

## 7. Cost Estimates and Project Funding

Based on the analysis of the recommended airport system's performance, the 2020 Iowa Statewide Aviation System Plan Update (SASP 2020) identifies specific projects for airports in the Iowa. These projects relate to improving the airport system's performance, especially as it correlates to facility and service objectives set as part of this study. A cost estimate is provided for airports shown to have projects recommended to meet their objectives.

Estimated costs for each recommended project were developed using broad assumptions appropriate for system level planning. Circumstances at individual airports vary considerably, often requiring additional expenditures not covered by these broad assumptions. These circumstances are typically addressed in a more detailed airport master plan. With that in mind, these cost estimates are best viewed as a starting point for understanding overall project costs.

This chapter is presented in sections which describe the analysis methodology, analysis results and funding strategies. The following sections are:

- Cost Estimating Methodology
- Costs Associated with System Plan Recommendations
- Costs Associated with Airport ACIP Projects
- Costs Associated with Preventive Pavement Maintenance and Rehabilitation
- Combined Estimated Development Costs
- Funding Sources including the Federal Aviation Administration (FAA), Iowa DOT, and Other State and Local Sources

### 7.1 Cost Estimating Methodology

The methodology used to estimate costs for projects in the recommended plan includes the following:

1. Compare the existing facilities at each individual airport to the Iowa Facility and Service Objectives identified for each airport's recommended role within the SASP 2020. Airport roles, as defined by the SASP 2020, are as follows:
  - a. Commercial Service Airports
  - b. Enhanced Service Airports
  - c. General Service Airports
  - d. Basic Service Airports
  - e. Local Service Airports
2. Identify specific airport projects or actions needed to correct areas where the airports are deficient and to achieve the airport's applicable objectives.
3. Estimate project quantities.
4. Utilize estimated unit costs and apply these costs to specific airport needs/projects.

Costs were developed by compiling all projects at the system-level by project type. Historical data, local knowledge of the aviation construction industry, and past project bid tabulations were used to analyze current market construction costs and develop realistic unit costs for each project type.

These unit costs were increased to account for non-construction “soft costs” such as engineering, design, planning, and legal. Project construction costs also accounted for variance based on location conditions such as sites that require significant preparation work or other mitigation efforts required for construction. Due to the range of airports and their specific settings in the state, the actual costs of the project may vary. All project costs are based on 2021 United States dollars without adjustment to reflect future inflation.

The estimated costs for projects in the recommended plan were grouped into a number of project types, including the following:

- Meet Airport Reference Code (ARC) Standards
- Runway Width
- Taxiway Type
- Runway Lighting
- Visual Guidance Slope Indicator (VGSI)
- Rotating Beacon
- Covered Storage
- Overnight Business Aircraft Storage
- Terminal Building
- Entryway and Parking
- Security
- Restrooms
- Snow Removal
- Implement Land Use Code /Ordinance
- Implement Height Zoning Code
- Updated Airport Layout Plan (ALP)

Assumptions were made based on project type when developing project costs. These assumptions are provided below.

### 7.1.1 Update Airport Reference Code (ARC)

Projects were developed for airports based on their specific target ARC and where their facilities were deficient. Project costs were developed for each deficient area based on recommendations to meet the target ARC standards (e.g., runway extension to meet minimum length requirement). When possible, specific airport master plans and other available documents were consulted.

### 7.1.2 Runway Width

For runway widening projects, it was assumed that the runway length would remain unchanged. Further assumptions were made to include relocation of electrical equipment and NAVAIDs.

### 7.1.3 Taxiway Type

Taxiway projects were assumed to be full pavement construction to correct outdated fillet geometry. It was assumed that the airport owned the land where construction occurred, and no land acquisition costs would be necessary. The projects include removal of existing pavement, installation of new pavement with current fillet geometry standards, and new electrical installation.

### 7.1.4 Runway Lighting

Runway lighting system costs assumed the installation of a new Medium Intensity Runway Light (MIRL) system including continuous conduit and bare copper wire counterpoise system. No modifications to existing electrical vaults were included in this cost consideration.

### **7.1.5 Visual Guidance Slope Indicator**

Visual Guidance Slope Indicator (VGSI) projects were assumed to include the installation of new two-box Precision Approach Path Indicator (PAPI) systems on each runway end. Estimated costs included PAPI systems operating from standard utility voltage equipped with a continuous conduit and the associated ground wire system.

### **7.1.6 Rotating Beacon**

Assumptions for rotating beacon projects included removing the existing beacon (if applicable) and installing a new rotating beacon on a structural concrete foundation in the same location. Some minor wiring modifications for splicing were also assumed.

### **7.1.7 Covered Storage**

For covered storage projects, assumed construction items included constructing nested T-Hangars of various sizes depending on the Airport's role, per the following assumptions:

- Commercial Service: 10-unit nested T-Hangar (250' x 60')
- Enhanced Service: 6-unit nested T-Hangar (160' x 60')
- General Service: 4-unit nested T-Hangar (120' x 60')
- Local Service: 60' x 60' Hangar

No additional paving or storm sewer/other utility extensions were included in these cost considerations.

### **7.1.8 Overnight Business Aircraft Storage**

For overnight business aircraft storage projects, it was assumed that depending on the airport's role, new covered storage would be constructed as follows:

- Commercial Service: 100' x 100' Hangar
- Enhanced Service: 80' x 80' Hangar
- General Service: 60' x 60' Hangar
- Basic/Local Service: 60' x 60' Hangar

For commercial and enhanced airports, additional amenities including insulation and heating were added to the estimated cost. No additional paving or storm sewer/other utility extensions were included for consideration.

### **7.1.9 Terminal Building**

Terminal building costs were based on historical bid tabulations and assumed the inclusion of sanitary/storm sewer, foundation, insulation, and electrical work as part of the installation.

### **7.1.10 Entryway and Parking**

For entryway and parking projects, assumptions included the removal of existing granular surfacing and installation of PCC pavement.

### 7.1.11 Security

Security projects were divided into two types: eight-foot perimeter fencing, and four-foot visual barrier fencing. The eight-foot perimeter fencing was assumed to be a chain-link fence with wildlife skirt, around the perimeter of the airport's property. It was assumed that one automatic keypad-controlled gate, five manual gates, and two drainage crossings would be included.

### 7.1.12 Restrooms

For restrooms projects, the goal was to allow 24-hour access to existing on-site restrooms. Assumptions were made regarding size of opening and type of access (commercial and enhanced service airports assume keypad access; general, basic and local service airports assume manual access).

### 7.1.13 Snow Removal

For snow removal projects, assumptions included acquisition of one new carrier vehicle, power reversible plow, and a dump body of varying length depending on the airport's service role. For commercial and enhanced service airports, the assumption was made that the dump body would be 12 feet long; for general service and below, the assumption was for a dump body that would be 10 feet long.

### 7.1.14 Land Use and Height Zoning

Implementing land use and height zoning codes/ordinances costs assumed the inclusion of public meetings, public hearings, legal fees, negotiations, and a time frame of six to 12 months.

### 7.1.15 Update Airport Layout Plan

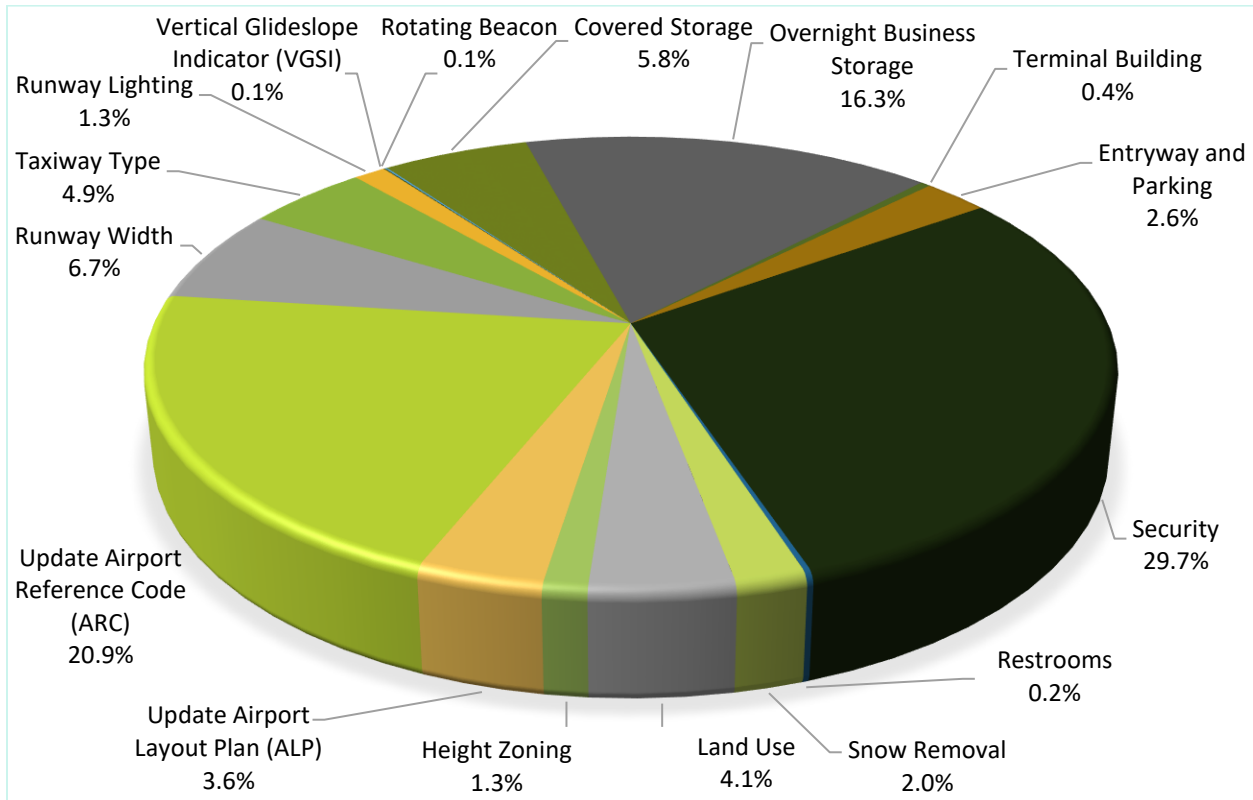
Update ALP project costs were based on past experience and assumed the inclusion of narrative report updates, aeronautical obstruction survey and analysis, drawing updates, and meetings with the owner.

## 7.2 Costs Associated with System Plan Recommendations

The system plan cost estimates, organized by project type and airport role, are summarized in **Table 7-1**. Overall, the costs associated with the system plan recommendations for all project types is estimated at \$49.4 million.

