

8.1. Introduction

Indiana's aviation system has been developed over many years and during that time has evolved into a relatively mature system of aviation facilities. Maintaining these facilities and enhancing them to continue to meet user demand and Federal Aviation Administration (FAA) design standards and accommodate a variety of operations takes considerable time and resources. This chapter of the 2022 Indiana State Aviation System Plan (ISASP) addresses the anticipated financial needs over the 20-year planning horizon, including regularly planned capital improvements from airport Capital Improvement Plans (CIPs), along with the estimated costs of achieving the project recommendations to satisfy the Performance Measures (PMs) and Minimum Service Level Recommendations (MSLRs) documented in **Chapter 7- Future System Performance Targets and Recommendations**.

To better understand the magnitude of need compared to anticipated funding availability, this chapter also presents an overview of various funding sources available to Indiana system facilities and the historical funding amounts received. Developing the estimated total funding needs is important because it can be used to predict and identify the likely gap between what is needed and what funding may be available to system airports.

The remainder of this chapter is organized by the following sections:

- 8.2 System Needs
- 8.3 System Resources
- 8.4 Summary

8.2. System Needs

The following subsections present the cost estimates associated with the 2022 ISASP, which include costs for satisfying system PMs and MSLRs, as well cost estimates associated with airport CIPs. Specific methodologies related to the two distinct cost estimates are also documented.

8.2.1. ISASP System Needs

As presented in **Chapter 7 - Future System Performance Targets and Recommendations**, the 2022 ISASP results in project recommendations that, when implemented, aim to advance system performance over a 20-year period. The project recommendations were generated from results of the PM analyses that relate back to four of the five project goals ¹, and from deficiencies identified in the MSLRs².

² MSLRs were developed to identify facilities and services that could enhance an airport's or heliport's performance appropriate to its ISASP category, but these facilities and services are not requirements.



¹ Goal 5. Aviation Industry Advancement does not have any PMs; therefore, no project recommendations or cost estimates were established for this goal.



Sections 8.2.1.1 and 8.2.1.2 present the cost estimates for the PM-related projects and the MSLR achievement, respectively. More information about project recommendations related to 2022 ISASP goals is presented in Chapter 7 - Future Performance Targets and Recommendations. Additionally, Appendix A - Aviation Facility Report Cards documents MSLR performance at each ISASP facility.

To estimate costs of each PM or MSLR-related project, standard unit costs were developed based on similar projects recently completed in Indiana, and those standard unit costs were then applied to the projects identified in the 2022 ISASP. Since the projects identified for the 2022 ISASP are intended to be implemented over a 20-year time frame, an annual inflation rate of three percent over 20 years was applied to all costs presented in **Section 8.2** to account for inflation and rising material costs. This three percent annual inflation rate is conservative compared to the record high inflation rate in 2022 of more than eight percent. However, a review of historic inflation rates from 2002 to 2022 indicates an average annual inflation rate of 2.50 percent for that time period which is comparable to the three percent inflation rate used in the project cost analyses.³

Later in this chapter, in **Section 8.2.2**, cost estimates for projects included in airport CIPs are presented. It is important to note that these CIP projects were reviewed and compared to the 2022 ISASP recommended projects to identify any duplicate projects. When duplicates were present, the cost developed for the 2022 ISASP recommended project was removed. As such, costs presented in **Section 8.2.1** have been adjusted to avoid double counting with the costs presented in **Section 8.2.2**.

It is important to note that the cost estimates presented in **Section 8.2.1** are planning-level estimates <u>only</u>. The cost estimates do not include the level of detail necessary to design or bid projects or prepare grants. Further, the cost estimates only assist in the identification of needs over a 20-year planning horizon and are not a guarantee of funding from the FAA or Indiana Department of Transportation (INDOT).

8.2.1.1. Projects by Goal

The 2022 ISASP framework allows for traceability between goals, PMs, project recommendations, and implementation. Developing costs by system goal provides an understanding of the financial need associated with each component of the 2022 ISASP. Understanding the financial need by goal, and by PM, can help to inform decisions regarding allocation and prioritization.

³ Macrotrends, U.S. Inflation Rate 1960-2022, Years 2002-2022 Selected. <u>https://www.macrotrends.net/countries/USA/united-states/inflation-rate-cpi</u> (Accessed September 2022).





Estimates



Goal 1. Safety and Security

Goal 1. Safety and Security includes one PM that measured three distinct FAA design standards: clear runway safety areas (RSAs), taxiway geometry design standards, and runway separation standards. The costs associated with achieving each of these design standards is presented in Table 8.1 and totals more than \$1.1 billion. Estimated costs to clear RSAs of obstructions across system facilities accounts for 68 percent of costs associated with Goal 1, at approximately \$770 million.

Costs associated with this goal were developed on an airport-by-airport basis, as opposed to other 2022 ISASP cost estimates that were generated by applying unit costs based on the facility's category. These cost estimates are only planning-level estimates that indicate a general financial need and actual costs will differ based on site specific conditions. As previously mentioned, these costs were developed in an unconstrained environment, meaning the feasibility and likelihood of completing the project was not considered.

In some cases, complex airfield redesign may not be feasible due to cost or other constraints, like airport property boundaries. Note that while there were three taxiway geometries issues assessed in the 2022 ISASP (direct access, more than three-node intersections, and wide expanse of pavement), project recommendations were only established for direct access issues as documented in Chapter 7 - Future System Performance Targets and Recommendations.

Goal 1 PM	Existing Performance	Future Performance Target	Total Estimated Cost	Percent of Total
Percent of Airports Meeting FAA Design				
Standards:				
Clear RSAs	94%	98 %	\$767,598,000	68%
Taxiway Geometry: Direct Access Only	46%	98%	\$156,689,000	14%
Separation Standards	87%	98 %	\$204,200,000	18%
Total Goal 1. Safety and Security Costs			\$1,128,487,000	100%

Table 8.1. Estimated Project Costs for Goal 1. Safety and Security

Note: Cost estimates were rounded to the nearest thousand. Sources: Butler, Fairman & Seufert (BF&S), 2022; SJCA, 2022; Kimley-Horn, 2022.

