

Appendix R ► Airport Layout Plan (ALP)

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I. FAA Leadership in Airport Planning

A. Airports Division’s challenge in the 21st Century is to provide leadership in airport planning. FAA leadership at the planning stage of a project can reduce the level of effort needed in the later phases of project development and implementation by identifying and resolving potential problems before they occur. The ALP review and approval process is a primary means for ADO Program Managers to provide leadership in airport planning.

B. Role of the ADO Program Manager (PM) in the Airport Planning Process:

- 1. Identify airports of federal interest needing planning studies to address capacity, safety, security, or other issues, and encourage airport owners to initiate these studies. Ensure these projects are in the ACIP.
- 2. Provide guidance to the airport owner in tailoring the scope of the planning project to fit the needs of the airport. Generally, the PM should encourage ALP updates, not full master plans, at airports with less than 50 based aircraft. When master plans are appropriate, they should be tailored to include only those elements necessary. For example, consider using a state system plan forecast for small airports. Also, a detailed airport capacity analysis is generally not necessary for small airports.
- 3. Educate airport owners on the importance of the ALP in the FAA’s and airport owner’s decision making processes regarding the operation and development of the airport. (ex. ACIP formulation, airspace reviews, etc.)

4. Share with airport owners innovative solutions to problems that have been used elsewhere. (We have knowledge of, and experience with similar problems/solutions at other airports.)
5. Take every opportunity to meet with airport owners and engage in “brainstorming” sessions regarding their planning.
6. Organize and conduct airport planning meetings prior to and during the master plan/ALP update process for large and medium hub airports. The purpose of these meetings is to identify issues that need to be addressed during the master plan/ALP update. Include the airport owner, their consultant, and all appropriate FAA personnel in the meeting.

II. What is an ALP?

A. Definition:

“An Airport Layout Plan (ALP) is a scaled drawing of existing and proposed land and facilities necessary for the operation and development of the airport....” (Ref. 2, par. 5)

B. Airport Layout Plan Components. The ALP is actually a set of drawings composed of the following (Ref. 2, Appendix 7):

1. *Narrative Report* – Aviation activity forecast, design aircraft (Airport Reference Code), and supporting documentation for modifications of standards, runway safety area determinations, proposed development, etc.
2. *Cover Sheet* - Not mentioned in the AC, but may be present on large airports.
3. *Airport Layout Drawing* - What we normally think of as the ALP. See definition above.
4. *Airport Airspace Drawing* - Part 77 surfaces; note that these should be based on ultimate runway lengths and approaches in order to protect for ultimate development; used to identify obstructions, particularly in the approaches.
5. *Inner Portion of the Approach Surface Drawing* - Formerly Runway Protection Zone Drawing; larger scale drawing of the inner portion of the approaches; used to identify in more detail close-in obstructions and other noncompatible objects.
6. *Terminal Area Drawing* - Usually only needed at large airports where detail on the Airport Layout Drawing is too small; generally used to show dimensions and elevations of structures, and to show access roads.
7. *Land Use Drawing* - Depicts recommended use of land within the airport boundary and in the vicinity of the airport; primary purposes are to provide

airport owner with a plan for leasing revenue-producing areas and to provide guidance for establishing appropriate zoning.

8. *Airport Property Map* - Not necessarily the Exhibit "A;" indicates how various tracts of airport property were acquired, i.e., funding source; primary purpose is to provide information on the use of land acquired with federal funds and/or the use of surplus property; important for determining land needed for airport purposes and the proper use of land sale proceeds.

Note: Not all ALP sets require all of these drawings. It depends on the size and level of complexity of the airport. Smaller airports may get by with only the Airport Layout Drawing, while large hubs may need all of the drawings. Also, some drawings may be combined, such as the land use drawing and property map.

- C. Significance of the ALP. The ALP is a key "communication" and "agreement" document between the airport owner and the FAA. It represents an understanding between the airport owner and the FAA regarding the current and future development and operation of the airport.

1. FAA Uses of the ALP:

- a) Aeronautical studies of proposals for the development of nearby airports and objects that may affect the navigable airspace, and proposals for on-airport development. (obstruction evaluation/airport airspace analysis (OE/AAA) and NRA cases)
- b) Siting of new and relocated FAA facilities and equipment (ATCTs, ASRs, NAVAIDs, etc.).
- c) Analysis of operational changes (ex. the occasional use of the airport by aircraft larger than the design aircraft.).
- d) Development of new standard instrument approach procedures.
- e) Determination of land needed for aeronautical purposes, and the proper use of land sale proceeds.

2. Because the ALP will be relied upon for these uses, it is imperative that each FAA Division devote sufficient time and resources in reviewing the draft ALP to assure that their interests are addressed and any issues with planned airport development are identified and resolved.

3. Because the approved Airport Layout Plan (ALP) represents an agreement between the airport owner and the FAA regarding how the airport will develop, it is also imperative that the airport owner develop the airport in accordance with the ALP. Federal Grant Assurance 29, *Airport Layout Plan*, states in part that:

“The sponsor [airport owner] will not make or permit any changes or alterations in the airport or in any of its facilities which are not in conformity with the Airport Layout Plan as approved by the Secretary...” (ref. 7, Appendix 1)

III. Whose Airport Layout Plan (ALP) is it anyway?

- A. The ALP is the airport owner's plan for development of their airport. Although we have a significant interest in it, the FAA does not own the airport and the ADO Program Manager should not attempt to dictate what development is shown on the ALP.
- B. However, because of our interest, the ADO Program Manager should provide leadership and guidance to the airport owner through the ALP review and approval process in order to ensure that the FAA's interests are taken into account in the development of the airport.
- C. Also, ADO Program Managers should encourage airport owners and their consultants to be realistic in their planning. The FAA cannot prohibit the depiction of any future development on the ALP; however, if the airport owner persists in showing particularly ambitious items of development, the ALP approval letter should point out that the development must be fully justified to be eligible for AIP or PFC funding.

