



TDOT Aeronautics Division

*Hangar Rates and Charges Interactive Equation
Module Guidebook*



Aeronautics Division
Tennessee Department of Transportation

Kimley»Horn

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01

Introduction

*TDOT Aeronautics Division Hangar Rates and Charges
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Introduction

Tennessee's airports are as diverse as the State itself, spanning from one of the newest large hub commercial service airports (Nashville International Airport [BNA]) to a variety of general aviation (GA) airports that provide crucial access to areas across the State. The Tennessee aviation system facilitates thousands of operations a year, bringing visitors to the State, bolstering business activity, and supporting the transport of goods and services. Tennessee's airports are also home to thousands of based aircraft, which support air travel for the State's residents and visitors. **As of December 1, 2023, Tennessee's airports are home to over 3,600 based aircraft.¹**

Ninety-four percent (72) of Tennessee's airports provide publicly available hangars that are rented on a recurring monthly fee.² Aircraft owners who lease hangar storage are referred to as "hangar tenants" or "tenants." For tenants, hangars provide a safe, secure, and comfortable option to store their valuable aircraft. For airport sponsors, hangars are a revenue-generating facility that can help financially support other airport facilities/services and future airport improvement projects. Tennessee's hangar inventory includes t-hangars, box hangars, and shade hangars, which are described in Figure 1.

The Tennessee Department of Transportation (TDOT) Aeronautics Division recognizes the importance of hangars for maintaining based



T-Hangar

T-hangars are completely enclosed, covered aircraft storage that are typically used to store smaller, single-engine aircraft. T-hangars are designed to store several aircraft in separated 'units,' with each unit geometrically shaped as a 'T' to align with the shape of an aircraft and maximize space within the building. As of 2019, 87 percent of all Tennessee public-use airports have at least one public-use t-hangar, making them the most popular hangar option in the State.



Box Hangar

Box hangars are completely enclosed, covered aircraft storage that can accommodate a variety of aircraft sizes. Box hangars provide a single, square-shaped space for storing multiple aircraft together. Airport sponsors may lease out part or all the available storage space to tenants, and multiple tenants may lease part of the same box hangar. As of 2019, 83 percent of all public-use airports in Tennessee have at least one public-use box hangar.



Shade Hangar

Shade hangars are covered but not enclosed aircraft storage that can accommodate a variety of aircraft sizes. Shade hangars provide a roof but no walls, allowing for partial protection against the sun and inclement weather. Multiple tenants may lease part of the same shade hangar. As of 2019, 10 percent of all Tennessee public-use airports have at least one public-use shade hangar, making them the least popular hangar option in the State.

³ Airports shown in pictures from left to right: Springfield-Robertson County Airport (M91), Dyersburg Regional Airport (DYR), and Tri Cities Airport (TRI).

aircraft within the State. TDOT Aeronautics Division also recognizes that hangars are important revenue-generating facilities for airports. Recent surveying efforts, including the Statewide Tennessee Aviation System Plan (TASP) Rates and Charges Survey (collected in 2019) and targeted airport interviews regarding hangar rents (completed in 2023), discovered several interesting facts related to hangars and their rates, including:

- Hangar demand far outweighs supply.
- Despite hangar demand, airports are not charging fair market value rent for their hangars and have not historically raised rents on their hangars.
- In some instances, airport managers do not feel they are able to raise rents due to objections from airport authorities and/or existing hangar tenants.
- Hangar waiting lists are not consistently maintained.

Airport sponsors that accept federal grants must abide by Federal Aviation Administration (FAA) Grant Assurances that apply to the rates and charges for the use and lease of hangars. Per FAA Grant Assurance #24 *Fee and Rental Structure*, the fee and rental structure for leasing public-use hangars must support the airport's goal of financial self-sustainability.

“ **FAA Grant Assurance #24, Fee and Rental Structure, states that “[The airport] will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for which a grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act of the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.**



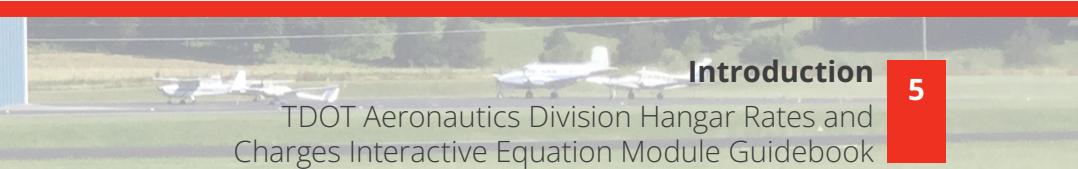
The intent of this Guidebook and associated Interactive Equation Module is not to mandate or require any specific hangar rates to be established. Rather, the information provided is intended to be used as a tool to assist airports in understanding a wide variety of considerations associated with developing and renting hangars, specifically with the goal of promoting financial self-sufficiency. To this end, this Guidebook was developed to support and promote the recommendations provided in the Aircraft Hangar Development Guide developed by the Aircraft Owners and Pilots Association (AOPA), which states, "When the income stream starts flowing from the new hangars...check your original [hangar rent] estimates and confirm that the hangars are generating sufficient revenue to cover all of your expenses, including any new principle and interest payments. 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 insufficient revenue is being generated, it may be necessary to increase the rental rates to cover the shortfall."

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¹ As reported by the National Based Aircraft Inventory Program and the FAA's Airport Data and Information Portal (ADIP).

² As reported by the TASP Rates and Charges Study completed in 2019, four public-use airports in Tennessee do not provide public aircraft hangars: Reelfoot Lake Airport (OM2), Pickett Field (50M), Abernathy Field (GZS), and Memphis International Airport (MEM).



What is Fair Market Value?

FAA Compliance Guidance Letter 2018-3, *Appraisal Standards for the Sale and Disposal of Federally Obligated Airport Property*, defines fair market value as follows:

*"The **highest price** estimated in terms of money that a property will bring if exposed for sale in the open market allowing a reasonable time to find a purchaser or tenant who buys or rents with knowledge of all the uses to which it is adapted and for which it is capable of being used. It is also frequently referred to as the price at which a willing seller would sell and a willing buyer buy, neither being under abnormal pressure. FMV [fair market value] will fluctuate based on the economic conditions of the area."*

The Guidance Letter provides a further description of fair market value as:

*"FMV [fair market value] is the **cash value** of the property if it were sold in a well-functioning market, assuming an arm's-length transaction (the buyer and seller are free from any duress), and the property is exposed to the market for a sufficient period of time for buyers to evaluate it."*

The FAA typically refers to fair market value in the context of airport grants, leases, and charges. When it comes to setting rates and charges at federally funded airports, the FAA requires these rates and charges be based on fair market value. This means that airport sponsors should use fair market value principles to determine reasonable and equitable rates for airport users, including hangar tenants.

The benefits of charging fair market value for hangar leases extend beyond simply achieving compliance with FAA Grant Assurances. Fair market hangar lease rates can substantially improve airport revenues which can be reinvested in infrastructure improvements, maintenance, and other airport services. They can also improve the financial sustainability of the airport, thereby reducing the burden on taxpayers and other funding sources. Fair market hangar lease rates can also

The goal of this Guidebook is to ensure that all airports across Tennessee are charging fair market value for their hangar spaces. The information, resources, and best practices presented in this Guidebook offer airport managers and sponsors a roadmap to ensuring the long-term viability and smooth operation of their airports and hangar facilities.

⁴ More information on FAA Grant Assurances can be found at: https://www.faa.gov/airports/aip/grant_assurances.

encourage efficient use of hangar space, as lessees are more likely to utilize hangar space effectively when they are paying a competitive rate and less likely to use hangars for non-aeronautical purposes.

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Guidebook Foundations

This section presents the background research and documentation that informed the creation of this Guidebook and set the foundational rationale for the Hangar Rates and Charges Interactive Equation Module. The information presented in this section provides valuable background knowledge that can be used by airport sponsors and managers to inform the development of their strategy for leasing hangars in combination with the Module. Airport sponsors may also use the information in this section to present to stakeholders concerning why fair market value hangar rates are important and why hangar rents may potentially increase. Included in this section is a review of State and federal policy, guidance, and grant assurances related to hangar leasing; evaluations of existing hangar demand, lease rates, capacity, and rents across Tennessee airports; and creative strategies for developing hangar facilities at airports.

Abbreviated Literature Review Overview

As part of developing the Hangar Rates and Charges Interactive Equation Module and this Guidebook, TDOT Aeronautics Division developed a literature review that covers federal, State, and other guidance documents pertaining to hangars. The following sections describe the important considerations found throughout the literature review. To view the full literature review white paper, please refer to [Appendix A](#).

Federal Grant Assurances

The FAA has Grant Assurances that apply to any airport sponsor that accepts federal funds from the Airport Improvement Program (AIP), regardless of the purpose of the grant. Grant Assurances cover a variety of topics, including those related to hangar occupancy and rate structures. It should be noted that all Grant Assurances apply to a federally funded airport in all circumstances and at all times, even if the airport sponsor is currently receiving funds for which a Grant Assurance may not strictly apply. For instance, an airport sponsor may accept a grant for a pavement project, but Grant Assurances related to compatible land use surrounding the airport still apply, even though a runway pavement project is not related to land use compliance. Grant

Assurances related to hangar occupancy and rate structures include (Grant Assurance number references provided in parentheses)⁴:

- **Economic Nondiscrimination (22)** – Economic Nondiscrimination means the airport is available for public use on reasonable terms and without unjust discrimination to any types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport. This Grant Assurance extends to hangar occupancy, meaning the airport sponsor must not discriminate against any type, kind, or class of aeronautical activity when determining to whom the hangar is rented.
- **Exclusive Rights (23)** – The Exclusive Right grant assurance will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public.
- **Fee and Rental Structure (24)** – Fee and Rental Structure states that airports that accept federal funds must apply an adequate rental/fee structure for use of all airport facilities, such as hangars, to make the airport as self-sustaining as possible.
- **Airport Revenue (25)** – All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport.

TDOT Aeronautics Division strongly suggests that all airport sponsors (regardless of whether they accept federal funding) follow the federal Grant Assurance pertaining to fee and rental structure by charging fair market value for the use of aircraft hangars.

Federal Policy for Establishing Rates and Charges

In addition to Federal Grant Assurances, the FAA provides additional guidance regarding fair and reasonable lease rates. The FAA's Policy Regarding the Establishment of Airport Rates and Charges suggests three "reasonable" methodologies to determine market rent for on-airport facilities:

- **Historic Cost Valuation:** This strategy relies on the allocation of costs among cost centers in accordance with a reasonable, consistent, and transparent methodology.
- **Direct Negotiation:** This strategy is based on open dialogue between the airport and the prospective lessee to arrive at an agreed upon price.

• **Objective Determinations:** This strategy relies on a third party to complete an objective analysis of the fair market value or rent.

- The Hangar Rates and Charges Interactive Equation Module (detailed in the **Equation Module** section) was developed according to the objective determinations methodology. This Module considers a wide variety of factors including, but not limited to, existing hangar lease rates observed in Tennessee, an airport's role in the State and federal airport system, features and attributes of the hangar, and supply/demand conditions.

Hangar lease agreements are also an important tool for airport sponsors to maintain fair market value of a hangar and maximize revenue. It is important that the agreements not only establish the present-day lease rate structure based on fair market value, but also account for rising costs as a result of changing economic conditions. As such, airports should consider adding an escalation cost provision to lease agreements to easily enable annual rent increases based on inflation or other economic circumstances to maintain fair market value for the hangar. Standard increases, such as every three to five years, are based on the consumer price indices (CPI) set by the U.S. Department of Labor. This establishes a reasonable economic escalation rate expected for the near term that an airport can easily incorporate into their lease rate's structure. The website to find CPI is: <https://www.bls.gov/cpi/>.



How Can an Airport Manager Implement Regular Rent Increases?

To account for a statewide inflation rate of five percent, and a master planning forecast projecting a five percent increase in aeronautical activity, an airport manager uses an escalation clause to increase hangar rates by 10% every three to five years.

Developing and Leasing Airport Property

ACRP Report 47, *Guidebook for Developing and Leasing Airport Property*, suggests four pricing strategies that are applicable to hangars. Strategies reported in ACRP Report 47 share similarities with some of the FAA methodologies referenced in the previous section, meaning that all federally obligated airports can use the approaches proposed in the ACRP report. For example, the Appraisal Strategy and Objective Determinations requires that a third party conduct the rate evaluation on behalf of the airport. Strategies include:



Appraisal: The appraisal strategy determines lease rates by considering comparable land and facilities at the airport that are similar in size and area. This strategy also considers several factors (e.g., demographic, size and number of based aircraft, availability of instrument approach, hours of operation) that could all impact the appraisal rate for facilities or land. For the appraisal to be as accurate as possible, airport sponsors will have to hire a certified appraiser to conduct the evaluation. The appraisal pricing strategy would be appropriate to use with the FAA-recommended Historic Cost Valuation or Objective Determinations methodology.

Comparable Sales Approach: The comparable sales approach compares the lease rates of other similar properties to identify a competitive and fair rates structure. This can be helpful for airports to not overcharge available hangars on the market. However, if nearby facilities are similarly under-charging for hangar storage, this approach may not result in fair market rents. Although, once airports align their rates structure to fair market value, this can be a suitable option for airport sponsors to promote a competitive environment. The comparable sales approach strategy would be appropriate to use with the FAA-recommended Historic Cost Valuation or Direct Negotiation methodology.

Cost Approach: The cost approach considers what it would cost to completely replace all of the infrastructure currently located on the land. This strategy is commonly used when comparable land prices are not available, and the land is already developed. According to a surveying effort completed by the ACRP, this is the second most common strategy utilized by airport sponsors. However, airport sponsors should note that for federally obligated airports, the FAA prohibits hangar rents from being based solely on the amortization of the grant used to build the hangar. The cost approach strategy would be appropriate to use with the FAA-recommended Historic Cost Valuation or Objective Determinations methodology.

Income Approach: The income approach is preferred when evaluating a commercial property or rental that is income-producing, or when the property can be the most valuable as a rental property. This strategy will link the value of a property with the income the property will most likely produce to determine the appropriate rate to charge. This strategy is not the most practical as the most valuable use of the property may change over time, with the best rate to charge adjusting along with it, causing rates to potentially decrease. The income approach strategy would be appropriate to use with the FAA-recommended Historic Cost Valuation or Objective Determinations method.



Public-Private Partnerships

Public-private partnerships (P3s) are contracts between public agencies and private sector companies that can often unlock greater efficiencies and innovations in delivering a public service, while easing the burden from public entities that may have limited resources. An airport sponsor can initiate a P3 by leasing out land to a private sector company who agrees to develop facilities at the airport that are available to the public. This can include aircraft hangars. By leasing airport property to private entities that promise to construct and maintain new hangars, the additional facilities represent a revenue generating opportunity for the private sector while increasing the airport's overall aircraft storage capacity.

With the for-profit mindset of the private sector, private companies are much more incentivized to reduce time and cost expenses. This represents a major benefit of P3 hangar development, as it can often be completed in less time and at a lower cost by being more geared toward using creative and innovative construction methods. Based on a few studies comparing P3s and traditional procurement methods, it was discovered that P3s have a project overrun cost that is 11.9 percent less than publicly financed projects.⁵ P3s not only decrease the price of development, but they also decrease the time it may take for development to be completed.

It is important to note some concerns associated with P3s that airport sponsor should account for when signing these agreements. When entering in the partnership, there is a perceived concern that the airport may lose authority to private parties. Publicly-owned airports exist to provide an air travel gateway for the public and businesses. Often viewed as a public resource like parks and roadway infrastructure, airports should be consistently operated and maintained in the best interest of the public that invests in these resources through taxes. When establishing a P3, airport sponsors must provide a written agreement with the private entity that the hangar is located on airport property and must abide by all applicable local laws and standards relating to the use and maintenance of the land and the infrastructure built upon it. P3s should be built upon a legal foundation in which the private sector company must meet a set of responsibilities and performance standards suitable to public infrastructure. To ensure the success of a P3, airports and private sector companies must establish open lines of communication and transparency. This will help ensure that all rules, regulations, and minimum standards are met and can later be reported to all airport stakeholders.

The following steps outline the process for a hangar development P3:

1. The process in which a P3 is achieved begins when an airport agrees to lease out land to a company in the private sector. The private sector company agrees to all terms and conditions and promises to use the land leased for hangar development(s). From a financial standpoint, airports will only receive revenue from the land leased and not the hangar spaces. The rate in which the land is leased should align with fair market value that considers local market conditions. Airports should also have the

⁵ North American Highway Construction, a study by Chasey, A., W. Maddex, and A. Bansal

⁶ Advisory Circular 150/5370-10 (Airport Construction Standards, (https://www.faa.gov/airports/engineering/construction_standards) Advisory Circular 150/5370-10 (Airport Design, https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5300-13)

P3s can often unlock greater efficiencies and innovations in delivering public services, while easing the burden from public entities that may have limited resources.



authority to make rate adjustments as needed and should define a reasonable timeframe that allows the airport to periodically reevaluate their rate structure to apply any market-related adjustments.

2. When the land lease agreement is complete, the private sector company can move forward with the hangar development process. Private sector companies should acknowledge any FAA terms and regulations that may apply as development will take place on airport property. All FAA airport development practices and design standards must be followed, such as Advisory Circular (AC) 150/5370-10, (Airport Construction Standards) and AC 150/5300-13B, (Airport Design)⁶. Complying with all FAA terms and regulations will help ensure a safe operating environment for aviation activity, whilst mitigating risk to people and other property.
3. Once hangar development is completed, the process of developing a hangar lease agreement may begin. Private sector companies should include similar provisions to a standard hangar lease agreement to ensure a high safety standard. These safety standards should comply with the safety standards of the airport as the hangars are on airport property, and will help ensure all individuals in the air and on the ground are safe, mitigating any chance of operational disruptions that could come back to the airport. The hangar lease agreements must also be in compliance with all FAA regulations and Grant Assurances.

