

may require a separate Environmental Assessment.

Implementation Factors. The agency responsible for implementing the noise abatement procedure is identified. Any difficulties in implementing the procedure are discussed. This is based on the extent to which it departs from accepted standard operating procedures; the need for changes in FAA procedures, regulations, or criteria; the need for changes in airport administrative procedures; and the likelihood of community acceptance.

Upon completion of a review of each measure based on the above criteria, an assessment of the feasibility of each measure and the strategies required for its implementation are presented. At the end of the section, a summary comparison of the noise impacts of each alternative is presented. Recommendations as to alternatives which deserve additional consideration are presented.

ALTERNATIVE 1 - EVALUATE PREFERENTIAL RUNWAY USE FOR NOISE ABATEMENT

Goals

This alternative seeks to test the effectiveness of the airport's current preferential runway use program. This program currently operates with 82 percent of aircraft operations departing to the south and 18 percent departing to the north. This alternative would seek to test the effectiveness of implementing a rotational runway use program with 60 percent of aircraft departures operating to the south and 40 percent operating to the north.

Procedure

Based on an analysis of annual wind data, aircraft operating to/from RNO would be able to depart to the south and approach from the north 60 percent of the time. In turn, 40 percent of departures to the north and approaches from the south would take place. This is an adjustment from the current runway use split with 82 percent of aircraft departing to the south and 18 percent departing to the north.

For noise modeling purposes, the 2005 baseline input was modified to reflect the runway use percentages listed in **Table 5C**.

Noise Effects

The noise contours presented in **Exhibit 5G** illustrate the effects of this procedure. South of the airport, the 65, 70, and 75 DNL noise contours all decrease relative to the 2005 baseline contours. To the north, the 65 DNL noise contour bows to the northwest reflecting aircraft following the northern leg of the Reno Two departure procedure.

Table 5D presents the population impacts for this alternative. This alternative impacts an additional 1,572 people above the baseline condition. Additional homes are brought into noise levels at or above the 65 DNL north of the airport, particularly areas of dense multi-family residential located north of Oddie Boulevard. This does not surpass the number of homes removed from noise levels above 65 DNL south of the airport. The level-weighted population (LWP), an estimate of the number of people actually annoyed by noise,

increases from 10,676 to 11,160, a net change of 484 with the implementation

of a 60/40 rotational runway use program.

TABLE 5C Average Annual Runway Use By Aircraft Class Reno/Tahoe International Airport						
Aircraft Type	Runway Use Percentage					
	16R	34L	16L	34R	07	25
Current Preferential Runway Use						
Air Carrier	74.6	16.4	7.4	1.6	0.0	0.0
Commuter	72.2	15.8	9.8	2.2	0.0	0.0
G.A. Turbojet	45.1	9.9	36.9	8.1	0.0	0.0
G.A. Piston	26.5	5.8	51.4	11.3	0.0	5.0
Military Turbo-prop	70.9	15.6	7.0	1.5	0.0	5.0
Military Jet	74.6	16.4	7.4	1.6	0.0	0.0
Helicopter	27.8	6.1	54.1	11.8	0.0	0.0
Rotational Runway Use (60 - 40 split)						
Air Carrier	54.6	36.4	5.4	3.6	0.0	0.0
Commuter	52.8	35.1	7.2	4.9	0.0	0.0
G.A. Turbojet	33.0	22.0	27.0	18.0	0.0	0.0
G.A. Piston	19.4	12.9	37.6	25.1	0.0	5.0
Military Turbo-prop	51.9	34.7	5.1	3.3	0.0	5.0
Military Jet	54.6	36.4	5.4	3.6	0.0	0.0
Helicopter	20.4	13.6	39.6	26.4	0.0	0.0

TABLE 5D
Population Impacted by Noise
Alternative 1 - Evaluate Rotational Runway Use For Noise Abatement

DNL Range	2005 Baseline	Alternative 1	Net Change
Existing Population			
65-70	9,587	11,238	1,651
70-75	5,431	5,520	89
75+	0	0	0
Subtotal	15,018	16,758	1,740
Potential Population¹			
65-70	5,075	5,327	252
70-75	2,379	2,007	-372
75+	133	84	-49
Subtotal	7,587	7,419	-168
Total	22,605	24,177	1,572
LWP	10,676	11,160	484
Noise-Sensitive Institutions			
Places of Worship	5	6	1
Schools	4	4	0
Other (Libraries, Museums, Community Centers, Hospitals, Nursing Homes)	4	4	0
Total Noise-Sensitive Institutions	13	14	1
Total Historic Resources	1	1	0

Notes: 1. Based on additional potential new dwelling units in 2005 reflecting current land use plans and zoning.
2. Due to the process of rounding, some numbers may not add exactly.

* LWP – level-weighted population – is an estimate of the number of people actually annoyed by aircraft noise. It is computed by multiplying the population in each DNL range by the appropriate LWP response factor: 60-65 DNL = .205; 65-70 DNL = 0.376; 70-75DNL = 0.644; 75+ DNL = 1.000. See the **Technical Information Paper, *Measuring the Impact of Noise on People***, at the back of the *Noise Exposure Maps* document.