IV. When should an ALP be updated?

- A. As stated previously, the ALP is a key document representing an understanding between the airport owner and the FAA regarding the current and future development of the airport, and will be used by the FAA, the airport owner, and other parties for planning and decision making activities. Therefore, it should be kept current, reflecting changes in the physical features on the airport and critical land use changes in the vicinity of the airport that may affect the navigable airspace or the airport's expansion capability. (ref. 1, par.9-2)
- B. For obligated airports, Federal Grant Assurance 29, *Airport Layout Plan*, states in part that the airport owner will: "...keep up to date at all times an Airport Layout Plan of the airport..." (ref. 7, Appendix 1)
- C. ADO Program Managers should show leadership in this area and provide guidance to airport owners. ALP's should be reviewed and validated at least every two to seven years, depending on the size of the airport. If the review indicates an ALP should be updated, the ADO Program Manager should write the airport owner, asking them to update the ALP. (12)

D. Use judgment in determining when an ALP needs updating. Things to Consider in determining whether an ALP needs updating (12):

1. Does the existing ALP still accommodate the forecast aeronautical need?
2. Do the existing facilities and proposed development still meet FAA design standards? (i.e., has the design aircraft changed?)
3. Have FAA design standards significantly changed? AC 150/5300-13 states in part that:

“When FAA upgrades a standard, airport owners should, to the extent practicable, include the upgrade in the ALP before starting future development.” (ref. 2, par. 5a)

4. Have there been many physical changes to the airport (new construction, etc.) since the existing ALP was approved?
5. Have there been numerous interim “pen-and-ink” changes to the existing ALP?

a) Notices of Proposed Construction or Alteration on airport property (Form 7460-1). If the construction is minor in scope (ex. a new T-hangar), after coordination and approval of the 7460-1, the ADO may make a “pen-and-ink” change to the approved ALP, showing the new construction and noting the NRA case number and date approved.

b) As-built ALPs:

1) If the As-built ALP is only for the purpose of changing proposed development to existing development (as constructed), it may be treated as a “pen-and-ink” change to the ALP. In this case, the As-built ALP should be attached to the top of the current approved ALP drawing set. Any previous As-built ALPs attached to the ALP drawing set may be discarded.

2) If in addition to changing proposed development to existing development (as constructed), the As-built ALP shows new proposed development or changes to the proposed development, and it should be treated as an ALP update. In this case, the As-built ALP should be reviewed, coordinated, and approved, and will become the new “current approved ALP.” The previous approved ALP drawing set may be discarded.

6. When preparing the current year ACIP for an airport, the Program Manager should review the ALP to determine whether it is up-to-date and contains the

projects proposed in the ACIP. If the ALP needs updating, the airport owner should be advised to accomplish the update immediately. The projects must be shown on the approved ALP before a grant may be issued. The cost of the update can be reimbursed as a project formulation cost. (ref. 7, par. 300.c)

V. Why does the FAA approve ALPs?

A. ALPs for “obligated” airports:

1. AIP Handbook, paragraph 300.c. states in part that: “A current Airport Layout Plan (ALP) which has FAA approval from the standpoint of safety, utility, and efficiency of the airport shall be required before a development project is approved.” [emphasis added] (7) So, we approve ALPs because FAA approval is required for AIP (and PFC) funding. The reason FAA approved ALPs are required is to ensure that federally funded airport development will be safe, useful, and efficient.

2. Safety

Airport development must be safe:

- a) Section 103 of the Federal Aviation Act of 1958 (FAA Act) states in part that: “...the Secretary of Transportation shall consider the following, among other things, as being in the public interest: The regulation of air commerce in such manner as to best promote its development and safety...” [emphasis added]

- b) Order 1000.1A, Policy Statement of the FAA, paragraph 20 states in part that:

“It is the statutory responsibility, and primary mission, of the Federal Aviation Administration to promote safety and to provide for the safe use of airspace.” [emphasis added]

- c) Therefore, safety is our primary mission. It is in the public interest for the FAA to ensure that airport development meets federal design standards and provides for the safe operation of aircraft. For Airports Division, ALP review and approval is a principal way we fulfill our primary mission.

3. Utility (usefulness)

Airport development should be as useful as possible for airport purposes, such as:

- a) Make the best use of available land (runway layout, etc.).

- b) Minimize impact of off-airport structures and land uses (ex. tall towers and residential areas) on airport operations.
- c) Adequately provide for future users.

4. Efficiency

Airport development should provide for maximum airport efficiency, such as:

- a) Adequate capacity to meet forecast demand (with minimum delays)
- b) Efficient flow of traffic on the airfield (shortest possible taxi distances, no bottlenecks, etc.)
- c) Adequate runway spacing to provide needed capacity (ex. allow for simultaneous, independent Instrument Flight Rules (IFR) approaches).