For an example of a complete land and building lease agreement, refer to [Appendix B](#). Please note: P3s and their use to develop or potentially develop hangars are not considered within the Module itself.



Low hangar rates are prevalent across the State.

Evaluation of Current Hangar Demand

Tennessee's airports have a mix of box hangars, t-hangars, and shade hangars to meet the diverse needs of Tennessee's aviation system. Different hangar types at the same airport may be rented out at different rates because they each provide different amenities. In general, private aircraft owners prefer t-hangars. T-hangars allow users to access their aircraft with minimal issue (versus in a box hangar, where other aircraft may need to be moved in order to access a particular aircraft) and are a private space. A single-use box hangar is typically more expensive; even if a private aircraft owner would prefer more space, this additional cost may be a deterrent and supply is generally lower. Despite the desirability of Tennessee's hangar spaces and the low supply of hangars across the State, the findings from the recent TASP Rates and Charges Survey outlined both insufficient hangar capacity and relatively low hangar rents. This results in long hangar waitlists for prospective hangar tenants.

Despite the desirability of Tennessee's hangar spaces and the low supply of hangars across the State, the findings from the recent TASP Rates and Charges Survey outlined both insufficient hangar capacity and relatively low hangar rents. This results in long hangar waitlists for prospective hangar tenants.

As shown in [Table 1](#), 79 percent of airports (61) in 2019 maintain a hangar waitlist, which accounted for 1,952 individuals. When airport managers were interviewed about hangar rates and charges, none reported charging a fee to be placed on the waitlist, and very few have even considered doing so. Several expressed that they explicitly would not want to charge a waitlist fee. Airport managers also noted that they do not require proof of aircraft ownership (such as a tail number) to be placed on the waitlist. Prospective tenants may also join waitlists at other airports, meaning that the number of desired hangar spots across the State is likely vastly overstated as the total number does not account for any duplicates.

Table 1. Airports with Active Waitlists (Summarized by Airport Classification)

Airport Classification	Percent of Airports that have Aircraft Waitlists
Commercial Service (6)	2 (33%)
Regional Service (17)	16 (94%)
Community Business (15)	13 (87%)
Community Service (37)	29 (78%)
Turf (2)	1 (50%)
Statewide (77)	61 (79%)

As discussed further in Evaluation of Current Hangar Capacity and Rents the average statewide monthly t-hangar rent in Tennessee is \$219. For airport sponsors that charge for box hangars based on a flat fee, the average monthly rent is \$893. For airport sponsors that charge for box hangars based on square footage, the average monthly rent per square foot is \$0.40. While it is difficult to determine fair market value for hangars statewide (as discussed in Process For Establishing Fair Market Value Hangar Rates and Charges), these hangar rents are acknowledged even by airport managers to be lower than fair market value.

Evaluation of Current Hangar Capacity and Rents⁷

The TASP Rates and Charges Study evaluated the rates and charges that each airport applies for fee-generating services and amenities, including hangars. This assessment found that hangar rates across the State were below what the TDOT Aeronautics Division considers to be fair market value, regardless of size, condition, region, or airport classification.

[Table 2](#) shows the average monthly rent charged for a t-hangar at Tennessee airports, organized by region. As the table reveals, Regions 2 and 4 are charging the lowest rates on average for t-hangars, at \$206 and \$202 respectively. With 39 airports between them, Regions 2 and 4 represent exactly half of all the airports in the Tennessee aviation system. The average monthly rent for a t-hangar statewide is \$219.

Table 2. Average Monthly Rent for T-hangar by Region

Region	Percent of Airports that have T-hangars for Monthly Rent	Average Monthly Rent for T-hangar	Average Daily/Transient Rent
Region 1 (15)	11 (73%)	\$241	\$8.03
Region 2 (19)	17 (89%)	\$206	\$6.87
Region 3 (24)	19 (79%)	\$232	\$7.73
Region 4 (20)	18 (90%)	\$202	\$6.73
Statewide (78)	65 (83%)	\$219	\$7.30

Source: TASP Rates & Charges Survey, 2019

**Average Daily/Transient Rent was calculated by dividing the average monthly rent by 30. This was to determine what the monthly rent translates to as an average daily rent.*

The data presented in [Table 3](#) provides a fitting example of some of the issues with hangar rental rates. At Commercial Service and Regional Service airports in Tennessee, average rental rates for t-hangars in poor condition are higher than average rental rates for t-hangars in good condition. In fact, across the State, airports are charging more on average to rent t-hangars in poor condition (\$245/month) than t-hangars in good condition (\$220). These data demonstrate how hangar rental rates are seemingly arbitrary across the State, necessitating increased standardization to achieve fair market value.

Table 3. Average Monthly Rent for T-hangar by Airport Classification and Condition

Airport Classification	Good	Fair	Poor	Statewide Average by Classification
Commercial Service (6)	\$230	N/A	\$400	\$343
Regional Service (17)	\$292	\$233	\$310	\$276
Community Business (15)	\$215	\$176	\$150	\$202
Community Service (38)	\$181	\$185	\$161	\$180
Turf (2)	N/A	N/A	N/A	N/A
Statewide (78)	\$220	\$206	\$245	\$218

Source: TASP Rates & Charges Survey, 2019

⁷All rates and charges discussed in this section are airport-reported. There may be some variance in how airports responded and thus, how answers may be able to be compared.

Similar to the issues with t-hangar rental rates, [Table 4](#) and [Table 5](#) demonstrate discrepancies with box hangar rental rates at Tennessee airports. [Table 4](#) shows that airports in Regions 1 and 4 charge less on average to rent box hangars between 5,000-10,000 square feet (\$388/month in Region 1, \$689/month in Region 4) than smaller box hangars between 2,500-5,000 square feet (\$1,101/month in Region 1, \$762/month in Region 4). [Table 5](#) reveals that the average Community Service airport charges less for a 5,000-10,000 square foot hangar (\$400/month) than for a smaller 2,500-5,000 square foot hangar (\$429).

Additionally, [Table 5](#) shows that Community Business and Community Service airports are charging significantly less than Commercial Service and Regional Service airports to rent similarly sized box hangars. While the hangars at larger Commercial Service and Regional Service airports may be newer or have access to more amenities and services, the Community Business and Community Service airports are charging significantly less. In fact, the monthly rental rate for a 5,000 square foot box hangar at the average Community Service rate comes out to around nine cents per square foot.

Table 4. Average Monthly Flat Fee for Aircraft Storage in a Box Hangar by Region and Size

Region	Box Hangar under 2,500 sq. ft.	Box Hangar between 2,500-5,000 sq. ft.	Box Hangar between 5,000-10,000 sq. ft.	Box Hangar over 10,000 sq. ft.	Statewide Average by Region
Region 1 (15)	\$187	\$1,101	\$388	\$1,947	\$773
Region 2 (19)	\$406	\$521	\$1,389	\$741	\$799
Region 3 (24)	\$225	\$1,175	\$1,224	\$1,550	\$1,179
Region 4 (20)	\$217	\$762	\$689	\$1,200	\$761
Statewide (78)	\$274	\$861	\$918	\$1,268	\$893

Source: TASP Rates & Charges Survey, 2019

Table 5. Average Monthly Flat Fee for Aircraft Storage in a Box Hangar by Airport Classification and Size

Airport Classification	Box Hangar under 2,500 sq. ft.	Box Hangar between 2,500-5,000 sq. ft.	Box Hangar between 5,000-10,000 sq. ft.	Box Hangar over 10,000 sq. ft.	Statewide Average by Airport Classification
Commercial Service (6)	N/A	N/A	\$1,125	N/A	\$1,125
Regional Service (17)	N/A	\$1,206	\$1,510	\$1,912	\$1,471
Community Business (15)	\$250	\$549	\$974	\$1,595	\$777
Community Service (38)	\$282	\$429	\$400	\$622	\$424
Turf (2)	N/A	N/A	\$113	N/A	\$113
Statewide (78)	\$274	\$861	\$918	\$1,268	\$893

Source: TASP Rates & Charges Survey, 2019

Table 6. Average Monthly Rent Based on Square Footage for Box Hangars by Region and Condition

Region	Good	Fair	Poor	Average by Region
Region 1 (15)	\$0.54	\$0.21	\$0.21	\$0.32
Region 2 (19)	\$0.26	\$0.02	N/A	\$0.14
Region 3 (24)	\$0.87	\$0.24	N/A	\$0.73
Region 4 (20)	\$0.14	\$0.21	\$0.17	\$0.17
Statewide (78)	\$0.60	\$0.19	\$0.18	\$0.40

Source: TASP Rates & Charges Survey, 2019

During the airport interview process, airport managers acknowledged that their current hangar rates likely do not represent fair market value. Furthermore, the interviews revealed that no airports had standard practices or policies for setting hangar lease rates, while very few airports update their lease rates on a recurring cycle. As a result, average hangar lease rates at Tennessee airports do not compare well to similar facilities. Off-airport self-storage rates (e.g., U-Haul, Public Storage) and covered boat storage rates provide interesting comparisons. As shown in [Table 7](#), airport hangar rates are significantly lower than off-airport self-storage, which house items of typically far less worth than an aircraft, such as personal household items. This comparison indicates that existing box hangars are 42 percent less than self-storage options while t-hangars are 70 percent less than self-storage options. Similarly, [Table 8](#) shows that for Regions 2 and 4, and for the statewide average, airport hangar rates are lower than covered boat storage, which house something of similar value but whose facilities provide few if any services. Please note: this comparison is not included or incorporated into the Module in any way. It is presented to further illustrate the Statewide issue of low hangar rents.

Table 7. Off-Airport Self-Storage Rates vs Hangar Lease Rates Comparison

TDOT Region	Average Monthly Lease Rate Per Square Foot (Sq. Ft.)		
	Off-Airport Self-Storage	Existing Box Hangars	Existing T-Hangars
1	\$0.70	\$0.32	\$0.23
2	\$0.58	\$0.14	\$0.20
3	\$0.79	\$0.73	\$0.22
4	\$0.68	\$0.17	\$0.19
Statewide	\$0.69	\$0.40	\$0.21

Note: Calculating the average cost per sq. ft. for existing t-hangars assumed a statewide average unit size of 1,050 sq. ft.

Source: Web Research, 2023; TASP Rates & Charges Survey, 2019

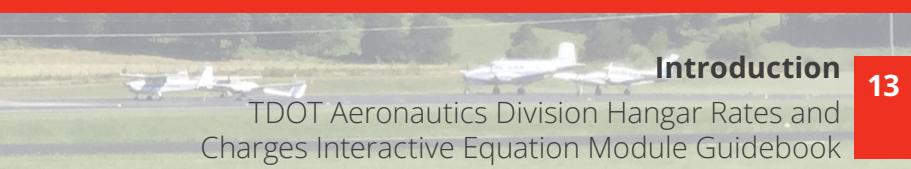


Table 8. Off-Airport Self-Storage Rates vs Hangar Lease Rates Comparison

TDOT Region	Average Monthly Lease Rate - Flat Fee		
	Covered Boat Storage Fee	Existing Box Hangars (Under 2,500 sq. ft)	Existing T-Hangars
1	\$181	\$187	\$241
2	\$284	\$406	\$206
3	\$211	\$225	\$232
4	\$214	\$217	\$202
Statewide	\$223	\$274	\$219

Note: Existing box hangars under 2,500 sq. ft. were chosen for this comparison due to their comparable size to covered boat storage

The data presented in the preceding tables highlights how low hangar rents currently are across the State. Regardless of the airport classification, TDOT Region, hangar condition, or hangar size, hangar rates generally are low when compared to similar storage options, such as off airport self-storage. In addition to the risk of a federally funded airport not being in compliance with Federal Grant Assurances, charging hangar rates lower than fair market value loses revenue for the airport, potentially hindering an airport sponsor's ability to cover other expenses. Undercharging for hangars also increases demand, leading to an increase in hangar waitlists and further demand for new hangars. Due to the undervalued price of hangars, this demand is likely overinflated as individuals who would not otherwise place themselves on a hangar waitlist are enticed to do so by low prices. Hangars are revenue-generating facilities that should assist airport sponsors in achieving financial self-sufficiency. Ideally, airports should adopt a hangar pricing strategy to match demand with supply and support future airport improvements. But at a minimum, airport sponsors should be setting hangar rates to cover facility expenses.

Airports Role in Addressing Issues

The deficiencies in hangar rents statewide can be largely remedied by airport sponsors. As described, most airports in the State are not charging fair market rents for their hangars, or even break-even rate to cover investment and maintenance expenses. At a minimum, airport sponsors should be establishing a hangar rent that will allow the airport to break even with facility expenses. But ideally and in line with FAA Grant Assurances, FAA guidance, and TDOT Aeronautics Division guidance, airport sponsors should set a competitive fair market rent that accounts for fluctuating market conditions, potential changes to aeronautical activity, and funding needed to maintain and grow the airport over time. The hangar rent as well as any routine adjustments (due to changes at the airport/activity or due to inflation) should be clearly laid out in a comprehensive hangar lease agreement to protect the hangar facility and the airport from a negative financial return.

The following subsections provide guidance for airport sponsors to develop hangar lease agreements and escalation cost provisions. These items, along with the use of the Hangar Rates and Charges Interactive Equation Module, comprise an airport sponsor's role in addressing low hangar rents across the State.

Hangar Lease Agreement Guidance

Hangar lease agreements are defined as a legal binding contract establishing the use of a specific hangar facility for a certain time and

cost with specific conditions to follow. Airport sponsors use hangar lease agreements to establish a rental agreement between a specific aircraft owner and the airport sponsor; and to enforce airport policies which have been established to maximize the safety and integrity of airport assets. The lease agreement should be meticulous and comprehensive, addressing all possible issues that could derive from leasing a hangar space and include all required FAA-compliant provisions and terms. If well executed, airport sponsors will be able to enhance safety and maximize the integrity of the hangar for its anticipated useful life.⁸ A hangar lease agreement can also be a tool to help the airport sponsor achieve more fair market rent of a hangar unit or space. Airports that can establish a fair market rate can optimize the price charged based on a variety of factors including socioeconomic conditions and the volume of aeronautical activity observed in the area. Understanding that identifying a fair market rate presents difficulties, TDOT Aeronautics Division created the web-based equation Module to suggest an adequate hangar lease rate based on a "pricing optimization strategy". Refer to the [Equation Module section](#) for more information about this tool for airport sponsors.

Hangar lease agreements that carefully detail the terms of using the hangar unit or space, the duration of the lease, and the cost of the lease, as well as any potential cost increases, will help protect an airport and airport sponsor from tenant malfeasance. During the airport interviews conducted as part of this effort, airport managers also noted the

⁸ According to a Boeing hangar guide, the useful life of a hangar is 20 years: https://www.boeing.com/commercial/aeromagazine/aero_13/hangars.pdf

importance of the tenant lease length. There are pros and cons to a relatively short-term lease versus a relatively long-term lease.

Short term leases mitigate tenant issues, as an airport manager may simply decline to renew the lease once the term has ended, if needed. However, they require more work for the airport manager to maintain. Long-term leases are potentially less work to maintain but may perpetuate problems with a noncompliant tenant. One airport manager recommended a mid-term lease (three years) with the option to renew month by month as a way to maximize the benefits of both a short- and long-term lease. If the tenant is in violation of the hangar lease, the lease agreement should provide the authority for the airport sponsor to apply penalties or terminate the lease. [Appendix B](#) includes a Hangar Lease Agreement Template for airports sponsors to utilize for their hangars.

Escalation Cost Provisions

Hangar lease agreements are the primary mechanism for airport sponsors to maintain a fair market lease rate for hangars and maximize generated revenue. It is important that the hangar lease agreements not only establish the present-day lease rent structure, but also account for market fluctuations such as inflation and aviation demand trends. As such, airports should add an escalation cost provision to lease agreements for enabling changes to existing rate structures.

Airports should account for changes in local economic conditions by adding an escalation cost provision. Many long-term leases face issues where adjustments are not made to account for escalation factors such as inflation and supply/demand changes. Rising population, income levels, and employment can correlate to increases in aviation activity, spurring additional demand for airport facilities including hangars. If airports fail to account for these changes and set a flat fee for the duration of the lease, the decreasing and undervaluing of lease rates results in lost revenue over time. Conducting annual reappraisal is one option in adjusting rates to meet fair market value, but it can be relatively expensive. The most common form of rate readjustment is to have a standard increase every three to five years based on the consumer price indices set by the U.S. Department of Labor. This establishes a reasonable economic escalation rate expected for the near term that an airport can easily incorporate into their lease rate's structure. The CPI website can be found at: <https://www.bls.gov/cpi>.

Coordination with Other Airport Interests

The benefits of aligning hangar lease rates with their fair market value overlaps with other airport interests and considerations. Hangar rentals are not isolated financial transactions; they are part of a broader ecosystem within an airport. By setting fair market hangar lease rates, airport authorities can help balance multiple airport interests, including compliance with federal regulations, revenue generation, economic development, land use decisions, and airport infrastructure.

Federal Regulation Compliance

FAA Grant Assurance #24 *Fee and Rental Structure* requires that the fee and rental structure for leasing hangars supports the airport's goal of financial self-sustainability. Further, if an airport accepts federal funding and undercharges for hangar rentals (or any other public-use facilities), the airport risks noncompliance with FAA regulations and losing their federal funding.

