be. Frequently update and reassess your plans to make sure it is current.

Frame and plan the project

Project framing builds on the work done during “Project Planning – Step Two”: boundary conditions, SWOT analysis, and the preliminary stakeholder analysis. For a hangar project, this is straightforward. The project frame usually includes the hangars and nearby airport property. A concise project frame will focus everyone involved on what needs to be accomplished and can be used to prevent “project scope creep.” Project scope creep can happen when multiple interests fail to define and maintain a highly-focused discipline in defining and adhering to objectives. A project frame that is too wide can become overwhelming; but if it is too narrow, you might miss critical elements needed for the project. Examples could include underground utility modifications and rainwater drainage.

Build stakeholder support

Now is the time to do some detailed planning to address stakeholder support. Remember, a stakeholder is any group or individual that has an interest in or is affected by this project.

Meet with the individuals or groups identified as stakeholders, and use your stakeholder analysis tool (see page 12) to judge their level of support. Share your completed preliminary hangar project plans with them, and judge their level of support to identify possible obstacles.

There are a number of ways to conduct these discussions with your stakeholders. However, sometimes it is difficult to get the attention of key players. Hook them on the value of your project early in the discussion. AOPA’s *Airports: A Valuable Community Resource* handbook has a useful section, “What’s Your Airport Worth?” (www.aopa.org/members/files/airport/apsup03.html) that is packed with facts and figures about the value of GA airports. Most decision makers in city hall have no idea of the value their local airport adds to the community. Use the AOPA airport hand-

book along with the financial analysis of the positive impact of your hangar project to demonstrate the importance of your project to the health of the airport’s operation.

Members of the project team can use this information when meeting individually with the airport owner’s key senior staff, city council, or other final decision-making group to discuss plans for the long-term financial health of the airport. This will peak their interest because most politicians and senior staff want an airport to be as self-sustaining as possible.

The greatest value of these types of meetings is that you can begin to build credibility with these stakeholders—an important step toward getting their support. In addition to increasing their awareness of your project and the airport’s value, use the meetings to tell these key players what you need from them. For example, ask for their support when the project comes up for approval, request their help obtaining financing, or request help getting a special variance on potential roadblocks.

Make a point to personally thank each stakeholder whenever he or she demonstrates the desired behavior, and tell each the impact that his or her support has on the project. The stakeholders will appreciate the recognition. If they don’t do what you requested, make another contact and ask if there is anything you can do or information you can provide to gain their support. In some cases, you might not be able to change the mind or behavior of a key stakeholder, so recognize this and include it in your project plans. As you progress through the project, be sure that you don’t unintentionally do something that would increase their resistance.

So far, you should have identified the stakeholders, determined their current level of support, identified their concerns, established the desired behavior from them (support for your project), and executed a strategy to influence the desired behavior you don’t have.

Prepare the project team

You might be the driving force behind the project and not have an official team, but there will be many people involved at various times who will influence the project. To effectively prepare your team, you should ensure that each person agrees with the scope of the project and is clear on his or her roles and responsibilities. Each member should commit to do what is expected and meet deadlines. It is up to you to make sure that each member has the resources needed to meet those deadlines.

Keep your team on track

Missed deadlines are often the result of team deficiencies. So what should you do if team members are missing deadlines or won't take on responsibilities?

- First, you should confirm that each individual member agrees to and supports the scope of the project. This can help reveal those who think it will have a negative personal impact or may not be clear on every aspect of the project. You might learn that you need to modify the team because you do not have the right members.
- Then, verify that each member is clear on his or her roles and responsibilities, which will help clear up misunderstandings and false assumptions.
- Some team members may withhold their commitment to doing what is expected because they think they cannot do the job, they do not have the tools or resources to do it, or they do not agree with some aspect of the task or they think they have a better way to do it. In such a case, ensure that each team member has the skills, knowledge, resources and commitment to complete the task. This can include time, equipment, access to information, and decision-making authority. Find out what they need to be able to deliver results. Dealing with such issues usually will resolve a lack of commitment. While you may not be in a position to meet all of the team's needs, you can positively influence those who are.
- Finally, confirm that each person is willing to deliver what is expected by the established deadline before leaving any meetings. This should build commitment to honor agreements.

Create preliminary project estimates

In Step Two you looked at past hangar project costs to estimate the impacts of various alternatives. Now that you've selected the best option for your airport, you will need to refine your estimate to include current design, construction, material, and support costs.

Consider hiring an engineering design firm that specializes in airports to do the preliminary project design and budget estimates. Many airports hire an engineering firm on a "standing contract" basis to do miscellaneous consulting work. If your airport does not have an ongoing contract with such a firm, you most likely will need to go through a bidding and "standing contract" award process to select one. Check with the airport owner's senior staff about how to do this. In many cases, there is an established contract bidding and award process already in place if your airport is municipally, county, or state owned.

Integrate the engineering contractor into the project planning as soon as possible. The contractor's expertise can be invaluable in helping to refine the scope, boundary conditions, project cost estimates, and funding resources. With the engineering design firm on board, you also can begin the preliminary design and budget estimate work.

Be certain that you have sufficient project funds to compensate the engineering firm. Many times there may be sufficient funds available from the airport's operating budget. If not, you may need to request a short-term loan from the airport owner that will be paid back with funds from your financing source. Obtaining this extra funding for the project should be easier thanks to the work you did earlier to build credibility, show the value of the airport, and gain support from key decision makers.

Identify funding sources

An almost infinite number of combinations of grants, public or private loans, bond issues, and other sources of funding are available. Some are quite sophisticated and may require a degree of creativity to get the combination best suited to your project and airport financial situation. Some of the more common methods of financing will be covered in this guide.

As noted earlier, the FAA has Airport Improvement Program (AIP) grants designed specifically for construction, development, and expansion of U.S. airports. When planning a hangar project, FAA grants can be used to pay for utilities, some underground work, paving of ramps and taxiways, and even fencing, gates, and lighting systems. These grants usually cover up to 95 percent of the cost of qualifying parts of an airport expansion with the remainder as “matching funds” coming from the airport owner.

The process of applying and being approved for such a grant from the FAA is not difficult, but it can be time consuming and requires specific working knowledge of the FAA AIP grant process. Airport engineering consulting firms can combine the project design and funding application process. Aviation loan and grant consultants also specialize in helping airports apply for these grants. The engineering consultant should be able to tell you which approach is best for the airport. Regardless of which approach you use, you will need to cover the matching portion of your grant from other funding sources.

In addition, by federal law there is a limitation for what the AIP grant money can be used at a public-use airport. For example, AIP grants cannot be used to pay for strictly revenue-producing parts of the project. This covers the hangar buildings, including foundations, and some of the paving in front of the hangar doors. How to pay for the non-grant eligible parts of your hangar project is where you may need to get creative.



A first step might be to meet with the airport owner's financial staff. In the case of a city- or county-owned airport, this could be the director of finance. When you meet with the financial staff, discuss the detailed plans for the project, go over your ideas about financing, and enlist their help to contact lending institutions, bond issuers, and other financial resources. You might discover that the airport owner may be willing to consider loaning the airport operation the money from his or her own general revenue fund. In any case, you should have a better idea of your options once you've involved them in your quest for funding.

Another option for funding could be your state. Some state governments have aviation loan programs designed to supplement the AIP. These loan programs are often funded by state aviation fuel taxes and are self-perpetuating given the loan payments are made back into the program.

If you decided to have a private developer design and build your hangar project, you still will need to coordinate your efforts closely because there may be parts of the airport infrastructure that they may not be able to provide. For example, a private building developer probably will not pro-

vide utilities to the site, taxiway extensions, security fencing, or area lighting systems. In this case, it may be possible to obtain an AIP grant to develop the infrastructure necessary to support the hangar development project. You probably will need to hire an engineering consultant to design and manage the details between your private developer and the airport.

