
Chapter 4. Systemwide Costs & Implementation Plan

4.1. Introduction

Over the next 20 years, demand for aviation will change – evolving in concert with needs and trends arising at local, statewide, and global scales. As shown in **Chapter 3. Operations Counting and Forecasting**, general aviation (GA) airports are anticipated to support nearly one-half million additional operations annually by 2040. Commercial service airports are similarly anticipated to witness substantial growth through 2040. For example, the latest Long-term Plan (LTP, November 2021) prepared for the Minneapolis-St. Paul International Airport (MSP) projects that the airport could serve an additional 16.1 million annual enplanements by 2040.¹ Growth will not be evenly distributed across airports, with some airports serving equal or even diminishing activity levels over time.

Several tasks of the 2022 Minnesota Aviation System Plan (2022 MnSASP or MnSASP) have focused on such shifting demands and, consequently, how airport facilities and services must similarly evolve in response to those changes. Some airports should primarily focus on preservation to continue providing the level of support currently offered. Other airports should focus on both preservation and expansion, with improvement projects targeted at the type and frequency of activity levels anticipated in the future. This task of the 2022 MnSASP estimates the costs of such projected future improvements inclusive of both preservation and expansion needs. These costs have been obtained from a variety of different sources, each of which is presented in turn before being compiled at systemwide and classification-specific levels.

Systemwide aviation investment needs are then compared to current and anticipated future state and federal funding availability. This process reveals that Minnesota airports will face a significant funding deficiency in the years to come – forcing the Minnesota Department of Transportation, Office of Aeronautics (MnDOT Aeronautics) to carefully consider how projects are selected for state assistance. Accordingly, the 2022 MnSASP provides targeted guidance to help MnDOT Aeronautics reevaluate and ultimately revise the funding prioritization methodology employed by the state. The distribution of state assistance is one of the most impactful agency tasks, with implications for Minnesota’s communities, businesses, and visitors. State funding should be awarded in a way that maximizes the value of each dollar spent and considers diverse aviation functions such as supporting access, mobility, commercial activities, recreation, safety/security, and quality of life services. With these objectives in mind, this chapter of the 2022 MnSASP is organized as follows:

- Aviation Investment Needs by Source (**Section 4.2**)
- Total Minnesota Aviation Investment Need (**Section 4.3**)
- Aviation Funding Sources (**Section 4.4**)
- State Funding Prioritization (**Section 4.5**)

¹ Metropolitan Airports Commission (2021). “MSP 2040: LTP Activity Forecast.” Available online at https://www.mspairport.com/sites/default/files/2021-12/LTP%20Forecast%20Executive%20Summary_11-21%20%28%29.pdf (accessed April 2022).

It is important to note that costs presented throughout this chapter are estimates only prepared at the systemwide level based on design and construction costs as of spring 2022. Individual airports must continue to conduct independent planning process to prepare costs aligned specifically to their needs, physical locations, implementation timing, and many other project-specific considerations. Additionally, inclusion in the 2022 MnSASP neither guarantees nor implies state support. The 2022 MnSASP is a high-level guidance document to assist MnDOT Aeronautics in its long-term decision-making processes and cannot be considered a project programming document.

4.2. Aviation Investment Needs by Source

The 2022 MnSASP obtained airport improvement needs from a variety of sources, each of which is discussed in turn below. These costs are not duplicative; instead, costs layer upon one another to sum to the total systemwide aviation investment needs presented in **Section 4.3**.

4.2.1. 2022 MNSASP COSTS

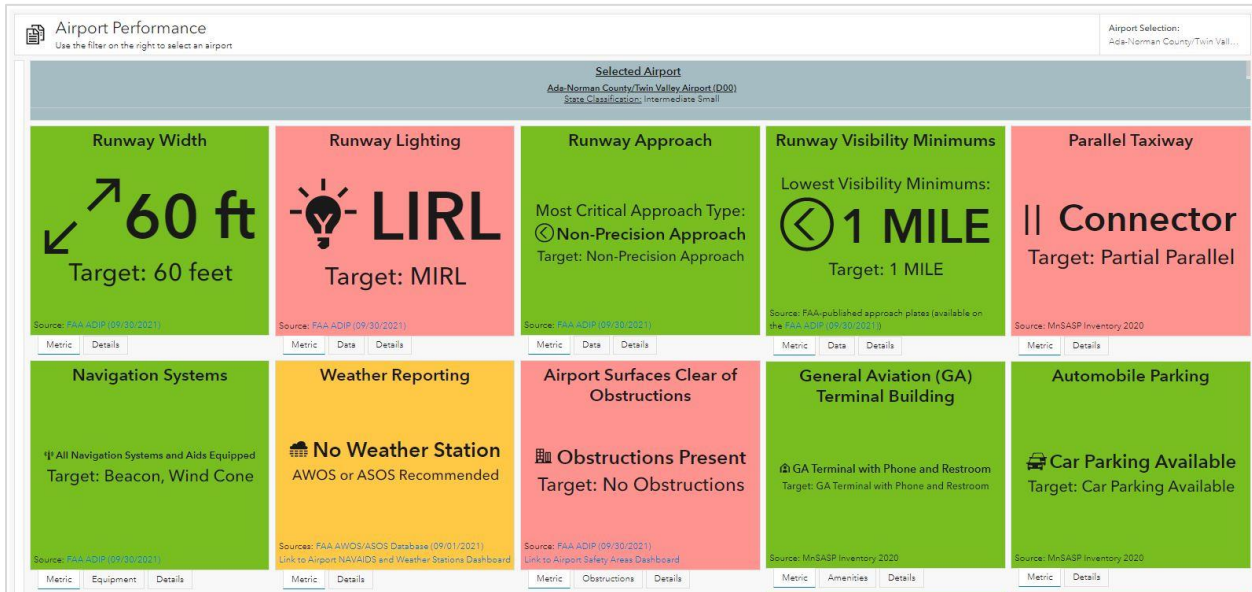
Discussed in **Chapter 2. Phase I Validation**, Phase I of the MnSASP identified a series of recommended facility, service, and administrative metrics that each Minnesota state system airport should provide based on state classification. These various measures guide airports in the types of needs that should be met to optimally support the types and volumes of aviation demand typically witnessed within each classification. In addition to guiding airport sponsors during long-term planning processes, metrics are used to measure progress towards various strategies and objectives associated with the overall vision for the state aviation system. Metrics are split into actionable “measures” and informational “indicators,” as well as defined for individual airports and systemwide. Many duplications exist between airport and system metrics, although some are unique to each category.

Phase I defined performance targets for each metric by airport classification. Airport measures were further defined in terms of “recommended,” “required,” and “as-needed” targets.² Phase II evaluated airports’ performance against airport and system targets following a comprehensive data collection effort conducted in early 2021.³ The results of the airport and system performance assessments are presented in two Dashboards within the MnSASP Hub discussed in **Chapter 6. Continuous Planning**. Example screenshots of the Airport Performance and System Performance dashboards are depicted in **Figure 4.1** and **Figure 4.2** (respectively). The MnSASP Hub is available online at mnsasp-mndot.hub.arcgis.com/.

² Table 2.6 and Table 2.30 in **Chapter 2. Phase I Validation** provide all airport and system performance measure targets (respectively) by classification. Recommended, required, and as-needed targets were not established for all metrics. For example, Key Commercial Service airports are required to have high intensity runway lighting (HIRLs). Key GA Airports are required to have Medium Intensity Runway Lighting (MIRLs) and recommended to have High Intensity Runway Lights (HIRLs). Neither Key Commercial Service nor Key General Aviation airports have as-needed targets for the runway lighting measure.

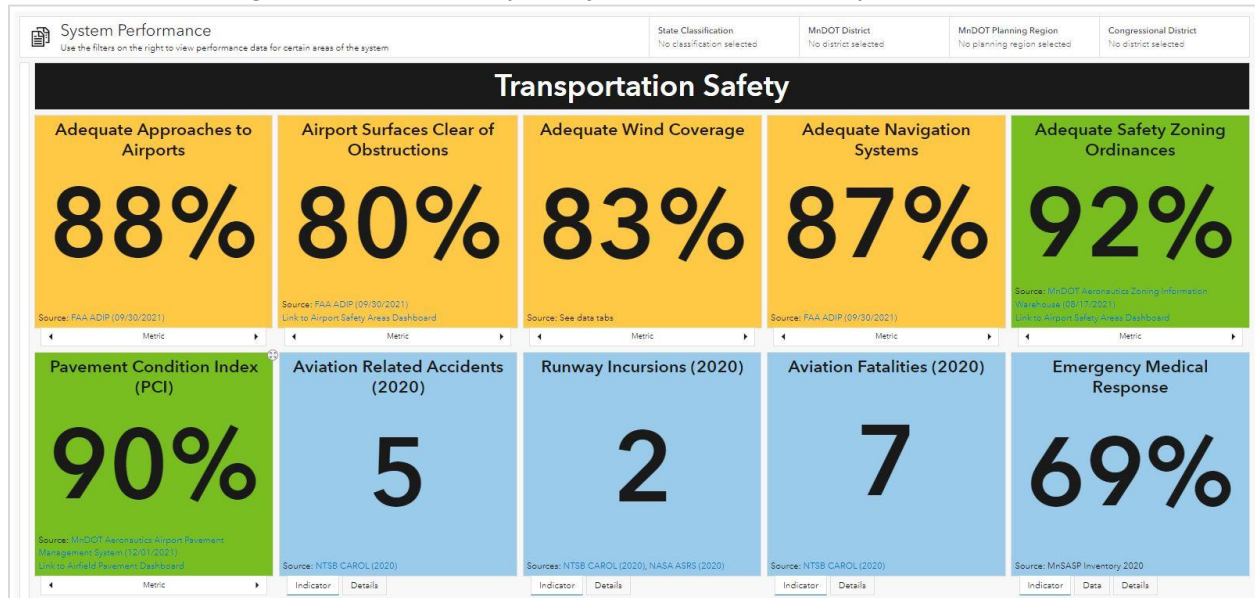
³ The performance assessment is based on calendar year 2020, which was the first full year of data available at the time of collection.

Figure 4.1. MnSASP Hub Airport Performance Dashboard Example Screenshot



Sources: MnDOT Aeronautics, 2022; Kimley-Horn, 2022

Figure 4.2. MnSASP Hub Airport Performance Dashboard Example Screenshot



Sources: MnDOT Aeronautics, 2022; Kimley-Horn, 2022

The 2022 MnSASP costs build upon this performance assessment by identifying project needs at airports that currently do not meet airport and/or system performance targets. Recommended projects are only associated with performance measures, as these recommended facilities, services, and administrative items are inherently actionable and can be improved via project implementation. The subsequent sections present the recommended project costs to improve Minnesota’s system of airports relation to the strategies identified by the MnSASP.

Following a brief methodological discussion, costs are presented individually by airport and system measures. Costs are summarized to achieve the greatest performance target (e.g., required, recommended, or as-needed) to provide a consistent presentation of need by measure and classification (as not all classifications have all target levels).

4.2.1.1. *Cost Methodology*

The 2022 MnSASP investment need represents the cost of required, recommended, and/or as-needed improvement projects based on established future performance targets for individual airports and systemwide. For example, Key Commercial Service airports are required to have HIRLs in accordance with the airport measures established during Phase I of the MnSASP. Any Key Commercial Service airport that does not have HIRLs triggers a project need with an associated cost.

Rough-order-of-magnitude (ROM) unit cost estimates were developed for nearly all airport and system measures based on 2022 design, construction, and material costs in Minnesota and nearby states. Costs were tailored by classification and region (e.g., urban versus rural locales). For example, pavement strength is assumed to be higher at Key Commercial Service airports relative to Intermediate facilities based on typical fleet mixes at these airports. Accordingly, unit pavement costs at Key airports are higher at these facilities. Costs from relevant recent airport improvement projects were also considered.

The following measures were obtained using a different methodology:

- **Clear zones:** All system airports are required to own 100 percent of clear zones off all runway ends in fee simple. Cost estimates for clear zones were estimated as follows for airports that reported owning less than 100 percent of clear zones during the MnSASP Airport Inventory:
 - Review the most recent Airport Layout Plan (ALP) on-file with MnDOT Aeronautics to identify clear zones not owned in fee simple by the airport sponsor based on maximum build out for each runway end configuration
 - Calculate the total acreage of all clear zones needing to be acquired in full or part based on the dimensional standards established during the 2022 MnSASP (see **Attachment 6. Clear Zone Guidance Statement**). Airport sponsors that reported “partial” ownership of clear zones during the MnSASP Airport Inventory are assumed to own 25 percent of the total acreage (75 percent to be acquired)
 - Obtain the average cost of land by county from the Minnesota Land Dataset prepared by the University of Minnesota Department of Applied Economics⁴
 - Multiply the estimated clear zone acreage to be acquired by the average cost of land by county

⁴ *Minnesota Land Economics (no date [n.d.]). “Minnesota Land Dataset.” Available at <https://landeconomics.umn.edu/> (accessed February 2022).*

- Pavement Rehabilitation/Maintenance:** The MnSASP system measures indicate a required target Pavement Condition Index (PCI) for primary runways and total airside pavement. The 2022 MnSASP reports pavement rehabilitation and maintenance cost as calculated by the Minnesota Airport Pavement Management System (APMS). This dataset includes pavement costs for 103 paved airports in Minnesota. Airports are inspected on a three-year cycle with individual airport costs published following their respective inspection years.⁵ Pavement maintenance and rehabilitation costs are incorporated into the system measures presented in **Section 4.2.1.3 System Measures**. Notably, airports owned and operated by the Metropolitan Airports Commission (MAC) including the Minneapolis-St. Paul International Airport and six Reliever facilities are excluded from the Minnesota APMS. Pavement maintenance and rehabilitation costs for these facilities are reported in **Section 4.2.3. MAC Investment Needs**.

Finally, project needs identified by the MnSASP were compared with the Minnesota statewide Capital Improvement Plan (CIP). Costs for specific projects identified by both the MnSASP and the CIP were generally obtained from the CIP in lieu of ROM cost estimates, as it is assumed CIP costs are more accurate since they are prepared by specific airports. However, CIP cost estimates were first reviewed for reasonableness, with requests significantly higher or lower than average unit costs rejected in favor of the ROM unit costs developed for the MnSASP.

4.2.1.2. Airport Measures

Airport measures represent facility, service, and administrative needs associated with the ability of individual airports to optimally support the types of aviation activities typically occurring at each classification of airport. Performance targets were established during Phase I of the MnSASP and evaluated based on the data collection and assessment efforts of Phase II. This analysis revealed that \$235.4 million in investment would be required for all Minnesota state system airports to meet their airport measure performance targets.

Parallel taxiways represent the highest singular need, both in terms of systemwide total (\$64.8 million) as well as the classification-specific level (\$63.5 million at Intermediate Small airports). The significant need at Intermediate Small airports is driven by the recommended performance target of a full parallel taxiway – a target met by only 13 of the 46 Intermediate Small airports in the state (28 percent compliance). Clear zones contribute the second-highest need at \$46.3 million at the statewide level. Eighteen Minnesota system airports report 100 percent ownership of all clear zones (18 percent compliance), resulting in a significant performance gap. Key GA airports generate the highest classification-specific need at \$21.1 million. Three of the 21 Key GA airports currently comply with this measure (14 percent compliance), leaving a performance gap at 19 airports (86 percent non-compliance). **Table 4.1** presents system investment needs associated with the MnSASP airport measures by type and classification. This information is depicted in the following **Figure 4.3**. The MnSASP Hub Airport Measure Dashboard presents performance by airport.

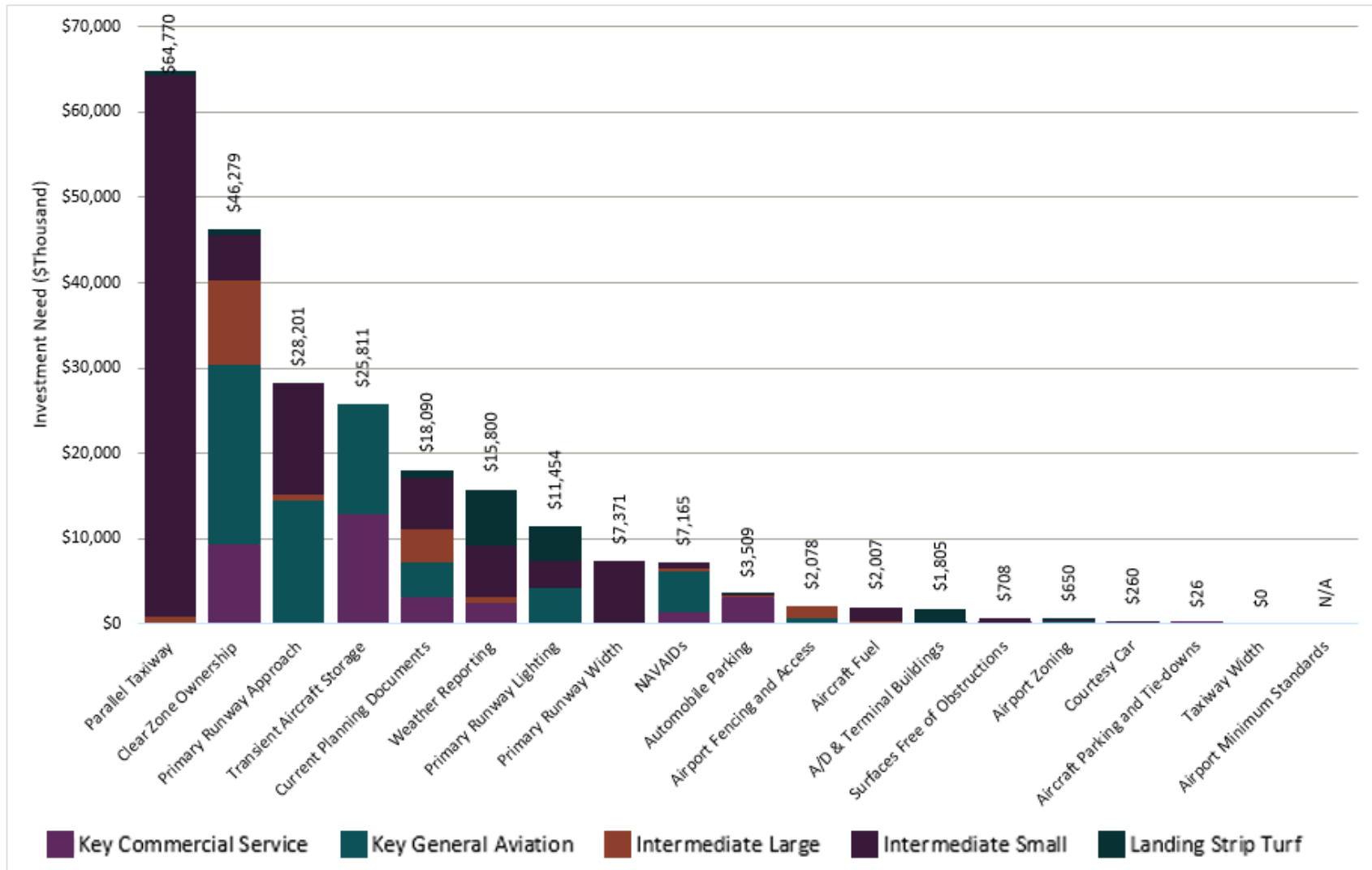
⁵ MnDOT Aeronautics (n.d.). "Pavement Management." Available online at <https://www.dot.state.mn.us/aero/airportdevelopment/pavementmanagement.html> (accessed December 2021).

Table 4.1. MnSASP Airport Measure Investment Needs by Type and Classification

Airport Measures	Investment Needs for Key Commercial Service (\$)	Investment Needs for Key General Aviation (\$)	Investment Needs for Intermediate Large (\$)	Investment Needs for Intermediate Small (\$)	Investment Needs for Landing Strip Turf (\$)	Investment Needs for All Classifications (\$)
Parallel Taxiway	\$0	\$0	\$808,889	\$63,448,283	\$513,058	\$64,770,230
Clear Zone Ownership	\$9,310,798	\$21,123,654	\$9,818,359	\$5,238,225	\$787,955	\$46,278,991
Primary Runway Approach	\$0	\$14,404,609	\$840,000	\$12,956,022	N/A	\$28,200,631
Transient Aircraft Storage	\$12,975,000	\$12,836,000	\$0	\$0	\$0	\$25,811,000
Current Planning Documents	\$3,100,000	\$4,200,000	\$3,780,000	\$6,017,000	\$992,500	\$18,089,500
Weather Reporting	\$2,450,000	\$0	\$700,000	\$6,000,000	\$6,650,000	\$15,800,000
Primary Runway Lighting	\$0	\$4,302,955	\$0	\$3,130,740	\$4,020,085	\$11,453,780
Primary Runway Width	\$0	\$0	\$0	\$7,370,767	\$0	\$7,370,767
Navigational Aids (NAVAIDs)	\$1,375,000	\$4,800,000	\$280,000	\$710,000	\$0	\$7,165,000
Automobile Parking	\$3,104,000	\$75,000	\$121,600	\$205,400	\$3,240	\$3,509,240
Airport Fencing and Access	\$0	\$680,000	\$1,397,500	\$0	\$0	\$2,077,500
Aircraft Fuel	\$0	\$0	\$275,000	\$1,732,000	\$0	\$2,007,000
Arrival/Departure (A/D) & Terminal Buildings	\$26	\$65	\$115,065	\$125,917	\$1,564,378	\$1,805,451
Surfaces Free of Obstructions	\$21,000	\$26,200	\$7,000	\$653,570	\$0	\$707,770
Airport Zoning	\$125,000	\$160,000	\$60,000	\$225,000	\$80,000	\$650,000
Courtesy Car	\$10,000	\$10,000	\$70,000	\$170,000	\$0	\$260,000
Aircraft Parking and Tie-Downs	\$3,400	\$3,400	\$3,400	\$11,900	\$3,400	\$25,500
Taxiway Width	\$0	\$0	\$0	\$0	\$0	\$0
Airport Minimum Standards ¹	N/A	N/A	N/A	N/A	N/A	N/A
Total	\$32,474,198	\$62,621,818	\$18,161,748	\$107,868,907	\$14,248,238	\$235,374,909

Note: (1) Airport minimum standards are an airport measure but do not have an associated cost. This measure is considered an operational exercise that could be implemented as part of an airport sponsor's normal business operations. Sources: MnSASP Data Inventory, 2021; Minnesota Land Economics, 2022; Kimley-Horn, 2022

Figure 4.3. MnSASP Total Airport Measure Needs by Type



Sources: MnSASP Data Inventory, 2021; Minnesota Land Economics, 2022; Kimley-Horn, 2022; MnDOT Aeronautics, 2022

4.2.1.3. *System Measures*

System measures serve as gauges to measure the Minnesota state aviation system’s ability to meet the needs of the diverse constituencies that rely on air transportation. System performance targets were established during Phase I of the MnSASP and evaluated based on the data collection and assessment efforts of Phase II. This analysis revealed that \$182.3 million in investment would be required for the Minnesota state system airports to meet their system performance measure performance targets.