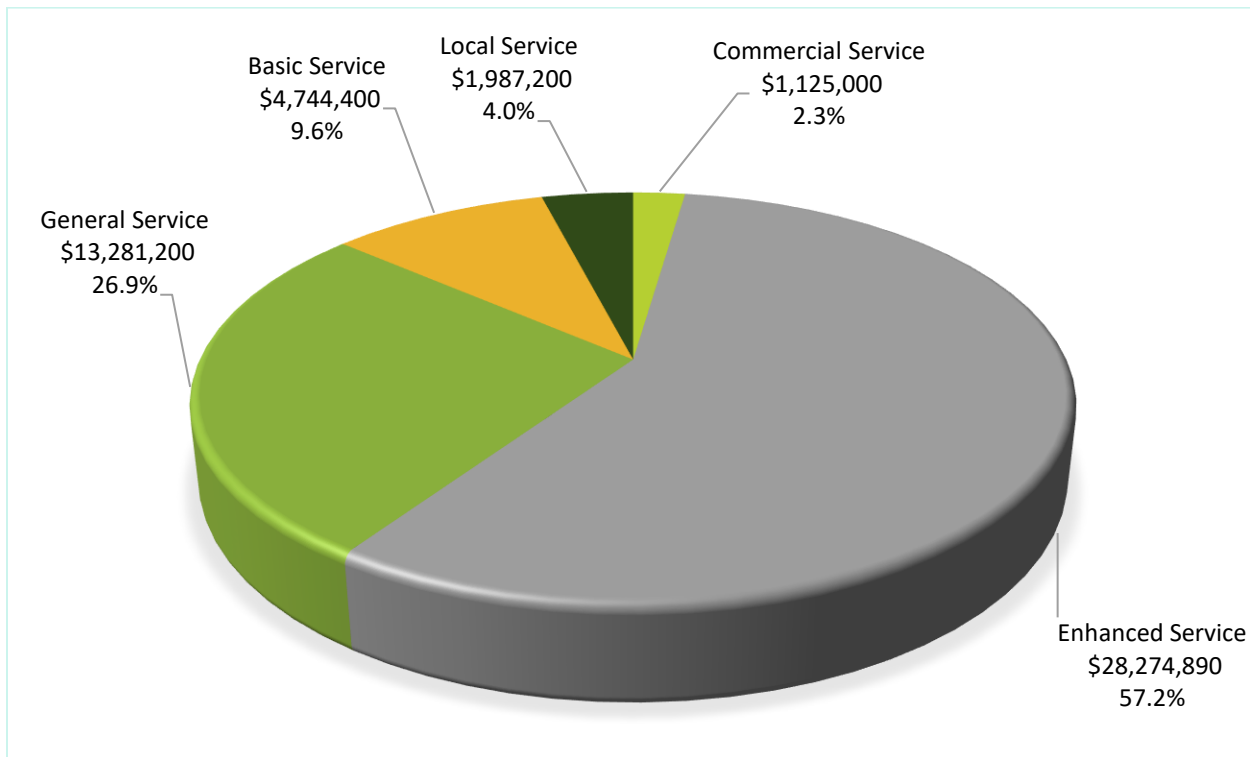


Figure 7-1: Total Estimated System Plan Costs by Project Type



Source: McClure Engineering

**Figure 7-2: Total Estimated System Plan Costs by System Role**



Source: McClure Engineering

### 7.3 Costs Associated with ACIP Projects

Projects identified by the recommendations analysis as part of the system plan represent only a portion of the total development and maintenance costs the airports of Iowa may need in the near future. To better understand the needs of the state’s system, consideration must be taken for each airport’s approved Airport Capital Improvement Program (ACIP). This program is developed in partnership with members of the Aviation Bureau, the Federal Aviation Administration (FAA) Central Region, and Iowa airport sponsors. The purpose of the ACIP is to project development and maintenance needs for each airport in future years to help with the allocation of funding. It should be noted that privately owned system airports are generally not eligible for state or federal funding.

A summary of ACIP project costs for all Iowa system airports from FY21 to FY30 by project type and service role is presented in **Table 7-2: Iowa ACIP Costs by System Role, FY21 to FY30**.

Table 7-2: Iowa ACIP Costs by System Role, FY21 to FY30

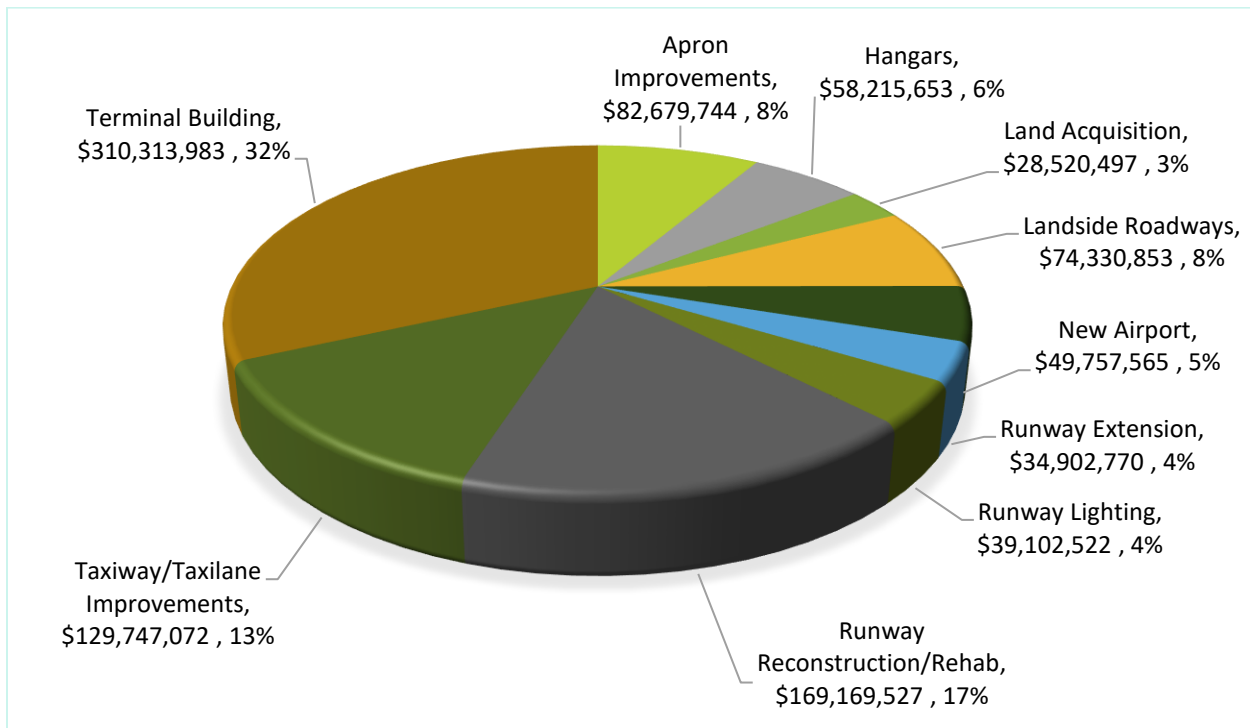
Project Type	Commercial Service	Enhanced	General	Basic	Local	Statewide	Costs Subtotal	%
Approach	\$0	\$0	\$225,000	\$0	\$175,000	\$0	\$400,000	0.0%
Apron Improvements	\$48,989,556	\$19,824,010	\$8,375,513	\$2,684,255	\$2,806,410	\$0	\$82,679,744	7.8%
Building Improvements	\$23,543,583	\$570,000	\$0	\$0	\$0	\$0	\$24,113,583	2.3%
Drainage Improvements	\$257,300	\$175,000	\$62,964	\$949,000	\$666,000	\$0	\$2,110,264	0.2%
Fence Install	\$750,000	\$60,000	\$187,400	\$934,000	\$0	\$0	\$1,931,400	0.2%
Fuel Farm Improvements	\$820,000	\$400,000	\$1,702,900	\$2,480,790	\$0	\$0	\$5,403,690	0.5%
Hangars	\$36,683,948	\$4,513,860	\$7,247,140	\$8,403,800	\$1,366,905	\$0	\$58,215,653	5.5%
Land Acquisition	\$5,624,625	\$1,107,654	\$12,080,375	\$4,051,800	\$5,656,043	\$0	\$28,520,497	2.7%
Land Conservation	\$1,035,441	\$0	\$0	\$0	\$0	\$0	\$1,035,441	0.1%
Landside Roadways	\$68,528,758	\$3,542,425	\$1,349,670	\$435,000	\$475,000	\$0	\$74,330,853	7.0%
Master Plan/ALP/Environmental Study	\$1,829,625	\$654,470	\$2,284,760	\$964,000	\$276,480	\$675,000	\$6,684,335	0.6%
Misc.	\$2,850,000	\$775,000	\$20,600	\$253,247	\$0	\$0	\$3,898,847	0.4%
New Airport	\$0	\$49,757,565	\$0	\$0	\$0	\$0	\$49,757,565	4.7%
Pavement Maintenance/Preservation	\$5,591,848	\$5,201,341	\$2,602,574	\$1,670,431	\$263,000	\$0	\$15,329,194	1.4%
Runway Extension	\$9,500,000	\$12,067,700	\$9,357,930	\$3,977,140	\$0	\$0	\$34,902,770	3.3%
Runway Lighting	\$16,581,820	\$9,568,837	\$10,595,195	\$1,890,000	\$466,670	\$0	\$39,102,522	3.7%
Runway Reconstruction/Rehab	\$83,348,004	\$14,887,933	\$48,228,170	\$12,114,000	\$10,591,420	\$0	\$169,169,527	15.9%
Snow Removal Equipment	\$7,021,055	\$2,249,200	\$1,787,550	\$0	\$0	\$0	\$11,057,805	1.0%
Snow Removal Equipment Building	\$0	\$1,643,600	\$395,000	\$0	\$0	\$0	\$2,038,600	0.2%
Taxiway/Taxilane Improvements	\$77,376,620	\$14,098,590	\$29,975,512	\$6,274,350	\$2,022,000	\$0	\$129,747,072	12.2%
Taxiway Lighting	\$1,350,000	\$3,923,451	\$729,100	\$0	\$0	\$0	\$6,002,551	0.6%
Taxiway Turnarounds	\$0	\$995,000	\$1,070,561	\$0	\$1,660,864	\$0	\$3,726,425	0.4%
Terminal Building	\$308,046,483	\$50,000	\$1,450,000	\$750,000	\$17,500	\$0	\$310,313,983	29.2%
Vehicles (ARFF)	\$1,530,000	\$0	\$0	\$0	\$0	\$0	\$1,530,000	0.1%
Weather Reporting Equipment	\$0	\$165,000	\$166,667	\$198,420	\$0	\$0	\$530,087	0.0%
<b>Total</b>	<b>\$701,258,666</b>	<b>\$146,230,636</b>	<b>\$139,894,581</b>	<b>\$48,030,233</b>	<b>\$26,443,292</b>	<b>\$675,000</b>	<b>\$1,062,532,408</b>	<b>100%</b>

Source: Iowa DOT Aviation Bureau, McClure Engineering analysis

If fully implemented, ACIP projects for the entire airport system would require an investment of \$1.06 billion over the next 10 years, or approximately \$106.3 million per year. **Figure 7-3** illustrates the top 10 project cost areas over the next 10 years while **Figure 7-4** graphically represents all ACIP costs over the next 10 years by airport service role, respectively.

