State Aviation System Plan

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Minnesota State Aviation System Plan

Overview | October 2023

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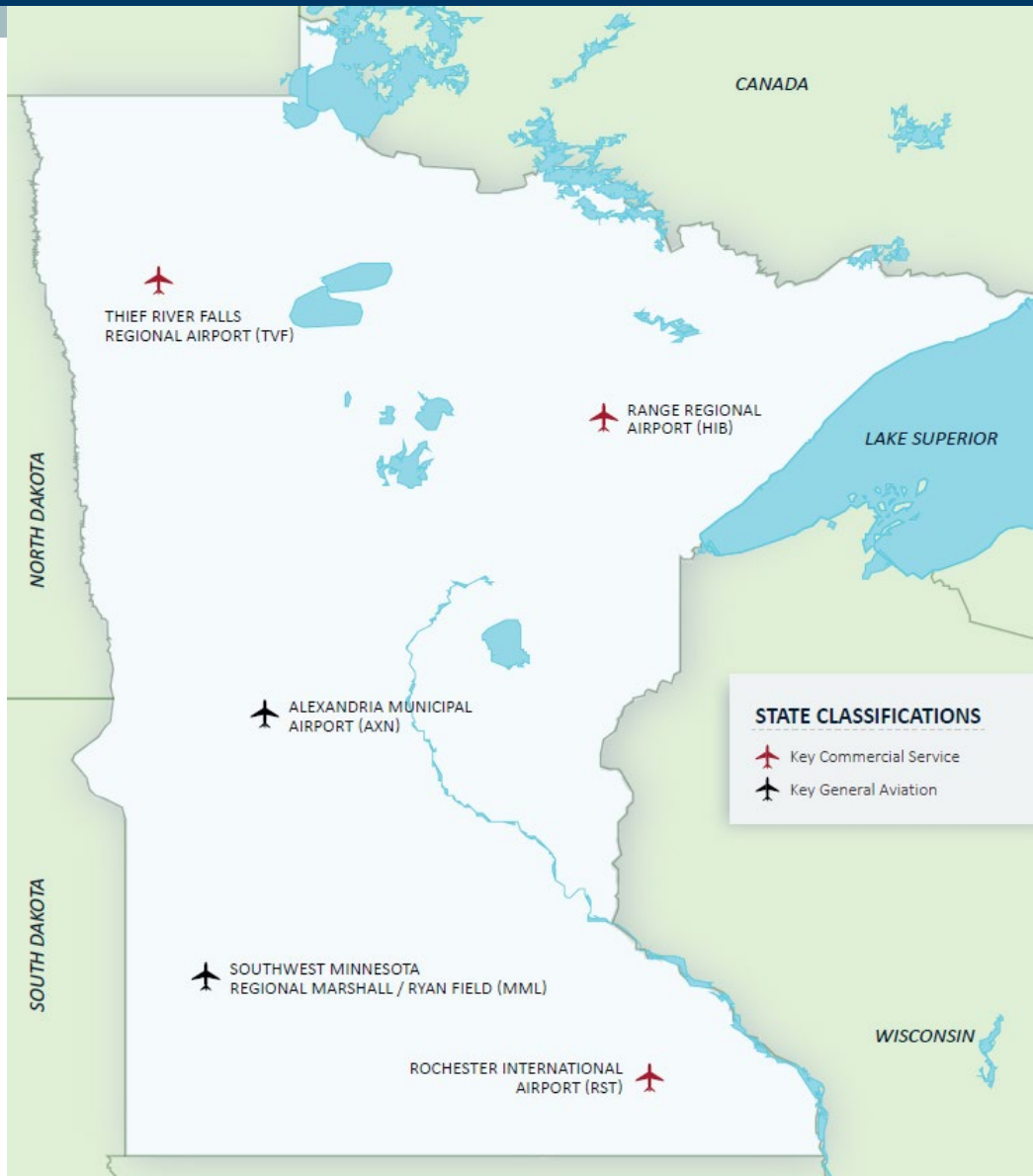
Agenda

- Introductions
- System Planning Overview
- Intro and Phase I Validation
- Operations Counting and Forecasting
- System Performance and Cost Estimates
- Project Prioritization and HUB
- Hangar Availability and Funding
- Crosswind Runways
- Clear Zones

Airport Shown: Glencoe Municipal Airport (GYL)

MnSASP Implementation Meetings

- Five in-person meetings scheduled between October 16th – 26th
- Intended for all airport stakeholders (managers, sponsors, consultants, engineers)



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System Planning Overview

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State Aviation System Planning

Roadmap for future development in terms of type, extent, location, timeline, and cost that:

- Identifies existing conditions statewide
- Evaluates existing aviation system according to statewide goals
- Determines statewide needs that align with state priorities
- Develops recommendations and an implementation plan to provide direction and guidance in future decision-making

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Relation to National and Local Planning

Relation to National and Local Planning

State system planning exists between national and local planning efforts

MnSASP

National

National Plan of Integrated Airport Systems (NPIAS)

Delivers state-specific insights to inform aviation development and funding decisions nationally.

Defines goals and recommendations to inform planning of future aviation development and investment.

