

Napa County Airport Flight Tracks

June 30, 2005

Introduction

Mead & Hunt was tasked with defining the commonly used flight tracks associated with operations at Napa County Airport for the Napa County Airport Land Use Commission. This project was intended to update and refine the flight track diagram previously prepared. Data for this task were developed based upon discussions with:

- Tom Shannon, Air Traffic Manager, Napa Airport Traffic Control Tower, Federal Aviation Administration
- Bob Berthold, JAL Chief Flight Instructor, IASCO
- Susan Chambers, Chief Flight Instructor, Bridgeford Flying Services
- Wayne Lackey, President, Wine County Helicopters
- Napa County Airport Advisory Commission
- Napa Area Pilots Association

Those interviewed were asked to define common flight tracks based upon their experience. In each case a scaled aerial photograph of the Napa County Airport environs was provided as an aid. In many cases those interviewed sketched the flight tracks on the drawing. Mr. Shannon, Air Traffic Manager was interviewed last. As the air traffic controllers now have radar displays in the tower, the opportunity was used to review the flight tracks suggested by others.

There are limitations in trying to map the "commonly used flight tracks" at the Napa County Airport. Essentially every area within three to five miles of the airport is overflown at some time, if only rarely. Some flight tracks are used with high frequency most days of the year. Other flight tracks are only used when crosswinds occur. Other tracks are only used by specific types of aircraft (e.g., helicopters). Given the anecdotal nature of the data, we have defined the common flight tracks in three ways:

- Depicted the centerline of the tracks
- Used shading to depict the broad area in which overflights will occur
- Prepared this textual description.

There are two changes to the airfield that may affect flight tracks. First, a glide slope antenna is planned to be installed that would permit precision approaches to Runway 36R. Secondly, Runway 18L-36R is planned to be extended to 4,000 feet. Those interviewed were asked to anticipate what effect these changes would have on common flight tracks.

The text that follows is intended to aid in the understanding and interpretation of the flight track graphic. Each segment of a standard flight track has a distinct name. In Figure 1 the names of each segment are presented. All references to "miles" are to nautical miles, the standard used in aviation. Nautical miles are larger than statute miles, having 6,076 feet rather than 5,280 feet.

Jets

The jet track for landings on Runway 18R is the track closest to the runway. Jets typically do not fly the downwind segment closer to the runway than shown. Smaller jets will follow downwind tracks that vary from this inner limit out to about 2 miles. During visual meteorological conditions, jets (particularly larger jets) may fly downwind tracks up to 5 miles from the airport. During the circle-to-land maneuver used under instrument meteorological conditions for landings on Runway 18R, large jets may be as much as 3 miles west of Runway 18R-26L. The base segment of the landing track for Runway 18R is the closest that jets typically make. Jets, particularly large jets, often make the turn from base to final up to five miles from the runway end.

Jets arriving from the southeast commonly overfly the airport while descending into a right downwind leg for landings on Runway 18R. Jets arriving from the northeast commonly make a base entry to Runway 18R. The turn from base to final typically occurs at least a couple of miles north of the airport.

IASCO/JAL

IASCO conducts a large pilot training program for Japan Airlines that is based at Napa County Airport. The flight tracks shown in Figure 2 are taken from the school's flight track diagram. However, based upon radar data, it appears that the downwind leg of the track for landings on Runway 18R (the most commonly used track) is typically flown closer to the runway than depicted on the school's flight track diagram. Nonetheless, this flight track is much wider than flown by other piston aircraft.

Runway 18R-36L Extension

The extension of Runway 18L-36R to 4,000 feet is expected to significantly increase use of this runway. Piston aircraft are expected to shift from the main runway (Runway 18R-36L) to this parallel runway for both training, and regular arrivals and departures.

It is anticipated that a substantial share of IASCO/JAL training will shift from the main runway to this parallel runway. This will have benefits for both their operations and those of other aircraft. IASCO/JAL operations on this runway can be conducted with less frequent need to coordinate with the operations of other aircraft. This will increase the number of landings and takeoffs that can be conducted per hour. Shifting IASCO/JAL operations to the parallel runway will also increase the ease with which other aircraft can be accommodated on the main runway.

ILS to Runway 36L

The near-term addition of a glide slope antenna will permit the development of a precision approach to Runway 36L. This will increase the safety and utility of instrument operations at Napa

County Airport. The effect on flight tracks will be minor because this runway already has a straight-in instrument approach.

