ACRP 01-36: Advancing the Practice of State Aviation System Planning
PROJECT OVERVIEW
Source

Problem statement submitted by NASAO membership
Team

Kimley-Horn

Marr-Arnold Planning

ASG

EBP
• PROJECT OVERVIEW

Timeline

- May 2019: Project Kickoff
- March 2021: Completion
- Publication Date: TBD
PROJECT PURPOSE
• PROJECT PURPOSE

National-Level Planning

State Aviation System Plans

Airport-Level Planning

Federal Level
National Plan of Integrated Airport Systems

Information is fed down to provide goals and development recommendations for individual airports.

Information on airport growth and development needs is fed up to be consolidated into the NPIAS.

Information is fed up on individual airport needs, constraints, and vision to be consolidated into the system plan.

Information is fed down on national airport roles and development eligibility.

Information on airport roles, statewide project prioritization and statewide activity trends.

Airport Level Master Plans

State Level State Aviation System Plan
Objectives:

- Develop guidebook for scoping, developing, and implementing SASPs
- Complement and build upon guidance in FAA AC 150/5070-7
- Offer insight on ways SASPs can be tailored to meet specific needs and government structures
PROJECT EXECUTION
- Research and Data Collection
• Research and Data Collection
• Industry Outreach
• Research and Data Collection
• Industry Outreach
• Guidebook Concept
• Research and Data Collection
• Industry Outreach
• Guidebook Concept
• Industry Testing
• Research and Data Collection
• Industry Outreach
• Guidebook Concept
• Industry Testing
• Final Development and Publication
Task Summary
- Existing SASPs
- FAA publications, ACRP reports, TRB reports, and more

Key Findings
- Similar core components
- Variances in funding, time, and applicability
- Little guidance beyond AC
Industry Outreach

Task Summary
• NASAO Survey (34)
• TRB Committees (AV 010,020)
• Industry organizations
• Case Studies (5)

Key Findings
• Research reaffirmed
• Takeaways re: funding/budget, integration/recommendations, shortfalls, and directors’ advice
Guidebook Concept

Scoping:
• Understanding your state's needs
• Understanding Federal guidance
• Understanding your budget
• RFQs, RFPs, And contractor selection

Developing:
• Engaging Stakeholders
• Setting goals and objectives
• Conducting a system inventory
• Classifying airport roles
• Exploring aviation issues
• Forecasting aviation activity
• Determining system performance
• Identifying system needs
• Etc.

Implementing:
• Rolling out to stakeholders
• Integrating with other plans
• Maintaining inventory database
• Educating decision-makers
• Implementing agency recommendations
Industry Testing

State Aviation Departments

Airport Managers

Industry Organizations
Practical
• Easy to read
• Full of examples/context
• Focused on the “need to know”

User-friendly
• Voice
• Organization
• Visual queues

Final Development and Publication

VALUE: Used to determine existing conditions and evaluate system objectives
COST: $$$ – $$$$$
TIME: $$$
REQUIRED/RECOMMENDED: Required

REFERENCE
FAA Order 5100.38D, Airport Improvement Program (AIP) Handbook

STATE EXAMPLE
The 2007 New Jersey State Airport System Plan included an assessment of design standards, including runway-taxiway separation, runway safety area (RSA) compliance, and more.
What will you find?

Guidebook TOC

INTRODUCTION

SECTION 1: SCOPING

SECTION 2: DEVELOPING

SECTION 3: IMPLEMENTING

APPENDICES
INTRODUCTION
## INTRODUCTION

- **A brief history of SASP evolution**
- **Role of state aviation agencies**
- **Guidebook tutorial**

<table>
<thead>
<tr>
<th>Development Period</th>
<th>Preservation Period</th>
<th>Accountability Period</th>
<th>Emerging Technology Period</th>
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<tbody>
<tr>
<td><strong>1970s</strong></td>
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<td>System plans driven by forecasting and development expansion needs</td>
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<td>First airport system plan conducted Puget Sound Regional Aviation System Plan (RASP)</td>
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<td>Airways Trust Act initiated</td>
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<td>Continuous Airport System Planning Process, FAA AC 160/505-0 issued (1975)</td>
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<td>Planning the State Aviation System, FAA AC 150/5050-3B issued (1989)</td>
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<td>System planning analysis mostly done through hand calculations and with limited technology</td>
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<td><strong>1980s</strong></td>
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<td>System plans focused on facility maintenance and preservation</td>
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<td>Airport System Planning Process, FAA AC 150/5050-7 replaces previous three ACs</td>
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<td>States recognize the economic development relationship to airports and integrate into system analysis</td>
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<td>Airport system plans are linked to state transportation plans</td>
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<tr>
<td>System planning analysis is conducted electronically utilizing Geographic Information System (GIS) and other software technology</td>
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<td><strong>1990s</strong></td>
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<td>System plans guided by performance, accountability, and transparency</td>
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<td>Performance measures and “dashboards” are used for tracking</td>
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<td>Government transparency and accountability is heightened; how is money improving system</td>
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<td>System planning analysis becomes interactive, allowing client, stakeholder, and public involvement at varying levels</td>
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<td><strong>2000s</strong></td>
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<td>System plans focusing on integrating new technology into the aviation system</td>
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<td>Development of web-based products and interactive formats for agencies and stakeholders</td>
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<td>Emergence of new aircraft and new needs (electric, unmanned, space, etc.)</td>
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<td>Challenge of shared airspace (urban air mobility, commercial space, and more)</td>
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<td>Increase in capacity needs at commercial service airports, including changes in passenger ground transportation</td>
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<td><strong>2010s</strong></td>
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<td><strong>2020s</strong></td>
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<td><strong>Future</strong></td>
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</table>
SECTION 1: SCOPING
Questions to ask yourself