Figure 8.1 presents the cost of the Goal 1. Safety and Security projects by ISASP category. As shown, Regional airports have the largest portion of costs within this goal, at approximately \$778 million (69 percent). There are 12 Regional airports receiving recommendations under Goal 1. Safety and Security. This is not the highest number of project recommendations by ISASP category for this goal,⁴ however the projects associated with Regional airports are more costly due to the projects requiring more advanced design and construction, use of more materials, and the projects generally include more pavement area than the projects recommended for less demanding ISASP facility categories. More information about the number of airports receiving recommendations under each PM or goal is included in Chapter 7. Future Performance Targets and Recommendations. After Regional airports, the next largest portion of costs can be attributed to Local airports with approximately \$286 million (25 percent), followed by Basic airports and Primary airports with approximately \$23 million and \$22 million respectively, accounting for two percent of the total

⁴ Local airports have the highest number of project recommendations for Goal 1. Safety and Security with 18 recommendations.





per classification. National and Unclassified aviation facilities' portions of the Goal 1 costs make up much less, with only two percent of the total costs shared between them.





Note: Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.



Goal 2. Economic Sustainability and Quality of Life

Goal 2. Economic Sustainability and Quality of Life includes one PM that measured availability of twenty-four hours a day/seven days a week (24/7) aviation fuel, for 100 low-lead (100LL) and/or Jet A fuels. The costs associated with this PM and achieving the future performance target is presented in **Table 8.2**. Only one Local airport was identified for a project recommendation at \$45,000.

Table 8.2 Estimated Project Costs for Goal 2. Economic Sustainability and Quality of Life

Goal 2 PM	Existing Performance	Future Performance Target	Total Estimated Cost	Percent of Total
Percent of Facilities with 24/7 Fuel Availability	96%	97 %	\$45,000	100%
Total Goal 2. Economic Sustainability and Quality of Life Costs\$45,000100%				

Note: Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.





Estimates



Goal 3. Infrastructure Preservation and Development

Goal 3. Infrastructure Preservation and Development includes five PMs related to pavement condition and pavement maintenance, up-to-date Airport Layout Plans (ALPs), approach procedures, and weather reporting equipment. The costs associated with achieving the future performance targets associated with each PM is presented in **Table 8.3**.

As shown, the ALP PM has the largest share of costs compared to other PMs within this goal, with an estimated \$4.0 million in needs. The second highest cost PM in this goal is associated with installing certified on-site weather reporting stations, such as an Automated Weather Observing System (AWOS), or an Automated Surface Observing System (ASOS), with an estimated cost of nearly \$2.0 million. There were no costs associated with the percent of facilities that perform pavement maintenance as Indiana facilities were already meeting this future performance target. The total cost estimated for achieving future performance in this goal is approximately \$7.3 million.

Table 8.3. Estimated Project Costs for Goal 3. Infrastructure Preservation and Development

Goal 3 PMs	Existing Performance	Future Performance Target	Total Estimated Cost	Percent of Total
Percent of Facilities with a Primary Runway/Helipad Pavement Condition Index (PCI) within 10 Points of INDOTs MSLRs	96%	100%	\$1,199,000	16%
Percent of Facilities with Approach Procedures Appropriate to their Category	99 %	100%	\$99,000	1%
Percent of Facilities meeting the ALP Age Target for their Category*	87%	100%	\$4,070,000	55%
Percent of Facilities that Perform Pavement Maintenance at least Once Every Five Years	99 %	99%	\$ -	0%
Percent of Facilities with Certified On-site Weather Reporting Stations (AWOS/ASOS)	72%	83%	\$1,980,000	27%
Total Goal 3. Infrastructure Preservation and Development Costs\$7,348,000100%				

Notes: *The language of this PM differs from what is presented in Chapter 1 - Study Design and Goals, Chapter 2 - Inventory of System Conditions, and Chapter 6 - Existing System Performance because of the future performance target established in Chapter 7 - Future Performance Targets and Recommendations that provided age thresholds by category for what is considered a current ALP, instead of evaluating performance based on the following timeframes: less than 10 years, 10-20 years, and more than 20 years. Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.

Figure 8.2 presents the cost of the Goal 3. Infrastructure Preservation and Development projects by ISASP facility category. As shown, Basic airports have the largest portion of costs within this goal, with approximately \$1.7 million (23 percent). The second largest portion of Goal 3 costs belongs to Unclassified facilities, with \$1.5 million (21 percent). Primary, National, Regional, and Local airports all fall between approximately \$0.8 and \$1.4 million in costs associated with Goal 3.



Estimates

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Note: Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.



Goal 4. Environmental Responsibility and Land Planning

Goal 4. Environmental Responsibility and Land Planning includes two PMs related to airport wildlife management and airport fencing. It is important to note that the PM related to wildlife management planning efforts has two components: 1) Wildlife Hazard Assessment (WHA) and 2) Wildlife Hazard Management Plan (WHMP) - if needed. The costs associated with the wildlife planning PM are split to present the estimated costs related to completing a WHA and a WHMP separately, as these are two

distinct but related plans. The costs associated with this PM and achieving the future performance target are presented in **Table 8.4.** As shown, the PM associated with full wildlife or security fencing around the Air Operations Area (AOA) has the largest share of costs compared to other PMs within this goal, as it accounts for approximately \$13.2 million of the \$13.6 million estimate for Goal 4.