B. ALPs for “nonobligated” airports

1. ALPs are not required for nonobligated airports, but can be very useful. AC 150/5300-13 says in part that: “...Any airport will benefit from a carefully developed plan that reflects current FAA design standards and planning criteria.” (ref. 2, par. 5)
2. ALPs for nonobligated airports support the FAA’s mission and policy of promoting aviation safety. Order 1000.1A, Policy Statement of the FAA, paragraph 20.b states in part that: “The FAA recognizes the existence of a strong federal interest in promoting aviation safety... Therefore, it will actively seek to encourage the use...of aviation/airport standards that will both maintain and improve the current level of aviation safety.” (4)
3. So, ADO Program Managers should encourage the preparation of ALPs at nonobligated airports. If submitted, review and coordinate the ALP, and provide comments to the airport owner regarding the safety, efficiency, and utility of the airport.
4. But, an ALP for a nonobligated airport should not be FAA “approved”. Per FAA Order 5050.4A, *Airport Environmental Handbook*, FAA approval is a “federal action” triggering the NEPA review process for any development shown on the ALP.⁶⁰

VI. What does FAA approval of an ALP mean?

- A. Our standard ALP approval letter states in part that:

⁶⁰ Now refer to FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*

“FAA approval of your ALP means that all existing and proposed airport development shown on the plan meets current FAA Airport Design Standards or a current FAA approved Modification of Airport Design Standards. It also means that we find the proposed airport development shown on the plan useful and efficient.” [emphasis added]

1. Therefore, the FAA’s approval means we have found the airport layout **safe** (meets design standards or modified design standards and provides for the safe operation of aircraft), **useful** (for airport purposes), and **efficient** (planned capacity is sufficient for forecast demand, taxiway layout prevents congestion, etc.). (Refer back to why we approve the ALP.)
2. IMPORTANT!!! FAA approval should mean that we found the existing and proposed airport development safe for use by the “design” aircraft. The flying public should be able to count on the FAA’s “seal of approval” meaning that the airport is safe for their use as long as they are in the “design” aircraft or a smaller aircraft. Therefore, we must review both the existing and proposed development and ensure that it meets our airport design standards, or that modifications of design standards are approved that provide an acceptable level of safety. We should not approve an ALP that does not meet these conditions.

B. Unconditional vs. Conditional ALP Approvals (5)

1. “Unconditional Approval” means all items of proposed development requiring environmental processing have received environmental approval.
2. “Conditional Approval” means environmental processing has not been completed for all of the items of proposed development requiring it.

These are explained more fully in Section XII.

VII. What does FAA approval of an ALP not mean?

A. Our standard ALP approval letter states in part that: “Our approval does not represent a commitment to provide federal financial assistance to implement any development or air navigation facilities shown on the plan. Nor does it mean that we find funding of the proposed airport development justified.” [emphasis added] Therefore, our approval does not imply that the proposed airport development is eligible or justified for AIP or PFC funding, or that FAA agrees with all of the development shown on the plan. Justification for federal funding must be based on aeronautical need.

B. A 1996 legislative revision to Section 47110 of Title 49 U.S.C. says in part that project costs are reimbursable with entitlement funds if the cost is incurred “in accordance with an Airport Layout Plan approved by the Secretary...” (ref. 15, par. 47110(b)(2)(C)(iii))

1. This does not mean that as long as a project is shown on the ALP it is eligible for reimbursement with entitlements. The legislation goes on to say that costs incurred must be in accordance with: "...all statutory and administrative requirements that would have been applicable to the project if the project had been carried out after the grant agreement had been executed." (ref. 15, par. 47110(b)(2)(C)(iii))
2. Therefore, development must still be eligible and justified based on aeronautical need.
3. The intent of the legislation was that for project costs to be reimbursed, development must be shown on an approved ALP, not that just because development is shown on the ALP, its costs may be reimbursed.

VIII. ALP Review:

A. General: focus on items relating to safety, utility, and efficiency.

1. ADO Program Managers are encouraged to use Southern Region's ALP Checklist (available in the Airports Reference System and on ASO-600's public web site) to review the ALP. It is also desirable to give the airport's consultant a copy of the checklist prior to their beginning preparation of the ALP.

B. Narrative Report

1. A Narrative Report should be submitted along with the draft ALP if the ALP is not being prepared as part of a Master Plan project and there are changes to the "design" aircraft or proposed runway length, any proposed development or modifications of standards are being shown for the first time on the ALP, and/or runway safety area determinations are needed.
2. The Narrative Report provides the basis for proposed development shown on the ALP. It includes:
 - a) Airport activity forecast that supports the need for the proposed development.
 - b) Airport reference code ("design" aircraft) on which the proposed development is based.
 - c) Rationale for the proposed development (ex. runway length).
 - d) Rationale for any modifications of standards (including an alternatives analysis).

- e) Rationale for any nonstandard runway safety areas, including an alternatives analysis.
 - f) Development schedule for each stage of development, i.e., 5, 10 and 20-year plan. (This schedule should be based on activity levels, not just the years these levels are forecast to occur.)
3. Airport Activity Forecasts: (a) The ADO Program Manager should not approve the ALP unless the activity forecast is within 10 percent of the current Terminal Area Forecast (TAF), or the forecast has been coordinated with APP-110 and accepted for inclusion in the TAF. (13); (b) If the activity forecast differs from the TAF by more than 10 percent and the difference cannot be resolved (APP-110 does not accept the forecast and the airport owner will not revise it), the ALP approval letter should indicate that FAA approval is based on the TAF and AIP and PFC funding decisions will likewise be based on the TAF.(13)
4. Airport Reference Code (ARC); (a) Every airport is designed for a specific Airport Reference Code (ARC), which relates the design criteria to the operational and physical characteristics of the aircraft using the airport; (b) There are two components to the ARC (Approach Category (approach speed). Ex. A, B, C, etc. and Design Group (wingspan). Ex. I, II, etc.); (c) The ARC is based on the “design” aircraft (or group of aircraft), which is the largest aircraft having (or forecast to have) a significant number (500 or more) of annual operations at the airport. (ref. 3, par. 2, as amended by 5/30/90 memo); (d) The ALP should list the current and future ARC. Usually these will be different (future often being larger) and (e) In some cases, there may be two “design” aircraft...one for geometric standards (the basis for the ARC) and another for pavement strength. In such cases, the “design” aircraft for pavement strength should be listed on the ALP as well as the ARC.