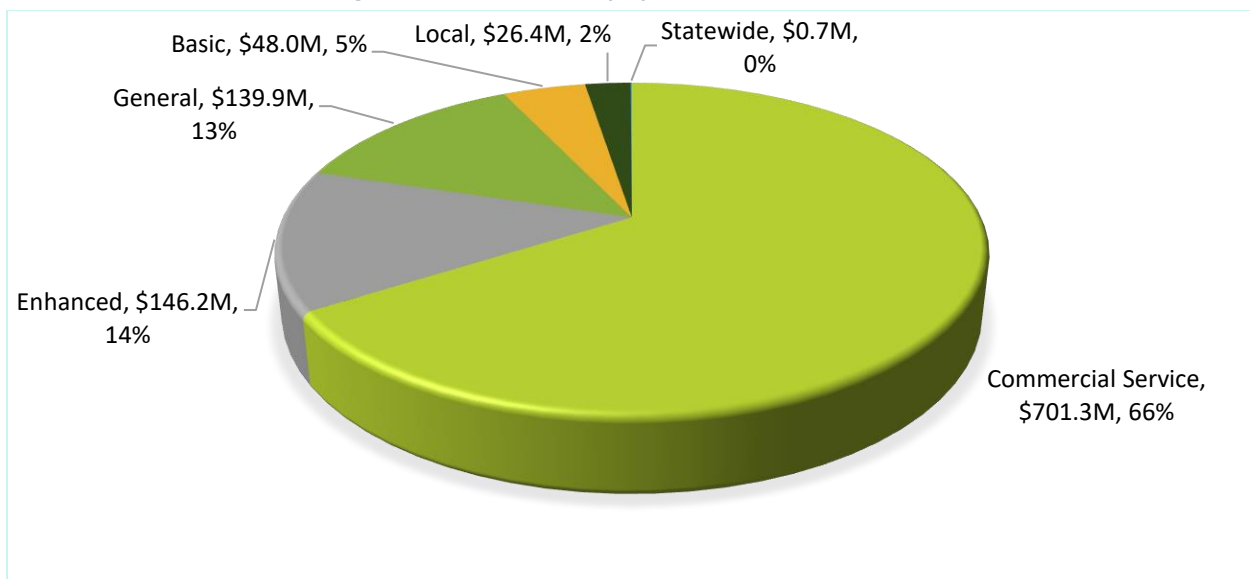


**Figure 7-3: ACIP Costs by Top 10 Project Types, FY21 to FY30**



Source: Iowa DOT Aviation Bureau, McClure Engineering analysis

**Figure 7-4: ACIP Costs by System Role, FY21 to FY30**



Source: Aviation and Iowa DOT

The ACIP costs by project type are most heavily weighted to terminal building improvement projects, consisting of a total investment of \$310.7 million, or 30.1 percent of the total estimated ACIP costs. The Des Moines International Airport terminal program accounted for \$255 million and the Eastern Iowa Airport terminal

improvements approximately \$50 million. In terms of service role, ACIP costs are distributed most heavily toward Commercial Service airports with a total investment of \$701.3 million, or 66 percent.

#### 7.4 Costs Associated with Preventative Pavement Maintenance and Rehabilitation

The Aviation Bureau monitors the condition of airport pavements within Iowa through a system called the Airport Pavement Management System (APMS). The purpose of the APMS is to proactively plan for pavement preservation to maximize life and forecast future investment needs. The APMS is updated regularly using Pavement Condition Index (PCI) procedures to measure the condition and types of distresses on existing pavement and indicate the amount of work needed to maintain or restore it. Pavement management reports for each airport in Iowa have been completed over the past three years by the Aviation Bureau. Using the information collected from the pavement inspections, five-year maintenance and rehabilitation programs to maintain the airport's pavements above the established critical PCI value were developed for each airport, complete with estimated project costs. Also included in these reports were one-year plans for localized preventative maintenance. It is worth noting that the recommendations contained in each airport's Pavement Management Report were based on general network-level analysis and assumed unlimited budget constraints, so further engineering work and coordination is recommended to determine the most appropriate remedies for each airport. Nevertheless, the summary of these maintenance and rehabilitation programs was included in the analysis for future needs over the next 10 years.

#### 7.5 Combined Estimated Development Costs

To understand the true development needs of the SASP 2020, the system plan recommendation estimated costs need to be considered together with the estimated costs of the ACIPs for each airport. To ensure project costs were not duplicated and artificially inflating the combined estimated development costs, the current ACIPs for each airport were reviewed against the system plan facility recommendations to identify deficiencies that were already being considered as part of each airport's ACIP. If a project that was identified as part of the system plan recommendations was found to also be included in the current ACIP for a given airport, that project was removed from consideration in the system plan recommendations. **Table 7-3** presents the adjusted estimated costs for the system plan recommendations by project type and airport service role.

Similarly, the preventative maintenance and rehabilitation costs developed from the Aviation Bureau APMS was analyzed to ensure there were not duplicate projects in the APMS cost estimates and the current ACIP for each airport. If a project that was identified as part of the APMS recommendations was found to also be included in the current ACIP for a given airport, that project was removed from consideration in the APMS cost estimates.

Combining the costs from all three sources provides a more comprehensive look at the anticipated investment needs for Iowa's aviation system. A summary of the combined development costs for all three plans (system plan recommendations, ACIP, and APMS) identified by both service role and plan is contained **Table 7-4**. As is evident, the most extensive investment needs are for Commercial Service airports at 59.8 percent of all development costs from FY21 to FY30.

**Table 7-3: Adjusted Costs Iowa DOT System Plan Facility Recommendations**

Project Type	Commercial Service	Enhanced Service	General Service	Basic Service	Local Service	Costs Subtotal	%
Update Airport Reference Code (ARC)	\$0	\$5,000,000	\$150,000	\$0	\$0	\$5,150,000	14.8%
Runway Width	\$0	\$0	\$1,067,200	\$1,620,800	\$0	\$2,688,000	7.7%
Taxiway Type	\$0	\$0	\$1,600,000	\$0	\$0	\$1,600,000	4.6%
Runway Lighting	\$0	\$0	\$0	\$635,400	\$0	\$635,400	1.8%
Vertical Glideslope Indicator (VGSI)	\$0	\$0	\$25,000	\$0	\$0	\$25,000	0.1%
Rotating Beacon	\$0	\$0	\$0	\$42,700	\$0	\$42,700	0.1%
Covered Storage	\$0	\$1,335,000	\$0	\$0	\$0	\$1,335,000	3.8%
Overnight Business Storage	\$1,100,000	\$665,600	\$2,995,200	\$0	\$0	\$4,760,800	13.6%
Terminal Building	\$0	\$0	\$0	\$0	\$0	\$0	0.0%
Entryway and Parking	\$0	\$0	\$880,000	\$0	\$0	\$880,000	2.5%
Security	\$0	\$12,623,010	\$178,500	\$204,000	\$7,200	\$13,012,710	37.3%
Restrooms	\$25,000	\$40,000	\$16,000	\$12,000	\$0	\$93,000	0.3%
Snow Removal	\$0	\$730,000	\$0	\$275,000	\$0	\$1,005,000	2.9%
Land Use	\$0	\$0	\$350,000	\$350,000	\$1,350,000	\$2,050,000	5.9%
Height Zoning	\$0	\$0	\$0	\$0	\$630,000	\$630,000	1.8%
Update Airport Layout Plan (ALP)	\$0	\$200,000	\$800,000	\$0	\$0	\$1,000,000	2.9%
<b>Total</b>	<b>\$1,125,000</b>	<b>\$20,593,610</b>	<b>\$8,061,900</b>	<b>\$3,139,900</b>	<b>\$1,987,200</b>	<b>\$34,907,610</b>	<b>100.0%</b>

Source: McClure Engineering analysis

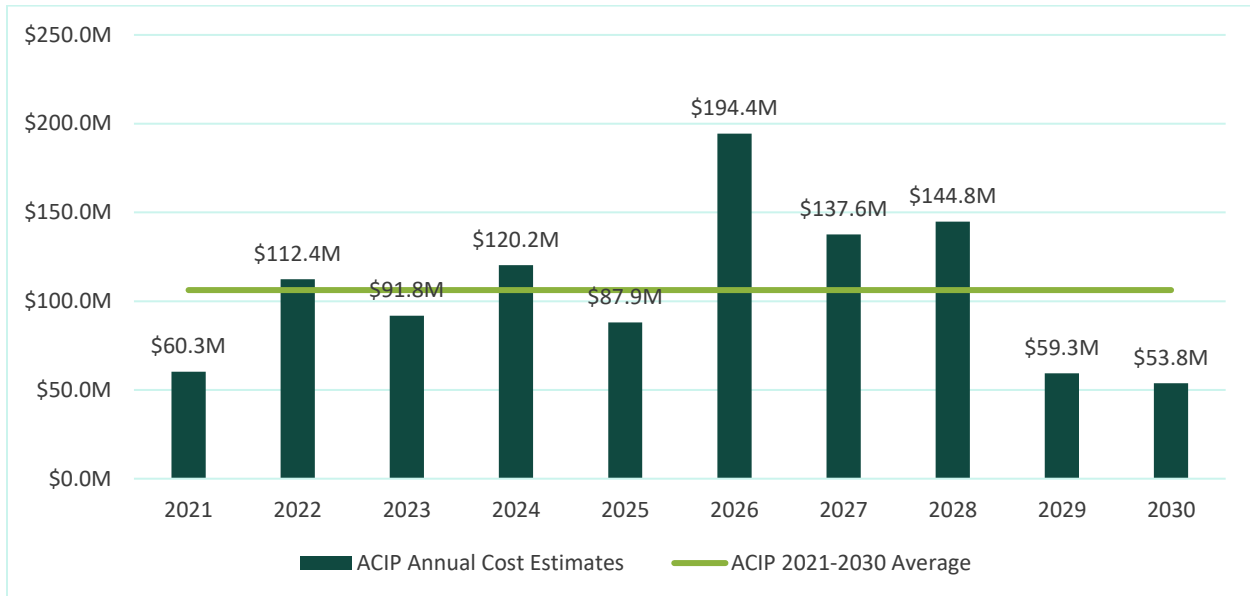
**Table 7-4: Summary of Combined Development Costs by Role and Plan**

	Commercial Service	Enhanced	General	Basic	Local	Statewide	Costs Subtotal
System Plan Objective Costs	\$1,125,000	\$20,593,610	\$8,061,900	\$3,139,900	\$1,987,200	\$0	\$34,907,610
ACIP Annual Cost Estimates	\$701,258,666	\$146,230,636	\$139,894,581	\$48,030,233	\$26,443,292	\$675,000	\$1,062,532,408
Pavement Maintenance/Rehab Costs	\$4,396,144	\$20,724,747	\$25,641,772	\$15,135,513	\$18,509,094	\$0	\$84,407,270
<b>Total</b>	<b>\$706,779,810</b>	<b>\$187,548,993</b>	<b>\$173,598,253</b>	<b>\$66,305,646</b>	<b>\$46,939,586</b>	<b>\$675,000</b>	<b>\$1,181,847,288</b>
Percent	<b>59.8%</b>	<b>15.9%</b>	<b>14.7%</b>	<b>5.6%</b>	<b>4.0%</b>	<b>0.1%</b>	<b>100.0%</b>

Source: Iowa DOT Aviation Bureau, McClure Engineering analysis

Figure 7-5 is a graphical representation of each year's ACIP investment amount over a span of 10 years from FY21 to FY30. The average yearly investment if all ACIP projects are executed would be approximately \$106.3 million per year.