Financial funding alternatives summary

- **FAA AIP grants**
Contact the local FAA ADO (faa.gov/arp), an engineering consultant, or airport financial consultant.
- **State/county aviation loan program**
Contact the appropriate aviation department.
- **Airport owner**
Check with the finance department about financing from the airport general fund or community development programs.
- **Municipal/county bond issues**
Finance department staff can help, and investment bankers can handle bond issues. (These can take some time to put together, so plan accordingly.)
- **Bank loan**
Check with the finance department staff.
- **Private development funding**
The private hangar developer will provide his or her own financing, but you probably will need to seek additional funding.

Don't be surprised if the construction bids ultimately come in higher than anticipated. Plan for this possibility to prevent an unexpected surprise in the future. It is better to have done some preliminary assessment of options than to be surprised, possibly putting the project in jeopardy. For example, you could evaluate the impact of reducing the project scope; you could check to see what additional loan or other financial resources might be available; or you

could assess the impact of higher hangar rental rates to cover the additional costs. If your project is still viable—even if faced with a significant (20 percent or more) overrun—then you will know that the project is on firm footing to move forward.

Prepare financial documentation

After identifying the available funding sources, finalize the funding plans. But, your work in the financial area is not over yet. You or your airport owner's financial staff also will need to prepare a detailed financial projection, or project *proforma*, for the term of your project's funding. This allows the financial institutions that are providing funding to evaluate the project and decide whether they'll give you all the money you need. The FAA also will want to be assured that your project is well conceived and financially reasonable.

This project *proforma* is just an expansion of the work you did earlier to demonstrate the value of your project and gain stakeholder support. This should be fairly easy because you should have more accurate cost estimates from the engineering design consultant's preliminary design. Use the project cost estimate and your projections for revenue and expenses to complete your project *proforma*. (A sample project *proforma* is included in Appendix II. You will use this project *proforma* in Step Four when you obtain funding. Remember to include other known future expenses, such as fuel system replacement, in your projections. The project *proforma* will be a powerful tool when meeting with decision makers and working to positively influence other key stakeholders of the value of your project.

If you decided to pursue private development, you will need to check with the FAA to see what kind of financial projections they require.

Identify review and approval steps

All the work you've done to this point has been directed toward creating support from key stakeholders and decision makers for the most attractive hangar project alternative at the airport. Now that you've defined your project scope and created a funding plan that is financially credible, you'll need to identify, in advance, the review and approval steps necessary to move forward. An airport project will impact many different areas of the airport owner's responsibilities and jurisdiction, and you most likely will be confronted with numerous levels of reviews and approvals.

Start planning your review and approval sequence, and build the timeline into your overall project plan. Specific stakeholders might require multiple reviews and approvals during different stages of the project. (You might not need to have your project reviewed and approved by all of the following entities.)

The city/county council or commission, the mayor or county supervisor, and the airport commission all probably will need to be involved in the approval process to hire an engineering consultant, apply for FAA grants or loans, request construction bids, award a construction contract, and accept the completed project.

A planning department or commission may be involved in the overall plan approval, architectural review, land-use review, and environmental impact review. The project also will need to be reviewed and approved by the legal and financial departments. Other commissions and committees might need a say in a bicycle/pedestrian review, landscaping, public access and security, and noise and traffic concerns. The fire marshal, police department, and public works/parks and recreation department probably will need to participate as well.

An effective way to plan ahead for these reviews and approvals is to work closely with key stakeholders and ask them what is necessary for the project to proceed. You might find that you can negotiate away several of these steps that are not appropriate to the project. Often the individuals involved in reviewing the project or granting approval to proceed are ignorant of airports and how they operate in particular. Use your credibility and positive stakeholder relationships to your benefit.

Another advantage to planning ahead for the review and approval steps is to uncover issues you missed in your earlier planning. Finding these before the review and approval phase will limit the surprises you could face in the future. With all of this information and a compelling business case in hand, you should be able to get a decision to proceed.

CHECKLIST FOR STEP THREE

- ✓ Complete project framing
- ✓ Build stakeholder support
- ✓ Prepare project team
- ✓ Create preliminary project estimates
- ✓ Identify funding sources
- ✓ Prepare financial documentation
- ✓ Identify review and approval steps
- ✓ Decision to proceed in hand

PROJECT EXECUTION — STEP FOUR

PROJECT EXECUTION

Many hangar projects are erroneously started in what should be the fourth step—project execution. Bypassing the first three planning steps usually leads to frustration and project failure. If you have turned to this section in an attempt to shorten the process, go back to the beginning. Following this guide step by step will ultimately save you time, effort, and money.

All of the project pre-planning and preparation to this point begins to pay off. During the project execution phase you will complete the project design and funding, solicit bids, award the construction contract, build the hangars, and move in tenants. In this phase, it also is important to implement the seven principles of project management discussed in Step Three (page 14). There will be changes that must be incorporated into the project plan (change in funding sources, regulations, stakeholders, size of project scope), and using these principles can ensure the best possible outcome.

Project design and funding

You should have already decided whether to have the hangar project done privately by a developer or publicly by the airport owner. Depending on which option you selected you will have varying levels of involvement. Some of the responsibilities of each option are detailed in this section.

Privately built and managed: The private ownership and management option requires a land lease or purchase agreement between the airport owner and private developer. The airport owner will likely prepare these documents but

you should be involved—your knowledge of and work on the project will be valuable.

If a developer is allowed to purchase airport property, it is vitally important that the FAA becomes involved early in the discussions because the agency has stringent requirements governing such matters. Any sale of airport property must receive FAA approval and be conducted at full fair market value, with proceeds going to the airport.

If the developer will lease airport property, consider the appropriate term of the lease. (Typical leases run 25 to 30 years; however, in some cases, the lease term may be tied to the level of capital development proposed.) Establish what will happen to the hangars after the lease expires: Will the lease be eligible for extensions in time? How many extensions? Or will the hangars revert to the airport owner at the end of the lease term? The final terms of any lease should hinge on the length of the lease term as well as the level of investment involved. Also include a clause in the lease that allows the airport owner to be involved in the hangar project to help ensure that building codes, permits, inspection requirements, and the like are met.

You will need to assist the developer throughout the project by obtaining any required permits, integrating the project into existing airport infrastructure, obtaining funding and project management for non-developer portions of the project, and monitoring the progress of construction. You will also be responsible for resolving any issues that may arise between the developer and airport owner representative. Participating in the final inspection and acceptance of hangars and ensuring compliance of the lease agreements will also be a priority.

Airport owner-built and -managed: If the airport owner is going to build and manage the hangars, you will have a lot more work to do. But it will also generate significantly more revenue for the airport, which could lead to additional airport development projects being funded with existing airport revenue.

If you have already been working with an engineering consultant on the preliminary design steps of your project, you will need to finalize a contract for completing the design work. You will need input and assistance from the airport owner's legal staff or representative to prepare this contract because the decision makers in city hall will probably have to approve the contract.

Once the design contract is in place, get the engineering consultant started on the detail design. In some cases you might need to hire an architectural firm to complete some of the building designs.

Design Elements

- Underground drainage and storm water runoff control
- Underground utility layouts, fire protection sprinkler systems, electric, telephone, cable, sewer, gas piping, and tie-ins to existing systems
- Site grading, contour, excavation, and sub-base material plans
- Concrete hangar foundations
- Ramp, taxiway, and apron paving
- Architectural treatments and material specifications for hangars
- Structural design of hangars (may be done by building supplier)
- Ramp and hangar lighting
- Landscaping
- Security fencing, gates, and personnel walk-through gates
- Parking lots as required and pedestrian walkways
- Not all of these elements will be necessary for all hangar development projects. The engineering contractor will be able to provide appropriate guidance for your project.