Airport Business and Economic Development

Proper hangar lease rates also impact the business side of airport management. Airports generate revenue from hangar leases as well as from other various sources, including fuel sales, landing fees, and land leases. The income generated from these different sources contributes to the overall financial health of the airport and can help the airport pay for infrastructure improvements, day-to-day maintenance, and operational expenses. Ensuring that hangar leases represent a fair market value will help airports maximize the revenue generated as an important part of the airport's overall revenue stream.

It is important to acknowledge that many airports are dependent on federal and State funding to maintain their operations. While not every airport will turn a profit, it is important that all airports maximize their financial contribution to their own operations and development. Striving to be as financially self-sustaining as possible will reduce an airport's overall dependence on funding and will position the airport as a good investment for federal and State dollars.

Airports also play a crucial role in local and regional economic development. Competitive hangar leases can attract aviation-related businesses, creating jobs and stimulating economic activity in the surrounding area. According to TDOT's Aviation Economic Impact Study, in 2019 450 businesses were located at Tennessee airports employing over 31,000 people, clearly demonstrating that businesses desire to be located at airports. Because of this strong demand, airports should not undervalue their hangar space and should set lease rates that properly reflect the existing demand for the space. Increased businesses and business activity at airports drives revenue, which in turn impacts the local and regional economy while also spurring development at the airports themselves. Without proper hangar lease rates, airports risk missing out on a large part of this economic impact.

Airport Land Use

Airports often have limited land resources, with facility placement and development heavily governed by State and federal regulations. Space for hangars must be balanced with other airport needs, such as runways, taxiways, terminals, maintenance facilities, and parking facilities. Hangar lease rates must reflect the opportunity cost of using land for hangars versus these various other purposes. Related to land use decisions, hangar lease rates can influence the airport's ability to invest in and maintain essential infrastructure. Fair market lease rates can provide revenue for capital improvements, which can benefit both hangar tenants and the overall airport.



Process For Establishing Fair Market Value Hangar Rates and Charges

Fair market value is generally defined as the value of property as determined by the marketplace (or objective purchaser) rather than as determined by a subjective individual.⁹ In an otherwise equal economy, the price for a good (in this case, hangars) would rise until demand (in this case, prospective tenants) equals. Since demand is demonstrably high in Tennessee, according to this economic principle, it follows that the price of hangars also should rise in order to stabilize demand.

Establishing fair market value of airport assets is a difficult process. There is no universal approach, strategy, or methodology for calculating the fair market value of a hangar. However, it is important that an agreed-upon strategy be used to establish hangar rents that are consistent for the market. It is also important that all airport sponsors establish a reasonable method of determining fair market value hangar rents, so as to not artificially depress the cost of hangars in the State. Hangar rents will only stabilize if most, if not all, airport sponsors participate in the exercise of determining hangar rents according to fair market value.

To calculate a more fair market rate for hangars, airport sponsors can follow federally approved methodologies and/or pricing strategies as discussed in the following sections, and/or refer to the Module, discussed in the Equation Module section. **However, it is important to reiterate that use of the Module to set hangar rates is not required. It is the method that TDOT Aeronautics Division strongly recommends as an effective method for determining fair market rent for hangars.**

Desktop Research and Airport Interviews

A literature review of relevant guidance, research, and survey data was conducted as the first step in the development of the Module. The documentation reviewed as part of the process included: FAA and Tennessee DOT Aeronautics Division guidance, minimum standards publications/research, State rates and charges survey data, and published research articles, including ACRP publications. The findings of the literature review can be broadly categorized in four areas: best practices for establishing rates and charges, developing hangars through public-private partnerships, establishing hangar development standards, and general lessons learned. The findings are further explained in [Abbreviated Literature Review Overview](#) and [Appendix A](#).

In addition to the literature review, virtual interviews were completed with 14 airports across all four TDOT regions, which are referred to in this Guidebook as "airport interviews" or "interviews." Interview questions focused on hangar supply, hangar waitlists, current hangar rates and charges, and perceived hangar problems and issues. For the full hangar questionnaire please refer to [Appendix C](#). At the conclusion

⁹ The Equation Module assumes a 25-year useful life for a hangar.

of the airport interviews, one major takeaway was clear: airport sponsors do not believe they are currently charging fair market rent for their hangars but have a desire to.

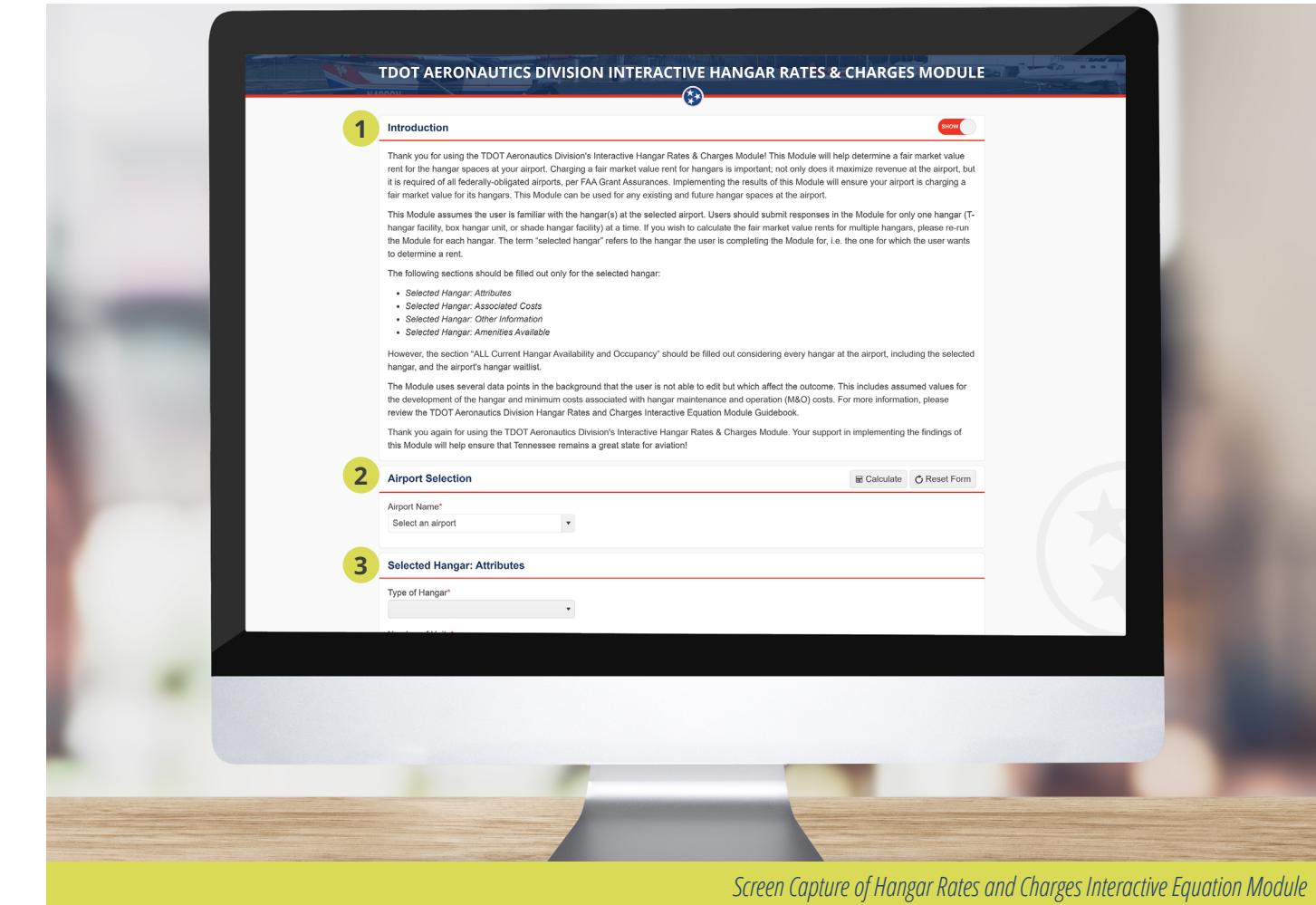
Interviewed airports nevertheless reported a variety of concerns regarding raising their rates. These reasons included needing the approval of airport boards that are resistant to raising rates, disrupting amicable tenant relationships by raising rates, and fearing that their existing hangars are too low-quality (old, malfunctioning in some way, etc.) to justify higher rates. Part of the goal of the Module is to alleviate these concerns by providing airports with data-driven justification for raising their hangar rates to be more representative of a fair market value.

Equation Module

Although existing literature describes numerous methodologies and strategies for setting appropriate hangar lease rates, it may not be feasible for many airports to complete the complex evaluations (such as a comprehensive appraisal review or market analysis) necessary to establish a more appropriate hangar rent. Additionally, other, simpler, strategies may not account for important considerations in determining fair market value. Considering the limitations involved with having airport sponsors calculate their own determination of fair market value, TDOT Aeronautics Division has developed a web-based hangar equation Module that will enable airport users to improve the rate structure for their hangars. This determination of fair market value encompasses the more complex evaluations, but the Module is user-friendly and does not require any specialized knowledge.

There are a variety of circumstances where the Module will prove useful for airport users. The Module sets lease rates for newly constructed hangars and existing hangars. Changing factors at the airport or in the surrounding community, such as socioeconomic changes in the local community can influence what is considered fair market value. Therefore, regularly revisiting the Module helps airport users ensure that their hangar lease rates are fair market and support the airport's financial sustainability and economic development.⁹ The Module contributes to the goal of self-sufficiency that is both supported by the aviation community and required per FAA Grant Assurance #24. By

Module results recommend robust and data-driven hangar lease rates based on specific conditions in Tennessee and at the individual airport using the Module. Airports can use this Module to determine an appropriate lease rate for a proposed new hangar or an existing hangar facility. By submitting hangar attributes and existing conditions at the airport, the Module uses a pricing optimization strategy, accounting for a variety of airport and socioeconomic factors to recommend an appropriate starting lease rate and future rate adjustments over a 25-year facility useful life. The Module may be accessed on a computer desktop and is also accessible via mobile device.



Screen Capture of Hangar Rates and Charges Interactive Equation Module

providing fair market value hangar rents, the Module will serve as a valuable tool in assisting each airport in being as self-sustaining as possible under the circumstances existing at that particular airport.

The Module has seven major sections:

- Introduction.** This section provides a brief overview of the online tool and also links to a comprehensive user guide.
- Airport Selection.** This section allows the user to select what airport they represent.
- Selected Hangar Attributes.** This section asks for attributes of the specific hangar for which rent is being determined using the tool.
- Selected Hangar-Associated Costs.** This section asks for the monthly maintenance and operation (M&O) costs of the specific hangar for which rent is being determined using the tool.
- Selected Hangar: Other Information.** This section asks for the location of the specific hangar for which rent is being determined using the tool.
- Selected Hangar: Amenities Available.** This section asks for the amenities available at the specific hangar for which rent is being determined using the tool.
- ALL Current Hangar Availability and Occupancy.** This section asks about all hangar storage availability at the airport, in addition to the specific hangar for which rent is being determined using the tool.

Please see [Chapter 02](#) for a detailed walk-through of the Module. The following sections explain the content and importance of user inputs, the background data that is used in the calculation, the calculations being performed by the Module, how to use the Module, and the output provided by the Module.





The Hangar Rates and Charges Interactive Equation Module will help users implement a hangar rent that is more in line with fair market value.

Terms Used in This Section

Airport Inputs: User inputs that are used as part of the calculation.

Base Rate: The minimum amount an airport should charge for a hangar lease to break even on their investment into the hangar.

Based Aircraft: Aircraft that are validated as based at a particular airport, as specified in the report provided on the FAA's basedaircraft.com.

Background Information/Data: Data and information that are used to calculate the rates but are not able to be viewed or changed by the user.

Business tenant: A person or business who leases airport property with the intention of conducting business from the site, pursuant to a current lease agreement.

Non-Federal Cost: The total cost of project development less the amount of funding received from federal sources.

Per capita personal income (PCPI): "the mean income computed for every man, woman, and child in a particular group including those living in group quarters. It is derived by dividing the aggregate income of a particular group by the total population in that group."¹⁰

Private tenant: An individual that leases airport property for the purpose of personal use.

Return on Investment (ROI): "a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the

investment's cost."¹¹

Scaling Factor: The amount by which an input or consideration impacts the suggested price of a hangar lease. These factors are percentage points by which the base price, in the form of the Return on Investment (ROI) calculation, should be adjusted to account for important factors.

Module Principles

The Hangar Rates and Charges Interactive Equation Module is designed to determine the fair market value of each hangar space in the State. In order to do this, the Module calculates a "base rate" for the space, depending on airport inputs and background information, and then applies "scaling factors" to increase the hangar rent depending on how desirable that hangar space is in the open market. The base rate is established using the airport's classification (a background information category) and the information in Selected Hangar-Associated Costs (which are airport inputs). Scaling factors based on the hangar location (airport input), amenities available (airport input), and a supply-demand adjustment (airport input [percent of hangar occupancy]) and background information [based aircraft] are then applied to the base rate to determine the fair market value of that hangar space.

Module rent outputs are for one aircraft within the hangar only. For t-hangars and shade hangars, the standard and suggested monthly rates are for one unit; for box hangars, the standard and suggested monthly rates are designed for one aircraft within the box hangar, not for the entire box hangar.

An important component of the Module is that scaling factors only have a neutral or positive impact on the rent; they do not scale the rent down.

Using the Module

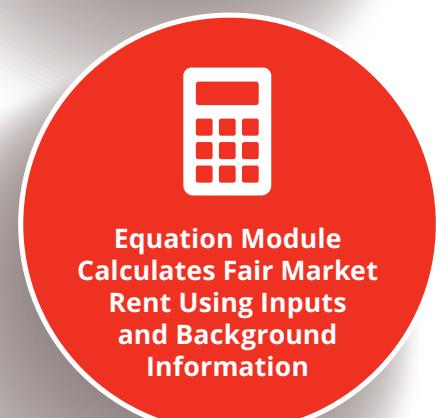
The following section is a step-by-step walkthrough that explains how an airport user can properly use this Module to calculate an appropriate lease rate for any hangar on the airport property. This step-by-step instruction follows the exact layout of the online Module tool, with screenshots to approximate what a user would actually see as they complete the tool. For each section, the airport inputs and background information that impact that section are clearly laid out and explained. The only section of the Module not included in the following steps is the Introduction, as there are no inputs for the user in this section. The use of the Hangar Rates and Charges Interactive Equation Module implies reasonable knowledge of the selected airport and the hangar for which the tool is being used to determine rent. Airports should carefully select the user who will complete the tool to ensure maximum knowledge of the conditions considered in the tool. Users should hit the "Reset Form" button at the bottom of the tool if they make any input errors or want to run the tool again.

Organization of the Step-by-Step Instructions

The following pages contain step-by-step instructions on using the Module. Each step is presented on its own page. The lefthand side of the page provides screenshots detailing what the Module looks like for that step, as well as instructions on how to input information for that step. The righthand side of the page provides information about the Airport Inputs and Background Information/Data for the data included in that step. Airport or user inputs are the data points that the user is responsible for inputting. Please note that the Module will not work

if any Airport Inputs are missing. Background Information/Data differ from the user inputs in that the airport user can neither see nor change these data points. They are stored in the background of the Module and will be updated by TDOT whenever new data becomes available. These data points are static inputs based on airport or hangar properties.

Hangar Rates and Charges Interactive Equation Module Workflow





02

Instruction Manual

*TDOT Aeronautics Division Hangar Rates and Charges
Interactive Equation Module Guidebook*

Airport Inputs

A Airport Name

An airport is self-selected in the Module by using a drop-down menu to select the airport name. Airport names are in alphabetical order. The selection of the airport name triggers the State classification and county-specific per capita personal income background information that is used in the calculation.

Introduction

SHOW

Thank you for using the TDOT Aeronautics Division's Interactive Hangar Rates & Charges Module! This Module will help determine a fair market value rent for the hangar spaces at your airport. Charging a fair market value rent for hangars is important; not only does it maximize revenue at the airport, but it is required of all federally-obligated airports, per FAA Grant Assurances. Implementing the results of this Module will ensure your airport is charging a fair market value for its hangars. This Module can be used for any existing and future hangar spaces at the airport.

This Module assumes the user is familiar with the hangar(s) at the selected airport. Users should submit responses in the Module for only one hangar (T-hangar facility, box hangar unit, or shade hangar facility) at a time. If you wish to calculate the fair market value rents for multiple hangars, please re-run the Module for each hangar. The term "selected hangar" refers to the hangar the user is completing the Module for, i.e. the one for which the user wants to determine a rent.

The following sections should be filled out only for the selected hangar:

- *Selected Hangar: Attributes*
- *Selected Hangar: Associated Costs*
- *Selected Hangar: Other Information*
- *Selected Hangar: Amenities Available*

However, the section "ALL Current Hangar Availability and Occupancy" should be filled out considering every hangar at the airport, including the selected hangar, and the airport's hangar waitlist.

The Module uses several data points in the background that the user is not able to edit but which affect the outcome. This includes assumed values for the development of the hangar and minimum costs associated with hangar maintenance and operation (M&O) costs. For more information, please review the TDOT Aeronautics Division Hangar Rates and Charges Interactive Equation Module Guidebook.

Thank you again for using the TDOT Aeronautics Division's Interactive Hangar Rates & Charges Module. Your support in implementing the findings of this Module will help ensure that Tennessee remains a great state for aviation!

A Airport Selection

Calculate

Reset Form

Airport Name*

Select an airport



Step 1 Airport Selection Section

Overview

Users will begin by selecting their airport from the dropdown list under the label "Airport Name." Airports are listed alphabetically by name.

