Final Abatement Alternatives Evaluation

Introduction

Based on comments received subsequent to the last Advisory Committee meeting, the various alternatives potentially available for noise abatement presented at that Advisory Committee meeting have been refined. The Federal Aviation Administration discussed several options that they felt could be implemented which might mitigate the impacts of aircraft noise on surrounding persons. Several options were removed form consideration because they were not capable of implementation. In addition, they reviewed the recommended Alternatives and determined that one of the Alternatives, *Alternative 6—Noise Abatement Procedures (Flight Tracks, North)* was not an Alternative that they could provide "informal agreement" on as required by FAR Part 150. As such, they recommended that we not model that Alternative. Informal agreement on flight track or procedure changes is required by FAR Part 150 prior to submittal of the document to the FAA for acceptance and approval. Alternative 6 was intended to evaluate a new north departure track that would generally be a 010-degree departure route over Cherry Creek State Park. They did recognize the void of departures over the east side of Cherry Creek State Park and stated that this was due to the layout of the metro area airport system. They concluded that Alternative 6 would conflict with other airports flight corridors too often to comfortably consider it to fill in this sector.

In addition, the FAA also requested that we evaluate two additional Alternatives, Alternative 9 and Alternative 10. Alternative 9 would consist of modeling all departing jets remaining on runway heading until reaching 8,000 feet AMSL or higher. Alternative 10 would consist of placing eighty percent of south and southeast jet arrivals on a twenty mile final when landing north and on an extended twenty-one mile downwind when landing south.

Subsequent to receiving the letter from the FAA, and after discussion with airport Staff and Management, it was decided that there was value in modeling Alternative 6 to identify what the potential noise reduction would be. If there were the potential for significant noise reduction to residences, then discussions with the FAA would continue to investigate implementation options. Therefore, Alternative 6 is modeled and presented in the following discussion.

The following discussion presents the evaluation of each of the Alternatives as they were modeled. The modeled Alternatives are compared for land use types and numbers of persons, and evaluated against the future Base Case contour. After much discussion by the Committee and the Consultants, it was determined that the noise contours associated with aircraft operations as presented in Scenario 1 be used to determine future noise levels and would be used to generate contours associated with each Alternative. Scenario 1 presented the future aircraft operations based on the Federal Aviation Administration approved Terminal Area Forecasts (TAF) indicating an increase is business jet activity. The mix of Stage 2 and Stage 3 aircraft remains the same as with existing conditions, approximately 17% Stage 2 (7,140 ops) and approximately 83% Stage 3 (34,860 ops). The percentage of operations in the nighttime hours is also assumed to remain the same as with existing conditions, along with the Stage 2 and Stage 3 use at night.

Alternative 1-Total Restriction on Stage 2 Operations.

This Alternative modeled the future operations at the airport with a restriction ***on all Stage 2 aircraft.*** It assumes that all Stage 2 aircraft, except those exempt such as military, emergency flights and state and Federal government aircraft would be prohibited from using the airport. It assumes the same number of business jet operations as the future Base Case forecast; however, all Stage 2 jets have been replaced by Stage 3 jets. All are under 75,000 pounds in weight. As stated earlier, to implement such a restriction, an FAR Part 161 Study would have to be prepared. This Alternative was modeled and shown on Figure F1, entitled *ALTERNATIVE ONE, TOTAL RESTRICTION ON STAGE 2 OPERATIONS.* As can be seen, the noise contours are significantly smaller than the Base Case contours presented in Scenario 4, as they would be with any of the future Scenarios.

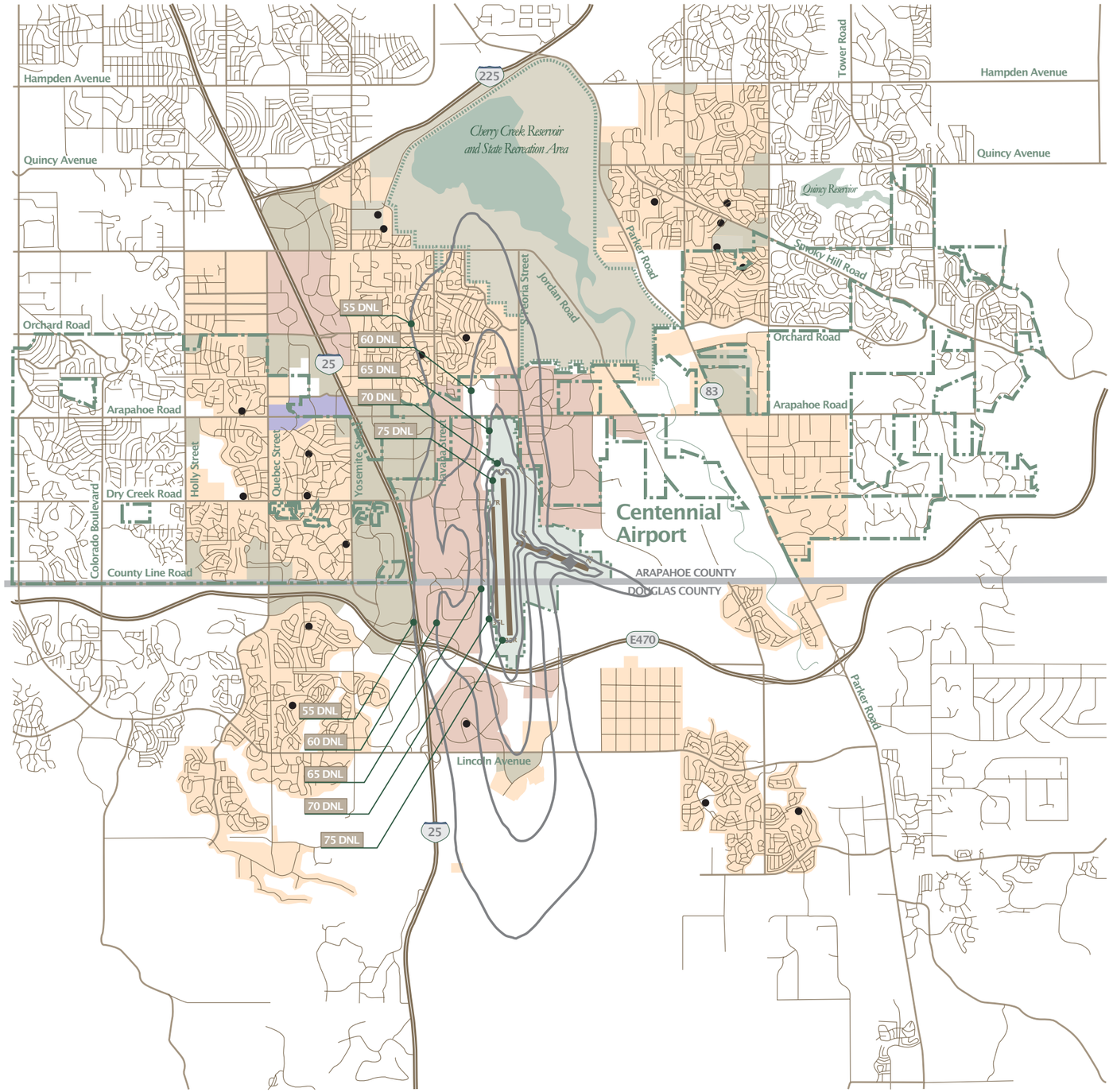

Figure F1 ***Alternative One, Total Restriction on Stage 2 Operations with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: Base Map, Land Use, Aerial Information 2000. Airport Information 1998. Noise Contours, BCS International Noise Analysis - 2000.

