

Phoenix/Tempe Aviation History

- 1935 Phoenix purchased Sky Harbor, which consisted of a small building and three runways forming a triangle.
- 1952 Phoenix constructed Terminal 1 and a new runway capable of operating DC-3's, the most common carrier of the day. Phoenix resolved that flights should "avoid the City of Tempe."
- 1958 Phoenix Ordinance G-262 of June 10, 1958 amended the Phoenix City Code declaring air traffic patterns for the Phoenix Sky Harbor airport. Section 6 stated that the first turn for departures from Runways 8L and 8R shall be made more than 3,000 feet beyond the airport boundary, and that flight patterns in any event shall be flown to avoid the populated areas of the City of Tempe. This wording was changed a few months later by Phoenix Ordinance G-271 of September 30, 1958, declaring that the first turn south be made east of the Tempe Butte, and that PHX Tower approval was required prior to making turns to the north. It also stated that all flight patterns will be flown to avoid the City of Tempe.
- 1962 Terminal 2 was constructed and publicity stated that it would be adequate till the end of the century.
- 1969 Phoenix Ordinance G-969 of November 4<sup>th</sup> 1969 regulated activities at City of Phoenix airports. The Phoenix City Code did not include language specific to the Sky Harbor Air Traffic Pattern with its abatement measures over Tempe.
- 1970 Concerned citizens formed the Tempe Environmental Improvement Committee (TEIC). The group adopted Phoenix Sky Harbor noise and plans for expansion as an issue because of citizen complaints about the noise of commercial aircraft over-flights of their neighborhoods.
- 1971 On November 22 the City of Phoenix held a public hearing on a Master Plan for the development of Phoenix Sky Harbor Airport. The document contained an old topographical map of Tempe, which listed ASU as AZ State College. No hospitals, schools, or residential areas were noted, and the noise exposure contour maps did not show the impact of turns over Tempe. At the time ASU had more than 26,000 students, and the City of Tempe had more than 80,000 citizens. The public process resulted in negotiations between the City of Tempe, the City of Phoenix Aviation Department, the FAA, the Air Transport Association, and also Williams AFB in December.
- DOT/FAA issued a Draft Environmental Impact Statement dated December 27, 1971 that was based on the Phoenix Sky Harbor development plan.
- 1972 The City of Phoenix and the FAA met with Tempe and Tempe Environmental Improvement Committee. The topographic map presented in the Phoenix master plan was updated. C. E. Wallace Ph.D./ASU did a noise exposure forecast for Tempe.
- 1973 On March 28 Landrum & Brown presented at the Phoenix Sky Harbor Airport their Noise Impact Evaluation requested by Phoenix to update noise contour studies in the master plan. The evaluation was presented to Tempe at a public meeting in Tempe Council Chambers on April