Table 8.4. Estimated Pro	iect Costs for Goal 4.	Environmental Responsib	ility and Land Planning
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Goal 4 PMs	Existing Performance	Future Performance Target	Total Estimated Cost	Percent of Total
Percent of Facilities that have Completed a WHA)	45%	51%	\$264,000	2%
Percent of Applicable Facilities that have Completed a WHMP*	75%	100%	\$141,000	1%





Estimates

Goal 4 PMs	Existing Performance	Future Performance Target	Total Estimated Cost	Percent of Total
Percent of Airports that have Full Wildlife or Security Fencing around the AOA	51%	55%	\$13,157,000	97 %
Total Goal 4. Environmental Responsibility and Land Planning			\$13,562,000	100%

Note: *This assessment and the future performance target only account for 28 applicable airports, as these airports reported completing a WHA but did not report that a WHMP was not required or did not complete a WHMP (See **Chapter 7 - Future Performance Targets and Recommendations** for more details). Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.

Figure 8.3 presents the cost of Goal 4. Environmental Responsibility and Land Planning projects by ISASP category. As shown, Regional airports have the largest portion of costs within this goal, with over \$13 million (99 percent). The only other facility categories with costs associated with this goal are Local airports with \$100,000 and Basic airports with \$18,000.



Figure 8.3. Goal 4. Environmental Responsibility and Land Planning Project Cost Estimates by ISASP Facility Category

Note: Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.





Estimates



Goal 5. Aviation Industry Advancement

There were no PMs associated with Goal 5; therefore, no cost estimates are provided.

8.2.1.2. Minimum Service Level Recommendations (MSLRs)

MSLRs are another evaluation mechanism implemented in the 2022 ISASP to identify needs at system facilities. MSLRs were developed based on varying needs of facilities and services across ISASP categories and provide recommendations to guide development at ISASP facilities. Chapter 2 - ISASP Facility Categories presents the MSLRs that were used to measure performance and generate project recommendations, and Appendix A. Aviation Facility Report Cards presents how each system facility is performing in terms of their facility category MSLRs. Table 8.5 presents the estimated cost to develop all facilities to meet their MSLRs. As shown, the total cost is approximately \$158 million, with projects related to runway extensions accounting for the highest portion of costs, at approximately \$54 million (or 34 percent of total MSLR costs). No cost estimates were needed for runway lights, runway signage and markings, or clear Precision Obstacle Free Zones (POFZs), as all facilities were meeting these MSLRs.

> 34% 16% < 1% 0% 32% 5% 0% 10% 2% < 1% 0% 0% 100%

MSLR	Number of Projects	Cost Estimate	Percent of Total
Runway Length	4	\$53,995,000	34%
Runway Strength (SW or DW)	14	\$25,927,000	16%
Runway Grooving	1	\$506,000	< 1%
Runway Lights	0	\$ -	0%
Full Parallel Taxiway	3	\$50,430,000	32%
Taxiway Lights	7	\$7,474,000	5%
Visibility Minimums (One End Minimum)	0	\$ -	0%
Ceiling Minimums (One End Minimum)	9	\$16,254,000	10%
Visual Guide Slope Indicator (or Approach Lights)	1	\$3,260,000	2%
Runway End Identifier Lights (REILs)	3	\$294,000	< 1%
Runway Markings and Signage	0	\$ -	0%
Clear POFZ	0	\$ -	0%
Total MSLR Projects and Costs	42	\$158,140,000	100%

Table 8.5. Cost Estimates for MSLR Projects

Note: Percentages may not sum to 100 due to rounding. Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.

Figure 8.4 presents the total financial need of MSLR projects by ISASP facility categories. As shown, Regional airports have the highest MSLR need compared to the other ISASP categories, with approximately \$106 million (67 percent). The next category of airports with the highest need is Local airports, with nearly \$37 million (23 percent). After these categories, Basic and National airports share roughly 10 percent of the total MSLR costs, with no costs associated with Primary or Unclassified facilities.



Estimates

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Note: Cost estimates were rounded to the nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.

8.2.1.3. Summary of 2022 ISASP Costs

Table 8.6 presents a summary of the 2022 ISASP costs by goal and MSLR. As shown, the total cost for 2022 ISASP projects equals approximately \$1.3 billion. The cost for Goal 1 is significantly higher than the cost for the other goals and the MSLRs, as it alone accounts for approximately 87 percent of the total 2022 ISASP costs. As a reminder, these costs exclude duplicate costs that overlap with projects identified in airport CIPs (presented in Section 8.2.2) and include an annual three percent escalation rate to account for inflation over the 20-year planning horizon.

2022 ISASP Source	Cost Estimate	Percent of Total
Goal 1. Safety and Security	\$1,128,487,000	86%
Goal 2. Economic Sustainability and Quality of Life	\$45,000	<1%
Goal 3. Infrastructure Preservation and Development	\$7,348,000	1%
Goal 4. Environmental Responsibility and Land Planning	\$13,562,000	1%
Total of Goals 1 - 4	\$1,149,442,000	88 %
MSLRs	\$158,140,000	12%
Total 2022 ISASP Cost	\$1,307,582,000	100%

Note: Sum of percentages may not sum to 100 because of rounding. Costs are rounded to nearest thousand. Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.





8.2.2. Capital Improvement Plan Projects

In addition to the costs identified to achieve ISASP goals and MSLRs, the costs identified by airports on their CIPs also need to be considered to capture a comprehensive 20-year funding needs total. System facilities update their five-year CIPs annually to reflect planned projects over the applicable time horizon.

These are provided to INDOT Office of Aviation and compiled at the state level into a single comprehensive statewide five-year CIP. Since the planning horizon for the 2022 ISASP is 20 years, the individual airport five-year CIPs were used to estimate 20-year needs using the following methodology:

- First, the five-year CIPs were reviewed for any overlap with projects recommended to meet PM or MSLR targets. Any projects that were found to be duplicate were removed from the PM and MSLR projects so duplication did not occur when estimating total costs for PMs and MSLRs.
- Next, a five-year CIP cost by airport was calculated by summing the total 2023-2027 CIP costs for each airport.
 - The 2023-2027 costs include federal funding (entitlement, apportionment, discretionary, and Bipartisan Infrastructure Law [BIL] funding), as well as state and local match funding.
- Then, a CIP estimate needed to be calculated for years six through 20. To do this, an average annual CIP cost was calculated for each individual airport based on their five-year CIP. Before the annual average could be calculated, however, BIL funds needed to be removed as they will only be available for projects between 2023 and 2026 (and therefore will not be available in later years to spend).
- This average annual cost, excluding BIL funding, was then multiplied by 15 to establish an estimate for the next 15 years of need for each facility (2028-2043).
- Finally, the five-year need (calculated from actual 2023-2027 CIPs) was added to the 15-year CIP estimate to identify a 20-year estimate of total need for each airport and at the system level to represent likely CIP costs.