Alternative 2-Nighttime Restriction on Stage 2 Operations.

This Alternative is a derivative of the previous Alternative. Instead of a total ban on Stage 2 aircraft, this Alternative would entail ***a nighttime restriction on Stage 2 operations***. This Alternative pertains to the nighttime hours (10 pm to 7 am) and would restrict the use of the airport during this time period to Stage 3 aircraft only. The restriction would also require the preparation of an FAR Part 161 Study. As with the previous Alternative, the same number of business jet operations would occur, except that all operations occurring during the nighttime hours would be Stage 3 aircraft. As this is just a partial curfew, it maybe easier to implement than a total ban of Stage 2 aircraft. A partial curfew may not generate the same conflicts as a total ban on Stage 2 aircraft and may result in a better cost/benefit analysis. This Alternative was modeled and is shown on Figure F2, entitled *ALTERNATIVE TWO, NIGHTTIME BAN OF STAGE 2 AIRCRAFT.* As can be seen, the noise contours are smaller than the Base Case contours presented in Scenario 1, as they would be with any of the future Scenarios.

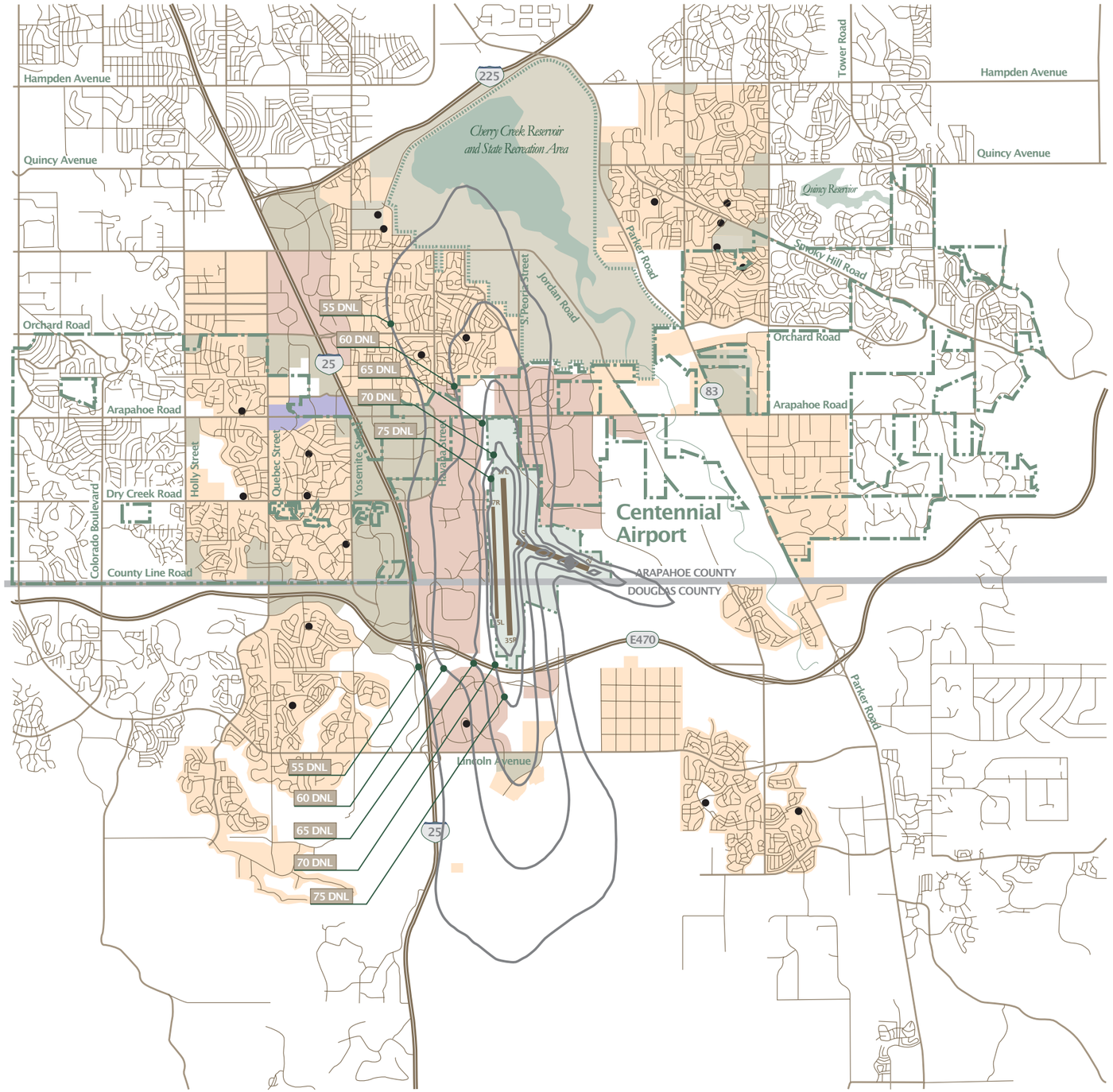

Figure F2 ***Alternative Two, Nighttime Ban on Stage 2 Aircraft with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: *Base Map, Land Use, Aviation Information 2001. Noise Contours, BCS International Noise Analysis - 2000.*

Alternative 3-Fly Quiet Noise and Compliance Monitoring Program

This Alternative is to initiate a number of programs to measure the noise levels and compliance with the noise abatement programs that are being developed at the airport. The FAR 150 study along with efforts by the Airport and the FAA include a number of programs that are designed to minimize noise levels in the communities surrounding the airport. This includes programs such as runway use and flight tracks. Given the complexity of these programs and the varying conditions under which they are utilized, it is difficult to determine if these measures are effective and are actually being implemented to the maximum extend that is feasible. Such a program is commonly referred to as a Fly Quiet Program.

