



2022 Indiana State Aviation System Plan

Executive Summary

September 2022



Overview

Aviation plays a vital role in the continued prosperity and wellbeing of the state of Indiana. Aviation promotes economic sustainability and growth by supporting the movement of goods and people around the state and across state borders. As the “Crossroads of America,” Indiana is supported by hundreds of public-use and private-use aviation facilities. These facilities provide access for individuals, groups, and businesses looking to access all that Indiana has to offer. From rapidly growing urban centers to some of the richest farmlands in the world, Indiana relies on these aviation facilities to support business, quality of life, and continued economic growth.

The 2022 Indiana State Aviation System Plan (ISASP) studies the 68 airports and one heliport that make up Indiana’s aviation system. This aviation system encompasses four commercial service airports and 65 general aviation (GA) facilities, including the heliport. These aviation facilities accommodate airline flights, private and chartered air travel, flight training and education, air cargo, agriculture, and a plethora of other aviation activities. The wide array of aviation operations occurring at Indiana’s aviation facilities support local communities along with the state as a whole.

To better understand the critical role that aviation plays in the state, the Indiana Department of Transportation (INDOT) Office of Aviation periodically undertakes updates to the ISASP, with the previous iteration published in 2012. Aviation system plans are developed to document current conditions at system facilities and to guide aviation development over a 20-year planning horizon. With significant changes in the aviation landscape due to advances in technology, changes in demand, and unforeseen circumstances such as the COVID-19 pandemic, an updated ISASP was desired to better understand the future needs and opportunities for Indiana’s Aviation System.

Study Process

One of the first steps of the 2022 ISASP was identifying goals and objectives for the network of aviation facilities that comprise Indiana’s aviation system. While prior iterations of the ISASP carried forward previous goals used, the 2022 ISASP included a complete re-assessment and establishment of five unique goals, as along with Performance Measures (PMs) and Performance Indicators (PIs) that support each goal, and Minimum Service Level Recommendations (MSLRs). PMs, PIs, and MSLRs are collectively referred to as “objectives” and are used to evaluate system performance and ultimately establish future performance targets. Evaluating system performance, in conjunction with other study findings, contributes to the identification of project recommendations and policy considerations, which are used by INDOT to make informed decisions about future development and funding allocation. Recommendations made in the 2022 ISASP can be directly traced back to the goals and objectives established for the study.

Elements of the 2022 ISASP Framework



Aviation System Planning at the National, State, and Local Levels



2019 Aviation System Activity

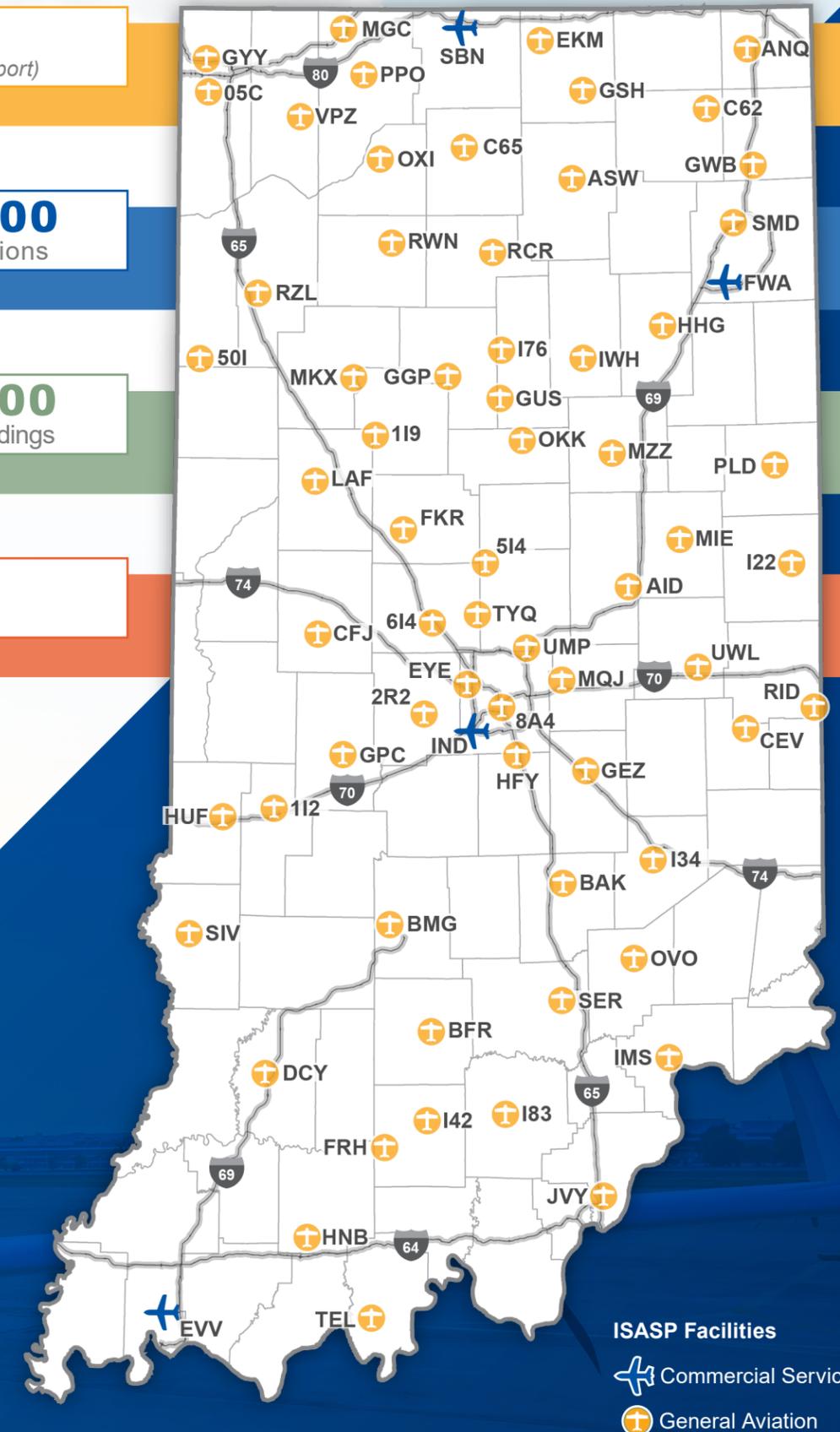
69 Facilities
(68 airports, 1 heliport)