- 19<sup>th</sup>. Tempe asked for a formal public hearing of the Landrum & Brown evaluation. A request was also made by the City of Scottsdale. The officially recommended “Noise Abatement and Operative Procedures” were approved and released by the Phoenix Aviation Director. In addition to other specifics, aircraft were directed to avoid developed residential areas both north and south of the river. In August 1973 the radarscope was monitored for deviations. Tempe learned that 2/3 of the east departures were deviations/not flying over the riverbed.
- 1974 In April 1974 the radio beacon procedure was proposed at a meeting held in Tempe. Meetings were held between Tempe, Tempe Environmental Improvement Committee and the City of Phoenix Aviation Department. The Rio Salado Radio Beacon was installed as a navigational aid to keep departing aircraft over the “river route”. Using the radio beacon, headings were established for the north and south runways. These headings were designed to keep planes flying over the riverbed corridor instead of over houses in Tempe. With the riverbed radio beacon and permanent FAA riverbed procedures, Tempe rescinded its request for a formal public hearing in a letter from the Mayor Dale R. Shumway dated June 10<sup>th</sup>, 1974. The Final Environmental Impact Statement for the Phoenix Sky Harbor International Airport Improvement Program was issued August 1974. Plans for expansion of the now north runway were subsequently approved.
- 1976 Phoenix Sky Harbor became the second Air National Guard station in the nation to have its C-97 tanker fleet replaced with KC-135s. The City of Tempe had supported this effort.
- 1978 The US airline industry was deregulated, after which the major air carriers developed systems of connecting hubs throughout the nation.
- 1979 Terminal 3 was constructed to accommodate additional flights including 727’s and 707’s. The Maricopa Association of Governments (MAG) completed the first Regional Aviation System Plan (RASP).
- 1980 Tempe City Council appointed the Tempe Aircraft Noise Abatement Committee (ANACOM) to make policy recommendations to Council on noise generated by Sky Harbor aircraft operations.
- 1981 Southwest Airlines initiated service at Sky Harbor.
- 1982 ANACOM submitted a report to Tempe City Council noting that noise would increase due to recent deregulation, deviations from flight patterns and expansion of the airport (including a third runway proposed in the PRC Speas Master Plan Update). The ANACOM report criticized the lack of FAA enforcement of the river route and recommended that Tempe oppose the expansion plans at Sky Harbor until Tempe’s problems and concerns were addressed.
- Citizens near the river formed an organization to support the City of Tempe in their attempts to address the noise from aircraft that stray from the river bottom. The group, DAWN (Diminish Aircraft Wayward Noise) collected and donated \$10,000 to the City to initiate legal remedies for the aircraft over-flights of neighborhoods.
- 1983 Phoenix City Council approved the Sky Harbor Master Plan. Phoenix committed in writing to Tempe that if a third runway was constructed, it would be used for general aviation only. Tempe

opposed the plan and approval by the Phoenix Sky Harbor Noise Abatement Committee of existing east departure patterns that did not avoid heavy residential areas in Tempe, contrary to procedures for arrivals and departures approved by the Phoenix Aviation Director in 1979, which the Committee determined was not followed by the airlines.

America West Airlines initiated service at Sky Harbor.

- 1985 Michael Brandman Associates, Inc. hired by Tempe in 1984, completed an Aircraft Noise Mitigation Study recommending that the City formally request modifications to the Sky Harbor flight paths and departure procedures to protect property in Tempe. Tempe hired Stewart Udall, who completed a study of political and legal remedies to end the noise mitigation impasse at Sky Harbor. Tempe also hired Jay Dushoff. Dushoff worked with Stewart Udall to develop a platform for entering into negotiations with the FAA and the airport over noise mitigation measures at Sky Harbor, and joint sponsoring with the City of Phoenix of a federally funded FAR Part 150 Noise Compatibility Study for the airport.
- 1986 MAG updated the RASP with forecasts to 2005. Phoenix committed in writing to Tempe that flight departures would be distributed equally over Tempe and Phoenix, and that the existing flight paths would be altered to protect Tempe.

Phoenix Sky Harbor, the FAA, and other stakeholders worked together to change the Williams Air Force Base Military Operating Area so that, among other benefits, planes departing Phoenix Sky Harbor could fly further east before initiating their north or south turns. The 1 DME procedure was established.

- 1987 The AZ Department of Transportation (ADOT) completed a preliminary study of 12 potential sites for a Metropolitan Regional Jetport. ADOT concluded that Coolidge and Casa Grande appeared to be the most promising locations. The Gila River Indian Community was not included in the study.
- 1989 Phoenix completed the Sky Harbor Master Plan predicting that annual operations (landing and take offs) would increase from 416,415 to 567,934 by 2007 and that the total number of passengers would increase from 15 million to 40 million in the same time period. The report predicted an increase in average delays from 1.5 minutes to 7.3 minutes per operation unless a third runway was constructed. Eliot R. Cutler was hired to prepare the City's response the EIS for the approved Sky Harbor Master Plan.