A breakdown of the increase or decrease in population from the 2005 baseline and Alternative 1 noise contours is presented in **Table 5E**. Alternative 1 presents a much higher impact on the existing population than on the future potential population. Approximately 1,740 people have more noise during the existing land use conditions with the use of this alternative. Given the

potential for future development, the implementation of Alternative 1 would impact a total of 168 fewer individuals than the 2005 baseline operations. This is because much of the area that could be developed with noise-sensitive land uses is located in areas impacted by the 2005 baseline noise contours south of the airport.

2004 vs. Alt. 1	65-70	70-75	75+	Net Impact
Existing Land Use	1,651	89	0	1,740
Future Potential Land Use	252	-372	-49	-168
Totals	1,903	-283	-49	1,572

A grid point analysis was performed to provide a direct comparison of the predicted average daily DNL values for Alternative 1 and the 2005 baseline. In addition, this analysis provides predicted DNL noise exposure levels for areas outside the 65 DNL noise contour. As seen on **Table 5F** and **Exhibit 5G**, grid points 1, 2, 3, 4, 10, 16, 18, and 19

located north of the airport all indicate increases in aircraft noise of 0.1 to 2.4 DNL. Grid points located south of the airport (5, 6, 7, 8, 9, 11, 12, 13, 14, 15, and 17) all indicate decreases of between 0.2 and 1.0 DNL. The grid point locations in and around the study area are depicted on **Exhibit 5G**.

TABLE 5F
Grid Point Comparison
Alternative 1

Grid Point	2005 NOISE LEVELS (DNL)		Difference
	2005 Baseline	Alternative 1	
1	63.9	66.3	+2.4
2	48.1	50.5	+2.4
3	67.9	68.7	+0.8
4	69.7	71.2	+1.5
5	65.9	65.0	-0.4
6	71.6	70.9	-0.7
7	66.0	65.7	-0.3
8	60.2	59.6	-0.6
9	64.0	63.0	-1.0
10	57.2	59.2	+2.0
11	50.3	49.3	-1.0
12	59.5	58.7	-0.8
13	52.3	51.6	-0.7
14	60.9	60.2	-0.7
15	52.8	52.1	-0.7
16	65.0	65.2	+0.2
17	62.7	62.5	-0.2
18	52.5	53.8	+1.3
19	50.6	50.7	+0.1

Source: Brown-Buntin Associates, Inc.

Operational Issues

Pilots have the ultimate decision of which direction to approach or depart an airport. At times, pilots with southern destinations will request to depart south even when the airport is in a northern flow. Pilots deciding to use a runway that is not being utilized by the rotational runway program may incur significant delays awaiting the runway of their choice due to traffic separation. Pilots conforming to the directional flow may incur increased flight times and operational costs since they are departing or arriving to a

runway that is the opposite of their direction of travel.

Air Service Factors

Some delays are anticipated for some aircraft as they circle to use the runway in conformance with the program.

Costs

A slight increase in taxi and flight times may occur as aircraft would occasionally be directed to a runway opposite their

destination/point of origin and/or a runway further from their assigned gate. There would be no other costs to the airport, FAA, or other airport users.

Environmental Issues

Since this alternative exposes residential areas to new and/or increased levels of aircraft noise, a preliminary environmental review will be required prior to implementation. Based on the results of the preliminary environmental review, the FAA will determine the level of environmental analysis needed pursuant to the National Environmental Policy Act of 1969 and its implementing regulations.

Implementation

This procedure would primarily be implemented by ATC. A Tower Order would describe the rotational runway use program and the runway assignments to be issued by controllers. Information regarding the procedure could also be published in a Notice to Airmen (NOTAM).

Implementation of noise abatement measures are subject to additional operational, feasibility, and environmental review by the FAA.

Conclusion

This procedure places a large number of additional individuals within the aircraft noise contours when compared to the existing runway use policy. Although this alternative reduces the number of people impacted by noise south of the airport, this is done at the

expense of exposing a large number of additional individuals to aircraft noise above 65 DNL north of the airport. It is the policy of the FAA not to approve alternatives that either shift noise from one group to another or impact additional individuals. These impacts would have to be mitigated in order to implement this alternative. Continued use of the airport's current runway use scenario appears to be a better alternative.

ALTERNATIVE 2 - ANALYZE TAHOE ONE NOISE ABATEMENT TURN FOR EFFECTIVENESS

Goals

The Tahoe One noise abatement turn was established to direct aircraft departing from Runways 16L/R over the Interstate Highway 395 corridor. This route is designed to avoid sending departing aircraft directly over noise-sensitive areas located south of the airport.

A test of the Tahoe One departure procedure raised concerns from residents to the southeast. Discussion with the Air Traffic Control Tower and a review of flight track data from the test period indicated that aircraft using the Tahoe One procedure were being released prior to completing the entire Tahoe One route. These aircraft were being released from the procedure because they had reached the MVA and were therefore allowed to turn to their on-course heading.

As a means to avoid these overflights, aircraft should be required to continue on the Tahoe One departure procedure until reaching at least 12.5 DME from