1,347,500
Annual Operations

5,733,100
Passenger Boardings

3,350+
Based Aircraft

ISASP Facilities





System Goals, Performance Measures and Performance Indicators

The five 2022 ISASP goals were developed through review of the 2012 ISASP, the 2045 Indiana Long-Range Transportation Plan (LRTP), and through coordination with the Industry Advisory Committee (IAC) convened for this study. The five system goals are:

- 1 Safety and Security,
- 2 Economic Sustainability and Quality of Life,
- 3 Infrastructure Preservation and Development,
- 4 Environmental Responsibility and Land Planning
- 5 Aviation Industry Advancement.

These five goals provide direction for aviation development and serve as the foundation for the study's PMs and PIs. PMs and PIs are tools used to measure system performance, particularly as that performance relates to each of the system goals. PMs measure components of the system that can be directly impacted by the implementation of future projects as funding is made available. Similar to PMs, PIs also evaluate different components of the system, however, they differ from PMs because the results of these analyses are informational in nature and provide context to validate project recommendations and identify policy considerations. Not all ISASP goals include PMs, but all five goals have associated PIs.

Goal 3. Infrastructure Preservation and Development

Performance Measures

- Percent of facilities with primary runway/helipad Pavement Condition Index (PCI) within 10 points of INDOT's minimum service level recommendation
 - Primary ≥ 70
 - Large GA ($>4,500'$ Rwy) ≥ 60
 - Small GA ($<4,500'$ Rwy) ≥ 55
 - Heliport ≥ 50
- Percent of facilities with approach procedures appropriate to their category
- Percent of facilities with an Airport Layout Plan (ALP):
 - <10 years old
 - $10-20$ years old
 - >20 years old
- Percent of facilities that perform pavement maintenance at least once every five years (crack sealing, seal coat, patching, etc.)
- Percent of facilities with certified on-site weather reporting stations (Automated Weather Observing Station [AWOS] or Automated Surface Observing Station [ASOS])

Performance Indicator

- Percent of facilities at 90 percent capacity for:
 - T-Hangars
 - Corporate Box Hangars

Goal 4. Environmental Responsibility and Land Planning

Performance Measures

- Percent of airports that have completed a Wildlife Hazard Assessment (WHA) and Wildlife Hazard Management Plan (WHMP), if required
- Percent of airports that have full wildlife or security fencing around the Air Operations Area (AOA)

Performance Indicators

- Percent of facilities with height and land use controls adopted and enforced by the local planning agency
- Percent of facilities included in local or regional comprehensive plans
- Percent of facilities implementing environmentally friendly actions, such as:
 - Provide recycling protocols
 - Provide electric ground vehicle charging stations
 - Participate in renewable energy initiatives (solar, geothermal)

Goal 5. Aviation Industry Advancement

Performance Indicators

- Percent of facilities that host or participate in Science, Technology, Engineering, or Mathematics (STEM) education programs, aviation outreach programs, or other similar events
- Percent of facilities with formal procedures for managing Unmanned Aircraft Systems (UAS) operations on-facility
- Percent of facilities with formal procedures for managing proximate off-facility UAS operations
- Percent of facilities that have taken steps to prepare for the needs of electric aircraft

Goal 1. Safety and Security

Performance Measure

- Percent of airports meeting FAA standards:
 - Runway Safety Areas (RSAs)
 - Taxiway Geometries: wide expanse of pavement, three-node concepts, direct access
 - Separation Standards

Performance Indicator

- Percent of non-Part 139 facilities whose local responders have basic aircraft rescue and firefighting (ARFF) training

Goal 2. Economic Sustainability and Quality of Life

Performance Measure

- Percent of facilities with 24/7 fuel availability (Jet A and/or 100 octane Low Lead [100LL] offered via credit-card machines or 24/7 staffing)

