Federal Aviation Administration

MEMORANDUM

Date: August 12, 2024

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Subject: Forecast Review and Approval Instructions

This memorandum provides instructions to FAA Office of Airports (ARP) field offices related to forecast review and approval. This memorandum replaces and cancels *Review and Approval of Aviation Forecasts* (June 2008) and *Forecast Review and Approval During the COVID 19 Public Health Emergency* (October 2020). The approval instructions contained in this memorandum are applicable to forecasts subject to FAA approval as used for planning and design, project justification, National Environmental Policy Act (NEPA) environmental reviews, benefit-cost analyses (BCAs), and Part 150 Noise Compatibility Planning (NCP).

This memorandum outlines primary principles for approving forecasts but cannot anticipate all the potential intervening factors that might affect the credibility of a forecast. FAA's approval will ultimately depend on the credibility of the evidence supporting the forecast and not on any mechanical recitation of the factors discussed in this document. As always, we recommend that ADO/RO reviewers exercise professional judgment when evaluating forecast data and scenarios As not every scenario can be covered here. There will often be project-specific rationales that should be considered. APP-410 is available to provide technical assistance.

This memorandum remains valid until incorporated into a subsequent publication or otherwise canceled.

1. Purpose

Forecasts of future levels of aviation activity and the critical aircraft are integral to effective FAA decision-making for airport planning, design, and development. Forecasts should be

realistic, use objective reasoning, and be based upon the latest available data as well as local and industry trends. Notwithstanding what is forecast, operational levels can go up or down, and the critical aircraft often changes over time. Accordingly, for a forecast to be useful, it must remain credible during the unknown reality ahead. Because airport forecasts are a key input into public deliberations and both airport sponsor and FAA infrastructure decisions, the FAA's review and approval is conducted with appropriate rigor and objectivity to serve the public interest.

Forecasts are used to evaluate the need, justification, and timing for new or expanded infrastructure, including short- and long-term capital planning. A valid forecast supports the evaluation of proposed projects, including project justification and the determination of whether a project is ready to move into environmental review and ultimately development.

A forecast is not likely to be a perfect predictor of a future state or activity levels. However, a well-developed forecast serves to prudently guide planners and decision makers to inform decisions about how best to accommodate anticipated demand, including expected changes to the critical aircraft. The best use of a forecast is not predicting the future in a specific way, but informing the future value of current decisions.

2. Application

Forecast efforts that are subject to FAA approval are undertaken to support infrastructure planning, justification, and development. These are commonly referred to as "planing forecasts." Other forecasts, also subject to FAA approval, are commonly derived from the planning forecast as needed for environmental review, BCAs, and noise compatibilty planning.

2a. Planning Forecast Timeframes

Planning forecasts typically provide an outlook through a 20-year period. Within a 20-year planning horizon, the forecast's phases have specific application to airport planing and development:

- Near-term forecasts (0-5 years) are used to inform the Airports Capital Improvement Plan (ACIP) and justify specific projects moving from the planning phase to environmental review and then to construction.
- Mid-term forecasts (6-10 years) inform the evaluation and identification of potential projects that are realistically needed to accommodate demand and maintain acceptable service levels, to determine if inclusion in the ACIP's 5+ year outlook is warranted.
- Long-term forecasts (11-20+ years) are helpful to communicate the vision of the sponsor and the community it serves, including aspirational concepts. Long-term conceptual planning is used to preserve future options for aeronautical development, including land use planning and airspace protection under 14 Code of Federal Regulations (CFR) Part 77.

2b. Relevant Metrics

Forecasts include specific metrics and use specific timeframes relevant to its intended application (including as applicable for FAA approval). Forecast documents will identify the intended application and any areas for emphasis. For example:

- Runway extension projects for a large critical aircraft necessitate trip distances by frequency with regular use, per Advisory Circular (AC) 150/5325-4, *Runway Length Requirements for Airport Design*.
- Terminal facility planning is supported by airline schedules, airline fleet, and expected passenger levels. Gate quantity assessments are aided by turns per gate counts, per AC 150/5360-13, *Airport Terminal Planning.*
- Runway capacity evaluations use the average peak hour of the busiest month, for both Annual Service Volume calculations and Design Day Flight Schedules per AC 150/5060-5, *Airport Capacity and Delay.*
- NEPA reviews include the base year, year the proposed project will open, and then typically 5 years thereafter per Order 1050.1, *Environmental Impacts: Policies and Procedures.*
- Capacity studies using fast-time simulation modeling normally develop a design day flight schedule using the Average Day of the Peak Month, which is derived from the planning forecast. However, NEPA and BCA studies using the results of the simulation study will need taxi time and delay data adjusted for the Average Annual Day.
- Forecasts used in BCAs allow for calculations needed in the base case, delay savings or payload benefits, induced demand with a constrained scenario, and other metrics as identified in FAA's current Airport Benefit-Cost Analysis Guidance. BCAs use a realistic forecast through a future timeframe of 20 years or longer.
- Part 150 studies include a base year and a five-year forecast as identified in AC 150/5020-1, *Noise Control and Compatibility Planning*.

2c. Project Justification

Justified development needs to be anchored in actual activity at the time of the development. Because future predictions in the mid- to long-term period are uncertain, project justification is based on what is happening now and in the near term (0–5 years), not on what might happen in the more distant future.[1] While economic benefits are a byproduct of airport improvement or activity, the FAA is obligated to ensure project justification for airport development is corroborated by demonstrated aeronautical needs. This principal is consistent with existing practices under FAA Order 5100.38, *The Airport Improvement Program Handbook,* Section 3-8, Table 3-4, *Three Basic Tests to Determine if a Project is Justified.*

Development of new airport infrastructure stretches over several to many years, depending on phasing and other considerations like development triggers. During planning, the forecast is used

[1] To provide a practical example, this means that if a B-II aircraft currently has 460 annual operations and has substantiated long-term growth rate of 2% annually, then in 5 years it is credibly predicted to have regular use with 518 annual operations and is a valid future critical aircraft. Development necessary to support the B-II operations may be justified. However, if the B-II aircraft has only 170 annual operations today and a forecast predicts a 19% annual growth rate to achieve regular use in 5 years with 508 annual operations, the forecast growth rate is aspirational rather than realistic. Development for the B-II aircraft is not justified.

to identify and define necessary projects and assess intial project justification. Environmental reviews utilize forecasts to inform the purpose and need as well as environmental consequences. BCAs use forecasts to evaluate if expected benefits exceed costs. While it is attractive to use a prior planning forecast in the NEPA review, or a NEPA forecast in the follow-on BCA, this may not be possible. The forecast approved for use in one step may not be appropriate for use in follow-on steps (unless the sponsor determines that it continues to be representative of aeronautical activity and the FAA approves its use in a specific subsequent step). Current data, including the latest aviation activity, and trend data is used in a forecast for NEPA reviews as well as BCAs. If the forecast theory remains sound, then only small adjustments may be needed to the base year and subsequent future year calculations. Follow-on forecasts are evaluated using consistency criteria referencing the then current published Terminal Area Forecast (TAF). See also Section 7 related to the useful life of a forecast.

If an airport desires to use a single forecast to support a streamlined process of planning, NEPA review, BCA, and final justification for a grant award, then ADOs are advised to recommend development of a realistic, objective forecast that is likely to track with reality in the years ahead. Derivative forecasts can then be developed (and approved by FAA) for NEPA and BCA applications using relevant metrics, rather than those steps requiring a wholesale revision to the forecast. In contrast, an aggressive, optimistic planning forecast often substantially exceeds actual aviation activity in the years ahead. As a result, a forecast update becomes necessary to quantify realistic aviation activity during NEPA and the BCA. This delays progress and could have been avoided with a realistic forecast.

3. Forecast Scenarios

Several forecast techniques/methodologies are available. A critical first step is determining the best methodology to realistically predict future demand at the airport, by operational segment. Segments can include domestic versus international, origin and destination (O&D) versus connecting, commercial passenger, cargo, general aviation (itinerant versus local), etc. The quantitative forecast methodology that is determined to be the best fit with actual trends is normally chosen to model each segment in the baseline forecast scenario. In addition to the baseline scenario, it is often useful to develop distinct forecast scenarios that allow stakeholders to consider a range of possible outcomes including constraints and "what-if" conceptual scenarios. Scenarios are useful because aviation demand is influenced by a variety of factors, many of which are difficult to predict, such as economic growth, fuel prices, airline network and fleet strategy, and geopolitical events. This section describes the FAA's expectations for the development of forecast scenarios.

