

Colorado Aviation System Plan Update 2010 Project Approach

Overview

The Colorado Department of Transportation (CDOT), Division of Aeronautics, relies heavily on its state aviation system plan to direct the development of and investment in public commercial and general aviation airports that serve Colorado's air transportation needs. As a result, Aeronautics updates the state aviation system plan on five-year intervals. The 2010 update to the state's aviation system plan will be an update to the last plan which was released in 2005.

The 2010 update to the Colorado Aviation System Plan will have several key objectives; these objectives are as follows:

- Summarize current system conditions to determine changes that have occurred since the 2005 update was prepared.
- Review and revise as needed facility and service objectives for Major, Intermediate, and Minor airports to insure consistency with state and federal funding.
- Review and revise as needed system performance measures and associated benchmarks to insure that system adequacy determinations reflect investment strategies and needs.
- Review and revise as needed roles for system airports to address any noted system deficiencies.

Task 1: Reaffirm System Vision, Goals, Performance Measures and Benchmarks

The update to the Colorado State Aviation System Plan will identify and evaluate the airport system's needs over the next 20 years. The primary goal of the plan is to capture data that supports informed decisions related to planning and developing the Colorado Aviation System.

To reach this goal, one of the first steps will be to reaffirm the long-term vision for Colorado's public-use airport system. Once the system vision is confirmed, goals to reach this will be re-validated. System goals are descriptors of an effective and efficient airport system and are expressed in the aviation system plan as system performance measures. It is likely that for this update to Colorado's Aviation System Plan that additional system performance measures and associated benchmarks will be identified.

To be consistent with the prior State Aviation System Plan, system goals will be translated into system performance measures; these performance measures, along with a series of benchmarks that are specific to each measure, will be re-visited to determine how well the existing system of public-use airports is currently performing. By employing

a “benchmarking process”, it will be possible to evaluate Colorado’s current public-use airport system and to identify its adequacies and deficiencies. This process ultimately enables the Division of Aeronautics to identify projects that have the ability to move the Colorado Aviation System toward its established vision.

A meeting will be held with the Colorado DOT Division of Aeronautics at the beginning of this task. The purpose will be to re-affirm goals, and to add to as needed, that direct the development of the state aviation system. In addition, this meeting will be used to review and revise as necessary previously established facility and service objectives. Upon obtaining a consensus on the system performance measures, it will also be necessary to confirm and add to benchmarks that will be used for each of the system performance measures. This task will provide the foundation for the system report card that will be used as the cornerstone for the planning process.

Prior to the meeting that will be held as part of this task, the consultant team will work with Division Staff to identify projects/items eligible for state funding to make sure that these items are included in either or both the system performance measures/benchmarks or the facility and service objectives for system airports. The consultant team will develop recommendations for additional performance measures/benchmarks and/or facility and service objectives prior to the first project meeting. These initial recommendations will serve to direct the discussion for the first project meeting.

Deliverables

A working paper will document all additions/revisions to the system vision, goals, performance measures, benchmarks, and facility and service objectives identified during Task 1. A draft copy of the working paper will be provided to the Division of Aeronautics. A “brand” that includes a project name and identifier will be developed within Task 1. An insert/article for inclusion with the Mountain Wave Quarterly will be developed. This insert will summarize the study and activities associated with Task 1. Information on the system plan will also be developed on a continuing basis for Aeronautics’ website, www.colorado-aeronautics.org.

Task 2: Update System Inventory Information

The inventory of system and airport specific data form the backbone for the system plan update. It is essential that a thorough understanding of activities, facilities, and existing conditions be derived from the inventory effort. A survey will be developed and implemented to update, expand, and supplement existing inventory data.

Maximum use will be made of existing data and documentation. This will include the use of both FAA and Aeronautics data. Existing data to be collected from airport layout

plans, aerial photography, airport drawings, capital improvement plans, master plans, the existing database, and other sources of secondary information.

Information on Colorado's aviation/airport assets that will be inventoried and catalogued during this task may include the following:

- General Airport Information
- Aeronautical Activity
 - Based Aircraft
 - Operational Mix
 - Design Aircraft
 - Business Jet Operations
- Passenger Enplanements
- Air Cargo Activity
- Landside Facilities
- Airport Services
- Airside Facilities
- Compliance with FAA Standards

An airport inventory survey will be sent to each airport. Follow-up will be made with all airports to insure current conditions are documented. Aeronautics staff will assist the consultant team with gathering information for the inventory effort.

In addition to airport-specific data, socioeconomic data will be collected and compiled. Based on available Census data, information will likely be compiled on a county basis. Data on population and employment will be gathered and summarized for use in subsequent analyses. The output of this task will comprise an overview of the existing Colorado Aviation System.