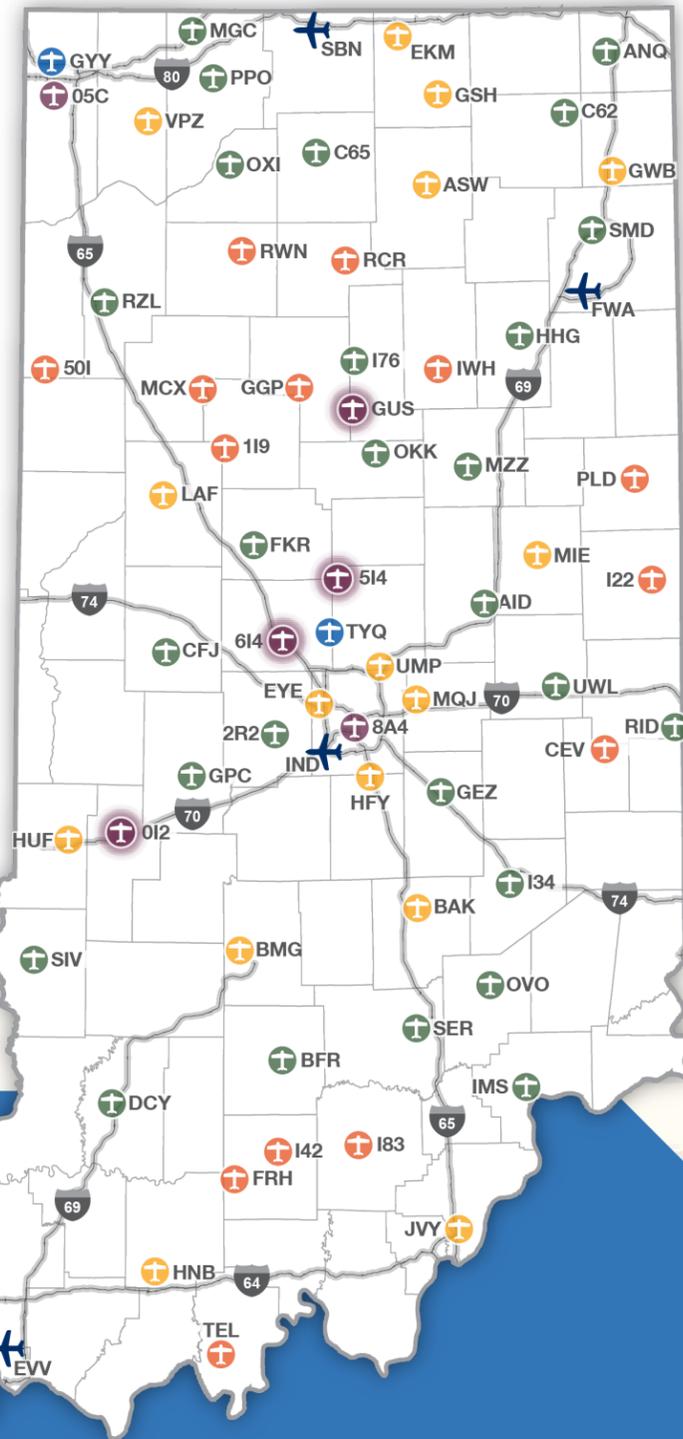
Performance Indicators

- Percent of facilities with an active development partnership with chambers of commerce, tourism bureaus, air service development groups, service organizations, local or regional governments, recreation districts, or other similar entities
- Percent of airports that experience regular aerial agricultural operations
- Percent of facilities with air cargo/freight activities including small operators

Facility Categorization

The aviation facilities included in the 2022 ISASP are quite varied in their sizes, types of operations, and overall function, therefore it is essential to accurately classify and categorize the 69 facilities included within the Indiana Aviation System. Categorizing system facilities based on the roles they serve within the system helps to appropriately evaluate performance and make informed decisions about future needs. System facility categories were adopted from the Federal Aviation Administration's (FAA) 2021-2025 National Plan of Integrated Airport Systems (NPIAS) to maintain consistency with the former 2012 ISASP that also adopted NPIAS categories and to maintain cohesion between federal and state planning efforts. The NPIAS identifies aviation facilities that are considered essential to the national airspace system and classifies these facilities into different roles based on a number of external and internal factors related to how the facility functions and the users it serves. The NPIAS classifies airports into either Primary or Nonprimary roles. For the purpose of the 2022 ISASP, the Primary category includes all four commercial service airports in the system. All of the Nonprimary airports in the 2022 ISASP are GA facilities and are classified as either National, Regional, Local, Basic, or Unclassified. It was determined that the four non-NPIAS facilities within the ISASP would be grouped with the other NPIAS Unclassified facilities.

ISASP Facility Categories



ISASP Categories

- Primary**
- ✈️ Evansville Regional (EVV)
- ✈️ Fort Wayne International (FWA)
- ✈️ Indianapolis International (IND)
- ✈️ South Bend International (SBN)
- Nonprimary**
- ⊕ National
- ⊕ Regional
- ⊕ Local
- ⊕ Basic
- ⊕ Unclassified
- Non-NPIAS

Minimum Service Level Recommendations (MSLRs)

Along with the five goals and corresponding PMs and PIs, the 2022 ISASP established MSLRs to evaluate ISASP facility performance. MSLRs provide a minimum suggested level of development for airport/heliport facilities that is recommended to optimally support the type and volume of aviation activity typical for the facility's ISASP category. MSLRs are not requirements; instead, airport and heliport representatives can use these recommendations to aid in planning responsible aviation development. It is important to note that MSLRs are not intended to replace or supersede local planning efforts. Aviation Facility Report Cards were developed for each facility and present data on how the facility is meeting their category's MSLRs. The Aviation Facility Report Cards are featured in Appendix A of the 2022 ISASP Technical Report.