3a. Baseline Scenario

The FAA reviews and approves the baseline scenario in a sponsor's forecast; that is, the outcome most likely to occur at the airport. This aligns with the determination of the future critical aircraft in AC 150/5000-17, *Critical Aircraft and Regular Use Determination,* that is "highly likely" or "expected" to regularly use the airport. The outcome most likely to occur at the airport is commonly identified from the consensus view of typical forecasting methodologies, such as regression, trends, and share analysis. In areas with large populations and associated economic

activity, forecasts will typically correlate with regional macroeconomic demand for aviation services.

The baseline scenario is normally an unconstrained evaluation (without infrastructure limitations) of future demand driven by forward economic projections. However, if hard constraints exist as described in Section 3b, then a constrained scenario is needed to supplement the baseline scenario. If a sponsor's preferred forecast is not the most likely, realistic scenario, it is not included in the baseline scenario and is instead incorporated into the conceptual scenario.

A best practice is to use planning activity levels (PALs) as a trigger for development actions, rather than specific years given normal variations in actual operations. However, PALs are normally developed during the facility requirements evaluation, after the forecast is approved. Accordingly, in the forecast document, identify that PALs are to be developed as the planning evaluation continues.

FAA approval of the baseline scenario forecast for planning purposes is limited to the 10-year outlook period, which is the primary timeframe for infrastructure decision making. The 10-year period includes decisions related to justified near-term (5-year) development during ACIP coordination, as well as planning for mid-term capital improvements that have a realistic need at the airport. While the FAA encourages long-term planning by airports (beyond 10 years through 20 years or more), the accuracy of long-range forecasts based on economic Gross Domestic Product (GDP) projections (as is common in airport forecasts) is low. At 10+ years, uncertainty commonly exceeds the utility of forecasts to inform smart infrastructure decisions; therefore, the FAA will note that the period of the planning forecast beyond 10 years is "accepted for planning purposes" rather than approved. As a result, long-term forecasts are best used to assess and protect options for future development. However, the FAA will approve longer duration baseline scenarios that are realistic for use in NEPA and BCA evaluations, as applicable.

3b. Constrained Scenario

While the baseline scenario predicts future unconstrained demand, in specific circumstances the lack of adequate airport infrastructure may constrain the airport's ability to accommodate increases in aircraft operations. If hard capacity constraints are likely to exist at an airport, then a constrained scenario is developed to properly assess the no action scenario for both NEPA and BCA evaluations. After HQ review, the ADO will approve the constrained scenario in tandem with the baseline scenario.

Hourly runway capacity and turns per gate per day are the primary metrics used to define hard capacity constraints in the airport system, as related to aircraft operations. Hard capacity constraints mean that operations cannot grow once the limits are reached. As operation levels near the hard capacity constraint, increasing load factors are expected. Fares may also increase given passenger demand exceeding supply. Incremental increases to aircraft size (seat gauge) are also possible, but not assured, within the aggregate fleet available to an airline and its network strategy. Repeated operations above hourly runway capacity cannot functionally be sustained by the National Airspace System (NAS), as various traffic management initiatives (metering, ground delay programs) as well as schedule limits can come into use. Similarly, a maximum of 8 to 10

turns per day can typically be accommodated on a single airport gate.[2] While some Ultra Low Cost Carrier (ULCC) airlines may consider flexible use of hardstands, the major network airlines will not normally schedule new operations to large and medium hub airports without available gate access.

However, 'soft' capacity metrics, such as Annual Service Volume (ASV) and passenger terminal levels of service (based on building area) do not constrain operations or passenger growth. Soft capacity metrics may indicate the need for infrastructure improvements to improve efficiency or level of service. Activity growth routinely exceeds soft capacity metrics, albeit with reduced levels of service and more inefficient operations.

If an airport's forecast reaches hard capacity limits in future years, operations growth will be curtailed beyond that point. Development of a constrained forecast is then necessary for the no action alternative in NEPA and the base case in a BCA. The proposed development scenario forecast will assess how the new infrastructure will enable new operations above the constrained forecast level (more gates or runway capacity). Thus, the project enables more flights to operate at the airport. The difference between the constrained and development scenarios is known as induced (latent) demand.