Helicopters

There are three distinct types of helicopter operations at Napa County Airport:

- Charter
- Training
- California Highway Patrol

Charter helicopter operations include both sight-seeing trips and transportation to events (e.g., NASCAR races) and other airports (Oakland International Airport). These flights typically follow one of the four flight tracks shown.

Training activities are conducted in small loops centered on the 1,000-foot touchdown stripes on either Runway 24 or Runway 18R, depending upon wind conditions. These operations do not leave the airport.

California Highway Patrol operations can come from all directions. The only common track is for arrivals from the east. These flights commonly are flown parallel to Jameson Canyon Road (Highway 12).

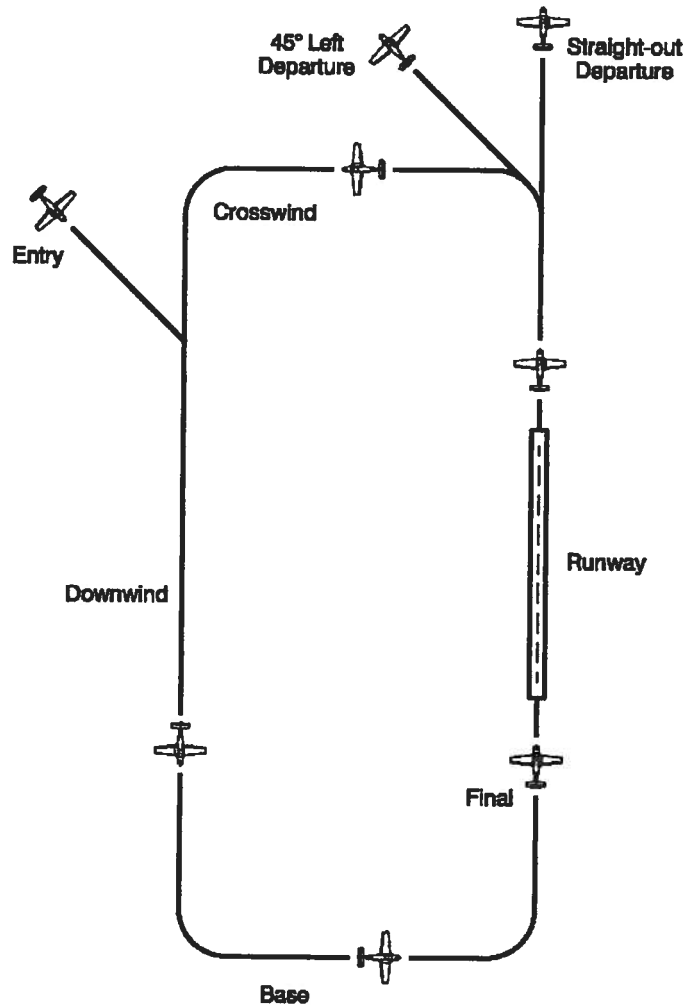
Runway 6-24

Runway 6-24 is the designated crosswind runway. It was designed to support landings and takeoffs when winds do not favor use of the runways with the 18-36 alignment. As hangars have developed on the south side of the airport, there has been a slight increase in the frequency of landing on Runway 6 and departures on Runway 24. Full development of the south side is anticipated to significantly increase requests for departures on Runway 24, and (to a lesser degree) landings on Runway 6. This pattern would reduce taxiing time to and from the south side hangar area. This will increase overflights west of the airport along the extended runway centerline.

Landings on Runway 24 are expected to remain infrequent, except when winds favor the use of this runway. Currently when the winds favor the main and parallel runways, aircraft landing on Runway 24 must land and hold short of the intersection with main runway. When the parallel runway is extended to 4,000 feet, aircraft landing on Runway 24 will then be required to land and hold short of this runway. As only about 3,200 feet will be available, this will not be an attractive option for many large aircraft.

Departures on Runway 6 are also expected to remain uncommon, except when winds dictate the use of this runway. When the main and parallel runways are active, using Runway 6 would require taxiing past both active runways. Departure would require crossing both runways again. The time delays involved would be expected to remove the potential reduction in taxi distance.

Figure 1.
Flight Track Terminology



Note: Recommended standard left-hand pattern is depicted.
Recommended standard right-hand pattern would be opposite.

Source: Mead & Hunt, Inc. (July 2005)