Generating a CIP estimate for years six through 20 from a facility's current five-year CIP was done so understanding that some facilities have large projects within those five years (e.g., runway extensions or reconstructions, terminal projects, etc.), whereas other facilities, who may need large projects like that in the coming years, did not have one in their current five-year CIP that was used in this estimate. Considering that the intent of this methodology is to provide a high-level estimate of anticipated financial need for the entire system over a 20-year time period, and not individual facilities, it was assumed that the outliers would even out over time. For example, on the granular level, one facility's 20-year CIP estimate may be over inflated due to a large project within the first five years of real-data, while another facility's 20-year CIP may be underestimated due to the absence of a large project in the first five years of real-data. Since this analysis of CIP needs was ultimately conducted at the systemwide level, the needs even out across the larger network of aviation facilities in Indiana.

It is important to note that it was assumed that the projects receiving BIL funding between 2023-2026 would still occur in future years; it may just take the airport longer to implement the project, and they may need to seek funding from other sources. Therefore, adjustments were only made to remove BIL funding, and not the projects associated with BIL funds, when estimating the additional 15 years of funding need. As shown in **Table 8.7**, the first five years of real data for the 20-year CIP estimate amounts to \$2.2 billion. When summed with the 15-year CIP estimate (Row D of **Table 8.7**), the total 20-year CIP (Row E) estimate amounts to approximately \$7.5 billion. Note that due to inflation and





rising material costs, a conservative annual three percent escalation rate was applied to these cost estimates. This is the same escalation rate that was applied to 2022 ISASP cost estimates that were presented in **Section 8.2.1**.

Table 8.7. Results of the 20-year CIP Estimate Methodology

Row	CIP Timeframe	Methodology	Estimate
Α	2023-2027 CIP (Real Data)	Summed all real costs	\$2,201,987,000
В	2023-2027 CIP (Estimate)	Summed all costs, excluding BIL costs	\$1,776,171,000
C	Average Annual Cost (Estimate)	Derived from dividing Row B by five	\$355,234,000
D	2028-2043 (Estimate)	Derived by multiplying Row C by 15	\$5,328,514,000
Е	2023-2043 (Estimate)	Derived from the sum of Row A and Row D	\$7,530,501,000

Sources: 2023-2027 INDOT Airport CIP; Kimley-Horn, 2022.

The 2023-2027 CIP projects were sorted into categories to better understand how project needs were distributed by project type in Indiana. The list of project categories and examples of projects within those categories is presented in **Table 8.8**. It is important to note that some projects may include components that cross between categories. In this instance, costs were not divided between two categories; instead, the category that was identified as most fitting was selected.

Table 8.8. Examples of CIP Projects by Category

Project Category	Example Projects
	New Taxiway
	New Runway
Airside: New Construction	New Hangar Building
	New Apron or Apron Expansion
	New Snow Removal Equipment (SRE) Building
	Rehabilitate/Reconstruct Runway
Airside: Payament Pohabilitation and	Rehabilitate/Reconstruct Taxiway
Reconstruction	Rehabilitate/Reconstruct Terminal Apron
Reconstruction	Rehabilitate/Reconstruct T-hangar Taxilane
	 Airfield Pavement Remarking
	Extend Runway
Airside: Runway and Taxiway Extension	Extend Partial Parallel Taxiway to Full Parallel Taxiway
	RSA and RPZ Extension
	Install/Replace Airfield Signage
	Install/Replace Taxiway Lighting
	Install/Replace Runway Lighting
Airside: Lighting and NAVAIDs	Design Airfield Lighting Improvements
	Install Weather Reporting Equipment
	Install Precision Approach Path Indicators (PAPI)
	Install Approach Lighting System





Estimates

Project Category	Example Projects
Fencing	 Install Wildlife Perimeter Fence Install Wildlife Control Fence Re-align Existing Fencing Install Fence Skirting
Other: Land Acquisition	Acquire Property ParcelsApproach Protection EasementRoadway Land Acquisition
Other: Landside	 Obstruction Removal without Land Acquisition Shuttle Bus Parking Relocate Ground Vehicle Entrance Road Install Ground Vehicle Charging Stations Place Obstruction Marking or Lighting
Other: Terminal	 New Terminal Building New Terminal Parking Lot or Expansion Terminal Capacity Enhancement Terminal Improvements (Including Utilities)
Other: Planning	 Wildlife Hazard Assessment Wildlife Hazard Management Plan Update or Conduct Airport Master Plan Update or Conduct Airport Layout Plan Obstruction Analysis Study Noise Study and Noise Maps Environmental Assessment/Impact Study
Other: Miscellaneous	 Acquire Aircraft Rescue and Firefighting (ARFF) Equipment Deicing Control Facility Improvements Acquire SRE Equipment Improve Fuel Farm

Sources: INDOT, 2022; Kimley-Horn, 2022.

Using the categories presented in **Table 8.8** allowed for a project cost composition percentage to be calculated. This project cost composition percentage was then applied to the 20-year CIP estimate to identify an estimate of financial need by project category over the long-term planning horizon, as shown in **Table 8.9**. It is important to note that these percentages were based on the project amount in each category, rather than the number of projects within each category. Airside: Pavement Rehabilitation and Reconstruction accounts for the most significant need over the 20 years, accounting for 60 percent of the total 20-year CIP costs. Other: Terminal needs accounts for the second highest 20-year CIP cost by project category and accounts for 20 percent of the total 20-year CIP need.