The Fly Quiet Program is a family of programs encouraging pilots to operate aircraft as quietly as possible for people living around a airport. As a voluntary program, Fly Quiet has the advantage of reinforcing desirable flight procedures without going through the time consuming regulatory requirement of FAR Part 161 filing process. The Fly Quiet program is most successful when coupled with on-site noise monitoring of some type. A Fly Quiet Program has the potential of reducing single event noise levels and encouraging greater compliance with preferential flight corridors and procedures. The program could potentially result in continued overall reductions in cumulative noise levels for areas around the airport. Identification of how individual aircraft operate at specific locations compared to the way the majority of aircraft operate, can help encourage the noisier operations to lower noise levels and /or adhere to established flight tracks. Potential elements of a Fly Quiet Program could include;

- Noise abatement flight compliance
- Tracking adherence to noise abatement departure climb profiles
- Late night departure procedures
- Analysis of noisiest single event flights/aircraft

Many of these Fly Quiet Program elements will have to be refined as the Noise Compatibility Program is finalized. In addition, this type of program is most effective with a permanent noise monitoring system and at a scheduled service airport. However, the program can be successful at a general aviation airport with seasonal noise monitoring.

This alternative also includes seasonal on-site noise monitoring. The only noise monitoring that has been conducted at the airport was done in conjunction with this FAR Part 150 Study, which was conducted over a relatively short period of time. The intent of this recommendation is to perform on-site noise monitoring at the same or similar locations as were used during this Study. The monitoring would be used to help verify adherence to the flight track recommendation for the airport, would determine the success of implemented noise abatement programs and would build a data base for future updates of the FAR Part 150 Study.
It could also be used to identify aircraft that consistently operate in a manner not consistent with other aircraft that may be a significant irritant to the community. Aircraft tend to perform differently at higher altitude airports during different seasons due to the elevation of the airport and the temperature changes associated with seasonal changes. Noise monitoring would identify and verify any such performance differences and aid in the modeling of future aircraft operations. It is recommended that a contractor be utilized to install the noise monitoring equipment, to provide monthly or quarterly reports of the results and post the information on a Web Site for easy access for all interested parties. This Alternative was not modeled due to the nature of the recommendation**.**

Alternative 4-Noise Complaint/Citizen Liaison Program and Other Administrative Actions

This Alternative involves the continuation of the Operations Department Noise Complaint system in place at the airport. The objective of this system is to record all noise concerns received from citizens. This will assure that personnel can explain the nature of the concern and, in most instances, what caused the concern. In addition, the Department would take a record of all concerns received, which identifies the location, and circumstances of each. This will assist in the annual review of the FAR Part 150 Study to determine the effectiveness of the noise abatement recommendations. In addition, this Action should continue independently of what ever other operational modifications are recommended as part of this planning effort, and is not contingent upon the implementation of any other action. This is especially important in relationship to the noise monitoring program, and the implementation and adherence to recommended flight track changes.

An additional administrative action is recommended for consideration. The Study Advisory Committee should remain in place subsequent to the completion of this study and meet on a bi-monthly basis to discuss noise abatement issues at the airport. This Committee may be combined with the existing Noise Committee at the airport. This is especially true concerning the county and community planning representatives and their role in keeping the airport, citizens, communities, counties and others informed on land use issues that concern the airport environs as well as Air Traffic Control tower personnel in discussing aircraft procedures. This on-going committee structure has been successful

elsewhere in the form of a "Planners Forum" that involves both citizens and staff representatives. Considerable time and effort has been expended, by both the airport and the Committee, in the development of this study, especially in the "learning curve" effort, that is too valuable a tool for communication to risk loosing at the end of this process. It is envisioned that a Operations Department person chair the committee and present the results of the noise monitoring program, noise complaint data and other pertinent noise related information. Naturally, this Alternative will not be computer modeled.

Alternative 5-Land Use Controls/Planning

Some residents living within the environs of the airport have expressed significant concern with aircraft over-flights and the noise intrusion associated with them. This is true even though they are outside the 65 DNL noise contour, as they are experiencing noise intrusion associated with single event operations. The communities and counties should be cognizant of this fact and take aircraft noise levels, and over flight patterns, into consideration in the land use planning and development actions taken by these entities. It is evident from historical data that these residents are annoyed beyond the 65 DNL noise contour, and future noise sensitive uses should be avoided within the approach and departure paths of the runways or in close proximity to the airport. It is much easier to avoid problems in the future than to solve them once they have occurred. Specific land use recommendations will be made subsequent to the identification of the Future Noise Exposure Map, which will consider any flight track or operational changes.

Alternative 6-Noise Abatement Procedure (Flight Track Changes, North)

The Federal Aviation Administration has direct control over each aircraft as it leaves the ground and proceeds to its destination. The direction and orientation that an aircraft takes as it departs or arrives at an airport, as projected on the ground, is referred to as the aircraft flight track. This Alternative evaluates the implementation of a new flight track for north flow departures that would entail a more easterly direction than is presently flown. This procedure was modeled so that the departures would generally follow a 010-degree heading with a turn on course at 2 DME (Distance Measuring Equipment) with a ceiling of 8,000 AMSL (the DME is co-located with the existing localizer north of Runway 17/34. DME is measured in nautical miles and allows the pilot to know how far or close his aircraft is from this navigational reference point. Currently, the DME reference point is co-located with localizer off the north end of Runway 17/35). This would result in aircraft departing over undeveloped property and the gun range northeast of the airport until they are 2 DME and then turning on course to reach their destination. It is recognized that this would also result in aircraft over flying the

Cherry Creek Reservoir. The change of a flight track would require environmental documentation by the Federal Aviation Administration, including a Section 4 (f) analysis. The entire environmental and airspace process could take up to two or three years to accomplish. However, this Alternative could provide relief to residents beyond the 65 DNL noise contour who are experiencing significant single event over flight levels. As such, this Alternative is presented on the following figure, Figure F3, entitled *ALTERNATIVE SIX, NORTHERN DEPARTURE FLIGHT TRACK CHANGE.*

Alternative 7-Noise Abatement Procedure (Flight Track Change, South)

This Alternative evaluates the implementation of a new flight track for south flow departures that would entail a aircraft departing to the south fly on a near runway heading (plus or minus up to 20 degrees) until reaching four (4) DME (Distance Measuring Equipment) or one mile south of Lincoln Boulevard (as previously mentioned, the DME is co-located with the existing localizer north of Runway 17/35. DME is measured in nautical miles and allows the pilot to know how far or close his aircraft is from this navigational reference point). Aircraft currently departing to the south essentially fly runway heading until reaching a safe turning altitude and then are directed by Air Traffic Control to turn on a given heading. This turn can occur at various locations depending upon aircraft capability, traffic patterns and destination. This Alternative was modeled using the same forecasts and mix as the future Base Case condition and is presented on the following figure, Figure F4, entitled *ALTERNATIVE SEVEN, SOUTHERN DEPARTURE FLIGHT TRACK CHANGE.*