Background Information

State Classification

An airport's State classification, as determined by the latest TASP, is an indicator of the size and prominence of an airport. Larger, busier airports with more facilities and services demand a higher rent compared to smaller airports with less activity. State classifications also address the unique circumstances of each airport, contributing to the consideration within the Module that an airport at a higher classification can support a higher rent amount than one at a lower classification. This factor thus also supports FAA Grant Assurance #24, which instructs that an airport should be as self-sustaining as possible *under the circumstances existing at the particular airport*. Airports in the Module are assigned a scaling factor determined by their State classification, starting at no scaling factor for Turf or Community Service airports and scaling up from there. This factor is a large consideration in calculating the pricing Module.

Each airport's State classification is already recorded and will automatically be associated with the airport when the airport is selected. This classification will automatically factor into the pricing calculation. The data will be updated by TDOT Aeronautics Division when State classifications change.

County-specific Per Capita Personal Income (PCPI)

County-specific per capita personal income is a socioeconomic metric that represents the relative affluence of the community where an airport is located. The value of real estate is higher in high-income communities due to the desirability of high-income communities, and hangars are no exception to this rule. Hangars that are built on land that is presumed to be valued higher than land elsewhere in the State should return a higher rent. Airports are considered by the county they are in, and a small scaling factor, starting at no scaling for lower income communities, is applied to the Module.

Each airport's county specific PCPI is already recorded and will automatically be associated with the airport when the airport is selected. This classification will automatically factor into the pricing calculation. The data will be updated by TDOT Aeronautics Division when new PCPI data becomes available.

Airport Inputs

A Hangar Type

The type of hangar for which rent is being determined must be selected by the user. The tool can only be run for one hangar type at a time; if there are multiple hangars that a user wishes to determine the rent for, the tool must be run for each hangar type. The hangar type input (t-hangar, box hangar, or shade hangar) does not itself have an impact on the rent that is suggested.

B Hangar Size (Number of Units)

For t-hangars and shade hangars, the "size" is the total number of units available in the facility. Please note: the calculated rent will be for just one unit in the T-hangar or shade hangar considered in this section.

C Hangar Size (Square Footage of Entire Hangar)

For box hangars, the length and width of the facility must be entered. This value defaults to 1,200 sq ft if nothing is input, or if something below 1,200 sq ft is input. Please note: the calculated rent will be for just one aircraft to be stored in this box hangar facility. The Module should not be used to calculate what to charge for an entire box hangar facility, such as to a business tenant.

D Year of Hangar Construction

The user should input the year the hangar was built. If the Module is being used for a newly constructed or yet-to-be-constructed hangar, the current year should be selected. If the Module is being used for an existing hangar, a previous year should be selected. If a previous year is selected, the inputs "Existing Hangar Condition" and "Existing Hangar Lease Rate" will be available as options under Step 4 – Selected Hangar: Other Hangar Information Section.

A Selected Hangar: Attributes

Type of Hangar*

T-Hangar
Box Hangar
Shade Hangar

Year of Hangar Construction
(to calculate age of hangar)

2024

B Selected Hangar: Attributes

Type of Hangar*

T-Hangar

Number of Units*

0

Number of Units is required

Year of Hangar Construction
(to calculate age of hangar)

2024

C Selected Hangar: Attributes

Type of Hangar*

Box Hangar

Length (ft)

0

Width (ft)

0

C Square Footage of Entire Hangar* ①

0

The square footage for a box hangar needs to be greater than or equal to 1,200 square feet.

D Year of Hangar Construction

(to calculate age of hangar)

2024



Step 2 Selected Hangar: Attributes Section

Overview

During this step, users will select the type of hangar, the size of the hangar, and the year of hangar construction. Under "Type of hangar," users can select either "T-Hangar" "Box Hangar," or "Shade Hangar." This selection should be made *only* for the type of the selected hangar (for which a rent determination is desired). If users wish to determine the rent for multiple hangars, including those of different types, the Module should be run for each individual hangar.

If "T-Hangar" or "Shade Hangar" are selected, users must input the number of units in their respective input box. If "Box Hangar" is selected, users must input the length and width of the selected hangar in their respective boxes. Once the facility data has been entered, users must input the year of construction. If the exact year of construction is unknown, users should use their best judgement to provide an input.

Background Information

Development Cost Per Square Foot by Hangar Type and Year

The calculation uses a standardized development cost per square foot to find the amount needed to recuperate the cost of development. These rates are based on the type of hangar and the year that the hangar was, or is going to be, constructed.



Hangar Size Consideration

The tool will ask for the total size of the hangar building for which rent is being calculated. For t-hangars and shade hangars, the tool will ask for total units in the building; for box hangars, the tool will ask for the total square footage of the facility. However, the calculated rent is for just one unit (t-hangar and shade hangar) or for one aircraft (box hangar). The tool should not be used to calculate the rent for an entire box hangar facility, such as renting to a business tenant.

Airport Inputs

Monthly Maintenance and Operation (M&O) Cost

TDOT Aeronautics Division recommends that maintenance and operations (M&O) costs should be recuperated to the extent possible by the airport sponsor through the hangar lease rate. M&O costs include insurance, electric, gas, water, sewer, painting, inspection, and other related monthly costs. Inputting the current or anticipated (for new or proposed hangars) monthly M&O cost allows the Module to account for this cost when determining the hangar rent suggestion.

The Module was designed to allow airports the ability to input their own M&O costs; however, to ensure a standardized baseline is maintained, a minimum M&O cost determined based on the airport's State classification is built in. If a user inputs a monthly M&O cost that is less than this baseline, the Module will default to use the baseline M&O cost.

There are two options for inputting M&O costs. Users can either input a **A total amount** that accounts for all associated costs or users may choose to input the costs individually under four categories:

- B** Insurance
- C** Utility usage and maintenance (electric, gas, water, sewer)
- D** Facility maintenance and enforcement (painting, inspections)
- E** Other monthly costs

If the total of either of these user input options are lower than the minimum M&O cost determined based on the airport's State classification, the Module will default to this value.

Selected Hangar: Associated Costs ①

A Monthly Maintenance & Operation Cost (\$ ①)
(entire facility)
\$700.00

OR

B Monthly Facility Insurance (\$ ①)
\$0.00

C Monthly Utility Usage & Maintenance (\$ ①)
(e.g., Electricity, Gas, Water, Sewer)
\$0.00

D Monthly Facility Maintenance & Enforcement (\$ ①)
(painting, inspections)
\$0.00

E Other Monthly Costs (\$ ①)
\$0.00

Selected Hangar: Associated Costs ①

A Monthly Maintenance & Operation Cost (\$ ①)
(entire facility)
\$0.00

OR

B Monthly Facility Insurance (\$ ①)
\$200.00

C Monthly Utility Usage & Maintenance (\$ ①)
(e.g., Electricity, Gas, Water, Sewer)
\$150.00

D Monthly Facility Maintenance & Enforcement (\$ ①)
(painting, inspections)
\$175.00

E Other Monthly Costs (\$ ①)
\$175.00



Step 3 Selected Hangar: Associated Costs Section

Step 3 - Overview

Users will input values for monthly maintenance & operation (M&O) cost. The M&O cost section has two input possibilities: users can input the total monthly M&O cost for the entire facility or users can input monthly facility insurance, monthly utility usage and maintenance (e.g., electricity, gas, water, sewer), monthly facility maintenance and enforcement (painting, inspections), and other monthly costs. If users are unable to provide inputs, the Module will default to a standard value for M&O costs by airport classification. If user inputs are less than the standard associated M&O costs, this section will default to the standard value.

Background Information

Minimum M&O Cost by Classification

There are minimum M&O costs incorporated into the Module based on the airport classification of the selected airport. Those minimum costs are as follows: Commercial Service is \$750; Regional Service is \$500; Community Business is \$300; Community Service is \$200; and Turf is \$200. The minimum costs will be used in either of the following scenarios: the user inputs an M&O cost of less than their airport classification's minimum or the user does not input any M&O costs. This is to ensure a reasonable input for M&O costs.



Airport Inputs

A Airfield Location

The location of any real estate holding relative to other important locations is a significant factor in the price of said real estate. This is no different on an airfield. Hangars that are in prime locations should be rented at a higher price than hangars that are in a less desirable location on the airfield.

The options for hangar location are either "Desirable" or "Not Desirable". Hangars in a "Desirable" location are often those with easy access to taxiways, fueling, etc. However, all airports differ, and hangar location desirability may vary depending on the desires of the tenants. The price recommendation is scaled relative to the desirability of the location of the hangar on the airfield, starting at no scaling factor for the not desirable and scaling up for desirable locations. Airport users should use their best judgment in determining this input.

B Hangar Facility Condition (for existing hangars only)

A hangar facility's condition is an important factor when considering how to price the hangar on the open market. New hangars or hangars that are in otherwise good condition should demand a higher rent than hangars that are in fair or poor condition.

The options available to select are "Poor," "Fair," or "Good." Scaling begins with the smallest scaling factor for "Poor" condition facilities and scales up to "Good" condition facilities. Please note, if the Year of Hangar Construction is listed as the current year, airport users will not be able to input hangar facility condition.

Airport users should use their best judgement in determining this input. Circumstances airport users should consider include, but are not limited to, how old the hangar is; whether there are any structural issues with the hangar; and the physical appearance of the hangar (new vs old paint, weathered conditions, etc.).

C Existing Hangar Lease Rate (flat fee) (for existing hangars only)

The current price of the hangar unit lease is used to ensure that the model does not recommend a lease rate below the current existing hangar lease rate. There may be instances in which the airport is already charging fair market value for their hangar rent. An assumption built into the Module is that it will only recommend lease rates above what the airport is currently charging, never under. This input is not available for "New" hangars, or hangars where Year of Hangar Construction is listed as the current year.

Selected Hangar: Other Information

A Hangar Location on Airfield*

Desirable

Not Desirable

B Existing Hangar Condition

Good

Fair

Poor

C Existing Hangar Lease Rate (flat fee)

\$0.00



Step 4

Selected Hangar: Other Hangar Information Section

Step 4 - Overview

This section is where ancillary hangar information is input. The user will select the hangar location on the airfield, the current hangar condition, and the existing hangar lease rate in the form of a flat fee if the Module is being completed for an existing hangar. If the hangar for which rent is being determined is a *new* hangar, then the option for the current hangar condition and existing hangar lease rate will not be available.

Background Information

There is no background information applicable to this section.

Airport Inputs

Utility/Amenity Availability

These inputs do not apply to shade hangars but must be included to properly calculate the pricing Module for t-hangars and box hangars. The input options allow a user to select either "Yes" or "No" to identify if any of the following three groups of utilities/amenities are available in the hangar being considered:

- A** Electric Utilities
- B** Gas, Water, or Sewer Utilities
- C** Automatic Door

These options all default to "No." The airport user will select "Yes" if the hangar includes the utility/amenity listed or leave it at "No" if it does not. Each of the three groups has an equal scaling factor associated that impacts the price optimization formula.

Selected Hangar: Amenities Available

- A** Electric Utilities YES NO
- B** Gas, Water, Sewer YES NO
- C** Automatic Door YES NO



Step 5 Selected Hangar: Amenities Available Section

Step 5 - Overview

This section is where ancillary hangar information, related to amenities, is input. The user will select whether utilities (electric), utilities (gas, water, sewer), or automatic door are available in the hangar being priced.

Background Information

There is no background information applicable to this section



Available Amenities - Why It matters

As with any real estate transaction, available utilities and amenities result in a higher market value. Hangar utilities and amenities can include electricity, water, gas, sewer, and automatic doors (when applicable).

Airport Inputs

A Existing Hangar Capacity

In any competitive pricing Module, the economic theory of supply and demand will guide the final market value. Hangar lease rates are no exception. The theory of supply and demand is simply that higher demand for a product will increase the product's value and higher supply (availability) of a product will decrease its value, and vice versa. It is important to balance supply and demand to find the true market value of a product.

Airport users are asked to provide the total hangar occupancy at their airport. If all hangar buildings are fully occupied, users would input "100%" into this section. Otherwise, airports should divide the number of occupied hangars by the total amount of hangar space at the airport to arrive at this percentage. Examples for how to calculate the total hangar occupancy at an airport include:

- For an airport with only t-hangars: The airport has a total of 20 units, of which 15 are occupied. The airport's hangar occupancy rate is 75% ($15 / 20 = 0.75$, or 75%).
- For an airport with only box hangars: The airport has a total of five box hangars, which can each hold five aircraft on average, for a total capacity of 25 aircraft (5 box hangars x 5 aircraft per hangar = capacity for 25). The airport currently has 20 aircraft across all box hangars. The airport's hangar occupancy rate is 80% ($20 / 25 = 0.8$, or 80%).
- For an airport with both t-hangars and box hangars: The airport has a total of 20 t-hangar units, of which 15 are occupied. The airport also has a total of five box hangars, which can each hold five aircraft on average, for a total capacity of 25 aircraft. The airport's box hangars currently house 20 aircraft. The airport's total aircraft capacity is 45 (20 t-hangar units + capacity for 25 aircraft in the box hangars = 45). The airport's hangar occupancy rate is 78% ($15 \text{ t-hangar units occupied} + 20 \text{ box hangar spaces occupied} / 45 \text{ total capacity} = 0.777$, or 78%).

B Hangar Waitlist

The airport's hangar waitlist also relates to the supply/demand adjustment. Airport users are asked to provide the number of aircraft on their hangar waitlist. This number is compared to the total number of based aircraft at the airport and the hangar occupancy rate to determine the supply/demand adjustment for the airport, as explained in the example above. This factor emphasizes the importance of maintaining an accurate hangar waitlist, as the greater the number of aircraft on the waitlist, the greater the supply/demand adjustment.

The Module is designed to adjust the price of the hangar rental rate based on the waitlist demand input by the airport, capping out at a 25 percent increase in price. If there is no waitlist at the airport, or if existing capacity is sufficient to meet demand, the scaling factor is zero. However, given the data collected as part of the TASP Rates & Charges Survey and what airport sponsors have been reporting, this is anticipated to rarely be the case.

A ALL Current Hangar Availability and Occupancy

Current Hangar Occupancy Rate
(percentage)

0

B Number of Waitlisted Aircraft ⓘ
(assume Cessna 172 aircraft size)

0



Step 6

ALL Current Hangar Availability and Occupancy Section

Step 6 - Overview

This section is used in the supply and demand portion of the calculation. The user will input the percentage of all hangar occupancy at the airport. The user will also input the number of aircraft on their waitlist. The number of aircraft on their waitlist will be compared to the number of based aircraft at the airport (a background data point supplied by basedaircraft.com or an airports 5010 form) to determine the supply/demand adjustment. See the callout box below for examples of how this is calculated.

Background Information

Based Aircraft

The Module includes each airport's verified based aircraft, as determined by basedaircraft.com and accessed in December 2023; for Commercial Service and Non-NPIAS airports, their most recent 5010 form as of January 2024 was used.

Supply/Demand Adjustment Example

A user states that their airport is at 100% hangar occupancy. The user also states that their airport has five aircraft on their waitlist. Basedaircraft.com notes that the airport has 40 based aircraft. Therefore, their supply/demand adjustment would be 12.5% ($5/40 = 0.125$, or 12.5%). Another user states that their airport is at 80% hangar occupancy. The user also states that their airport has 10 aircraft on their waitlist. Basedaircraft.com notes that the airport has 30 based aircraft. Therefore, their supply/demand adjustment would be 27%, or $10/30 = 0.333$, multiplied by 0.8 to account for the hangar capacity. This adjustment would be applied to the airport's base rate and other scaling factors to determine rent for the hangar in question.

What Is BasedAircraft.com?

The National Based Aircraft Inventory Program, accessed as basedaircraft.com, is maintained by the FAA. This is an industry-trusted source for accurate based aircraft counts for all non-Primary NPIAS airports in the country.



Step 7 – Calculate

Once all the required information has been input, the user will click on the “Calculate” button on the bottom of the page (pictured below).

Calculate Reset Form

The Module will calculate the range of fair market values appropriate for the hangar rent. Users should hit the “Reset Form” button at the bottom of the tool if they make any input errors or want to run the tool again. The Module will be complete once the user clicks “Calculate.”

Results	
Standard Monthly Rate	\$352
Suggested Monthly Rate	\$528
Export to PDF	

The results of the Module are presented as both Standard and Suggested Monthly Rates. For more information, the user can select “Export to PDF” to receive the information shown in the image to the right. **Module rent outputs are for one aircraft within the hangar only. For t-hangars and shade hangars, the standard and suggested monthly rates are for one unit; for box hangars, the standard and suggested monthly rates are designed for one aircraft within the box hangar, not for the entire box hangar.** Additional information on both the Standard and Suggested Monthly Rates are provided in the remainder of this Guidebook.

This Guidebook also provides information, tools, and suggestions for using this Module to develop and communicate changing hangar rents at your airport.

HANGAR RATES

Airport	
Name	Franklin County Airport
Selected Hangar Attributes	
Type of Hangar	T-Hangar
Number of Units	10
Year of Hangar Construction <i>(to calculate age of hangar)</i>	2023
Selected Hangar-Associated Costs	
Monthly Maintenance and Operation Cost <i>(entire facility)</i>	\$200
Selected Hangar: Other Information	
Hangar Location on Airfield	Desirable
Existing Hangar Condition	Good
Existing Hangar Lease Rate <i>(flat fee)</i>	\$0
Selected Hangar: Amenities Available	
Utilities <i>(electric)</i>	Yes
Utilities <i>(gas, water, sewer)</i>	No
Automatic Door	Yes
ALL Current Hangar Availability and Occupancy	
Percent of All Hangars Currently Occupied	100%
Number of Waitlisted Aircraft <i>(assume Cessna 172 aircraft size)</i>	5
Result	
Standard Monthly Rate	\$352
Suggested Monthly Rate	\$529

Return on Investment (ROI)

In order to calculate the ROI, the Module uses the total development cost and the monthly M&O costs as previously described. The Module takes the calculated total development cost and calculates the amount of monthly rent required per unit associated with a hangar to cover the development cost over the 25-year suggested useful life. The M&O costs discussed above are divided across the units within the hangar as well. The resulting cost of adding the development cost to recuperate per unit with the M&O cost to recuperate per hangar returns the amount of rent a unit in the specified hangar should return for the airport to avoid losing money on their investment. This is the minimum amount the airport should charge for each unit. The Module returns a price range from the minimum amount required to receive a return on investment to the price optimized for a specific hangar at the given airport using all data relevant to the hangar to make these calculations.