Local

Master Plan, Airport Layout Plan (ALP), Transportation Planning

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Introduction and Phase I Validation

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Introduction

Phase I

Assess Prior Efforts

Analyze Trends

Review Airport Classifications

Define Objectives and Airport/System Metrics

Establish Inventory Needs

Phase II

Conduct Airport Inventory

Evaluate Performance of State Aviation System

Develop guidance for state focus areas

Develop MnSASP Hub

Calculate Future Investment Needs

Publish MnSASP Deliverables

Identify Potential Future Ancillary Studies

Potential Ancillary Studies

Grant Management / CIP Development

Economic Impact Study (completed in 2019)

Air Service

Air Cargo

Asset Management

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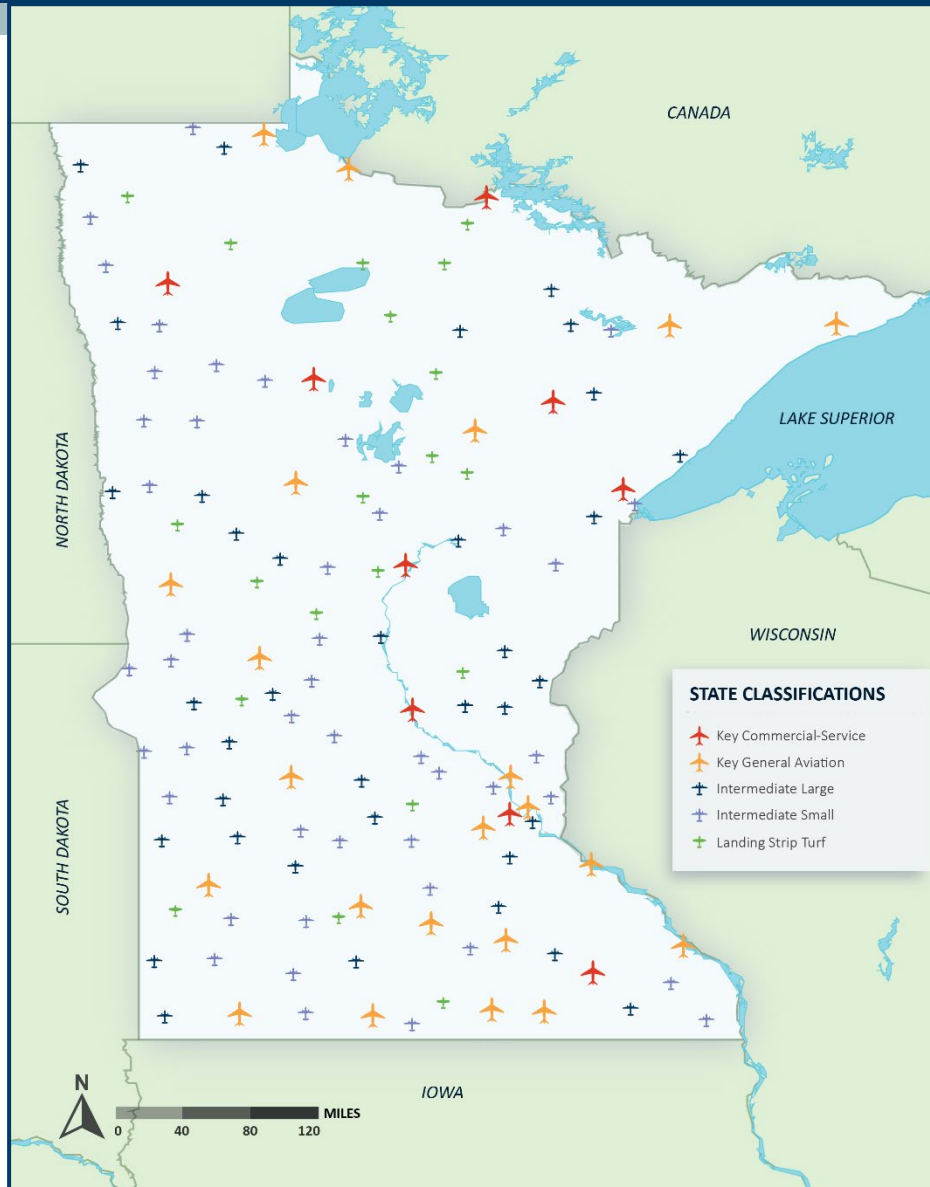
Minnesota Airport System

- 133 airports in Minnesota state airport system
  - Publicly owned
  - Public-use
- 96 included in the National Plan of Integrated Airport Systems (NPIAS)



Objectives/Strategies

OBJECTIVES	SUMMARY	STRATEGIES
Open Decision-Making	Make transportation system decisions through processes that are inclusive, engaging, and supported by data and analysis.	1) Outreach and Collaboration 2) Disseminating Airport Activity Information 3) Review of Funding and Selection Criteria
Transportation Safety	Safeguard aviation users and the communities the system travels through applying proven strategies to reduce fatalities and serious injuries for aviation.	1) Approach Airspace Obstructions 2) Clear Zone Policy 3) Safety Initiatives
Critical Connections	Maintain and improve multimodal transportation connections essential for Minnesotans' prosperity and quality of life by strategically considering new connections that can maximize the social, economic, and environmental benefits in the state.	1) Last-mile Connections 2) Awareness and Promotion 3) Community Connections

Objectives/Strategies

OBJECTIVES	SUMMARY	STRATEGIES
System Stewardship	Strategically build, manage, maintain, and operate all transportation assets using system data analysis, performance measures and targets, and achieving stakeholder needs.	1) Technology Use 2) Airport System Workforce Promotion 3) Right-sizing the System 4) Airport Self-Sufficiency
Healthy Communities	Make fiscally responsible aviation system decisions that respect and complement the natural, cultural, social, and economic nature of the region and integrate land use and transportation to leverage public and private investments	1) Airport Zoning Ordinances 2) Compatible Land Use 3) Unleaded Aviation Fuel
Climate Action	Advance a sustainable and resilient transportation system, enhance transportation options and technology to reduce greenhouse gas emissions, and adapt Minnesota's transportation system to a changing climate.	Following completion of Phase I, Climate Action was added as a new objective to the SMTP. As the SMTP was updated after completion of Phase I, no strategies were developed for Climate Action.