Alternative 8-Preferential Runway System

This Alternative evaluates the effect of revising the existing nighttime (10PM to 6AM) preferential runway system at the airport. Essentially this program is voluntary in nature and recommends that all arrivals and departures during the nighttime hours (10PM to 6AM) occur over the southern end of the airport. Thus, those residents living south of the airport, and west to some extent, experience both arrivals and departures during the nighttime hours. At one time, this was a very desirable procedure due to the sparsely developed nature of the area south of the airport. However, Douglas County and the incorporated areas to the south are experiencing significant growth demands and the nighttime preferential runway system may not be as beneficial as it once was. This Alternative evaluates the effects of eliminating the preferential runway system at night and is presented on the following figure, Figure F5, entitled *ALTERNATIVE EIGHT, NIGHTTIME PREFERENTIAL RUNWAY SYSTEM MODIFICATION.* The contours were generated

based on the normal operating conditions at the airport and shows a slight increase in the size of the contour to the north.

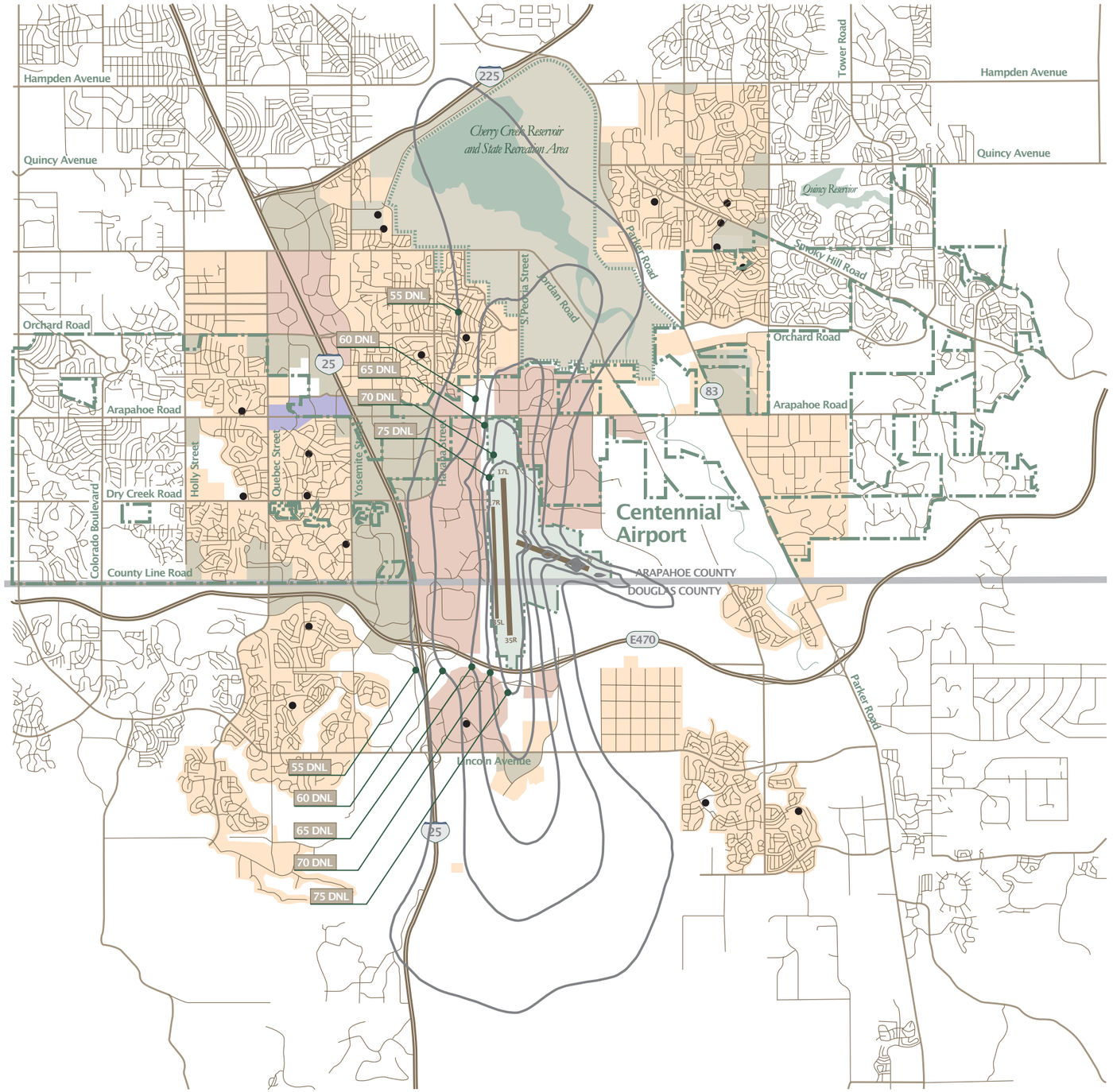

Figure F3 ***Alternative Six, North Departure Flight Track Change with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: *Base Map, Land Use Information 2001. Aerial Information 1998. Noise Contours, BCS International Noise Analysis - 2000.*