Output

Once all items are input, users will hit "Calculate." The Module will then return an output of suggested hangar rates. The rates are returned in the form of a flat fee monthly lease rate ranging from the break-even rate (Standard Monthly Rate) to the optimized price (Suggested Monthly Rate). These calculated rates are also available in PDF output if the user selects "Export to PDF" after submitting the information.

Of the two rates shown, the lower rate (Standard Monthly Rate) is intended to be a recommended starting rent for the airport based on a break-even scenario for airport operating expenses, hangar development, and hangar M&O costs. This is the absolute minimum that an airport is recommended to charge for the hangar in question. TDOT Aeronautics Division recommends charging above this rate, ideally at the higher rate. The higher rate (Suggested Monthly Rate) is based on a pricing optimization strategy that accounts for various socioeconomic considerations, hangar amenities, as well as optimizing for current supply and demand. The Suggested Monthly Rate represents the fair market value of the selected hangar. If an airport is currently charging a rent that is in between the Standard Monthly Rate and the Suggested Monthly Rate, TDOT Aeronautics Division recommends increasing rent to the Suggested Monthly Rate. More information on the implementation of the Module findings can be found in the following section.

Please note that the Module is designed to not recommend a rent that is lower than what the airport is currently charging. However, it may determine that the airport is already charging a fair market value for their hangar rent. Therefore, the only possible outcomes from the Module are to recommend an increased rent, or no increased rent; but never a decreased rent.

Implementing Module Findings

After using the Module to calculate appropriate hangar lease rates,

airport sponsors are responsible for implementation. This is a critical step that should not be taken lightly, as it will likely be noticeable monthly rate change for most airports. This critical step should be done thoughtfully to address potential resistance from tenants who might be facing the prospect of higher hangar lease rates. Airport sponsors should develop a hangar rate change action plan to ensure the implementation of the Module findings goes as smoothly as possible.

Part of that plan will involve determining whether an immediate or gradual roll out of the new hangar lease rates is needed. If the new lease rates differ significantly from existing lease rates, immediately implementing those rates could understandably upset tenants and other stakeholders. Although the background research conducted in developing the Module indicates that there is plentiful demand for aircraft hangars, immediately raising rates for existing tenants can create public relations problems or negatively impact future business development and investment at the airport. Instead, a gradual roll out of the new rates in a phased approach can help mitigate potential resistance and other issues from tenants and other stakeholders. A gradual roll out can also allow more time for education concerning the importance and necessity of fair market value rents. Rates can be slowly raised on a monthly, quarterly, or annual basis to ease the financial burden on tenants and allow them time to adjust their budgets accordingly.

The implementation plan should include steps for ensuring legal compliance with local, State, and federal regulations governing hangar leases. The airport's billing system will need to be updated and clear communication should be provided to explain to tenants how they should expect to see changes in their lease statements. Finally, it is important to maintain detailed documentation of the calculations, notifications, and any formal tenant engagement or discussions. This documentation can be valuable for transparency and dispute resolution.

Stakeholder Engagement

Increasing hangar rents may be a sensitive topic for some airports. Many airport sponsors surveyed or spoken to as part of the airport outreach process reported that they had never or rarely increased their hangar rents. Many reported a concern that doing so would upset existing hangar tenants, many of whom are model tenants that pay their rent on time, purchase fuel and/or contribute financially in other ways to the airport, and participate in airport activities. This disruption to existing hangar tenants is feared to have negative side effects, the most drastic of which is that the airport would experience high turnover in hangar occupancy of long-standing and model tenants. This hesitation to upset hangar tenants, many of whom may have been at the airport for decades, is understandable. However, it must not be a deterrent to increasing hangar rents to be consistent with fair market value.

This section assumes that the results of the Module will result in a

suggested increase to hangar rents. Given the existing conditions of hangar rents in Tennessee, it is assumed that this will be the result for the majority of airports using the Module. Please note that an annual use of the Module will not necessarily result in increased rents every year. While it is not possible for the Module to recommend a lower rent than what the airport is currently charging, it is possible for the Module to recommend that the airport not increase their rent at that time. This section discusses several key stakeholders that must be engaged in order to help make the process of increasing hangar rents go as smoothly as possible and to minimize tenant turnover and disruption.

Existing Hangar Tenants

Existing hangar tenants are arguably the stakeholder that will be most impacted by an increase to hangar rents. The decision to increase hangar rents, the timeframe for increasing those rents, and the benefits and rationale behind increasing those rents should be carefully discussed with existing hangar tenants. Airport sponsors should have time between the decision to increase hangar rents and the actual implementation to allow existing hangar tenants the opportunity to provide feedback, express concerns, and have their questions answered. **However, please note that the decision to increase hangar rents is solely that of the airport sponsor.** The decision to increase hangar rents should not be swayed by dissenting opinions from existing hangar tenants.

A proposed communication strategy for implementing hangar rent increases with existing hangar tenants is as follows:

1. Airport sponsor uses Hangar Rates and Charges Interactive Equation Module to determine the fair market value of their hangar(s). It is assumed that the Module results in (a) hangar rent(s) that is greater than what the airport is currently charging.
2. Airport sponsor determines which value within the acceptable ranges of values they will be charging for their hangar(s) and the date that value will be effective.
 - a. *If applicable: Airport sponsor determines schedule of annual increase, plus an annual inflation factor. For instance, if airport sponsor is increasing monthly rent by \$150, they may determine that a \$75 + inflation increase will occur in the following year, and another \$75 + inflation increase will occur in year two with the inflation increase reoccurring every year thereafter.*
3. Airport sponsor schedules an open meeting for all affected hangar tenants to communicate the increase and receive feedback and concerns.
 - a. *If applicable this meeting will also include communication about phased annual increases.*
 - b. *This meeting should occur no less than three months before the increase is set to take place.*

c. *This meeting should include clear communication about the hangar rent increase and why. A proposed script for an increase of \$150 is: "TDOT Aeronautics Division recently published a Hangar Rates and Charges Interactive Equation Module. This Module provides a rental value that represents the fair market value of hangars across the State. Charging fair market value for hangars is required by the FAA and strongly suggested by TDOT Aeronautics Division. We recently used this Module to determine the fair market value for [hangar name or identifier], and it determined that a fair monthly value is \$500. [For a one-time increase] Therefore, we will be increasing monthly rents by \$150 effective THIS DATE. [For a phased increase] Therefore, we will be increasing monthly rents by \$75 effective THIS DATE, and then another \$75 plus any annual inflation effective THIS DATE. We thank you for your understanding and for helping AIRPORT be compliant with FAA grant assurances."*

4. Airport sponsor provides regular reminders about the scheduled increase over the intervening time between the initial communication and the date of increase. Regular reminders could take the form of:
 - a. *Verbal reminders at regularly scheduled meetings.*
 - b. *Emailed reminders.*
 - c. *In-person reminders as airport sponsor walks around the airport.*
 - d. *Notices posted in airport common areas, such as the airport lounge.*
5. Airport sponsor increases the rent on the exact day initially communicated to existing hangar tenants. Airport sponsor makes themselves available on this date to answer any remaining questions or concerns.

Airport sponsors may still have concerns about raising existing hangar rents even with a solid rationale for doing so and a communication plan in place. It is true that existing hangar tenants may be upset with this increase and may also decide to leave as a result of the increase. However, in recent discussions with airport managers who increased the rent of their hangars, it was determined that less than 10 percent of hangar spaces were vacated due to an increase in rent, and all those hangar spaces were occupied from aircraft owners from the airport waitlist within three months.

Future Hangar Tenants

According to the recent TASP Rates and Charges Study, 79 percent of airports have an aircraft waitlist. Although the Study did not assess this directly, an informal review of aircraft waitlists revealed that a majority include contact information for the aircraft owners on the list. A suggested increase to hangar rents is an opportunity for airport sponsors to communicate with aircraft owners on their waitlists. Communicating with future hangar tenants serves a dual purpose: to



communicate the new hangar rent to ensure there are no surprises if and when an owner is able to come off the waitlist; and to remove any owners unwilling to pay the new hangar rent or otherwise ready to leave the waitlist for another reason. TDOT Aeronautics Division encourages airport sponsors to regularly contact aircraft owners on the airport's waitlist to ensure the waitlist is as up-to-date as possible. A suggested increase to hangar rents is a good opportunity to do so.

Airport Authorities

For many airports, the airport manager is not the ultimate decision maker at the airport. For changes like an increase to hangar rents, the airport manager must get approval from the airport authority. As part of the interviews conducted for this effort, many airport managers expressed their desire to raise airport rents but their inability to do so due to the nonconcurrence of the airport authorities. Therefore, the ability to raise hangar rents consistent with the findings of the Hangar Rates and Charges Interactive Equation Module is contingent upon airport authority agreement. This section assumes some level of difficulty, consistent with reports by airport managers, with doing so.

Airport managers that make joint decisions with airport authorities, or whose airport authorities are the sole decision-makers at the airport, should engage airport authorities before using the Module. A proposed implementation strategy for using the Module and applying the results in concurrence with an airport authority is as follows:

1. Airport manager requests a special meeting with the airport authority to discuss hangar rents. This meeting must be compliant with any State and local regulations pursuant to public meetings, as applicable.
2. Airport manager prepares an agenda and meeting packet that provides information and documentation concerning fair market value for hangar rents. The goal of this meeting is to achieve understanding and potential agreement that fair market value for hangar rents is required by the FAA and a best practice as described by TDOT Aeronautics Division.
3. Airport manager provides an overview of the Hangar Rates and Charges Interactive Equation Module to the airport authority. Airport manager explains that this Module is the official recommendation by TDOT Aeronautics Division with regards to hangar rents at the airport.
4. Airport manager seeks an agreement to abide by the results of the Module. If possible, it would be best to get this agreement in writing.
5. Airport manager requests assistance from the airport authority in communicating the results of the Module to existing hangar tenants. Concurrence between the airport manager and the airport authority on hangar rents and as communicated to existing hangar tenants will help the process of increasing rents.

Even with this engagement strategy, an airport manager may not ultimately be able to achieve consensus with the airport authority on raising hangar rents and may not be able to implement the findings of the Module. Airport managers in this situation should periodically try again, as politically feasible. Airport managers may also point to other airports within Tennessee that are implementing the results of the Module to highlight a trend within the State that their airport is not participating in, with the end goal always to implement Module findings and have hangar rents consistent with fair market value.

Airport Advisory Boards

An airport advisory board is a formalized structure of community members to get involved at the airport. Airport advisory boards vary from airport to airport (and not every airport has one), but they typically provide input and guidance on issues related to the community's interaction with the airport. They often serve as a liaison between the airport and other local government functions, such as the Mayor. They rarely have decision-making authority but may have politically connected members.

It would be wise for airport sponsors to request to present at an advisory board meeting in advance of any hangar rent increase. This presentation would ideally be in advance of using the Hangar Rates and Charges Interactive Equation Module and would cover the following topics:

- Introduction to fair market value and applicability to hangar rents
- Existing hangar rents at the airport
- Overview of the Module
- Necessity of the airport complying with the results of the Module
- Possibility of hangar rent increases

This presentation is what is known to many advisory boards as an "informational" or "informational only" item. This presentation would ensure that the airport advisory board is aware of a potential increase to hangar rents, why the rent is increasing, and the benefits and necessity of doing so well in advance of any hangar rent increases.

Once the airport sponsor uses the Module and determines a hangar rent is necessary, they would then inform the airport advisory board along with existing tenants. Depending on the powers entrusted to the airport advisory board, the airport sponsor may then present to the board again. If the advisory board has approval/veto powers, the airport sponsor would present in order to receive approval of the rent. This is what is known to many advisory boards as an "action" item. If the advisory board does not have approval/veto power, the airport sponsor would present as another "informational" item to receive feedback and answer questions.

Local Municipal Office/Employees

Airport sponsors should also inform other local municipal offices that are in any way related to the airport or perceived to be related to the airport (Parks and Recreation; Planning and Zoning; the City Comptroller; etc.) about an increase in hangar rates. Often, community members are not fully informed about which office is responsible for airport administration and may mistakenly contact the wrong office. It is best for city employees to be proactively informed about the increase in case they receive questions/complaints from existing hangar tenants or other local community members.

Best Practices

Many factors can affect the successful implementation of the Module. Beyond just plugging data into the Module itself, things like well-maintained hangar waitlists, clear and comprehensive hangar lease agreements, and effective hangar minimum standards can all influence the degree to which the hangar Module is effective at improving an airport's financial self-sustainability and overall good health. This section further discusses these considerations to guide airport sponsors in using the hangar Module.

Using the Hangar Rates and Charges Interactive Equation Module

Market dynamics nationwide and within the State are constantly shifting. The aviation industry is sensitive to economic fluctuations and lease rates should reflect the current economic climate. Therefore, it is essential for Tennessee's airports to regularly use the Module to adapt to changing circumstances. TDOT Aeronautics Division recommends using the Module annually at minimum. Running the Module annually ensures that rents remain responsive to market conditions, while failure to adjust rents can lead to revenue shortfalls and poor return on investment for airports. Failure to adjust hangar rents consistently also leads to the current state of hangar rents within Tennessee, where a large majority are vastly undervalued. Using the Module regularly will help airports begin to alleviate this problem and prevent it from happening again.

However, implementing a more dynamic pricing Module for hangar lease rates may not happen without challenges, particularly when it comes to tenant relationships. Tenants who are used to static, unchanging lease rates would understandably be upset to find out their rents are increasing. To mitigate these issues and others, it is important that airport sponsors take proactive steps to communicate with tenants and demonstrate their commitment to the overall improvement of the airport.

Implementing a systematic and transparent schedule for using the Module to annually adjust hangar lease rates may help mitigate conflicts with tenants and other stakeholders. When tenants know what to expect

and are included in the process, they are less likely to be upset by changes to their hangar lease rates. The following schedule can be used as template:

1

2-4

5-6

7

8

January: Implementation

- Implement new hangar lease rates based on analysis conducted the previous year using the Hangar Rates and Charges Interactive Equation Module.

February-April: Tenant Engagement and Interviews

- Engage with tenants to address any questions or concerns they may have regarding the newly implemented rates.
- Monitor tenant satisfaction and gather feedback on the impact of the rate adjustments.
- Schedule individual or group interviews with tenants to understand their specific needs and challenges.

May-June: Data Collection and Analysis

- Collect and/or update data as needed regarding inputs used in the Module, such as hangar condition, M&O costs, and hangar demand.
- Input the updated data into the Module for preliminary results on changes to hangar lease rates for the following year.

July: Evaluation and Decision-Making

- Evaluate the recommended hangar lease rates generated by the Module.
- Consider tenant feedback and unique circumstances/challenges raised during the engagement process.
- Decide on the appropriate adjustment to the hangar lease rates.

August: Tenant Notification

- Notify tenants of the new rates, providing clear and transparent communication on the rationale behind the adjustment.
- Allow sufficient time for tenants to review and discuss the new rates.
- Communicate that new rates will go into effect in January of the following year, allowing tenants ample time to decide on renewing their leases.



Hangar Waitlists

Airports with excess demand for hangars typically record these prospective tenants in a waitlist. These waitlists demonstrate that there is additional demand for aircraft storage that cannot be fulfilled with the airport's current capacity. A detailed official hangar waitlist will provide crucial data necessary for accurate results from the hangar Module, while also helping justify increased hangar lease rates by clearly demonstrating market demand. Airport sponsors should note that maintaining an accurate hangar waitlist is important for receiving an accurate and market-adjusted value from the Module, as the greater the number of aircraft on the waitlist, the greater the supply/demand adjustment of the suggested rent will be. Inflating the number of aircraft on a waitlist does not materially benefit the airport in any way.

Airport sponsors should make sure that their hangar waitlist is as updated and detailed as possible, requiring interested parties to provide contact information and other relevant details to make the process of filling any hangar vacancies as efficient as possible. This information should include:

- Date of inquiry (initial and ongoing check-ins)
- Contact information of interested party (name, phone, email)
- Size/type of hangar requested
- Amenities requested with hangar (utilities, heated, etc.)
- Aircraft N-number (to identify new or shifting demand)
- Aircraft type (make, model)
- Aircraft status (owned or new purchase)
- Current location of aircraft
- Note of any fees incurred to be included on waitlist
- Letter(s) of intent

Airports must maintain their hangar waitlists on a routine basis to ensure that all recorded interested parties are actively seeking a hangar. Often, aircraft owners may no longer have a need for a hangar or have fulfilled their hangar needs at another facility, but they will not inform airport sponsors of this change. At a minimum, airports should check in with current parties on the waitlist annually to determine if their interest remains. Additionally, airport sponsors should consider requiring aircraft owners/pilots to submit a refundable security deposit to be placed on the waitlist. If an aircraft owner rents a hangar space, the deposit would count towards their first month's rent. If the owner decides to come off the waitlist without renting a hangar space, the deposit would be refunded. This practice would help ensure that an airport's waitlist includes only those aircraft owners that have a serious stake in receiving a spot. It would also minimize duplicates across multiple waitlists.