The "Apogee Report" on facts and laws affecting critical airport capacity decisions prepared for the City of Tempe, stated that a third parallel runway at Sky Harbor would not provide a long-term solution to the airport's capacity problem.

- 1990 A Noise Compatibility Program (NCP) was approved by the FAA on April 2.

A State Aviation Needs Study (SANS) estimated that a third runway would be sufficient at Sky Harbor until 2007. By the year 2040, however, annual demand would exceed capacity by 840,000 operations and a regional airport could begin in the 2001 – 2008 time period.

America West Airlines, Southwest Airlines, Phoenix Tower and Phoenix TRACON signed a letter of agreement for the 1 DME procedure (later redefined as the 4 DME procedure after the VOTAC was moved) with the expectation that this procedure would become an FAA approved Standard Instrument Departure (SID) for all aircraft departing Sky Harbor to the east.

Phoenix completed construction of and put into service the Terminal 4 building.

- 1991 Tempe submitted extensive critical comments on the Draft Environmental Impact Statement (DEIS) for a third runway at Sky Harbor. The City of Tempe subsequently filed suit against the FAA and the EPA, in part alleging violations of the Clean Air Act. The suit was mediated, though not decided, by the 9<sup>th</sup> Circuit Court of Appeals.

AWA filed for Chapter 11 bankruptcy protection, emerging in 1994.

- 1992 The Governor's Regional Airport Advisory Committee and ADOT completed the Arizona Regional Airport Feasibility Assessment Study recommending that the State support a regional airport as a supplement to a 3-runway Sky Harbor to attract intercontinental carriers and promote integrated economic development in Arizona.

Sky Harbor Terminal 1 was demolished.

At the request of the Phoenix Aviation Director, Tempe agreed to modification of the 4-DME procedure to allow a change from 80 degrees to 85 degrees when departing runway 8L.

- 1993 MAG updated the RASP recommending that a third runway be constructed at Sky Harbor, that Williams Gateway be developed as a reliever airport and that runway extensions be made at several general aviation airports, which would be adequate for commercial air service to the year 2015.
- 1994 Tempe filed two law suits in the 9<sup>th</sup> Circuit Court of Appeals, one against the FAA (Docket No. 94-70030) and one against the Environmental Protection Agency (Docket No. 94-1063) in opposition to construction of a third runway. These suits were later dismissed pursuant to the adoption of an Intergovernmental Agreement on Noise Mitigation Flight Procedures (IGA) between the City of Tempe and the City of Phoenix and a modification of The Record of Decision (ROD) by the FAA.

FAA amended the ROD as signed by the Acting Regional Administrator Mr. Larry Andriesen. The modified ROD was submitted to the City of Tempe under a letter signed by D. B. Kessler.

AWA emerged from Chapter 11 Bankruptcy proceedings.

- 1995 The City of Tempe, by Ordinance No. 95.15, created a Tempe Aviation Commission (TAVCO) with the responsibility to, among other things, assist and advise the Mayor and City Council and City Departments regarding the impact of aircraft noise on the citizens of Tempe. TAVCO replaced ANACOM.

1999 In a vote in May the Mesa voters rejected the Rio Salado Crossing Proposal for the location of a new Cardinals' multi-purpose facility (football stadium).

In November the Governor appointed "Plan B" Task Force to develop a plan for a new stadium site.

TAVCO got Council approval for conducting a study of public perception of aircraft noise in Tempe. Dr. Bruce Merrill concluded based on study data collected in November and December 1999, that aircraft noise was primarily a problem north of Apache Boulevard.

An update of the Maricopa Association of Governments (MAG) Regional Aviation System Plan (RASP) was initiated.

2000 The City of Tempe responded to draft updates to the Phoenix Sky Harbor International Airport FAR Part 150 Noise Compatibility Study prepared by Coffman Associates. The City explained why a proposed recommendation to amend mixed use land designations inside the Rio Salado redevelopment area to exclude residential would be problematic to implement in view of existing plans.