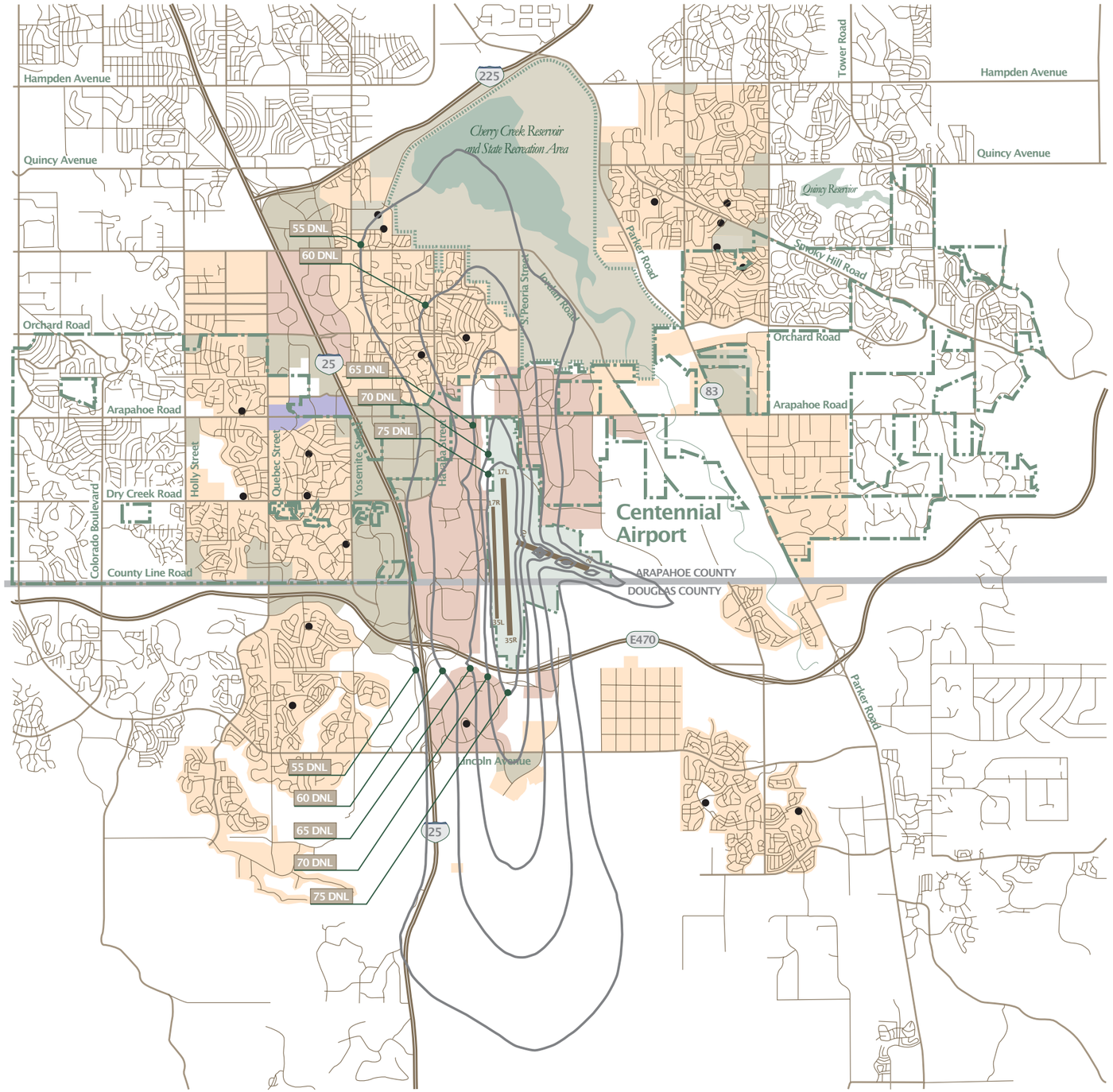

Figure F4 ***Alternative Seven, Southern Departure Flight Track Change with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: *Base Map, Land Use Information 2000. Airport Information 1998. Noise Contours, BCS International Noise Analysis - 2000.*

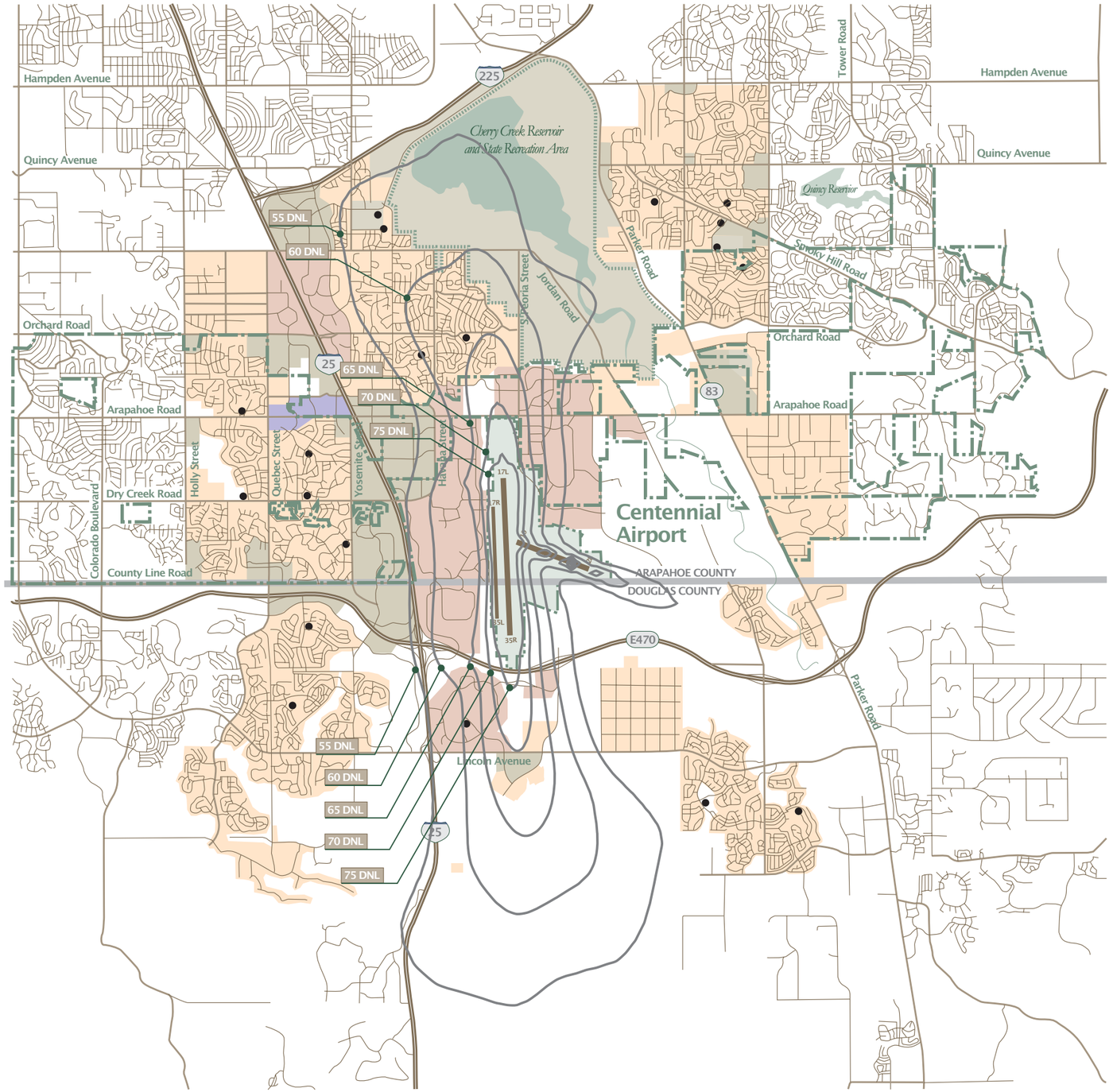

Figure F5 ***Alternative Eight, Nighttime Preferential Runway Modification System with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: Base Map, Land Use, Aerial Information 2000. Noise Contours, BCS International Noise Analysis - 2000.