Pavement rehabilitation and maintenance compose the two highest system investment needs at \$116.4 million and \$20.3 million, respectively. Because Minnesota’s state airport classification methodology primarily categorizes airports in terms of runway length, it is not surprising that Key GA airports contribute the greatest investment needs. These facilities require \$52.7 million in pavement rehabilitation and \$11.1 million in pavement maintenance investment to meet the PCI standards established by MnDOT Aeronautics. Pavement costs were obtained from the Minnesota APMS and represent a five-year need. As such, costs likely under-represent the total investment need through the ten-year planning horizon of the MnSASP. However, the plan adopted a conservative approach to maintain the integrity of costs presented.

Table 4.2 presents system measure investment needs by type and classification, with this same information visually presented in **Figure 4.4**. The MnSASP Hub System Dashboard presents performance by measure. Results can also be filtered by classification, MnDOT Planning Region,⁶ and Congressional District.

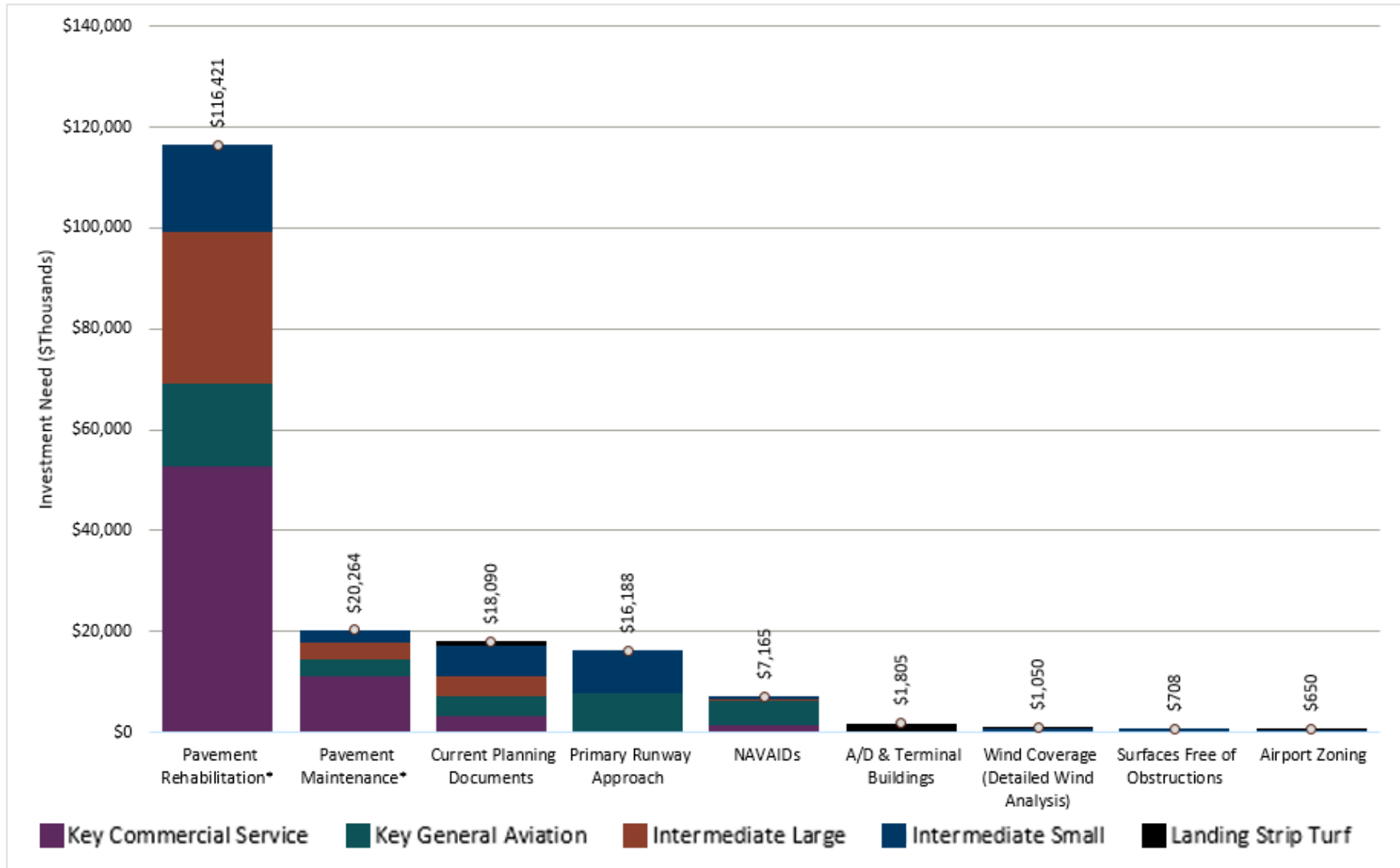
⁶ MnDOT Aeronautics has divided Minnesota into three planning regions (i.e., North, Central, and South) for statewide planning purposes. Each region has dedicated planning and airport development staff who assist airports located in their assigned regions. A map of the MnDOT Aeronautics planning regions and contact details for assigned staff members are available online at <https://www.dot.state.mn.us/aero/planning/contacts.html>.

Table 4.2. MnSASP System Measure Investment Needs by Type and Classification

System Measures	investment needs for Key Commercial Service (\$)	investment needs for Key General Aviation (\$)	investment needs for Intermediate Large (\$)	investment needs for Intermediate Small (\$)	investment needs for Landing Strip Turf (\$)	investment needs for ALL CLASSIFICATIONS (\$)
Pavement Rehabilitation ¹	\$52,675,416	\$16,350,199	\$30,152,479	\$17,242,798	\$0	\$116,420,892
Pavement Maintenance ¹	\$11,148,313	\$3,273,764	\$3,344,144	\$2,497,721	\$0	\$20,263,942
Current Planning Documents	\$3,100,000	\$4,200,000	\$3,780,000	\$6,017,000	\$992,500	\$18,089,500
Primary Runway Approach	\$0	\$7,711,778	\$0	\$8,476,022	\$0	\$16,187,800
NAVAIDs	\$1,375,000	\$4,800,000	\$280,000	\$710,000	\$0	\$7,165,000
A/D & Terminal Buildings	\$26	\$65	\$115,065	\$125,917	\$1,564,378	\$1,805,451
Wind Coverage ²	\$0	\$0	\$225,000	\$600,000	\$225,000	\$1,050,000
Surfaces Free of Obstructions	\$21,000	\$26,200	\$7,000	\$653,570	\$0	\$707,770
Airport Zoning	\$125,000	\$160,000	\$60,000	\$225,000	\$80,000	\$650,000
Total	\$68,444,755	\$36,522,006	\$37,963,688	\$36,548,028	\$2,861,878	\$182,340,355

*Notes: (1) Reflects five-year need as reported in the MnDOT APMS. (2) The system performance target for the wind coverage measure indicates that all airports should provide 95 percent wind coverage based on the orientation of their primary runway for the allowable crosswind component of their critical aircraft. The MnDOT Crosswind Runway Guidance Statement (included as **Attachment 5** in the **2022 MnSASP Technical Report**) indicates that airports must be eligible for funding support based on wind coverage as well as justified in that need. As such, the investment need represents the cost of conducting a detailed wind analysis required to demonstrate justification. Sources: MnDOT APMS, 2021; MnSASP Data Inventory, 2021; Kimley-Horn, 2022*

Figure 4.4. MnSASP Total System Measure Investment Needs by Type



*Note: Reflects five-year need as reported in the MnDOT APMS. Sources: MnDOT APMS, 2021; MnSASP Data Inventory, 2021; Kimley-Horn, 2022; MnDOT Aeronautics, 2022

4.2.1.4. Total MnSASP Costs

Minnesota’s state system airports require \$373.7 million in total investment need to achieve all airport and system performance targets. Pavement rehabilitation composes the highest need within the state at \$116.4 million. Parallel taxiway investment needs are the second-highest at the systemwide level at \$64.8 million – although this is just below one-half of investment needs contributed by pavement rehabilitation. Statewide results are summarized in **Table 4.3**, with detailed results provided in **Table 4.4** and depicted in

Figure 4.5.

Table 4.3. MnSASP Total Airport and System Measure Investment Need Summary

Airport/System Measures	Total Investment Needs (\$)
Pavement Rehabilitation	\$116,420,892
Parallel Taxiway	\$64,770,230
Clear Zone Ownership	\$46,278,991
Primary Runway Approach	\$28,200,631
Transient Aircraft Storage	\$25,811,000
Pavement Maintenance	\$20,263,942
Current Planning Documents	\$18,089,500
Weather Reporting	\$15,800,000
Primary Runway Lighting	\$11,453,780
Primary Runway Width	\$7,370,767
NAVAIDs	\$7,165,000
Automobile Parking	\$3,509,240
Airport Fencing and Access	\$2,077,500
Aircraft Fuel	\$2,007,000
A/D & Terminal Buildings	\$1,805,451
Surfaces Free of Obstructions	\$707,770
Airport Zoning	\$650,000
Courtesy Car	\$260,000
Aircraft Parking and Tie-downs	\$25,500
Airport Minimum Standards ¹	N/A
Total	\$373,717,194

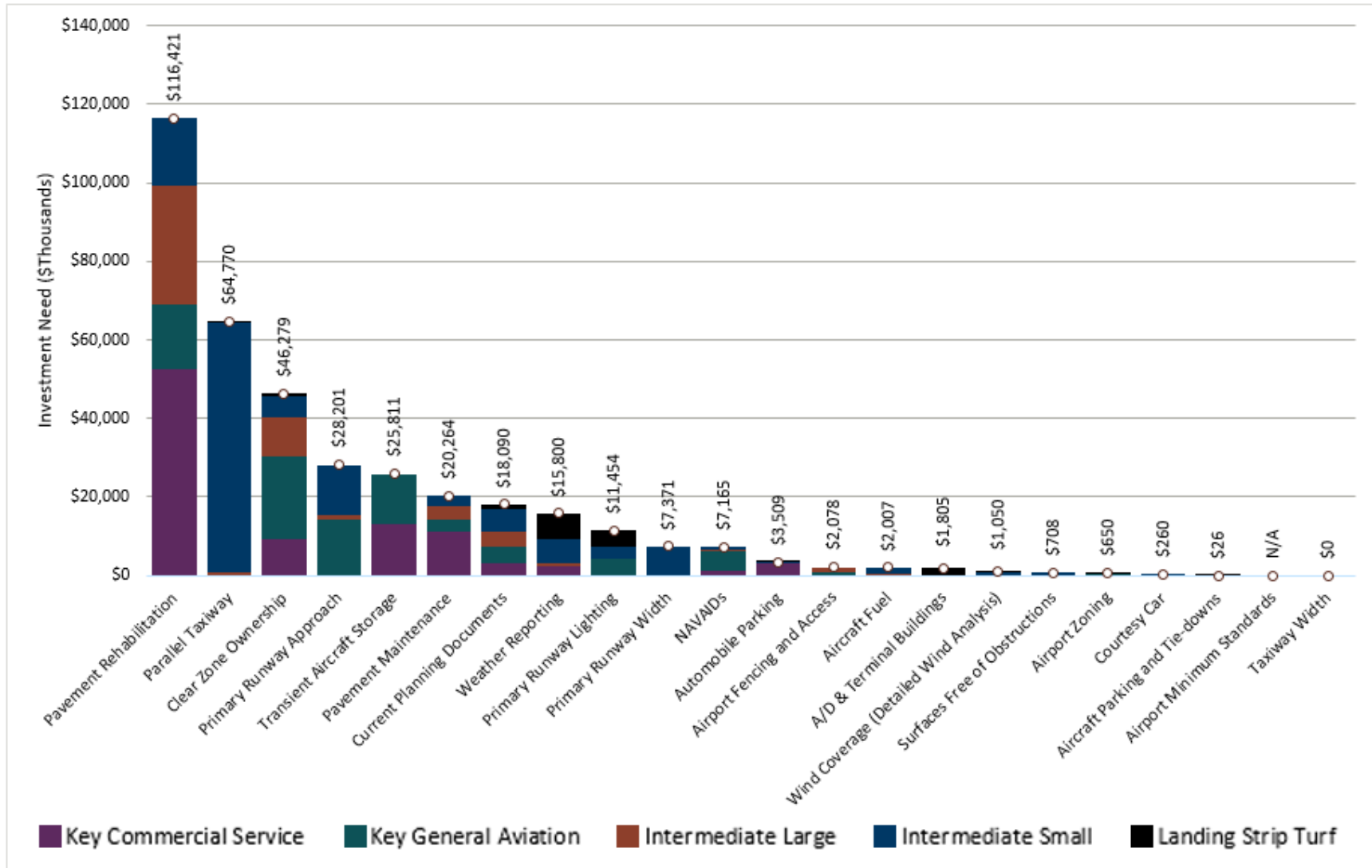
Note: (1) No associated project costs. Sources: MnDOT APMS, 2021; MnSASP Data Inventory, 2021; Kimley-Horn, 2022; Minnesota Land Economics, 2022

Table 4.4. MnSASP Total Airport and System Measure Investment Needs by Classification

Airport/System Measures	Investment Needs for Key Commercial Service (\$)	Investment Needs for Key General Aviation (\$)	Investment Needs for Intermediate Large (\$)	Investment Needs for Intermediate Small (\$)	Investment Needs for Landing Strip Turf (\$)	Investment Needs for ALL CLASSIFICATIONS (\$)
Pavement Rehabilitation	\$52,675,416	\$16,350,199	\$30,152,479	\$17,242,798	\$0	\$116,420,892
Parallel Taxiway	\$0	\$0	\$808,889	\$63,448,283	\$513,058	\$64,770,230
Clear Zone Ownership	\$9,310,798	\$21,123,654	\$9,818,359	\$5,238,225	\$787,955	\$46,278,991
Primary Runway Approach	\$0	\$14,404,609	\$840,000	\$12,956,022	\$0	\$28,200,631
Transient Aircraft Storage	\$12,975,000	\$12,836,000	\$0	\$0	\$0	\$25,811,000
Pavement Maintenance	\$11,148,313	\$3,273,764	\$3,344,144	\$2,497,721	\$0	\$20,263,942
Current Planning Documents	\$3,100,000	\$4,200,000	\$3,780,000	\$6,017,000	\$992,500	\$18,089,500
Weather Reporting	\$2,450,000	\$0	\$700,000	\$6,000,000	\$6,650,000	\$15,800,000
Primary Runway Lighting	\$0	\$4,302,955	\$0	\$3,130,740	\$4,020,085	\$11,453,780
Primary Runway Width	\$0	\$0	\$0	\$7,370,767	\$0	\$7,370,767
NAVAIDs	\$1,375,000	\$4,800,000	\$280,000	\$710,000	\$0	\$7,165,000
Automobile Parking	\$3,104,000	\$75,000	\$121,600	\$205,400	\$3,240	\$3,509,240
Airport Fencing and Access	\$0	\$680,000	\$1,397,500	\$0	\$0	\$2,077,500
Aircraft Fuel	\$0	\$0	\$275,000	\$1,732,000	\$0	\$2,007,000
A/D & Terminal Buildings	\$26	\$65	\$115,065	\$125,917	\$1,564,378	\$1,805,451
Wind Coverage	\$0	\$0	\$225,000	\$600,000	\$225,000	\$1,050,000
Surfaces Free of Obstructions	\$21,000	\$26,200	\$7,000	\$653,570	\$0	\$707,770
Airport Zoning	\$125,000	\$160,000	\$60,000	\$225,000	\$80,000	\$650,000
Courtesy Car	\$10,000	\$10,000	\$70,000	\$170,000	\$0	\$260,000
Aircraft Parking and Tie-downs	\$3,400	\$3,400	\$3,400	\$11,900	\$3,400	\$25,500
Airport Minimum Standards	N/A	N/A	N/A	N/A	N/A	N/A
Taxiway Width	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$96,297,953	\$82,245,846	\$51,998,436	\$128,335,343	\$14,839,616	\$373,717,194

Sources: MnDOT APMS, 2021; MnSASP Data Inventory, 2021; Kimley-Horn, 2022; Minnesota Land Economics, 2022; MnDOT, 2022

Figure 4.5. MnSASP Total Airport and System Measure Investment Needs



Sources: MnDOT APMS, 2021; MnSASP Data Inventory, 2021; Kimley-Horn, 2022; Minnesota Land Economics, 2022 ; MnDOT, 2022

4.2.2. MNDOT AERONAUTICS STATEWIDE CIP

As part of MnDOT Aeronautics’ annual airport funding process, airport sponsors submit capital improvement requests via the MnDOT Aeronautics statewide CIP. Capital improvement project requests must be listed on the CIP to be eligible for state support through an Airport Development Grant, although inclusion on the CIP does not guarantee funding. Eligible projects include planning, design, and construction projects as well as land acquisition for clear zones and site development, NAVAIDs, weather reporting equipment, obstruction removal, and many other project types. Projects are selected for funding generally based on a prioritization methodology last evaluated during the 2012 MnSASP. MnDOT Aeronautics maintains significant flexibility and discretion during this process.

Airport sponsors are asked to submit 20-year needs in support of MnDOT Aeronautics’ long-term investment planning processes. However, the 2022 MnSASP funding evaluation revealed that the number of projects and dollar amounts requested significantly diminish in the long-term. Projects included on the CIP drastically decline after 2030, with many airports submitting no projects or projects without associated costs. As a result, the 2022 MnSASP reports state investment requests over a 10-year planning horizon (2020 – 2030) to maintain the highest level of accuracy in reporting development needs. Additionally, airports owned and operated by the MAC submit only a small portion of capital improvement needs to the CIP managed by MnDOT Aeronautics. The MnDOT Aeronautics statewide CIP is thus not comprehensive of all capital improvement needs identified by state system airports. The MAC CIP is discussed in **Section 4.2.3**.

The 2020 - 2030 MnDOT Aeronautics statewide CIP includes over 2,220 projects with a total investment need of \$1.17 billion. Project requests by airport classification and dollars are summarized in **Table 4.5** and depicted in **Figure 4.6**, listed in order of total investment need. Runways represent the largest state investment request via the CIP at \$220.5 million. Runways are also the most requested project type by Key GA, Intermediate Large, and Intermediate Small airports. Pavement maintenance projects are the most requested project type by Key Commercial Service facilities at \$87.5 million (excluding Minneapolis-St. Paul International Airport).

It is important to note that airport sponsors indicate project type when submitting CIP requests to MnDOT Aeronautics. This allows for a significant amount of subjectivity in how various project types are reported. For example, a runway mill and overlay project could be categorized as a “runway” or “pavement maintenance” project, leading to some degree of inconsistency in project needs by type. Nonetheless, available data does reflect the general types of airport improvement needs identified by state system airports over the ten-year reporting horizon.