While the project designs are under way, begin to work through your review and approval plan. Many projects require multiple reviews throughout the process, so plan ahead. Depending on the nature of the project (private or public), the funding might need to be in place before beginning the detailed project design work. So, the next task might be to obtain funding instead of beginning design work, you will need to determine what is appropriate in your case.

Obtain funding

By now you should have a good idea of how much time will be required to get the funding in place to proceed with construction. The engineering consultant might also be familiar with the processes used by the FAA, state, county, or city when applying for grants or loans. The details of the funding process are outside the scope of this guide, but the basics have been identified, including the owner's staff responsibilities.

FAA AIP grants: The FAA has a specific process for applying for and receiving grant money from the Aviation Trust Fund. Before the FAA will grant any money for an airport project, the grant-eligible aspects of a project must be included on the airport's annual airport capital improvement project (ACIP) list. The FAA also expects that the estimates used in the ACIP list for grant-eligible items be accurate within 10 percent of the final cost, so allow for escalation of costs in these estimates. To obtain cost estimates, the design consultant will need to do some preliminary design engineering.

The FAA requires that the ACIP list be updated annually in early December for the following calendar year. This means that the hangar project must be on the airport's ACIP list the year *before* you would expect to receive funding. Don't forget to incorporate this reality into your project schedule. The FAA will only fund hangar development projects at eligible airports, provided that the airport certifies that all airside devel-



opment projects in the ACIP have been planned for future implementation.

Public or private loans: Project loans, whether from private banks or state, county, or municipal sources, can take a considerable length of time to become a reality. (“Project Planning – Step Three” should have given you an idea of what you’ll be facing at this point in the project.)

Municipal (government) bonds: If your project-funding plan includes publicly-or privately-issued bonds, remember that this too can be time consuming. The airport owner’s financial staff can be a valuable resource when preparing the details of a bond issue or sale.

You can likely use the financial projections you developed in Step Three when you did your preliminary financial impact estimates for your project. If project costs have changed, you should be able to easily update your *proforma* to satisfy the needs of your funding sources. (See Appendix II.)

Construction planning

With the hangar project design complete, funding in place, and approvals in hand, prepare for construction. Some of the things you need will include a contracting plan, a performance based contract, bid packages, and bid review and approval.

The project engineering consultant or staff should be able to create a contracting plan and construction schedule suited to your project. A contracting plan identifies which elements of the construction will be combined to increase efficiency. Often, all of the construction elements can be bid together with one contractor, for things such as underground utility and drainage, site grading, concrete foundations, building design and materials, building erection, electrical and area lighting, fencing, paving, and more.

Experience has shown that the fewer contracts the better as this forces the contractor to be responsible for the coordination and facilitation of all the interacting parts of the project. This method also reduces the workload on whoever will be coordinating the contractor(s) on site.

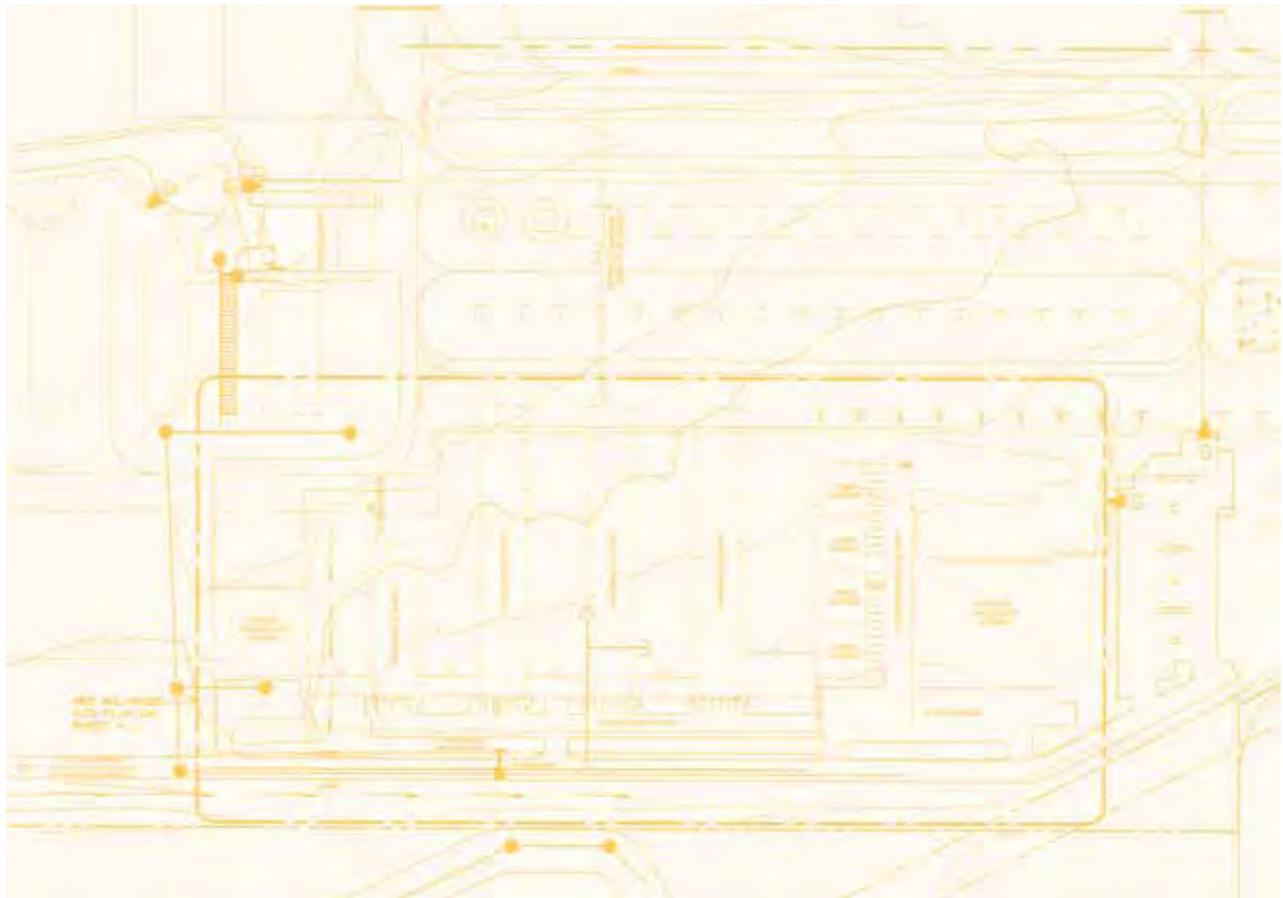
Decide who will serve as the overall project manager for construction. In most cases, a city engineer or the design engineer will fill this role. The airport owner will likely want to retain this role through an existing engineering staff. However, he or she may charge a substantial fee for this. (Be mindful of the potential economic impact this could have on the project.) An efficient method would be to bid the entire construction project to one general contractor and pay the engineering consultant to act as construction manager and airport owner representative. The engineering consultant is ideal for the job because he or she already has done the engineering and design work.

Contract wording

It is imperative that the person preparing the contract prior to the bid process addresses specific items related to the project. Many items can be included in standard contract clauses by the airport owner, but make sure that the airport design and/or construction manager reviews the contract for completeness prior to releasing the project for bids. Later, if you find yourself in a tough situation with the hired contractor, falling back on a complete and detailed contract will be invaluable. This guide provides a few suggestions that should be included, but tailor the contract to fit your project. A competent lawyer will be a must.