As a revenue generating opportunity for airports sponsors, the security deposit funds could be placed into a non-binding interest-bearing

account. The funds in that account will accrue interest over time, while the airports having the security of being able to offer full security deposit refunds at any time. When a hangar tenant wishes to be refunded, airport sponsors can refund the full amount while holding onto any interest gained, allowing airport sponsor to generate revenue from security deposits.

If hangar waitlists are used correctly, airports will make sure that their hangars are always at capacity, supporting active aircraft, and enabling the airport to generate as much revenue as possible from their facilities.



space is operational mitigating any hangar being used for non-aeronautical activity. Aircraft without an airworthiness certificate will be removed from the validated based aircraft counts on basedaircraft.com by the FAA on the airport's account. This could negatively impact the airport's classification in the FAA's National Plan of Integrated Airport Systems (NPIAS).

• **Annual Aircraft Inspections:** Airports sponsors should require that annual aircraft inspection documentation be submitted by hangar tenants for their aircraft. Annual inspections are required per Federal Aviation Regulation (FAR) 91.409 and must be properly endorsed by a mechanic with an inspection authorization endorsement. This inspection must be completed within the preceding 12 calendar months. By providing this documentation, airport sponsors can certify that all aircraft being housed in hangars are airworthy and operational. Aircraft owners that fail to have their aircraft inspected cannot operate their aircraft without prior authorization from the FAA.

Hangar Minimum Standards

Many airport sponsors adopt and enforce minimum standards for airport users to follow across all available airport facilities/services. This serves to mitigate risk to people, property, and aircraft operations. Minimum standards contain rules for operating at the airport and using all facilities to protect the condition of all airport infrastructure from nefarious/unsafe use which could pose a danger to people and aircraft. Minimum standards can be established for the entire airport and/or they can be established for specific airport facilities, such as hangars.

Although minimum standards can vary greatly based on localized conditions, some specific rules set for hangars can be universal to almost all airports. One of the most crucial hangar minimum standards is the provision that hangars be used for aeronautical purposes. Hangars that are used for non-aeronautical purposes will take away hangar capacity intended for the use of storing aircraft. This can lead to high hangar demand and maintaining lengthy hangar waitlists. When renting or leasing out hangar space, it is strongly recommended that hangar lease agreements and minimum standards dictate aeronautical use only (e.g., storing of an aircraft and related tools, parts, and equipment). In 2017, the FAA has adopted a policy on non-aeronautical use of airport hangars stating:

*"The [airport] sponsor is required to charge a **fair market commercial rental rate** for any hangar rental or use for non-aeronautical purposes...If an airport tenant pays an aeronautical rate for a hangar and then uses the hangar for a non-aeronautical purpose, the tenant may be paying a below-market rate in violation of the [airport] sponsor's obligation for a self-sustaining rate structure and FAA's Revenue Use Policy."*

This policy addresses the potential for an airport to charge an aeronautical-based rent, such as those suggested by the Module, for a non-aeronautical use, such as when a tenant's aircraft becomes non-airworthy. TDOT Aeronautics Division thus strongly recommends that airports ensure their hangars are being used solely for aeronautical purposes, as it is assumed hangar rents are being set based solely on aeronautical purposes, in order to be compliant with FAA policy. TDOT Aeronautics Division recommends that all airport sponsors follow this policy, regardless if the airport is federally-obligated or not.

Other hangar minimum standards include ensuring that hangars are kept clean and free of debris that can pose a risk to operating aircraft. Specific standards addressing this concern can include are, but not limited to:

- a *All persons on the airport shall keep all areas of the premises leased or used by them clean and free of oil, grease, and other flammable material. The floors of the hangars and other buildings shall be kept clean and continuously kept free of rags, waste materials or other trash or rubbish.*
- b *Aircraft owners are responsible for cleanup and repairs to airport facilities to include ramp and hangar floors caused by leaks, drips, and any spillage of any and all aviation fluids from their aircraft.*
- c *Hangars shall not be used for any other purpose than aircraft storage. Any storage of aircraft must be done in a manner not to constitute a nuisance or interfere in any way with the use and occupancy of other buildings and structures in the neighborhood of the leased premises.*
- d *No aircraft or aircraft component shall be suspended or lifted utilizing the building or any component of the building.*
- e *No alterations will be made to the hangar structure without written approval by the airport manager. Any alterations are subject to removal by the airport manager at tenant's expense, upon thirty (30) days written notice, for the purpose of repair, construction or other purposes deemed necessary by the airport manager.*
- f *Aircraft are not to be washed with running water in hangars when such washing will cause drainage into or through another hangar.*
- g *No paint spraying or spraying of any kind will be permitted in hangars.*
- h *No tools, equipment, or material will be used in the hangars that could constitute a fire hazard.*
- i *No smoking in hangars is permitted.*
- j *No signs will be erected or painted on the exterior or interior of hangars.*
- k *No aircraft or vehicle is to be parked by hangars, in such a manner as to block access to adjoining hangar spaces, or to cause inconvenience to other tenants, taxiing aircraft or airport operations.*
- l *The premises are not the private use of tenant and shall not be sublet for profit or used for any commercial purpose, including, but not by way of limitation, the sale of products or services of any kind, whether or not such sales are transacted for profit.*

It is important to note that the list of hangar minimum standards above is not exhaustive, and airports should carefully consider and document all appropriate terms of use for hangars in minimum standards to ensure maximum useful life of these facilities. Airports can refer to the **Minimum Standards Template** in [Appendix D](#) for a starting point. Due to the uniqueness of every airport, minimum standards should be individually developed and tailored toward upholding the overall standards that the airport sponsor has set in place while maximizing safety to people, property, and aircraft operations by adhering to all applicable FAA, State, and local laws, rules, and regulations.

Conclusion

Tennessee's airports are experiencing a substantial demand for hangars statewide. Although building new hangars to increase capacity may be seen as a potential solution, upon review of lease rates statewide and by interviewing airports, it was determined that the high demand is predicated on undervalued hangars and a lack of hangar waitlist standardization. Tennessee's airport hangars are undervalued by almost any measure. Rents are substantially lower than similarly located traditional storage options, and airport staff themselves note that they believe hangars to be undervalued.

Low hangar rents contribute to a myriad of issues across the State. First, charging under market value for hangars risks airports being in noncompliance with FAA Grant Assurances. Second, low hangar rents make it difficult for airports to realize the profit needed to properly maintain the hangars throughout their useful life, as well as lead to an unsubstantiated demand on hangar rates. Without establishing fair market value and rightsizing hangar waitlists, it is difficult to tell whether there is a lack of hangar capacity statewide.

Given this complex issue, TDOT Aeronautics Division has developed the Hangar Rates and Charges Interactive Equation Module to easily determine a fair market hangar lease rate structure. The Module is designed to be sensitive to local market demands but to ensure airports are charging a fair market value for their hangars that will both maximize revenue and ensure the airport is compliant with FAA Grant Assurances. Raising hangar rents will not be an easy task. It is understood that there is a high price sensitivity to existing hangar lease rates and, by raising rates, existing tenants would be enticed to move their aircraft to another airport, even outside of Tennessee. However, the benefits of raising rents and being compliant with FAA Grant Assurances far outweigh this risk.

This Guidebook provides the appropriate tools for every airport in the State to ensure their hangar rents are in line with fair market values. The Guidebook provides the full research behind the Module, explaining the concept of fair market value and market sensitivity. The Guidebook provides a step-by-step instruction on using the Module and the data included therein. Finally, the Guidebook provides other useful information on implementing Module findings; engaging with relevant stakeholders; and enacting other best practices, such as a sound hangar lease agreement and hangar minimum standards.



This Guidebook provides the appropriate tools for every airport in the State to ensure their hangar rents are in line with fair market value.



A

Appendix

Hangar Interview White Paper

Introduction

Airports generate revenue through the use and lease of their hangars to maintain, improve, and develop airport facilities, services, and programs. Airports that accept federal grants must abide by Federal Aviation Administration (FAA) Grant Assurances that apply to the rates and charges for the use and lease of hangars. Per FAA Grant Assurance #24 Fee and Rental Structure, the rates and charges for the use and lease of an airport's hangars must be consistent, fair market value, and equally applied. The rates and charges for the use and lease of hangars must also help the airport toward achieving self-sustainability. Airports that undercharge for facilities and services are not in compliance with the FAA Grant Assurances and risk losing federal funding.

While FAA Grant Assurances require airports to be "as self-sustaining as possible," there are no set FAA guidelines or standards on what individual airports should charge for hangars. The manner in which Tennessee's airports set their hangar rates and charges is not well understood at the statewide level. Therefore, this white paper documents, in part, the results of an interview effort that was conducted at a representative sample number of airports across the state concerning their hangar rates and charges practices. Interview findings are analyzed in tandem with data collected as part of a related effort (the "Covered Aircraft Storage Literature Review") to understand the existing rates and charges practices and procedures at Tennessee's public-use airports and to provide recommendations for the development of subsequent tasks, the Rates and Charges Interactive Equation Module and Hangar Guidebook.

This white paper provides a comparison between the hangar rates and charges practices at Tennessee's public-use airports and the best practices as described in the Covered Aircraft Storage Literature Review. This white paper concludes with recommendations related to best practices, including: determining fair, market value, and profitable hangar rates and charges; best practices for hangar development through public-private partnerships; establishing hangar minimum standards; and developing hangar lease agreements. This white paper includes the following sections:

- Interviewed airports
- Data collection
- Data analysis
- Recommendations

Interviewed Airports

The data included in this white paper result from a series of interviews conducted at airports across the state. Sixteen airports were selected by TDOT Aeronautics Division and 14 airports were ultimately interviewed.¹ Within each TDOT Region, TDOT Aeronautics Division selected one Commercial Service airport, one Regional Service airport, one Community Business airport, and one Community Service airport (as defined in the latest Tennessee Aviation System Plan (TASP)). Airports were selected based on how well they represented "typical" hangar practices within their Region and TASP classification, as well as their perceived willingness to participate

in the interview. Interviewed airports, as well as some key base data points about the airports, are provided in **Table 1**.

Table 1. Interviewed Airports - Key Data

Airport	TASP Classification	Total Hangar Space	Based Aircraft	Region
Elizabethhton Municipal Airport (0A9)	Regional Service	Box hangar: 6 buildings T-hangar: 26 units	45	1
Scott Municipal Airport (SCX)	Community Business	Box hangar: 3 buildings T-hangar: 10 units	27	1
Rockwood Municipal Airport (RKW)	Community Service	Box hangar: 2 buildings T-hangar: 16 units	21	1
Lovell Field (CHA)	Commercial Service	Box hangar: 8 community buildings T-hangar: 24 units	100	2
Cleveland Regional Jetport (RZR)	Regional Service	Box hangar: 1 community building T-hangar: 40 units	62	2
Crossville Memorial/Whitson Field (CSV)	Community Business	Box hangar: 2 buildings T-hangar: 52 units	49	2
Mark Anton Airport (2A0)	Community Service	Box hangar: 8 buildings T-hangar: 24 units	20	2
Smyrna Airport (MQY)	Regional Service	T-hangar: 70 units Other: 21 maintenance hangars with planes	189	3
Bomar Field – Shelbyville Municipal Airport (SYI)	Community Business	Box hangar: 1 community building T-hangar: 10 units	59	3
Hassell Field (M29)	Community Service	T-hangar: 10 units	10	3
McKellar-Sipes Regional Airport (MKL)	Commercial Service	Box hangar: 3 community buildings T-hangar: 10 units	52	4

¹ McGhee Tyson Airport (TYS) in Region 1 and Nashville International Airport (BNA) in Region 3, both Commercial Service airports, were unable to participate in the interview and are not included in the analysis as part of this white paper.

Airport	TASP Classification	Total Hangar Space	Based Aircraft	Region
Millington-Memphis Airport (NQA)	Regional Service	Box hangar: 8 buildings T-hangar: 40 units	68	4
Savannah-Hardin County Airport (SNH)	Community Business	Box hangar: 4 buildings T-hangar: 16 units	17	4
Covington Municipal Airport (M04)	Community Service	Box hangar: 2 buildings T-hangar: 36 units Shade hangar: 6 buildings	31	4

Source: Garver, 2023; Kimley-Horn, 2023; AirportIQ (Accessed April 25, 2023)

Data Collection

Data were primarily collected through phone interviews with the fourteen listed airports. Supplemental data were also gathered from surveys previously submitted as part of the TASP. As part of the interview process, airports were contacted individually to set up one hour phone calls. These phone calls occurred between January 2023 and March 2023.

Each airport was asked the same questions from the interview questionnaire developed as part of this task. The interview questionnaire was designed to gather data related to existing hangar inventory and rates; anticipated changes to hangar rates; policies and procedures related to hangar rates and charges, and; developing hangars through a public-private partnership (P3).

The full interview questionnaire is provided in **Appendix C. Interview Questionnaire**.

Data Analysis

Interview responses were recorded in interview write-ups and were analyzed collectively using the response consolidation document. Trends in the responses of all fourteen airports were identified through this analysis. This section documents the major trends in responses across most airports. Only questions which garnered a robust response amongst a majority of airports are discussed in the following sections.

Major response trends are also compared to similar topics addressed in the literature review. This comparison highlights how well current hangar rates and charges practices in Tennessee align with recommended best practices from the literature. This comparison also informs the recommendations that conclude this white paper.

As a note, due to the relatively low sample size of interviewed airports (representing only 18 percent of the aviation system) and the diversity among individual responses to the same questions, question responses are not presented as percentages (i.e., “X percent of airports responded that...”). This section provides only a qualitative review of response trends.

Hangar Waitlist Verification

All interviewed airports maintain a hangar waitlist, which are maintained in a variety of ways. Airport managers primarily maintained the hangar waitlists themselves, although some reported that the FBO or other city/county staff maintain it. Most airports do not allow people on the waitlist that do not currently own aircraft. However, most airports do not independently verify aircraft ownership (i.e., by recording and confirming tail numbers) and some airports report that they only verify aircraft ownership when a hangar spot becomes available. No airports charged a fee to be on the hangar waitlist, although two airports reported considering it.

Comparison to Literature Review

The literature review does not address hangar waitlist verification.

Policies and Procedures Related to Hangar Rates and Charges

Several of the interview questions addressed various policies and procedures related to hangar rates and charges. Policies and procedures questions involved those related to determining rates, whether rates were updated on a recurring cycle, and what factors were considered in the existing rates.

DETERMINING EXISTING HANGAR RATES

No airports reported any policies, procedures, or standard practices in place related specifically to determining the rates and charges for each type of hangar. Existing hangar rates were determined using a variety of methods, although a popular method was some form of surrounding market analysis. Airports reported reviewing the hangar rates of nearby airports or airports in similar markets to theirs and establishing their hangar rates based on what their individual goals were. Some airports discovered they had fairly low hangar rates for the area and increased their rates; other airports opted to remain “competitive” and maintain existing hangar rates.

Many airports reported that existing hangar rates were based on historical rates. For instance, some airport managers reported that their hangar rates hadn't changed since they started working at the airport.

Comparison to Literature Review

The majority of the documents included as part of the literature review address establishing fair market value for hangar rates and charges. It is important to note that airports that accept federal grants must abide by FAA Grant Assurances that apply to the rates and charges for the use and lease of hangars. Per FAA Grant Assurance #24 Fee and Rental Structure, the rates and charges for the use and lease of an airport's hangars must be consistent, fair market value, and equally applied. The rates and charges for the use and lease of hangars must also help the airport toward achieving self-sustainability. Airports that undercharge for facilities and services are not in compliance with the FAA Grant Assurances and risk losing federal funding.

While the FAA does not provide any set guidelines or standards on what individual airports should charge for hangars, they do provide guidance on three “reasonable” methodologies for evaluating price for hangar market value and market rent. These methodologies include: historic cost evaluation, direct negotiation, and objective determinations of fair market value. Based on the interviews, Tennessee's airports are currently moderately applying historic cost evaluation and objective determinations of fair market value. However, the literature review does state that

“market value” should not be determined solely on the area directly surrounding the airport, as most of the airports currently using this methodology have done. The FAA notes that for small airports, for instance, “comparable markets” include airports with similar characteristics.

UPDATING RATES ON A RECURRING CYCLE

Most airports report not updating their hangar rates on a recurring cycle. However, many airports have recently updated their rates, as evidenced by the comparison of rates between the TASP Rates & Charges Survey (conducted in early 2020) and the responses to interview questions about existing hangar rates (conducted in early 2023).

For airports that do periodically reevaluate their hangar rates, the cycle is varied. Some airports have or anticipate reviewing hangar rates on a yearly or biennial cycle. Other airports reported reviewing them as market conditions dictate in order to maintain a profit.

Comparison to Literature Review

ACRP Report 16 – Guidebook for Managing Small Airports – Second Edition (2019) states that rates and charges should be reviewed on an annual basis and should be updated as needed. In addition, as market conditions fluctuate, and the FAA recommends basing hangar rates, in part, on market value and market rent, it follows that hangar rates would be periodically reviewed.

FACTORS CONSIDERED IN RATES

Most airports reported age as the primarily or sole factor considered in hangar rates. Many airports reported not considering any additional factors into their hangar rates, and a small number of airports reported considering factors in addition to age. In addition to age, some other factors include: condition, facilities and utilities available, and size of space available.

Comparison to Literature Review

The FAA stipulates that fees placed on aeronautical uses must be fair and reasonable and must not be unjustly discriminatory against aeronautical users or user groups. Therefore, in addition to establishing rates based on market value and market rent, airports may consider other factors such as age and condition of hangar as long as they result in a fair, reasonable, and nondiscriminatory rate towards all tenants.