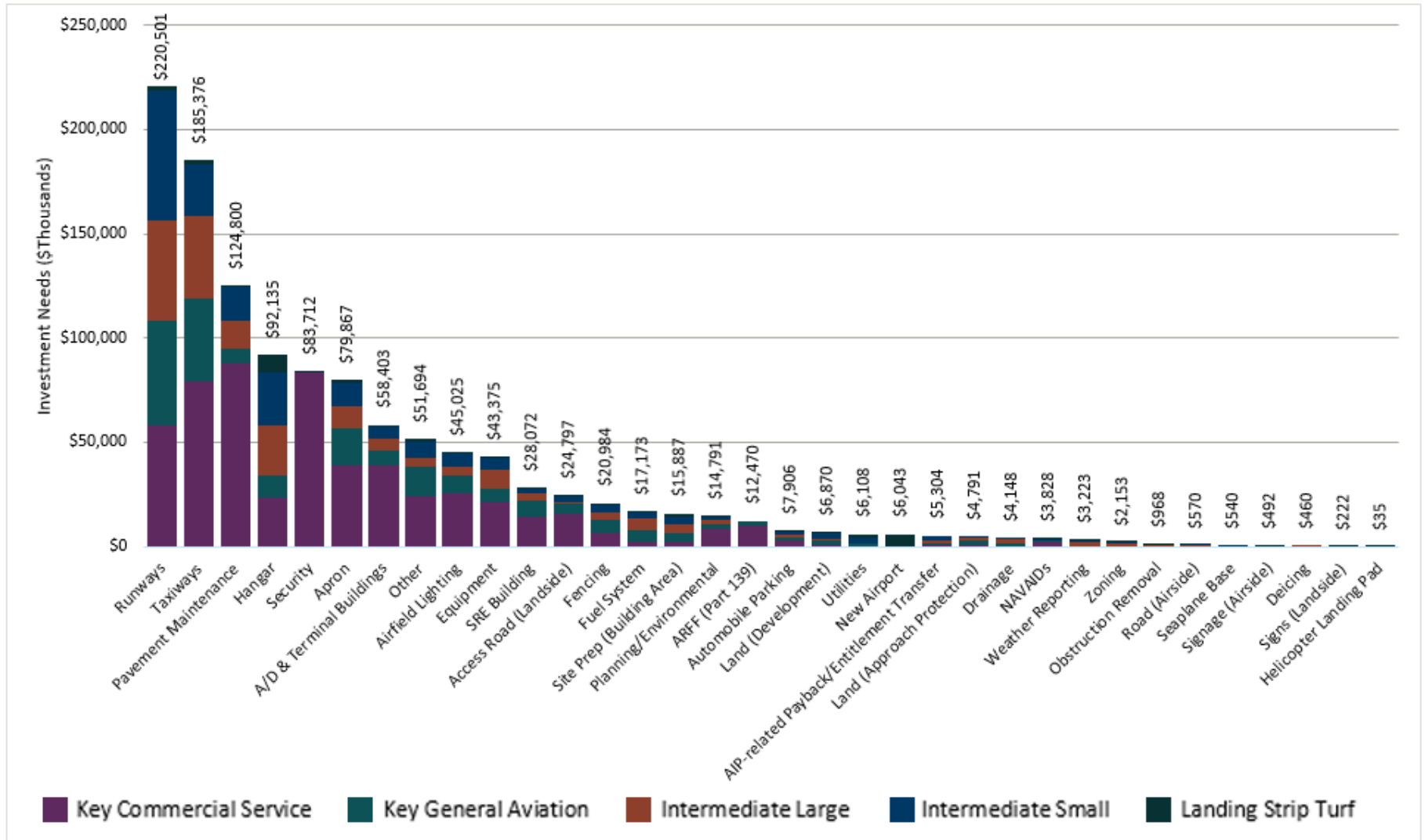
Table 4.5. MnDOT Aeronautics Statewide CIP Investment Needs by Type and Classification, 2020 - 2030

Project Type	CIP Investment Need for Key Commercial Service (\$)	CIP Investment Need for Key General Aviation (\$)	CIP Investment Need for Intermediate Large (\$)	CIP Investment Need for Intermediate Small (\$)	CIP Investment Need for Landing Strip Turf (\$)	Total Investment Need (\$)
Runways	\$58,235,000	\$50,402,920	\$47,771,941	\$62,080,954	\$2,010,600	\$220,501,416
Taxiways	\$79,580,375	\$39,033,301	\$40,138,577	\$24,352,563	\$2,271,000	\$185,375,816
Pavement Maintenance	\$87,850,000	\$7,235,000	\$13,125,556	\$16,336,760	\$253,000	\$124,800,316
Hangars	\$23,350,000	\$10,828,000	\$23,637,152	\$25,482,401	\$8,837,100	\$92,134,653
Security	\$83,400,000	\$0	\$60,000	\$194,000	\$58,000	\$83,712,000
Apron	\$38,772,900	\$18,270,216	\$10,541,302	\$11,377,766	\$904,367	\$79,866,551
A/D & Terminal Buildings	\$38,752,200	\$7,690,000	\$5,047,771	\$5,611,583	\$1,301,251	\$58,402,805
Other	\$23,875,000	\$14,590,000	\$4,351,789	\$7,559,000	\$1,318,283	\$51,694,072
Airfield Lighting	\$25,450,000	\$8,383,500	\$4,662,287	\$6,058,001	\$471,700	\$45,025,489
Equipment	\$21,274,553	\$6,612,000	\$9,354,000	\$5,062,310	\$1,072,500	\$43,375,363
SRE Building	\$14,439,994	\$7,743,500	\$3,285,000	\$2,245,000	\$358,500	\$28,071,994
Access Road (Landside)	\$15,725,000	\$4,881,667	\$1,072,720	\$2,503,700	\$614,000	\$24,797,087
Fencing	\$6,600,000	\$6,307,000	\$3,287,030	\$3,493,700	\$1,296,000	\$20,983,730
Fuel System	\$2,435,000	\$5,290,000	\$5,490,000	\$3,210,300	\$748,000	\$17,173,300
Site Prep (Building Area)	\$2,500,000	\$3,985,000	\$4,125,000	\$3,568,700	\$1,708,000	\$15,886,700
Planning/Environmental	\$8,785,000	\$1,736,500	\$2,270,000	\$1,589,150	\$410,000	\$14,790,650
Aircraft Rescue & Firefighting Equipment (Part 139)	\$10,000,000	\$2,470,000	\$0	\$0	\$0	\$12,470,000
Automobile Parking	\$3,298,000	\$1,063,000	\$1,655,000	\$895,417	\$994,500	\$7,905,917
Land (Development)	\$1,040,000	\$1,945,000	\$865,000	\$2,712,600	\$307,500	\$6,870,100
Utilities	\$0	\$1,210,000	\$395,000	\$2,586,000	\$1,917,000	\$6,108,000
New Airport	\$0	\$0	\$0	\$0	\$6,043,000	\$6,043,000

Project Type	CIP Investment Need for Key Commercial Service (\$)	CIP Investment Need for Key General Aviation (\$)	CIP Investment Need for Intermediate Large (\$)	CIP Investment Need for Intermediate Small (\$)	CIP Investment Need for Landing Strip Turf (\$)	Total Investment Need (\$)
AIP-related Payback/Entitlement Transfer	\$500,000	\$898,398	\$1,889,330	\$2,016,564	\$0	\$5,304,292
Land (Approach Protection)	\$1,100,000	\$1,896,000	\$1,365,000	\$430,000	\$0	\$4,791,000
Drainage	\$50,000	\$1,593,009	\$2,246,000	\$259,060	\$0	\$4,148,069
NAVAIDs	\$2,340,000	\$294,350	\$435,000	\$362,500	\$396,500	\$3,828,350
Weather Reporting	\$0	\$230,000	\$2,086,400	\$866,000	\$41,000	\$3,223,400
Zoning	\$250,000	\$175,000	\$839,000	\$649,000	\$240,000	\$2,153,000
Obstruction Removal	\$195,000	\$70,000	\$631,000	\$61,050	\$11,000	\$968,050
Road (Airside)	\$300,000	\$100,000	\$150,000	\$20,000	\$0	\$570,000
Seaplane Base	\$0	\$120,000	\$0	\$420,000	\$0	\$540,000
Signage (Airside)	\$260,600	\$135,000	\$50,000	\$4,000	\$42,000	\$491,600
Deicing	\$360,000	\$0	\$100,000	\$0	\$0	\$460,000
Signs (Landside)	\$11,600	\$152,500	\$5,000	\$28,000	\$25,000	\$222,100
Helicopter Landing Pad	\$0	\$0	\$0	\$0	\$35,000	\$35,000
Totals	\$550,730,222	\$205,340,861	\$190,931,856	\$192,036,080	\$33,684,801	\$1,172,723,819

Source: MnDOT Aeronautics, 2022

Figure 4.6. Minnesota Statewide CIP by State Classification and Type, 2020 – 2030

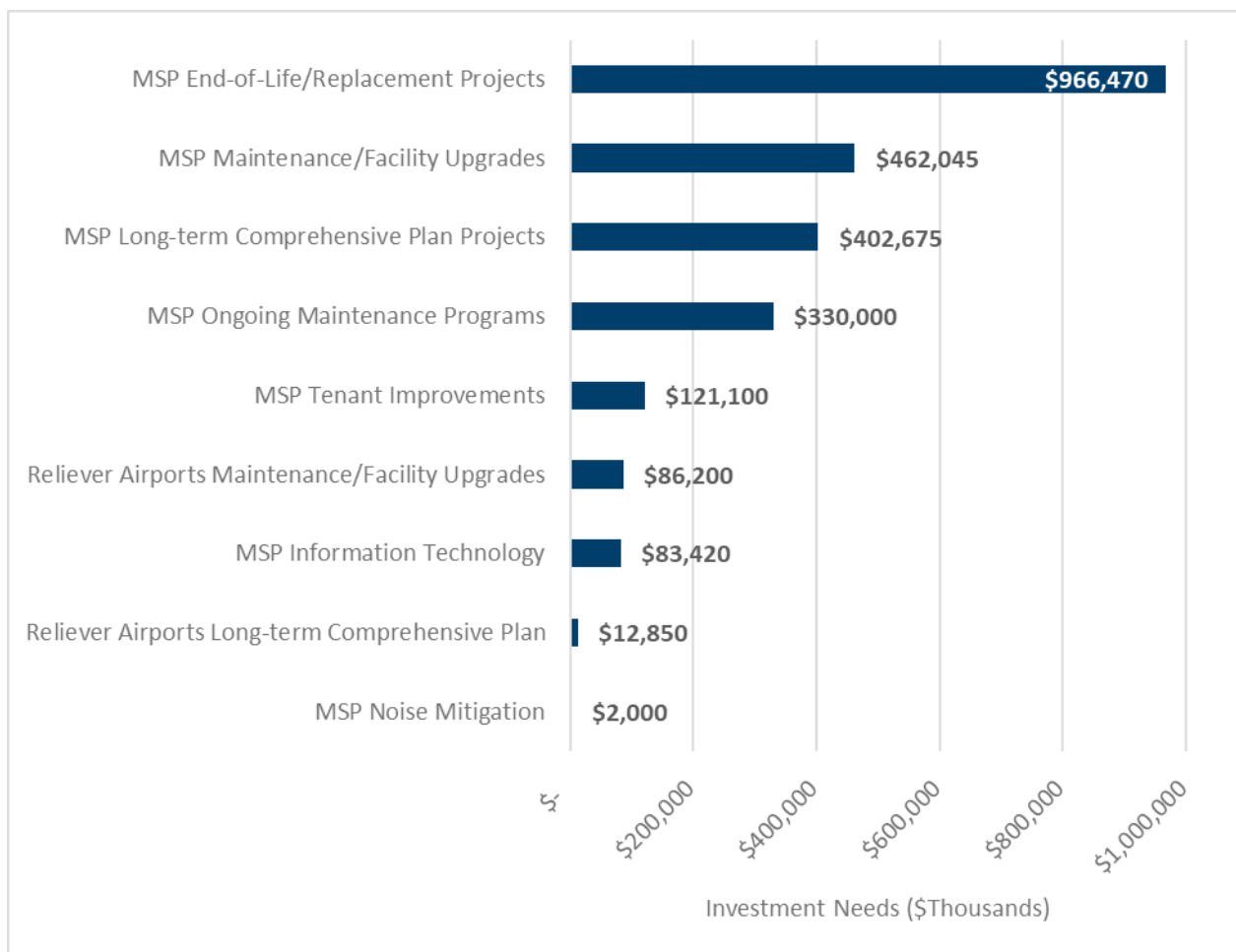


Source: MnDOT Aeronautics, 2022

4.2.3. MAC PROJECT NEEDS

In addition to the MnDOT Aeronautics statewide CIP prepared by MnDOT Aeronautics, the MAC independently prepares its own MAC CIP representing the development needs of Minneapolis-St. Paul International Airport and the six GA facilities under its jurisdiction. The 2022 - 2028 MAP CIP reports \$2.47 billion in programmed project needs, as shown in **Figure 4.7**. Approximately \$1.41 billion of investment is generated by an ongoing Terminal 1 expansion, remodeling, and modernization program at the Minneapolis-St. Paul International Airport. Other significant investments include \$299.98 million focused on airside field and runway needs and \$206.25 million for Terminal 2 maintenance and enhancements. Nearly 96 percent of total need is attributable to MSP (\$2.37 billion), while the six GA facilities in the MAC system generate an additional \$99.05 million in required investment through 2028.

Figure 4.7. 2022 - 2028 MAC CIP by Type (Final Draft for Commission Approval)



Source: MAC, 2022

4.2.4. NAVAIDS AND WEATHER REPORTING STATIONS

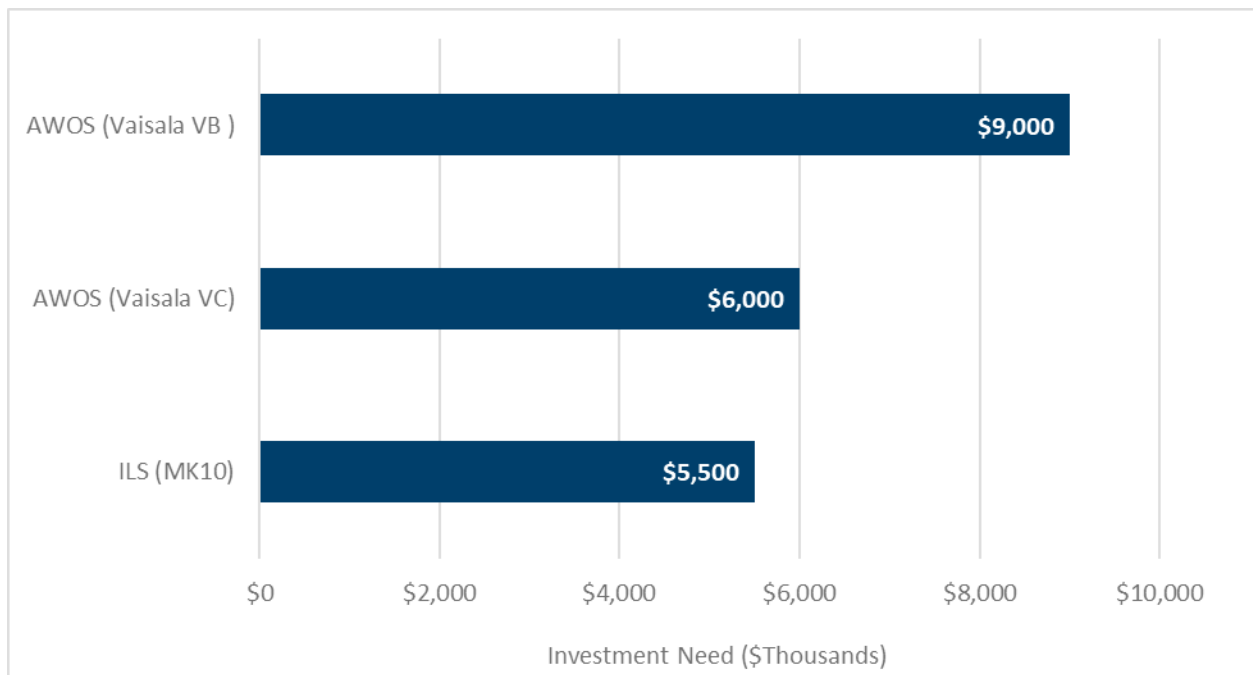
Discussed extensively in **Appendix C. Minnesota Navigational Aids**, MnDOT Aeronautics owns and/or manages the largest network of non-federal NAVAIDS and weather reporting stations in the United States (U.S.). The state network encompasses over 530 pieces of equipment at airports, heliports, hospitals, and seaplane bases across Minnesota. The equipment dates back as far as the 1950s, with many components now beyond the end of their useful lives. Many NAVAIDS and weather reporting stations are outdated and no longer in production, forcing MnDOT Aeronautics to obtain replacement pieces from other states and airports that have decommissioned equipment.

This issue is particularly acute for state-owned weather reporting stations. Of the 80 automated weather observing systems (AWOS) owned by MnDOT Aeronautics, 75 pieces of equipment and its underlying electrical infrastructure are identified for replacement. This includes 45 Vaisala Model VB AWOS systems which have been out of production for more than two decades and are well beyond their manufacturer-stated life expectancy of 20 years. Thirty Vaisala Model VC AWOS are also in severe need of preservation work or replacement. This model is similarly out-of-production, and parts are challenging to obtain.

Additionally, the state owns 11 Instrument Landing Systems (ILS), production of which ceased over a decade ago. ILS are available at most of the state’s busiest Key Commercial Service and GA airports, some of which support scheduled airline service, air cargo, and other economically important activities. ILS are also important to air medical providers and other emergency responders to maintain operations during nighttime or inclement weather conditions.

In total, MnDOT Aeronautics identified a \$30.0 million need to replace 45 AWOS, 30 ASOS, and 11 ILS across the state, as shown in **Figure 4.8**.

Figure 4.8. MnDOT Critical NAVAIDS Needs by Type



Source: MnDOT Aeronautics, 2022

4.2.5. ESTIMATED MAINTENANCE AND OPERATIONS (M&O) NEEDS

In addition to the capital improvement needs discussed in the sections above, airports require significant investment in ongoing M&O expenses. M&O needs includes various types of airside and landside repairs and operational needs such as (but not limited to):

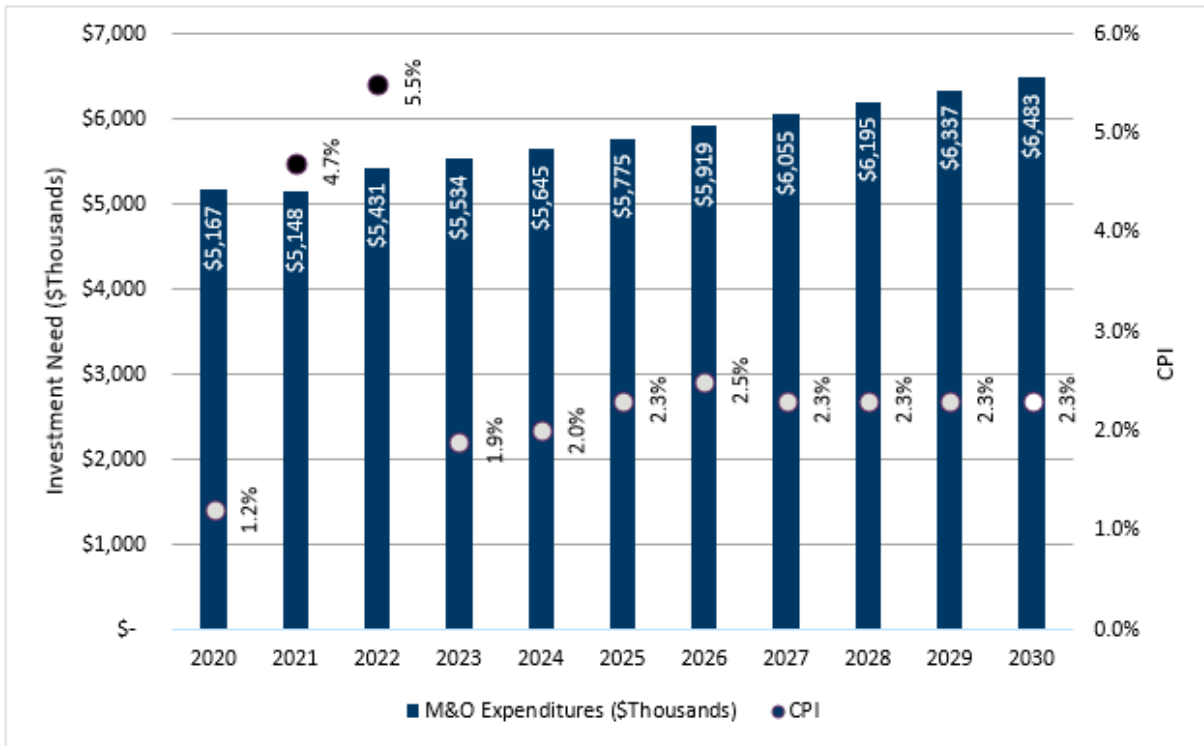
- Mowing and vegetation control
- Snow removal
- Pavement crack sealing
- Building repairs (A/D buildings, terminals, hangars, etc.)
- Airfield lighting equipment and repairs
- Maintenance vehicle and ground support equipment upkeep and fuel
- Trash collection and janitorial services
- Safety and security programs and expenses (e.g., fire and security systems and services)
- Airport utilities including gas, electric, water, sanitary sewer, and septic systems

M&O needs vary significantly between airports depending on the facilities and services offered; type and volume of aviation activities supported; geographic location; and other factors. These expenses are generally the responsibility of airport sponsors, although MnDOT Aeronautics provides a grant to offset eligible expenses known as the M&O Grant Program. At many small airports, ongoing M&O expenses represent a significant portion of or even the total annual expenditure made into the local airport. Accordingly, capturing M&O investment needs is an important component of developing the total statewide aviation investment need in Minnesota.

In Fiscal Year (FY) 2020, MnDOT Aeronautics expended \$5.17 million to support the M&O Grant Program. This funding is awarded based on each airport’s available infrastructure using a standard formula. The average award was approximately \$15,000, with individual awards ranging from Waskish Municipal Airport (VWU) at \$3,700 to Rochester International Airport (RST) at over \$200,000. The M&O Grant Program only supports 70 percent of eligible project expenses, many expense types are ineligible for state support, and MSP does not receive a distribution through the MnDOT M&O Grant Program. Based on an M&O need analysis conducted by MnDOT Aeronautics in FY 2018, airports in the state require at least \$15.0 million in funding to cover basic operational needs.

While it is thus clear that the approximately \$5.17 million in state expenditure does not represent the total annual need, this baseline figure was used to estimate total need through the 2030 investment horizon established by the MnSASP. This figure is based on actual historical data and accordingly represents the most defensible dollar amount for inclusion in the MnSASP. M&O costs are assumed to increase with inflation defined in terms of the Consumer Price Index (CPI). Inflation increased sharply in 2021 at 4.71 percent. Consulting firm Deloitte projects inflation to continue the steep climb in 2022 to 5.5 percent before eventually moderating to 2.3 percent in the long-term. If M&O costs grow in alignment with CPI, the Minnesota state aviation system requires \$63.69 million in operational investment between 2020 – 2030. **Figure 4.9** shows investment need and project CPI by year through 2030.