Schedule of values: A schedule of values, or unit prices, is a required element of contracts at most publicly-owned airports and for all air-

ports using FAA funding. The FAA requires that all the books associated with the project be open. The contractor must provide his schedule of values so that the resident engineer (the individual from the airport owner's staff or the engineering consultant who is responsible for overseeing contractor performance) can approve contractor "progress payments." The vast majority of construction contracts are based on a lump-sum bid, but contractors will expect to be compensated as the construction progresses. These progress payments must be based on actual construction progress. Sometimes contractors will submit a bill for significantly more progress than has actually been completed. Without a schedule of values, you won't be able to easily refute such claims. For example, if a contractor bills the airport owner for 20 percent of the rough grading, the resident engineer must be able to verify that 20 percent has been completed. Payment will be



based on 20 percent of the total cost of rough grading, usually measured in cubic yards. The schedule of values provided by the contractor with his or her bid should provide the cost per cubic yard of this rough grading.

Without this schedule of values, the resident engineer will not be able to approve such billings for payment. In addition, the FAA requires a schedule of values as documentation. Some contractors may be reluctant to provide such detail with their bid, but it is required by FAA regulations.

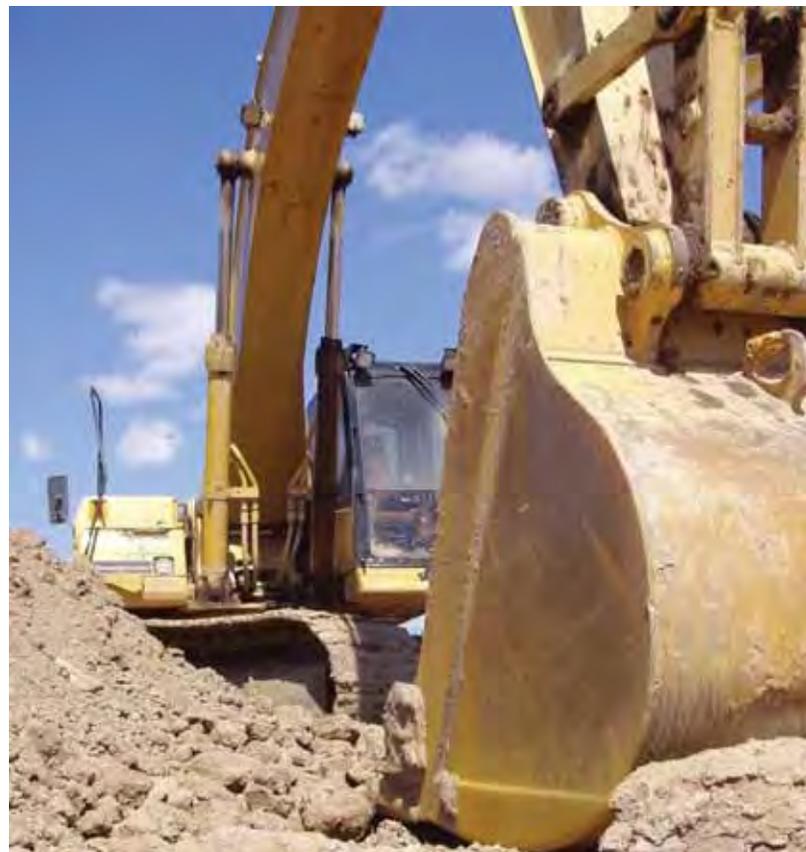
Unknowns and surprises: Unforeseen circumstances can arise during the construction phase of a project, whether unplanned by contractor or unexpected by all parties involved. How such cases will be handled should be laid out in detail in the construction contract. For example, the contractor must immediately notify the resident engineer of a “surprise.” Then the resident engineer must review and evaluate the claim of a surprise and decide whether it would constitute an actual change. The resident engineer would negotiate the change based on time and materials or unit price or lump sum basis to complete the additional work. The time-and-materials approach must be detailed clearly in the contract wording, including an appropriate mark-up for profit. This approach should prevent a contractor from taking advantage of the surprise.

Notice of potential claim: This situation arises when the resident engineer says there is no change in the project but the contractor thinks there is. In such a case the claim for “extra work” would go to arbitration, where an impartial third party would decide whether the contractor’s claim has merit. Ensure that your contract covers such circumstances so the project can keep moving while the claim is in arbitration. The resident engineer would track costs for the change, including time and materials. When the work is substantially complete, the final claim would go to the arbitrator who would

authorize final payment.

Delays: During the course of construction the contractor may notify the resident engineer of a delay. If this is caused by late material deliveries call the supplier to confirm the delay. Get the facts and assess the impact on the overall project schedule. There may be ways to adjust the schedule by rearranging various aspects of the project, such as inspections or approvals.

If there is no solution to get back on schedule, the resident engineer should estimate the cost to the client which, in this example is the airport owner. This would include liquidated damages, which would usually include loss of potential revenue and additional overhead expenses. These must be quantified and how these are calculated must be available to the contractor. This information would be used should the airport owner wish to file a claim against the contractor for the financial impact



of the delay on the project. If the contractor is not at fault, it could be necessary for the contractor to pursue the supplier. The best protection is to have all such provisions for handling delays specifically explained in the contract.

Standard retention: In most contracts, a set amount of the total contract will be withheld until the airport owner has accepted all work as complete and satisfactory. The standard retention amount is 10 percent of the total contract price. (This also applies to claims of extra work.) The contract should be clear on this subject. Be sure there are provisions in the contract that spell out how and when the parties would go to an arbitrator if an agreement cannot be reached. The 10 percent rule is used because it is usually enough to cover the cost of completing the work if the contractor quits near the end of the project. It is unusual for this to happen, but the contract should allow for this possibility.

Progress inspections: The resident engineer is usually responsible for monitoring daily progress. This is to be certain that progress billings from the contractor can be verified.

Specialty inspections: Specialty inspections include architectural, construction, underground, plumbing, electrical, and other necessary inspections. The resident engineer usually coordinates inspections that are required by the airport owner's building department and are all part of a final project inspection and acceptance. Most building departments conduct inspections so as to not impede the construction progress. The key to efficient use of project inspectors is for the resident engineer to notify the appropriate inspector in plenty of time so that schedules can be coordinated. Be sure to include the time required to schedule and conduct these inspections in your contract so the contractor is aware.

FAA inspection: The FAA requires a final

inspection (and some during the course of the construction) to ensure that their requirements have been met. The FAA requires taxiway slope, fill material compaction, and concrete tests. The airport design consulting engineer should be aware of the detailed FAA requirements.

Punch list: The resident engineer and airport owner inspectors usually draw up a punch list of items that must be completed by the contractor before the construction can be considered complete or accepted by the airport owner. Items such as hangar door adjustment, touch up painting, and other minor items are often on a punch list.

Temporary occupancy permit: A temporary permit for occupancy may be issued by the airport owner to allow tenants to move into their new hangars should some remaining construction punch list items remain open, such as final landscaping. The benefit of a temporary occupancy permit is that it allows the revenue stream to start before the construction project is complete.

Notice of completion: This is a formal notification of project closeout. It gives anyone involved in the project an official notice that they have a period of time (normally 35 days) to file any lien claims on the project. It also frees up the property for final occupancy. After the 35 days and after all punch list items are complete the airport owner can release the 10 percent payment retention. Less any uncompleted or disputed items. It is usual to retain up to twice the amount in dispute from the overall 10 percent. Be sure that your contract contains wording to cover your project in this area.

Construction bonds: A bond is intended to protect the airport owner in the event that the contractor does not complete the project. For example, the contractor could go out of business or walk off the project. The bond works like an insurance policy, providing funds for the airport owner to com-

plete the project.