Concerns with Current Hangar Rates

Most airports responded that they do not think their current hangar rates represent a fair market value. Many airports reported that they have more demand than supply. Even though they do not believe their hangar rates represent fair market value, airports reported a variety of concerns regarding raising rates. Some airports require airport board approval to raise rates and have not been successful in securing this approval or have only gotten approval for a moderate increase that still does not represent fair market value. Other airports report that they wish to maintain a good relationship or “work with” their existing tenants and believe that raising the rates to fair market value would disrupt this relationship. Finally, a few airports reported that their existing hangars were too low-quality (old, malfunctioning in some way, etc.) to raise rates.

Comparison to Literature Review

As previously noted, the majority of the guidance detailed in the literature review relates to establishing hangar rates that represent market value and market rent. The literature review does not address negotiating hangar rate increases with airport boards or airport tenants,

although ACRP Report 16 – Guidebook for Managing Small Airports – Second Edition (2019) notes that it is helpful for airports to establish an ordinance that indicates certain fees may be subject to change over time to allow for cost increases without causing issues with tenants.

Other Considerations

Several of the interview questions addressed various other considerations related to hangar rates and charges. Other considerations questions involved those related to hangar minimum standards, airport strategic or business plans, and P3s.

HANGAR MINIMUM STANDARDS

Most airports report not having hangar minimum standards. For the airports that do report having airport minimum standards, they are relatively cursory.

Comparison to Literature Review

The literature review notes that the hangar lease should include hangar minimum standards.

AIRPORT STRATEGIC OR BUSINESS PLAN

Most airports report not having an airport strategic or business plan. For the airports that do report having an airport strategic or business plan, one noted that it is updated as funding allows. Other airports mentioned their Airport Layout Plan (ALP) as part of this question.

Comparison to Literature Review

ACRP Report 16 – Guidebook for Managing Small Airports – Second Edition (2019) states that strategic and business planning for airports can set the stage for maximizing revenue opportunities and diversifying the airport revenue base. An airport strategic or business plan is useful both at large and small airports to maximize existing assets such as hangars and plan for future revenue-producing initiatives.

PUBLIC-PRIVATE PARTNERSHIPS (P3S)

Most airports report not having developed hangars through a P3. There were various concerns raised with utilizing a P3 for hangar development, including security, safety, and access issues for Part 139 airports. For the few airports that had developed hangars through a P3, they have plans to do so again in the future. Additionally, some airports who have not developed a hangar through a P3 expressed interest in doing so.

Slightly more common was developing hangars through a land lease. Several airports reported garnering revenue through leasing land to private developers who built private hangars.

Comparison to Literature Review

Numerous sources included in the literature review discussed the merits and drawbacks of developing hangars through a P3. ACRP Synthesis 94 - Attracting Investment at General Aviation Airports Through Public Private Partnerships (2019), noted that P3s may be a valuable arrangement to build additional hangar capacity at airports. P3s provide a unique financing structure that nevertheless may only be feasible for a small section of airports. Further, it is important to note that P3 agreements at federally-obligated airports must be compliant with FAA grant assurances. While P3s help mitigate financial risk, they also pose a unique financing

burden on airports. With this dichotomy in mind, it is unsurprising that airport responses regarding P3s ranged from enthusiasm and interest to aversion.

Recommendations

Most airports reported hangar rates that do not represent a fair market value and do not evaluate their rates on a recurring cycle. In addition, many airports do not verify the aircraft placed on their hangar waitlists or include hangar rates in formal documentation, such as minimum standards or in a strategic or business plan. The following recommendations are a result of the existing conditions of hangar rates in the state, as well as what is recommended in the literature.

UPDATE HANGAR RATES TO REPRESENT FAIR MARKET VALUE

As previously noted, most airports responded that they do not think their current hangar rates represent a fair market value. However, the majority of the literature regarding hangar rates stresses that they should represent fair market value, in addition to the fact that federally-obligated airports are subject to FAA Grant Assurance #24 Fee and Rental Structure, which notes that the rates and charges for the use and lease of an airport's hangars must be consistent, fair market value, and equally applied. Therefore, it is of utmost importance that airports update their hangar rates to represent fair market value. There are several strategies recommended by the ACRP and FAA to determine the fair market value for hangar rates. Many airports compare their rates to surrounding airports. While this is one strategy recommended in the literature, many sources also note that this should not be the *sole* strategy, as it can artificially depress hangar rates over time.

UPDATE HANGAR RATES ON A RECURRING CYCLE

Similar to the previous recommendation, airports are also encouraged to review and update hangar rates on a recurring cycle. Most airports reported not currently updating hangar rates on a recurring cycle, although some expressed an interest in doing so. A component of having hangar rates represent fair market value is the regular review of hangar rates to incorporate changes to the market. A popular strategy for updating hangar rates on a recurring cycle is to write the hangar rate increase into an airport strategic plan or business plan, or to include this increase in hangar minimum standards.

INCLUDE HANGAR RATES IN FORMAL DOCUMENTATION

Similar to the previous documentation, airports are encouraged to include hangar rates in formal documentation, such as in hangar minimum standards. These hangar rates can also include language pertaining to a specified annual increase depending on market conditions, or adjusted according to a flat fee. Transparent communication regarding hangar rates and increasing hangar rates on a recurring cycle will maintain and even improve communication and relationships between the airport and hangar tenants, while still allowing the airport to charge fair market value for their hangars.



B

Appendix

Combined Sample Lease Template

HANGAR LEASE

TDOT AERONAUTICS DIVISION TEMPLATE

INSERT MUNICIPALITY, TENNESSEE

THIS LEASE, entered into this _____ day of _____, between the **INSERT AIRPORT NAME** hereinafter referred to as the **LANDLORD**, and _____, hereinafter referred to as the **TENANT**.

WITNESSETH:

WHEREAS, the **LANDLORD** owns and operates an airport known as the **INSERT AIRPORT NAME** and **TENANT** is desirous of leasing from the **LANDLORD** a certain parcel of land on the airport, hereinafter more fully described, for the purpose of aircraft storage; and

WHEREAS, the **TENANT** will use the below described property for the purpose of storing aircraft and shall conduct only such aircraft maintenance on its own aircraft as performed by the **TENANT** or by regular employees of the **TENANT**, and

NOW, THEREFORE, for and in consideration of the rental charges, covenants, and agreements herein contained, the **TENANT** does hereby lease from the **LANDLORD** the following premises, rights, and easements on and to the airport upon the following terms and conditions

1. Lease of Hangar Area. **LANDLORD** agrees to **TENANT** and **TENANT** agrees to lease from **LANDLORD** Area **ENTER PROPERTY DESCRIPTION**, as shown in Exhibit A, located in Building **ENTER BUILDING #**, as shown on the approved Airport Layout Drawing (the "Hangar"), at **INSERT AIRPORT NAME** (the "Airport"), for the purpose of storing/parking the following aircraft (the "Aircraft").

Aircraft Make _____

Aircraft Model _____

Aircraft Year _____

Aircraft Registration Number _____

Aircraft Serial Number _____

Aircraft Registered Owner(s) _____

Aircraft Owner(s) Address and Phone Number (if different from **TENANT**)

2. **TERM.** The term of this lease shall be for a period of **INSERT NUMBER OF YEARS** years commencing on this _____ day of _____, and shall continue from month to month thereafter unless either party gives sixty (60) days notice of termination.

3. **RENT.** The **TENANT** agrees to pay to the **LANDLORD** for the use of the premises, rights, and easements herein described, the sum of \$ _____ each month. The **TENANT** shall pay monthly, in advance, on the first day of each Month, via U.S. Mail or by any other public standard delivery mechanism to the **INSERT AIRPORT NAME**, Manager's Office. The **LANDLORD**, as part of this rent, will furnish a key to the **TENANT**. The **TENANT** will assume liability for any and all leasehold taxes assessed by the County or State. On **INSERT DATE** of each year, the **INSERT AIRPORT NAME** will review the rental charges for the hangar and may establish new rates as the situation dictates. The rent shall be paid to **INSERT AIRPORT NAME** without notice or demand. This Lease provides for aircraft storage in a hangar with **INSERT UTILITIES INCLUDED AS PART OF RENT**.

4. **LEASE EXTENSION.** The **TENANT** may request to extend their lease by up to 24 months at the end of the term period described in Part 2. At the time of the request and before granting the request, the **LANDLORD** will review the rental charges for the hangar and may establish new rates as the situation dictates. If the extension is granted (up to 24 months) and at the end of that extension period, if the **TENANT** wishes to remain a new lease agreement must be executed.

5. **FAILURE TO PROMPTLY PAY RENT.** In the event that the **TENANT** fails to promptly pay the rent as specified in this lease agreement, the following provisions shall apply:

- **Late Payment Charges:** Tenant acknowledges and agrees that a late payment charge shall be imposed for any rent not paid within [number of days] days of the due date. The late payment charge shall be equal to [amount or percentage] of the overdue rent and shall be added to the outstanding balance.
- **Notice of Non-Payment:** If rent remains unpaid for [number of days] days after the due date, the Landlord may issue a written notice to the Tenant specifying the amount owed and demanding immediate payment. The Tenant shall have [number of days] days from the date of receiving the notice to pay the outstanding rent in full.
- **Right to Terminate Lease:** If the Tenant fails to pay the outstanding rent within the specified time frame after receiving the notice of non-payment, the Landlord reserves the right to terminate this lease agreement. The Landlord may proceed with eviction proceedings and take any necessary legal action to recover the unpaid rent and possession of the premises.
- **Additional Legal Costs:** In the event that legal action is required to collect the unpaid rent, the Tenant shall be responsible for any reasonable attorney fees, court costs, and other expenses incurred by the Landlord.
- **Forfeiture of Security Deposit:** Failure to promptly pay rent may result in the forfeiture of the Tenant's security deposit. The Landlord may apply the security deposit towards the unpaid rent or any other outstanding charges, damages, or expenses incurred as a result of the Tenant's non-payment.
- **No Waiver:** The Landlord's failure to enforce any provision of this section or to exercise any right or remedy shall not be deemed a waiver of such provision, right, or remedy. The Landlord reserves the right to enforce the terms of this section at any time.
- **Severability:** If any provision of this section is found to be invalid or unenforceable, the remaining provisions shall remain in full force and effect.

By signing this lease agreement, the Tenant acknowledges and agrees to the terms outlined in this "Failure to Promptly Pay Rent" section.

6. If the **TENANT** fails to promptly pay their rent when it becomes due, this lease shall be subject to default. Failure of the **LANDLORD** to send a notice of default for late rental payment shall not be deemed a waiver of said default.
7. **LATE FEES/DISHONORED CHECK FEES.** Each month's rent is due by the 1st day of the month. In the event that the entire rental payment is not received by the Airport Manager by the 1st of the month, the occupant shall pay a late charge of \$20.00 for each day the rent is late. TENANT further agrees to pay a fee of \$20.00 for each dishonored check. Any payments received after the 1st day of the month and not accompanied by a late fee of \$20.00 may be rejected and returned and will be subject to a finance charge of 18% per annum.

8. **RULES AND REGULATIONS.** The **TENANT** agrees to comply with all pertinent rules and regulations of the federal, State and local governments, as well as the rules, regulations, ordinances that may in the future be adopted. The rules, regulations, ordinances and minimum standards of the **INSERT AIRPORT NAME** are made a part of this agreement and shall have the same effect as though written herein and may be inspected in the Airport Manager's office. In addition, the **TENANT** specifically agrees to abide by the following hangar rules and regulations:

- The hangar is to be used solely for aircraft storage purposes. There will be no storage of boats, RVs, campers, vehicles, etc. No vehicles will be habitually stored inside the hangar. Exceptions are permitted when the aircraft is out of the hangar on an overnight trip or longer. In case of emergency, vehicle must remain unlocked with key inside or if locked, key provided to FBO. The hangar shall not be used to store any goods not directly related to aircraft usage.*
- No open flame devices inside the hangar, including the use of cigarettes, cigars, e-cigarettes (vapes) or other flammable tobacco products.*
- Will not lock the hangar with any lock other than the one supplied by the **LANDLORD**.*
- Hangar doors shall be kept closed and locked and all lights shall be turned off except when the facilities are being used.*
- The Aircraft assigned to the Leased Premises must be identified in this Lease Agreement as required by Section 1 above.*
- Where the aircraft stored in a hangar is owned by multiple parties, all parties with an ownership interest in the aircraft shall sign this Hangar Lease.*

- Aircraft must remain airworthy and in compliance with required annual maintenance inspection. If it is confirmed that aircraft stored in the hangar is no longer airworthy, owner has thirty (30) days to either make aircraft airworthy or store a different airworthy aircraft in the hangar. If new aircraft is stored in hangar, owner must provide the*
- Aircraft Year _____*
- Aircraft Registration Number _____*
- Aircraft Serial Number _____*
- Aircraft Registered Owner(s) _____*
- Aircraft Owner(s) Address and Phone Number (if different from **TENANT**). _____*

Failure to comply by this rule within thirty (30) days of determination of non-airworthiness will result in immediate termination of lease and a fine of \$500."

- TENANT** may service and maintain **TENANT'S** aircraft in the hangar, but may not service aircraft owned by others, nor hire outside mechanics to service **TENANT'S** aircraft in the Premises.*
- TENANT** will dispose of used oil or hazardous waste only in approved receptacles. Approved receptacles may not be available at the Airport, in which case the **TENANT** must remove the oil or hazardous waste from the Airport for proper disposal.*
- Will not park or leave an aircraft or automobile on the pavement adjacent to the hangar in a manner which unduly interferes with or obstructs adjacent hangars or aircraft movement areas.*
- Aircraft must be towed from/into hangar. No starting of engines inside hangar.*
- Except as otherwise provided herein, **TENANT** shall only use the Leased Premises for the storage of the aircraft in the area designated in this Lease Agreement and shall not take or use any other area at the Airport that is not part of the Leased Premises, unless the **TENANT** has an additional lease agreement with **LANDLORD**.*
- Storage of lockboxes, other storage bins, units, crates, boxes, tools, parts, and other articles necessary for **TENANT's** maintenance of the aircraft may be stored on the Leased Premises.*
- No one shall stay overnight in the hangar facility.*
- There shall be no fueling of aircraft inside of hangar.*
- Aircraft fueling may only be performed in accordance with **INSERT AIRPORT NAME** Airport Rules and Minimum Standards, as amended from time to time. Self-fueling is not allowed on the Leased Premises.*
- Storage of gasoline, explosives, or other flammable material is strictly prohibited.*
- In no case shall any hazardous materials of any type be stored within the leased facilities. There shall be no storage of containers of fuel except such fuel within aircraft's fuel tank in the leased facility.*
- TENANT** will be responsible for the clean up of any hazardous or other material spills from **TENANT's** aircraft, vehicles, or containers.*
- The **TENANT** agrees not to deposit, discharge, or release waste, fuel, oil or other petroleum products or fractions at the **INSERT AIRPORT NAME** Airport at **INSERT MUNICIPALITY NAME** or on the Leased Premises and not to use the Leased Premises for any unlawful purpose, or for any purpose that may constitute a nuisance.*
- One fire extinguisher will be provided in each Hangar. The fire extinguisher shall be properly maintained by **INSERT AIRPORT NAME**.*
- The **TENANT** will not attach to any part of the hangar any part of a hoisting or holding mechanism.*
- TENANT** may not make alterations, additions, or improvements to or about the Leased Premises, without the written consent of **LANDLORD**.*
- Will not conduct any charter, rental, repair or instructional service, or any other commercial activity in or from a hangar.*
- No signs or advertising matter shall be erected by the **TENANT** without prior written consent of **INSERT AIRPORT NAME**.*
- The **TENANT** will not use, or permit the Hangar to be used, for any unlawful or offensive purpose which might constitute a nuisance.*
- The **TENANT** shall keep the leased premises continually in a neat, clean and respectable condition, garbage and refuse of any kind to be removed at **TENANT'S** expense.*



ab The **TENANT** shall not suffer or permit any waste or nuisance on the leased premises, including specifically, but not exclusively, building materials or anything which interferes with the rights of other Tenants or the **INSERT AIRPORT NAME** in connection with the use of portions of the Airport not leased to the **TENANT** hereunder.

ac Each **TENANT** shall maintain such casualty and other insurance as the **TENANT** deems appropriate to protect the **TENANT'S** interests in their personal property.

ad **INSERT AIRPORT NAME** reserves the right to take any action it considers necessary to protect aerial approaches to the Airport against obstruction, together with the right to protect the **TENANT** from erecting or permitting to be erected any building or other structure on the Airport which in the sole opinion of the Airport Board, would limit the usefulness of the Airport or constitute a hazard to aircraft. If it shall be in the public interest, the **INSERT AIRPORT NAME** Board shall have the power to condemn this lease even though it is itself a party to the lease.

ae **LANDLORD** agrees to keep the grass mowed adjacent to and surrounding the hangar and to remove snow, as applicable, from the alleyways leading up to the hangar up to five feet from the hangar door. Notwithstanding the foregoing, the runway, runway exits, taxiways, and the ramp area shall have priority in snow removal procedures.

af The Leased Premises may not be sublet or assigned without the prior written consent of the **LANDLORD**.

ag The **TENANT** shall have the right to the non-exclusive use, in common with others, of the airport parking areas, appurtenances and improvements; the right to install, operate, maintain and store, subject to the approval of the **LANDLORD** in the interests of safety and convenience of all concerned, all equipment necessary for the safe storage of the **TENANT'S** aircraft; the right of ingress to and egress from the premises, which shall also extend to **TENANT'S** employees, guests and patrons; the right, in common with others authorized to do so, to use common areas of the airport, including runways, taxiways, aprons, roadways, and other conveniences for the take-off, flying and landing of aircraft.