Alternative 9-Fly Runway Heading Until Reaching 8,000 feet or Higher

This Alternative was suggested by the FAA and is based on all departing jet aircraft flying essentially runway heading (generally 170 degrees [south] or 350 degrees [north]) until reaching 8,000 feet above mean sea level (AMSL) or higher and then proceeding to their destination. A typical departure clearance presently is to climb and maintain 8,000, expect FL 230 in ten minutes. A typical north take-off clearance is cleared for take-off Runway 35R turn left to 330, climb and maintain 8,000, contact Denver departure. The implementation of this Alternative would narrow the resulting noise contours and elongate them somewhat. This also concentrates the aircraft departures in a more defined flight track, resulting in somewhat higher noise levels for residents living directly under the flight paths. The full implementation of this Alternative is somewhat limited under certain conditions when departing south due to rising terrain and minimum vectoring altitudes. This Alternative was modeled and is presented in Figure F6, entitled *ALTERNATIVE NINE, FLY RUNWAY HEADING UNTIL 8,000 AMSL.*

Alternative 10-South and Southeast Jet Arrivals on Long Final and Downwind

This Alternative would model the effects of placing eighty percent of south and southeast jet arrivals on a twenty mile final when landing north and on an extended twenty-one mile downwind when landing south. This would result in similar aircraft over flights as the previous Alternative, except they would be arrivals instead of departures. The arrivals would be lined up on an extended approach, which would concentrate the approaches into a single arrival stream. The extended downwind would result in aircraft lining up for the downwind leg of the landing approximately twenty-one miles south of the airport. These aircraft would slowly descend to reach pattern altitude at approximately the midpoint of the airport. They would then fly the downwind leg at pattern altitude until reaching the approximate same location to turn base leg and intercept the approach path as they do currently. This Alternative would result in concentrating the south and southeast jet arrivals on a extended southern downwind pattern instead of using a “fan” approach to the downwind as is presently done. This Alternative was modeled and is illustrated on Figure F7, entitled *ALTERNATIVE TEN, SOUTH/SOUTHEAST ARRIVALS*.

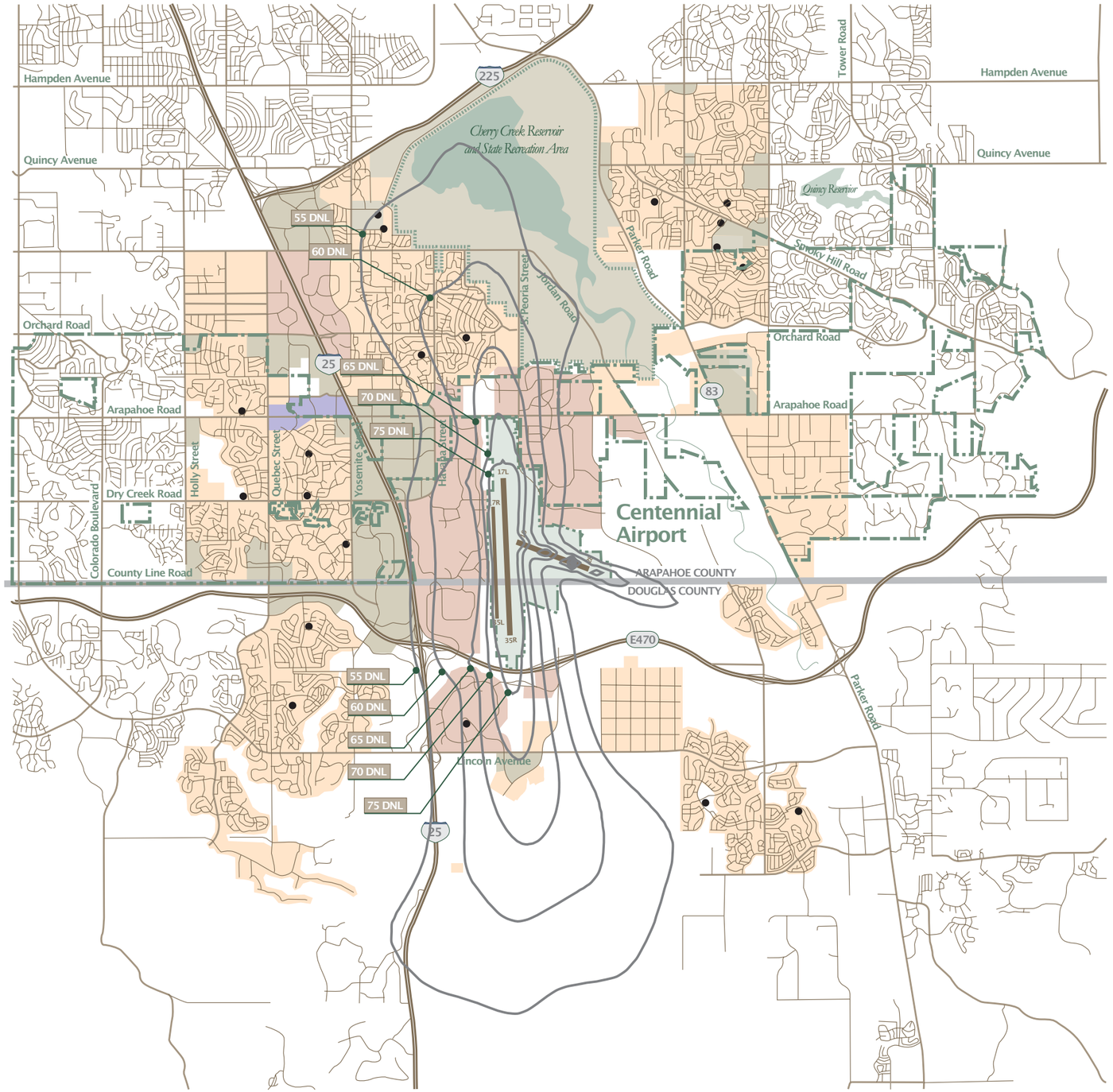

Figure F6 ***Alternative Nine, Fly Runway Heading until 8,000' AMSL with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: *Base Map, Land Use, Aerial Information 2000. Noise Contours, BCS International Noise Analysis - 2000.*