MSLR	Primary	National	Regional	Local	Basic	Unclassified
Runway Length	7,000'	7,000'	5,000'	3,400'	3,400'	Maintain Existing
Runway Strength	SW: 100,000 lb. DW: 175,000 lb.	100,000 lb.	60,000 lb.	30,000 lb.	12,500 lb.	Maintain Existing
Runway Grooving	Grooved	Grooved	Grooved	Maintain Existing	Maintain Existing	Maintain Existing
Runway Lights	MIRL	MIRL	MIRL	LIRL	LIRL	Maintain Existing
Full Parallel Taxiway	Full Parallel	Full Parallel	Full Parallel	Recommended	Recommended	Maintain Existing
Taxiway Lights	Yes	Yes	Yes	Yes	Maintain Existing	Maintain Existing
Visibility Minimums (One End Minimum)	1/2 mile	3/4 mile	1 mile	1 mile	>1 mile	Maintain Existing
Ceiling Minimums (One End Minimum)	200'	250'	300'	350'	400'	Maintain Existing
Visual Glide Slope Indicator (or Approach Lights)	ALS	ALS	VGI or ALS	VGSI	Maintain Existing	Maintain Existing
Runway End Indicator Lights (REILs)	REILs (if no ALS)	REILs (if no ALS)	REILs (if no ALS)	REILs	Maintain Existing	Maintain Existing
Runway Markings & Signage	PIR	PIR	NPI	NPI	NPI or BSC	Maintain Existing
Clear Precision Obstacle Free Zone	Yes	Yes	If Applicable	If Applicable	Not Applicable	Not Applicable

Notes:
 SW: Single Wheel
 DW: Dual Wheel
 MIRL: Medium Intensity Runway Lights
 LIRL: Low Intensity Runway Lights
 ALS: Approach Lighting System
 VGSI: Visual Glide Slope Indicator
 PIR: Precision Instrument
 NPI: Non-Precision Instrument
 BSC: Basic

Number of ISASP Facilities By Category

- 4 Primary Facilities
- 2 National Facilities
- 16 Regional Facilities
- 27 Local Facilities
- 14 Basic Facilities
- 6 Unclassified Facilities

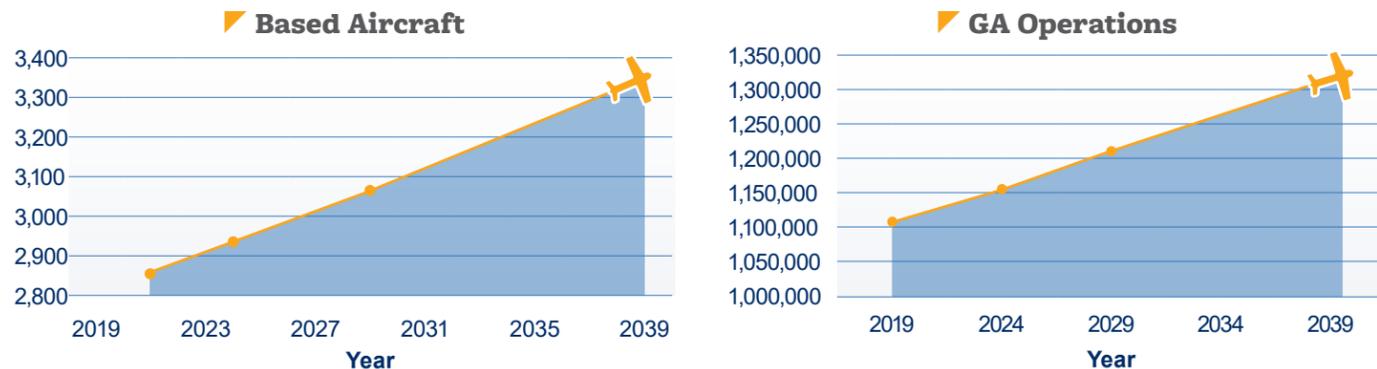
Forecasts

To assist in planning for the future of aviation in Indiana, it was necessary to prepare projections of aviation activity. This is achieved through forecasts, which were developed for both GA and commercial activities including operations, based aircraft, and enplanements (for commercial facilities only). In addition to forecasting traditional aviation activities, potential changes to the aviation industry were addressed, including advanced and emerging technologies such as electric aircraft and alternative and/or sustainable aviation fuels, FAA-published national aviation trends, and local and statewide socioeconomic trends including changes in Indiana's population, employment, and income.

These factors and trends provided context in the formulation of forecasting methodologies to better understand how future changes in demand and activity levels may impact system facility needs. While the outbreak of the global COVID-19 pandemic in early 2020 greatly impacted the aviation industry, these forecasts were developed utilizing 2019 data to avoid large changes in forecasts due to this unprecedented event.¹

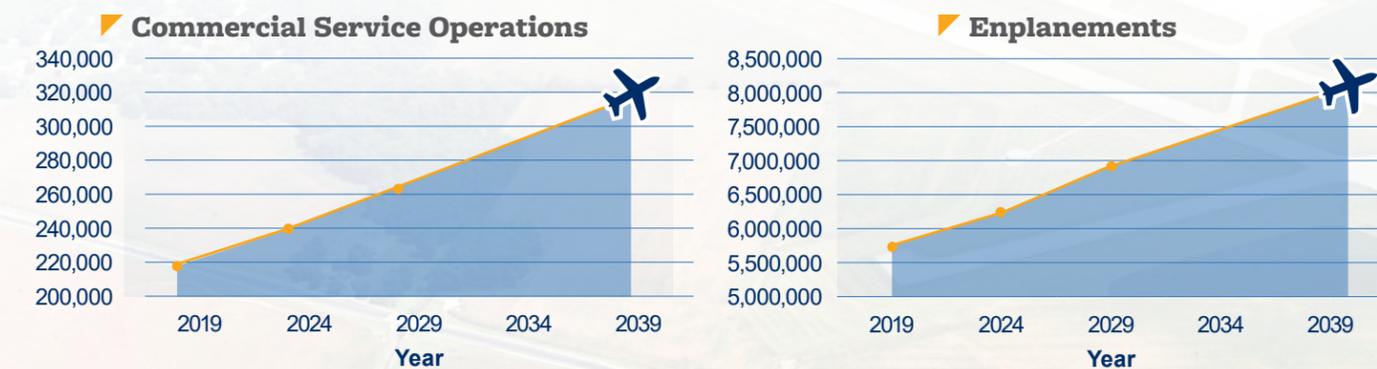
General Aviation Activity

Two GA-related activities were forecast in the 2022 ISASP: the number of based aircraft across the system and the number of GA operations being supported by GA and commercial service facilities. Results of the forecast indicate growth over the 20-year planning horizon for both activities. It is estimated that approximately 500 aircraft will be added to the statewide based aircraft fleet and the system will support approximately 220,000 more GA operations over the 20-year planning horizon.