As part of this task, information on air cargo activity in Colorado will be sought. Air cargo carried at the State's commercial service airports is fairly well known and documented, especially if the cargo is being carried by all cargo carriers such as UPS, FedEx, or DHL. This task will serve to document and, if possible, quantify air cargo activity at general aviation airports throughout the State.

Deliverables

A working paper will be used to document the inventory effort. It is anticipated that this working paper will contain a series of maps, tables, and charts. The data contained in this working paper will be focused on updating inventory information and conditions that have changed since the last System Plan was completed. In addition, new information or data needed to assess the system's ability to meet new facility and service objectives or additional system performance measures will be collected and documented. Draft copies of the working paper will be provided to Aeronautics.

Task 3: Forecasts of Aviation Activity

To maintain and develop an airport system that is responsive to user demand, it is important to have a general understanding of where future growth in demand for the

system can most likely be anticipated. It is also good to have estimates of future demand quantified so that impacts on future facilities can adequately be determined.

FAA's database on instrument flights will be used to determine the distribution and relative frequency of business jet operations at non-towered airports in Colorado. It will be important to identify operational activity by aircraft with gross landing and takeoff weights greater than 12,500 pounds. This information will also be sought as part of the inventory form.

In-depth or detailed forecasting is not anticipated as part of this task. Projections of based aircraft and operations will be prepared for the general aviation airports. General aviation activity at the commercial service airports will also be projected in this task. Enplaned commercial passengers and commercial aircraft operations will also be projected. Projections for Denver International will not be prepared as part of the system plan update. If appropriate, the most recent demand projections for this airport will be included in the system plan; Aeronautics may assist in securing these projections.

Using 2009/2010 as the base year, forecasts will be developed for each airport for 2015, 2020, and 2030.

- Based Aircraft
- Total Annual Operations
- Commercial Service Enplanements
- Total Annual Commercial Operations

FAA projections of various demand components, as contained in the most recent Terminal Area Forecast and the FAA Aerospace Forecasts, will be reviewed and used to develop the system plan forecasts. Forecasts developed as part of this task will not be in-depth. The forecasts will consider growth that has occurred at each airport since the completion of the last system plan. Actual growth, growth rates used in the prior system plan, and FAA growth rates will be used to provide updated forecasts for each of the system airports for the factors noted above.

Projections of demand developed as part of the system plan update provide Aeronautics with valuable checks and balances to compare to projections of demand developed in individual airport planning studies.

Deliverables

A brief working paper will summarize both statewide and airport specific aviation forecasts. Methodologies and data sources used in the development of the forecasts will also be documented in this working paper. Draft copies of the working paper will be provided to Aeronautics. Information from this task will be summarized for inclusion on the Division's website; this information will focus primarily on statewide projections of demand and will compare changes from the prior plan.

Task 4: Review Existing Airport Roles

Each airport's contribution and function within the existing system was established in the 2000 Colorado Aviation System Plan. Each public airport was assigned to one of three roles:

- Major
- Intermediate
- Minor

As part of this task, it will be possible to compare roles assigned in the prior plan with any role changes that may appear warranted based on changes in conditions since the 2005 System Plan Update was published. More specifically, changes (historic and projected) in population and employment by county will be used to identify areas in Colorado where airport role changes may be warranted. The consultant and the Division of Aeronautics staff will work together to identify system airports that warrant a change in roles.

At this point in the planning process, actual changes to prior role assignments will not be made. The output of this task, however, along with the results of the system evaluation task will be used to identify roles changes which are desirable for system airports.

Deliverables

A working paper will identify existing airport roles and compare them to historic and anticipated growth in the state. Draft copies of the working paper will be provided to Aeronautics. A project briefing will be held in conjunction with this task. An insert/article for the Mountain Wave Quarterly will be developed.

Task 5: Current System Performance

Using performance measures and benchmarks refined in Task 1, this task will provide a report card for the existing system. This task will identify where the existing system is adequate or deficient, clearly defining system voids or gaps. As they may exist, overlaps or redundancies in the system will also be identified in this task. This evaluation will determine where the system needs to be enhanced or augmented, including the need to provide new or expanded system airports based on capacity related shortfalls. The results of these tasks will also lead to the identification of role changes that may be required to address noted deficiencies.

The ability of the system to satisfy each of the adopted performance measures will be determined. The results of the system evaluation process will provide a clear indication

of where Colorado's existing airport system is adequate, deficient, or duplicative in terms of facilities and services that it provides.

Much of the analysis in this task will be GIS-based (existing maps to be provided), with mapping of various indicators such as population, employment, and other factors. Drive-time analysis and general coverage provided by the existing system will be important to the evaluation of the system's performance. This task will result in a report card for Colorado's existing airport system. This report card provides the Division with an important tool to monitor how future investment advances system performance related to established system performance measures and benchmarks.