Also, there should be a 10-percent bid bond in place in case the awarded contractor refuses to enter into a contract. Once a contract is awarded, this bond is refunded to the contractor. If the contractor refuses to enter into a contract, he or she forfeits the bond. Make sure the contract includes specific details regarding the bonding requirements.

Contractor qualification: The contract should contain some wording requiring that the contractor is qualified to do work at an airport. Some of the unique elements of an airport construction project require a contractor experienced in working on airports. An inexperienced construction contractor could make any number of mistakes, causing problems for the project.

Bidding

The airport owner will have specific requirements for compiling a bid package. The engi-

neering consultant will likely prepare the bid packages. In addition to the detailed design drawings, the package will include material specifications, grading plans, utility connections to existing facilities, certificates of nonsegregated facilities, bonding certificates, insurance documentation, how extra work claims will be handled, and other standard clauses as dictated by the airport owner. Include any FAA, state, or county requirements.

Pre-qualify potential bidders while the bid packages are being prepared. The airport owner's engineering staff or the engineering consultant should know contractors who are capable of handling the project. It would be preferable that only contractors with prior airport construction experience bid on the project. However, this might not be practical in every case. The airport owner may have a specific process that he or she uses for bidding construction contracts and most often can handle this entire portion of the project.

Project site walk: Once the bid packages are released, the bidders will have a standard length of time to prepare their bids. Schedule a job site walk early in the bid period. The project manager (engineering consultant or airport owner representative) will schedule a time, usually included in the bid documents themselves, to have all interested bidders meet at the project site.

During the site walk, the bidders' representatives will have an opportunity to ask questions about the project. Pay particular attention to the subtle aspects of a project that may be obvious to you and the airport owner, because it might not be to the bidders. These includes utility tie-ins, special soil conditions, noise or curfew restrictions, impact of continuing airport operations during construction, and key owner contact during construction. Given the interest shown by the bidders at the site walk, you might get an idea of how interested they



are in bidding.

Bid opening and review: In the public arena, bid opening usually includes a public opening where the bid amounts and names of the contractors are announced. Once opened, the packages usually go through a review to ensure that all elements of the construction project have been included in the bid; sometimes contractors will miss a part of a project or misunderstand the intent of the bid package. The airport owner's engineering staff will usually do this, but you can also have your project manager or engineering consultant review them as well.

Bids may come in well above or below the project cost estimate, leaving you with a number of alternatives to pursue.

Bids are too high

- Cancel the project and return the funding
- Seek additional funding
- Reduce the scope of the project (revise the financial projections accordingly)
- Proceed with the project, and work to secure additional funding (not likely as most airport owners will want to have the funds in hand to complete the project before agreeing to award a construction contract)

Bids are too low

- Continue with the project and return or "bank" the surplus funds if below your estimate
- Increase the scope of the project (revise your financial projections accordingly)

Last-minute potential problems

Problems can arise and even kill your hangar project. Here are a few examples of issues you may face.

Potential obstacles to completion

- Uncooperative airport lease holder or prop-

erty owners that change their minds regarding the use of their property for airport hangars

- Changes in key decision makers to include airport opponents
- Local community groups seeking to block the project, citing noise, traffic, and safety issues
- Unresolved issues from prior projects that were not uncovered earlier
- Changes to rules and regulations impacting the operations of the airport
- Loss of funding

These are just some of the last-minute issues that can jeopardize the successful completion of your project despite your careful project planning. However, the support and credibility that you built with stakeholders early in the process can be a project saver. Leverage your relationships with key decision makers, such as city or county council members. With the credibility you have built to date and the demonstrated positive value of the project you should be able to call on these key people to help you negotiate your way to a positive result.

Construction contract award

The airport owner should know how the construction contract award is to be handled. In some cases a senior member of the airport owner's staff can handle this. Or it may require the vote of the city or county governing body to obligate the airport owner to the financial liability of administering a contract. If you are unsure of how such a body will vote on the project, informally poll the group using the connections you have built up during the hangar project process. If further work is necessary to get the construction contract awarded it is best to know ahead of time and deal with these issues. Regardless, the final award of your construction contract should be quite simple at this point.

Negotiation and value engineering:

Depending on the scope of the hangar project,



you might have the opportunity to reduce the cost of the project while the contract documents are being finalized. This is called value engineering. During value engineering, you meet with the construction contractor, project designer, and project manager (this may be the airport owner or engineering consultant representative) to review the project design details. Look for elements of the project that, with minor redesign or material substitutions, could save money. After the contract award, your construction contractor may not have much incentive to lower costs. But keep in mind that you could run into “fair contract practice” issues with the other bidders if this discussion is held before contract award. So time this discussion accordingly. It is worth looking at value engineering because there could be significant savings waiting to be uncovered. Value engineering could include the modification of architectural designs, substitution of building wall material, reuse of existing materials such as

fencing, substitution of subgrade materials and fill requirements, and deferral of requested project elements by special interest groups.

Once you’ve completed value engineering, you will have the lowest possible cost for the project. If the contract has been awarded, any changes you make to the basic contract will most likely be included in a change order. Both the original contract and change order must be forwarded to the governing FAA ADO for their review and comment. This is required because you may have an FAA grant included in the project financing. The engineering design consultant more than likely can help you with this.

Pre-construction meeting: At the pre-construction meeting all the various parties meet to review, discuss, and agree on the project construction administration details. Many of these are required by the FAA, and the airport engineering design consultant should be able to help plan and conduct this meeting.

Sample pre-construction

AGENDA

- Labor provisions, prevailing wage rates, etc.
- Project scope review
- Construction observation and quality assurance
 - Project management
 - Sponsor/owner engineer
 - FAA project engineer
 - Engineering consultant representative
 - Airport manager
 - Construction observation/materials testing
 - Project administration
 - Materials testing, quality assurance testing
 - Resident job site engineer
 - Coordination with airport, city staff, FAA, airport users
 - Construction activity coordination
 - Weekly progress meeting
 - Notams issued by airport manager
 - Construction contractor key personnel identified
- Administration
 - Contract award signatures completed
 - Notice to proceed, first day of work, material orders, etc.
 - Project schedule and time limitations reviewed
 - Change orders, review, approval
 - Progress payments
 - Request and documentation
 - Schedule of values (unit prices)
 - Documentation of progress
 - Retention escrow account (usually established by owner/sponsor finance department)
- Construction operations
 - Airport access, security during construction, operations
 - Limitations on contractor operations during construction
 - Public safety: barricades, warning signs, night obstruction lighting
 - Protection and restoration of property at conclusion of construction
 - General limitations
 - Specific project limitations (access to certain areas)
 - Pavement closures and notifications to airport manager

meeting agenda

Hangar construction

There are two keys to a successful construction process. The first is the mindset that you and your team have when you interact with the contractor. The team's mindset should be positive and business-like. This will set the tone for the remainder of the project. When a contractor knows that you will deal with him or her fairly and that you expect the same in return, you will have the best opportunity for a successful construction process.

The second is the efficient administration of the performance-based contract. This depends on the comprehensive nature of the contract and the willingness of the airport owner to hold everyone accountable to the requirements in this document. Work to ensure that construction will proceed with a minimum of problems, delays, and cost overruns. Of course you may not be able to avoid all potentially contentious situations with your construction contractor but you should be able to minimize their impact.