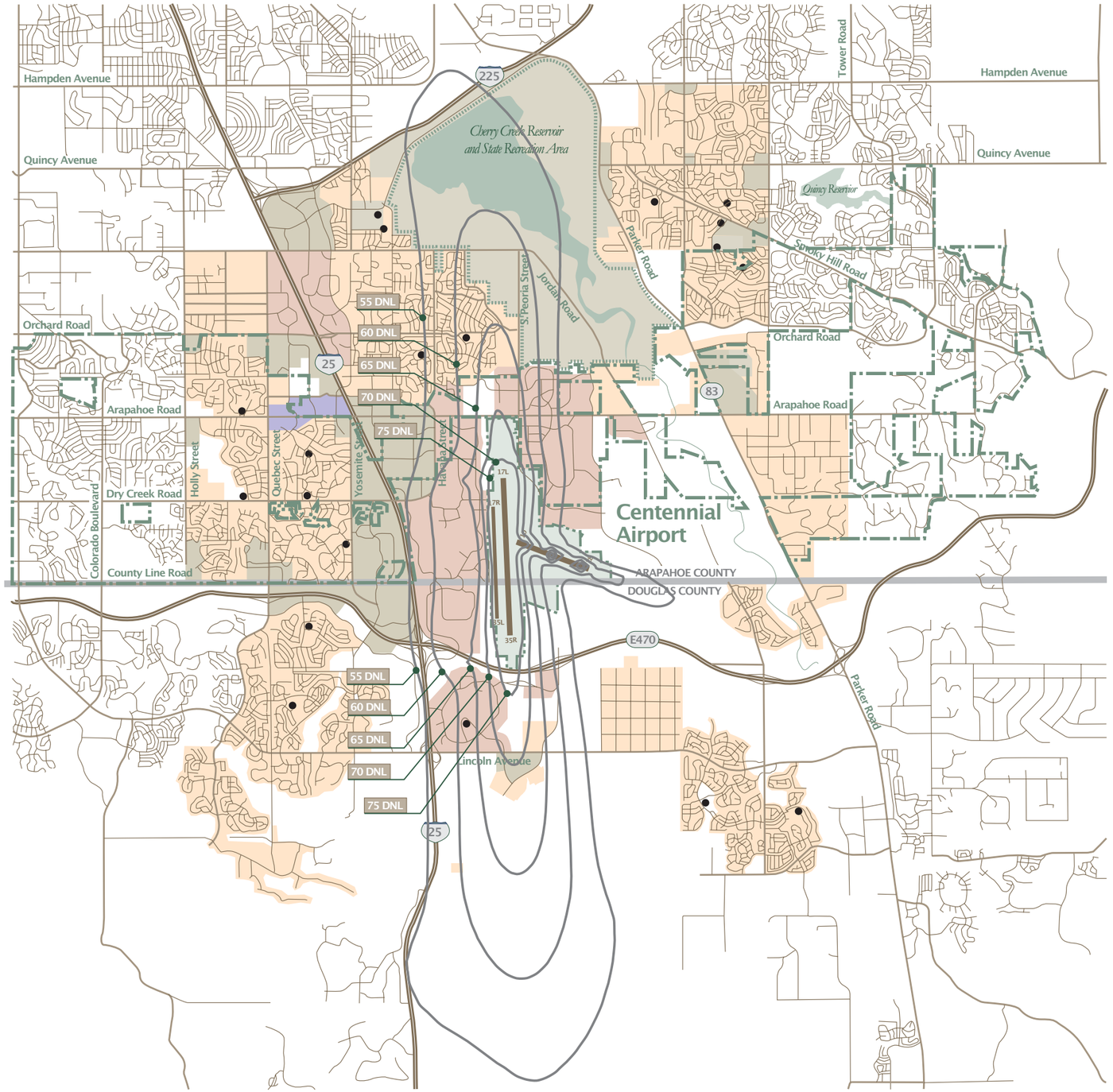

Figure F7 ***Alternative Ten, South/Southeast Arrivals with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: *Base Map, Land Use Information 2000. Airport Information 1998. Noise Contours, BCS International Noise Analysis - 2000.*

Revised Base Case Contour

Based on comments received at the last Committee meeting and subsequent to the meeting, the Future Base Case contour has been revised. The revised Future Base Case contour is presented in Figure F8.

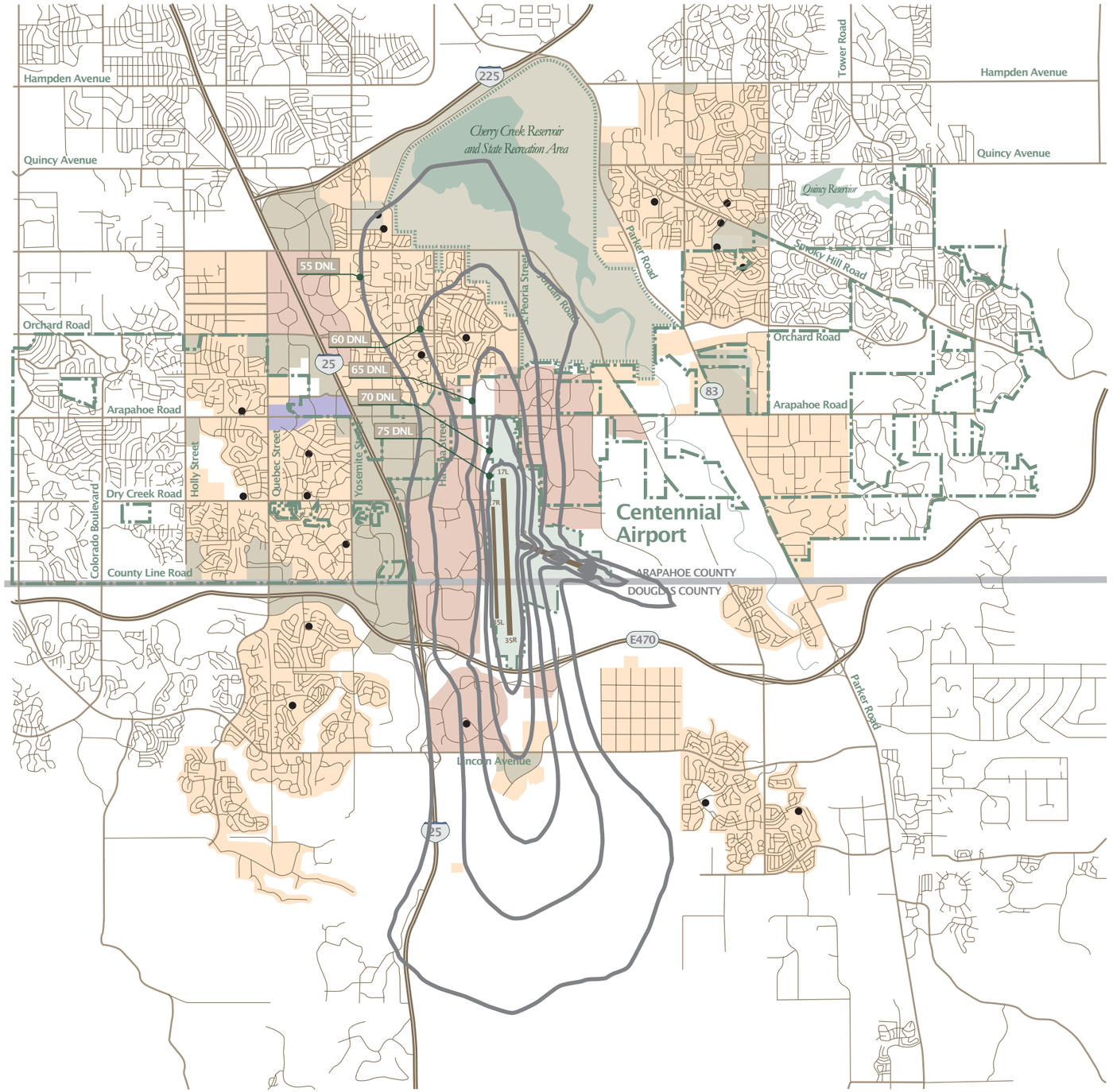

Figure F8 ***Revised Base Case (2005) Noise Contour with Generalized Existing Land Use***