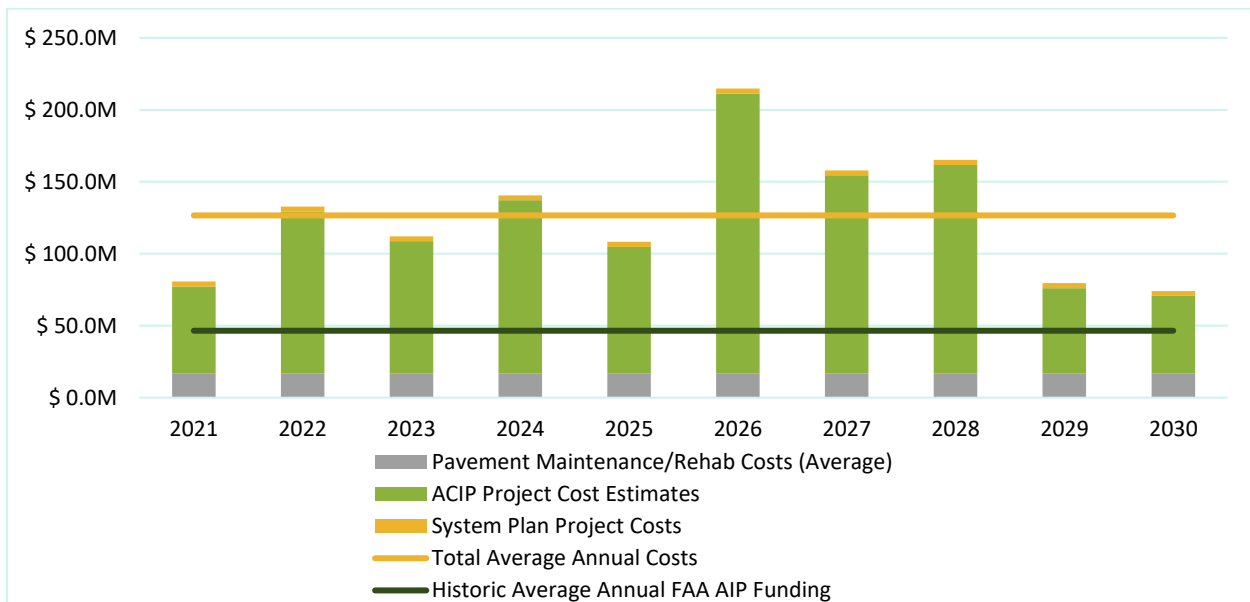
Figure 7-5: FY21 to FY30 ACIP Costs by Year and Averaged (in millions)



Source: Iowa DOT Aviation Bureau, McClure Engineering analysis

Figure 7-6 shows the combined investment for all system airports from ACIP, APMS, and system plan facility recommendation costs for each year over the span of 10 years from FY21 to FY30. System plan recommendation costs to meet facility and service objectives are \$3.5 million annually. APMS data represents an unconstrained scenario, leaving many of the projects without a programmed year. Since the APMS only extends five years out, APMS data was averaged over the 10-year span to better demonstrate annual costs. When commercial service airports are included, estimated project costs typically exceed \$100 million annually. The average annual cost for all project sources is estimated at \$126.6 million while the average annual FAA AIP funding contribution is \$46.5 million.

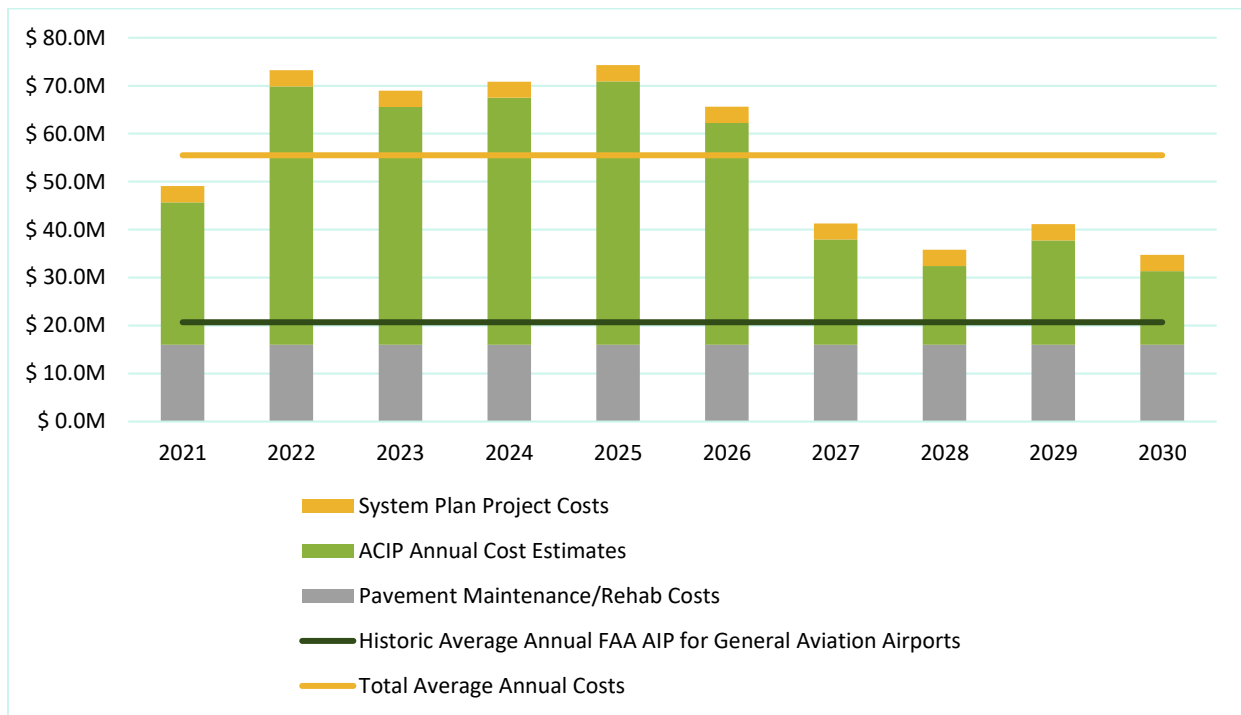
Figure 7-6: Combined ACIP, APMS and Development Costs by Plan, FY21 to FY30 (in millions)



Source: Iowa DOT Aviation Bureau, McClure Engineering analysis

Figure 7-7 shows the combined investment of ACIP, APMS, and system plan facility recommendation costs for each year over the span of 10 years from FY21 to FY30 for only general aviation airports. When considering only general aviation airports, estimated project costs are closer to \$56 million. As the graph indicates, the project cost estimates are much greater than the average annual FAA AIP grants (\$20.7 million) that are available to general aviation airports in Iowa.

**Figure 7-7: Combined ACIP, APMS and Development Costs by Plan for General Aviation Airports, FY21 to FY30 (in millions)**



Source: Iowa DOT Aviation Bureau, FAA Grant Histories 2015 to 2019, McClure Engineering analysis

## 7.6 Funding Sources for Capital Improvement Projects

### 7.6.1 FAA Airport Improvement Program Funding

The federal government started an airport grants-in-aid program to units of state and local government at the end of World War II to support the needs of the nation’s public airports. After several earlier versions of federal funding programs, the Airport Improvement Program (AIP) was established through the Airport and Airway Improvement Act of 1982. The initial AIP program provided funding legislation through 1992. Since 1992, the program has been authorized and appropriated on an annual basis or even quarterly basis.

The AIP program provides grants to airports that are part of the National Plan of Integrated Airports System (NPIAS). Administered by the FAA, the AIP provides funds for planning and development projects such as improving infrastructure, safety, and security. Projects range from improvements to runways, taxiways, aprons, noise control, land purchases, and navigational aids. In Iowa, there are 79 airports that are eligible for federal funding.

AIP funds originate from the Airport and Airway Trust funds and are sourced by aviation-related fees and taxes such as airline ticket taxes, segment and international travel fees, cargo fees, and general aviation and jet fuel taxes.

Because the demand for AIP funds exceeds the funding available, AIP funds are distributed by the FAA based on national priorities and objectives. The distribution is accomplished utilizing formulas set by law for entitlement and discretionary grants determined by the FAA.

The FAA appropriates AIP funds into major entitlement categories such as passenger entitlements, cargo entitlement, non-primary entitlement, and state apportionment funds. The remaining funds are distributed to a discretionary fund which are distributed based on a national prioritization system with priority given to safety, security, reconstruction, capacity, and standards.

Airport projects in Iowa are accomplished through a combination of federal (FAA), state, and local funding. In general, airports that are eligible for FAA and state funding must be available for public use and they are required to meet appropriate FAA design standards. Projects that are eligible for state and federal funding are subject to both state and FAA priority rankings considerations, grant assurances, and funding availability. FAA Order 5100.38D, *Airport Improvement Program (AIP) Handbook*, presents a detailed list of projects that are and are not eligible for FAA funding.