Update Plan B Task Force crafted recommendations for the general framework of SB1200/ Proposition 302 for definition and funding of a new Cardinals' football stadium. Proposition 302 was approved by a Maricopa County vote in November.

Coffman Associates completed a FAR Part 150 Noise Compatibility Study for Sky Harbor. This report presented noise contour maps for a 3-runway airport and recommended strategies for reducing the impact of airport noise by means of flight procedures, run-up prohibitions, soundproofing of homes, controlling adjacent land use, and other measures.

In October the third runway opened.

2001 Dr. Bruce Merrill presented the results of a study covering the public perception of aircraft noise in Tempe between 1999 and 2000 to TAVCO. The study indicated that the public is generally more aware of the problem and that the problem is getting worse in all areas surveyed. Study data were collected from November and December 2000.

In a special meeting with the City Council, TAVCO submitted a resolution concerning the lack of good faith by Phoenix to honor commitments made to Tempe in the 1994 IGA. The resolution recommended Tempe consider the feasibility of a return to the Courts for relief.

Tempe petitioned the U.S. District Court for the District of Columbia to review actions taken by the FAA in incorporating changes to the departure procedures including those in the NW 2000 Plan (Case # 011479).

The Arizona Tourism and Sports Authority (TSA) selected the Tempe site for the location of the new Cardinals' stadium consisting of 68 acres bounded by Priest Drive, Washington Street, Center Parkway and Loop 202.

The Tourism and Sports Authority submitted stadium plans to the FAA resulting in a determination of Hazard to Air Navigation by the FAA Western Pacific Regional Office. The determination was contested and the US Department of Transportation reviewed the determination. In an August 16, 2002 letter from Sabra Kaulia (USDOT) to Barbara Lichman (Tempe) the determination of Hazard was upheld.

TAVCO recommended that Tempe City Council join with Phoenix and the Air National Guard to support retrofit/ make upgrades to the 161 Air Refueling Wing tanker fleet to become quieter.

- 2002 Tempe petitioned the U.S. District Court for the District of Columbia to enjoin the FAA from funding and the City of Phoenix from proceeding with the reconstruction of the center runway, alleging Clean Air Act violations, Civil Action No.02-2029 (EGS). Tempe's request for injunction was denied.
- 2003 A new site for the construction of the Cardinals' stadium was selected in Glendale, AZ.
- 2004 The Tempe City Council agreed to settle case # 011479 (departure procedures) for the consideration that FAA would notify Tempe and the Phoenix Airspace Users Working Group (PAUWG) of their intentions to change flight procedures.
- 2005 The newly established Governor's Advisory Council on Aviation held its first meeting January 31, 2005. The Governor's Executive Order 2004-22 charged the commission with studying important aviation issues within the state including the following areas of interest:
- Air space and airport capacity
  - Land use compatibility
  - Funding
  - Current aviation needs
  - Future aviation needs

TAVCO enquired into the possibility of having the City of Tempe added to the Council's stakeholder list. Because the list was carried over from the previous Council established by Governor Hull January 30, 2002, ADOT did not consider adding any new stakeholders to the list when the new Council was established by Governor Napolitano in 2004.

In April the Air National Guard completed conversion of the tanker fleet, and became operational with the KC-135R military tanker model, which is in compliance with the civil aircraft Stage 3 noise standard.

- 2006 The Governor's Advisory Council on Aviation delivered a preliminary report dated January 31, 2006, that included the status reports from committees that worked on land use compatibility, aviation capacity, and minutes from meetings held by the Council in 2005.