Commercial Service Activity

Two indicators related to commercial service activity were forecast in the 2022 ISASP: the number of commercial service operations (air carrier and air taxi/commuter operations), and the number of boarded passengers on a commercial service flight, referred to as enplanements. Growth is anticipated in both commercial service activities over the 20-year planning horizon. It is estimated that the four commercial service airports will support approximately 97,000 more air carrier and air taxi/commuter operations and serve 2.4 million more passenger enplanements over the next 20 years.



¹ 2021 was used as the base year for based aircraft forecasts as airports were given ample opportunity to update their 2021 based aircraft counts in the FAA's National Based Aircraft Inventory Program (www.basedaircraft.com) and the FAA requires use of this source for forecasting based aircraft activity.

Multimodal & MPO Coordination

The integration of Indiana's airports with all other forms of transportation is important for ease of use, intermodal connectivity, and continued economic development and prosperity. As the "Crossroads of America," Indiana is uniquely positioned to facilitate the movement of people and goods across the nation and worldwide. Nearly 11,000 miles of interstate highways, 3,224 miles of rail, over 100 total aviation facilities, and three public waterway ports make up the transportation system within Indiana. The relationship between Indiana's aviation facilities and roads, rails, public transit, and other forms of transportation was evaluated as part of the ISASP. The analysis showed:

- 39% of airports have direct access to major roadways (Interstate, US Highway, or State Road)
- 68% of airports are less than 20 miles to the nearest interstate
- 86% of airports have rental cars or courtesy cars available
- 14% of airports offer public transit connections
- Over 3 million tons of air cargo were shipped through Indiana airports in 2020 (with close to 4 million in 2021)

To facilitate and encourage continued multimodal integration efforts, a webinar was conducted to share information and resources with Indiana's 14 Metropolitan Planning Organizations (MPOs). MPOs are federal transportation policymaking organizations responsible for long term planning and development of communities and transportation within their boundaries. Each Indiana MPO publishes a Metropolitan Transportation Plan (MTP) which documents current and forecasts future transportation needs and the advancements that are needed to accommodate growth. The integration of aviation facilities into these MTPs is important to establish and maintain a strong connection between aviation facilities and other forms of transportation. Review of MTPs revealed the following:

- 93% of MTPs include at least one ISASP facility, and 69% include all ISASP facilities within their respective boundaries
- 93% of MTPs include economic impact of airports
- 71% of MTPs include airport multimodal connections
- 57% of MTPs reference the impact of aviation growth or importance to the region

Quick Reference Guides

Along with the primary content of the 2022 ISASP, Quick Reference Guides (QRGs) were created for unique topics that are of particular interest to the INDOT Office of Aviation and aviation facility sponsors and users. These QRGs explore the topics of land use compatibility, airport revenue generation, and through the fence (TTF) operations. Each of these topics' corresponding QRGs can be found on the INDOT Office of Aviation's website, along with all other study documents.