Table 8.9. Project Category Composition for the 2023-2027 CIP

Project Category	Project Cost Composition	Estimated Cost by Project
Project Category	Percentage (2023-2027 CIP)	Category (2023-2043)
Airside: New Construction	8%	\$596,190,000
Airside: Pavement Rehabilitation and Reconstruction	60%	\$4,491,585,000
Airside: Runway and Taxiway Extension	2%	\$172,224,000
Airside: Lighting and NAVAIDS	2%	\$161,273,000
Fencing	2%	\$139,926,000
Other: Land Acquisition	1%	\$59,629,000
Other: Landside	<1%	\$31,211,000
Other: Terminal	20%	\$1,476,076,000
Other: Planning	1%	\$105,781,000
Other: Miscellaneous	4%	\$296,615,000
Total	100%	\$7,530,501,000

Notes: Percentages may not sum to 100 due to rounding. Totals were rounded to the nearest thousand. Sources: 2022-2027 Airport CIPs; Kimley-Horn, 2022.

Figure 8.5 presents the 20-year CIP estimate of total need by ISASP facility category. As shown, Primary airports account for the most significant portion of this need, approximately 81 percent of the 20-year CIP estimate, or almost \$6.1 billion. The other facility classifications and systemwide needs account for the remaining \$1.4 billion of need. Systemwide costs are those that include statewide planning efforts, such as PCI inspection costs, statewide airport pavement management systems, future system planning efforts, or other costs that impact the system as a whole, as opposed to individual airports.



Estimates

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Source: Kimley-Horn, 2022.

8.2.3. Total Costs

The total financial need for Indiana's aviation system over the 20-year planning horizon includes costs associated with the 2022 ISASP recommendations, which were presented in **Section 8.2.1**, and the 20-year CIP estimate presented in **Section 8.2.2**. When combined, these costs sum to an overall estimated 20-year financial need that is approximately \$8.8 billion, as presented in **Table 8.10**.

Table 8.10. 2023-2043 Summary of Financial Need for Indiana's Aviation System

Source	Cost	Percent of Total
2022 ISASP Goals (PMs)	\$1,149,442,000	13%
2022 ISASP MSLRs	\$158,140,000	2%
2022 ISASP Cost Estimate Subtotal	\$1,307,582,000	15%
2023-2043 Airport CIP Estimate	\$7,530,501,000	85%
Combined 20-Year Funding Needs Total	\$8,838,083,000	100%

Sources: BF&S, 2022; SJCA, 2022; Kimley-Horn, 2022.

8.3. System Resources

The following subsections provide an overview of the federal, state, and local funding sources that are typically available to ISASP facilities. In addition, this section presents historical and anticipated funding levels that were used





to identify an estimated long-term funding shortfall that may impact aviation development in Indiana over the 20-year planning horizon.

8.3.1. Funding Sources

Maintaining and improving an aviation system requires significant funding. Funding sources available to airports vary based on the type of aviation facility and the type of projects being proposed. The two main sources of funding come from the federal level (distributed by FAA) and from the state level (distributed by INDOT). A summary of the traditional funding sources typically available to Indiana aviation facilities is provided in the following subsections.

8.3.1.1. Federal Funding

The main source of federal funding for aviation facilities is made available via the FAA's Airport Improvement Program (AIP). However, beginning in 2020 and in response to the novel coronavirus (COVID-19) pandemic, a variety of other funding programs were established at the federal level to provide relief from the impacts of the pandemic. The FAA AIP and COVID-19 relief funding programs are summarized here.

FAA Airport Improvement Program (AIP) Funding

The FAA provides airport funding opportunities through the AIP. AIP funds are generated from fees and taxes collected from users of the nation's airport system and, in Indiana, is distributed directly to airports to fund eligible projects. Only airports recognized in the federal aviation system, the National Plan of Integrated Airport Systems (NPIAS), are eligible to receive AIP funding. AIP funding is typically awarded for projects related to enhancing airport safety, security, preservation, capacity, and environmental concerns.⁵ **Table 8.11** provides a list of commonly eligible and ineligible projects under the AIP guidelines. This list is not all inclusive and airports are encouraged to work with their FAA Chicago Airports District Office regarding AIP eligibility questions.

Eligible Projects	Ineligible Projects
Runway construction/rehabilitation	Maintenance equipment and vehicles
Taxiway construction/rehabilitation	Office and office equipment
Apron construction/rehabilitation	Fuel farms*
Airfield lighting and signage	Landscaping
Airfield drainage	Aircraft hangars*
AWOS	Industrial park development
Navigational Aids (NAVAIDs)	Training
Planning and environmental studies (including ALPs)	Maintenance or repairs of buildings
Safety area improvements	Improvements of commercial enterprises
Snow Removal Equipment (SRE) and SRE Buildings	

Table 8.11. Commonly AIP Eligible and Ineligible Projects

Note: *may be conditionally eligible at nonprimary airports if the airport has already satisfactorily addressed all airside needs and the improvement will increase revenue for the airport. Source: FAA "Overview: What is AIP?" https://www.faa.gov/airports/aip/overview/.

⁵ FAA. "Overview: What is AIP?" https://www.faa.gov/airports/aip/overview/





AIP funding is dispersed via two types of funds: entitlement funds and discretionary funds. Entitlement funds consists of three sub-categories: primary entitlement funds, nonprimary entitlement (NPE) funds, and state apportionment funds.

Only airports identified as Primary airports in the NPIAS receive **primary entitlement funds** and funding is distributed to these airports based on the number of passenger enplanements they had the calendar year prior to the allocation. Typically, primary entitlement awards range from around \$1 million to a maximum of around \$25 million per airport, per year, but is dependent on the overall amount of AIP funding that is made available via Congress.

Nonprimary airports receive NPE funding. Nonprimary facilities must have an up-to-date five-year CIP prepared that includes eligible AIP projects to receive NPE funding. Typically, Nonprimary airports will receive NPE funding that is equal to approximately 1/5 of their anticipated five-year need or \$150,000, whichever is a lesser value.