TAVCO recommended 6 aviation issues for Council consideration:

- Set up a non-airport linked noise monitoring system
- Make a policy statement on further runway expansions at Sky Harbor
- Explore ways to get the FAR Part 150 NCP for Sky Harbor expanded to include all significantly impacted neighborhoods irrespective of housing type
- Investigate the side-step suspension and possible damages suffered by residents because of the suspension, and because of departures over populated areas on both sides of the Salt River riverbed
- Promote a state wide aviation plan
- Evaluate existing noise mitigation flight procedures in Tempe and identify new issues that can be agreed upon with the City of Phoenix

The Maricopa Association of Government (MAG) accepts a Regional Aviation System Plan (RASP) Policy Committee recommendation of a selected long range airport development alternative for further detailed airspace analysis. Tempe's reservations from supporting the preferred alternative proposed by the MAG RASP Technical Advisory Committee were expressed in a committee minority report.

- 2007 The Governor's Advisory Council on Aviation delivered a final report dated January 31, 2007, recommending legislation to protect airports against encroachment by new non-compatible developments near airports, and encouraging the state legislature to increase funding to airport development. The report listed 24 airport development projects in the state, among others a new 4<sup>th</sup> runway at Sky Harbor that was part of the Maricopa Association of Governments (MAG) Regional Aviation System Plan (RASP) maximized airport development alternative for the 2005-2025 planning period. The MAG Policy Committee did not support alternatives presented in the RASP update, including the proposed maximized airport development alternative. The need for an airspace study to determine feasibility of implementing the maximized alternative for the evaluated airports, and with regard to Sky Harbor, the potential negative impacts the alternative would have on Luke AFB operations were raised by Committee members.
- 2008 The City of Phoenix entered into a new contract with ERA Beyond Radar to host and maintain the web based Noise & Flight Track Monitoring System (NFTMS) for the Phoenix Sky Harbor International Airport, which included replacing hardware and wiring at all 21 Noise Monitoring Sites (NMS's). Upon recommendation from TAVCO to have the City do independent noise monitoring, Tempe hired QED to do a noise study based on data collected at sites located within its borders.
- 2009 The QED aircraft noise impact evaluation was completed and presented to TAVCO. TAVCO wrote a letter to the Tempe Mayor and Council supporting some recommendations of the report regarding the relocation of some of the fixed monitoring sites of the Sky Harbor Noise and Flight Track Monitoring System (NFTMS). TAVCO also objected to the fact that the QED report confused the NFTMS departure compliance measure, the Tempe "corridor" and the Phoenix "gate". TAVCO asserted that the Phoenix "gate" concept is an inadequate measure to enforce noise mitigation agreed upon in the Intergovernmental Agreement (IGA) between Phoenix and Tempe, mitigation flight procedures the FAA has assured to uphold.

During the summer months, the City of Phoenix replaced the noise monitoring equipment at 21 NFTMS noise-monitoring sites.

TAVCO recommended that the City of Tempe start monthly discussions with the City of Phoenix to develop and enhance low flow channels and other appropriate measures for diversion of water from the west end of the Town Lake dam to the west border of Tempe