C. Airport Design Standards

1. These are related to safety and should be the focus of our review.
2. AC 150/5300-13, Airport Design, contains our airport design standards.
3. Includes runway and taxiway separations, RSAs, RPZs, OFZs, OFAs, etc.
4. The “Airport Design v. 4.2” computer program is very helpful for quickly determining the appropriate standards (see Ref. 2, Appendix 11)
5. ALP review checklist (Ref. 2, Appendix 7)
 - a) Southern Region has an ALP Checklist (available in the Airports Reference System) that was developed from the checklist in Appendix 7. This checklist should be used in reviewing ALPs to help ensure consistency in our reviews.

- b) Use judgment - some ALP components may not be applicable to all ALPs (ex. Property map)
 - c) The ALP Checklist should be given to consultants at the beginning of ALP update and airport master plan update projects. (The checklist is available on the ASO-600 web site.) It will help ensure consistency in ALPs and will let consultants know what we expect with regard to the ALP.
 - d) We do not accept certification of ALPs! The airport owner or consultant should be encouraged to complete the ALP checklist to help ensure the ALP will meet FAA expectations. The ADO Program Manager may request that the airport owner or consultant submit a copy of the completed checklist along with the draft ALP; however, this is not a certification and does not preclude the ADO Program Manager from reviewing the ALP. Because the ALP is a key document that is relied upon for many things and sets the foundation for future airport development, and because we must ensure that the airport layout provides for safe aircraft operations, it is imperative that we review the ALP.
6. AC 150/5300-13 says in part that: “The FAA approved ALP, to the extent practicable, should conform to the FAA airport design standards existing at the time of its approval.” [emphasis added] (ref. 2, par. 5a)

Therefore, general policy is that airport development (existing and proposed) shown on the ALP must conform to current FAA airport design standards. However, except for runway safety areas, we will consider modifications of airport design standards where it is not practicable to meet current standards. If an airport design standard is not met for any existing or proposed development, and a modification of standards has not been previously approved, the airport owner should submit a request for a modification of standards along with the draft ALP to be processed during ALP coordination.

D. Modifications to Airport Design Standards

1. AC 150/5300-13 says in part that:

“Due to unique site, environmental, or other constraints, the FAA may approve an ALP not fully complying with design standards. Such approval requires an FAA study and finding that the proposed modification is safe [provides an acceptable level of safety] for the specific site and conditions.” [Clarification added] (ref. 2, par 5a)

2. Southern Region Policy (11)

- a) ALPs shall not be approved unless all existing and proposed airport development, except for runway safety areas, meets current airport design standards, or modifications of design standards have been approved that provide an “acceptable level of safety”. (6 and 11)
 - b) Existing development, except for runway safety areas, that does not meet standards for the current “design” aircraft (ARC): (1) If the analysis of the proposed modification of standards indicates that an acceptable level of safety is not provided, operational restrictions or special operating procedures may be necessary to provide an acceptable level of safety; (2) If operational restrictions are required, ADO Program Managers should encourage airport owners to plan, to the extent practical, future development that will meet standards, or that provides an acceptable level of safety without operational restrictions.
 - c) Existing development, except for runway safety areas, that does not meet standards for the future “design” aircraft (ARC): If the analysis of the proposed modification of standards indicates that an acceptable level of safety will not be provided, future development must be shown on the ALP that meets standards, or that provides an acceptable level of safety without operational restrictions.
 - d) Proposed development, except for runway safety areas, that does not meet standards for the current and/or future “design” aircraft (ARC): (1) If the analysis of the proposed modification of standards indicates that an acceptable level of safety is not provided, the design of the proposed development must be revised so that it meets airport design standards or so that the modification of standards will provide an acceptable level of safety without operational restrictions; (2) Keep in mind...our goal is for all proposed development to meet current airport design standards. Modifications of standards should only be approved if the airport owner’s analysis indicates there is no practical alternative that meets standards (including the use of declared distances).
 - e) **IMPORTANT!!!** A modification may only be approved if, after coordination, the ADO determines it provides an acceptable level of safety. The ADO’s determination will normally be based on an operational safety review by Flight Standards.
3. Note that the policy with regard to existing development only requires a review to ensure an acceptable level of safety is provided, and if not, that appropriate operational restrictions are implemented. It does not require the immediate correction of the nonstandard condition.

4. When modifications of standards are proposed on the ALP, the airport owner should submit a discussion of the rationale for how the modification provides an acceptable level of safety. They should also discuss the alternatives considered (ref. 6). This information should be submitted in the narrative report or master plan report.
5. Order 5300.1F (Modifications of Design Standards) and AC 150/5300-13 (Change 5) require a table on the ALP listing approved and proposed modifications of design standards. (ref. 6 and 2)
6. If a larger (“more critical”) aircraft than the current “design” aircraft (ARC) occasionally uses the airport (less than 500 annual operations), the ADO Program Manager should conduct an aeronautical study (NRA study) to determine whether the airport can accommodate this aircraft with an acceptable level of safety. This study should include a thorough review of all airport design standards related to operational safety. The review may indicate that operating restrictions or special operating procedures are necessary when this aircraft is using the airport in order to ensure an acceptable level of safety.
 - a) The NRA study, including any proposed operating restrictions or special operating procedures must be coordinated with Flight Standards and Air Traffic, similar to a modification of standards.
 - b) Preferably, Air Traffic and the airport owner should develop and sign a memorandum of understanding regarding any approved operating restrictions and/or special operating procedures. However, as a minimum, the airport owner should send the air traffic control tower manager a letter clearly stating the operating restrictions in terms of specific airplanes that use the airport.
 - c) The ADO Program Manager should see that the FAA Form 5010 is updated to include any approved operating restrictions so that they will be published in the Airport Facility Directory (AFD). These restrictions should be stated in terms of airplane wingspans, tail heights, etc.
 - d) Since the airport is not designed for this “critical” aircraft, modifications of airport design standards are not appropriate.
 - e) However, if it is likely the “critical” aircraft may become the future “design” aircraft, the ADO Program Manager should encourage the airport owner to update the ALP to incorporate the “critical” aircraft as the future “design” aircraft (ARC) and propose development to accommodate this aircraft without operating restrictions. The proposed development should meet airport design standards or approved modifications of airport design standards.