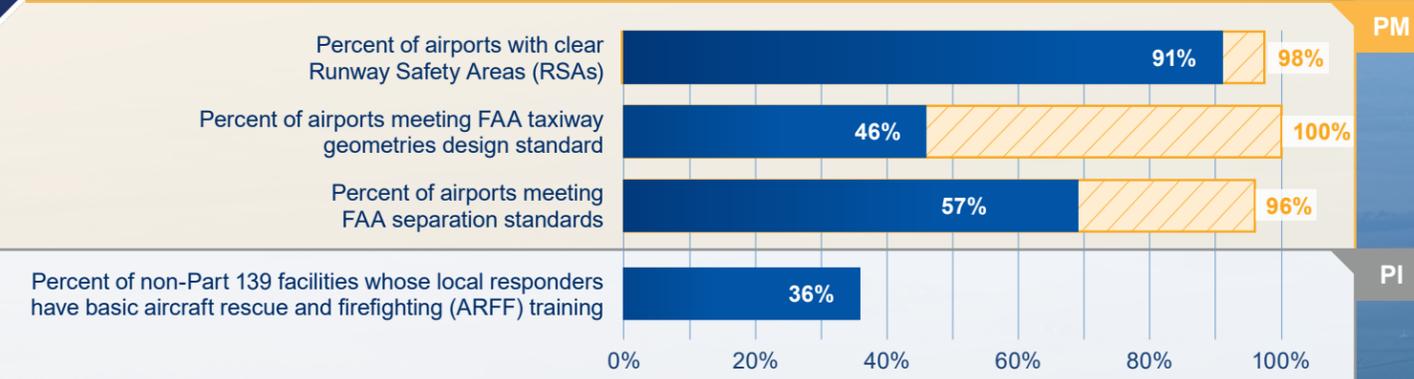


Existing and Future System Performance

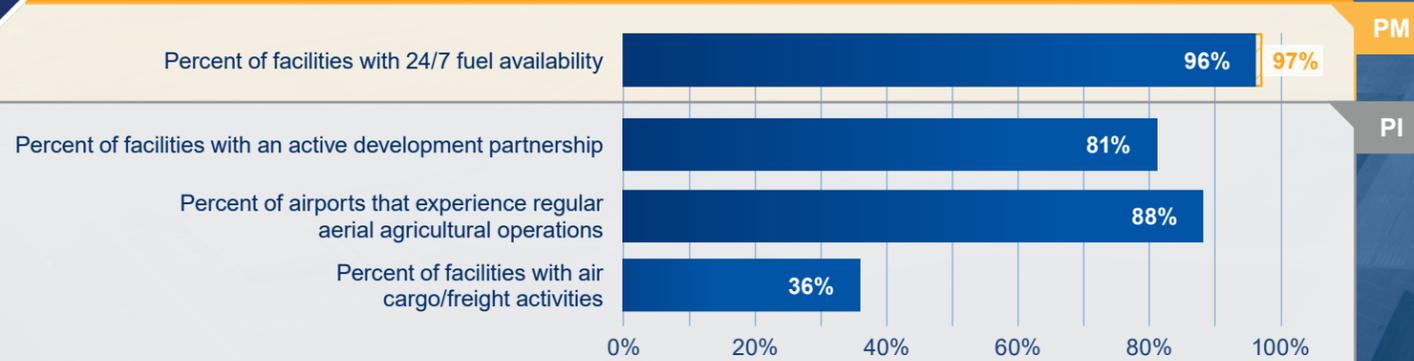
PMs and PIs are used to determine the performance of Indiana's Aviation System in meeting each of the five goals set forward by the ISASP. The results of the PM and PI analyses quantify how well the system and each of the aviation facility categories are performing within each system goal. Existing performance was determined based on the results of the PM and PI analyses, and a future performance target was set for each PM. Future performance targets were established in coordination with the IAC and INDOT Office of Aviation. The difference between the existing performance and the future performance target for each PM is the basis for the ISASP's project recommendations. Other project recommendations were developed by identifying the deficiencies between each facility's existing conditions and the MSLRs established for their facility category. The 2022 ISASP project recommendations are improvements, that when implemented, meet future performance targets, meet MSLRs, and ultimately advance system performance toward each of the system goals.

Legend: ■ Existing Performance ■ Future Performance Target ■ PM Performance Measures ■ PI Performance Indicators

Goal 1: Safety and Security



Goal 2: Economic Sustainability and Quality of Life



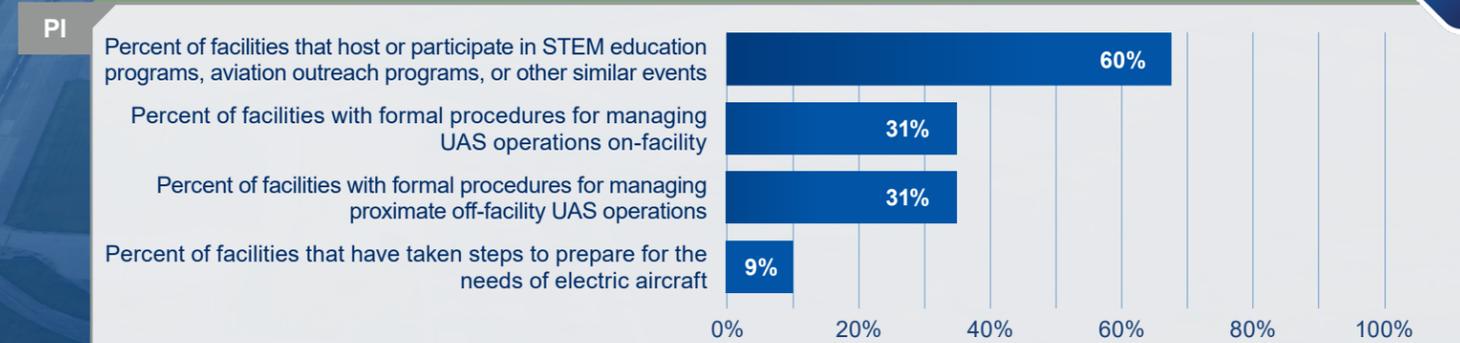
Goal 3: Infrastructure Preservation and Development



Goal 4: Environmental Responsibility and Land Planning



Goal 5: Aviation Industry Advancement



Future Facility and Agency Considerations

While project recommendations were identified using the results of the PM and MSLR analyses, policy considerations were developed using the results of the PI analyses and through coordination with INDOT and the IAC. These considerations were developed to provide airport and heliport managers and sponsors and/or INDOT with action items that, when implemented, may contribute to a more optimized aviation system.



Aircraft Rescue and Firefighting (ARFF) Training

- ✔ Facility Consideration
- ⊖ Agency Consideration

Non-Part 139 airports are not required to have local responders trained in basic ARFF procedures. However, these facilities are just as likely to encounter a scenario where ARFF training may be needed to respond to a fire or other airport emergency. Due to this, airport managers whose local responders are not ARFF trained should consider reviewing necessary FAA Advisory Circulars for information on courses and reference materials for training ARFF personnel and coordinate with their local first responders to identify future training opportunities. The airports that currently have local responders trained in ARFF should continue coordinating with these agencies so that local first responders are aware of continuing education requirements or opportunities to keep their skills current with the last protocols.