SASP timing and budget

Issues to address

Airports to include

Federal guidance to reference

RFPs and consultant selection

... and more

SECTION 1: SCOPING

Why do this study now?

What questions should the study answer?

What issues will the plan address?

Which airports should be included in study?

What level of stakeholder involvement is needed?

How will the study’s results be used?

Should technology be utilized?

Should special studies be included in this effort?

ACTIVITY TYPE

Commercial Service
General Aviation

USE TYPE

Public
Private

OWNERSHIP TYPE

Public
Private

NPIAS INCLUSION

Yes
No
What will you find?

SECTION 2: DEVELOPING
- Ways to engage stakeholders
- Goal setting
- Inventory collection
- Airport classification
- Forecasting trends
- Performance assessment
- ... and more

**SECTION 2: DEVELOPING**

- Terminal, Airspace, and Airfield Capacity
- Environmental and Land Use Considerations/Laws
- Navigational Aids and Historical Weather Data
- Airport Activity Levels and Financial Data
- Airport Physical Characteristics
- Surface Transportation Characteristics
- Local Socioeconomic Data

**NATIONAL AVIATION TRENDS**
- FAA Aerospace Forecasts
- Aircraft Manufacturer Projections

**SOCIOECONOMIC TRENDS**
- U.S., State, and County Levels
- Indicators including Gross Domestic Product (GDP), Population, Employment, Income, Consumer Price Index (CPI), etc.

**COMMERCIAL SERVICE TRENDS**
- Air Fares, Load Factors, Seat Miles, Fleet Availability, etc.

**GENERAL AVIATION TRENDS**
- Changing Fleet Mix, Pilot Population, Corporate Flying, Fuel Trends, etc.

**AIR CARGO TRENDS**
- E-Commerce Growth, Commodity Flows, Modal Shifts, Freighter Orders and Deliveries, etc.

**OUTSIDE INFLUENCES**
- Economic and Market Disruptors such as COVID-19, Recessions, etc.
- Emerging and Evolving Technologies
SECTION 3: IMPLEMENTING
### Section 3: Implementing

<table>
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<th>Stakeholder or decision maker rollout</th>
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<tr>
<td>Continuous planning efforts</td>
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<td>Integration with other modal plans</td>
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<td>... and more</td>
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#### Target Audience

- **Internal Transportation Agency**
- **External Transportation Agency**
- **Aeronautics Commission**
- **Legislators**
- **Airport Sponsors**
- **Pilot/User Groups**
- **Economic Development Partners**
- **State, Regional, and Local Planners**
- **Communities/Public**

#### Table

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<tr>
<th>Target Audience</th>
<th>Technical Report</th>
<th>Executive Summary</th>
<th>Video</th>
<th>One-Page Fact Sheet</th>
<th>Presentations</th>
<th>Individual Airport/Regional Brochures</th>
<th>Newspaper Article/Blog Posts</th>
<th>Regional Meetings</th>
<th>Press Conferences</th>
<th>Social Media Blitz</th>
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APPENDICES
CASE STUDY: MISSOURI
An effective plan on a limited budget

BACKGROUND
The Midland Operations Division--Aerial Services of the Missouri Department of Transportation (MoDOT Aerial Services) completed the Missouri State Airport System Plan Update (MSAP) in February 2019. During the study, there was a growing need to develop a national system planning tool that could provide beneficial information to system and airport operators, including an Unmanned Aircraft Systems (UAS) Study and an airport control and land use inventory. However, the funding available for this study from the Federal Aviation Administration (FAA) was not sufficient to include the desired value-added tasks. As a result, Missouri was unable to add any of the special tools using federal resources and instead of typical system planning tools were scaled back. MoDOT Aerial Services was able to fund the UAS study using state funds.

STUDY PROCESS
When the project kicked off, a Focus Group meeting was held. Utilizing a manual table format, a group of approximately 25 representatives with aviation interests discussed several topics that could influence the SAP including state priorities, roles, and industry trends (such as pilot shortages and changes in business aviation). The feedback from this group helped shape the SAP and ensured that the project team knew what was happening in the state and what was important to its users and stakeholders. The meeting also allowed the project team to receive input from focus group members by listening to their feedback and providing direction.