System Metrics

- Evaluate the performance of Minnesota's airports at the systemwide level
- Comprise various safety, planning, and service-related items indicative of the performance of the statewide system

- Adequate Approaches
- Pavement Condition
- Obstructions
- NAVAIDs
- Zoning
- Planning Documents
- A/D & Terminal Buildings
- Wind Coverage

System Metrics

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Airport Metrics

- Evaluate each airport in the state aviation system based on state classification
- Comprise various facility, service, and administrative items that each airport should provide to optimally support the type and frequency of aviation activities that is typically being supported

- Primary Runway Width
- Primary Runway Lighting
- Primary Runway Approaches
- Taxiway Type / Width
- Weather Reporting
- NAVAIDs
- Ground Transportation
- Aircraft Storage
- A/D & Terminal Buildings
- Fuel
- Planning Documents
- Zoning / Clear Zones
- Minimum Standards

Airport Metrics

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Operations Counting and Forecasting

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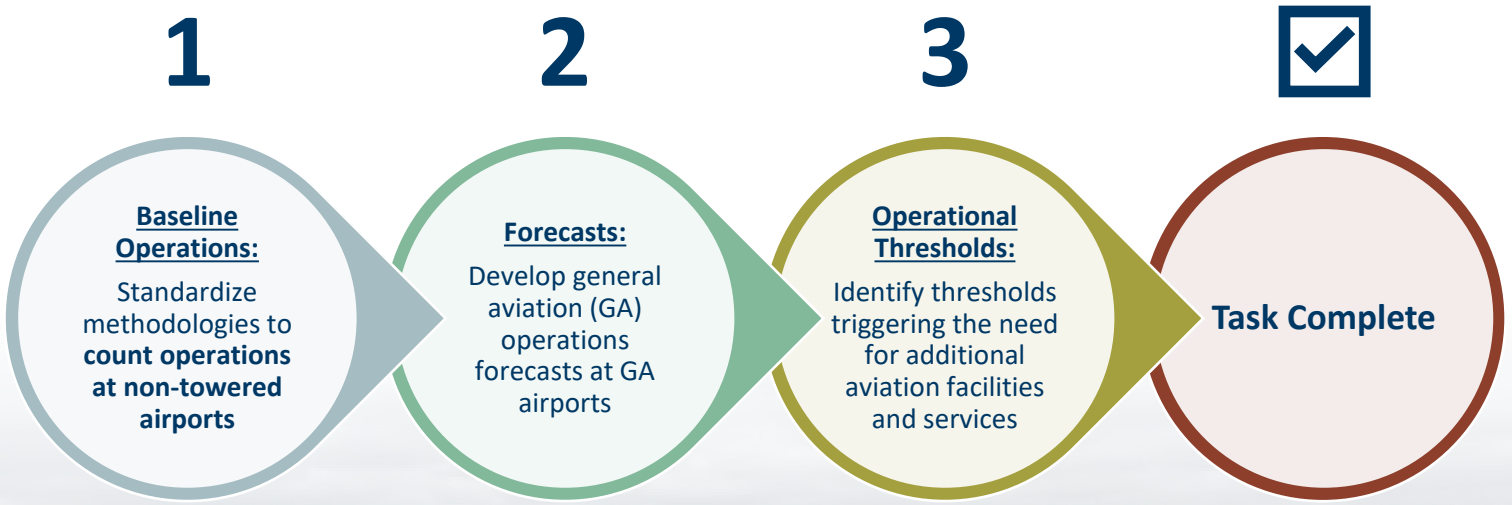
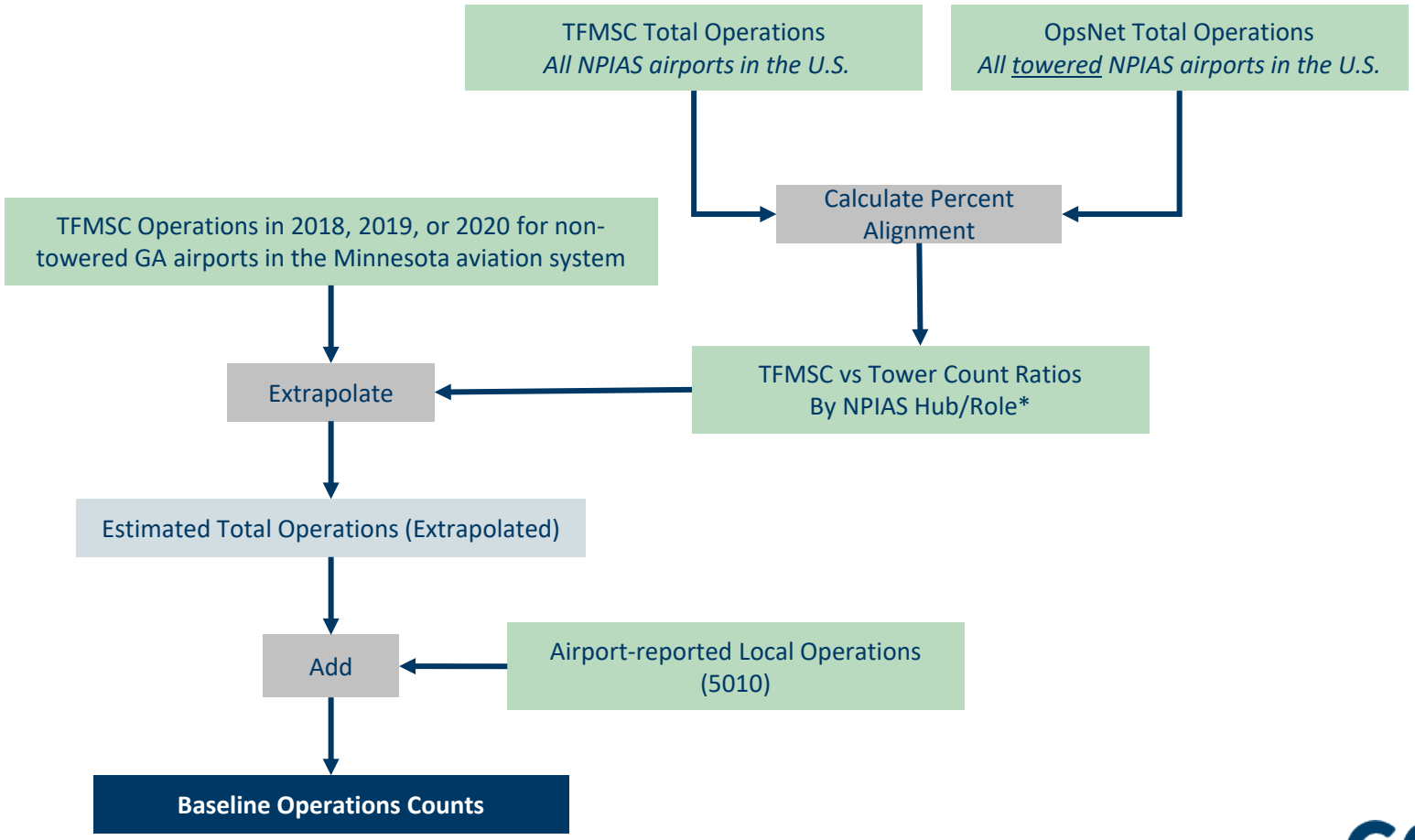
Task Overview and Objectives