3c. Conceptual Scenarios

In planning, additional conceptual "what-if" scenarios are often useful to include in a forecast document in order to plan for facility needs if, for example, a new entrant carrier starts service at the airport or commerical service ceases; or to assess the impact of variance in GDP for low and high scenarios, etc. New industry (such as a factory or business) that will generate aviation demand, but are not yet publically announced, is evaluated in a conceptual scenario. Potential Advanced Air Mobility (AAM) operations by aircraft types and/or operators that are yet to be certified are evaluated in a conceptual scenario. A sponsor's preferred, aspirational scenario that is not the most realistic scenario is normally a conceptual scenario. Having a range of forecast activity allows airport planners to develop flexibility in facilities and alternatives to accommodate different activity levels.

However, the FAA does not approve conceptual scenarios as the baseline forecast scenario. If actual activity emerges that supports a conceptual scenario, or an aircraft operator commits in writing to new operational activity that is predicated upon the infrastructure becoming available, then the planning conducted using the conceptual scenario will be ready to guide the related infrastructure development decisions. Quantitative evidence that the conceptual scenario is actualizing (such as updated airline schedules, or Traffic Flow Management System (TFMS) or Automatic Dependent Surveillance-Broadcast (ADS-B) operations data, or formal aircraft operator support in writing) is necessary to ensure that public funds are invested in worthwhile development. In such cases, after applicable HQ coordination per Section 6.e., the ADO issues a letter to the airport agreeing that the conceptual scenario is actualizing, and that it is replacing the prior baseline scenario for airport development and ACIP purposes.

[2] TRB's Airport Cooperative Research Program (ACRP) Research Report 163: Guidebook for Preparing and Using Airport Design Day Flight Schedules, explores the preparation and use of airport design day flight schedules (DDFS) for operations, planning, and development.

4. Use of Terminal Area Forecast (TAF) instead of Sponsor Developed Forecast

Only large and medium hub towered airports with stable airline service can opt to use the TAF for their planning, NEPA, and NCP forecasts. Large and medium hub airports are forecast with the modernized TAF model, which integrates robust regional macroeconomic data, fleet mix, and airline network trends. Airports that opt to use the TAF need to understand how it was developed for their airport(s), including data, assumptions, methods, and calculations used. The airport is advised to consider if the forecast growth rates (positive or negative) in the TAF are credible in reference to near-term trends and likely mid-term environment. When the current TAF includes high and low scenarios, only the baseline (middle) scenario may be selected for use by the airport. If using the TAF, the primary analytical need will be to develop the existing and future fleet mix that aligns enplanements to operations as well as segments such as cargo.

Before the airport sponsor makes a decision to use the TAF, the RO/ADO schedules an informational meeting with APP-410 and APO-100. Because the TAF is an integrated product of enplanements and operations, sponsors are expected to use both if adopting it as their forecast, unless there is a compelling reason otherwise. If there is concurrence on using the TAF instead of an independent forecast, the sponsor then documents the decision to use the TAF, and the rationale, in the forecast summary document.[3]

5. Forecasts at Non-towered, Low-activity Airports

At many smaller general aviation (GA) airports with less than 90,000 annual operations, the development of a planning forecast can often be streamlined to focus on analysis of the existing critical aircraft by runway and then the likely future critical aircraft by runway. The airport sponsor may attest that "Current operations at the airport are less than 90,000 operations annually, and not expected to exceed 90,000 operations in the foreseeable future. Therefore, preparation of a detailed forecast is not warranted." Instead, the analysis will identify the existing critical aircraft, by runway, and if there is any expected change to the future critical aircraft in the foreseeable future (through mid-term period). A consistency check with the TAF is not necessary in using this option.

This option is not applicable for capacity projects or submissions for Federal Contract Towers. Also, this option is not available if a noise analysis is required in NEPA. FAA Order 1050.1, *Environmental Impacts: Policies and Procedures*, requires noise analysis during NEPA evaluations where jet operations exceed 700 annual operations and/or propeller operations (piston or turboprop) exceed 90,000 annual operations.

