

FLIGHT PATH CHANGES AND THE ROLE OF THE FAA AND MPAD

Introduction

For several years now, the Federal Aviation Administration (FAA) has been planning the Next Generation Air Transportation System (NextGen), a modernization of the U.S. air traffic system. While the FAA's NextGen technology has been in the works for quite some time, it has only recently started to be implemented. Since the FAA is the responsible authority for establishing airspace usage and instrument flight procedures (flight paths) into and out of airports, the District is working with FAA air traffic staff to better understand the FAA's process for implementation of NextGen and associated flight procedures, and what it will mean for Monterey Regional Airport (MRY).

In April 2015 the FAA applied the latest standards, based on NextGen technology, to the two existing RNAV (instrument) approaches to Runway 28L at MRY. The updated RNAV approaches reflected an improvement to the "minimums," lowering the threshold of poor weather conditions during which access to Runway 28L can be allowed. The revised procedures also, in some areas, changed ground tracks in order to avoid precipitous terrain.

Recent Flight Path Issues Based on the FAA's NextGen Technology

The Next Generation Air Transportation System (NextGen) is the FAA's plan to modernize the National Airspace System (NAS) through 2025. Through NextGen, the FAA is addressing the impact of air traffic growth by increasing NAS capacity and efficiency while simultaneously improving safety, reducing environmental impacts, and increasing user access to the NAS.

To achieve its NextGen goals, FAA is implementing new Performance-Based Navigation (PBN) routes and procedures that leverage emerging technologies and aircraft navigation capabilities, which include satellite-based navigation systems that replace the traditional, ground-based systems. The intended result of PBN is more accurate and predictable flight paths.

The two main components of PBN are Area Navigation (RNAV) and Required Navigation Performance (RNP). RNAV enables aircraft to fly on any desired flight path within the coverage of ground- or space-based navigation aids, or within the limits of the capability of aircraft navigation systems, or a combination of both. By using RNAV, aircraft can adhere to a desired flight path with smaller deviations than traditional technology allows. In order to utilize RNAV procedures, aircraft need onboard systems called Flight Management Systems (FMS). The FMS monitors the position, altitude and speed of the aircraft and alerts the flight crew if the requirements are not met during operation. RNP specifies the performance criteria of the navigation equipment in terms of required accuracy.

According to the FAA, implementation of RNAV procedures generally reduces the dispersion or "fanning" of flight paths, but will not result in a single path. Therefore, aircraft flight path dispersion will continue to be noticeable to communities under the Airport's arrival and departure corridors.

Role of The Monterey Peninsula Airport District

The Monterey Peninsula Airport District (District), as the proprietor of the Airport, has no authority or control over flight procedures. Rather, the FAA has exclusive regulatory jurisdiction over flight procedures, and the pilot-in-command of each aircraft is responsible for safely maneuvering the aircraft in accordance with the FAA's airspace procedures. The District historically has and will continue to work with FAA and affected communities on matters concerning the utilization of airspace around the Airport. The following discussion provides additional information on the regulation of federal airspace, and existing and potential airspace procedures at the Airport.

Federal Airspace

The United States government has exclusive sovereignty over the airspace of the United States (49 U.S.C. §40103). To that end, Congress gave the FAA the authority to: (i) develop plans and policies for the use of the navigable airspace, and (ii) assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. (49 U.S.C. §40103(b).)

Establishment of aircraft flight procedures is the sole responsibility of the FAA (49 U.S.C. §40103(b)(2)):

The Administrator [of the FAA] shall prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes) for –

- (A) navigating, protecting, and identifying aircraft;
- (B) protecting individuals and property on the ground;
- (C) using the navigable airspace efficiently; and,
- (D) preventing collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

All other entities, including the District as the owner and operator of the Airport, are expressly prohibited by federal law from exerting any control over aircraft flight procedures.

Because the establishment of flight procedures is solely under the control of the FAA, no changes to flight paths (vertical or horizontal) are contemplated by the Airport Master Plan or any of the alternatives discussed in the Master Plan. In addition, no changes to flight paths were contemplated or created by the District in connection with the Runway Safety Area (RSA) project.

Discussion of Arrival and Departure Paths for Aircraft Operating Into and Out of Monterey Regional Airport

Arrival Flight Procedures – How and Why

According to the FAA, commercial aircraft, business jets and most high-performance aircraft use the Instrument Landing System (ILS), which is a ground-based radio system designed to provide an aircraft pilot with precise guidance for a straight-in approach to a runway. The ILS can be

thought of as an imaginary line that projects straight out from the end of the runway at a vertical angle and extends approximately 4.3 miles from the Airport.

The point at which aircraft intercept the ILS varies based on a number of factors including, but not limited to: (i) aircraft type, speed, weight; (ii) weather; (iii) traffic volume; (iv) instrument equipage; (v) flight crew technique; and (vi) the FAA's separation or sequencing requirements. When visibility is clear, however, pilots have the discretion to intercept the ILS at a point closer to the Airport, which can result in more dispersion of aircraft over the community.

Arrival procedures for the Airport have been established by the FAA to provide for appropriate alignment with the runway, air traffic patterns in the region, and prevailing wind conditions. The FAA has advised that the arrival paths have been relatively unchanged for many years, therefore they believe the NextGen technology offers opportunities that will enhance arrival procedures for the FAA Air Traffic, pilots, the travelling public and often neighbors on the ground.

Departure Flight Procedures – How and Why

Commercial aircraft, business jets and most high-performance aircraft primarily use Runway 28L for departures from the Airport. These high-performance aircraft are assigned a specific instrument departure heading by the Air Traffic Control Tower (ATCT) based on a number of factors including the pilot's request, weather, and other air traffic in the airspace.

Just as with arrival procedures, this flight path is not an exact path along the ground and a broadening of the flight path may be observed as aircraft depart the Airport. Variables affecting flight path dispersion and aircraft altitude on departure include, but are not limited to the same influences as on an arrival: (i) weather (e.g., winds aloft and temperature, which affect aircraft climb rates); (ii) air traffic volume; (iii) flight crew technique; (iv) aircraft type, speed, and weight; (v) instrument equipage; and, (vi) the FAA's separation or sequencing requirements.

NextGen Arrival Procedure: RNAV – Y (GPS) and Z (RNP)

Recently, the FAA changed both RNAV arrival procedures. This new RNAV approach procedure was implemented on April 30, 2015. These new procedures improve the efficiency of aircraft to land in weather conditions that previously would have prevented landings at the Airport.

The FAA is rolling out these programs as part of a federal mandate that overrides the requirement for the normal environmental review process, airport by airport. Specifically, in the 2012 FAA Reauthorization Act, the Categorical Exclusion in Section 213 (c)(2), Acceleration of NextGen Technologies, states:

“Any navigation performance or other performance based navigation procedure developed, certified, published, or implemented that, in the determination of the Administrator would result in measurable reductions in fuel consumption, carbon dioxide emissions, and noise, on a per flight basis, as compared to aircraft operations that follow existing instrument flight rules procedures in the same airspace, shall be presumed to have no significant effect on the quality of the human environment and the Administrator shall issue and file a categorical exclusion for the new procedure.”

Summary

Based on FAA publications as well as discussions with the FAA, it is evident that more changes to flight procedures and flight paths will occur during the next 10 years. The District will continue to work with the FAA as “NextGen” is implemented. The FAA’s NextGen technology will benefit the travelling public through the improved technology, allowing aircraft to land at MRY that previously would have had to divert to another airport.

#