Final FAA construction report: The FAA requires a final construction report (FCR). The airport engineering design and construction management firm, or airport owner representative who is familiar with the project, should prepare this report. The report should contain:

- Project narrative of the construction phase;
- Documentation of any changes made during construction;
- Data from quality assurance tests for concrete, asphalt, base rock, fill;
- Tabulation of final costs, including quantities of materials used and an explanation of differences if the total cost to be covered by an FAA grant is off by more than 10 percent of the amount requested;
- A final payment release request for grant funds (FAA withholds a final 10 percent until this report is received and accepted); and

- An updated airport layout plan with the new hangars and other airport changes shown (include one for your state if they have invested money in the project, and particularly if there are major airport ramp and taxiway changes).

Final thoughts on hangar construction: It is important that both the construction and the design engineering contractors have prior experience working on airport projects. Check and verify their references and experience claims. Airport owners sometimes have their public works in-house engineering staff do the design work. This is usually intended to save money but without prior airport design experience and familiarity with design standards they can cause significant problems.

Hangar buildings are not typical metal buildings. The specifications are unique and differ from the types of buildings the airport owner's engineering staff might have designed. Also, the paving grade on airports is different from the grade on city streets. Paving on city streets can be sloped for drainage with a 2-percent or higher grade. Aircraft owners would not be able to push their airplane up that slope into their hangar. Designing and adjusting hangar sliding doors is not like that of regular steel buildings. Doors must overlap without binding and move with a minimum of physical effort. The architect, building supplier, engineers, and inspectors must be familiar with these types of differences to avoid problems.

Private hangar developer: With private hangar development the developer will carry the responsibility of hangar construction. However, the FAA still needs to approve the designs and methods used on the project. The same contract wording applies to the lease agreement with a private developer. But there are some additional points to include in the contract. Be certain that the developer is required to work closely with the engineering design consultant and resident engineer (or airport owner representative) because the

FAA's design criteria applies to them too. Also include a performance clause that requires the developer to agree on a time period to start and complete the construction. Ensure that the developer cannot agree to build the hangars, thereby tying up open airport property, and then fail to complete the project. Do this by requiring airport land lease payments to start only when all required parties have signed the lease agreement. Add specific wording to require the developer to meet all of the construction requirements of the airport owner and permit agencies.

New hangar move in

After all the hard work you and your team have put into this hangar project you are finally ready for the tenants to move in. In most cases you will be moving in tenants who signed up on a waiting list for those hangars. It is critical to manage this process in a professional manner. Administer the list fairly and consistently. Don't allow back-room deals.

Review your project cost economics to make sure the hangar rents will cover your costs. Also check that the airport owner's accounting department is ready to receive monthly payments from the tenants.

Notify the tenants on the list by mail or phone that they can move into the hangars. Remind them of the monthly rent and include any other fees that they will incur upon move in such as damage deposits. When the tenants are ready to move in have the rental or lease agreement ready for them to review and sign and obtain the appropriate insurance documentation from each tenant to protect the airport owner. After the tenants have moved in check to ensure that any punch list items are completed. This could include utilities, paint touch ups, or door adjustments.

If you work through the waiting list and still have vacancies, consider advertising the new hangar availability. Posting advertisements and

talking to nearby flying clubs, FBOs, and airport managers can be useful. If you have filled the new hangars and still have people on a waiting list, continue to manage it as you did during the move-in process.

Private hangar developer: You or an airport owner representative should have an agreement in place about how to coordinate tenant move in with the private developer. You and the developer might have separate waiting lists if you have a combination of privately and airport-owned hangars. If all of the hangars are privately developed then the hangar owner usually manages move in.

During move in you should have an airport owner representative (usually the airport manager) available in case disagreements arise between the hangar developer and tenants on the waiting list. However, if the developer compiled and managed the waiting list, your capacity to resolve a disagreement will be limited.

Be certain that the developer does not allow renters to engage in activities that do not comply with airport zoning and building codes (i.e., running a business in a noncommercial zone or permitting nonaviation activity prohibited by airport operating standards).

CHECKLIST

- ✓ Obtain project design and funding
- ✓ Bid and award construction contract
- ✓ Construct hangars
- ✓ Complete hangar project and move in tenants

PROJECT EVALUATION — STEP FIVE

PROJECT EVALUATION

During the course of this project you probably gained new insight into airport operation, development, and hangar construction. It is important that your team passes this real-world knowledge on to others who might pursue construction projects at your airport. “Project Evaluation” focuses on capturing what was learned throughout the entire hangar project process. This will help ensure consistency in the operation of your airport and implementation of future airport development projects.

The two basic parts of project evaluation include checking to confirm your project economics are still valid and producing a record of the project. In Step Five you will track the financial performance of the airport (including new hangar operation), adjust rental rates as appropriate, debrief project participants, conduct an airport tenant opinion survey, and present a final project report to the airport owner decision makers.

Project economics

When the income stream starts flowing from the new hangars, closely review the monthly revenue and expense reports produced by the airport owner. Check your original estimates (produced during the first three steps of the guide) and confirm that the hangars are generating sufficient revenue to cover all of your expenses, including any new principle and interest payments. Don't forget to include additional fuel sales revenue in the review.

Ideally you would be generating sufficient revenue to cover all of the operating expenses and financing costs, with enough to set some aside in

a reserve fund. If the project is generating excess revenue, evaluate the reserve fund needs and adjust as appropriate.

If insufficient revenue is being generated, it may be necessary to increase the rental rates to cover the shortfall. Your standard rental/lease agreement may limit rent increases so take this into account when evaluating financial performance. It may take a few months to get a good handle on the situation but start tracking the airport finances early and often. Appendix I, “Airport Revenue and Expense Financial Analysis,” can be used to check the airport's new financial state.

At a federally funded airport the FAA requires that airports charge fair market rental rates. The FAA also frowns upon charging rates that exceed fair market value and the agency could view such an act as unjust economic discrimination. For any consideration of adjustments in hangar rental rates it is extremely important to involve stakeholders early in the discussions.

Debrief project participants

An effective method for evaluating the project is to go back to your stakeholder analysis and conduct interviews with these individuals again. Now that the project is complete ask for their thoughts and suggestions about how to improve the process. Discuss the project approval process, the impact on schedule and cost, the impact on current airport businesses, tenants, and staff, and the level of satisfaction from key decision makers. You also should obtain input and reactions from the airport design engineering consultant, airport owner engineering staff, construction contractor, resident engineer, and airport owner representative.

Conduct airport tenant opinion survey

Many airport tenants (business owners and users) initially might not be included in the stakeholder debriefing but their input is no less important. An effective way to obtain their input is to conduct a short opinion survey. Limit the survey to 10 or fewer questions and use a simple scale (e.g., rank the level of satisfaction from 1-10). The easiest way to distribute the questionnaire is to mail a copy to all airport users who appear on the

Sample opinion survey questions

Did the construction phase of the project impact your use of the airport?
(1-10 scale, 1 being strongly disagree, 10 being strongly agree)

How did the project impact your use of the airport?

(Ask for a written response or provide a list of examples with boxes to check.)

This hangar project will benefit the airport.

(1-10 scale)
Explain why or why not.

Waiting list was well administered.

(1-10 scale)
Explain why or why not and provide some suggestions for future projects.

Tenant communication was sufficient.

(1-10 scale)
Explain why or why not.

Overall, how would you rate this project.

(1-10 scale)
Explain why.

What else would you like to see developed at the airport?

airport owner's records, including the new hangar tenants.

Tabulate the numerical results and consolidate the written comments. Then combine your stakeholder and tenant survey results to create a brief report for your key decision makers and airport tenants. (A Microsoft PowerPoint presentation is a simple and effective reporting method.) Because your decision makers and tenants took time to be interviewed or to complete an opinion survey, you owe them an opportunity to see the results. An airport users' meeting can be an effective venue for such a presentation. Sharing the results with the stakeholders and tenants fosters open communication and relationship building.