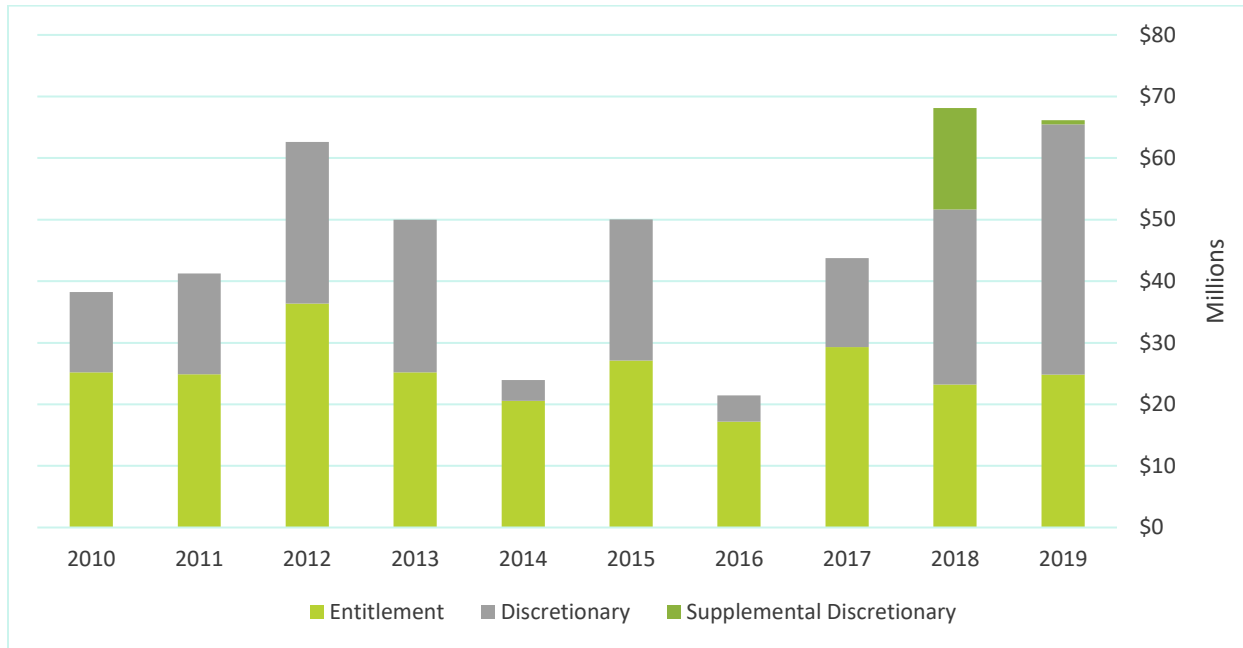
AIP funds must be spent on FAA-eligible projects as defined in FAA Order 5100.38D, *Airport Improvement Program (AIP) Handbook*. In general, this reference document states that:

- An airport must be in the currently approved NPIAS.
- Most public-use general aviation airport improvements are eligible for 90 percent federal funding, with the remaining 10 percent coming from local or state matching funds.
- Non-primary entitlement funds of \$150,000 per year can be accumulated for up to four years; It should be noted that Unclassified airports are not eligible for these funds.

In addition, revenue-producing items (such as hangars) are typically not eligible for federal funding unless certain conditions are met. All eligible projects must be depicted on an FAA-approved ALP.

**Figure 7-8** illustrates that Iowa airports have received an average of \$46 million annually in FAA AIP grants from 2010 to 2019. Of the \$46 million annual FAA AIP grants, Iowa airports received on average \$25 million in entitlements and \$21 million in discretionary grants.

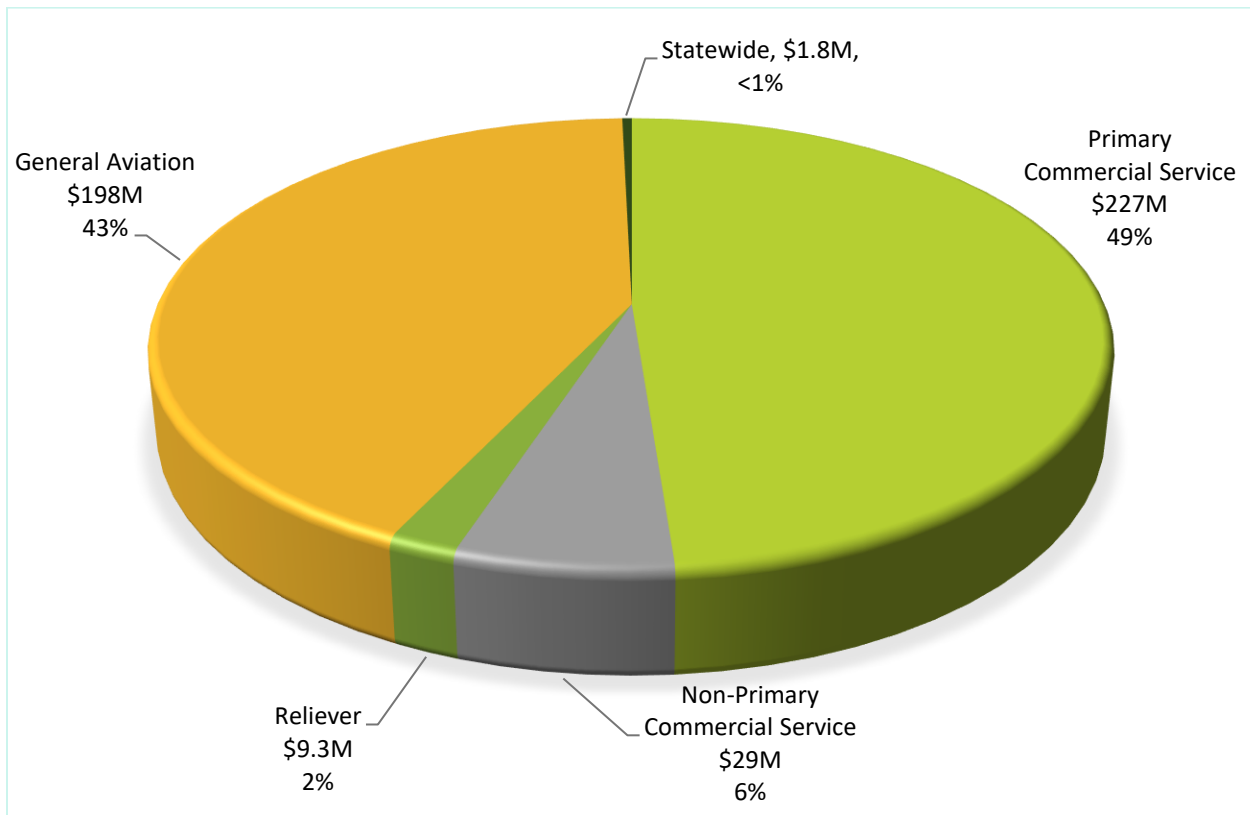
**Figure 7-8: FAA AIP Funding in Iowa (2010 to 2019)**



Source: [https://www.faa.gov/airports/aip/grant\\_histories/](https://www.faa.gov/airports/aip/grant_histories/)

As depicted in **Figure 7-9**, primary airports such as Des Moines, Eastern Iowa, Sioux City, and Dubuque have received a significant share (\$227 million or 49 percent) of FAA AIP grants from 2010 to 2019. NPIAS general aviation airports across Iowa received \$198 million or 43 percent from 2010 to 2019.

Figure 7-9: FAA AIP Funding in Iowa by Airport Category (2010 to 2019)



Source: Federal Aviation Administration

### 7.6.2 FAA Entitlement Funding

AIP entitlement grants are allocated among NPIAS airports by a formula that is driven by passenger enplanements and are awarded in accordance with specific guidelines. Generally, Primary Airports (Part 139) receive \$1 million in entitlements based on the number of enplaning passengers (greater than 10,000 enplanements on scheduled airlines) and landed cargo weights. Non-primary airports, which include general aviation airports, likewise may receive entitlement funding consisting of \$150,000 per year.

Non-Primary airports, which may not have a need for AIP funds in a given year, are permitted by the FAA to withhold their entitlement funds for up to four years until a project is identified and total funds are accumulated. These accumulated funds may be held for four years, for example, then expended in an AIP grant for a project valued at \$600,000.

### 7.6.3 FAA Discretionary Funding

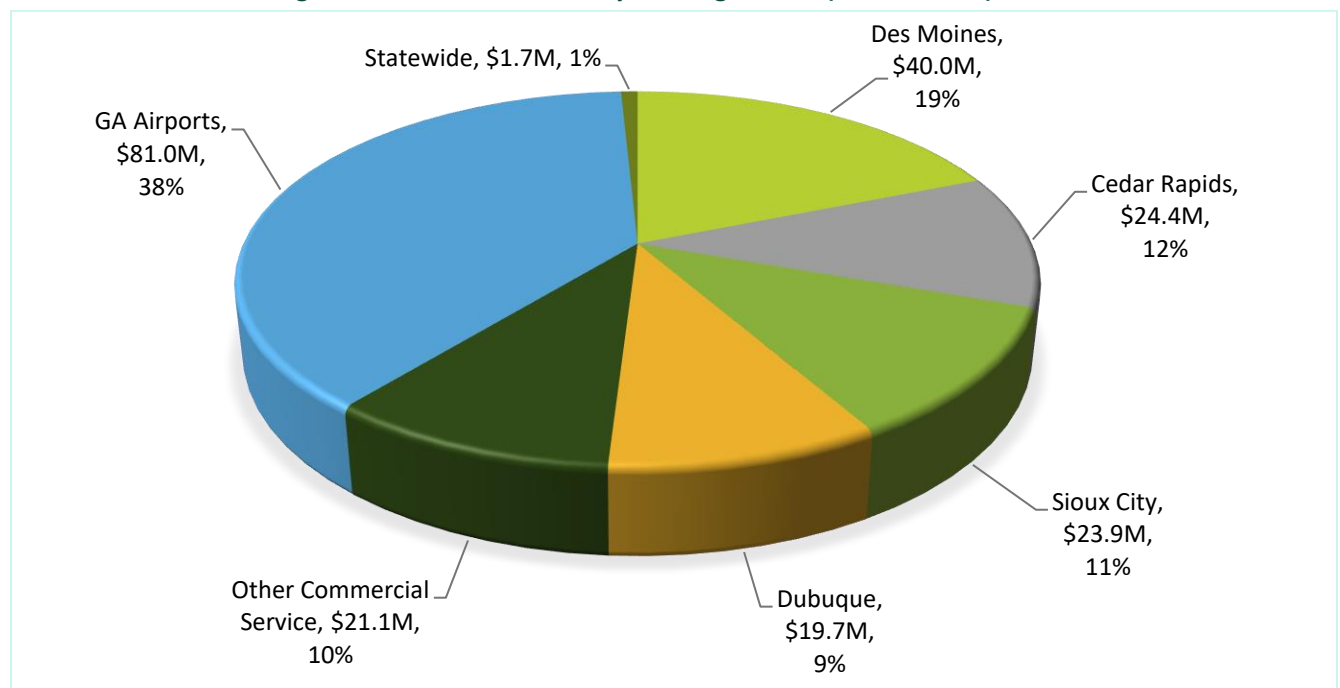
Commercial service and general aviation airports also compete for federal discretionary funds. These funds are awarded based on priority ratings given to each potential project by the FAA. The distribution of discretionary funds is based on a national prioritization system. Prioritization is based on projects that best meet the purpose of the AIP program, with priority given to safety, security, reconstruction, capacity, and standards. Each project receives a priority ranking based on formula calculations which are defined in FAA Order 5100.39A, *Airports Capital Improvement Plan*.