1. Baseline Operations



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2. Develop Forecasts

Mixed Methodology Forecast:

Aligns primary drivers of aviation activity by state classification with anticipated future activity levels

State Classification	Forecast Methodology
Key General Aviation	Per Capita Personal Income (PCPI)
Intermediate Large/Small	GA Hours Flown
Landing Strip Turf	Socioeconomic – GA Flight Hours Flown Blend

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Airport Shown: Hutchinson Municipal Airport (HCD)

Statewide GA Forecasts by Methodology, 2020 - 2040

METHODOLOGY	2020	2025	2030	2035	2040	CAGR (%)
Socioeconomic – Population	1,262,979	1,301,620	1,339,446	1,373,232	1,401,945	0.52%
Socioeconomic – PCPI	1,262,979	1,365,524	1,461,753	1,547,517	1,630,995	1.29%
FAA GA Hours Flown	1,262,979	1,425,877	1,474,486	1,522,019	1,588,707	1.15%
Socioeconomic – GA Flight Hours Blend	1,262,979	1,364,340	1,425,228	1,480,923	1,540,549	1.00%
Mixed Methodology	**1,262,979**	**1,396,408**	**1,467,756**	**1,533,989**	**1,609,415**	**1.23%**

**Preferred methodology. Sources: Woods & Poole, 2021; FAA Aerospace Forecasts 2021 – 2041; Kimley-Horn, 2022*

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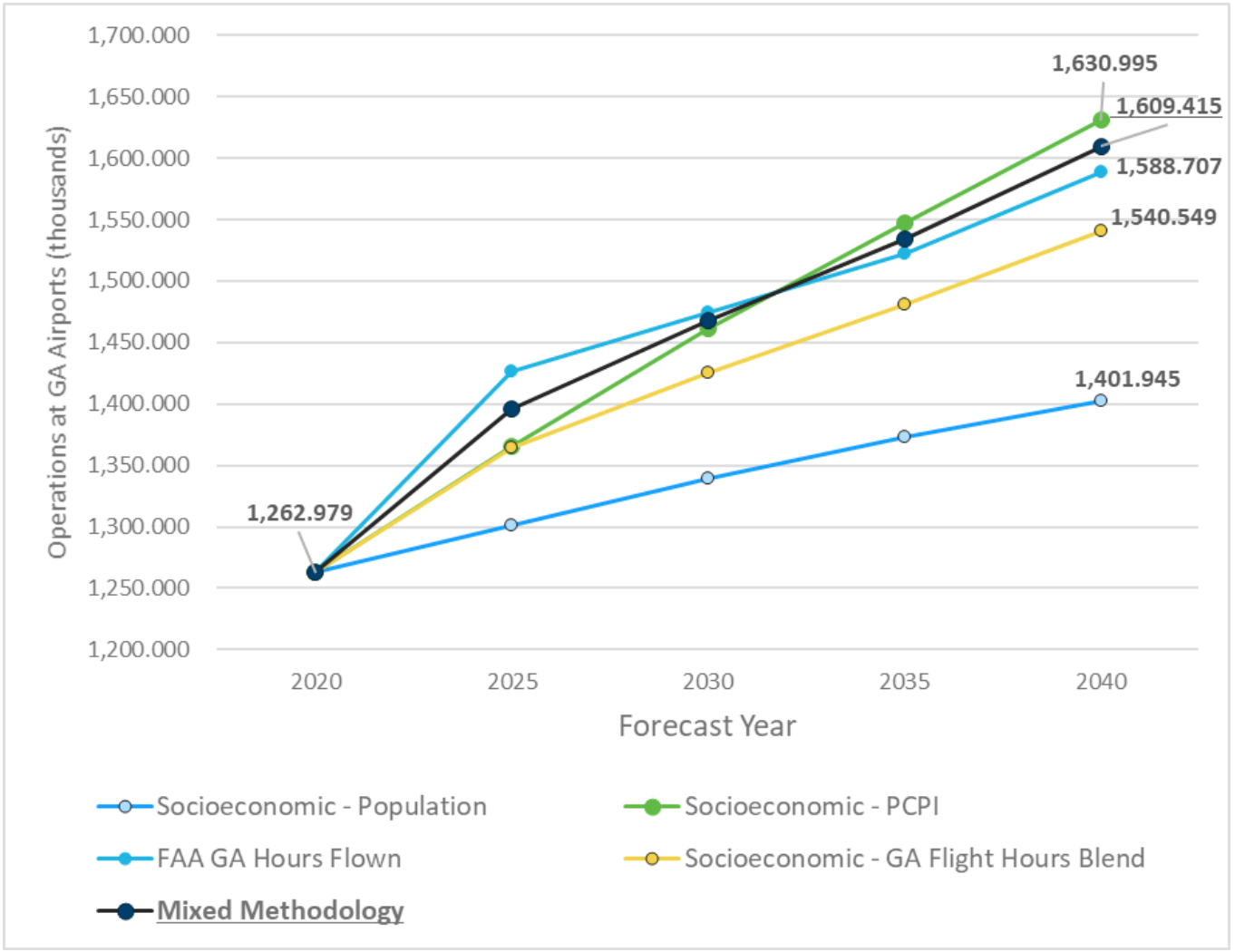
Statewide GA Forecasts by Methodology, 2020 - 2040