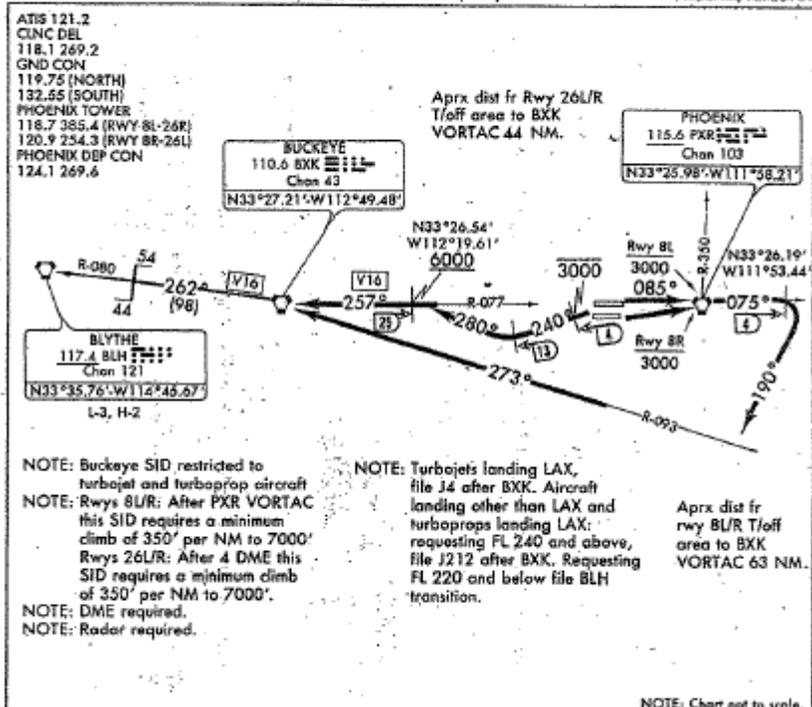
- 2010 Upon recommendations from the Tempe Aviation Commission, the Tempe City Council adopted Ordinance No. 2010.36, 11-4-10, reducing the membership of the Commission from 13 to 11, and expanding the powers and duties of the Commission from the impact of aircraft noise on Tempe residents to (all) impacts of aircraft and airport operations on Tempe residents.
- 2012 The Tempe Aviation Commission makes a recommendation to the Tempe Transportation Council Committee that Tempe consider membership in the National Organization to Insure a Sound Controlled Environment (N.O.I.S.E).
- 2013 A web based survey developed by the Tempe Aviation Commission show that aircraft noise continues to be a problem for Tempe residents. The growing dominance of larger airlines in a receding economy have reduced the total number of take offs and landings at the Phoenix Sky Harbor International Airport. Resident in north Tempe appears to be more bothered by westbound arrival operations than eastbound departure operations, and in south Tempe residents are troubled by an increase in the number of arrival operations. Survey responses also pointed to helicopters and military jets as significant contributors to the aircraft noise problem in Tempe.

Landrum & Brown presents drafted noise exposure contour maps for 2013 and a forecast for 2018 for the Phoenix Sky Harbor International Airport in public meetings in Tempe and Phoenix.

Attachments: 1973 Phoenix Sky Harbor Noise Mitigation Flight Procedure Map,  
Jeppesen: Buckeye 2 and Drake August 2000 Standard Instrument Departure Procedures



(PILOT NAV) (BXX2.BXX) 99140 380  
**BUCKEYE TWO DEPARTURE** SL-322 (FAA) PHOENIX SKY HARBOR INTL (PHX)  
 PHOENIX, ARIZONA



**DEPARTURE ROUTE DESCRIPTION**

**TAKE-OFF RUNWAY 8L:** Fly heading 085° to intercept PXR-075, cross PXR R-350 at or below 3,000'. At 4 DME east of PXR VORTAC, turn right heading 190° to intercept BXX R-093 to BXX. Thence...

**TAKE-OFF RUNWAY 8R:** Fly direct PXR VORTAC, cross PXR at or below 3,000'. Proceed via PXR R-075 to 4 DME east, turn right heading 190° to intercept BXX R-093 to BXX. Thence...