Federal funding is limited to development that is justified to meet aviation demand according to FAA guidelines. Each NPIAS airport development project is subject to eligibility and justification requirements as part of the normal AIP funding process.

**Figure 7-10** identifies total FAA discretionary grants for Iowa airport projects from 2010 to 2019, with the majority going to general aviation airports across Iowa (\$81 million or 38 percent). The FAA allocated nearly \$40 million to Des Moines, \$24.4 million going to the Eastern Iowa, \$23.9 million going to Sioux City, \$19.7 million allocated to Dubuque, and \$21.1 million to other commercial service airports such as Waterloo, Mason City, Fort Dodge, and the Southeast Iowa Regional Airport located in Burlington.

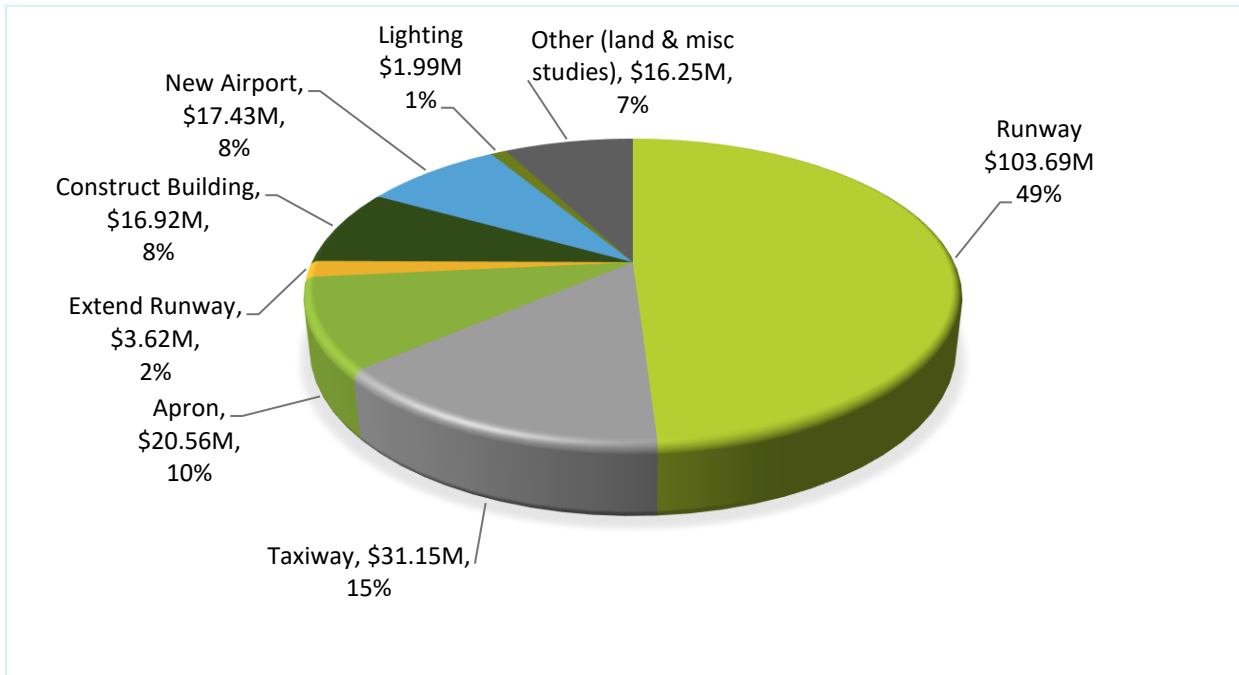
**Figure 7-10: FAA Discretionary Funding in Iowa (2010 to 2019)**



Source: [https://www.faa.gov/airports/aip/grant\\_histories/](https://www.faa.gov/airports/aip/grant_histories/)

**Figure 7-11** summarizes FAA discretionary spending by project type for Iowa airports between 2010 and 2019. Runway reconstruction and rehabilitation projects comprise approximately 49 percent of the \$212 million spent in Iowa over the last ten years.

Figure 7-11: FAA Discretionary Spending in Iowa (2010 to 2019)



Source: [https://www.faa.gov/airports/aip/grant\\_histories/](https://www.faa.gov/airports/aip/grant_histories/)

#### 7.6.4 State Apportionment Funding

FAA funds are made available to states under various conditions and are apportioned based on the number of airports, operations, population, and pavements. The distribution of these grants is decided through a collaborative effort by the FAA and each state.

From 2012-2021, Iowa airports received on average \$2.9 million in state apportionment funding annually. The following is a summary of the State Apportionment Funding from 2012-2021.

- FY2021: \$2.80 million
- FY2020: \$2.78 million
- FY2019: \$2.80 million
- FY2018: \$3.04 million
- FY2017: \$3.09 million
- FY2016: \$3.12 million
- FY2015: \$3.11 million
- FY2014: \$2.84 million
- FY2013: \$2.90 million
- FY2012: \$2.80 million

#### 7.6.5 Passenger Facility Charge (PFC) Program

The Passenger Facility Charge (PFC) program allows commercial service airports to collect PFC fees up to \$4.50 for each eligible passenger at commercial airports. PFC fees are capped at \$4.50 per flight segment with a maximum of two PFCs charged on a one-way trip or four PFCs on a round trip (\$18 total).

Commercial airports electing to impose a PFC may utilize the revenues for one or more of the following:

- Pay all or part of the allowable cost of an FAA approved project
- Pay debt service and financing costs associated with bond issuance
- Combine PFC funds with Federal Grant funds (e.g. AIP) to accomplish an approved project

- Apply PFC funds to meet non-federal share of the cost of projects funded under the Federal Airport Grant Program

In Iowa, commercial service airports utilize PFC fees to fund a variety of projects such as improving safety, security, capacity; reducing noise; or increasing air carrier competition.

From 2011-2020, United States airports collected on average approximately \$3.09 billion in PFCs per year. Iowa airports collected on average \$7.44 million in PFCs per year ranging from 2011-2020. As shown in **Table 7-5**, due to COVID-19 impacts, Iowa airports experienced a reduction of \$3.71 million in PFC collections or a decline of -40.6 percent in 2020.

**Table 7-5: FAA PFC Program Collections**

Year	U.S. Airports	% Change		Iowa Airports	% Change
2020	TBD			\$5.44M	-40.6%
2019	\$3.63B	3.3%		\$9.15M	-4.1%
2018	\$3.51B	7.0%		\$9.54M	23.1%
2017	\$3.29B	3.9%		\$7.75M	-2.3%
2016	\$3.16B	4.3%		\$7.93M	7.3%
2015	\$3.04B	5.2%		\$7.39M	-0.1%
2014	\$2.88B	2.6%		\$7.40M	2.3%
2013	\$2.81B	0.5%		\$7.23M	8.2%
2012	\$2.80B	3.2%		\$6.69M	12.0%
2011	\$2.71B	-0.7%		\$5.97M	1.6%

Source: FAA (PFC) Branch, FAA Central Region

### 7.6.6 FAA CARES Funding

The Coronavirus Aid, Relief, and Economic Security (CARES) Act enacted in March 2020 included \$10 billion in relief funds to assist eligible airports in response to the COVID-19 pandemic. Of the amount, at least \$100 million was dedicated for general aviation airports. The Act also included \$56 million for the Essential Air Service Program to maintain existing air service to rural communities.

The CARES Act provided funds to increase the federal share to 100 percent for AIP and supplemental discretionary grants already planned for FY20. Normally, AIP grant recipients are required to contribute a local match percentage. The additional CARES funds allowed critical safety and capacity projects to continue as planned despite the Airport's current financial situation.

CARES funds were distributed by various formulas to airports part of the national airport system which included all commercial service airports, reliever and some publicly-owned general aviation airports.

In Iowa, a total of 79 airports shared \$70.5 million in grants from the CARES Act Airport Grant Program. The funding was used to support continuing operations and replace lost revenue resulting in the sharp decline in international and domestic travel. Des Moines International Airport received \$23.1 million, the Eastern Iowa Airport received \$22.8 million, Mason City Regional Airport received \$17.0 million, while all other facilities engaged in general and commercial aviation activities received lesser amounts.

General aviation airports in Iowa received upwards of \$69,000 to a minimum amount of \$20,000 going to several of the state's airports in rural communities.

### 7.6.7 Iowa DOT Funding

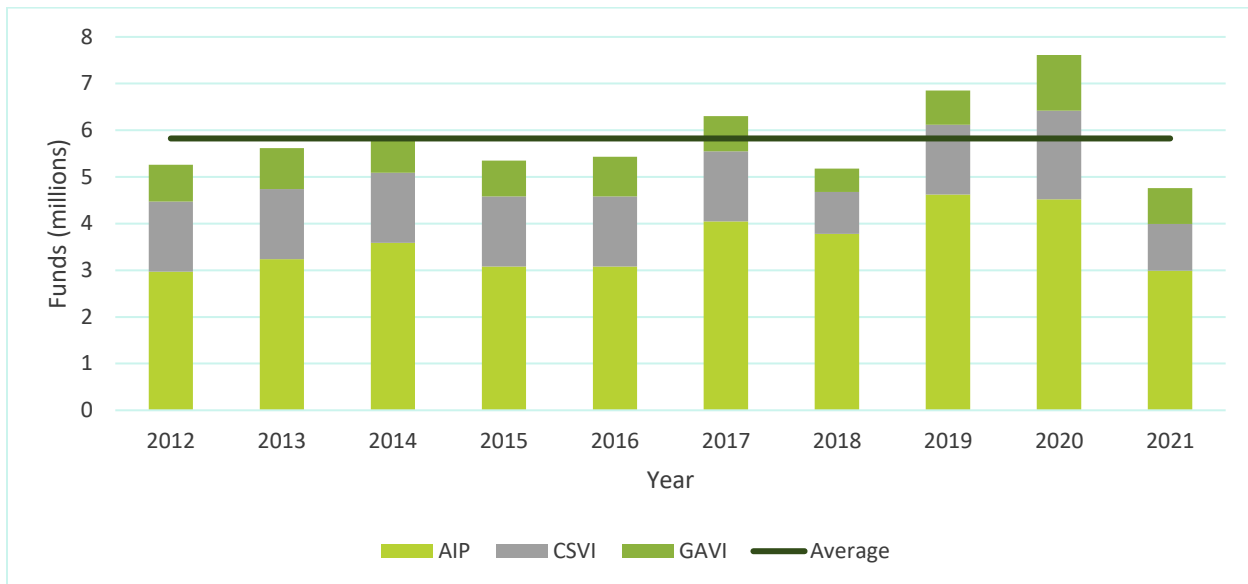
The Aviation Bureau administers two major categories of state aviation funding programs: the state Airport Improvement Program (AIP) and vertical infrastructure programs. The Iowa Transportation Commission annually approves the funding allocations and project selections.