Note: Forecasts include 124 GA airports in the MN state aviation system.
Sources: Woods & Poole, 2021; FAA Aerospace Forecasts 2021 – 2041; Kimley-Horn, 2022

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3. Operational Thresholds

- Annual operations are one element airport planners use to justify additional development needs
- Operational thresholds (**referred to as planning activity levels [PALs]**) were established by state classification to inform the need for additional airport facilities and services

State Classification (GA Only)	Annual Operations to Trigger Additional Airport Facilities & Services		
	PAL 1 (LOW)	PAL 2 (MED)	PAL 3 (HIGH)
Key General Aviation	6,417	21,275	80,602
Intermediate Large	1,576	9,733	29,974
Intermediate Small	454	7,125	23,010
Landing Strip Turf	200	1,213	5,029

Sources: 5010 Airport Master Record, Various Years; FAA Traffic Flow Management System Counts (TFMSC), 2018 – 2020 (accessed May 2021); Kimley-Horn, 2021

Example GA PALs by State Classification

Metric	Targets by State Classification			
	Key General Aviation	Intermediate Large	Intermediate Small	Landing Strip Turf
PAL 1	**6,417 Operations** Required: ALP and MP updates at least every 10 years Required: Precision approach with minimums of ¾ mile to at least one primary runway end	**1,576 Operations** Required: ALP and MP updates at least every 15 years	**454 Operations** Required: ALP and MP updates at least every 15 years	**200 Operations** Required: Visual approaches
PAL 2	**21,275 Operations** Recommended: Precision approach with minimums of ½ mile to at least one primary runway end Recommended: 100LL and Jet A fuel	**9,733 Operations** Required: Non-precision instrument approach with one-mile visibility or lower to at least one runway end	**7,125 Operations** Required: Non-precision instrument approach with one-mile visibility or lower to at least one runway end	**1,213 Operations** Required: ALP updates as-needed
PAL 3		**29,974 Operations** Recommended: Approaches with vertical guidance (e.g., LPV) Recommended: 100LL As-Needed: Jet A	**23,010 Operations** Recommended: Approaches with vertical guidance (e.g., LPV) Recommended: 100LL As-Needed: Jet A	**5,029 Operations** As-needed: 100LL

**Note: A complete matrix identifying project needs across all airport metrics, PALs, and state classifications are included in 2022 MnSASP Technical Report. Sources: MnDOT Aeronautics, 2021; Kimley-Horn, 2022*

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System Performance and Cost Estimates

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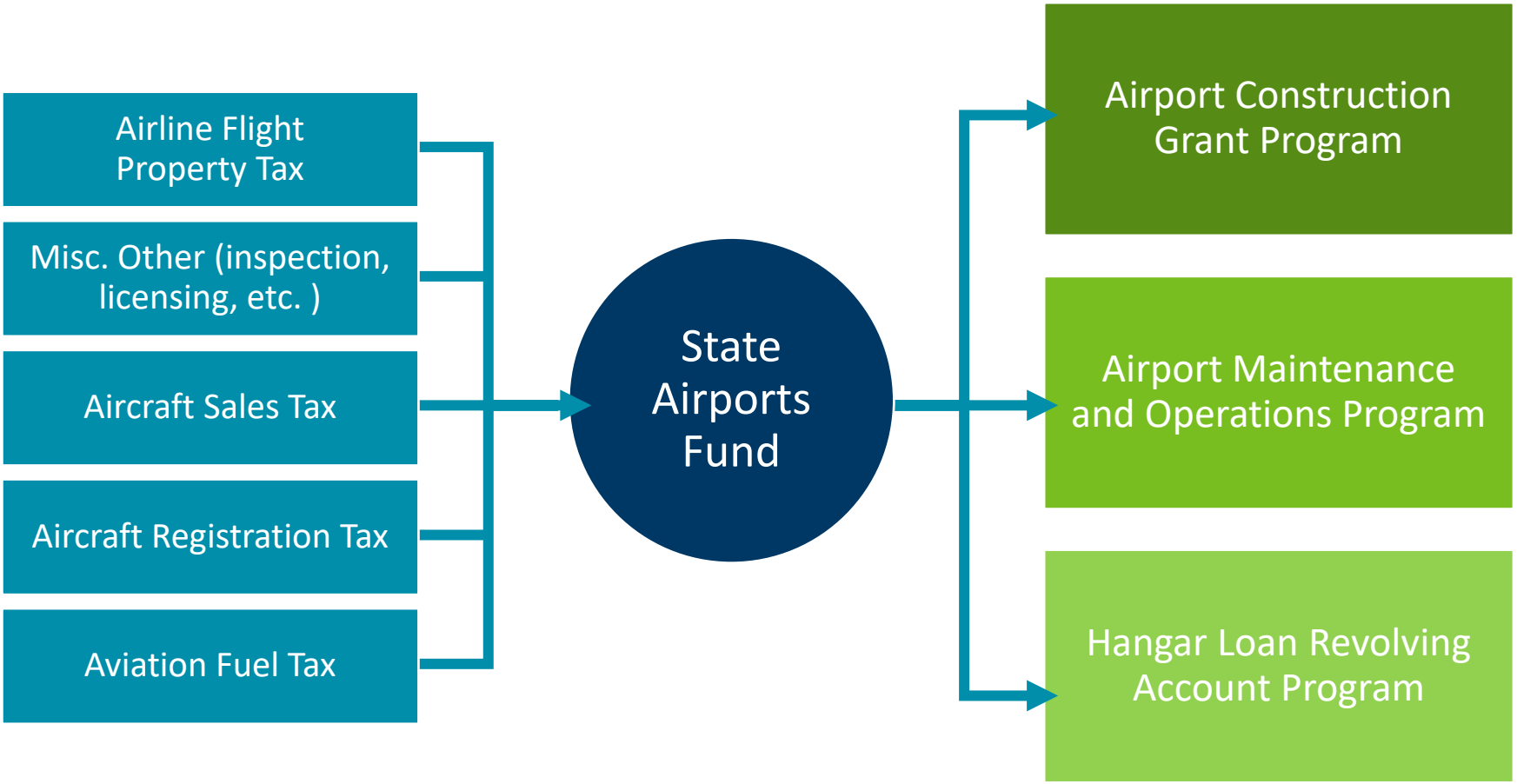
State Airports Fund