The focus on the system evaluation will be to show how the system was performing in 2000, when it was initially evaluated, and to clearly indicate where changes took place in the 2005 and 2010 updates to the aviation system plan.

It is anticipated that Colorado's Aviation System will be evaluated using many of the same performance measures and benchmarks used in 2005 System Plan Update. At a minimum, the Colorado airports will be evaluated based on the following performance measures and benchmarks. In addition for this update, specific projects that CDOT typically helps to fund will be tied to one or more of the performance/measures benchmarks. The process for tracking system performance will be automated as part of Task 9 of this update.

Performance Measure	Benchmarks
Activity	Percent of airports at critical FAA demand/capacity ratios current and future
Expansion Potential	Percent of airports with current master plans or ALPs
	Percent of airports taking steps to be Part 77 compliant
Economic	Percent of airports with precision approach
	Percent of airports with non-precision approach
	Percent of airports with published approach
	Percent of airport with jet fuel

Emergency/Coverage

Percent of airports with any fuel

Percent of airports with rental cars

Percent of airports with ground transportation services

Percent of airports with jet activity

Percent of airports with annual economic impact over \$1 million

Percent of state/population within 90 minutes of an airport with commercial service

Percent of state/population within 90 air miles of precision approach airport

Percent of state/population within 60 air miles of airport with published approach

Percent of state/population within 30 minutes of a system airport

Percent of state/population within 60 or 90 air miles of an AWOS

Percent of airports with on-site weather reporting

Percent of airports able to serve King Air type emergency aircraft

Percent of airports able to serve Lear Jet 35 type emergency aircraft

Investment

Major airports meeting facility and service objectives by type

Intermediate airports meeting facility and service objectives by type

Minor airports meeting facility and service objectives by type

Percent of airports meeting minimum runway length objective establish in prior plan

Percent of airports with PCI of 75 or greater on primary runway

Based on the outcome of Task 1, additional performance measures and benchmarks will be added as needed.

CDOT continues to make notable improvements to the approach capabilities of many system airports. Working with FAA and airport sponsors, CDOT has improved instrument approach (IAP) capabilities through GPS technology. As part of this task, IAP improvements that have been realized since the completion of the 2005 System Plan Update will be documented. A map comparing the status of the system's IAP capabilities at the time of the last system plan to current conditions will be prepared. Information on planned improvements to instrument approach capabilities will also be documented and noted on the map.

Since the last system plan was completed, additional AWOS systems were installed. These additional AWOS systems improved weather reporting capabilities in many areas of the State, and they also had a positive impact on the reliability of several system airports. As part of this task, the positive impacts of Colorado's improved AWOS system will be noted; these impacts will be both statewide and airport specific in nature. As part of this effort, any plans to further enhance Colorado's AWOS system will be noted. Maps will be prepared to document changes since the last plan.

Deliverables

A working paper will include a report card of the existing system based on existing and new performance measures and benchmarks. Draft copies of the working paper will be provided to Aeronautics.

Task 6: Future Performance/Options For Enhancement

As benchmarks are evaluated for each of the performance measures, it will be possible to determine the adequacy of the system as a whole, as well as the adequacy of airports in each of the functional roles. Following the system evaluation, it will be possible to determine where additional compliance with individual benchmarks is desirable. It is worth noting that some benchmarks may be “informational”, while others will be “action” oriented. Current compliance ratings will be reviewed to determine existing compliance ratings that are satisfactory, as well as to identify those benchmarks where system performance should be increased in the future.

Targets for future system performance will be established in this task. It is possible that these targets for future system performance may result in changes to airport roles or in the identification of new/replacement airports for the system. Future performance targets will determine where it is desirable to “raise the bar” in terms of the system’s ability to reach higher rates of performance in future years.

As part of this task, each Colorado airport currently included in the National Plan for Integrated Airport Systems (NPIAS) will be noted; the purpose will be two fold. The Federal Aviation Administration (FAA) as part of its procedures for developing the NPIAS has established criteria for determining an airport’s NPIAS eligibility. The FAA’s most recent criteria for NPIAS inclusion will be used to consider each airport’s current ability to meet NPIAS eligibility requirements. In addition, this task will consider the desirability of seeking NPIAS inclusion for airports not currently recognized in the NPIAS or removing those airports no longer meeting criteria.

Deliverables

A working paper will be prepared describing the process used to evaluate the system and will include adequacy of the system and targets for future system performance. Draft copies of the working paper will be provided to Aeronautics. A meeting will be held with Aeronautics Staff. An insert/article will be developed for the Mountain Wave Quarterly and information on the system plan on the website will be updated.