Covered Aircraft Storage

- ✔ Facility Consideration
- ⊖ Agency Consideration

With more than 70 percent of Indiana's aviation facilities reporting 90 percent (or greater) of their covered aircraft storage facilities occupied, there is a clear demand for these facilities and a limited supply. However, hangars and other covered aircraft storage are typically considered low priority projects and are hard to justify grant funding under the FAA's Airport Improvement Program (AIP). As such, airports should strive to preserve their existing hangar infrastructure to elongate its useful life and airport managers should consider keeping (and occasionally verifying) a hangar waiting list to gauge overall demand which will be useful when assessing how much additional storage is needed and when.



Emerging Aviation Technology

- ✔ Facility Consideration
- ✔ Agency Consideration

Aviation technology continues to experience significant advancement in a variety of fields, particularly related to the electrification of aircraft, electric vertical takeoff and landing (eVTOL) development, and the broader topic of advanced air mobility (AAM). The FAA continues to work on developing official guidance that will facilitate AAM preparedness and this future guidance will provide airports with a comprehensive understanding of the requirements for these advancements. INDOT and airports should consider continuing to monitor FAA announcements and follow future guidance as these advancements come to fruition and expand in their use. Guidance may include how to prepare for electric aircraft charging stations, electric aircraft storage, eVTOL aircraft and the facilities required for eVTOL to operate at airports and vertiports, and other enhancements to existing airport infrastructure to support future aviation needs.



Private Heliport Review

- ⊖ Facility Consideration
- ✔ Agency Consideration

Based on a comparative analysis of other states' policies and regulations related to the inspection and licensure of private heliports and discussions with INDOT, it is recommended that INDOT work with the state legislature to develop policies for the inspection and certification of existing and proposed privately owned hospital heliports. Considering the majority of private heliports in the state are hospital heliports as well as the number and nature of the operations occurring at these facilities, it is in the state's, hospitals', and public's best interest that a governing authority have some level of oversight of these facilities to maintain safe operating environments.



Height and Land Use Controls

- ✔ Facility Consideration
- ✔ Agency Consideration

Unrestricted development of lands surrounding an airport can pose many threats to the safe and efficient operations of airports and to people living and working near airports. For this reason, it is important for airports to work with local planning authorities to ensure that lands surrounding airport are developed responsibly. This process can take many forms, including adopting height and land use controls, zoning ordinances, or other land use tools for airport environments. Airports are encouraged to use available national guidance resources for more information regarding establishing height and land use controls and to remind their communities of state statutes that govern the development of tall structures and noise sensitive uses near airports. INDOT could consider developing a statewide airport land use guidebook that provides additional information on the importance of compatible airport development, advice on how to achieve it, and templates for various tools that can be used (including a draft zoning ordinance at a minimum).



Coordination with Local and/or Regional Planning

- ✔ Facility Consideration
- ⊖ Agency Consideration

Indiana is home to over a dozen MPOs which are tasked with the development of metropolitan areas, including the transportation that connects them. Ensuring that modes of transportation are properly integrated into the future planning and development of these urban areas is critical. Airport sponsors and managers should work with their associated MPO or other local or regional planning agency to promote their airport's inclusion in planning documents. This may facilitate future coordination that will encourage integration of aviation facilities into future metropolitan planning. Conversely, airports should consider inviting their MPO representatives to participate in airport planning efforts, such as inclusion on an advisory committee during their next master plan update.



Aviation Outreach Programs

- ✔ Facility Consideration
- ✔ Agency Consideration

Providing educational opportunities for students is an important role an airport should fulfill in their local community. With the current pilot and aviation workforce shortage, it is critical to provide opportunities for young persons to know the range of aviation workforce options available to them. For this reason, airports are encouraged to work with educational institutions and community organizations to offer programs or other initiatives (such as site visits) which provide access and involvement between the community and the airport.



Active Development Partnerships

- ✔ Facility Consideration
- ⊖ Agency Consideration

The relationship between an airport and local governments, economic development agencies, and service organizations is important for promoting the advancement of airport services and the protection of the facility and nearby land. This can take many forms, including opportunities for new air service, on-airport businesses, and for improving the relationship between the airport and the community. Additionally, the recent increases in federal funding from sources such as the Bipartisan Infrastructure Law (BIL) have necessitated greater matches by state and local sources, thus increasing the need for cooperation between airports and local or regional entities. Aviation facilities that do not have partnerships with their local economic and development stakeholder groups should consider identifying opportunities to engage with their constituents and start fostering these important relationships that are vital to the continued operation and success of aviation facilities.