Provide copies of the final project report to the group responsible for airport management oversight, whether it is an individual, airport committee, or local government commission. They should have copies available for whoever becomes involved in the next airport development project. Your report and shared experiences should enable the next project team to complete their project more efficiently than if they were to start from scratch as you probably did.

CHECKLIST

- ✓ Track financial performance of airport, including new hangar operation
- ✓ Adjust rental rates as appropriate
- ✓ Debrief project participants
- ✓ Conduct airport tenant opinion survey
- ✓ Provide final project report to airport owner decision makers

The project process in this guide have been tried and proven to work. It will provide you with many useful ideas, tools, and approaches to overcome the many obstacles involved with embarking on a hangar project at any GA airport.

APPENDIX I

AIRPORT REVENUE AND EXPENSE FINANCIAL ANALYSIS

The financial analysis is nothing more than a balance of the airport's revenues and expenses—think of it as balancing the airport's checkbook—and much of the information can be obtained from the airport owner's finance department. What follows are some of the principal elements that make up the airport's revenues, expenses, and other financial items. Whether a private developer or the airport owner builds and operates the hangars, most of these financial elements will apply to the typical GA airport.

Revenue

- Fuel sales: revenue from 100LL, Jet A, auto, oil, etc.
- Hangar rent: revenue from owner-operated/-built operated/built hangars
- Tiedown rent: revenue from tiedowns, including transients
- Ground rent/land leases: revenue from airport land leases for FBOs, charter operators, private hangar development, etc.
- Interest earnings: revenue from bonds and bank accounts
- Miscellaneous revenue: property tax returned to airport, penalty payments, etc.

Expense

- Salaries and benefits for full- and part-time employees
- Fuel purchases: wholesale purchases of fuel for sale (applies to airport owner-operated fuel system)
- Fuel flowage fees: cents per gallon of fuel sold payable to airport owner (privately-owned and -operated fuel system or large operator has its own fuel supply)

- Professional and contract services: standing engineering consultant fees, contract employee fees, and other consultants
- Utilities: payments for electric, water, sewer, heating
- Bank fees and lab services: bank fees for credit card purchases, ground water/runoff testing for environmental compliance, underground fuel system tests
- Telecommunications: telephone, computer services, etc.
- Office supplies: postage, paper, pencils, computer, interior areas and other supplies
- Repair supplies: parts to maintain airport vehicles, hangars, fuel system, etc.
- Repairs and maintenance: services for equipment repair, hangar maintenance, fuel system repairs, etc.
- Miscellaneous: travel, memberships, advertising
- Overhead allocations: secretarial staff, finance staff, management. This can be allocated based on a standardized method used for charging other departments of owner operations, or it can be direct actual costs. The FAA requires whatever method used be consistent for all departments and enterprise funds.
- Insurance: general liability and damage coverage
- Taxes: local, county, state
- Bad debt write-offs

Other items

- Loan payments: principle and interest
- Federal grants received
- State grants received
- Capital project expenses
- Fixed-asset depreciation

Use the financial analysis to build your credibility as a knowledgeable airport proponent. In a situation where there has been little analysis, this information also will help influence key stakeholders to support the project. If the airport's financial situation is not currently satis-

factory, rectify this situation before proceeding with the hangar project. By tabulating the airport's annual financial results and tracking its current fiscal year performance quarterly or monthly, you will learn quickly about its financial health.

Sample Airport Operating and Expense Summary

REVENUE	BUDGET	ACTUAL	1QR	2QR	3QR	4QR
Fuel sales	460,000	480,000	110,000	130,000	140,000	100,000
Hangar rent	420,000	450,000	105,000	105,000	120,000	120,000
Tiedown rent	15,000	17,800	4,400	4,400	4,500	4,500
Ground rent	90,000	93,000	22,500	22,500	24,000	24,000
Interest earnings	46,000	48,000	12,000	12,000	12,000	12,000
Property tax return	48,000	45,000	0	0	45,000	0
Miscellaneous	12,000	11,500	4,000	2,500	3,000	2,000
TOTAL	1,091,000	1,145,300	257,901	276,402	348,503	262,504

EXPENSES	BUDGET	ACTUAL	1QR	2QR	3QR	4QR
Salaries, benefits	32,000	32,000	8,000	8,000	8,000	8,000
Fuel purchases	360,000	370,000	90,000	80,000	100,000	100,000
Contract services	82,000	90,000	20,000	30,000	20,000	20,000
Utilities	55,000	56,500	14,000	14,000	15,000	13,500
Bank/lab fees	12,000	12,500	3,000	3,200	3,500	2,800
Telecommunications	2,500	2,500	600	600	700	600
Office supplies	2,500	2,700	600	600	800	700
Repair: parts	15,000	20,500	5,000	3,000	6,000	6,500
Repair: maintenance	20,000	24,000	6,000	4,000	7,000	7,000
Miscellaneous	9,500	10,500	3,000	2,500	2,000	3,000
Overhead	85,000	86,000	21,500	21,500	21,500	21,500
Insurance	6,000	6,000	1,500	1,500	1,500	1,500
Taxes	4,000	4,000	1,000	1,000	1,000	1,000
Bad debt	1,500	1,300	500	300	400	100
TOTAL	702,000	718,500	174,701	170,202	187,403	186,204

OTHER	BUDGET	ACTUAL	1QR	2QR	3QR	4QR
Loan: principle	(82,000)	(82,000)	0	(41,000)	0	(41,000)
Loan: interest	(355,000)	(355,000)	0	(178,000)	0	(177,000)
Federal grants	150,000	150,000	0	150,000	0	0
State grants	0	0	0	0	0	0
Capital project expenses	(160,000)	(181,000)	0	(169,000)	(12,000)	0
Depreciation	(85,000)	(85,000)	0	0	0	(85,000)
TOTAL	(450,000)	(471,000)	0	(169,000)	(12,000)	(262,000)

In this example there is a budgeted loss of \$61,000, compared to an accumulated year-end loss of \$59,200. Since this loss can be attributed to depreciation charges, \$85,000, (see comments about depreciation in "Project Planning – Step One"), there is actually a small surplus when depreciation is excluded from the review.

To summarize

	BUDGET	ACTUAL
Revenue:	1,091,000	1,145,300
Expenses:	702,000	733,500
Other:	(450,000)	(471,000)
TOTAL	(61,000)	(59,200)



APPENDIX II

HANGAR PROJECT PROFORMA

The financial project *proforma* is a detailed projection of the impact of your hangar project on the financial health of the airport. To create this *proforma*, take the year-by-year financial review as outlined in Appendix I and make some assumptions based on the scope of your hangar project. The financial institutions that will be providing the money for your project will probably want to see the analysis. The airport owner's financial staff might be able and willing to do this for you; if not, it is not difficult. Remember, it will demonstrate the true value of your project to the airport over time. This *proforma* will be useful when influencing the key decision makers and stakeholders to support the project. If you can prove that your hangar project could make the airport self-supporting (without the need for supplemental funds from the local tax base), you'll find them much more supportive.

The first task is to complete the annual financial analysis in Appendix I. Then list the project scope assumptions. Identify the scope items in the project that will impact the airport's revenue, expenses, and loan payments after the hangars are completed and generating revenue. Take a look at these assumptions for the example airport financial analysis used in Appendix I.