Any remaining funds, after primary entitlement and NPE funds have been distributed, are allocated to the states and are referred to as **apportionment funding**. The amount of apportionment funding distributed to each state is based on a formula that considers the size and population of a state. Most states have the authority to disperse their apportionment funding as they see fit.

Once entitlement funds (including primary and NPE) and state apportionment funds are allocated, the remaining funds, referred to as **discretionary funds**, can be distributed. Discretionary funds are distributed at the discretion of the FAA to eligible airport projects based on a national priority system.

In December 2020, the "Consolidated Appropriations Act, 2021" was signed into law and provided \$400 million in funding to be distributed as **supplemental discretionary** grants under the AIP statute. Supplemental discretionary funds are not subject to AIP existing discretionary formulas and are derived from the General Fund, and therefore not derived from national aviation system user fees. The FAA relied on the already established Airport CIP process to develop eligibility and justification guidelines, and the funds were executed through the regular AIP process. Supplemental discretionary awards were announced in September 2021 and will all be distributed by September 2023.⁶

2022 Bipartisan Infrastructure Law (BIL)

The BIL was passed into law in 2021. This is a once-in-a-generation funding program that aims to provide comprehensive infrastructure improvements that include utilities, roadways, public transit, internet access, rail, electric vehicle advancements, environmental remediation, and airports and aviation. The BIL allocates \$25 billion in funding to be distributed to NPIAS airports over five years (2022-2026). That \$25 billion is broken down into three categories of funding, with each category having a specified funding amount for specific project types over the five-year period. **Table 8.12** presents a summary of the project categories and funding allocated for each.

⁶ FAA, AIP, 2021-2023 Supplemental Appropriation, <u>https://www.faa.gov/airports/aip/aip_supplemental_appropriation/</u> (Accessed July, 2022)





Table 8.12. Summary of BIL Funding for all NPIAS Airports

Project Category	ect Category Goals	Funding per	Total Funding over Five
Coals		Year	Years
Airport Terminals Program (ATP)	 Replace aging terminals Increase energy efficiency Increase accessibility Achieve Americans with Disabilities Act (ADA) compliance Achieve Leadership in Energy and Environmental Design (LEED) accreditation Improve airfield safety through terminal relocation 	\$1 billion	\$5 billion
Airport Infrastructure Grants (AIG)	Increase safetyEnhance capacity	\$3 billion	\$15 billion
Air Traffic Facilities	 Replace facilities and equipment Improve safety, security, and environmental standards 	\$1 billion	\$5 billion
	Total Funding	\$5 billion	\$25 billion

Source: FAA, BIL, 2021.

The airport terminal funding will be distributed to both primary and nonprimary airports. Large hub primary facilities will receive 55 percent of the allocated \$5 billion, with medium hubs receiving approximately 15 percent and small hubs receiving approximately 20 percent. Nonhub and nonprimary airports will share the remaining 10 percent of funding. The federal cost share for large and medium hub airports will be 80 percent of eligible project costs and 95 percent for small hub, nonhub, and nonprimary airports.

The airport infrastructure funding will also be distributed to primary and nonprimary airports. Primary airports will receive up to \$2.48 billion combined annually, with general aviation (GA) and nonprimary commercial service airports receiving \$500 million combined annually. The remaining \$20 million will be awarded to airports based off a competitive grant process and can be awarded to primary or nonprimary airports. Finally, the funding outlined for air traffic facilities will be distributed to support the improvement needs of air traffic control towers (ATCT) across the country.

8.3.1.2. COVID-19 Relief Funding

In the wake of the global COVID-19 pandemic, the federal government implemented four different COVID-19 relief programs that provided additional funding resources to airports. These programs varied in amount of money, eligibility, and duration. A summary of these programs is provided in the following subsections.





Estimates

2020 Coronavirus Air, Relief, and Economic Security (CARES) Act

The CARES Act was signed into law in March 2020 and provided economic relief funding to eligible United States (U.S.) airports affected by the prevention of, preparation for, and response to the COVID-19 pandemic. The CARES Act allowed for the federal share of AIP grants to be increased to cover 100 percent of the supplemental and discretionary grants already planned for fiscal year (FY) 2020.

This meant that state and local governments were not required to provide their standard matching requirements. In addition to the 100 percent match benefits, the CARES Act also provided new funds distributed to all airports identified in the NPIAS via various formulas. Primary commercial service airports received additional funds based on the number of annual enplanements (similar to current AIP entitlement fund distribution). Other nonprimary commercial service airports received funds based on the number of passenger enplanements, the amount of debt an airport has, and the amount of money they had in their reserve. Finally, nonprimary GA airports received funds based on their NPIAS category: National, Regional, Local, Basic, and Unclassified.⁷ In many cases, CARES Act funding was used for non-construction purposes, as airports used this funding for general airport operating expenses, such as payroll, and to pay airport debt service.

2020 Coronavirus Response and Relief Supplement Appropriation Act (CRRSAA)

CRRSAA was signed into law in December 2020 and included nearly \$2 billion of funding that was awarded to eligible U.S. airports for relief from COVID-19-related impacts. The FAA distributed these funds by establishing the Airport Coronavirus Response Grant Program (ACRGP). All airports included in the NPIAS received grant funding under this program. All primary commercial service airports shared \$1.75 billion, with that funding distributed based on number of annual enplanements, similar to how AIP entitlement funds are distributed. The primary airports share of this \$1.75 billion could be used for costs related to operations, personnel, cleaning and sanitization services, combating the spread of pathogens at the airport, and debt service payments. Additionally, this funding could be used for airport development projects; however, those development projects must be related to combating the spread of pathogens, such as replacing or upgrading ventilation, air condition systems, reconfiguring a terminal to allow for social distancing, and so on. Primary commercial service airports also shared an additional \$200 million, distributed based on annual enplanements, which were granted to provide relief from rent and minimum annual guarantees to on-airport car rental, on-airport parking facilities, and in-terminal concessions. Nonprimary commercial service and GA airports shared \$45 million based on their airport category: National, Regional, Local, and Basic.⁸ The nonprimary facilities share of this \$45 million could be used for the same expenses as listed for the primary airports including costs related to airport operations expenses, cleaning and sanitization services, and development projects related to combating the spread of pathogens. CRRSAA awards were available at 100 percent federal share, which means that state and local matching was not required for these awards.