Cost Estimates

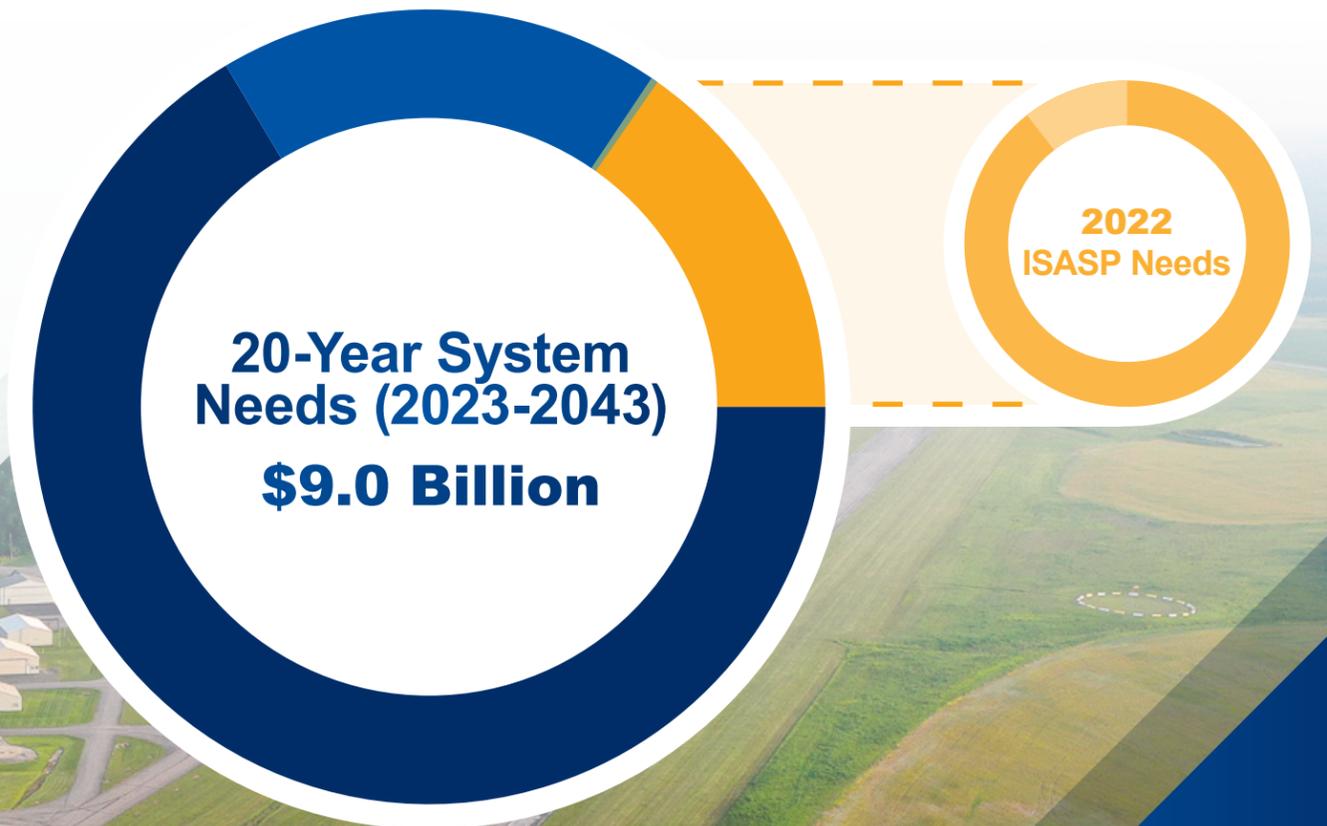
The 2022 ISASP established a 20-year estimate of financial need that represents the resources necessary to maintain and develop the aviation system over the planning horizon. This 20-year estimate was established by identifying the cost associated with 2022 ISASP project recommendations, which include projects identified from the PM analysis (associated with Goals 1-4) and the MSLR analysis, and by estimating airport capital improvement plan (CIP) needs over 20 years. The 20-year CIP estimate was established by reviewing airport CIPs for 2023-2027 and identifying an average annual amount that could be extrapolated to estimate the next 15 years of CIP funding needs. Combined, the 2023-2027 CIP, the 15-year CIP estimate, and the 2022 ISASP project cost estimate make up the total 20-year estimate of financial need for the entire system.

It is important to note that cost estimates presented in the 2022 ISASP are planning level estimates only and therefore should not be used by aviation facilities for grant applications, budgeting, or bidding, and is not a guarantee of funding. Moreover, any duplication occurring between the 2023-2027 CIP and the 2022 ISASP project estimates was removed to avoid double counting of needs.

The total estimated cost to complete all of the projects identified in the 2022 ISASP analyses is approximately \$1.44 billion, with \$1.28 billion of that total needed to meet the project goals and an additional \$158 million required for all facilities to meet their MSLRs. The 20-year CIP estimate, derived from the 2023-2027 CIP data, amounts to approximately \$7.53 billion. When the 2022 ISASP project recommendation estimate and the 20-year CIP estimate are combined, the total 20-year financial need estimate for Indiana's aviation system is approximately \$9 billion.

20-year Estimate of Financial Needs

■ Primary Airports CIP	\$6,096,935,000	■ 2022 ISASP Needs	\$1,442,677,000
■ General Aviation Facilities CIP	\$1,426,941,000	■ Goals 1-4	\$1,284,537,000
■ Statewide Needs CIP	\$6,625,000	■ MSLRs	\$158,140,000



Aviation in Indiana is...

ENABLING Providing Aviation Education Programs
Cooperation Between the State and Airport Managers

WELL MANAGED

ENABLING Making History

Essential LOCATED IN THE MIDWEST
REPRESENTED BY AVIATION INDIANA

Robust Smart Investments

Well Maintained SUPPORTING AVIATION PERSONNEL

CONNECTIVE Passionate Staff
At the Crossroads of America

Opportunity



Diverse Representation



Local Insight



Industry Advisory Committee (IAC)

Participation and Input



Regional-Specific Input



Thank you to the members of the 2022 ISASP IAC who provided guidance and feedback throughout project development. Their local knowledge and industry expertise was greatly appreciated.

Adam Baxmeyer | Purdue University

Jay Mitchell | INDOT - Planning

Adam French | CHA

Kyle Kuebler | Porter County Regional Airport (Valparaiso)

Bart Giesler | Aviation Indiana

Rex Alexander | Five Alpha

Brent Spry | Madison Municipal Airport

Susan Zellers | Hanson

Drew Genneken | Indianapolis Airport Authority (IAA)

Gary Wilson | FAA

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