- f) If the NRA study indicates that operational restrictions are not feasible and the airport cannot accommodate the “critical” aircraft with an acceptable level of safety, the airport owner should be advised that the airport cannot accommodate the “critical” aircraft with an acceptable level of safety and they should not allow it to operate on the airport.

E. Runway Safety Area Determinations (10)

1. Modifications to airport design standards are not allowed for runway safety areas (RSAs).
2. RSAs must meet airport design standards to the extent practicable.
3. ALPs shall not be approved unless a Runway Safety Area Determination has been made on all runway safety areas.
4. Existing RSAs:
 - a) Each RSA at federally obligated airports must be subject to a “determination” as to whether it meets current standards, or if not, whether it is practicable to meet current standards. (10)
 - b) If this “determination” has not been made previously, it should be made during review of the draft ALP.
 - c) Even if the RSA “determination” has been made previously, the ALP should be reviewed to determine whether conditions have changed or new information is available that would indicate the need to revise the previous “determination”.
 - d) The format and documentation requirements for RSA “determinations” is contained in FAA Order 5200.8 (10)
 - e) If the RSA “determination” reveals that it is practicable to improve the RSA to meet standards, or at least to enhance safety, the ALP should show the required improvements.
 - f) ADO Program Managers should not approve an ALP unless a RSA “determination” has been completed for all existing RSAs.
5. Future RSAs:
 - a) The ALP should show future RSAs meeting current standards.
 - b) While a RSA “determination” as defined by Order 5200.8 is not required for future RSAs, if it appears that meeting current standards

for the future RSA is not practicable, a similar alternatives analysis should be performed during preparation of the ALP to support whatever RSA is shown on the ALP.

- c) The ADO Program Manager should review the airport owner's alternatives analysis during review of the ALP and determine whether it seems reasonable, and whether the proposed RSAs meet current standards to the extent practicable.
- d) ADO Program Managers should not approve an ALP unless the proposed future RSAs meet current standards or the airport owner has reasonably shown that the proposed future RSAs will meet current standards to the extent practicable.

The ALP should show the actual existing and proposed RSA dimensions on the drawing or in the runway data table, not just the standard dimensions. (Change 5 to AC 150/5300-13 added requirements on this as well as OFAs, OFZs, RPZs, etc.)

F. Declared Distances

1. Refer to Appendix 14 of AC 150/5300-13 (Ref. 2)
2. What are Declared Distances? (a) Runway operational distances that pilots use to calculate their maximum allowable airplane operating weights; (b) Declared distances may shorten runway lengths available for landings and/or takeoffs, thus may reduce the allowable operating weights of aircraft, and as a result, may negatively impact capacity.
3. Purpose of Declared Distances:
 - a) To increase takeoff runway length at constrained airport sites while still meeting design standards. (ex. increase runway takeoff length in one direction while maintaining standard RSAs, ROFAs and RPZs.)
 - b) To enhance safety (improve RSAs, ROFAs, and RPZs) at constrained airport sites. (ex. existing runway safety area does not meet standards, but declared distances are used to effectively lengthen the runway safety area beyond the stop end of the runway.)
4. Guidelines for use:
 - a) AC 150/5300-13, Appendix 14 says in part that: "The use of declared distances for airport design shall be limited to cases of existing constrained airports where it is impracticable to provide the RSA, ROFA, or RPZ in accordance with the design standards..." (emphasis added) (2)

- b) Therefore declared distances shall not be used for new airports. The intent is that new airports be designed to meet standards.
 - c) Except for runway safety areas (RSAs), declared distances may be used in combination with modifications of standards to achieve an acceptable level of safety and minimize negative capacity impact. (ex. if the use of declared distances to achieve a standard runway object free area (ROFA) would severely limit allowable takeoff weights, a less than standard ROFA might be approved.)
 - d) For runway safety areas, declared distances may be used to obtain a standard RSA if the RSA Determination finds this to be practical. However, declared distance criteria should only be used after a thorough analysis determines that it is not practical to use more traditional methods to meet RSA standards. (ex. extend the opposite end and shift the entire runway.)
 - e) Application of declared distance criteria may not be appropriate at some GA airports, depending on the “design” aircraft (ARC). Pilots of small GA aircraft do not have a requirement to use declared distances to calculate allowable operating weights; therefore, use of declared distances would not be appropriate at airports serving these aircraft only. However, pilots of larger corporate or cargo aircraft do have a requirement to use declared distances to calculate allowable operating weights; therefore, declared distances would be appropriate at airports serving these aircraft.
5. Remember!!! Declared distance information is for pilots. The information must get to NFDC for publication in the Airport Facility Directory for it to be useful. While showing the information on the ALP is required, it is not enough. Pilots generally do not see the ALP.

G. Runway Protection Zones (RPZs)

1. Definition: an imaginary trapezoidal ground area beyond the end of the runway and centered about the extended runway centerline. The RPZ is not related to the Part 77 approach surface.
2. Purpose: to enhance the protection of people and property on the ground.
3. RPZ Dimensional Standards:
 - a) The RPZ begins 200 feet beyond the end of the runway length useable for takeoff or landing.