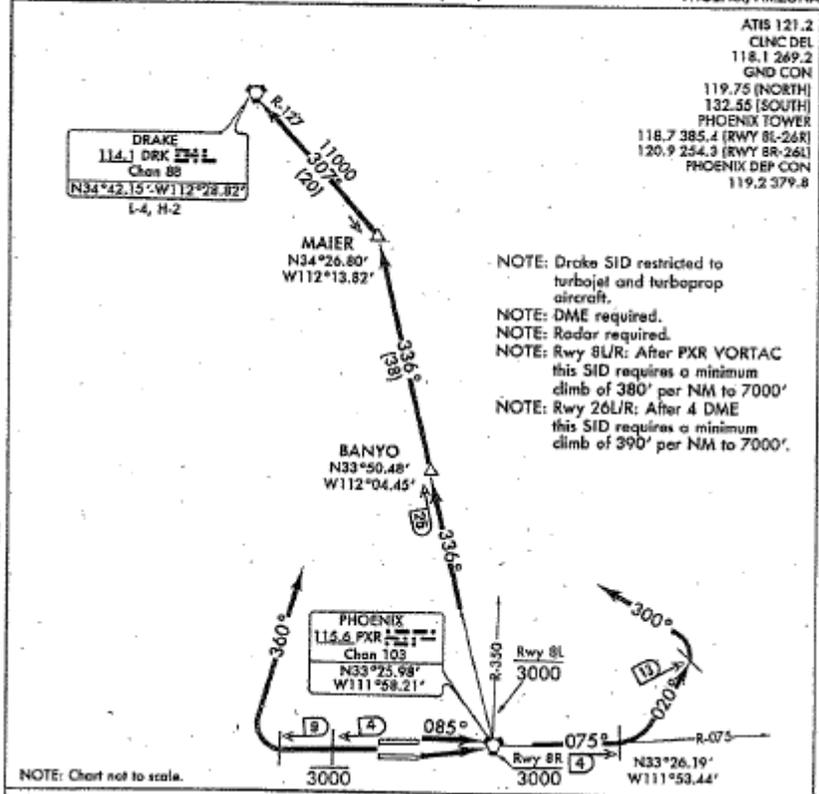
**TAKE-OFF RUNWAYS 26L/R:** Fly heading 240° or heading assigned by ATC. Cross 4 DME west of PXR VORTAC at or below 3,000'. At 13 DME west of PXR VORTAC turn right heading 280° to intercept BXX R-077 to BXX VORTAC, cross 25 DME east of BXX VORTAC at or above 6,000'. Thence...  
 ... via (transition) or (assigned route).

**LOSS COMMUNICATIONS:** Expect filed altitude 3 minutes after departure.

**BLTYHE TRANSITION (BXX2.BLH):** From over BXX VORTAC via BXX R-262 and BLH R-080 to BLH VORTAC.

BUCKEYE TWO DEPARTURE

(PILOT NAV) (DRK6.DRK) 00223 381  
**DRAKE SIX DEPARTURE** SL-322 (FAA) PHOENIX SKY HARBOR INTL (PHX)  
 PHOENIX, ARIZONA



**DEPARTURE ROUTE DESCRIPTION**

**TAKE-OFF RUNWAY 8L:** Climb via heading 085° to intercept and proceed via PXR R-075, cross PXR R-350 at or below 3000'. At 4 DME east of PXR VORTAC, turn left heading 020°, at 13 DME turn left heading 300° to intercept PXR R-336 to MAIER INT. Then via DRK R-127 to DRK VORTAC. Expect filed altitude 3 minutes after departure.

**TAKE-OFF RUNWAY 8R:** Proceed direct to PXR VORTAC, thence via PXR R-075, cross PXR VORTAC at or below 3000'. At 4 DME east of PXR VORTAC turn left heading 020°, at 13 DME turn left heading 300° to intercept PXR R-336 to MAIER INT. Then via DRK R-127 to DRK VORTAC. Expect filed altitude 3 minutes after departure.

**TAKE-OFF RUNWAY 26L/R:** Climb via runway heading or via heading assigned by ATC. Cross 4 DME west of PXR VORTAC at or below 3000'. At 9 DME west of PXR VORTAC, turn right heading 360° to intercept PXR R-336 to MAIER INT. Then via DRK R-127 to DRK VORTAC. Expect filed altitude 3 minutes after departure.

DRAKE SIX DEPARTURE

(PILOT NAV) (DRK6.DRK) 00223

PHOENIX, ARIZONA  
 PHOENIX SKY HARBOR INTL (PHX)