6. Criteria for Forecast Review and Approval

FAA approval indicates the forecast is a realistic prediction of future aviation activity. ADOs are responsible for forecast review and approvals, inclusive of HQ review when warranted. The general requirement for FAA approval of the baseline forecast scenario is that it is supported by a credible forecasting analysis such that it is a realistic (i.e., likely to occur) scenario and is

[3] TAF is normally included as a scenario in a BCA, in addition to the sponsor's approved forecast.

within consistency parameters of the TAF at towered airports and the forecast's currency is relevant for FAA decision making.[4]

Sponsor developed forecasts are evaluated in reference to the current published TAF. If a sponsor forecast is submitted prior to a new TAF being published, and then a new TAF is published, the forecast is evaluated in reference to the new, now current TAF. Airport sponsors should proactively plan their forecast submittal to the FAA to be either well in advance of the new TAF publication in late January or once the new TAF is published.

The FAA does not approve air service development or leakage studies, which are typically used by airports to coordinate with airlines on new service or routes. Such studies cannot be incorporated into the baseline scenario of an airport forecast submitted to the FAA but may be incorporated into conceptual scenarios used for conceptual planning.

If the baseline scenario does not meet FAA criteria for approval, the differences must be resolved if the forecast is to be used in FAA decision making. If the baseline scenario is expected to be inconsistent with the TAF for any reason, or to not meet other FAA criteria for approval, the RO/ADO should engage with the sponsor early in the forecast development process to discuss the implications of the variances.

As always, we recommend that RO/ADO reviewers exercise professional judgment when evaluating forecast data and scenarios. Not every scenario can be covered here. There will often be project-specific rationales that should be considered. APP-410 is available to provide technical assistance.

6a. Consistency Checks for Existing Airports

Forecast scenarios of operations, based aircraft, and enplanements are considered to be consistent with the TAF, and merit FAA approval, if they meet the following criteria:

Airports with Airport Traffic Control Towers (ATCTs):

- Through the near- and mid-term timeframes, the baseline scenario differs from the current TAF baseline scenario by less than 10 percent at year 5 and 15 percent at year 10. FAA forecast approval is limited to the 10-year outlook period, unless a longer period is specifically needed for NEPA analyses at 10+ years (e.g., 5 years after proposed project opening) or a BCA.
- Current data and realistic fleet projections are used to identify the existing and future critical aircraft, by runway, per AC 150/5000-17. The future critical aircraft is identified based on it being "highly likely" or "expected" to regularly use the airport.
- ADO may "accept for planning purposes" the long-term planning forecast covering years 11-20 when needed to assess and preserve options for future facility needs, if predicted

[4] FAA decision making includes approval of an airport layout plan, environmental reviews under NEPA (e.g., purpose and need, air quality, noise, land use, etc.), noise compatibility planning per 14 CFR Part 150, and financial decisions such as calculation of BCAs, AIP grant approvals, and issuance of Letters of Intent (LOIs).

annual growth rates are within 0.5 percent (absolute) of the TAF's baseline scenario long-term growth rates for that airport.

- The forecast identifies relevant factors that cause uncertainty including risks to the forecast's predictions, and applies lessons learned from the prior forecast. PALs are developed in the facility requirements evaluation based on triggers linked to justification criteria.
- New entrant aircraft operators, aircraft types, or major tenants, including new routes, are only included in the baseline scenario if supported by future published schedules and/or by credible letters of firm intent by the operating entity(s). Such a letter is signed by an officer of the company with relevant authority, and describes aircraft type, frequency of operations (daily, seasonal, or other), destination(s), and expected timeframe for start of service. Commitments from users (e.g., cargo shippers) are also useful to substantiate aeronautical demand.
- Any aspirational new aircraft operations, aircraft types, routes, or major tenants without written commitments are included in a conceptual scenario, which the ADO can accept for planning purposes but not approve.

Non-Towered Airports and New Airports

- Forecasts through 10 years differ from the applied annual growth rates in the current FAA's Aerospace Forecasts[5] by less than 10 percent at year 5, and 15 percent at year 10, as calculated from the forecast base year.[6]
- Current data and representative fleet mix projections are used to identify the existing and future critical aircraft, by runway, per AC 150/5000-17. The future critical aircraft is identified based on it being "highly likely" or "expected" to regularly use the airport.
- ADOs may "accept for planning purposes" the long-term forecast covering years 11 through 20 when needed to assess and preserve options for future facility needs, if predicted annual growth rates are within 0.5 percent (absolute) of the FAA's Aerospace Forecast's long-term growth rates.
- The forecast identifies relevant factors that cause uncertainty, including risks to the forecast's predictions, and applies lessons learned from the prior forecast. PALs are developed in the facility requirements evaluation based on triggers linked to justification criteria.
- New entrant aircraft operators, aircraft types, or major tenants, including new routes, are only included in the baseline scenario if supported by future published schedules and/or by credible letters of firm intent by the operating entity(s). Such a letter is signed by an officer of the company with relevant authority, and describes aircraft type, frequency of operations (daily, seasonal, or other), destination(s), and expected timeframe for start of service. Commitments from users (e.g., cargo shippers) are also useful to substantiate aeronautical demand.