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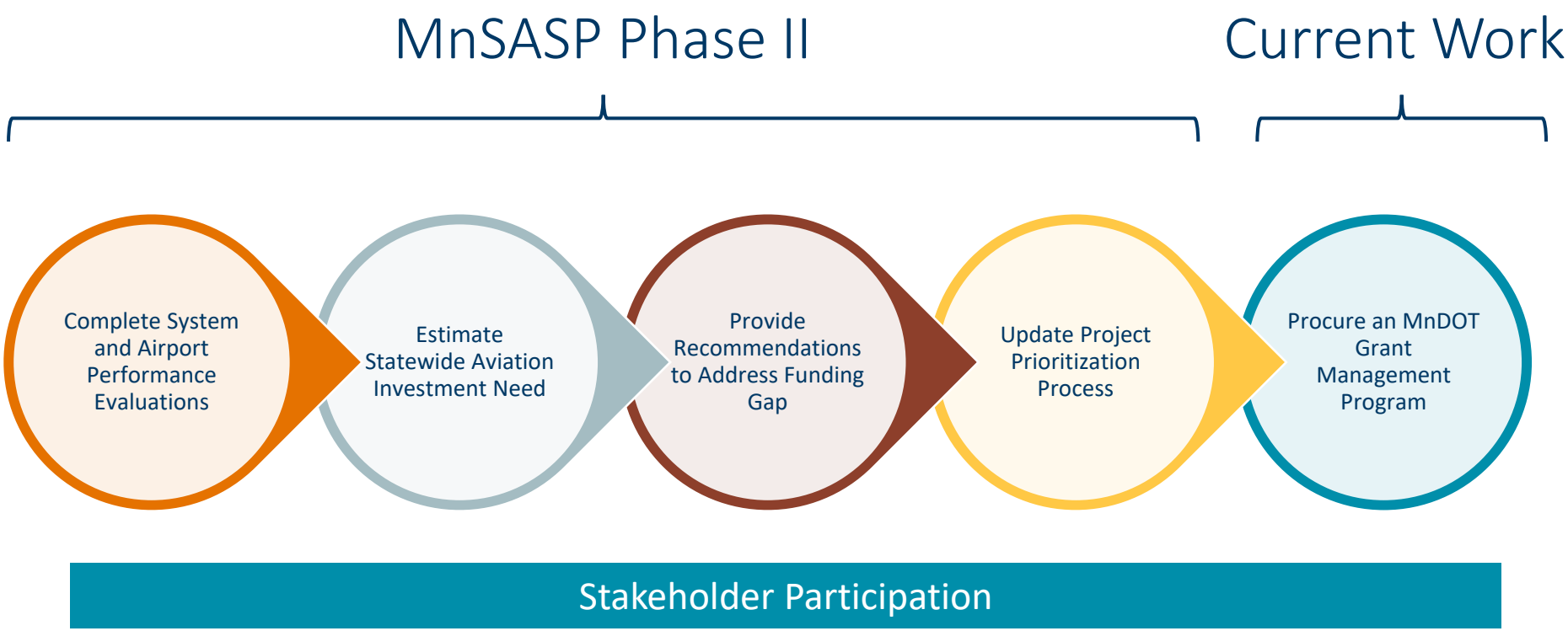
Airport Funding Task



The MnSASP Phase II convened the Airport Funding Focus Area Working Group consisting of MnDOT staff, airports, engineers, and consultants. Follow-on tasks will solicit feedback from the Working group, Minnesota Council of Airports (MCOA), and Local Airline Service Action Committee (LASAC)

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Airport and System Metrics*

- Primary Runway Width
- Primary Runway Lighting
- Primary Runway Approaches
- Taxiway Type / Width
- Weather Reporting
- NAVAIDs
- Ground Transportation
- Aircraft Storage
- A/D & Terminal Buildings
- Fuel
- Planning Documents
- Zoning / Clear Zones
- Minimum Standards

Airport Metrics

- Adequate Approaches
- Pavement Condition
- Obstructions
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System Metrics

All metrics are presented in the MnSASP Hub application available here: https://mnsasp-mndot.hub.arcgis.com/