Figure 4.9. M&O Investment Needs by Year, 2020 – 2030



Sources: MnDOT Aeronautics, 2022; Deloitte, 2022; Kimley-Horn, 2022

4.3. Total Minnesota Aviation Investment Need

Each of the sections above describe the individual components that comprise the Minnesota statewide aviation investment need. The number of sources that contribute to the total investment need highlights the many stakeholders acutely involved in the management, operations, and development the Minnesota aviation system, including the Federal Aviation Administration (FAA), MnDOT Aeronautics, and 129 airport sponsors (including the MAC). The total Minnesota aviation investment needs combine the project needs identified by these key stakeholders to quantify the total financial need of the Minnesota aviation system. This exercise is helpful when considering how to strategically prioritize limited federal, state, and local funding. Projects identified in multiple sources are only reported once to avoid duplication.⁷ For example, an AWOS recommended by the MnSASP, identified by the NAVAIDs replacement program, and included on the statewide CIP are recorded with the MnSASP project needs as to avoid over-reporting aviation investment needs.

The total costs of the system organized by greatest need are shown in **Table 4.6**. Project costs identified for the system are estimated to be \$4.09 billion through the investment horizon of 2030. Airside and landside maintenance and improvements for MSP and associated Reliever GA facilities contribute the

⁷ As noted previously, projects identified in more than one source are only accounted for once in the presentation of systemwide costs to avoid double-counting projects. For example, a parallel taxiway identified as a required project need by the MnSASP and requested by an airport sponsor in the Statewide CIP is only presented in the MnSASP costs. This task was completed to avoid inaccurately inflating the total aviation investment need by including duplicative costs.

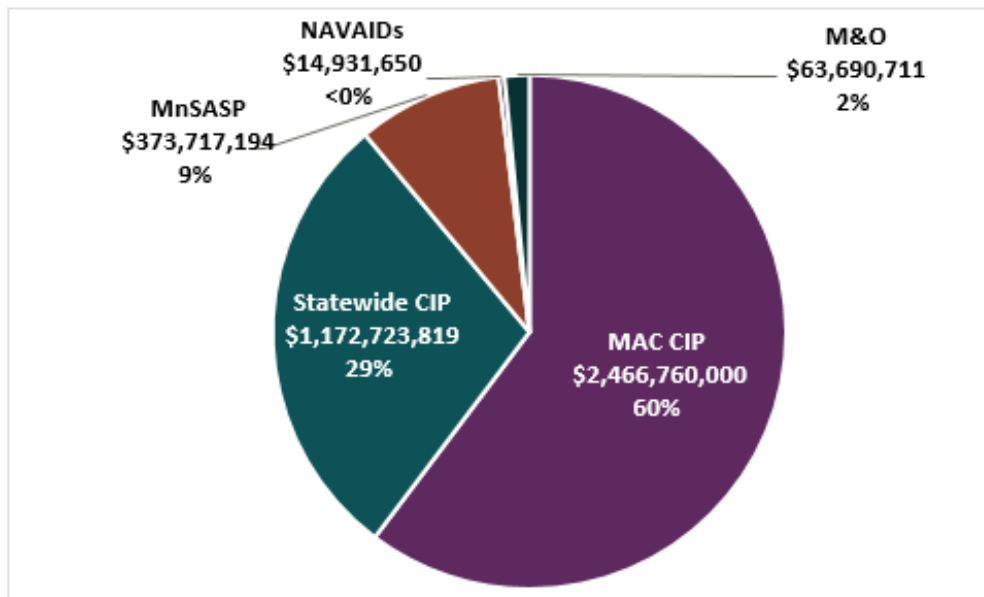
greatest need at \$2.57 billion. As shown in **Figure 4.10**, this represents 60 percent of the statewide total. The statewide CIP contribute an additional \$1.17 billion (29 percent of total). The 2022 MnSASP’s airport and system measure gaps identified by the MnSASP require \$373.7 million in total investment, representing nine percent of the total.

Table 4.6. Total Minnesota Aviation Investment Need, 2020 - 2030

Source	Total Investment Need (\$)
MAC CIP ¹	\$2,466,760,000
Statewide CIP	\$1,172,723,819
MnSASP	\$373,717,194
NAVAIDs ²	\$14,931,650
M&O	\$63,690,711
Statewide Investment Need	\$4,091,823,374

Notes: (1) MAC 2022 – 2028 investment need. (2) This figure is different than the \$30.0 million NAVAIDs need reported in Section 4.2.4 due to duplicative project costs. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

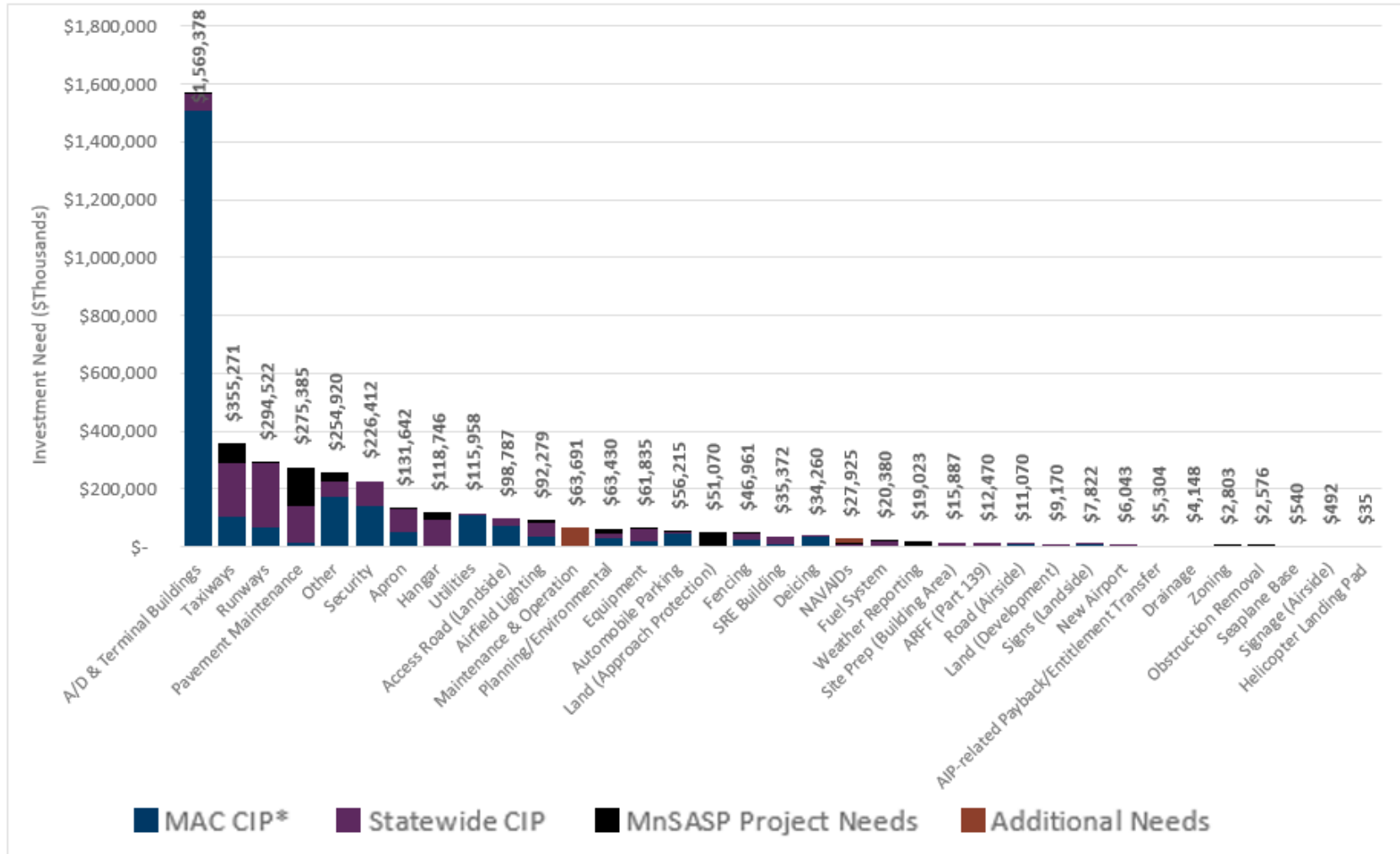
Figure 4.10. Total Minnesota Aviation Investment Need by Source, 2020 – 2030



Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

Figure 4.11 depicts total investment by project type. A/D buildings and terminals contribute the greatest singular investment need in Minnesota at \$1.57 billion, driven primarily by the ongoing Terminal 1 modernization project at MSP. The next three greatest project types (e.g., taxiways, runways, and pavement maintenance) are not surprising, as well-maintained airside pavement is typically an airport’s greatest asset and expense. The majority of these projects are identified on the statewide CIP as requested by airport sponsors. MnDOT Aeronautics should consider better leveraging the statewide APMS to prioritize these project requests. Using a data-driven process – as the APMS facilitates – ensures awarded funding aligns with the airports and pavement sections most in need of state support.

Figure 4.11. Total Minnesota Aviation Investment Needs by Type, 2020 – 2030



Notes: (1) Represents the 2022 – 2028 MAC CIP investment need. (2) “Additional Needs” comprise estimated M&O and NAVAIDs costs. In total, these sources generate less than three percent of the total statewide need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

4.3.1. INVESTMENT NEEDS BY CLASSIFICATION

Total aviation investment needs by source and state classification are presented in **Table 4.7**. **Figure 4.12** depicts MAC CIP, statewide CIP, and MnSASP system costs by state classification, as well as statewide needs by percent total. Although there are only nine Key Commercial Service airports in the Minnesota system, these airports comprise 74 percent of costs at \$3.01 billion. Available airport facilities and services required to meet the demands placed upon these airports are key factors contributing to the significant costs associated with them. Concurrently, it is important to consider that Key Commercial Service Airports have the greatest access to funding through Passenger Facility Charges (PFCs) and many other revenue-producing activities primarily associated with scheduled commercial service.

The GA airport classifications generally contribute fewer investment needs as airports become smaller, and all GA classifications require significantly less funding than commercial service facilities. Key GA airports generate \$348.44 million in costs (nine percent of total), followed by Intermediate Small at \$340.87 million (eight percent of total), and Intermediate Large at \$254.83 million (six percent of total). Landing Strip Turf airports contribute just \$48.52 million in total needs (one percent of total).

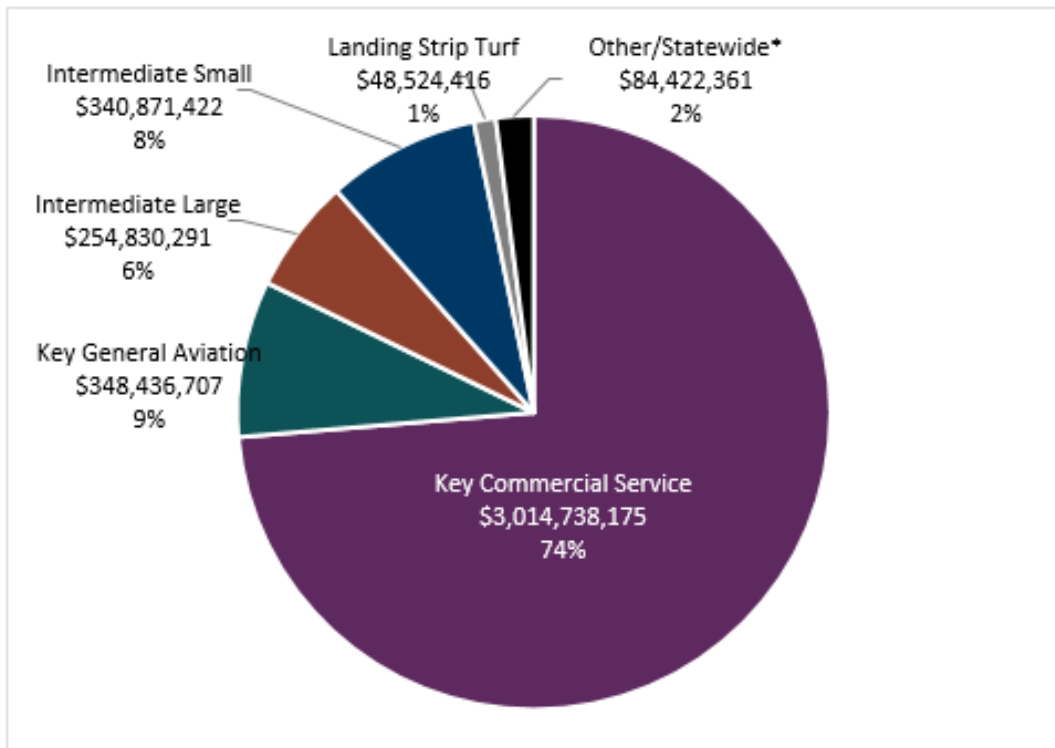
When reviewing system needs, consider that the proportion of federal, state, and local funding available to an airport is dependent on its role at the federal and state levels. Primary and Nonprimary National Plan of Integrated Airport Systems (NPIAS) airports are eligible for federal funding through the Airport Improvement Program (AIP), the State Airports Fund, and local dollars, while non-NPIAS airports are only eligible to receive funding from the latter two sources. This issue is explored further in the following section.

Table 4.7. Total Aviation Investment Need by State Classification and Source, 2020 - 2030

Airport Classification	Source: MAC CIP ¹ (\$)	SOURCE: Statewide CIP (\$)	SOURCE: MnSASP (\$)	SOURCE: Additional ² (\$)	Total Investment (\$)
Key Commercial Service	\$2,367,710,000	\$550,730,222	\$96,297,953	-	\$3,014,738,175
Key GA	\$60,850,000	\$205,340,861	\$82,245,846	-	\$348,436,707
Intermediate Large	\$11,900,000	\$190,931,856	\$51,998,436	-	\$254,830,291
Intermediate Small	\$20,500,000	\$192,036,080	\$128,335,343	-	\$340,871,422
Landing Strip Turf	-	\$33,684,801	\$14,839,616	-	\$48,524,416
Other/Statewide*	\$5,800,000	-	-	\$78,622,361	\$84,422,361
Total by Source	\$2,466,760,000	\$1,172,723,819	\$372,059,743	\$78,622,361	\$4,091,823,374

Notes: (1) MAC 2022 – 2028 investment need. (2) “Additional Needs” comprise estimated M&O and NAVAIDs costs, as these needs cannot be attribute to one classification. In total, these sources generate less than three percent of the total statewide need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

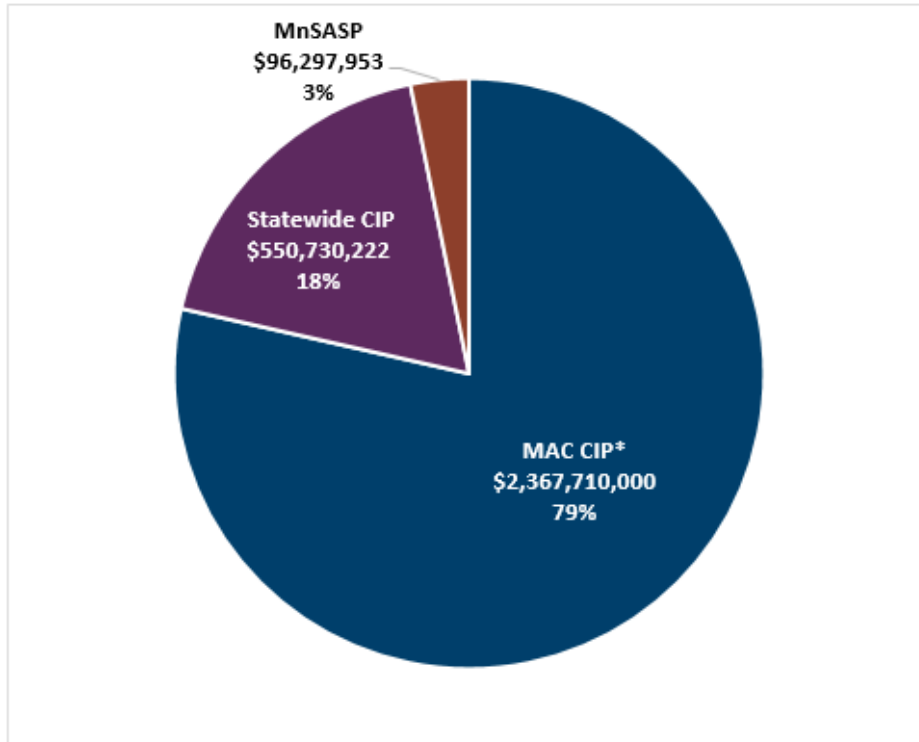
Figure 4.12. Total Aviation Investment Need by Classification, 2020 – 2030



Note: () MAC 2022 – 2028 investment need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022*

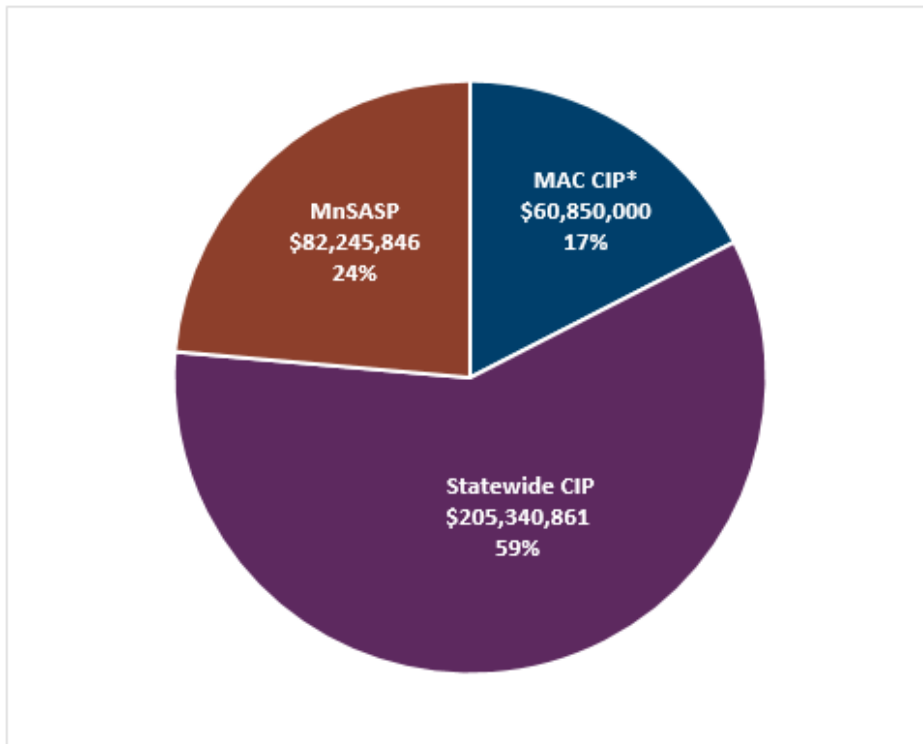
Figure 4.13 through Figure 4.17 summarize the system costs for each state classification. Nearly all costs included on the MAC CIP are associated with the MSP; as such the MAC CIP comprise the highest costs for Key Commercial Service Airports, both in terms of percent and total dollars. The state CIP reports the highest investment needs for all GA airport classification, ranging from 56 percent at Intermediate Small to 75 percent at Intermediate Large airports.