[5] APO-100 has developed a set of assumptions and forecasts consistent with the emerging trends and structural changes taking place within the aviation industry. The purpose of the forecasts is to accurately predict future demand. The FAA develops the commercial aviation forecasts and assumptions from statistical (econometric) models that explain and incorporate emerging trends for the different segments of the industry.

[6] The TAF does not develop an active forecast for future operations, enplanements, or based aircraft at non-towered airports. The TAF only ingests data from the Airport Master Record for archival purposes.

- Aspirational new aircraft operations, aircraft types, routes, or major tenants without written commitments are included in a conceptual scenario, which the ADO can accept for planning purposes but not approve.

6b. Critical Aircraft

For many planning forecasts, the identification of the existing and future critical aircraft by runway is the essential outcome of the forecast effort. See AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, for criteria and guidance on the critical aircraft. FAA determination of the critical aircraft for AIP purposes is normally included in the forecast approval.

6c. Forecast Approval Letters

See Attachment A for an example forecast approval letter. Region/ADO approval letters include these statements:

> *FAA approves this forecast for use in the <applicable study, e.g., master plan, environmental assessment, etc.>*
>
> *FAA approval of the baseline scenario in this forecast does not constitute justification for future projects. Justification for future projects will be made based on activity levels at the time the project is requested for development. Documentation of actual activity levels meeting planning activity levels will be necessary to justify AIP funding for eligible projects. Further, the approved forecast may be subject to additional analyses if the fundamental rationale of the forecast or the critical aircraft changes materially.*

The forecast approval letter conveys that a realistic forecast scenario has been developed and approved by the FAA. In the forecast approval letter, identify which specific elements of the forecast are approved, including the baseline scenario and the critical aircraft determination by runway. Also, limitations are added to the forecast approval letter when applicable (e.g., "The conceptual scenario is not approved but rather is accepted for planning purposes.").

FAA forecast approval does not convey a requirement to update the TAF. If the airport sponsor wishes for its approved forecast to inform the next update to the TAF, the ADO sends the forecast to APP-410; staff will recommend further action, if any, to APO-100. The currently published TAF is not subject to revision. Rather, APO may consider approved forecasts at towered airports when developing the next version of the TAF. APO, when updating the TAF, may request additional information, especially if the forecast exceeds normal expectations without adequate justification. APO will then decide what aspects of a sponsor's approved forecast to include or not include in the next TAF.

For airports that are forecast using the modernized TAF methodology, network effects will normally preclude adoption of sponsor forecast parameters into the TAF. Forecasts for non-towered GA airports are not considered for inclusion in the TAF.

6d. Deferring Forecast Approval

In cases where there is insufficient basis for approving the forecast (e.g., a small market where the airline has suspended or ceased service), the RO/ADO may withhold approval for up to 12 months until the sponsor is able to develop a realistic forecast based on the new baseline then established. In these cases, the RO/ADO will recommend that the sponsor reconsider the forecast and develop a revised baseline scenario. If the sponsor is unwilling to do so, the RO/ADO should defer review until there is sufficient information on future demand. APP-400 can assist in these cases.

6e. Headquarters Review

Prior to approval, ROs/ADOs must send forecasts to APP-400 for HQ review when/if:

- Forecasts are to be used at large and medium hub airports;
- Forecasts are to be used at new supplemental or replacement airports;
- Forecasts are to be used for a new AIP-funded Federal Contract Tower (FCT) at a currently non-towered airport;
- Forecasts that incorporate constrained operations, such as those due to runway capacity or gate turns;
- Forecasts are to be used in an Environmental Impact Statement (EIS) and/or BCA; or
- Forecasts are to be used in an Environmental Assessment (EA) for a new airport, for a new runway to accommodate air carrier aircraft at a commercial service airport in a metropolitan statistical area (MSA), or for a major runway extension.[7]

APP-400 will review the forecast and coordinate with APO-100 if required. Initial APP-400 and APO-100 reviews generally take up to 45 days to complete unless additional information is needed. Subsequent revisions to forecasts submitted to HQ are coordinated with APP-400 (and APO, if included in the initial review) until there is HQ concurrence and all comments have been sufficiently addressed. Once HQ review is complete, APP-400 will request that the ADO approve the forecast with any conditions included in the forecast approval letter.