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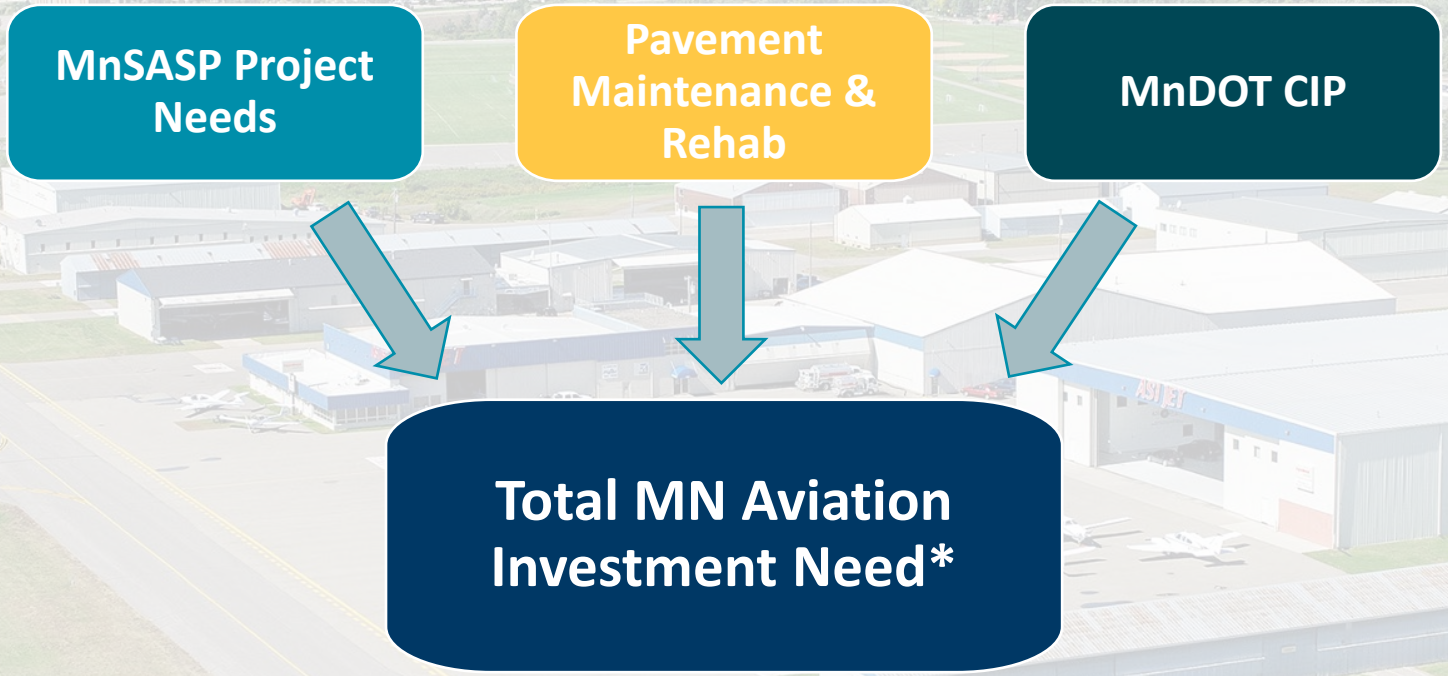
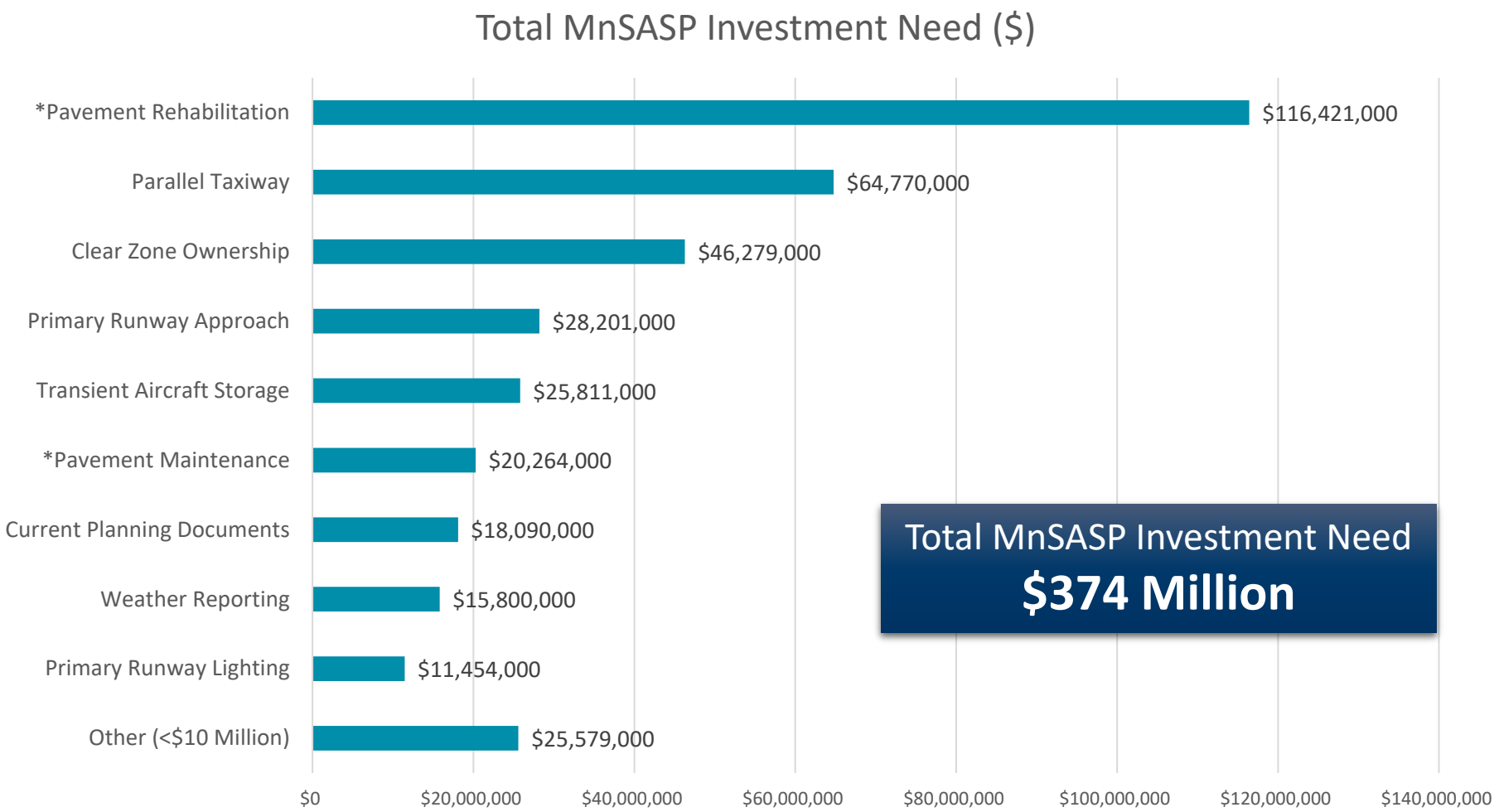
Minnesota Aviation Investment Need Components