Figure 4.13. Total Aviation Investment Need, 2020 - 2030: Key Commercial Service



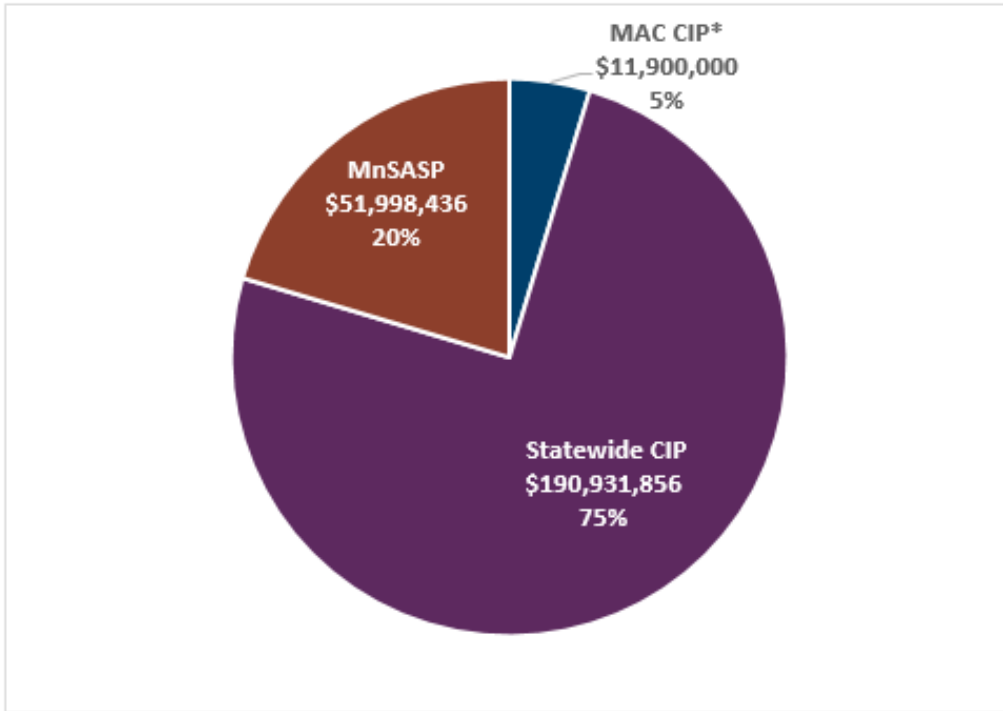
Note: (*) MAC 2022 – 2028 investment need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

Figure 4.14. Total Aviation Investment Need, 2020 - 2030: Key General Aviation



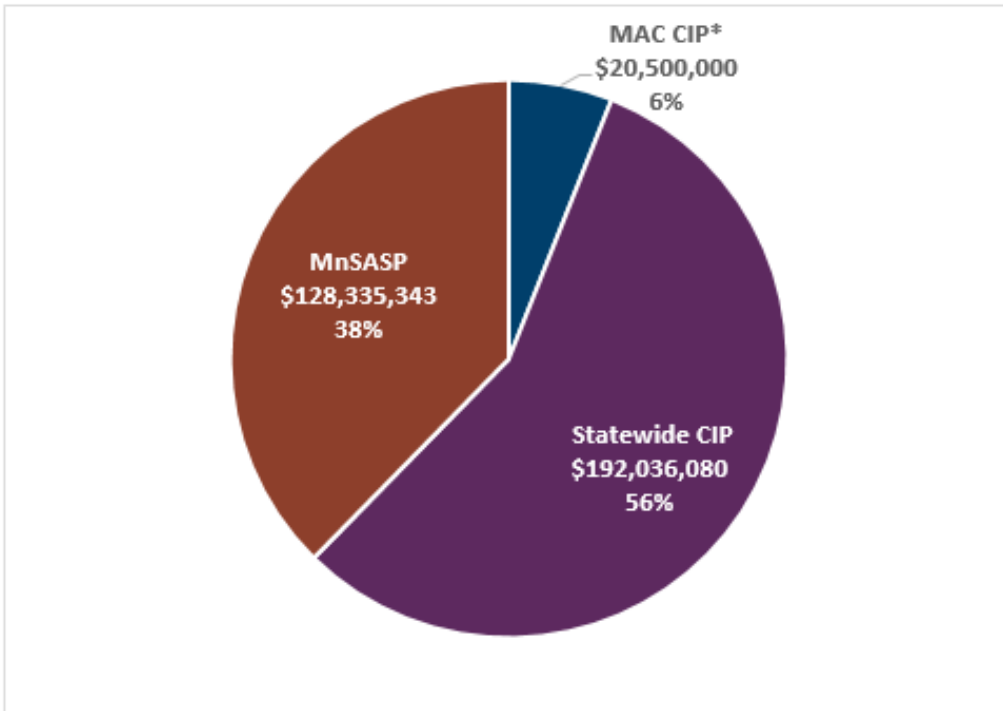
Note: (*) MAC 2022 – 2028 investment need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

Figure 4.15. Total Aviation Investment Need, 2020 - 2030: Intermediate Large



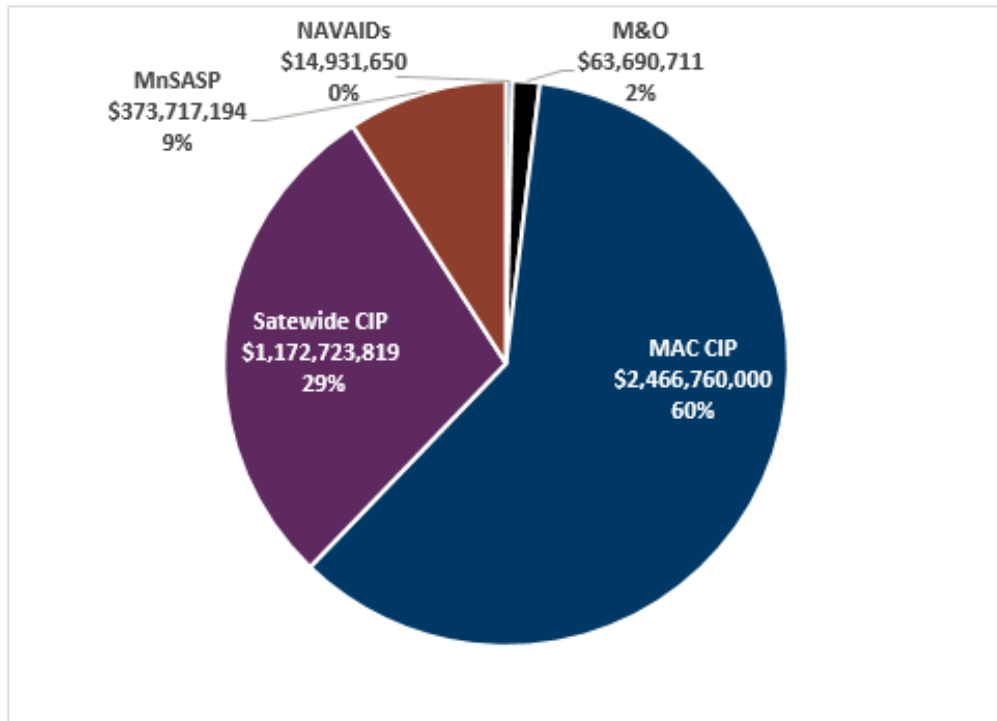
Note: (*) MAC 2022 – 2028 investment need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

Figure 4.16. Total Aviation Investment Need, 2020 - 2030: Intermediate Small



Note: (*) MAC 2022 – 2028 investment need. Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

Figure 4.17. Total Aviation Investment Need, 2020 - 2030: Landing Strip Turf



Sources: MnDOT Aeronautics, 2022; MAC, 2022; Kimley-Horn, 2022

4.4. Aviation Funding Sources

Calculating the total investment need in Minnesota is a critical component of understanding the long-term financial outlook for MnDOT Aeronautics. The other side of the equation is estimating available funding to meet those anticipated needs. Minnesota’s 96 NPIAS airports are eligible to receive funding from federal, state, local, and private sources, while the 37 non-NPIAS facilities are only eligible for the latter three. The availability of local and private funding is dependent on numerous site-specific factors beyond the analyses of the 2022 MnSASP. While these factors are not discussed in detail, airport sponsors are responsible for contributing a local share to capital investment and M&O projects. Private funding may also be used to bolster the local match; however, private funding is uncommon and typically associated with a business improving the airport to support its commercial activities.

The composition of funding sources available to support specific airports and projects depends on eligibility requirements, needs, and characteristics. The following subsections take a closer look at federal and state aviation investment into Minnesota airports. This information is then used to project future funding to assess the long-term financial sustainability of the system.

4.4.1. FEDERAL AIRPORT IMPROVEMENT PROGRAM

The FAA AIP provides entitlement and discretionary funding to airports deemed critical to the National Airspace System (NAS) and thus included in the NPIAS. The AIP is supported by the Airport and Airway Trust Fund (AATF), the revenue for which is obtained from user fees, ticket taxes, fuel taxes, and other

aviation-related revenue sources. AIP grants are available to fund projects serving to develop and improve airports in the areas of safety, capacity, security, environmental issues, and noise compatibility. In general, AIP grants are available for most airfield improvements or rehabilitation projects and – in some specific instances – terminals, hangars, and non-aviation-related development. Professional services related to airport development such as planning, design, survey, and environmental compliance are also eligible for federal support. Operational expenses are ineligible for federal grants, as are revenue-producing projects unless all other airside development needs and other stringent eligibility criteria have been met.

Airport sponsors that accept AIP grants must agree to certain conditions and obligations associated with federal grant assurances. Grant assurances remain active through the useful life of the project or in perpetuity in the case of land acquisition. Because of the strict requirements of federal grant assurances, airport sponsors should carefully consider their community’s long-term commitment to the airport before accepting federal money. Sponsors that break grant assurances must reimburse the FAA for the grant, which can present a major challenge to many municipalities.

AIP funds are distributed based on national priorities and objectives established by the FAA and Congress. AIP funds are first apportioned to major entitlement categories (Primary, Nonprimary, cargo). Remaining funds are then distributed via discretionary grants awarded in accordance with a national prioritization formula. In some years, supplemental funds are available in addition to standard entitlement and discretionary grants. Supplement funds are subject to the parameters established in the enabling legislation instead of normal AIP set-asides and discretionary formulas.

Figure 4.18 depicts AIP grants awarded to Minnesota’s NPIAS airports since FY 2017. At the national level, discretionary and entitlement funding has remained flat for many years. Between FYs 2018 and 2020, Minnesota’s airports received an average of \$62.2 million in entitlement and discretionary funding.⁸ In FY 2019, Public Law 116-6, “Consolidated Appropriations Act, 2019” included \$500.0 million in supplemental funding for U.S. airports.⁹ The following year, Public Law 116-260, “Consolidated Appropriations Act, 2021,” included \$400.0 million for supplemental funding.¹⁰ Airports in the state received \$17.5 million and \$14.6 million in FYs 2019 and 2020, respectively, in addition to typical grant funds. In FY 2020, Public Law 116-136, “Coronavirus Aid, Relief, and Economic Security (CARES) Act” included \$10.0 billion in funds to be awarded as economic relief to eligible U.S. airports hard-hit by the pandemic.¹¹ Sixty-two Minnesota airports received a total of \$8.6 million in CARES Act funding in FY 2020. MSP received the highest single award at \$3.2 million.

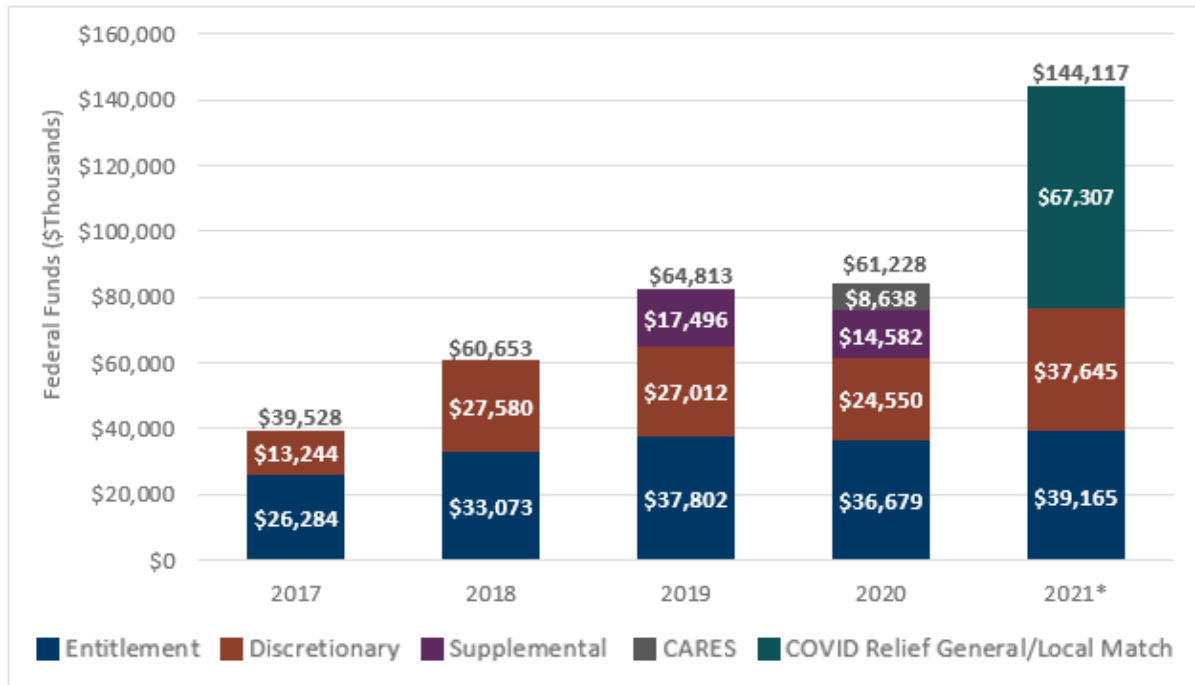
⁸ A notable dip in federal grant dollars is apparent in FY 2017 at \$39.5 million in entitlement and discretionary grant awards. Additional research would be required to explain the reasons behind this occurrence.

⁹ FAA (n.d.). “AIP 2019-2021 Supplemental Appropriation.” Available online at https://www.faa.gov/airports/aip/aip_supplemental_appropriation/2019/ (accessed April 2022).

¹⁰ FAA (November 2021). “AIP 2021-2023 Supplemental Appropriation.” Available online at https://www.faa.gov/airports/aip/aip_supplemental_appropriation/ (accessed April 2022).

¹¹ FAA (April 2022). “2020 CARES Act Grants.” Available online at https://www.faa.gov/airports/cares_act/ (accessed April 2022).

Figure 4.18. Historical AIP Grants by Type, 2017 - 2020 (\$Thousands)



**Note: The COVID Relief General/Local match was awarded under CRRSAA and ARPA and were one-time non-recurring funds.*

Source: FAA, 2022

In FY 2021, an additional \$67.3 million was awarded to Minnesota airports. This federal assistance was awarded under Public Law 116-220, “Coronavirus Response and Relief Supplemental Appropriation Act” (CRRSAA) and Public Law 117-2, “The American Rescue Plan Act” (ARPA). CRRSAA provided nearly \$2.0 billion to be awarded to airports and eligible aviation-related businesses such as airlines to prevent, prepare for, and respond to COVID-19.¹² ARPA provided approximately \$8.0 billion in grant money to eligible U.S. airports in response to COVID-19.¹³ In FY 2021, \$144.1 million federal dollars were awarded to Minnesota airports. Further, neither MnDOT Aeronautics nor recipient airports are responsible for providing state or local matches to CRRSSA funding.

Through the COVID-19 pandemic, the federal government has awarded unprecedented amounts of grant funding to eligible U.S. airports. The funding may have reached its zenith with P.L. 117-58, “Infrastructure Investment and Jobs Act” (known as the Bipartisan Infrastructure Bill [BIL]). BIL provides \$15.0 billion for airport-related projects under the existing AIP grant and PFC criteria to be distributed over the next five years. In FY 2022, \$2.89 billion is available to eligible U.S. airports. The FAA awarded \$59.3 million in BIL funding across 94 Minnesota airports in FY 2022. MSP received 59.2 percent of total funding at \$35.1 million. Rochester International (RST) and Duluth International (DLH) airports each received approximately three percent of the total funding. Eight airports received between one and two percent total, and the remaining 83 facilities received less than one percent of total awarded dollars in FY 2022.

¹² FAA (April 2022). “Airport Coronavirus Response Grant Program.” Available online at <https://www.faa.gov/airports/crrsaa/> (accessed April 2022).

¹³ FAA (April 2022). “Airport Rescue Grants.” Available online at https://www.faa.gov/airports/airport_rescue_grants/ (accessed April 2022).

The FAA will also award AIP grants in FY 2022, although specific funding amounts have not been released at the time of this writing in spring 2022.

4.4.2. STATE AIRPORTS FUND

All Minnesota state system airports are eligible for state funding through the State Airports Fund as authorized by Minnesota Statutes Section 360.017. This money must be used in the following ways:¹⁴

- Planning, acquisition, construction, improvement, maintenance, and operation of airports and other air navigation facilities
- Conducting scheduled air service marketing
- Promoting interest and safety in aeronautics through education and information
- Paying the salaries and expenses of MnDOT related to aeronautics planning, administration, and operation

Funding for these operations is obtained through various user-assessed revenue sources including airline flight property, aircraft sales, aircraft registration, and aviation fuel taxes, as well as miscellaneous other minor revenue streams. **Figure 4.19** depicts an overview of the revenue streams into the State Airports Fund.

Figure 4.20 provides revenues between state fiscal year (SFY) 2016 and SFY 2021. Total revenues into the fund average \$24.8 million annually. Sales tax on aircraft and the flight property tax are the largest contributors to the fund, each contributing between a quarter and just below one-half of the total during each year of the planning period.

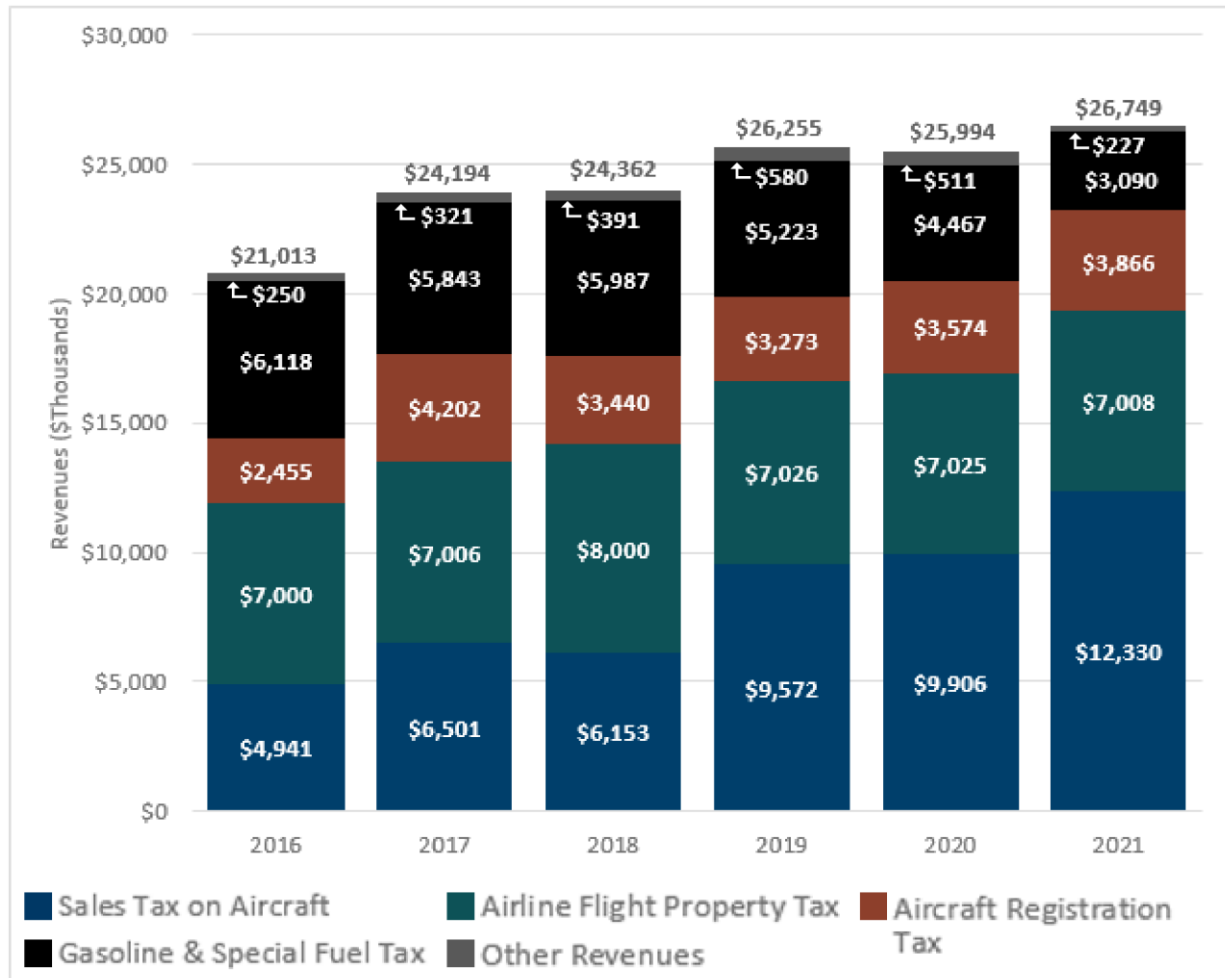
Figure 4.19. State Airports Fund Revenue Sources



Sources: MnDOT Aeronautics, 2022; Kimley-Horn, 2022

¹⁴ Minnesota Statutes Chapter 360.017, State Airports Fund, Subdivision 1.

Figure 4.20. State Airports Fund Revenues by Source, SFY 2016 - SFY 2021

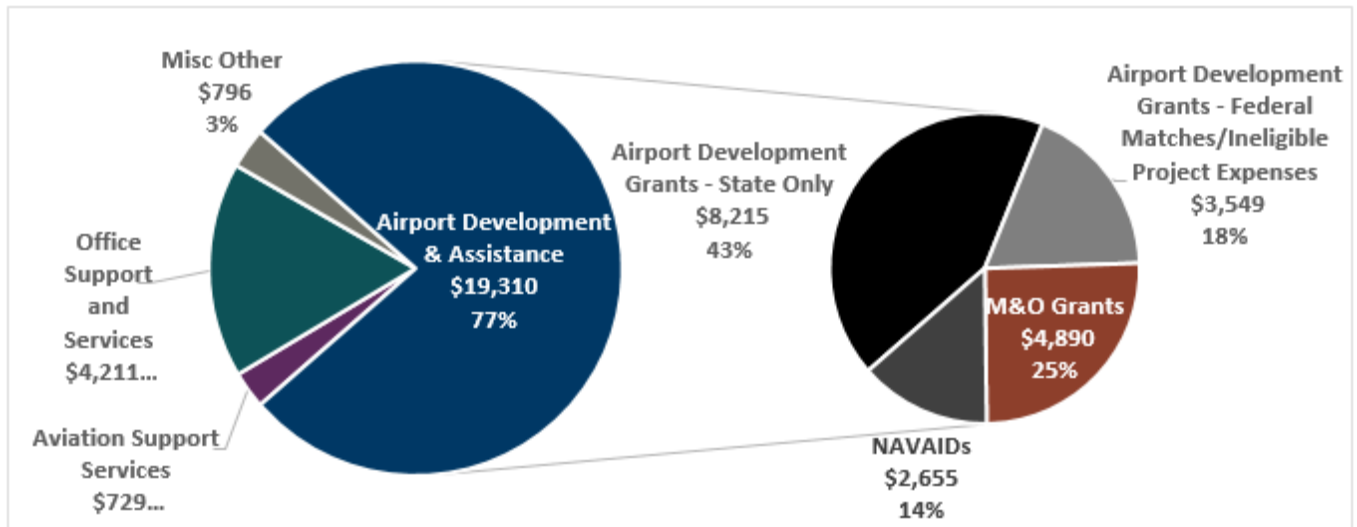


Source: MnDOT Aeronautics 2022

The State Airports Fund allowed MnDOT Aeronautics to invest an average of \$19.9 million annually into airport development and assistance between SFYs 2016 and 2021.¹⁵ Figure 4.21 depicts the expenditure breakdown between MnDOT programs in SFY 2019 to represent a typical pre-COVID-19 year. State expenditures for airport development and assistance generally compose approximately 75 percent of the total MnDOT budget, with the remaining budget expended for MnDOT operational and other miscellaneous expenses. Assistance to airports is allocated through three programs: Airport Development Grants, NAVAIDs Program, and M&O Grant Program. Airport Development Grants are further subdivided into investment dollars used to support projects only funded with state and local dollars (referred to as “state only”), and those that support otherwise federally funded projects (either to provide the state match or to fund federally ineligible project expenses).