- b) The departure RPZ coincides with the approach RPZ except where the runway threshold is displaced, such as with declared distances. In these cases, a separate approach and departure RPZ is required (see Appendix 14 of AC 150/5300-13).
- c) Standard approach RPZ dimensions are in Table 2-4 of AC 150/5300-13. Note that they are particular to a runway end and are based on the specified approach visibility minimums associated with that runway end, as well as the design aircraft size.
- d) Departure RPZ dimensions are as specified in Appendix 14 of AC 150/5300-13.
- e) Note that the RPZ will not always coincide with the inner portion of the Part 77 approach surface. (Runway Clear Zones, which preceded the RPZ, were defined as a horizontal projection of the inner portion of the Part 77 approach surface. However, this is no longer the case with RPZs.)

4. RPZ Components:

- a) Runway Object Free Area (ROFA): a rectangular area surrounding the runway and extending into the RPZ (see par. 307 of AC 150/5300-13).
- b) Controlled Activity Area: the portion of the RPZ beyond and to the sides of the ROFA.

5. RPZ Clearing Standards:

- a) It is desirable to clear the entire RPZ of all above ground objects. Where this is impractical, as a minimum, airport owners must clear the RPZ of incompatible objects and activities.
- b) ROFA: must be cleared of all above ground objects protruding above the runway safety area edge elevation. (1) exceptions: objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes. Also, it is permissible to taxi and hold aircraft in the ROFA; (2) parked airplanes and agricultural operations are not allowed in the ROFA.
- c) Controlled Activity Area (CAA): while it is desirable to clear the RPZ of all objects, some uses are permitted in the CAA, provided they do not attract wildlife, are outside of the ROFA, and do not interfere with navigational aids. Although discouraged, automobile parking facilities are permitted provided they are outside of the extended ROFA.
- d) Land uses not permitted in the RPZ include:

- 1) fuel handling and storage facilities (except that underground fuel tanks are allowed in the CAA);
- 2) facilities that generate smoke or dust;
- 3) facilities with misleading lights or that create glare;
- 4) uses that may attract wildlife; and,
- 5) residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers, etc.).
- 6) RPZ Land Interest; (a) Land use control is preferably exercised through the acquisition of the RPZs. (ref. 7, par. 602.b(1)) In this case the clearing standards are requirements; (b) where it is impractical for the airport owner to acquire and control the land uses in the entire RPZ, they should as a minimum acquire the ROFA and obtain navigation easements over the remaining portion of the RPZ. (ref. 7, par. 602.b(1)) In this case, the RPZ clearing standards have a recommendation status for the portion of the RPZ not controlled by the airport owner.

H. Airport Airspace Drawing

1. REMEMBER!!! FAR Part 77 IS NOT a design standard!!!
2. Part 77 contains standards for determining obstructions to air navigation.
3. Obstructions must be studied to determine if they are hazards and whether removal is necessary. Removal is required unless an FAA aeronautical study determines otherwise.
 - i. Although removal of obstructions may not be required, if removal will enhance operations, it is desirable to clear them if practicable. Tables on the "Airport Airspace Drawing" and the "Inner Portion of the Approach Surface Drawing" should indicate the airport owner's planned disposition of obstructions, including "no action".
4. Note that for runways with a displaced threshold, the approach surface begins 200 feet from the runway end, not the displaced threshold, in order to protect departures from the opposite direction (ref. 2, par. 211b).
5. For threshold siting, the threshold siting surfaces in Appendix 2 of AC 150/5300-13 are used, not the Part 77 surfaces.

I. Other Safety Related Items to Review:

1. Look for opportunities to enhance safety, such as reducing runway crossings (ex. adding perimeter service roads, parallel taxiways, etc., or reducing the number of connecting taxiways and runway exits.)
2. Pay close attention to line-of-sight between intersecting runways (watch for hangars, trees, parked aircraft, etc. that may block line-of-sight in the runway visibility zone.)
3. Check runway longitudinal profile to ensure it provides adequate line-of-sight.
4. Consider whether the location of aircraft rescue and fire fighting (ARFF) station(s) will provide adequate response times.

J. Building Dimensions/Heights

1. Consider having the airport owner show maximum building dimensions and heights for use in line-of-sight and airspace reviews.
2. Consider recommending an “envelope” on the ALP within which buildings may be constructed without impacting FAA facilities or obstructing airspace. The 3D-Airspace Analysis Program is a great tool for determining this “envelope” when it is available.

K. Runway End Coordinates and Elevations.

1. FAA Order 5010.4, Airport Safety Data Program, states in part that:

“The National Ocean Service (NOS) is considered the final authority for the latitude, longitude, and elevation of an airport.” (ref. 9, Appendix 1, par. 18)
2. All runways with an existing published approach should have been surveyed by the NOS and their end coordinates and elevations are listed in the Aircraft Management Information System (AMIS).
3. Consultants should be advised at the beginning of the master plan study or ALP update process to use the AMIS coordinates unless they are proven to be incorrect. If survey data, charts, maps, or other factual data substantiate that the NOS data are incorrect, a copy of these should be provided to the NFDC for submittal to NOS to be considered in recomputing or reconciling its records.
4. The 1983 North American Datum should be used for all coordinates.

L. New Instrument Approach Procedures

1. See AC 150/5300-13, Appendix 16.
2. The appendix identifies airport landing surface requirements to support new instrument approach procedures (i.e., the facilities required and standards that must be met.)
3. These standards should be checked closely if new instrument approaches are proposed on the ALP.