Airport Shown: Minneapolis Flying Cloud Airport (FCM)

**Duplicate project costs are removed.*

Total MnSASP Investment Need



Total MnSASP Investment Need
$374 Million

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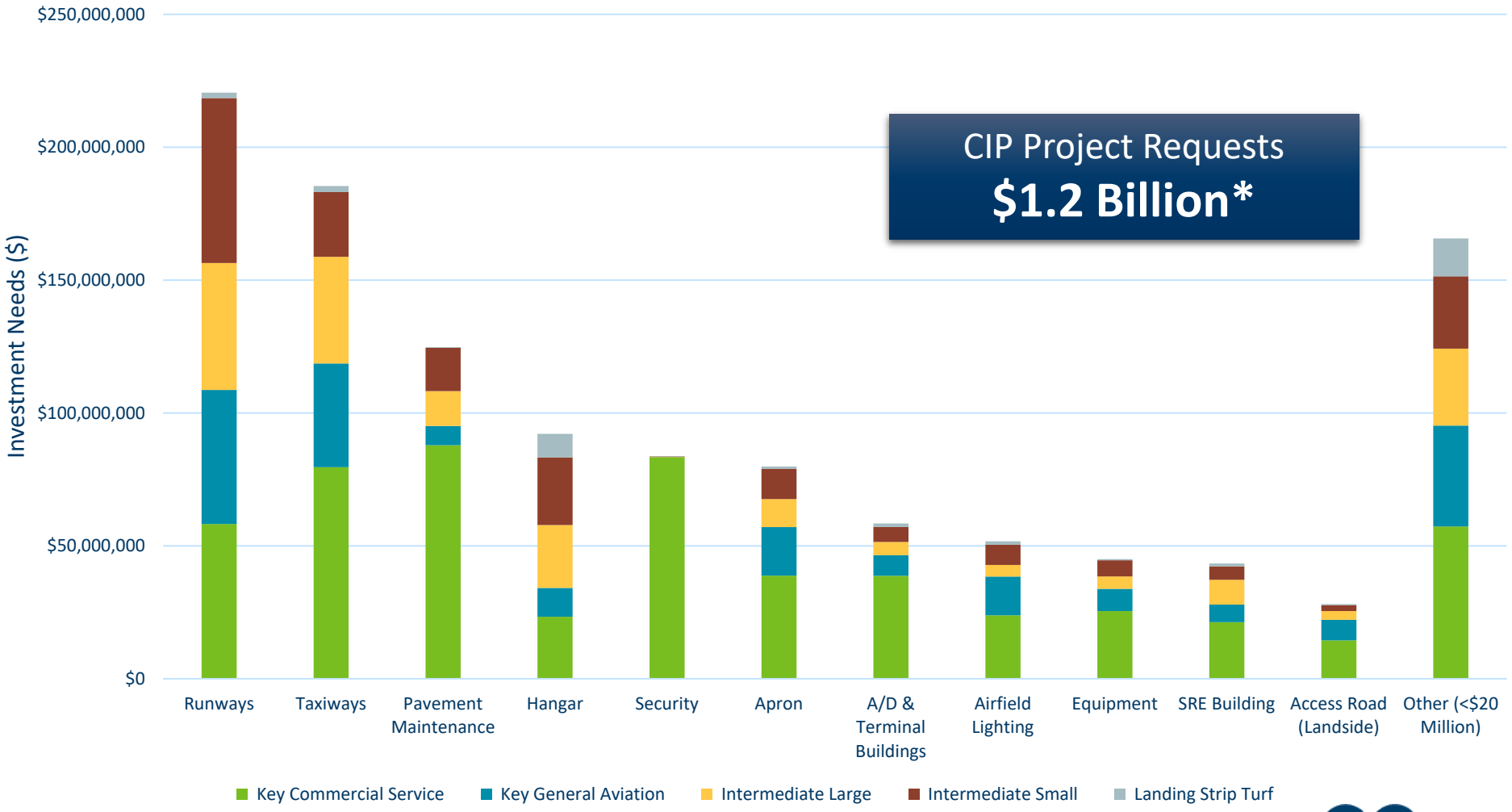
*Reflects five-year need as reported in the MnDOT Airport Pavement Management System

MnDOT CIP, 2020 - 2030



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Notes: All duplicate costs with the Total MnSASP Investment Need have been removed

Total Estimated Minnesota Aviation Investment Need

Investment Type[1]	Total Needs ($)
Total Minnesota Aviation Capital Improvements	**$4.0 Billion**
MnSASP Project Investment[2]	$374 Million
Statewide CIP Project Requests	$1.2 Billion
MSP & MAC Reliever Airports[3]	$2.5 Billion
Maintenance & Operations (Estimated)	**$64 Million**
NAVAIDs	**$15 Million**
Total Minnesota Aviation Investment Need	**$4.1 Billion**

Notes: (1) Duplicate project costs have been removed. (2) Includes airport pavement maintenance and rehabilitation needs. (3) 2022 – 2028 MAC CIP Program.

Airport Shown: Minneapolis Flying Cloud Airport (FCM)

Investment Need vs. Available Dollars

The 2022 MnSASP reveals that Minnesota's airports could face a funding shortfall of $3.1B over the next ten years unless additional investment is made into airports.

Note: The MN Aviation Investment Need likely under-represents capital improvement needs at airports administered by the MAC. The funding gap is anticipated to be significantly higher once these needs are accounted for.

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