The SAP had a very engaged and responsible Project Advisory Committee (PAC) which helped with the development of the System Plan. Missouri has an established aviation organization, the Missouri State Aviation Council, that was formed in 1947 to advise MoDOT in aviation issues. The Committee, which was adopted as the SAP’s PAC, represents a cross-section of aviation interests including commercial service and general aviation airports, the State of Missouri Aeronautics Board and the Missouri State Aviation Council, the state pilot association, universities, engineering firms, and representatives from the National Business Aviation Association (NBA) and Aircraft Owners & Pilots Association (AOPA).

Due to funding limitations, the state team had to do as much as it could internally to maximize the value of the study. As a result, instead of costly data studies, MoDOT Aerial Services combined the data collection effort using surveys that were sent to airports and relied on the airports to complete them on their own. This required significant follow-up effort (emails and phone calls) by Aviation Section staff. It was especially difficult to obtain the data needed from small airports without airport managers and many of the Missouri State Airports (MSAP) airports. While ultimately the data was captured, MoDOT Aerial Section underestimated the effort needed to get the surveys completed and felt that industry-wide effort would have been a better way to get the data by having someone sit down with airports to fill out surveys to avoid any unanswered questions or misunderstandings of questions.

OUTCOMES OF THE SAP
The result of the measured projects developed during the SAP process is an updated system definition that is enhanced. The costs associated with meeting the system needs is important to identify because it allows MoDOT to justify its funding requests and ensure that there is a comprehensive plan of overall airport funding needs. However, the data recognizes that the recommendations may not be realistic due to the amount of state and federal funding currently available each year. MoDOT Aerial Section recommended a place of this study to support developers in their capital funding efforts.

One of the key positive takeaways from the study was the change in performance from the previous SAP. A comparison analysis was performed that showed increases in performance for many study objectives, including careers, tourism, weather reporting, hangar, facilities, and land use. Analysis showed significant growth in most categories, which may encourage legislatures to continue to fund the airports, because it demonstrates how MoDOT’s investment and development efforts have improved the system.

The timing of the final delivery and inclusion of the study’s results was done in conjunction with Missouri State Airport Day, an event attended by many legislators as well as airports, pilots, and engineering firms. Several developers were present and attended at that time resulting in a well-received initial. The study’s individual airport reports served as both marketing and informational tools for the airports and their communities. They include a route map of instrument flight paths that occur at each airport, which visually conveys the benefits of services that the airports provide.

NEXT STEPS
Despite the limited funding available, MoDOT Aerial Section has a comprehensive SAP that will continue to help guide them through the next 10 years. The SAP provides guidance to all airport operators and stakeholders on project prioritization and development. Ready with the state’s economic impact study, the SAP underscores the importance of maintaining and developing the state’s aviation system.

Q&A WITH THE DIRECTOR
Q: What was the most useful component(s) of your system plan?
A: Comprehensive list of prioritized airport needs and recommended infrastructure and services by airport role.

Q: What would you change about the scope, development, and/or implementation of your plan?
A: During planning, it would be helpful to have a more detailed list to allow stakeholders on what the new recommendations will look like and find out if they are still realistic or not. On the other hand, a smaller list would benefit the list of needs for grassroots projects versus maintenance projects when making recommendations to stakeholders on realistic expectations for airports.

Q: What advice would you give your fellow state directors on system planning?
A: It is critical to involve the stakeholders and make sure to communicate with your local region’s (state) office about what is and is not eligible to set clear expectations and budget the study accordingly.
Q&A WITH THE DIRECTOR

Q: What was the most useful component(s) of your system plan?
A: Comprehensive list of prioritized airport needs and recommended infrastructure and services by airport role.

Q: What would you change about the scoping, development, and/or implementation of your plan?
A: During scoping, it would be helpful to have increased flexibility to allow add-ons as a part of the project scope. In terms of plan development, additional funding to allow for site visits and other outreach would be beneficial. On the implementation side, it would be advantageous to consider the likelihood of federal grants for expansion projects versus maintenance projects when making recommendations to set realistic expectations for airports.

Q: What advice would you give your fellow state directors on system planning?
A: If the study will be federally funded, make sure to coordinate with your FAA region/Airports District Office (ADO) about what is and is not eligible to set clear expectations and budget the study accordingly.
Insight and Response from State Partners

• Amy Ludwig, Administrator of Aviation
  Missouri Department of Transportation – Aviation Section
  ACRP 01-36 Project Panel Member

• Scott Storie, Aviation Planner
  Colorado Department of Transportation – Division of Aeronautics
  ACRP 01-36 Industry Reviewer
QUESTIONS?

THANK YOU FOR YOUR TIME

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