M. Runway Ends/Thresholds

1. Change 5 to AC 150/5300-13 eliminated the term “relocated threshold”.
2. “Threshold” refers to the beginning of that portion of the pavement available for landing.
 - a) Normally, this corresponds to the runway end.
 - b) “Displaced Threshold” means the threshold does not correspond to the runway end.
 - c) The pavement behind a displaced threshold may still be available for takeoffs in either direction and landing roll-outs from the opposite direction.
 - d) Displaced thresholds should only be used as a last resort, particularly on Category II/III runways, because they can negatively impact capacity by causing a need to hold departing aircraft further from the runway end to keep them out of the approach surfaces.
3. “Runway End” refers to the beginning of that portion of the pavement available for takeoff and landing roll-out.
 - a) Normally, it corresponds to the end of the physical pavement.
 - b) Any pavement behind the runway end is unavailable for takeoff or landing from either direction.
 - c) Any pavement behind the runway end must be marked as unusable (“chevroned”) or as a taxiway.

N. Utility (Usefulness) of the Airport

1. Does the proposed airport layout make the best use of available land? (ex. runway layout, terminal facilities, etc.)

2. Does the proposed runway orientation consider off-airport structures and land uses (ex. tall towers, residential areas, etc.)?
3. Are adequate provisions being made for future fixed-base operator facilities? (compliance issues)
4. Watch for “through –the-fence” operations. (ex. taxiways leading off airport property.) This may be a compliance issue.
5. Are there adequate facilities for helicopters (if applicable)?

O. Efficiency of the Airport (capacity related items):

1. Are adequate facilities (runways, taxiways, etc.) provided to accommodate forecast demand?
2. Do taxiways provide for efficient movement of traffic on the airfield? (The air traffic control tower should also review this.)
3. Are proposed runway separations adequate to meet capacity needs? (The purpose of the proposed new runway should be considered, i.e., additional IFR arrival capacity vs. additional departure capacity)

IX. Coordination of ALPs Within the FAA

- A. Southern Region Airports Division’s “Coordination Guide for Program Managers” in the Airports Reference System establishes ALP coordination procedures and responsibilities.
- B. Purpose of Coordination
 1. Determining the safety, utility, and efficiency of the airport is a team effort. No single FAA division has all the expertise required. (ex. ARP-design standards, AT-efficient use of airspace, FS-operational safety.)
 2. Allows early identification and resolution of potential problems, and early identification of impacts to FAA facilities. (ex. obstruction of ATCT line-of-sight, affects on instrument approach procedures, required relocation of FAA cables or NAVAIDs, etc.)
- C. Primary ALP Review Responsibilities of Various FAA Offices:
 1. Airports (ADOs): conformance with airport design standards; modifications to design standards; runway safety area determinations, etc.

2. Flight Procedures (ATL-FPO): impacts on existing and proposed instrument approach and departure procedures; feasibility of proposed instrument procedures.
3. Flight Standards (FSESO-31): aircraft operational safety (including ground movements).
4. Airway Facilities (ASO-474): confirming location of existing and proposed FAA facilities, effects of proposed development on existing and planned FAA facilities, line-of-sight, etc.
5. Air Traffic (ASO-532): efficiency of airspace use; traffic pattern conflicts.
6. Local ATCT: effects on air traffic control procedures and facilities; efficiency of the airport, particularly taxiway layout and runway configuration.
7. Airports Division (ASO-620): airport safety; compliance with FAR Part 139 (certificated airports); declared distances at certificated airports.
8. Security (CASFO): assure all development is compatible with security requirements; protection of FAA facilities is adequate to deny access to unauthorized personnel. (Coordinate with Security only when controlled access, security fencing, or facilities planning decisions are necessary).
9. Regional Runway Safety Program Office (ASO-1R): comment on the safety of airport geometry in terms of preventing runway incursions. (Coordinate with ASO-1R only on large and medium hub airports and other airports with a complex geometric layout.)

D. ALP Coordination is required for:

1. Proposed development which could impact programs, resources, or functional responsibilities of other FAA divisions. (ex. New ATCT, NAVAID relocation/siting, new approach procedures, etc.)
2. ALP revisions involving safety, efficient use of airspace, or impacts on FAA facilities and equipment. (ex. aircraft operational safety, ATCT line-of-sight, new traffic patterns, etc.)
3. First time ALP approvals and major ALP updates for essentially all airports except those GA airports not having any existing or proposed instrument approach procedures.

E. ALP Coordination is not required for:

1. Insignificant changes that obviously do not involve questions of safety, efficient use of airspace, or impacts on FAA facilities or equipment.

2. Revisions that the ADO determines are in conformance with the previously approved ALP.
3. Caution! Any ALP revision showing construction of facilities on an airport with existing FAA facilities must be coordinated with ASO-474 for an impact determination (ex. a hangar may cause electronic interference even though it doesn't appear to directly impact any FAA facilities).

F. Items to include in the ALP Coordination Package (see ref. 16):

1. Copy of the ADO's review comments.
2. Identify major changes being made to the ALP.
3. Identify errors in the application of design standards so these are not confused with modifications to standards.
4. Identify modifications to standards for existing and/or proposed development and request comments on operational safety.
5. Be specific as to what type of response is needed and provide clear review instructions (ex. FS-review modifications to standards and comment on acceptable level of operational safety; ATCT-review efficiency of taxiway system, etc.)
6. If obstructions shown in the approaches have been cleared, include the airport owner's certification of clear approaches.

G. Regional Airport Planning Meeting

1. Consider holding a planning meeting after coordination of the ALP for new ALPs and major ALP updates at large and medium hub airports. Invite the airport owner and all appropriate FAA divisions.
2. The meeting provides a forum for the FAA and the airport owner to discuss potential solutions to problems identified during ALP coordination. These solutions can then be reflected on the final ALP.

H. Resolution of Coordination Comments

1. Items within Airports Division's authority or expertise (ex. modification of standards): ADO's should not approve the ALP until all comments from other divisions have been considered. The ADO should inform other divisions why any of their comments were not accepted.