⁸ FAA Airport Coronavirus Response Grant Program, Frequently Asked Questions, https://www.faa.gov/airports/crrsaa/media/ACRGP-FAQs-20211124.pdf (Accessed May 2022)



⁷ FAA Home, Airports, CARES Act Grants <u>https://www.faa.gov/airports/cares_act/</u> (Accessed May 2022)



2021 American Rescue Plan Act (ARPA)

ARPA was signed into law in March 2021 and included \$8 billion in funds that were provided to eligible airports as economic assistance due to impacts of COVID-19. The FAA established Airport Rescue Grants through which the ARPA funding was distributed. As with other COVID-19 relief funding, the funding was made available to NPIAS airports only and was distributed based on the role that airport serves within the national system. Primary commercial service airports received \$6.5 billion that was distributed based on the number of annual enplanements, similar to how AIP entitlement funds are distributed. An additional \$800 million was awarded to eligible in-terminal concessions to provide relief from rent and minimum payment at primary commercial service airports.

Nonprimary commercial service and GA airports received \$100 million that was distributed by NPIAS category. The ARPA funds also allowed for AIP grants to be awarded at a 100 percent federal share, meaning that state and local matches were not necessary for these awards.

8.3.1.3. State Funding

In addition to allocating FAA AIP state apportionment funds, the INDOT Office of Aviation provides aviation facility funding through the Indiana Airport Development Fund (ADF) program. The ADF was established to support the needs of the ISASP facilities that are deemed critical to Indiana's air transportation system. Under this program INDOT Office of Aviation is responsible for providing technical assistance to airports concerning airport development, maintaining a five-year rolling capital improvement forecast of projects and funding level requirements, processing state grants for capital improvement projects, monitoring progress of state grant projects, processing and approving payment requests for completed work, verifying projects were completed as expected, and closing grants once projects are complete. It is up to the local airport sponsor to provide INDOT Office of Aviation with appropriate documentation for managing the grant process. This includes submitting design plans and specifications, required environmental documents, obtaining necessary permits, and preparing the bid package and awarding contracts.

The ADF is funded entirely with revenue collected from the Aviation Fuel Excise Tax According to the Indiana Department of Revenue, aviation fuel tax is currently 20 cents per gallon. The primary purpose for the ADF is to provide the required state matching funds to the federal grants provided to airports by the FAA. All system airports, excluding Indianapolis International Airport (IND), that receive FAA grant funding are eligible to receive a State Matching Grant from the ADF.

In prior years, the ADF has also provided state and local grant opportunities that are not tied to the FAA grant programs, offering up to 50 percent of a project's eligible cost. This program focused on projects that provide opportunities for enhancing a local community's economic development by supporting projects that expand desired corporate services for modern business aircraft that attract new local commercial opportunities. When available, this grant program funded projects such as runway extensions, terminal building enhancements, hangars, and aircraft fuel services. Recently, the ADF has funded a traffic counting program that allows airports to acquire traffic counting equipment and submit for reimbursement from INDOT.

More information about the amount of ADF funds awarded, and to what types of projects, over the past five years is presented in **Section 8.3.2**.





8.3.1.4. Local Funding

Local funding sources include funding made available by local public authorities, such as city or county governments, and funding made available directly from an airport sponsor. Typically, local funding is made available from airport revenues from user fees, bond revenues, private funds, and general fund revenues (tax revenues). Typically, local funding, either from public or private sources, is required to cover the leftover cost of a development project after federal and state awards are distributed. It is important to note that COVID-19 relief funding programs, such as CARES, CRRSAA, and ARPA, did not require state or local matches, which provided short-term relief for these funds in 2020 and 2021.

However, funding made available under the BIL program requires both state and local funding matches, which may increase the typical amount of local funding required because there are more projects that may be pursued under the BIL program.

8.3.2. Historical Funding

A review of the past five years (2018-2022) of aviation funding was conducted to provide context for the amount of funding received and distributed to Indiana aviation facilities. Funding from federal, state, and local sources for all eligible airports over the five-year time frame was reviewed. **Table 8.13** presents an overview of historical funding amounts by year and by source, as well as presents the percent of total funding attributed to each source over the five years. As shown, the majority of projects are funded by federal sources. It is important to note that the share of funding by state and local sources is lower in years 2020 and 2021 due to unique COVID-19 relief fund programs that required no state and local matching. The state and local funding shown in **Table 8.13** for 2020 and 2021 represents a portion of multi-year grants that were issued in previous years and required state and local matches throughout the lifespan of the project. In typical non-COVID-19 years, the funding distribution percentages would follow more formulaic patterns, with 90 percent of funding generally being provided by federal sources, five percent generally coming from state sources, and five percent generally coming from local sources for projects at nonprimary airports.

Year	Federal Funding	State Funding	Local Funding	Total Funding
2018	\$57,890,552	\$2,222,955	\$7,389,188	\$67,502,694
2019	\$71,526,663	\$3,053,907	\$7,769,140	\$82,349,710
2020	\$98,399,279	\$112,355	\$5,176,706	\$103,688,340
2021	\$128,034,889	\$415,027	\$3,581,694	\$132,031,609
2022	\$126,429,407	\$3,824,829	\$26,281,269	\$156,535,504
Five-Year Total	\$482,280,790	\$9,629,072	\$50,197,996	\$542,107,858

Table 8.13. Review of Historical Funding by Year and Source

Sources: 2018-2022 INDOT Airport CIP; Kimley-Horn, 2022.