- **AIP Program:** From 2012-2021, the AIP program has averaged \$3.6 million annually to assist in the preservation and development of airfield related infrastructure. Eligible projects are funded up to 85 percent and generally include planning and improvements related to enhancing airport safety, capacity, security, and environmental concerns.
- **Commercial Service Vertical Infrastructure (CSVI) Program:** The CSVI program provides annually funding of approximately \$1.5 million per year for landside development and renovation of terminals, hangars, maintenance buildings, and fuel facilities at commercial service airports. Appropriated funds are distributed to the commercial service airports by a 50/40/10 formula. One half of the funds are allocated equally between each airport, 40 percent of the funds are allocated based on the percentage of enplaned passengers at each airport versus the total number of enplaned passengers in the state, and 10 percent of the funds are allocated based on the percentage of the air cargo tonnage at each airport versus the total tonnage in the state. No local match is required.
- **General Aviation Vertical Infrastructure (GAVI) Program:** From 2012-2021, the GAVI program has provided on average \$800,000 per year for general aviation airport projects which include landside development and renovation of airport terminals, hangars, maintenance buildings, and fuel facilities. Eligible projects may be funded up to 85 percent when funding is available for the program. Maximum requests for general aviation vertical infrastructure project are capped at \$150,000 for new construction and \$75,000 for rehabilitation. Routine maintenance of buildings and minor renovation projects are not eligible.

Funding for vertical infrastructure programs is dependent on legislative action and not guaranteed. Historically, application requests for vertical infrastructure far exceeds the appropriated funding. The State of Iowa's allocation in 2020 for airport vertical infrastructure was \$1.8 million.

As shown in **Figure 7-12**, the State Aviation Program provides approximately \$5.8 million in funding to Iowa airports on an annual basis.

Figure 7-12: Iowa DOT State Aviation Program Funding (2012-2021)



Source: Iowa DOT Aviation Bureau

### 7.6.8 Other State Aviation Funding Programs<sup>1</sup>

#### ***Air Service Development (ASD) Program***

The Air Service Development (ASD) program provides assistance to commercial service airports to maintain and enhance passenger air service in Iowa. Targeted funding is used to attract and retain air service based on the particular needs and circumstances of the airport’s passenger air service market. Participation is limited to airports designated as commercial service airports in the current state aviation system plan that are currently receiving scheduled Part 121 domestic or Part 135 commuter service. Eligible projects may be funded up to 80 percent when funding is available for the program.

#### ***Land Use Planning and Zoning Program***

The Land Use Planning and Zoning program encourages airport sponsors, cities, and counties to enact airport zoning that protects compatible land use near airports. Airport sponsors are also encouraged to work with city and county comprehensive plans to include compatible land use protection for airports. Airport sponsors interested in funding for this purpose must first work with the Aviation Bureau to develop a scope of work and sign an agreement. No reimbursement for the project will occur until the zoning or comprehensive plan has been adopted by the appropriate parties. It should be noted that privately owned airports are not eligible for this funding.

#### ***Immediate Safety Enhanced (ISE)***

The Immediate Safety Enhancement (ISE) program is intended to assist airports with safety related repairs to existing equipment that may malfunction, as well as infrastructure that may be damaged, outside the typical grant application process. Safety-related issues identified by the airport inspector as needing immediate attention may also be included. This program includes emergency repair to communication and navigational

<sup>1</sup> <https://iowadot.gov/aviation/airport-managers-and-sponsors/State-Funding/state-funding-programs>

equipment, pavement blow-ups, lighting and other safety-related issues. Airports can apply for immediate safety enhancements up to \$10,000 (70 percent match) which are accepted throughout the year.

### ***Airport Wildlife Hazard Mitigation Program***

The Wildlife Mitigation Program provides assistance to airport sponsors in mitigating and removing wildlife from airports to reduce the potential for wildlife strikes. The Aviation Bureau coordinates agreements with USDA Wildlife Services to perform year-long wildlife studies or mitigation activity at airports, provide resources and training for airports to conduct their own mitigation, and coordinate deer depredation efforts with the Iowa Department of Natural Resources (DNR). Activities eligible at an airport will reflect findings from initial consultations with the USDA Wildlife Services biologists.

### **7.6.9 Iowa Aviation Related Taxes/Fees**

The State AIP is funded through the State Aviation Fund, with revenues from aircraft registration fees and aircraft fuel taxes, and is used to support airport development projects, on-going aviation-related services such as automated weather observation system (AWOS), runway markings, windsocks, special projects and statewide planning. The GAVI and CSVI programs are funded through annual appropriations from the state legislature for general aviation and commercial air service airports.

#### ***Aircraft Registration Fees***

Civilian aircraft owners register their aircraft with the Iowa DOT and pay aircraft registration fees annually that are computed on an aircraft age and primary use (business, personal, medical helicopter, etc.). The minimum aircraft registration fee is \$35 and fees are capped at \$5,000.

#### ***Aviation Fuel Taxes***

The State of Iowa collects aviation fuel taxes on the sale of AvGas and Jet A fuel. Current rates are \$0.08 per gallon for AvGas and \$0.05 per gallon for Jet A. Aviation fuel tax receipts are deposited in the State Aviation Fund.

#### ***Use Tax Related on Aircraft Sales***

A one-time six percent use tax on the purchase price of the aircraft is collected when an aircraft is registered with the Iowa DOT. While aircraft registration fees are deposited into the State Aviation Fund, use taxes are not directed to aviation programs and are instead deposited into the State's General Fund.

#### ***Sales Tax on Aircraft Parts and Labor***

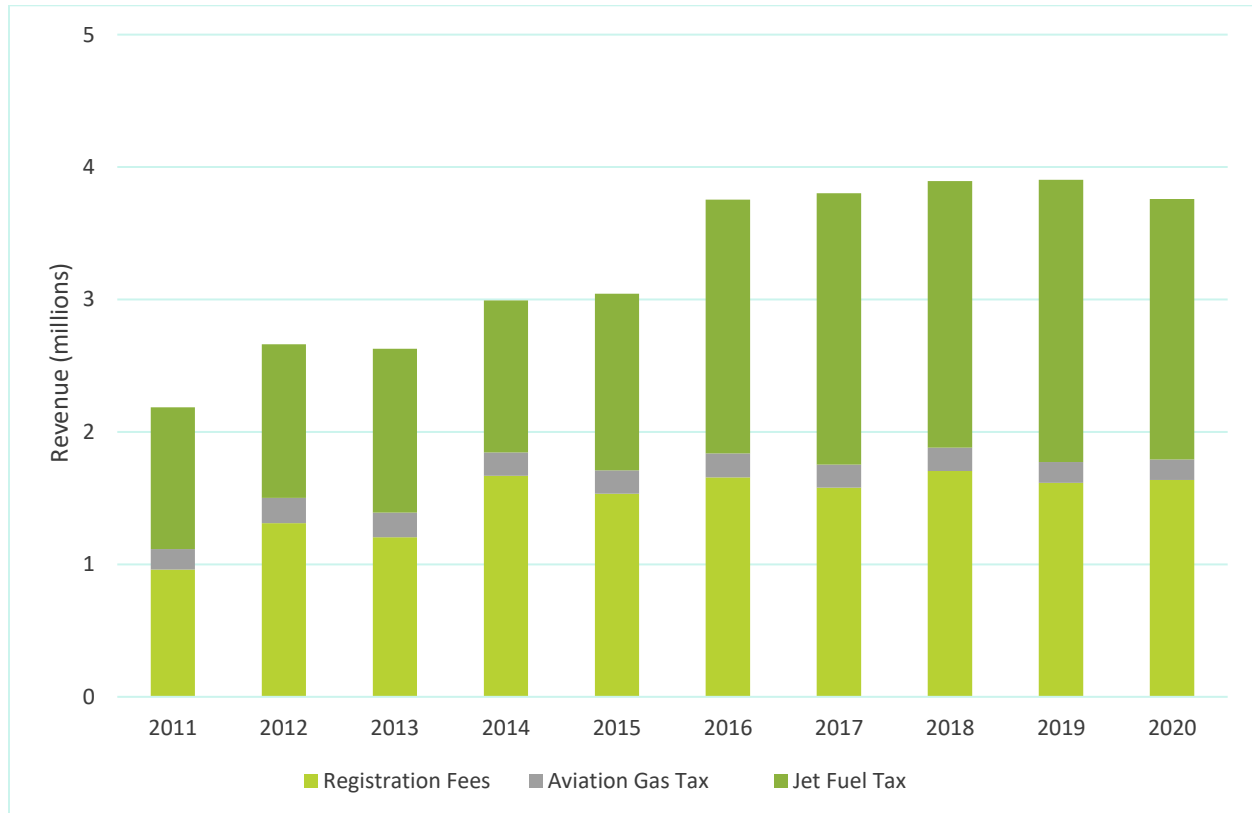
A six percent retail sales tax is collected on parts and labor associated with aircraft repair and maintenance. Like use tax collected on aircraft sales, the sales taxes collected on aircraft parts and labor are deposited into the State's General Fund. Scheduled and nonscheduled interstate Federal Aviation Administration certified air carrier operations are exempt from these sales taxes. In recent years, many states have expanded that exemption to all sales taxes on aircraft parts and labor. Accordingly, for the past several years, aviation stakeholders have been attempting to expand the exemption to all aircraft to keep Iowa's aircraft maintenance facilities and airports competitive with those in surrounding states.

## Taxes and Fees Collected

Average annual revenue for aircraft registration fees is approximately \$1.5 million over the 10-year period while revenues related to AvGas and Jet A fuel sales in Iowa averaged just over \$1.78 million for a total of \$3.28 million in average revenue. Revenues increased by \$711,000 (or 23 percent) between 2015 and 2016 but remain steady at approximately \$3.8 million from 2017 to 2020.

Revenues attributed to fuel taxes and aircraft registration fees from 2011 to 2020 are presented **Figure 7-13**.

**Figure 7-13: Iowa DOT Registration Fees and Fuel Tax Revenues (2011-2020)**



Source: Iowa DOT Aviation Bureau

### 7.6.10 Public-Private Partnerships

Public-Private Partnerships, also known as P3s, are agreements between government agencies and private entities to finance, build, or operate development projects. P3s often involve the shift of financing from the public sector to the private sector, where the private sector can recoup dollars from the on-going operation of the development, and the public receives the benefit provided from the completed infrastructure project.

There are minimal examples of P3 arrangements in the United States, with slightly more found in other countries around the world. In 1997, the FAA authorized the Airport Privatization Pilot Program (APPP), permitting five airports to sell or lease airport components to private entities. As of 2018, the program has been renamed to the Airport Investment Partnership Program (AIPP) and has been expanded to allow participation by 10 airports. The updated program now allows the public sponsor and private operator to manage an airport jointly. Multiple airports have participated in the program, only to revert to public sponsor ownership and management. The most high-profile airport currently in the program is Luis Munoz Marin

International Airport, which underwent full privatization through a 40-year lease with Aerostar. Aerostar made an initial payment of \$615 million to the Puerto Rican government and will share revenue throughout the life of the contract. There are currently only two airports occupying the 10 available spots in the AIPP.