¹⁵ State investment into airports was significantly higher in SFY 2021 because MnDOT Aeronautics was not required to provide a state match to federally funded projects due to CRRSSA. Average state investment into airports between SFYs 2016 and 2020 was \$18.7 million.

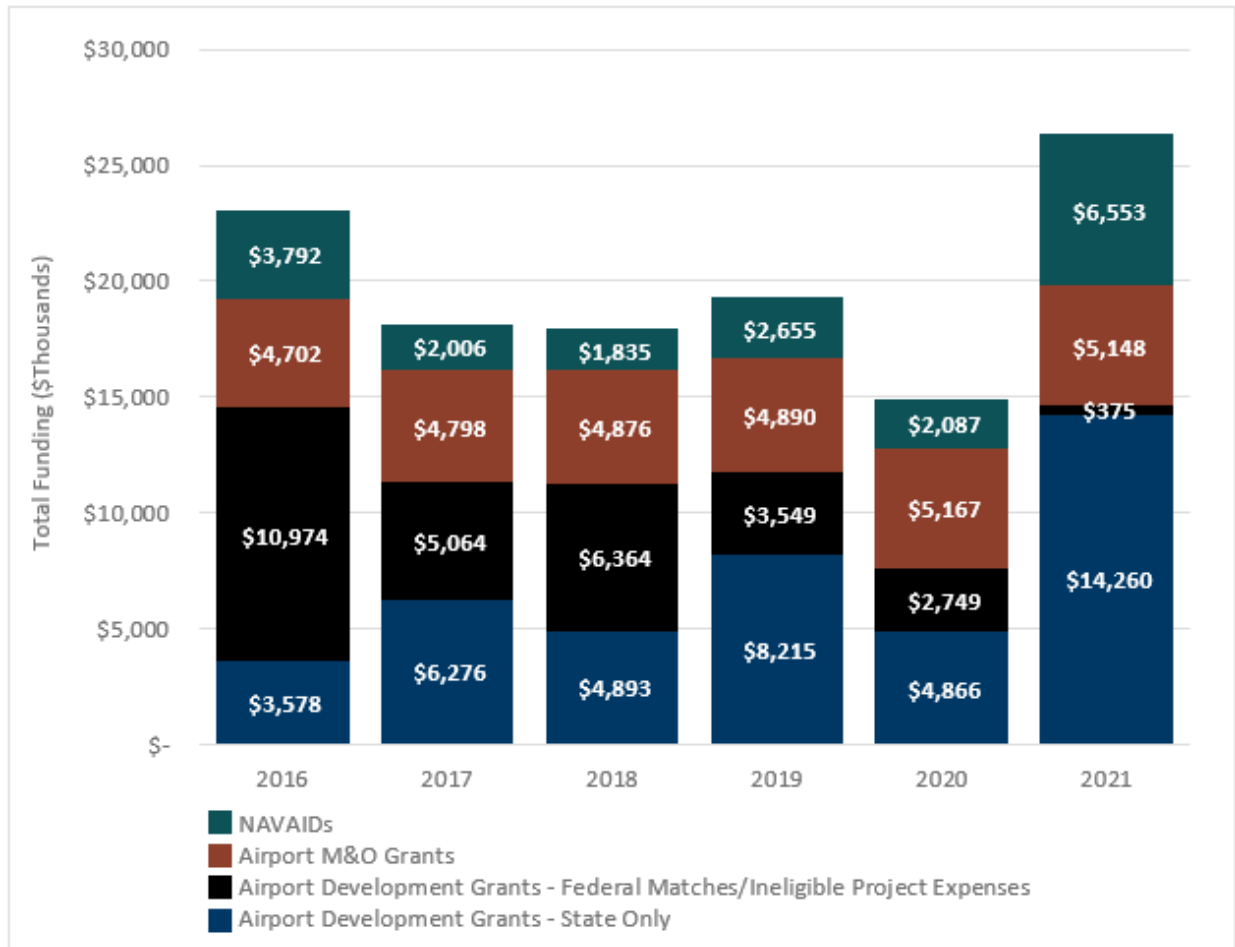
Figure 4.21. Expenditures by Program, SFY 2019 (\$Thousands)



Note: Miscellaneous other expenses in SFY2019 included funding for the Civil Air Patrol, the Duluth Airport Authority, and statewide indirect expenses. Source: MnDOT Aeronautics, 2022

Figure 4.22 presents airport development and assistance program expenditures by type between SFY 2016 through 2021. State investment into airports was different in SFY 2021 in terms of total dollars and composition due to the 100 percent federal match under CRRSSA. State investment is anticipated to return to pre-COVID-19 trends as the impacts of the pandemic wane and special federal funding programs cease. In most years, approximately 65 percent of state investment into airports is allocated to Airport Development Grants (state only and federal matches/ineligible project expenses), 25 percent into the M&O Grant Program, and 10 percent into the NAVAIDs Program.

Figure 4.22. Airport Development and Assistance Program Expenditures by Type, SFY 2016 - 2021 (\$Thousands)



Source: MnDOT Aeronautics, 2022

4.4.3. FUTURE FUNDING OUTLOOK

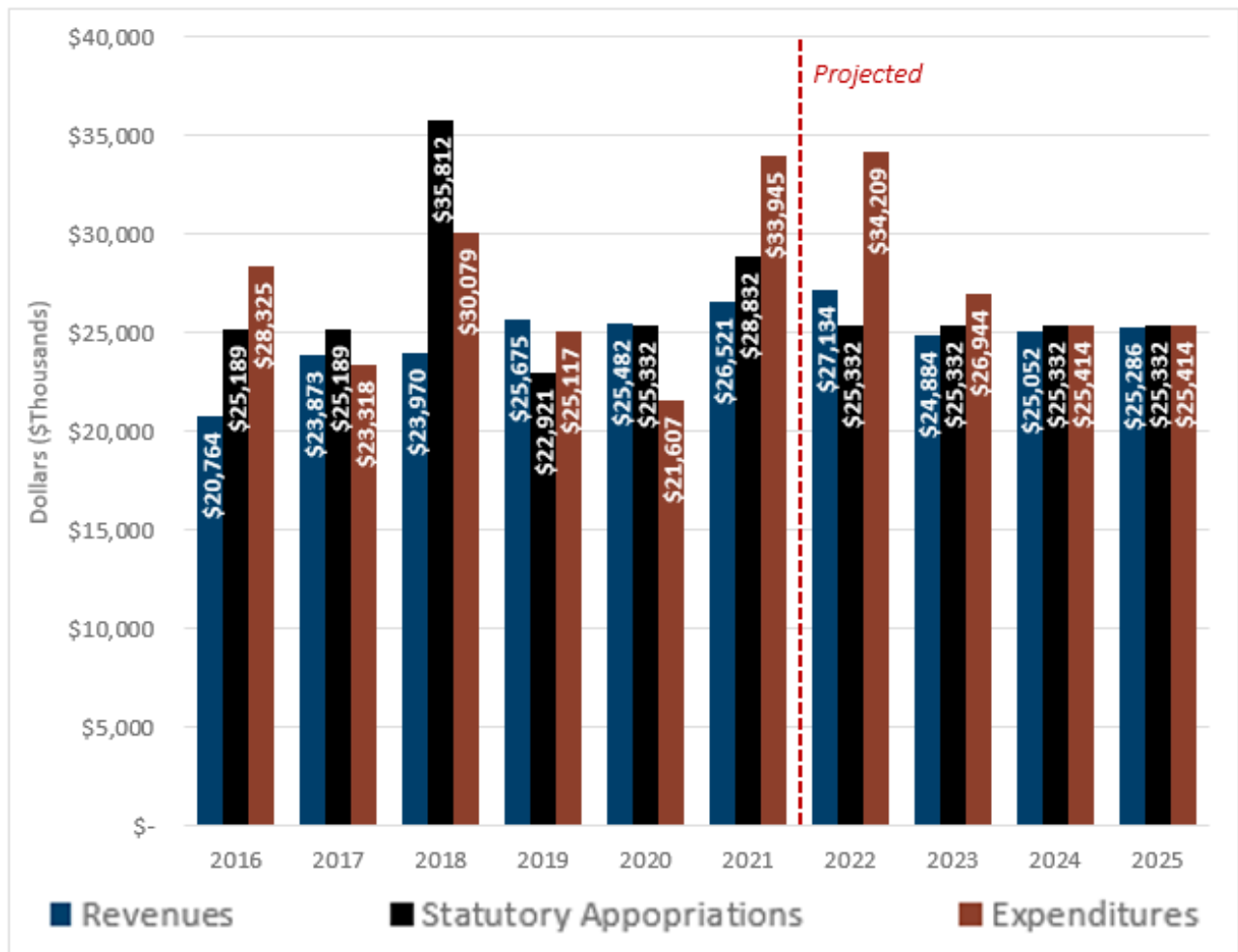
Over the long-term, state and federal dollars available to support airport operations and capital development are anticipated to remain stable. Since FY 2019, federal dollars available to NPIAS airports have been notably high due to influxes of investment immediately prior to and throughout the COVID-19 pandemic. However, special federal investment programs will expire within the next five years. Following the passage of the BIL in early 2022, it is unlikely that Congress will approve additional supplemental investments into the nation’s infrastructure for many years. Once the CARES Act, CRRSAA, and BIL funds are expended or expire, it is anticipated that the AIP program will continue to award entitlement and discretionary funds at historically “normal” levels.

State Airports Fund revenues are also anticipated to remain stable through the forecast horizon. Most significantly, MnDOT Aeronautics has a fund balance policy to ensure that the State Aviation Fund does not fall below or grow above a certain percentage of appropriations. Minnesota Statutes 270.071 through 270.079 require that MnDOT Aeronautics establish the airline flight property tax annually by calculating the difference between the “total fund appropriation and the estimated total fund revenue from other sources.” This means that the airline flight property tax rate varies from year-to-year depending on

anticipated revenues from other funding sources to maintain stability. The airline flight property tax rate is established in December based on the November forecast and collected in April.

Figure 4.23 depicts historic and projected future State Airports Fund revenues, statutory appropriations, and expenditures prepared by Minnesota Management Budget (MMB). Between SFY 2016 and 2021, statutory appropriations associated with the State Airports Fund averaged \$27.2 million. Appropriations were significantly higher in SFY 2018 than other years within this period. During the forecast period of SFY 2022 through 2025, approximately \$25.0 million is anticipated to be available to support Minnesota airports and the work of MnDOT Aeronautics.

Figure 4.23. Historic and Projected Future State Airports Fund Revenues, Statutory Appropriations, and Expenditures, SFYs 2016 – 2025



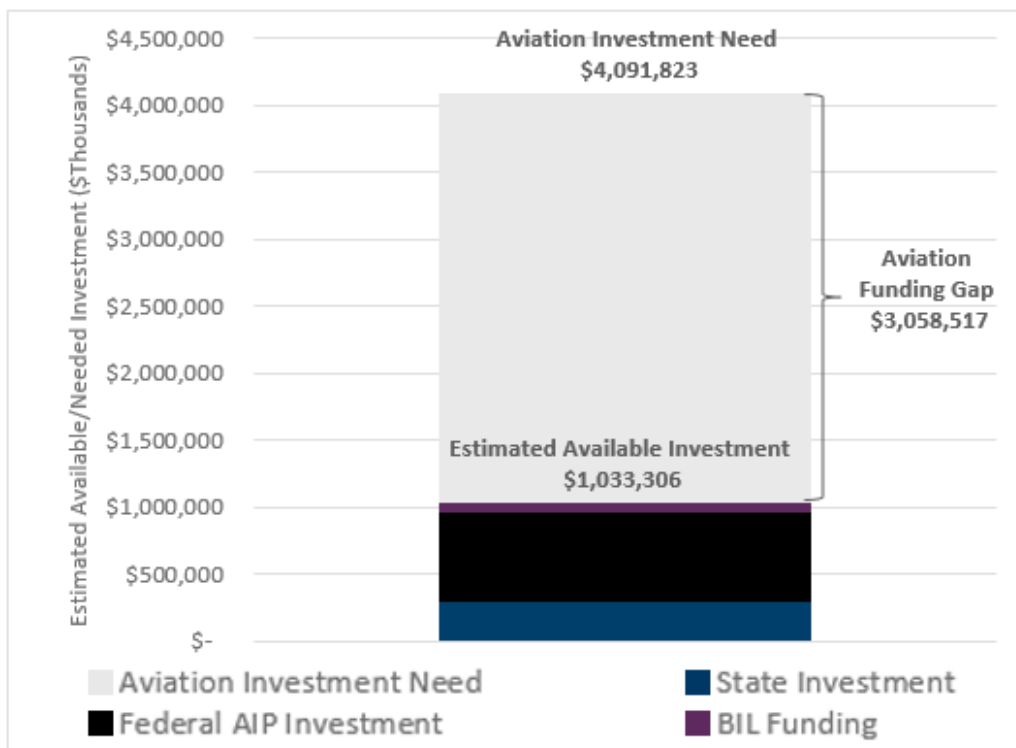
Notes: State Airports Fund revenues and spending will not necessarily align due to timing of spending, available balances from prior years, etc. A notable spike in 2018 statutory appropriations is attributable to a one-time balance transfer to restore aviation funding transferred to the general fund that occurred in a previous year due to state budgetary challenges.

Source: MMB, 2022

4.4.3.1. Aviation Funding Gap

As discussed above, pre-COVID federal and state aviation funding levels serve as a reasonable baseline for estimating future revenues in the long-term. Neither federal nor state dollars are anticipated to increase during the planning horizon. Based on this assumption, an estimated \$1.03 billion in federal and state funding is projected to become available to support Minnesota’s airports through 2030. As shown in **Figure 4.24**, a \$3.1 billion aviation funding gap may arise over the next decade. This equates to just one-quarter of the estimated \$4.1 billion in airport maintenance and improvement needs through the planning horizon – leaving 75 percent of needs unmet. With design and construction costs anticipated to rise in the years, the gap may ultimately be significantly higher than this analysis portends.

Figure 4.24. Minnesota Aviation Funding Gap by 2030



Sources: MnDOT Aeronautics, 2021; Kimley-Horn, 2022; FAA, 2022; MAC, 2022

It is important to state that this funding gap analysis only looked at federal and state investment. Local funds contributed by the airport sponsor or revenues generated by the airport were not considered, as such data are unavailable and cannot be reasonably forecasted. This issue is particularly acute for investment needs versus available funding at MSP. The volume and sophistication of aviation activities at MSP require the greatest facility needs and costs for preservation and expansion. However, MSP also generates significant revenues from airlines and the passengers they serve – including the assessment of PFCs.

While MSP may have the greatest opportunity to generate revenues, nearly all airports have some ability to generate some revenues through lease holdings, fuel sales, landing and tie-down fees, and other strategies. In consideration of the significant aviation funding gap anticipated through 2030, the

importance of airport economic self-sufficiency becomes even more critical. Local airport sponsors and private airport users play a pivotal role in ensuring airports remain safe, efficient, compliant with all applicable regulations, and responsive to the needs of airport users. Sponsors must work in collaboration with MnDOT Aeronautics to support the state’s air traveling public to meet aviation demands today and in the future.

4.4.3.2. Investment Needs by Funding Source (Excluding MAC CIP)

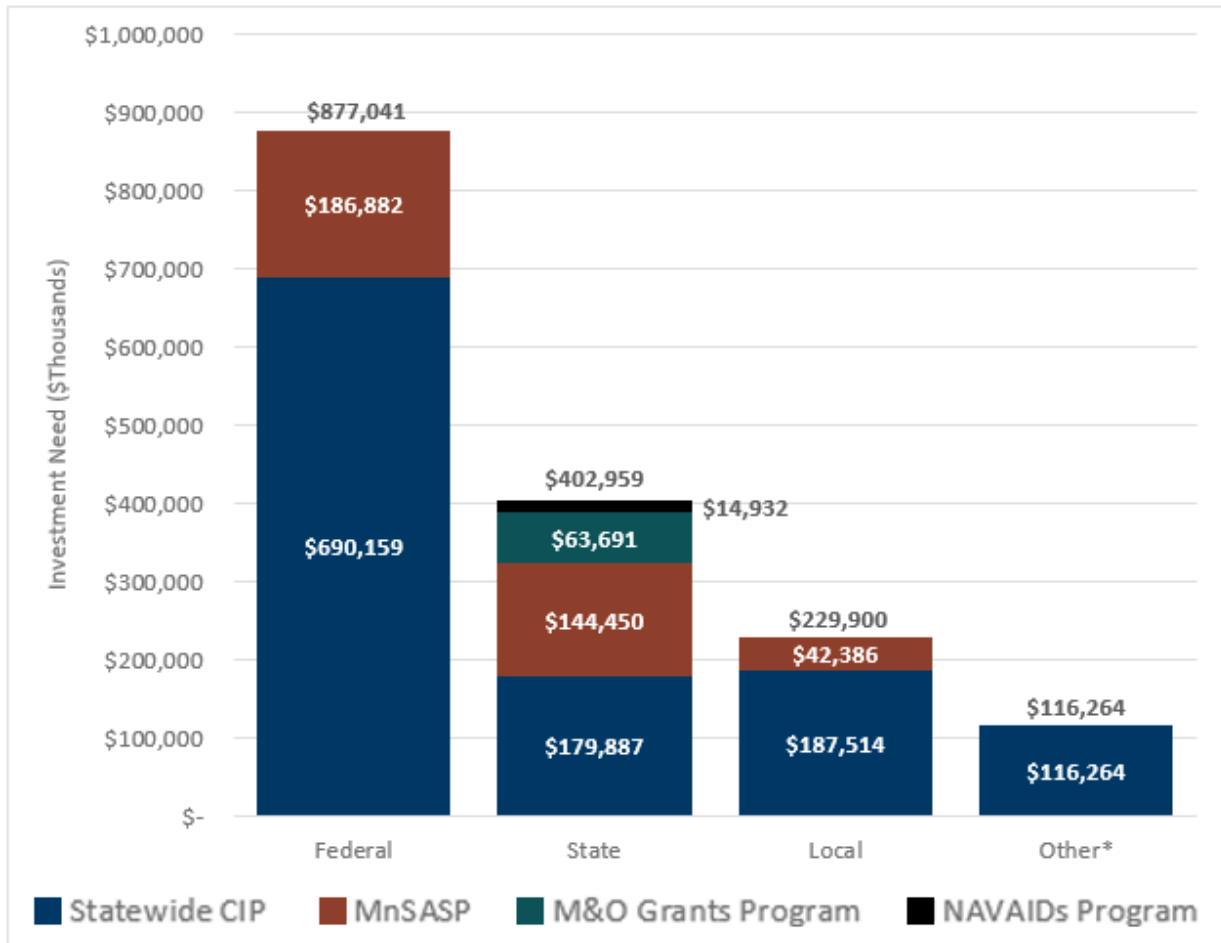
In addition to quantifying total investment needs, it is helpful to review projects in terms of funding eligibility. The state system plan is primarily designed to assist MnDOT Aeronautics’ long-term planning efforts in support of system viability and sustainability over time. This analysis presents total investment needs by funding source eligibility to quantify the state’s estimated share.

The investment needs reported in the MAC CIP are excluded from the analysis. This is because MAC system airports have access to funding sources unavailable to or infeasible for most other airports in the state. Because of the unique composition of funding amounts and types available to the MAC, the airport authority is responsible for funding its own maintenance and development needs. These needs are thus less pertinent to the primary objective of the state system plan.

Figure 4.25 shows investment needs excluding the MAC by project source. Investment needs excluding the MAC CIP total \$1.6 billion through 2030. Based on federal and state eligibility guidelines and participation rates,¹⁶ the state’s share of these needs is an estimated \$403.0 million (25 percent). This equates to \$40.3 million annually, over twice available airport assistance funds provided through the State Airports Fund. Fifty-four percent of need is eligible for AIP funding (\$877.0 million). The remaining \$346.2 million (21 percent) composes the local and “other” share, as identified by airport sponsors within the statewide CIP. The source of these other funds is unknown but assumed to be contributed by private sources.

¹⁶ The state share is based on MnDOT Aeronautics’ SFY 2020 Participation Rates letter as the base year of the 2022 MnSASP. Federal participation rates were obtained from the FAA Order 5100.38D, change 1, AIP Handbook.