To better understand how funding has historically been distributed to aviation facilities in Indiana, all CIP projects from 2018 to 2022 were organized into the same project categories as previously presented in **Table 8.8** including:

- Airside: New Construction
- Airside: Pavement Rehabilitation and Reconstruction
- Airside: Runway and Taxiway Extension





Estimates

- Airside: Lighting and NAVAIDS
- Fencing
- Other: Land Acquisition
- Other: Landside
- Other: New Construction
- Other: Planning
- Other: Miscellaneous

Figure 8.6 provides a breakdown of costs for historical projects by category. As shown, the majority of funding over the past five years was distributed to pavement rehabilitation and reconstruction projects at nearly 60 percent. Runway and taxiway extension projects came in second at nearly 12 percent, and new airside construction projects came in third at almost nine percent. Two percent or less of the funding awarded between 2018 and 2022 went to each of the following project categories:

- Fencing
- Other: Landside
- Other: Land Acquisition
- Other: Planning

Figure 8.6. 2018-2022 Funding Distribution by Project Category



Sources: 2018-2022 INDOT Airport CIP; Kimley-Horn, 2022.





Estimates

When considering the distribution of funding by ISASP facility category during the 2018-2022 period, it is not surprising that over half of the funding is spent at Primary airports considering the size and complexity of the airfield infrastructure compared to the GA airports in other ISASP facility categories. As shown in Figure 8.7Figure 8.7, Regional airports received the next largest portion of funding at 13 percent. Unclassified airports and statewide needs (such as the funding used to develop the 2022 ISASP) each received less than one percent of the total funding during the same period. The number in parenthesis in Figure 8.7 indicate the number of facilities within that ISASP facility category.



Figure 8.7. 2018-2022 Funding Distribution by ISASP Facility Category

Note: Percentages may not sum to 100 due to rounding. Sources: 2018-2022 INDOT Airport CIP; Kimley-Horn, 2022.

Understanding how aviation funding has been distributed in the past both by project type and by facility category is helpful for long-term planning purposes because it provides an opportunity to compare past and future needs. It also establishes a baseline understanding for what typical funding distribution trends can look like, which contributes to making informed decisions about funding allocation in the future.

8.3.3. Anticipated Funding

It is important to note that the system needs identified in earlier sections of this chapter are expected to exceed the funding that is available from federal, state, and local sources, which creates a gap or shortfall between what is needed and what is available. This section provides an estimate of the amount of funding anticipated to be made available to Indiana system facilities over the 20-year timeframe based on historical amounts typically received. This amount of anticipated funding is then compared to the estimate of total costs, presented in Section 8.2.3, to identify the 20-year difference.





Estimates

INDOT Office of Aviation provided historic CIP data for Indiana system facilities from 2017-2022, which documented the amounts and sources of funding (federal, state, and local) that were used at each airport. From this data, an average annual funding amount, from federal, state, and local sources from years 2017-2019, was calculated. Years 2020-2022 were excluded from this calculation because those are considered atypical years where funding levels deviated from normal due to impacts of COVID-19 and the federal relief programs that were available to airports. Table 8.14 provides an overview of the average annual funding levels derived from the 2017-2019 funding data, which amounted to an average of \$73.5 million of anticipated funding distributed to ISASP facilities annually. A 20-year anticipated funding estimate was calculated by multiplying the average annual amount by 20 years. The result of this calculation is also included in Table 8.14 and indicates that an estimated \$1.5 billion of funding is anticipated to be allocated to Indiana facilities over the next 20 years.

Table 8.14. Historic Funding Amounts from 2017-2019 and Average Annual Funding Estimate

Year	Federal	State	Local	Total
2017	\$59,878,000	\$2,478,000	\$8,275,000	\$70,631,000
2018	\$57,891,000	\$2,223,000	\$7,389,000	\$67,503,000
2019	\$71,527,000	\$3,054,000	\$7,769,000	\$82,350,000
Average Annual from 2017-2019	\$63,099,000	\$2,585,000	\$7,811,000	\$73,495,000
20-year Estimate of Anticipated Funding	\$1,261,980,000	\$51,700,000	\$156,220,000	\$1,469,900,000
Sources: INDOT, 2017-2019: Kimley-Horn, 2022.				

When comparing the estimate of anticipated funding to the estimate of financial need over the 20-year timeframe, there is an estimated funding shortfall of approximately \$7.4 billion, as shown in Figure 8.8. This shortfall highlights the level of need required from federal, state, and local funding sources to support the optimization of Indiana system facilities over the next 20 years.

Figure 8.8. Total Aviation Funding Shortfall over 20-Year Planning Horizon

					\$8,838,083,000
\$1,469	9,900,000		\$7,368,183,000		•
\$0	\$1,800,000,000	\$3,600,000,000	\$5,400,000,000	\$7,200,000,000	\$9,000,000,000
	■ 20	year Anticipated Fund	ing = Shortfall 🔶 2	20-year System Need	

Source: Kimley-Horn, 2022.





8.4. Summary

Indiana has a robust system of aviation facilities that serves a variety of users and operations across the state. To maintain this system in optimal condition, specific development and service needs at individual facilities are assessed. The 2022 ISASP includes this assessment of facilities and identifies project needs that can be clearly traced to the achievement of system goals which are aimed at providing a safe, secure, and sustainable network of aviation facilities for years to come. This chapter serves as the conclusion to the assessments included throughout the 2022 ISASP and presents the estimated financial need of Indiana's aviation system over the 20-year planning horizon. The combined 2022 ISASP recommendations and 20-year CIP estimate yield a long-term financial need of almost \$9.0 billion. An estimate of the amount of funding that is anticipated to be available to these facilities over 20 years was developed using historical funding data and resulted in an anticipated funding amount of approximately \$1.5 billion over the same 20-year timeframe. When comparing the anticipated need to the anticipated funding levels there is a shortfall of approximately \$7.5 billion. This indicates the level of additional funding needed to support optimal aviation development over the next 20 years.