- *Airport Boundary*
- *Airport*
- *Residential*
- *Mixed Non-Residential*
- *Commercial Retail*
- *Business/Office Park*
- *Public Use*
- *Schools*
- *With Stage 2 Ban*
- *Without Stage 2 Ban*

Approximate Scale 1"=8,000'

Centennial Airport

FAR Part 150 Noise Exposure & Land Use Compatibility Study Program

Source: *Base Map, Aerial Information, June - 2001.*

Contour Evaluation

Each modeled alternative was evaluated and compared not only to each other, but also to the Base Case Future noise contours. The evaluation compared the number of residents and acres of residential land uses within the 55 and greater noise contours, other noise sensitive uses within those contours and the resultant DNL levels at each of the noise monitoring sites. Table F1 shows the DNL comparison and Table F2 shows the Land Use comparison. Table F3 shows the Delta (change) in DNL for each Alternative at each measurement site. Table F4 shows the information in Time Above and Table F5 shows the Lmax comparison.

Table F1
DNL COMPARISON FOR EACH MODELED ALTERNATIVE BY MEASUREMENT SITE
Centennial Airport FAR Part 150 Study

Site	Community	BASE	A1	A2	A6	A7	A8	A9	A10
1	Lone Tree	41.3	40.0	40.5	41.3	41.3	41.2	41.3	41.2
2	Cherry Creek Park	55.7	51.5	53.5	62.8	55.7	56.9	55.7	53.3
3	Village on the Lake	56.8	53.3	55.0	52.0	56.8	57.7	56.8	54.7
4	Meridian Golf Club	73.7	68.1	70.1	73.7	74.3	73.1	73.7	74.3
5	Foxfield	45.4	42.7	43.9	45.4	45.4	46.3	45.4	43.2
6	Grand View Estates	49.9	47.4	48.2	49.9	49.1	49.6	49.9	49.1
7	Aurora	46.9	43.7	45.1	48.2	46.9	47.9	46.9	47.1
8	Heritage Estates	57.4	54.8	55.7	57.4	58.2	57.1	57.4	58.2
9	Cherry Creek Vista	64.5	60.8	62.4	62.3	64.5	65.4	64.5	65.6
10	Sundance Hills	59.5	55.2	57.3	52.0	59.5	60.5	59.5	54.7

A1 Ban Stage 2 Aircraft **A2** Ban Stage 2 Aircraft at Night **A6** Northern Departure Track Change
A7 Southern Departure Track Change **A8** Preferential Runway System **A9** Fly Runway Heading Until Reaching 8,000
A10 Southern Approach Changes

Table F2
CONTOUR COMPARISON FOR EACH MODELED ALTERNATIVE
Centennial Airport FAR Part 150 Study

Land Use	Existing	Base Case	A1	A2	A6	A7	A8	A9	A10
DNL 55									
Residences	3,193	6,044	2,742	3,596	1,821	4,371	4,924	2,782	4,382
People	9,883	17,568	8,440	10,996	5,531	13,187	14,517	8,603	13,218
Schools	3	5	3	3	2	5	5	2	5
Total Acres	13,192	14,077	8,240	10,284	14,931	13,708	14,273	14,077	13,994
DNL 60									
Residences	1,164	2,581	432	1,100	625	2,055	2,520	1,490	2,056
People	3,843	8,032	1,266	3,337	1,900	6,356	7,829	4,573	6,350
Schools	2	2	0	1	1	2	3	2	2
Total Acres	5,899	6,554	3,470	4,653	6,606	6,628	6,663	6,554	6,874
DNL 65									
Residential	115	225	71	90	180	227	286	225	290
Residences	18	544	90	116	135	259	530	389	260
People	62	1,591	111	143	167	601	1,194	1,084	602
Schools	0	0	0	0	0	0	0	0	0
Bus/Off. Park	343	582	171	334	693	604	617	582	611
Open Space	875	916	297	421	857	995	832	916	984
Airport	1,037	908	775	861	910	910	910	908	907
Mixed Non-Res.	88	75	4	57	75	75	75	75	75
Total Acres	2,458	2,706	1,318	1,763	2,714	2,808	2,719	2,706	2,867
DNL 70									
Residential	0	71	0	4	71	70	67	71	70
Residences	0	117	0	22	95	105	85	105	94
People	0	143	0	26	115	127	103	127	113
Schools	0	0	0	0	0	0	0	0	0
Bus/Off. Park	53	104	4	27	104	123	103	104	124
Open Space	248	265	38	114	263	244	237	265	244
Airport	764	722	556	620	723	718	753	722	727
Mixed Non-Res.	0	9	0	0	9	19	0	9	0
Total Acres	1,065	1,170	598	765	1,170	1,174	1,160	1,170	1,185

Table F2 Continued
CONTOUR COMPARISON FOR EACH MODELED ALTERNATIVE
Centennial Airport FAR Part 150 Study

Land Use	Existing	Base Case	A1	A2	A6	A7	A8	A9	A10
DNL 75									
Residential	0	5	0	0	1	1	1	1	1
Residences	0	29	0	0	6	7	2	7	6
People	0	34	0	0	8	8	2	8	7
Schools	0	0	0	0	0	0	0	0	0
Bus/Off. Park	0	10	0	0	11	9	7	9	10
Open Space	32	43	0	1	48	51	36	52	48
Airport	490	502	348	409	508	502	506	506	501
Mixed Non-Res.	0	0	0	0	0	0	0	0	0
Total Acres	522	560	348	410	568	563	550	568	560

A1 Ban Stage 2 Aircraft **A2** Ban Stage 2 Aircraft at Night **A6** Northern Departure Track Change
A7 Southern Departure Track Change **A8** Preferential Runway System **A9** Fly Runway Heading Until Reaching 8,000
A10 Southern Approach Changes

Based on 2000 Census Data and existing land use.