In addition, ADOs and ROs have the option to submit forecasts to APP-400 (even if they meet FAA criteria for approval) if novel methodologies, data collection methods, fleet mix changes, or complex technical questions warrant further review.

7. Review of Previously Approved Forecasts

The useful life of a forecast can vary depending on what actually transpires with aircraft operation levels, critical aircraft, passengers, and cargo at an airport in the years following forecast approval. In all cases, reality trumps an approved forecast: i.e., the validity of a forecast approval lasts only until there are significant deviations from the forecast assumptions; at that point, the RO/ADO will determine that a revised forecast is necessary.

[7] The following considerations should be applied when determining whether a runway extension is major: the runway extension (1) allows a commercial service airport to serve a more demanding critical aircraft or aircraft requiring a higher Runway Design Code (RDC), (2) accommodates an increased haul length for the existing aircraft fleet; and (3) is located within an MSA.

Some level of variation from the approved forecast is normal. So it is necessary for the FAA to consider if the variation is minor or significant, and whether temporary or enduring. Does the underlying theory of a forecast remain sound? Or, has a fundamental change occurred in aviation activity at the airport?

Common changes in Aviation Activity versus Approved Forecast

Significant changes necessitating forecast updates	Changes that do not normally warrant a forecast update
Critical aircraft changes unexpectedly, or the expected change to the critical aircraft did not materialize.	Seasonal adjustments to airline service that are less than 2% annually as compared to the TAF
Passenger levels grow as forecast, but with substantive differences from predicted seat gauge such that operations vary by greater than TAF consistency criteria per Section 7a.a.d.	Passenger levels grow faster than expected, but also with increased upgauging by airlines such that operations remain on track.
Aircraft operations levels remain flat or grow by less than predicted, such that actual activity trails forecast activity by greater than TAF consistency criteria per Section 7a.a.d.	While there are year-to-year variations in aircraft types using the airport, the Runway Design Code (RDC) for the critical aircraft remains constant as needed to support standards development (excluding runway length).
Airline cancels route used to justify a runway extension, or the airline's service at the arport changes materially (e.g., depeaks, closes hub or station).	

FAA decisions to proceed with NEPA review, AIP funding, or PFC approval are anchored in actual activity at the time proposed development is ripe for said decisions, rather than broad reliance on the forecast. The forecast may still be used to inform project justification if actual activity levels and critical aircraft are consistent with forecast trends. So, if previously approved forecasts are to be used to support proposed development, validation is essential to ensure they remain realistic. The FAA will ensure, in all cases, that federal funding is used for actual aeronautical needs.

Section 3-11 of FAA Order 5100.38, *AIP Handbook*; section 2.1.4 of AC 150/5000-17, *Critical Aircraft and Regular Use Determination*; and section 703(d) of AC 150/5070-6B, *Airport Master Plans*, all contemplate FAA review of forecasts or critical aircraft determinations when there are substantive changes in aviation activity. The purpose is to validate if demand continues to meet FAA justification requirements for project funding.

7a. Application to Project Justification

a. Prior to project justification under AIP and PFC criteria, the existing and future critical aircraft is validated based on current monthly data per AC 150/5000-17. Evaluate the planned retirement of aircraft types.

b. If the critical aircraft has changed from what was forecast, or the forecast change did not materialize, and the critical aircraft is directly material to project justification (such as a runway extension) then the forecast is outdated.

c. Forecast uncertainty does not affect the timing or scale of an airport project. If the forecast is intended to support a project where the justification, scale, or timing may have changed substantively, do current operations or passenger volumes indicate that the project is needed, or not? [8]

   (i) Or, is the forecast being used to support safety or standards projects that remain justified based on existing demand?

d. Do the predictions of aircraft operations, enplanements, or based aircraft meet consistency criteria with the currently published TAF, using the prior year as the base year, and the predicted operations are within 10 percent of the TAF at 5 years and 15 percent at 10 years? If not, the forecast is outdated.

e. Following shock events, the timeframe for recovery is uncertain. If the airport's forecast is predicting recovery faster than what actually occurred after prior shock events, in terms of operations or passengers, then rigorous data analytics will be needed to support the recovery scenario.

f. If used in a BCA, variations from forecasts that substantively reduce benefits are assessed to test sensitivities and BCA outcomes if an adverse trend continues.

g. Coordinate with APP-400 for any exceptions to this approach.