- Current airport hangar space rented: 124,000 square feet.
- New hangar space for rent: 30,000 square feet (30 new hangars, 24-percent increase in rentable hangar space). You will have to estimate the cost of the hangar project and use a loan calculator to estimate the interest and principle payments. The design engineering consultant should be able to create a project cost estimate.
- Utilities increase with the increase in hangars (24-percent).
- Increase the current rental rate of \$0.27 per square feet per month as appropriate (assume 3 percent annual inflation).
- Additional fuel sales: There are currently 200 aircraft, and you will be adding 30 new hangars. Assume that 50 percent of the hangar occupants are new to the airport (i.e., 15 new aircraft). This means a 7.5-percent increase in aircraft based at the airport $[(200+15)/200 = 1.075 \text{ or } 7.5\%]$. Therefore, fuel sales also should increase 7.5 percent. The rest of the hangars would be occupied by current tiedown renters ($\$480,000 + 7.5\% = \$516,000$).
- Current hangar rent: $\$450,000$ (124,000 square feet) + $\$99,000$ for the new hangars (30,000 square feet x $\$0.275/\text{mo}$) = $\$549,000$.
- Increase operating expenses 3 percent per year for inflation.
- Increase fuel purchases 7.5 percent.
- Increase miscellaneous revenues and expenses by 7.5 percent related to aircraft on field.

Now that the assumptions are in place, set up the projections. Consolidate some of the revenue and expense numbers such as those that are not impacted by the increase in aircraft based on the field. Exclude grants, depreciation, and capital project expenses because you want to project only the ongoing operating revenues and expenses to see if you can afford the hangar project.

The yearly projected total is the total revenue minus the expenses and loan payments. "Year 0" is the current financial state of the airport. "Year 1" assumes the hangar project is complete and generating revenue. This airport example would include the 7.5-percent increase in fuel sales and

purchases and 3 percent inflation increases in rental rates (3 percent inflation for following years as well). You could do these projections without considering inflation, or you could use a figure other than 3 percent, but don't forget the impact of rent increases on revenue. You can continue the projections through to the end of the loan term, but only the first 10 years are shown in this example. The numbers on the chart below have been rounded to thousands of dollars.)

After the project is complete and begins to generate revenue and attract new aircraft to your airport, thereby increasing fuel sales, you will see

the net end-of-year financial picture start to improve. Inflation will continue to drive up costs and expenses, but your financing cost is constant, so you'll see an improvement in your airport financial picture.

If the airport does not own the major sources of revenue, like the fuel system and hangars, the viability of your hangar project could be significantly affected. This is why a careful review of the airport's financial situation is vital. Working all of these issues into your business plan is critical if you are going to build the support needed to execute your project effectively.

REVENUE	YR 0	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10
Fuel	480	530	547	563	580	597	615	634	653	672	691
Hangar rent	450	549	565	582	600	618	636	655	675	695	715
Other rent	110	113	116	119	122	126	130	134	138	142	146
Property tax	45	50	51	53	54	56	58	59	61	63	65
Other	60	62	64	66	68	70	72	74	76	79	82
SUBTOTAL	1145	1329	1345	1386	1428	1472	1517	1563	1611	1660	1709

EXPENSES	YR 0	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10
Salaries/benefits	32	33	34	35	36	37	38	39	40	42	43
Fuel purchase	370	398	409	422	435	447	461	475	489	504	519
Utilities	57	71	73	75	78	80	82	85	87	90	93
Other exp	162	167	172	177	182	188	193	199	205	211	217
Overhead	86	89	91	94	97	100	103	106	109	113	117
Other exp	11	11	12	12	12	13	13	14	14	15	16
SUBTOTAL	718	769	791	805	840	865	890	918	944	965	1005

OTHER	YR 0	YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7	YR 8	YR 9	YR 10
Loan principle	82	84	86	88	90	92	94	96	98	100	102
Loan interest	355	353	351	349	347	345	343	341	339	337	335
New loan principle		20	21	22	23	24	25	26	27	28	29
New loan interest		86	85	84	83	82	81	80	79	78	77
SUBTOTAL	437	543									

TOTAL	(10)	17	11	38	45	64	84	102	124	152	161
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APPENDIX III

IS YOUR BUSINESS CASE COMPELLING?

For your project to be successful it must be compelling to the key decision makers and stakeholders. There are four key phases to create and integrate a compelling business case for your hangar project.

- Phase One:** Develop the business case
- Phase Two:** Check with stakeholders to ensure the business case is compelling
- Phase Three:** Develop a basic presentation
- Phase Four:** Feed the business case into your communications plan

Depending on the requirements of your project and the demands of decision makers and key stakeholders, you might not need to go through all of this detail. However, it is beneficial to go through these phases to ensure the project will be successful even when faced with resistance.

Phase One: Develop the business case

Review the questions listed in Phase One and brainstorm other questions that will capture the five aspects of a compelling business case. It is important to document the business case, even parts that seem obvious, because it gives everyone the same point of reference for communication.

Parts of a Compelling Business Case	Questions to Ask to Develop Each Part of the Business Case
PART ONE: Description of the project	<ul style="list-style-type: none"> ■ What is the current situation? Describe what will be targeted in the project. ■ What is currently going well that can be built on? ■ What has been done to confirm the need for new hangars? ■ Who authorized/initiated the project?
PART TWO: Description of the project importance	<ul style="list-style-type: none"> ■ Why are the hangars needed? ■ What is the motivation of airport users for new hangars? Do they perceive: <ul style="list-style-type: none"> • An opportunity – a situation leading to future success? • A need – a current shortage of hangar space? • A discomfort – an existing problem requiring a solution? • Pain – a severe problem requiring immediate response? ■ What situation demonstrated the current need?
PART THREE: Description of benefits of the new hangars	<ul style="list-style-type: none"> ■ How will stakeholders benefit in the short run? ■ How will stakeholders benefit in the long run? ■ How will the airport, local community and owner benefit in the short/long run? ■ What are the consequences of not doing the project? ■ What resources will be available to complete the project?

Parts of a Compelling Business Case	Questions to Ask to Develop Each Part of the Business Case
PART FOUR: Description of the costs associated with the project	<ul style="list-style-type: none"> ■ What will it cost in terms of money, time, and effort? ■ How will stakeholders be impacted by these costs? ■ What is the cost/benefit analysis (project <i>proforma</i>)?
PART FIVE: Measures for success	<ul style="list-style-type: none"> ■ How will success be measured? What is the monitoring system? ■ What does success look like? ■ How will stakeholders recognize success?

Phase Two:
 Check with stakeholders to ensure business case is compelling

In Phase Two, evaluate how compelling the business case is to key stakeholders. Review these questions, and check your business case against them.

The Stakeholder will ask:	The Stakeholder really wants to know:
PART ONE: What does the project look like?	<ul style="list-style-type: none"> ■ Is the project going to impact my business or daily work?
PART TWO: Why is this project important?	<ul style="list-style-type: none"> ■ What's in it for me? ■ Who cares? ■ So what? ■ Is it going to negatively impact me?
PART THREE: Is it good for business?	<ul style="list-style-type: none"> ■ How will the project help my business? ■ How will the project make my job easier/harder? ■ How will the project make me look good/bad?
PART FOUR: What will this cost me?	<ul style="list-style-type: none"> ■ How will the project impact my budget, people, and time? ■ What do I have to give up if the project goes forward? ■ What additional workload will I have?
PART FIVE: When will this be successful?	<ul style="list-style-type: none"> ■ How do I know I'm done with this and can go back to my "real work?" ■ How will I know there is a positive impact on my business?

Phase Three: Develop a basic presentation

Once the business case has been drafted into your plan and checked with a sample of stakeholders, develop a presentation that can be used for communication about the project. For example, Microsoft PowerPoint can be a helpful tool to organize and deliver your presentation. Adjust the format to match the audience to which you are speaking.

Phase Four: Feed the business case into your communication plan

Be sure that the communication plan you have developed to gain the support of key stakeholders includes a discussion of the business case. Also, keep in mind that the business case will change as the project progresses. Revisit the business case frequently as conditions and situations change, such as project cost increases.



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