While the AIPP involves an agreement regarding the entire airport property, other airports in the United States have begun to use P3s to fund specific infrastructure projects at the airport. Commercial airport terminals offer the most opportunity for this type of arrangement as the terminals are often a key source of revenue. The Kansas City International Airport is currently undergoing the construction of a new terminal complex that is the result of a \$1.5 billion partnership, while LaGuardia Airport in New York completed its new Terminal B complex using a \$4 billion partnership. While these example agreements are large in scope, the potential for P3 arrangements in Iowa is much more limited.

### ***Marion Airport***

In Iowa, there are very limited examples of full P3 projects at general aviation airports. The Marion Airport is a current example of a P3 project. Historically, the airport was privately owned and operated but open for public use, with a unique runway that was partially turf and pavement and did not meet state safety requirements. With aging infrastructure and inadequate funding to make improvements but an increasing user base, the landside of the airport was sold to a private developer and the City of Marion purchased the remainder of the airport, leading to the current P3 arrangement.

### ***Considerations in a P3 Arrangement***

While P3 contracts add an innovative option for financing and completing new infrastructure projects, there have been limited examples of P3s used at airports throughout the United States, and even less so when the scope is narrowed down to general aviation airports.

A P3 arrangement at a general aviation airport could have several benefits. First, financial risks are often shifted from the public sector to the private sector, eliminating the responsibility of the public entity to determine the mix of funding sources necessary to fully fund a project. Aside from shifting risk, the arrangement also allows for private investment to accelerate important airport development projects that may otherwise languish due to lack of public funding.

There are also several potential pitfalls that need to be considered when evaluating P3s at general aviation airports. Contracting becomes a much more necessary and important tool to ensure that the public entity retains some authority while the project and financial responsibility shift to the private entity for the contract period. Depending on the size of the airport, this additional cost could add a burden to the public sector entity pursuing the P3. Additionally, financing in private sector construction is not immune to issues, and while project risk is shifted from the public sector to the private sector, there is always the chance that private sector financing experiences difficulties. Eligibility for capital improvement or on-going maintenance funding outside the P3's scope should also be considered if ownership of any land or facility is changing. FAA and State funding may become unavailable if certain measures or provisions are included in any agreement.

### ***Future of P3s at Iowa Airports***

In the Iowa system, Marion Airport is likely a unique instance of a P3 arrangement occurring at a general aviation airport within the state. Prior to the P3, the airport was privately-owned and operated with a partially paved runway. The airport had infrastructure in place but a lack of investment capability to bring the facility up to standards. The combination of private ownership and a paved runway is not present at any other Iowa airport facility, making the P3 at Marion Airport a unique circumstance that would be difficult to replicate.



Other privately owned, public use airports in Iowa maintain turf runways and currently meet facility objectives. Of the eight airports that meet these parameters, they are all lower-activity airports in the Local Service Role ranging from five to one based aircraft, except for Larchwood with 21. These airports are unlikely require any additional investment in runway facilities as the facility objectives for local service airports are to maintain the existing infrastructure.

Des Moines International Airport is in the process of developing a new commercial terminal building in which a P3 arrangement was evaluated with assistance from a consultant. The terminal development is still in progress and it is unclear whether P3 elements will be included in final financing.

Iowa airports in the NPIAS are eligible to receive federal grant funding through the Airport Improvement Program, making a shift from public ownership to private operation unlikely, as these funds would be available for necessary capital improvements. Additionally, airports in the NPIAS must follow FAA grant assurances regarding property disposal, ground rent, and through the fence operations making the privatization of elements of the airport no longer in control of the Sponsor much more challenging. Airports not in the NPIAS, but publicly owned are eligible for Iowa state grant funding, which provides a different source for capital improvements and decreases the likelihood of a P3 agreement.

## 7.7 Summary of Airport Cost Estimates and Funding

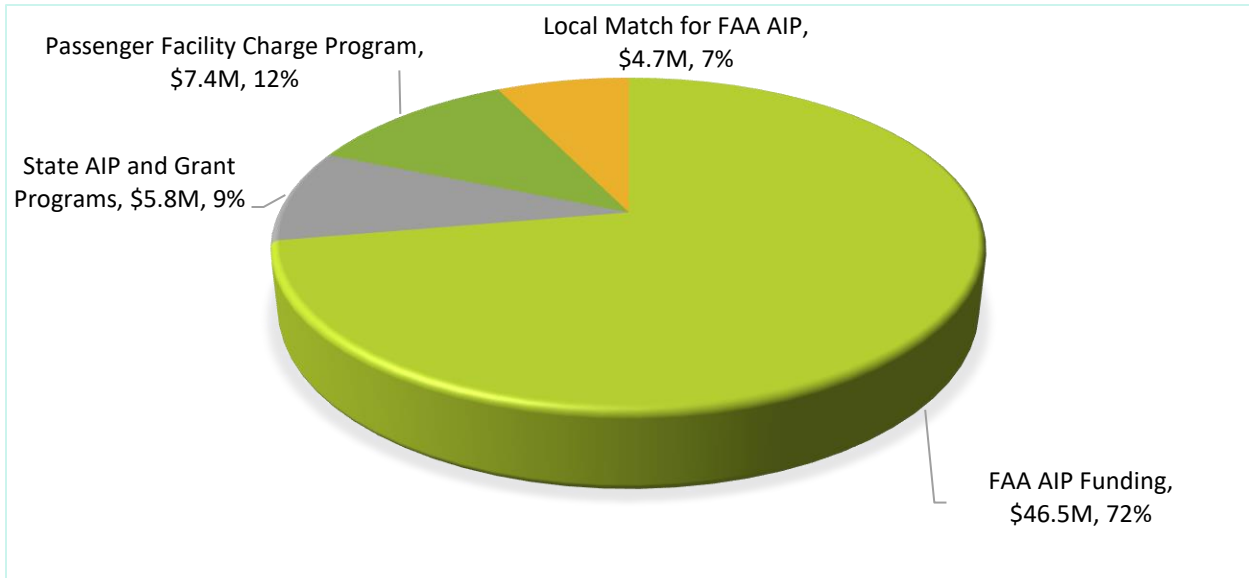
Recommended system planning project costs were developed to identify funding levels needed to support each airport fulfilling its recommended facility and service objectives. In addition, project costs from each airport's capital improvement program, as well as each airport's pavement maintenance program, were collected to create a complete view of potential funding needed for the system. These three areas of needed funding were compared to avoid double counting projects that might appear in more than one category. Identified funding needs for the next 10 years were determined approach \$1.2 billion. Each assessed funding category's need is:

- System Plan Identified Projects - \$34.9 million
- ACIP Identified Projects - \$1.1 billion
- Pavement Maintenance Projects - \$84.4 million

Commercial Service airports represent nearly 60 percent, or \$706.8 million, of this identified need. Projects at Enhanced Service airports approach 16 percent or \$187.5 million, while projects at General Service Airports will require nearly \$173.6 million (15 percent). Basic and Local Service facilities will require the remaining 10 percent, or \$113.2 million in the next ten years.

For most states, the need on an annual basis to improve and maintain the state airport system far exceeds all available funding resources. Highlighting this gap will be important, especially as it relates to educating state and local elected officials. Airport funding comes from various FAA, state, and local sources. The FAA provides the greatest amount, through the AIP. While the funding amount fluctuates, on average \$46 million is available annually from FAA grants. The State Aviation Program provides approximately \$5.8 million in funding to Iowa airports on an annual basis. Other available funding such as PFCs and local and private funding provide an estimated \$14 million annually.

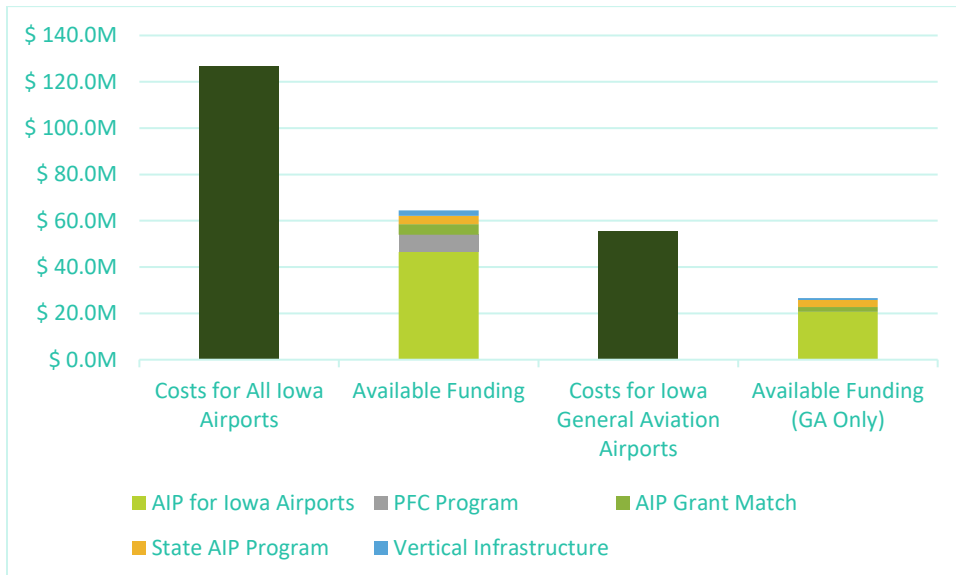
Figure 7-14: Historic Annual Funding Levels (10-Year) by Source



Source: FAA AIP 2010 - 2019, Iowa DOT Aviation Bureau

As shown previously, **Figure 7-14** and **Figure 7-7** identify potential average annual funding needs for all Iowa airports and all general aviation airports in Iowa, respectively. Combining all three categories, an average annual investment need is estimated at \$126.6 million when considering all Iowa airports. When considering just general aviation airports, the annual funding need is reduced to \$55.5 million. These numbers are contrasted with historic average funding levels over the past 10 years in **Figure 7-15**.

Figure 7-15: Annual Funding Need Compared to Anticipated Annual Available Funding



Source: FAA, Iowa DOT Aviation Bureau, McClure, ApTech

When the total average annual investment need of \$126.6 million from the SASP 2020 deficiencies, ACIPs, and pavement maintenance and rehabilitation costs is compared to anticipated annual federal, state, and local funds (approximately \$65 million) that could be available to meet this need, it is clear that a significant annual funding gap can be anticipated.

It is unlikely that additional state or FAA funding will be forthcoming, which means that investment decisions need to be made to help ensure that airports and projects that are most critical to the success of the Iowa airport system are funded. The SASP 2020 recommendations provides important decision-making information by identifying projects and actions that are important to raising the bar for future system performance. As future investments are made in the Iowa airport system, recommendations from the SASP 2020 should be considered to guide those investment choices.