7b. Application to NEPA Evaluations

a. If there are significant changes in aviation activity that run counter to the approved forecast, review the purpose and need for the project to assess if it remains valid.

- For NEPA evaluations of capacity projects that are (1) about to begin and (2) have substantial forecast uncertainty, the RO/ADO should exercise judgment prior to agreeing to proceed.
  - Do capacity enhancement projects have a purpose and need based on a critical aircraft that has changed or activity levels that have not actualized? If so, a best practice is to pause commencement of the environmental review process until actual activity reaches an established triggering point for development. Otherwise, it may be difficult to establish a defensible purpose and need, and reevaluations or delays may result.
    - Or, does an objective evaluation of the unexpected change in aviation activity indicate the purpose and need is still valid because the timeframe for approval and construction of the project as assessed and described in the NEPA document may span the

[8] These include (1) capacity projects as defined in FAA Order 5090.5, *Formulation of the National Plan of Integrated Airport Systems (NPIAS) and Airports Capital Improvement Plan (ACIP)*; and (2) projects requiring significant ($10M+) discretionary funding.

expected timeframe required for full or partial recovery of aviation activity?

- Proceeding with a NEPA analysis that is not ripe for decision can create national impacts. FAA Lines of Business are measured against their average NEPA timelines, per regulatory time limits to complete NEPA documents.

b. If warranted by unique circumstances such as severe reductions in operations or aircraft type changes that call into question the purpose and need, the RO/ADO may consider a forecast update in a NEPA document that includes the impacts of change in aviation activity. Evaluate revised implementation timelines, and compare the merits of reanalyzing potential environmental impacts versus using the prior (generally higher and more conservative from a NEPA perspective) prediction.

7c. Application to Part 150 Noise Compatibility Planning

When an airport sponsor submits new or updated Noise Exposure Maps (NEMs) for acceptance by the FAA, the RO/ADO assesses the adequacy of the underlying technical data and whether the forecast map is based on realistic assumptions about future aircraft operations, including fleet mix, and meets criteria outlined in 14 CFR Part 150.21(a)(1). If not immediately satisfactory, review forecast assumptions with the sponsor prior to FAA acceptance of the NEM. See AC 150/5020-1, *Noise Control and Compatibility Planning for Airports*.

Attachment: FAA Approval Letter Template

The Federal Aviation Administration (FAA) approves the baseline scenario through year ten [if applicable: "and constrained scenario"] in the [airport and forecast name], submitted on [date] for use in the [applicable study, e.g., master plan, environmental assessment, BCA, etc.] [If applicable] The review included coordination with APP-400 and APO-100 in FAA Headquarters. We found the forecast to be generally consistent with the [current year] TAF. It uses current data and is supported by generally accepted forecasting methodologies.

[If applicable:] The existing critical aircraft for Runway [XX/YY] is determined to be the [aircraft type or RDC]. The future critical aircraft is expected to be the [aircraft type or RDC].

[If applicable:] The conceptual scenario is not approved but is accepted for planning purposes.

[Include commentary or conditions on unique aspects of the forecast, including conceptual or constrained scenarios.]

[If applicable:]: Submit any derivative forecasts for subsequent FAA approval, as developed for [design day flight schedule, NEPA, BCA, etc. as applicable to the project].

The approval of the forecast does not automatically constitute a commitment on the part of the United States to participate in any development recommended in the [study type] or shown on the ALP. FAA approval of the baseline scenario [if applicable: and constrained scenario] in this forecast does not constitute justification for future projects. Justification for future projects will be made based on activity levels at the time the project is requested for development, in accordance with criteria in FAA Orders 5090.5 and 5100.38. Documentation of actual activity levels meeting planning activity levels will be necessary to justify AIP funding for eligible projects. Further, the approved forecast may be subject to additional analyses if the fundamental rationale of the forecast or the critical aircraft changes materially.

Regards,
RO/ADO Signature