Notwithstanding, anything herein contained that may be, or appear to be, to the contrary, it is expressly understood and agreed that the rights granted under this agreement are nonexclusive and the **LANDLORD** herein reserves the right to grant similar privileges to another **TENANT** or other **TENANTs** on other parts of the airport.

ah This lease and all provisions hereof are subject and subordinate to the terms and conditions of the instruments and documents under which the Airport Owner acquired the subject property from the United States of America and shall be given only such effect as will not conflict or be inconsistent with the terms and conditions contained in the lease of said lands from the Airport Owner, and any existing or subsequent amendments thereto, and are subject to any ordinances, rules or regulations which have been, or may hereafter be adopted by the Airport Owner pertaining to the **INSERT AIRPORT NAME**.

This lease shall be subordinate to the provisions of any existing or future agreement between the **LANDLORD** and the United States or the State of Tennessee relative to the operation or maintenance of the airport, the execution of which has been or may be required as a condition precedent to the expenditure of federal or state funds for the development of the airport. Furthermore, this lease may be amended to include provisions required by those agreements with the United States or the State of Tennessee.

ai No person on the grounds of race, color or national origin shall be excluded from the right to use the above-described premises if the **TENANT** shall decide to sublet any portion of the premises; That in the construction of any improvements on, over or under the above-described premises and the furnishing of services thereon, no person on the grounds of race, color or national origin shall be excluded from participating in, denied the benefits of or otherwise subjected to discrimination; and That the **TENANT** shall use the premises in compliance with the requirements imposed by or pursuant to Title 49, Code of Federal Regulations, and all regulations of The Tennessee Department of Transportation, Aeronautics Division and in compliance with the Civil Rights Act of 1964.

9. **HOLD HARMLESS.** The **TENANT** agrees to hold the **LANDLORD** and its agents harmless from any and all claims, liens, penalties, judgments or liability for any injury or death to persons, or damage to property caused by or arising from the use or occupancy of the premises by the **TENANT**, its agents or representatives.

10. **ASSIGNMENT.** The **TENANT** shall not assign this lease or sublet the hangar, or any part thereof, without written permission of the **LANDLORD**.

11. **AIRPORT DEVELOPMENT.** The **LANDLORD** reserves the right to further develop or improve the landing area of the airport as it sees fit, regardless of the desires or view of the **TENANT**, and without interference or hindrance. If the development of the airport requires the relocation of the **TENANT**, the **LANDLORD** agrees to provide a compatible location and agrees to relocate all buildings or provide similar facilities for the **TENANT** at no cost to the **TENANT**.

12. **TITLE.** Title to the building erected by the **TENANT** shall remain with the **TENANT** and shall be transferable. Upon termination of this lease, the **TENANT** may, at the option of the **LANDLORD**, remove the buildings, equipment, and property, and restore the leased property to its original condition. (For Hangar Construction)

13. **TENANT'S INSPECTION.** The **TENANT** has carefully examined the hangar and accepts it in its present condition. The **TENANT** assumes the risk of any personal injury or property damages resulting from the condition of; or any patent defects in the premises which could be disclosed by careful inspection.

14. **LANDLORD'S INSPECTION (Right to Inspect).** The **LANDLORD** reserves the right to enter upon the premises at any reasonable time for the purpose of making any inspection it may deem expedient to the proper enforcement of any of the covenants or conditions of this agreement and reserves the right to install exterior and interior security cameras deemed necessary. The **TENANT** will be notified of any violations, or safety or fire hazards noted.

15. **MAINTENANCE AND REPAIR.** The maintenance and repair of the hangar structure necessitated by ordinary wear and tear shall be the responsibility of the **LANDLORD**. Any maintenance or repair of the hangar necessitated by acts of negligence caused by the **TENANT**, its agents or representatives, shall be the responsibility of the **TENANT**. The **TENANT** agrees to promptly notify the Airport Manager in writing of any unsafe or hazardous conditions which may exist in the hangar. Unless such written notification is given in advance by the **TENANT**, the **LANDLORD** will not be responsible to the **TENANT** for any injuries, loss or damage caused by the lack of maintenance or repair, if such maintenance or repair could have cured the patent hazardous condition. Any improvement or alterations made by the **TENANT** will become part of the Hangar and shall belong to the **LANDLORD** at time of termination.

16. **INSURANCE.** The **TENANT** agrees that they will deposit with the **LANDLORD** a policy of comprehensive liability insurance. The policy shall be issued by a company licensed to do business in Tennessee and shall insure the **TENANT** against loss from liability to the amount of \$_____ for the injury or death of one person in any one accident; and in the amount of \$_____ for the injury or death of more than one person in any one accident; and in the amount \$_____ for damage to property of others for any one accident. The cancellation or other termination of any insurance policy issued in compliance with this section shall automatically terminate the lease, unless another policy has been filed and approved pursuant to this section and shall be in effect at the time of such cancellation or termination.

17. **DEFAULT.** If the **TENANT** shall fail to timely pay their rent, or the **TENANT** violates any of the terms or covenants of this lease in any manner whatsoever, the **LANDLORD** may, after giving thirty (30) days written notice of such default, declare this lease cancelled and all the **TENANT'S** rights therein forfeited. Such notice of default shall be given to the **TENANT** by first-class U.S. Mail, at their last known address, or by posting said notice inside the leased hangar. After a declaration of cancellation and forfeiture has been made, the **LANDLORD** may immediately, without other notice, re-enter and take possession of the premises, using such force as may be reasonably necessary to remove all personal property there from. The **LANDLORD** shall not be liable for any loss or damage to property by reason of said forfeiture and re-entry. The **TENANT** agrees to pay to the **LANDLORD** a reasonable attorney's fee and costs incurred for the purposes of enforcing any of the provisions of this lease.

18. **TERMINATION.** This lease may be unilaterally canceled or terminated by either party without reason only after giving the other party sixty (60) days advance written notice of such termination. In the event the Tenant terminates this Lease prior to the expiration of the Term by giving Landlord sixty (60) days' notice, then Tenant's obligation to pay Rent shall cease on the first day of the month following the sixty-day notice period. If Tenant has prepaid the Rent, then Landlord shall issue a refund to the Tenant of the full months of Rent remaining after the expiration of said sixty (60) day period. There will be NO refunds on month-to-month leases.

19. **SURRENDER.** On the last day of the Term of this Lease or on the sooner termination thereof, the Tenant shall peaceably surrender the Premises in good condition and repair, reasonable wear and tear excepted, consistent with the Tenant's duty to make repairs as provided herein. On or before the last day of the Term or the sooner termination thereof, the Tenant shall at its expense remove all of its aircraft and/or equipment from the Premises, and any property not removed shall be deemed abandoned. All alterations, additions, and fixtures, other than the Tenant's aircraft and/or equipment, which have been made or installed by either the Landlord or the Tenant on the Premises shall remain as the Landlord's property and shall be surrendered with the Premises as a part thereof. If the Premises are not surrendered at the end of the term or on the sooner termination thereof, the Tenant shall indemnify the Landlord against any loss or liability resulting from delay by the Tenant in so surrendering the Premises, including without limitation claims made by any succeeding tenant founded on such delay. The Tenant shall promptly surrender all keys for the Premises to the Landlord at the address stated herein and shall inform the Landlord of combinations on any locks on the Premises. In no event shall the Tenant be deemed to have abandoned the Premises or this lease during the terms hereof



unless the Tenant first obtains the express permission of the Landlord. The provisions of this section shall survive the termination of this Lease.

20. **HOLDING OVER.** In the event that the Tenant remains in possession of the Premises after the expiration of this Lease without the execution of a new lease, it shall be deemed to be occupying the Premises as a tenant from month to month, subject to all the conditions, provisions, and obligations of this Lease insofar as they can be applicable to a month-to-month tenancy.
21. **EFFECTIVE AGREEMENT.** All covenants, terms, and conditions of this agreement shall extend, apply to, and firmly bind the heirs, executors, administrators, and assigns of the respective parties hereto as fully as the respective parties themselves are bound.
22. **RIGHT OF FLIGHT OR NOISE.** It shall be a condition of this lease, that the **LANDLORD** reserves unto itself, its successors and assigns, for the use and benefit of the public, a right of flight for the passage of aircraft in the airspace above the surface of the real property hereinafter described, together with the right to cause in the said airspace such noise as may be inherent in the operation of aircraft, now known or hereafter used, for navigation of or flight in the said airspace, and for the use of said airspace for landing on, taking off from or operating on the airport.
23. **CREATION OF NO HAZARDS.** That the **TENANT** expressly agrees for itself, its successors and assigns, to prevent any use of the hereinafter described real property which would interfere with or adversely affect the operation or maintenance of the airport, or otherwise constitute an airport hazard.
24. **MECHANIC'S LIENS.** The **TENANT** shall not permit or allow any mechanic's or materialman's liens to be placed on the **LANDLORD'S** interest in the Premises during the Term. Notwithstanding the previous sentence, however, in the event any such lien shall be so placed on the **LANDLORD'S** interest, the **TENANT** shall take all steps necessary to see that it is removed within thirty (30) days of its being filed; provided, however, that the **TENANT** may contest any such lien provided the **TENANT** first posts a surety bond, in favor of and insuring the **LANDLORD**, in an amount equal to 125% of the amount of any such lien.
25. **NO PARTNERSHIP, JOINT VENTURE, OR FIDUCIARY RELATIONSHIP CREATED HEREBY.** Nothing contained in this Lease shall be interpreted as creating a partnership, joint venture, or relationship of principal and agent between the Landlord and the Tenant, it being understood that the sole relationship created hereby is one of landlord and tenant.
26. **CUMULATIVE RIGHTS.** No right or remedy herein conferred on or reserved to the Tenant or the Landlord is intended to be exclusive of any other right or remedy hereof provided by law, but each shall be cumulative in and in addition to every other right or remedy given herein or not or hereafter existing at law or in equity or by statute.
27. **AMENDMENT, MODIFICATION, OR WAIVER.** No amendment, modification, or waiver of any condition, provision, or term of this Lease shall be valid or of any effect unless made in writing, signed by the party or parties to be bound or by its duly authorized representative, and specifying with particularity the extent and nature of such amendment, modification, or waiver. Any waiver by any party of any default of another party shall not affect or impair any right arising from any subsequent default.
28. **SEVERABLE PROVISIONS.** Each provision, section, sentence, clause, phrase, and word of this Lease is intended to be severable. If any provision, section, sentence, clause, phrase, or word hereof is illegal or invalid for any reason whatsoever, such illegality or invalidity shall not affect the validity of the remainder of this Lease.
29. **ENTIRE AGREEMENT.** This Lease contains the entire understanding of the parties hereto with respect to the transactions contemplated hereby and supersedes all prior agreements and understandings between the parties with respect to such subject matter. No representations, warranties, undertakings, or promises, whether oral, implied, written, or otherwise, have been made by either party hereto to the other unless expressly stated in this Lease or unless mutually agreed to in writing between the parties hereto after the date hereof, and neither party has relied on any verbal representations, agreements, or understandings not expressly set forth herein.
30. **CAPTIONS, HEADINGS, OR TITLES.** All captions, headings, or titles in the paragraphs or sections of this Lease are inserted for convenience of reference only and shall not constitute a part of this Lease as a limitation of the scope of the particular paragraphs or sections to which they apply.

31. **NOTICES:** All notices or communications required or permitted by this lease must be written and may be given personally or by United States mail, postages prepaid, or overnight courier at the following addresses:

If to Landlord: Address

Phone #

If to Tenant: Address

Phone #

Either party may change address by written notice to the other party.

32. **ARBITRATION.** Any controversy or claim arising out of or relating to this Lease or any alleged breach thereof, which cannot be settled between the parties, shall be settled by arbitration in accordance with the rules of the American Arbitration Association, and judgment upon the dispute rendered by the arbitrator(s) shall be final and binding on the parties.

33. DATED this day of

INSERT AIRPORT NAME

INSERT AIRPORT MANAGER NAME, Manager

I have read and understand the foregoing, and acknowledge that copies of all INSERT AIRPORT NAME rules, regulations, ordinances and minimum standards are available for my inspection in the office of the Airport Manager, INSERT AIRPORT Address, INSERT MUNICIPALITY, Tennessee. I acknowledge that I have received instructions on the operations and closing of the electric doors, the positions of handles, operation of the vents and operation and placement of the fire extinguishers. I will notify the **LANDLORD**, or its representatives, of any changes in my address. I acknowledge receipt of number together with the key.

1. Signature: Date:
Address:
City, State, Zip:
Phone:

2. Signature: Date:
Address:
City, State, Zip:
Phone:

REQUIRED INFORMATION:

Aircraft Registration No. Aircraft Type
Insurance Carrier Policy Number



Appendix
Hangar Module Questions

- The Hangar Module currently requires input of monthly maintenance and operation (M&O) costs for the entire airport. What is your airport's monthly M&O costs? This includes, but is not limited to, insurance, utility usage and maintenance, and facility maintenance and enforcement.
- How do you determine your monthly M&O costs? What is the effort associated with determining the final M&O costs?
- Do you have any specific data on hangar M&O costs?
- The Hangar Module currently asks if an existing hangar is in a "desirable" or "not desirable" location. How would you describe a "desirable" vs "non-desirable" location?
- The Hangar Module currently asks if an existing hangar is in "good," "fair," or "poor" condition. How would you describe "good," "fair," or "poor" condition?
- The Hangar Module will ultimately recommend a monthly lease amount for the hangar whose information you input. Please describe how this lease amount could best be communicated. Examples include, but are not limited to:
 - A range of potential lease amounts, with the lower end being the lowest possible fair market value.
 - One lease amount representing the best market value.
 - Instructions on how to increase monthly rent amount over time until it is of market value.
- Do you have readily available data on hangar lease terms?
- (For JWN and GKT) What are the average monthly maintenance costs for your shade hangars?



D

Appendix

Hangar Minimum Standards Template

Hangar Minimum Standards

[Airport Name]

A. Compliance With Orders

All aeronautical activities at the Airport shall be conducted in compliance with the current applicable Federal Aviation Regulation, these Rules and Regulations, Standard Operating Procedures and Minimum Standards, Directives/Resolutions issued by the [Airport Name].

B. Hold Harmless:

The Aircraft Owner, pilot, agent or his or her duly authorized representative agrees to release or discharge the [Airport Name], its board, its officers, and its employees of and from liability of any damages which may be suffered by any aircraft and its equipment, and for personal injury or death.

Use of Airports Hangar Facilities:

- a All persons on the airport shall keep all areas of the premises leased or used by them clean and free of oil, grease, and other flammable material. The floors of the hangars and other buildings shall be kept clean and continuously kept free of rags, waste materials or other trash or rubbish.*
- b Aircraft owners are responsible for cleanup and repairs to airport facilities to include ramp and hangar floors caused by leaks, drips, and any spillage of any and all aviation fluids from their aircraft.*
- c Hangars shall not be used for any other purpose than aircraft storage. Any storage of aircraft must be done in a manner not to constitute a nuisance or interfere in any way with the use and occupancy of other buildings and structures in the neighborhood of the leased premises.*
- d No alterations will be made to the hangar structure without written approval by the Airport Manager. Any alterations are subject to removal by the airport manager at tenant's expense, upon thirty (30) days written notice, for the purpose of repair, construction or other purposes deemed necessary by the airport manager*
- e The premises are not the private use of tenant and shall not be sublet for profit or used for any commercial purpose, including, but not by way of limitation, the sale of products or services of any kind, whether or not such sales are transacted for profit.*
- f No Aircraft or vehicle is to be parked by hangars, in such a manner as to block access to adjoining hangar spaces, or to cause inconvenience to other tenants, taxiing aircraft or airport operations.*
- g No smoking in hangars is permitted.*
- h [Airport sponsor can add additional rules for use and maintenance of hangars based on existing facility conditions]*

Additional Resources

Additional resources to assist in developing hangar minimum standards include, but are not limited to, the following:

- FAA AC 150/5190-7 Minimum Standards for Commercial Aeronautical Activities - https://www.faa.gov/documentLibrary/media/advisory_circular/150-5190-7/150_5190_7.pdf
- Cleveland Regional Jetport (RZR): Minimum Standards for Construction of Aircraft Hangars - <https://www.clevelandregionaljetport.com/wp-content/uploads/2016/03/Hangar-Const-Min.-Stdts.-Final-8-14-12.pdf>
- AOPA Aircraft Hangar Development Guide - <https://www.aopa.org/-/media/Files/AOPA/Home/Supporting-General-Aviation/Get-Involved/Airport-Support-Network/Airport-Support-Network-Aircraft-Hangar-Development-Guide/hangar-planning.pdf>
- AOPA Minimum Standards for Commercial Aeronautical Activities - <https://www.aopa.org/-/media/Files/AOPA/Home/Supporting-General-Aviation/Get-Involved/Airport-Support-Network/AOPA-Resources-for-You/120112asn-minimum-standards-for-commercial-aeronautical-activities.pdf>
- National Air Transportation Association (NATA) Airport Sponsors Guide to Minimum Standards and Airport Rules and Regulations - <https://www.nata.aero/data/files/nata%20news/minstdsguidefinal.pdf>
- John C Tune Airport Minimum Standards for Operators of Aeronautical Activities - <https://flynashville.com/wp-content/uploads/2021/07/JWN-Minimum-Standards-2021.pdf>
- Nampa Municipal Airport Minimum Design and Development Standards - <https://www.cityofnampa.us/DocumentCenter/View/17687/Minimum-Design-and-Development-Standards---FINAL-DRAFT>