Task 7: Future Airport Performance

Once each airport’s future role in the Colorado system has been established, this task will review the ability of each airport to satisfy facility and service objectives that should ideally be in place at each airport to enable it to adequately fulfill its designated system role. Since airports in Colorado do in fact play different roles, it only stands to reason that facilities and the service needed at airports in the system will vary.

As part of the prior system planning analysis, a set of facilities and services that should be provided by functional roles was identified. This task of the system plan will re-visit these facility and service objectives to determine their continued adequacy. It is quite likely that additional facility and service objectives for airports in each of the three roles

will be added. This task of the system plan will identify the ability of each airport's current facilities and services to meet the objectives associated with its future system role. All facility and service related deficiencies will be noted in this task.

The facility and service shortfalls that are an outflow of the analysis that will be completed in this task are those that are desirable from a State standpoint to insure that Colorado has an adequate air transportation system. It is important to point out that the inclusion of facilities and services as being desirable in this task does not constitute a commitment on the part of either FAA or CDOT to fund the improvement.

Deliverables

A working paper will be prepared summarizing the logic and rationale used to evaluate each airport's role in the future system. This working paper will identify actions at each airport that would be needed to enable all airports to be fully compliant with their respective facility and service objectives. Draft copies of working paper will be submitted.

Task 8: Recommended Plan

With input from existing data sources and the study's technical analysis, this task will document how best to enhance, expand, and maintain the State's Airport System to meet its stated vision and goals. As part of this task, projects needed to meet facility/service objectives for airports in each of the functional/role groupings will be finalized. This task will be the culmination of the system planning process. The recommended plan will provide direction to the State as to how best to invest in and grow the airport system to maximize its return to Colorado and to meet the established vision for the airport system.

The recommended plan will be documented from a statewide and airport-specific basis. The recommended plan will identify strategies for improving the system to reach targeted goals. The recommended plan will provide guidance on initiatives that need to be undertaken to support the implementation of this study's recommendations and will provide more detailed airport-specific actions.

Generalized costs for enhancing the airports in each functional role and by type of project will be developed as part the recommended plan. This information will be useful in helping CDOT to understand the financial shortfalls that may be faced if the airport system is to be fully improved to meet the objectives and benchmarks included in the system plan.

Deliverables

Draft copies of the recommended plan will be provided. A briefing will be held in conjunction with this task. An insert/article for the Mountain Wave Quarterly will be developed and the website will be updated.

Task 9: System Tracking Guidelines

It is critical for CDOT to be able to track and demonstrate how their investment moves the airport system toward benchmarks and facility and service objectives established in the Colorado Airport System Plan. This task will develop a model that can be used to track system performance relative to benchmarks and facility and service objectives. The guidelines will also provide appropriate information that will enable CDOT to demonstrate how their grant allocations support the system and increase system performance relative to key metrics used to evaluate system performance. These guidelines will not prioritize investment, but will show how allocated funding is in keeping with goals and objectives for the Colorado airports as established in the system plan. Aeronautics staff will provide input regarding the formulation of this model.

Deliverables

The deliverable for this task will be a system/investment tracking model.

Task 10: Reports and Coordination

At the completion of each of the tasks discussed above, a working paper will be prepared and submitted. CDOT staff will provide input, review, and comment on draft study products. The draft working papers will be the subject of meetings that will be held over the course of the project. Draft study documentation will be revised based on comments received over the course of the study. These working papers will be the basis for the study's final Technical Report. At the conclusion of the last task, a final draft of the Technical Report will be prepared. A final copy of the draft Technical Report will be submitted for review and approval. Once comments have been addressed, the final Technical Report for the system plan will be printed. One hundred (100) copies of the final Technical Report will be provided on CD; four hard copies of the final Technical Report will be provided.

Effective documentation is needed to maximize the benefits of the study. There will be many groups with an interest in this study and its recommendations. In addition to the Technical Report, an Executive Summary will document the study's findings in a succinct, yet user-friendly format. The Executive Summary will be targeted at a wide audience including public officials, airport sponsors, and interested non-aviation persons. It is anticipated that the Executive Summary will be a sixteen (16) page full-color document that utilizes pictures, graphics, and limited narrative to describe the process and results of the analysis from all the elements of the study including the Aviation System Plan. Approximately 1,500 copies of the Executive Summary will be prepared.

To successfully complete the System plan, continual and meaningful coordination will be essential. Effective communications will be maintained to provide an efficient planning process. Conference calls will enable CDOT to stay apprised of progress, issues, and schedules. Meetings with CDOT staff will be scheduled at other important milestones in the study.