Figure 4.25. Total Investment Needs by Funding Source Excluding MAC CIP, 2020 – 2030



Note: (*) "Other" funding sources reported in the statewide CIP as input by airport managers. It is unknown what these sources are specifically; however, they likely refer to various private funders. Sources: MnDOT Aeronautics, 2021; Kimley-Horn, 2022; FAA, 2022

4.5. State Funding Prioritization

At nearly all funding levels, aviation investment need exceeds available funds. All airport sponsors are responsible for maintaining existing assets to maintain safe, secure, and efficient operating conditions. Some airport sponsors are also faced with expansion needs as demands grow and/or change over time. Faced with the reality that not all needs can be met, funding agencies must decide which projects can be supported through the prioritization of available dollars. The FAA regularly reviews the national prioritization model so the AIP project selection process aligns with the overarching goals of the agency and the U.S. Congress. MnDOT Aeronautics utilized the 2022 MnSASP to carefully review the prioritization of the State Airports Fund. This review was conducted with the goal of ensuring state funds are allocated appropriately and in alignment with the needs of the agency and aviation stakeholders such as airport sponsors, pilots, and the air traveling public. Additionally, MnDOT is placing renewed emphasis on agency transparency in project selection processes for all transportation modes.

4.5.1. STAKEHOLDER PARTICIPATION

Through the 2022 MnSASP process, MnDOT Aeronautics has embraced collaborative, stakeholder-driven decision-making processes. In fact, the plan was undertaken in two distinct phases. Phase I was specifically designed to gather stakeholder input on current and anticipated future aviation issues of highest importance in Minnesota. This feedback was used to develop the scope of Phase II, providing a direct link between stakeholder needs and the objectives, goals, and methodologies of the state system plan. To continue in its “customer-driven” focus, MnDOT Aeronautics established six Focus Area Working Groups to provide input on and review the work of Phase II of the 2022 MnSASP. State airport funding was identified as a key issue during Phase I, and a specific Focus Area Working Group was convened to offer guidance on associated tasks conducted during Phase II (referred to as the Airport Funding Working Group or Working Group).

The following organizations participated in the Working Group, representing a diversity of stakeholders including Minnesota pilots, airport sponsors, government agencies, and consulting firms:

- Aircraft Owners and Pilots Association
- Alexandria Municipal Airport (AXN)
- Bolling Engineering
- Bolton & Menk Inc.
- Austin Municipal Airport (AUM)
- Moorhead Municipal Airport (JKJ)
- Duluth Airport Authority
- Experimental Aircraft Association (EAA)
- FAA
- MAC
- Mead & Hunt
- Mid-Minnesota Development Commission
- Minnesota Pilot's Association
- Owatonna Degner Regional Airport (OWA)
- PRO TRAIN Aviation
- Rochester International Airport (RST)
- St. Cloud Regional Airport (STC)
- Thief River Falls Airport (TVF)

Additionally, MnDOT Aeronautics played an important role in facilitating Working Group discussions and offering historical insight, guidance, etc. Three Airport Funding Working Group meetings were conducted during the 2022 MnSASP in August 2021, February 2022, and March 2022.

The following sections summarize the funding-related feedback obtained during each meeting. The complete PowerPoint presentations from these meetings are included in **Appendix B. Public Participation**.

4.5.1.1. *Meeting #1 (August 2021)*

Conducted in August 2021, meeting #1 of the Airport Funding Focus Area Working Group was designed to educate participants about the 2022 MnSASP and state investment into the Minnesota state aviation system. The presentation highlighted MnDOT Aeronautics’ many roles and functions within the state, as summarized in **Table 4.8**.

Table 4.8. MnDOT Aeronautics Operations

MnDOT Aeronautics Role	Functions
Regulatory Compliance and Enforcement	<ul style="list-style-type: none"> - Airport licensing - Commercial operator licensing - Tall tower permits - Aircraft registration
Minnesota’s Aviation Workforce	<ul style="list-style-type: none"> - Continuing education of airport personnel, pilots, and aircraft maintenance technicians - Public outreach
System Maintenance and Operations	<ul style="list-style-type: none"> - NAVAIDs maintenance and operations - Airport M&O Grants - Statewide runway markings - Airport Directory and aeronautical charts - Statewide APMS
System Development	<ul style="list-style-type: none"> - Statewide planning - Airport master planning - Airport safety zoning - State grants for airport development - Channeling act state for federal AIP grants
Office Support and Services	<ul style="list-style-type: none"> - State Airports Fund management - Aeronautics workforce - Information Technology (IT) - MnDOT Unmanned Aerial Systems (UAS) shared services - Aeronautics building management - Aircraft fleet management - Automobile fleet management
Air Transportation	<ul style="list-style-type: none"> - Provide air transportation services to state employees - Out-of-state travel reservations for MnDOT

Source: MnDOT Aeronautics Business Plan, 2021

Additionally, the three primary mechanisms for funding airports (i.e., Airport Development Grants, NAVAIDs Program, and M&O Grant Program) was discussed – emphasizing that need exceeds available investment dollars in all cases. Rooted in this foundational premise, the Working Group was presented with a core question:

What strategies should MnDOT consider pursuing to optimize state investment into airports given the reality of rising investment needs and limited options for increasing revenues into the State Airports Fund?

Preliminary strategies to close the Minnesota aviation funding gap are presented in **Figure 4.26**.

Figure 4.26. Potential Strategies to Close the Minnesota Funding Gap

Restructure	Allocations between MnDOT expenditure categories
Eliminate	State-funding programming or services
Overhaul	Project prioritization process to further limit project eligibility
Revise	Funding participation rates to increase local match

Source: Kimley-Horn, 2022

The feedback received during meeting #1 indicated that group members had insufficient information regarding current funding prioritization processes. Participants requested additional information about several topics including:

- Airport Development Grant selection processes
- Detailed breakdowns of expenditures by major airport assistance programs
 - Airport Development Grant awards by project type and airport
 - NAVAIDs Program expenditures to operate and maintain each piece of equipment
 - M&O Grant Program expenditures by type

Additionally, much of the discussion focused on increasing revenues into the State Airports Fund instead of reprioritizing/decreasing expenditures. However, although not extensively discussed during meeting #1, revenues into the State Airports Fund are generally balanced to match legislative appropriations (see **Section 4.4.3. Future Funding Outlook** for details regarding the airline flight property tax).

These questions were subsequently researched, with responses distributed prior to Airport Funding Working Group meeting #2. This information can be found in the back section of the Airport Funding Focus Area Working Meeting #2 slide deck available in **Appendix B**.

4.5.1.2. Meeting #2 (February 2022)

Because of the extensive research required to adequately respond to the data requested during meeting #1, the second Airport Funding Working Group occurred several months after meeting #1 in February 2022. Working Group participants were asked to review the historical expenditure data distributed via email prior to the meeting and submit questions to the project team in advance. While several participants did provide input regarding the distributed presentation, no substantive questions were received regarding how the State Airports Fund had been expended in the past.

Meeting #2 was primarily targeted at obtaining focused stakeholder input on the core question noted above: How should MnDOT Aeronautics revise how funds are expended? In general, it is assumed that the agency can pursue two primary methods (not mutually exclusive). MnDOT Aeronautics can:

- Reallocate funds between the three major airport assistance programs
- Reprioritize the allocation of awards within those programs

These options were each discussed in turn during the discussion. The presentation first highlighted that shifting airport assistance dollars between Airport Development Grants, the NAVAIDs Program, and the M&O Program would shift responsibilities between the state and local authorities. If state funds were no

longer available for one project type, a new party would need to take over funding responsibilities, an asset would no longer be available for air transportation users, and/or levels of service would generally decline. **Table 4.9** shows the key considerations regarding the potential implications for shifting state dollars between major airport assistance programs.

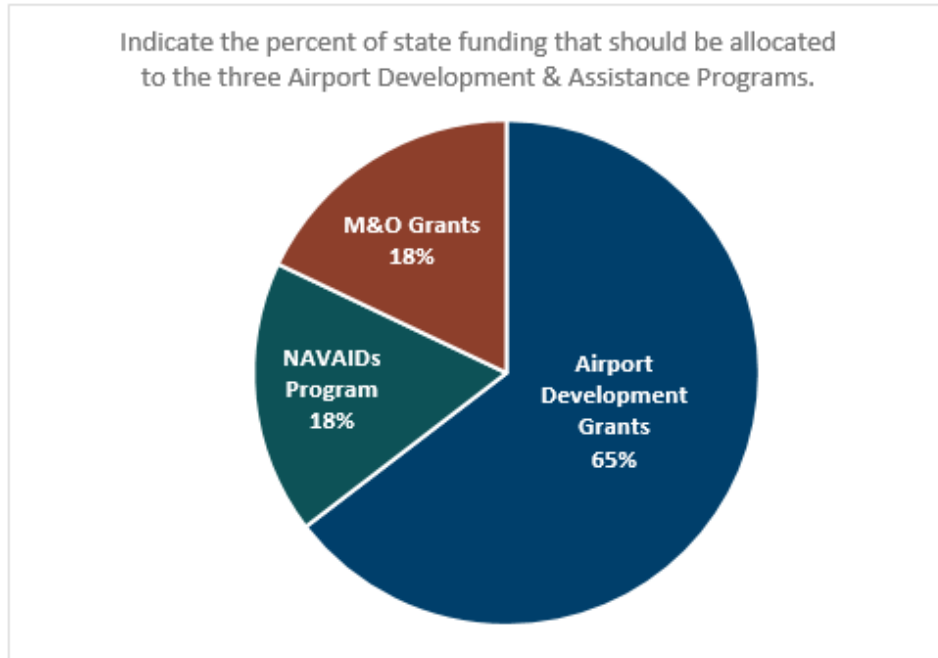
Table 4.9. Key Considerations in Shifting State Funding Between Major Airport Assistance Programs

Funding Program	Increase in Funding	Decrease in Funding
Airport Development Grants	<ul style="list-style-type: none"> - Greater availability of funding for capital improvements, which may be critical as demands increase over time - Potential for increased flexibility in terms of how funds are expended between capital improvements and M&O 	<ul style="list-style-type: none"> - Increases the difficulty of conducting large-scale capital improvements, with capacity expansion projects likely being the hardest-hit - Pavement conditions may deteriorate to the extent that full reconstruction/rehabilitation becomes required
M&O Grant Program	<ul style="list-style-type: none"> - Airports may better be able to obtain equipment including maintenance vehicles and snow removal equipment (SRE) 	<ul style="list-style-type: none"> - Increases risk of deferred maintenance, which can lead to costly issues in the long-term - Some airports may be unable to complete critical safety projects, resulting in more frequent (Notice to Air Missions) NOTAMs and other implications for the flying community
NAVAIDS Program	<ul style="list-style-type: none"> - State would have the ability to replace/upgrade outdated equipment instead of maintaining antiquated systems and decommissioning - Potential to increase coverage in underserved areas of the state 	<ul style="list-style-type: none"> - Responsibility for NAVAID maintenance shifts to airports - Increased airports share, use federal money - Programs, such as the Statewide Marking & Painting Program, may be cut - Certain equipment may have to be decommissioned, either at failure or through a coordinated process

Sources: Kimley-Horn, 2022; MnDOT Aeronautics, 2022

Airport Funding Working Group participants were asked via an interactive online poll about how State Airports Fund dollars should be allocated between programs. Presented in **Figure 4.27**, participants indicated that 65 percent of available dollars should be invested in Airport Development Grants with the M&O Grant and NAVAIDs programs each receiving equal shares in the remaining dollars. This allocation of funding generally aligns with the existing allocation methodology shown in **Figure 4.22**.

Figure 4.27. Airport Funding Working Group Stakeholder Feedback: Allocation of Funding Between Major Airport Assistance Program



Sources: Kimley-Horn, 2022; Airport Funding Focus Area Working Group, 2022

Once it was established that MnDOT Aeronautics should retain its existing structure for allocating funds between major airport assistance programs, the Airport Funding Working Group was asked to provide input on the prioritization of dollars within Airport Development Grants. The existing prioritization methodology for awarding Airport Development Grants considers the purpose and type of projects, component of the airport it addresses, and the airport classification. MnDOT Aeronautics offered several additional criteria that could be applied in the prioritization of state dollars. These criteria, as well as some advantages and disadvantages of each, are presented in **Table 4.10**.

Table 4.10. Potential Airport Development Grants Prioritization Criteria

Potential Prioritization Criteria	Advantages	Disadvantages
Expansion vs. Preservation	Can better leverage historic investment in the system by preserving existing infrastructure before expanding new facilities.	Fails to recognize growing demand for aviation services, including air cargo. May better suit rural areas as opposed to growing urban centers.
Economic Impact by Classification	Bolsters airports’ abilities to generate economic impact for their communities and state. Additional jobs created for Minnesota workers. If airports with low economic impact are prioritized for funding, potentially underserved/rural areas of the state may have the opportunity to bolster local support for their airport and serve as an economic catalyze for the communities/regions.	If funds are prioritized to airports with high economic impacts, airports with low economic impact will be inequitably disadvantaged and may struggle to maintain their current economic impacts. Low community support may result in less local investment and incidents of conflict with surrounding population (e.g., noise/nuisance complaints, etc.).
MnSASP Objective Category	Aligns funding with the needs and services deemed most critical to supporting aviation in MN as established by Minnesota GO.	Can be difficult to tailor to the needs of specific airports, as this methodology typically assumes a “standard” need across all airport classifications/types.
MnSASP Airport Metrics	Incentivizes airports to achieve the facility and service metrics established by the MnSASP.	Assumes that MnSASP-defined targets are appropriate for all airports by classification, which is not always the case.
Airport Classification	Aligns funding with airports with higher needs due to more extensive/sophisticated facilities and typically higher activity levels.	Under-funding small airports could result in deferred maintenance needs, which are often more costly and time-consuming to address in the long-term. May under-fund airports that are most likely to serve agricultural needs and medical flying, many of which are in rural Minnesota.
Population within 30 Minutes	Increases the number of Minnesota residents who directly benefit from state investment in airports.	May exacerbate issues of unequitable access to aviation services for residents of the most rural/remote parts of the state.
Based Aircraft	Matches state investment into airports with the airports supporting the highest number of based/local users.	May fail to fund airports that serve critical aviation needs (e.g., air medical transport, search & rescue) in potentially remote and under-served areas of the state. Does not account for the type of aviation activities occurring at an airport or its importance to safety, security, well-being, etc.
Availability of Other Funding Sources	Provides an additional incentive for having airports seek alternative and potentially innovative outside funding mechanisms.	Airports with limited local support may lose access to state funding. Less investment overall may negatively impact facilities and available services, resulting in less activity, and consequently even less local support.

Source: Kimley-Horn, 2022

The Working Group was asked to provide input on the inclusion of each prioritization criterion, as well as how project should be scored within each. For example, improvement projects focused on airport preservation (such as a pavement maintenance project) could be considered high priority for state funding and thus receive a high score in the prioritization methodology. Consequently, expansion projects would be less likely to receive state support. **Table 4.11** summarizes respondents’ input on which types of projects should be more highly prioritized for state funding.

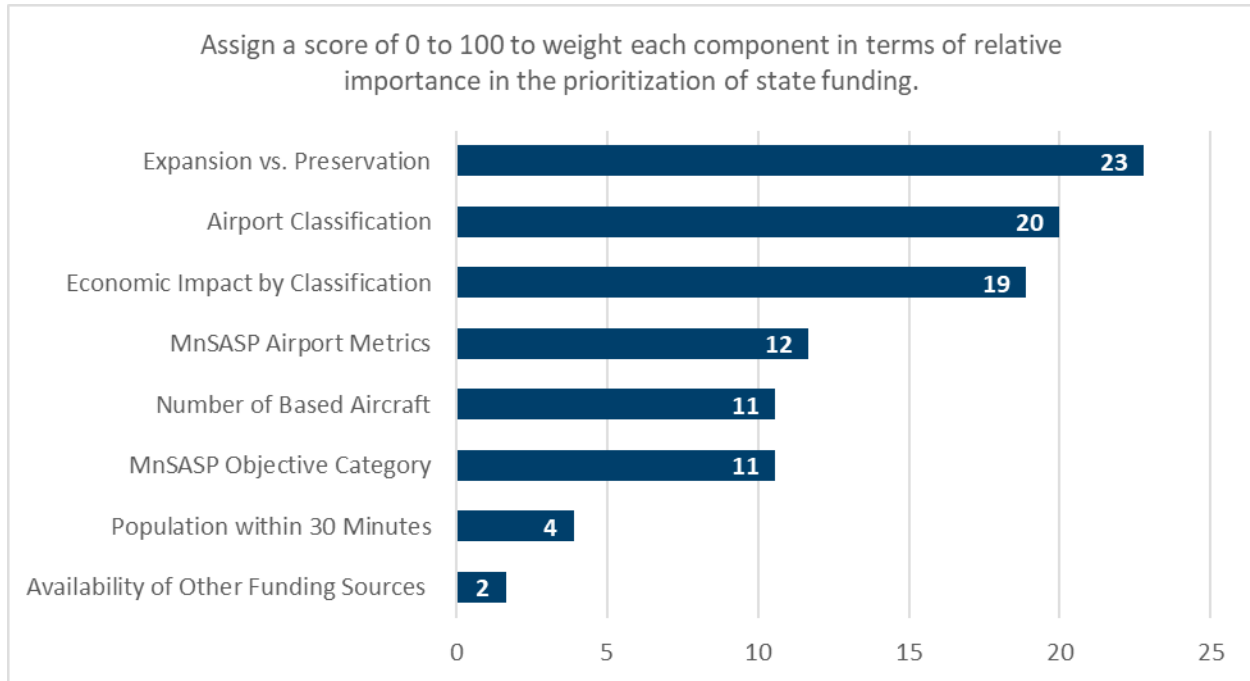
Table 4.11. Airport Funding Working Group Stakeholder Feedback: Prioritization of Projects within Each Potential Prioritization Criterion

Potential Prioritization Criteria	Priority for State Funding
Expansion vs. Preservation	Preservation
Economic Impact by Classification	High economic impact. Note respondents further indicated that airports should be considered in terms of economic impact within their specific regions instead of comparing at the statewide level. In response, airports were subsequently evaluated in terms of the percent of total economic impact relative to county Gross Regional Product (GRP).
MnSASP Objective Category	Listed by highest to lowest priority for state support: Transportation Safety, System Stewardship, Critical Connections, Open Decision-making, Healthy Communities.
MnSASP Airport Metrics	N/A. This is a yes/no criterion referring to whether a proposed project fills an airport/system measure deficiency identified by the 2022 MnSASP.
Airport Classification	List by highest to lowest priority for state support: Key, Intermediate, Landing Strip.
Population within 30 Minutes	High population. This indicates that airports located in urban areas should receive priority for state support.
Number of Based Aircraft	N/A. This criterion looks specifically at numerical values.
Availability of Other Funding Sources	Airport sponsors providing a 30 percent or higher local match should receive priority for state support.

Source: Kimley-Horn, 2022

Airport Funding Working Group participants were then asked to provide input on the relative importance of the potential prioritization criteria relative to one another. As depicted in **Figure 4.28**, participants indicated that expansion vs. preservation, airport classification, economic impact by classification, and MnSASP airport metrics were the most valuable criteria in the prioritization of state funding via the Airport Development Program. Note participants were also asked to provide ideas regarding other prioritization criteria, but no feedback was received.

Figure 4.28. Airport Funding Working Group Stakeholder Feedback: Potential Prioritization Criteria for Airport Development Grants



Sources: Kimley-Horn, 2022; Airport Funding Focus Area Working Group, 2022

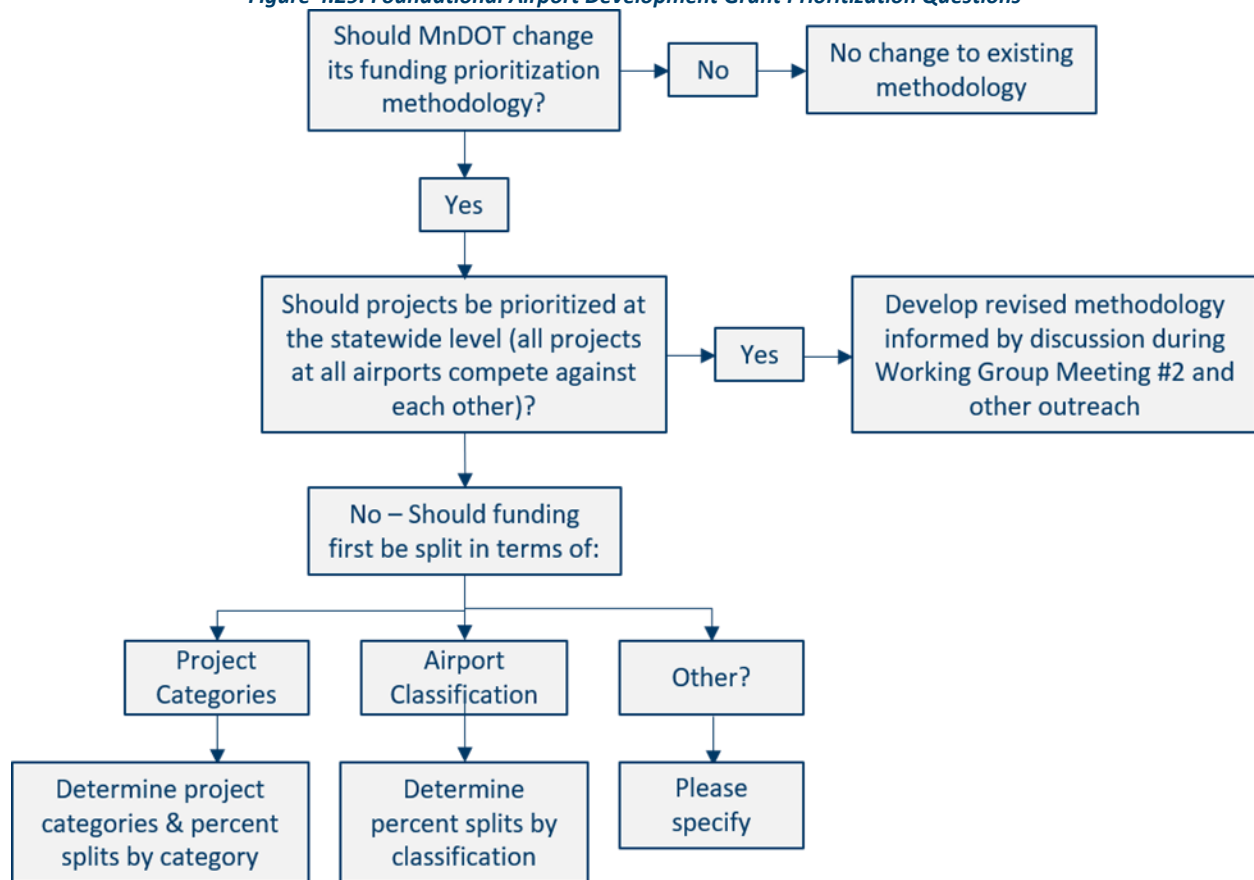
Following Airport Funding Working Group meeting #2, an additional survey was distributed via email asking participants to provide input on state participation rates. Two responses were received as follows:

- MnDOT Aeronautics should increase its participation in work related to airport zoning and alternative land use controls over clear zones.
- MnDOT Aeronautics should decrease its participation in state-only projects at non-NPIAS airports and increase its participation in state-only projects at NPIAS airports. State participation rates in federal AIP projects should remain as-is.