2. Items within other divisions' authority or expertise (ex. impacts on FAA facilities): ADO's should not approve the ALP until all comments have been resolved.
 3. ATCT or ASR relocation, a new ATCT or ASR, ATCT line-of-sight blockage, ASR derogation, or other FAA facility impacts: ADO's should not approve the ALP until the issue has been fully resolved within the FAA, including: (a) determination of location, (b) determination of responsibility for cost (note: if cost is to be borne by airport owner, a letter should be obtained from the airport owner stating that they will pay for all costs), or (c) determination of acceptable alternative.
 4. Airspace conflict: ADO's should not approve the ALP until the conflict is resolved.
- I. Keep in mind...we are separate divisions, but "One FAA". In the ALP review and approval process, we represent all FAA Divisions. Airport owners expect us to be "One FAA". Our communications (letters, conversations, etc.) should reflect this.

X. Coordination of ALP's Outside the FAA

- A. ADO's should coordinate with other federal agencies (ex. Federal Highway Administration for a proposed relocation of a federal highway, or Federal Transit Administration for a rail access project).
- B. Airport owners should coordinate with appropriate state and local agencies such as MPOs (ex. proposed relocation of a state highway or proposed Intermodal facilities). They should provide evidence of this coordination.
- C. Public road relocations: We should not approve ALP's involving near-term public road relocations until the appropriate federal/state agency has concurred. ALP's involving future road relocations should be conditionally approved until the appropriate agency has concurred.

XI. How long should the FAA's ALP review take?

- A. Southern Region's "Airports Division Customer Response Standards" dictate that our standard ALP review response time (total turn-around time including coordination) is 60 working days (twelve weeks) for all airports.
- B. This standard may be tough to meet at times given the current coordination process, but from the customer's perspective this is reasonable to expect. ADO Program Managers should make every effort to meet this goal.

XII. ALP Approval

- A. Summary of actions required before approval:

1. Review ALP.
2. Coordinate with other divisions and other agencies (if required).
3. Resolve all coordination comments.
4. Approve all modifications to standards.

B. General:

1. According to Order 5050.4A, *Airport Environmental Handbook*, Airport Layout Plan (ALP) approval is a “federal action”, which requires environmental processing.⁶¹
2. Environmental processing (environmental assessment and issuance of an EIS or FONSI) may or may not be accomplished during preparation of the ALP.
3. ALP approval is either “conditional” or “unconditional” depending upon whether required environmental processing has occurred for all development shown on the ALP.

C. Unconditional Approval

1. May only be given when all items of development requiring an environmental impact statement or environmental assessment (see paragraphs 21 and 22a of FAA Order 5050.4A, *Airport Environmental Handbook*, (5)) have been environmentally approved (i.e., EIS or FONSI issued).⁶²
 - a) Par. 21: EIS required for first time ALP approval or new air carrier runway at commercial service airport in an SMSA.
 - b) Par 22a: EA required for new runway, major runway extension, etc., etc.
2. Shall be indicated on the face of the ALP by use of the term “Approved”.

D. Conditional Approval

1. When all items of development covered by paragraphs 21 and 22a have not been environmentally approved (EIS or FONSI not issued), the ALP must be “conditionally approved”.
2. Shall be indicated on the face of the ALP by use of the term “Conditionally Approved”, with a cross-reference to the ALP approval letter.

⁶¹ Now refer to FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*

⁶² Now refer to FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*

3. FAA Order 5050.4A, *Airport Environmental Handbook*, requires that the ALP approval letter contain the following condition: “The approval indicated by my signature is given subject to the condition that the proposed airport development identified by item herein as requiring environmental processing shall not be undertaken without prior written environmental approval by the FAA.” (ref. 5, par. 30.c.(2))⁶³
4. FAA Order 5050.4A, *Airport Environmental Handbook*, also requires that the approval letter identify, by item, those items shown on the ALP which are covered by paragraphs 21 and 22a and have not yet been environmentally approved by the FAA. (ref. 5, par. 30.c.(3))⁶⁴

E. Updating the Obstruction Evaluation (OE) Database

1. After approving the ALP, review the information in the OE database to confirm that it is correct and update it as necessary.
2. It is particularly important that the OE database reflect proposed runway extensions, etc. to ensure protection for future approaches and airspace requirements.

⁶³ Now refer to FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*

⁶⁴ Now refer to FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*

APPENDIX**Airport Layout Plan (ALP)
Review & Approval**

References

- (1) AC 150/5070-6A, Airport Master Plans (6/85)
- (2) AC 150/5300-13, Airport Design, including changes 1-6 (9/00)
- (3) AC 150/5325-4A, Runway Length Requirements for Airport Design (1/90)
- (4) Order 1000.1A, Policy Statement of the FAA (4/85)
- (5) Order 5050.4A, *Airport Environmental Handbook* (October 8, 1985)⁶⁵
- (6) Order 5300.1F, Modifications To Agency Airport Design, Construction, and Equipment Standards (6/00)
- (7) Order 5100.38C, Airport Improvement Program (AIP) Handbook (June 28, 2005)
- (8) Order 5010.4, Airport Safety Data
- (9) Order 5200.8, Runway Safety Area Program (10/99)
- (10) RGL 97-8, Airport Layout Plan Approvals – Modification of Airport Design Standards Policy (8/97)
- (11) RGL 97-9, Validation of Airport Layout Plans (9/97)
- (12) RGL 98-1, Policy on ... Review of Airport Master Plan Forecasts (10/97)
- (13) FAR Part 139, Certification and Operation: Land Airports Serving Certain Air Carriers (1/88)
- (14) 49 U.S.C. §§ 47110 and 47107
- (15) Coordination Guide for Program Managers

⁶⁵ FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*