4.5.1.3. Meeting #3 (March 2022)

Following close consideration of the input gathered during meetings #1 and #2, MnDOT Aeronautics determined that the final meeting of the Airport Funding Working Group should gather input on foundational issues not yet contemplated by the group. It is anticipated that the input gathered during the first two meetings will be used in future work; however, MnDOT Aeronautics used the final discussion to take a slightly broader view of the state funding question. **Figure 4.29** summarizes the major inflection points in the distribution and award of Airport Development Grants. Each question was discussed extensively by participants during meeting #3.

Figure 4.29. Foundational Airport Development Grant Prioritization Questions



Sources: MnDOT Aeronautics, 2022; Kimley-Horn, 2022

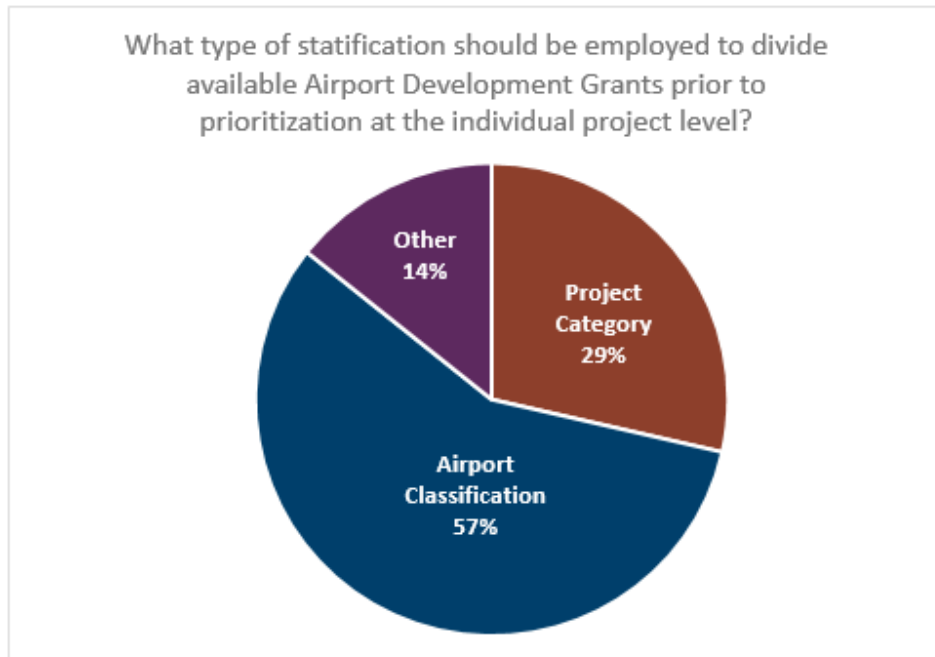
Airport Funding Working Group participants universally agreed that MnDOT Aeronautics should change its existing prioritization methodology. MnDOT Aeronautics then asked if projects should be prioritized at the statewide level, or if various categories should be defined to split available funding first before selecting individual projects. The former option aligns with the existing methodology, in which all projects in the state compete for the same pot of available funds. The latter option would split available funds first the project category (e.g., airside pavement, terminal, planning), airport classification (i.e., Key, Intermediate, Large), or other stratification. MnDOT Aeronautics would prioritize requested projects against “peer” requests to offer greater opportunities for certain airports or project types to receive some amount of funding.

When asked if capital improvement projects should be prioritized at the state level, 37.5 percent of participants responded in the affirmative. Sixty-two-point-five percent of participants responded in the negative, opting instead for establishing pots of money based on project categories, airport classification, or other stratification. Note that only eight participants attended the Airport Funding meeting #3.

The Working Group was then asked to provide input on how funding should be split if MnDOT Aeronautics decides to establish pots of available funds for various types of projects, airport classifications, or other stratification. **Figure 4.30** shows that participants indicate a preference for

subdividing available funds by airport classification, which would provide some investment dollars to all classifications prior to awarding at the individual project level. Such a methodology recognizes that not all classifications request the same project types, and projects that may be of great importance to one airport may be of little value to another facility. For example, a mower may be highly valuable to a Land Strip Turf airport but a Key airport would find little value in that same project. As such, these airports should not compete against one another for available funds because they have little in common in terms of priority needs.

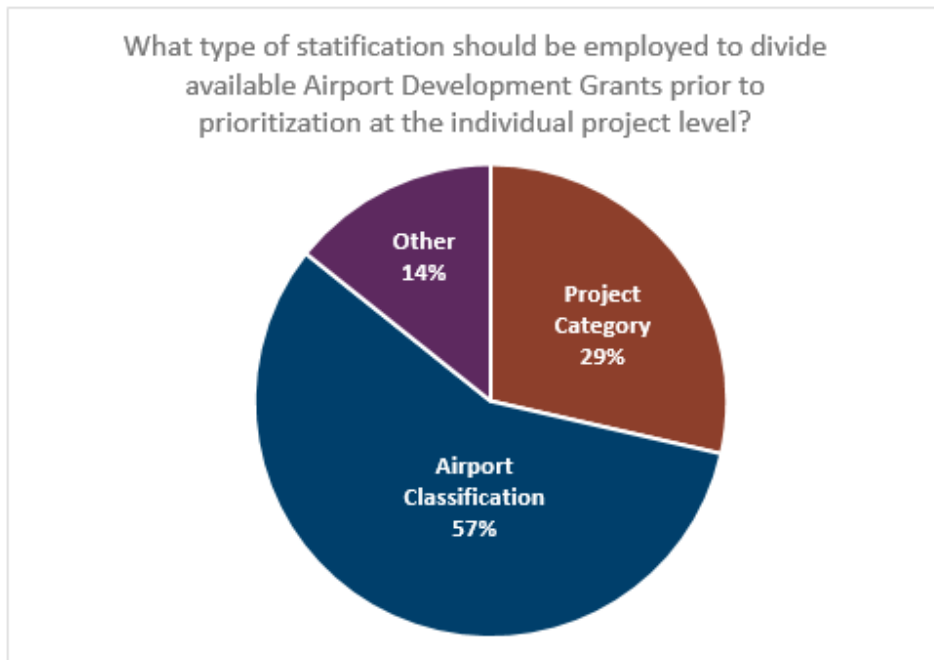
Figure 4.30. Airport Funding Working Group Stakeholder Feedback: Potential Stratification Methodologies



Sources: Kimley-Horn, 2022; Airport Funding Focus Area Working Group, 2022

Expanding upon the question above, participants were asked the percent of dollars that should be set-aside for each classification. As shown in **Figure 4.31**, participants recommend that 54 percent of funding should be awarded to Key airports, 39 percent to Intermediate airports, and the remaining seven percent to Landing Strip airports. Note this is not significantly different to how funds are expended under the existing methodology, although funds are not first split by classification.

Figure 4.31. Airport Funding Working Group Stakeholder Feedback: Proposed Allocation of Funds by Classification



Sources: Kimley-Horn, 2022; Airport Funding Focus Area Working Group, 2022

Participants also offered some additional suggestions regarding how set-asides could be established:

- Regional approach due to association with economic impact
- Consideration of certain “need” factors (PCI, hangar waiting list, justification reports, etc.)
- Availability of sponsor matching funds
- Revenue-producing projects to help airports fund their own projects

As the final question for the Airport Funding Working Group, participants were asked to provide feedback on the state’s handling of federal matches. Under the existing methodology, MnDOT Aeronautics matches all federal grants first, prior to the prioritization of state-only projects. In the future, MnDOT Aeronautics has several alternatives in terms of participation with AIP-funded projects:

- State funds could be awarded first, prior to the prioritization of state-only funding (existing methodology)
- Federal matches could be established as a percent total available funding or a set dollar amount
- MnDOT Aeronautics could not participate in federally funded projects

One hundred percent of participants indicated that MnDOT Aeronautics should establish a percent funding cap on their participation in federal projects.

4.5.1.4. Airport Funding Working Group Key Take-aways

Through the Airport Funding Focus Area Working Group of the 2022 MnSASP, participants have indicated a strong preference for updating the existing grant prioritization methodology. Stakeholders understand

that investment needs exceed funding. Further, needs are growing while the purchasing power of a dollar is declining due to inflation and the rising cost of design and construction. MnDOT Aeronautics will be forced to make several difficult decisions as it seeks to better align its funding and other decision-making processes with the investment reality. In many ways, these difficult decisions will be rooted in determining which infrastructure assets the state can no longer support – whether that be specific project types (e.g., secondary or crosswind runways) or under-utilized airports. Airport Funding Working Group participants provided several key points that MnDOT Aeronautics should consider as it looks to refine its prioritization methodology in the future:

- The three primary airport assistance programs should be retained as-is, and funding allocations between programs should not be a major focus area for revision in the future.
- The prioritization of capital improvement projects requested via the Airport Development Program no longer meets stakeholder needs. Updating the project prioritization methodology should be of top precedence for MnDOT Aeronautics.
- Participants indicated a preference for establishing pots of funding to prioritize peer projects or airports relative to one another instead of evaluating all projects at the statewide level.
 - Project needs by classification are inherently different. The recommended funding amounts by classification do not significantly differ relative to historic funding values.
 - If MnDOT Aeronautics adopts a methodology that establishes pots of funding by classification, airports would retain the total amount of funds they are accustomed to receiving. However, they may be more likely to receive funds for the projects of highest value to them by aligning project priority scores by airport classification.
- Top criteria for project prioritization include preservation versus expansion, airport classification, regional economic impact, and a project’s ability to fill an airport or system measure gap as identified by the 2022 MnSASP.
- MnDOT Aeronautics should reevaluate its existing process of matching all federal grants first, potentially instituting a percent total investment cap for federal projects.

Additionally, the analyses required to compile historical grant data revealed that existing procedures do not allow for easily tracking projects requested, evaluated, and ultimately funded. The following section provides a framework to assist MnDOT Aeronautics revise its Airport Development Grants prioritization methodology in alignment with the current needs of Minnesota’s aviation stakeholders, enhance agency transparency, and improve the ability to conduct internal analyses of historic funding decisions and procedures.

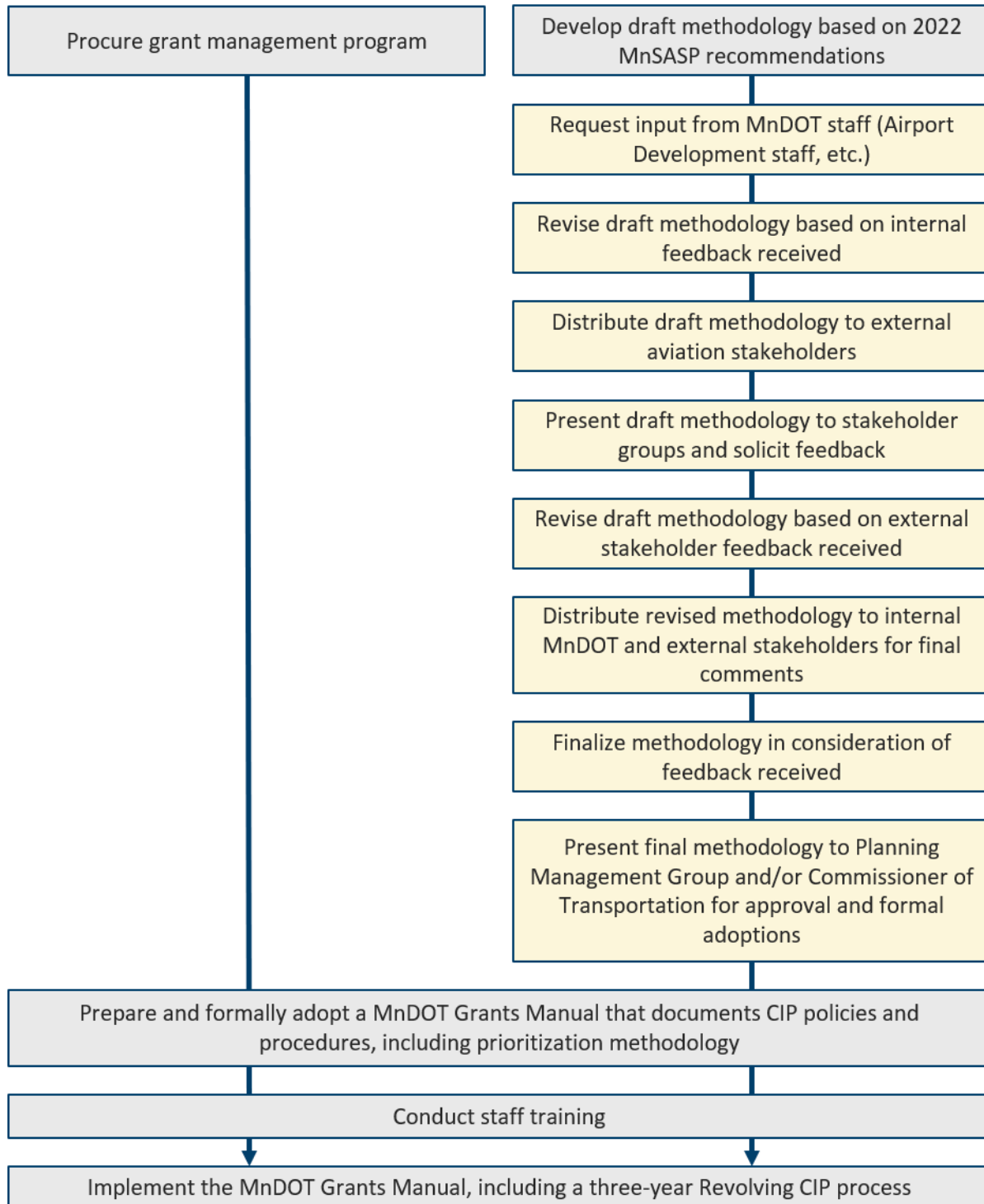
4.5.2. FUTURE PRIORITIZATION NEXT STEPS

The input provided by the Airport Funding Working Group and various funding-related tasks of the 2022 MnSASP has provided a solid foundation from which MnDOT Aeronautics can ultimately revise its Airport Development Grant prioritization process. This section outlines the general steps to apply the insight gathered through these interrelated processes to finalize and implement a revised process for capital improvement project selection and grant management. These recommendations have been developed considering the following guiding principles:

- **Transparent, Data-driven Processes:** As stewards of public funds, MnDOT must make all decisions in a manner transparent to Minnesota taxpayers. Transparently also allows airport sponsors and consultants to align project requests with the priorities of the state aviation system to support a philosophy of holistic management of the system.
- **Long-term Viability:** A forward-thinking grant management process allows MnDOT Aeronautics to more carefully plan investment decisions over the long-term. With needs significantly exceeding available dollars, MnDOT Aeronautics must make decisions that retain the long-term viability of the system in terms of access, mobility, safety, security, and the overall benefit to the system. Decisions can be made that allow the system to meet all aviation demands, rather than just one airport. Maintaining an operationally efficient, advanced, and functional airport system is only possible through long-term planning instead of making decisions simply on an annual basis.

Figure 4.32 highlights the recommended next steps for MnDOT Aeronautics as it seeks to revise its CIP management process, including the Airport Development Grant prioritization methodology. The specific timing is unknown, but it is anticipated that procuring a grant management program and finalizing the prioritization process would minimally take months to complete. Additional information regarding the major steps shown in grey are presented below the figure.

Figure 4.32. Grant Management Next Steps



Source: Kimley-Horn, 2022

4.5.2.1. Procure a MnDOT Grant Management Program

The existing Airport System Manager (ASM) platform is outdated and no longer meets the grant management needs of MnDOT Aeronautics nor airport sponsors. The 2022 MnSASP recommends that MnDOT Aeronautics procure an effective MnDOT grant management program that comprehensively administers the statewide CIP in conjunction with grant selection, contract execution, invoices, reimbursements/payments, inspection procedures, contract close-out, and other workflow tasks. The grant management program should serve as a “one stop shop” for MnDOT Airport Development staff to easily track and manage all phases of a state-funded project. Additionally, the software should provide robust functionality to analyze historic expenditures to guide future improvements and support the agency’s need for transparency.

4.5.2.2. Implement a Three-year Revolving CIP Process

In recent years, MnDOT Aeronautics has asked that airport sponsors provide 20-year development needs in support of the agency’s long-term planning processes. However, the 2022 MnSASP has revealed serious inconsistencies in the volume and quantify of data provided by airports into the current ASM CIP management software. Because partial data is being input, resultant analysis may appear correct but in fact significantly under-report actual needs. Additionally, the 2022 MnSASP revealed that many airport sponsors are unable to accept grant funding offered by MnDOT Aeronautics. While many factors could lead to this decision, an airport sponsor may turn down state money if they are unprepared to provide a local match or the project is no longer needed.

The 2022 MnSASP recommends implementing a revolving three-year CIP process. In this process, airport sponsors or their designated consultants input project requests over a three-year planning process. While projects are selected for funding annually, the airport sponsor and MnDOT Aeronautics can effectively budget for upcoming needs. Projects can be more seamlessly funded from planning through design and construction or in multiple phases since needs have clearly been identified and planned for beyond year one. Three-year costs are also generally more accurate than those projected using a longer timeframe. Airport sponsors/consultants should be asked to annually review and update projects included on the three-year CIP, with the general expectation that grants will be accepted if selected for funding. Non-emergency projects not included on the CIP should be ineligible for state support.

4.5.2.3. Revise Prioritization Methodology

Highlighted throughout **Section 4.5.1. Stakeholder Participation**, the current prioritization of capital improvement projects through the Airport Development Program no longer meets the needs of Minnesota system airports nor MnDOT Aeronautics. The 2022 MnSASP has made significant process in identifying the key issues and priorities of Minnesota aviation stakeholders. Stakeholders clearly understand that MnDOT Aeronautics is not able to fund all identified needs at all airports, and the agency must now make difficult decisions regarding what it can continue to support across the state. In consideration of feedback received throughout the 2022 MnSASP, it is recommended that MnDOT Aeronautics establish funding percentages by state classification. Individual projects can then be prioritized based on the needs within those classifications.

It is recommended that MnDOT continue to seek additional input prior to finalizing the methodology, such as from the Minnesota Council of Airports (MCOA). To assist MnDOT Aeronautics in the development process, an Excel-based prioritization tool has been developed as part of the 2022 MnSASP. The tool can be used to dynamically evaluate the implications of various scoring methodologies for MnDOT Aeronautics and system airports.

4.5.2.4. *Develop and Adopt a Grants Manual*

Building off the previous recommendation, updated grant policies and procedures must be documented in a grants manual that has been formally approved and adopted by MnDOT. An adopted manual would be an important tool and ally for MnDOT Aeronautics to more effectively manage the statewide CIP and communicate requirements to airport sponsors and internal staff. A grants manual affords the opportunity to implement a more structured program with better defined eligibility and decision-making guidelines while making the agency more accountable for its funding decisions.

4.5.2.5. *Staff Training*

The support and participation of MnDOT Aeronautics staff is fundamental as the agency seeks to enhance, refine, and improve the allocation of state aviation funding for the ultimate benefit of Minnesota’s air traveling public. New processes will most likely change the duties of many MnDOT Aeronautics staff members, with particularly acute impacts on Airport Development and Planning team members. Staff must fully understand not only their responsibilities, but also how their work is a component of a broader workflow designed at enhancing the process for both MnDOT and users. Staff training sessions must occur throughout implementation process. Communication should focus on both expectations/duties as well as the purpose of the policy/process changes.

4.6. Summary

The investment needs presented in this chapter underline the importance of carefully and intentionally allocating available investment dollars to those projects with the greatest ability to enhance air transportation in Minnesota in the long-term. As costs and demand for aviation services continue to rise, the funding gap may in fact become significantly higher than 2022 MnSASP projections portend. The public participation processes of the 2022 MnSASP provide valuable insight into the priorities of various stakeholder groups. With this guidance in-hand, MnDOT Aeronautics can continue to refine its own processes – realizing that the state may need to make difficult decisions about what it can and cannot continue to support in the future.

Chapter 5. Key State Focus Areas offers recommendations and processes associated with how MnDOT Aeronautics can evaluate some types of specific funding-related decisions, such as support for hangars, crosswind runways, and courtesy cars. Additionally, the Airport Closure Guidance provides a pathway to allow struggling airports to close if they so choose. This guidance can help MnDOT Aeronautics “right-size” the system and focus its limited resources on the assets and airports most able to fill aviation demands within Minnesota.